PARA-TRANSIT STATE of the ART REVIEW

SYSTAN

Prepared for
Urban Mass Transportation Administration
and Transportation Systems Center
Contract No. DOT-TSC-1392
December 1978

PARATRANSIT INTEGRATION STATE-OF-THE-ART REPORT

Prepared by

SYSTAN, Inc.
Los Altos, California

for

U.S. Department of Transportation
Transportation Systems Center
Cambridge, Massachusetts
Contract No. DOT-TSC-1392

D158-1.1

December 1978

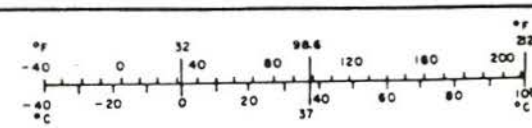
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

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

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
		AREA		
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
		MASS (weight)		
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
		VOLUME		
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
		TEMPERATURE (exact)		
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.

4. Title and Subtitle	
Paratransit Integration State-of-the-Art Report	5. Report Date: December 1978
	6. Performing Organization Code
	8. Performing Organization Report No.: D158-1
7. Author(s) R.E. Lave, J.W. Billheimer, C. Fratessa, M. Holoszyc, P. Jones, D. Newman, G. Fondahl	
9. Performing Organization Name and Address: SYSTAN, Inc. P.O. Box U, 343 Second Street Los Altos, CA 94022	10. Work Unit No. (TRAIS)
	11. Contract or Grant No.: DOT-TSC-1392, Task 1
	13. Type of Report and Period Covered: Final Report Sept. 1977 - Dec. 1978
12. Sponsoring Agency Name and Address: U.S. DOT, Transportation Systems Center Kendall Square, 55 Broadway Cambridge, MA 02138	14. Sponsoring Agency Code

15. Supplementary Notes

Material in the State-of-the-Art is also included in the Paratransit Integration Guidelines by SYSTAN.

16. Abstract

The Paratransit State-of-the-Art describes the examination of the operating environment and operating characteristics of over 100 dial-a-bus and shared-ride taxi paratransit systems. It focuses on those systems which have coordinated dispatching systems, enabling a fleet of vehicles to operate in a coordinated fashion. The operating characteristics data can be used by planners in determining how paratransit systems might serve their community. The information can also aid researchers in constructing demand and supply models of paratransit services.

For local policy makers, the report contains information on the potential roles of paratransit as well as some guidelines for selecting between conventional transit and paratransit. For regional and national policy makers, several significant institutional issues in paratransit are explored.

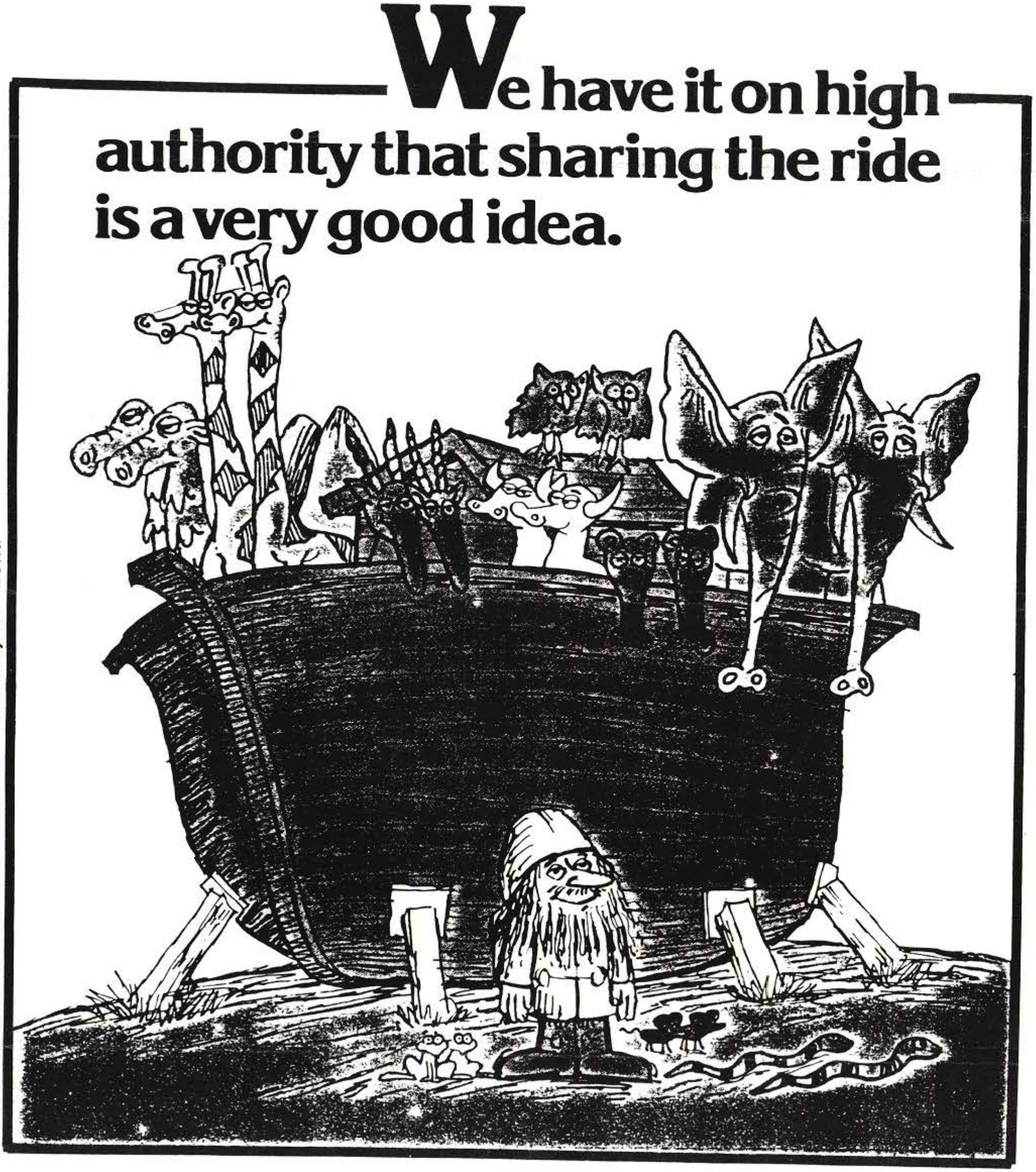
A brief history of paratransit as well as a discussion of the future of paratransit is also included.

17. Key Words	18. Distribution Statement
Paratransit, Dial-a-Bus, Shared-Ride Taxi, State-of-the-Art, Operating Characteristics, Institutional Issues, History & Future	This document is available to the public through the National Technical Information Service, Springfield, Virginia 22151

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified		

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

* U. S. GOVERNMENT PRINTING OFFICE : 1973 725-504/328



Pima Association of Governments Tucson, Arizona

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PREFACE

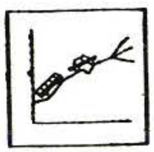
This report on the state-of-the-art of coordinated, dispatched paratransit systems is one of several reports prepared by SYSTAN, Inc. under Contract No. DOT-TSC-1392 for the Transportation Systems Center in Cambridge, Massachusetts. Dr. Roy E. Lave was project leader for the development of this document. Other SYSTAN contributors were Dr. John W. Billheimer, Ms. Carolyn Fratessa, Mr. Michael Holoszyc, Dr. Paul Jones, Ms. Debra Newman, and Ms. Gail Fondahl. Ms. Carole Parker edited the final document. Mr. Paul Bushueff of the Transportation Systems Center acted as technical monitor for the U.S. Department of Transportation.

In addition to the participants listed above, more than 200 members of the paratransit community contributed to this project by providing systems data and related information.

READER'S GUIDE

To supplement the Table of Contents and guide the reader to material, a symbol designating the subject under discussion has been placed at the upper outside corner of the pages. The symbols and their meanings are as follows:


Introduction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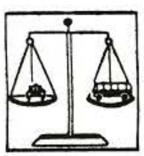
What Paratransit Is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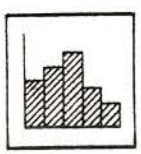
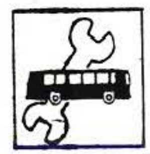

What Existing Paratransit Systems Are Like


Off-The-Road Issues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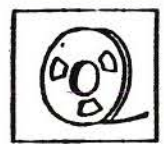
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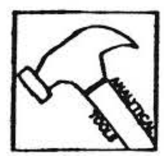
Analytical Tools


Future Growth

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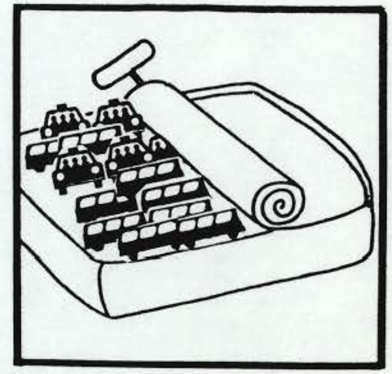
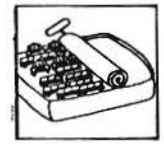


1

INTRODUCTION



1.0 INTRODUCTION

This report describes the state-of-the-art of paratransit systems which operate as a coordinated system of of vehicles and hence can be integrated with fixed-route transit systems. This state-of-the-art document updates and extends the previous report entitled Demand-Responsive Transportation: State-of-the-Art Overview published in August 1974 by the Transportation Systems Center of the U.S. Department of Transportation, which discussed the concepts of demand-responsive systems and compiled selected operating data for systems of various types and serving various markets.

In the three years that have elapsed since the publication of the previous state-of-the-art report, the number of paratransit systems has grown considerably, the technology used in their application has evolved significantly, and the legal and regulatory issues accompanying their implementation have come into sharper focus. Their growth and evolution has generated a vast amount of experience and insight into the causes of success and failure in planning, designing, implementing, operating, and evaluating paratransit systems. To document this experience, the Transportation Systems Center contracted SYSTAN to prepare an updated state-of-the-art report on paratransit integration. This report is part of the broader UMTA Paratransit Integration Program, a program designed to explore effective means of combining paratransit and conventional transit service to provide more effective public transportation throughout urban and suburban areas.

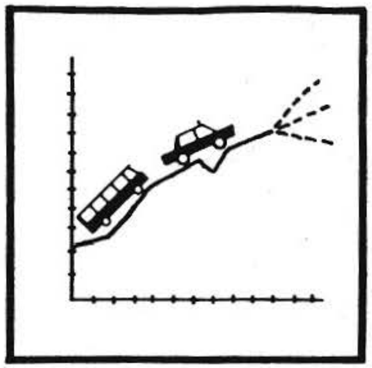
A related document, produced under the same contract, is entitled Paratransit Integration Guidelines. In addition to containing virtually all of the state-of-the-art material in this report, the Guidelines contain extensive material addressed specifically to the task of detailed planning, design, implementation, operation, and evaluation of paratransit systems.

The state-of-the-art report is intended for those readers who wish to:

- o Gain an understanding of the paratransit concept;
- o Assess the potential applicability of paratransit in a specific region;
- o Develop insights concerning policy impacts at the federal, state and local levels; and
- o Perform quantitative research on the relationships among operating performance and user and site characteristics.

The audience includes transit policymakers, planners, operators and other professionals. Concerned citizens will also find information to help them participate in the transit planning process.

The paratransit systems included in this survey are those that are demand-responsive and available to the general public, are controlled by coordinated vehicle dispatching systems, offer shared-ride service on flexible rather than fixed routes, and employ paid drivers.



2

TRENDS IN TRAVEL & PARATRANSIT USAGE

2.0 TRENDS IN TRAVEL AND PARATRANSIT USAGE

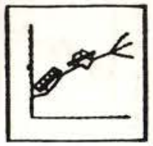
2.1. Historical Perspective

Prior to 1912, railroads and electric streetcars carried almost all urban passenger traffic. The challenge to rail transit began on that day in 1908 when the first Model T rolled off a Michigan assembly line. Henry Ford's mass production techniques not only brought the automobile within the grasp of the private buyer, but also revolutionized the face of public transportation. Buses operating on fixed routes began competing directly with streetcars and railroads. In addition, more personalized service was provided by a variety of more flexible modes, including taxis, jitneys, charter services, rental automobiles, subscription buses, dial-a-ride services, and carpools. These and other personalized transportation services have recently come to be called paratransit services, defined as:

> "...those forms of intraurban passenger transportation which are available to the public, and distinct from conventional transit (scheduled bus and rail) and can operate over the highway and transit system." (Reference 1)

Both automobile and bus travel grew steadily from their inception, until the mid-1940's when transit patronage declined sharply. At the same time, the years following World War II saw a marked increase in personal automobile use. Today, the automobile stands unchallenged as the chief means of transportation in U.S. cities and is the standard by which transit services are judged. Several factors have brought the automobile to this preeminent position, including its convenience, the existence of an extensive road network, the availability of relatively inexpensive fuel, and an ownership cost which has been within the budget of most U.S. households.

(Source: California Historical Society)



As the automobile has come to dominate conventional transit modes, paratransit modes have undergone a variety of metamorphoses. The taxi, the oldest and most common form of paratransit, has enjoyed steady popularity. In the U.S. today, taxis earn more revenue than all other forms of public transit combined, and carry more passengers than rail transit and one-half as many as bus transit (References 11 and 92).

For a brief period in transit history, a form of shared-ride, fixed-route taxi--the jitney--was a popular and successful form of paratransit. In 1914, driver-owned Model T's plied the streetcar routes in Los Angeles, picking up passengers for a nickel fare. Within a short time, the concept spread across the country. It has been estimated that, by 1915, sixty-two thousand jitneys were in operation throughout the U.S. (Reference 99).

Jitneys vied successfully with the streetcar, no doubt due to the faster, more comfortable service they provided. Their success, however, was their undoing. Competitors lobbied and won legislation that so repressed jitney operations that, by the end of 1918, only an estimated six thousand jitneys were running. By 1920, they had virtually disappeared from the transit scene. Legal jitneys operate today in only a few U.S. cities: San Francisco, Pittsburgh, Miami, Atlantic City and Anaheim (Reference 1). However, illegal jitney operations exist in several U.S. cities.

The jitney service is still a viable system in a number of countries, many of them in less developed areas including Caracas, Mexico City, Buenos Aires, Puerto Rico, Istanbul, and Manila (Reference 1).

2.2 Changing Travel Patterns

Significant changes in urban travel patterns have accompanied the rise of the automobile to its position of preeminence in urban transportation. Americans traveling from here to there within the urban region have greatly increased the number of "heres" and "theres" desirable as origins and destinations, thereby causing travel patterns to become increasingly diffuse and decreasing the relative importance of the central business district (CBD).

Although the growth of automobile usage has accompanied the growth of the suburbs, neither the automobile nor conventional fixed-route transit is well suited to serving the diffuse travel patterns emerging from the growing tendency of U.S. cities toward suburbanization. Whereas automobiles offer convenience and accessibility in the low-density suburbs, their land-hungry nature makes them ill-suited for service in high-density central business districts. Conventional fixed-route transit systems capable of providing such districts with congestion-free service, however, cannot economically serve the low-density suburbs. An effective regionwide public transportation system appears to require a mixture of complementary systems capable of acting cooperatively to respond to the diverse travel patterns found in the urban area. Such a mixture might include flexibly-routed, demand-responsive feeder systems in the low-density suburbs, with fixed-route express bus or rail service linking activity centers and high-density circulation systems providing access within major activity centers.

Recognition of the need for an integrated mixture of flexibly-routed and conventional transit modes capable of responding to changing travel patterns has spurred a revival of interest in paratransit services. Over the last decade, the number of paratransit systems in operation has increased annually. In 1974, the results of experimentation, research, and operating experience were compiled and published in a major work entitled <u>Paratransit: Neglected Options for Urban Mobility</u> (Reference 1). The family of demand-responsive services was given the name of "paratransit," and was arranged in three classes: hire-and-drive services, hail or phone services, and prearranged ride-sharing services. The recent history of paratransit and its growth in the 1970's is shown in the exhibit on the next page.

HISTORY OF SIGNIFICANT PARATRANSIT DEVELOPMENTS

1962 - Dr. Josef Kates and Neal Irwin of Traffic Research Corp. proposed a system of small, user-activated vehicles as a feeder to the Washington, D.C. subway.

- Peter Zaphyr of Westinghouse Electric submitted a patent disclosure on a computerized-demand bus system.

- John Crain of Operations Research, Inc., involved in the Washington study with Kates et al., outlined his taxibus concept (Ref. 17)

1964 - John Crain, Paul Jones and John Billheimer tested taxibus without passengers but with one vehicle and one dispatcher at the Stanford Research Inst., Menlo Park, CA.

- The Metran project in the Systems Engineering Dept. of MIT proposed DAB, called "GENIE," as one of several transit ideas. (Ref. 18)

- Michael Blurton of the Univ. of Illinois experimented with the "Premium Special" subscription bus in Peoria and Decatur, Ill., sponsored by HUD. This project demonstrated the enthusiastic response to a high-quality bus service.

1965 - Prof. Daniel Roos and N.H.M. Wilson of MIT launched "Project CARS," which provided the most thorough work on computer-aided routing of DAB systems. (Ref. 185, 186)

1967 - Westinghouse Air Brake Co. conducted a study for HUD recommending Demand-Actuated Road Transit (DART). (Ref. 179)

- Graduate students in the Civil Engineering Dept. of Northwestern Univ. worked on a small-scale simulation of a many-to-many system. (Ref. 81)

- E. Archer and Prof. John Shortreed of the Univ. of Waterloo worked on a DAB demand model for Kitchener-Waterloo, Ontario. (Ref. 158)

1968 - The General Motors Transportation Research Dept. conducted the "New Systems Implementation Study" for HUD, and conducted that DAB was one of the most promising solutions to future transportation needs. (Ref. 16)

1969 - General Motors conducted the Demand-Responsive Jitney (D-J) Systems Study to investigate all variables or users' attitudes which might affect the system and to evolve a comprehensive system design.

- The first route diversion DAB system began in Mansfield, Ohio directed by Karl W. Guenther of Ford Motor Co.

- A subscription service sponsored by HUD was operated in Flint, Mich. without success, due to employment characteristics and excessive routes.

1970 - GO-Transit inaugurated the first many-to-one service to the Pickering Station for Bay Ridges, Ontario. Off-peak, many-to-many service was provided locally.

- DRUBS was initiated at Kent State Univ. by Michael Blurton. This was a demand-routed bus service to and from the Univ. using specially-designed electronic aids.

- The Buxi system, installed in Emmen, Holland, offered many-to-few service.

1971 - Columbia, Maryland initiated a many-to-many DAB service.

- W.A. Atkinson operated the Telebus service in Regina, Saskatchewan, sponsored by the Federal, Provincial and Municipal Governments.

- Many-to-few DAR service began in Ann Arbor, Mich., operated by the Ann Arbor Transit Auth. with technical input from the Ford Motor Company.

- The Ecole Polytechnique de Montreal and the Transportation Development Agency of Canada commenced work on a DAB Implementation Manual.

- The DAB service in Columbus, Ohio began as a modified many-to-many system; it was planned by the Ford Motor Company.

- Batavia Bus Service operated a many-to-many and many-to-few DAB by manual dispatching. Batavia was the first community to replace fixed-route transit with DRT.

1972 - The Haddonfield DAR experiment, jointly sponsored by UMTA and the NJ DOT, began, providing many-to-one service to the Lindonwold RT line as well as many-to-many service within Haddonfield. The MITRE Corp. evaluated the demonstration, the first system in which computer routing was tested.

- John Lawson of Fort Walton Beach, Florida, operated the first private Call-A-Ride service providing many-to-few service to shopping centers, schools, golf courses, and certain intersections.

- Kingston, Ontario implemented a local evening DAB service.

- Stratford, Ontario implemented a citywide evening DAB service, with planning conducted by Reed, Voorhees and Associates.

- A many-to-few service began in Maidstone, Britain by the Denis Hire Car Co. Service was to the railway station and the town center.

- At least 11 other DRT systems were initiated in the U.S. (Ref. 260)

1973 - DAB service integrated with fixed-route service began in Rochester. The computer-controlled system began in 1976.

- At least 24 other DRT services were initiated in the U.S. (Ref. 260)

1974 - Michigan implemented a program of local funding to initiate DRT service.

- Santa Clara County began to operate a computer-controlled, integrated demand-responsive/fixed-route transit system; it was terminated in 1975.

- At least 40 other DRT systems were initiated in the U.S. (Ref. 260)

1975 - At least 50 DRT systems were initiated in the U.S. (Ref. 260)

1976 - At least 38 DRT systems were initiated in the U.S. (Ref. 260)

1977 - At least 21 DRT systems were initiated in the U.S. (Ref. 260)

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*Essentially all of the material from 1967 to 1972 is reproduced from the Canadian Dial-A-Bus Manual, Volume II (Reference 4).

3

WHAT PARATRANSIT IS

3.0 WHAT PARATRANSIT IS

3.1 Range of Paratransit Services

The term "paratransit" covers a wide variety of systems, ranging from rent-a-car operations to carpooling and from exclusive-ride taxis to shared-ride subscription services. The glossary (Appendix 2) provides commonly-accepted definitions of the existing paratransit services, which also include jitneys, charter limousines, dial-a-ride systems and shared-ride taxis. The distinction between these separate services is not always clear-cut, as a specific system may incorporate the characteristics of more than one of the paratransit family members. For example, a single hybrid system may adopt some aspects of a dial-a-ride, jitney and subscription service.

3.2 A Paratransit Classification System

In addition to combining the aspects of different forms of service, paratransit systems may differ with respect to: the degree of coordination provided by the dispatching system, trip-sharing requirements, markets served, method of accession, route and schedule constraints, pick-up locations, institutional arrangements governing the service, etc. The accompanying exhibit classifies paratransit systems according to the major characteristics which define the options available to system designers. In choosing from among these options, designers may select any combination of characteristics to generate a family of services adapted to the perceived needs of their communities. The inherent flexibility of paratransit defies the neat categories of any single classification system, including the one shown in the exhibit. Nonetheless, some attempt to trace the major branches of the tangled paratransit tree is necessary to define the boundaries of this state-of-the-art review. The following subsections describe the major characteristics of paratransit systems in detail. The reader familiar with these characteristics is referred to the next section (3.3), which defines the scope of the current review in terms of the taxonomy displayed in the exhibit.

3.2.1 Coordinated Versus Non-Coordinated Dispatching

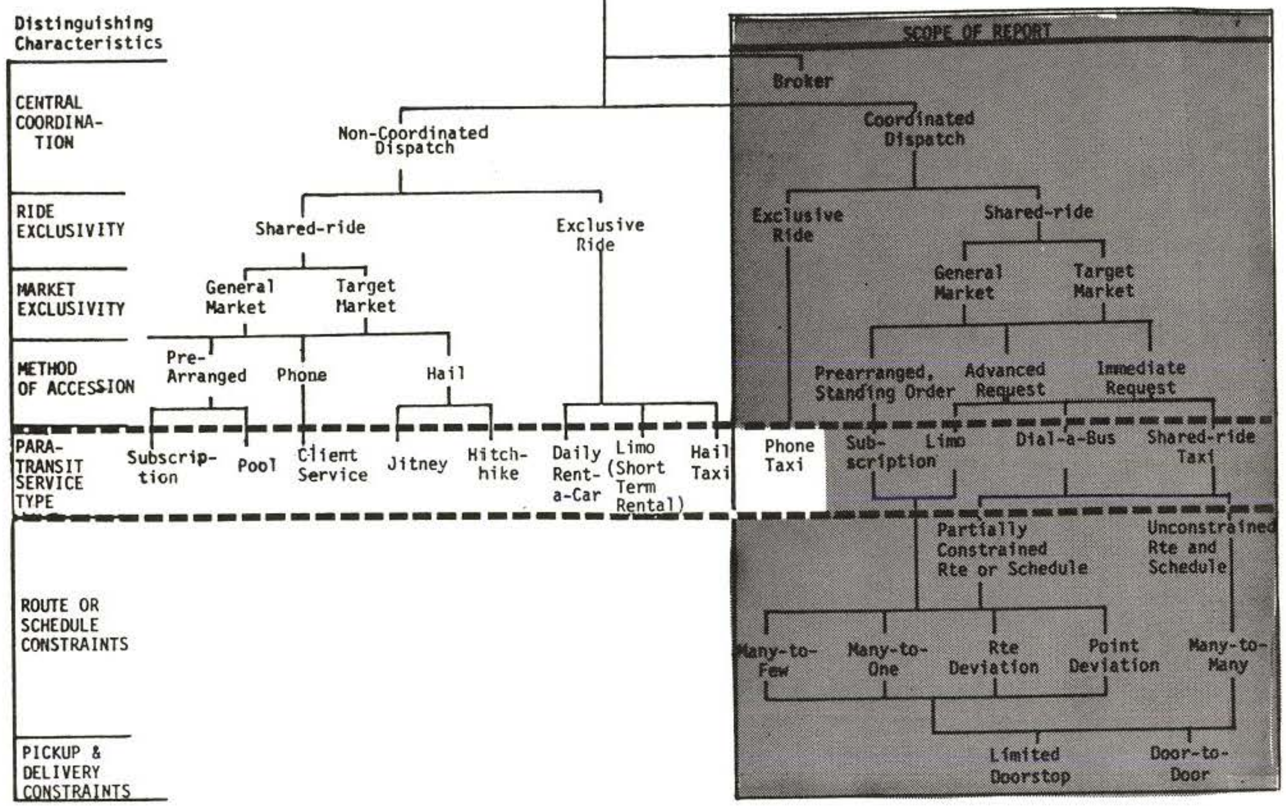
At the top of the classification tree are two main branches of paratransit systems: those having a coordinated dispatching system and those capable of operating without coordinated dispatching. The coordinated dispatching system is characterized by a centralized process that assigns passengers to vehicles using procedures intended to balance cost-efficiency and timely service. The exhibit on the following page illustrates the generic procedure in which service is requested and vehicles are dispatched. Users generally phone in to arrange for such services, although some centrally-coordinated systems occasionally will respond to random hails or pick up passengers at designated stops.

In non-coordinated services, vehicles generally operate independently, and are contacted directly by the user. There is little or no need to coordinate vehicle movements. This class includes hail- and phone-access services, hire-and-drive services, pooling arrangements (car, van and bus), and pre-arranged subscription services which schedule more than one trip over a period of days or weeks. Many of the services provided by social service agencies are usually included in this classification, as they tend to be pre-arranged or ad hoc responses requiring no vehicle coordination or they lack an on-going dispatching function.

3.2.2 Exclusive-Ride Versus Shared-Ride

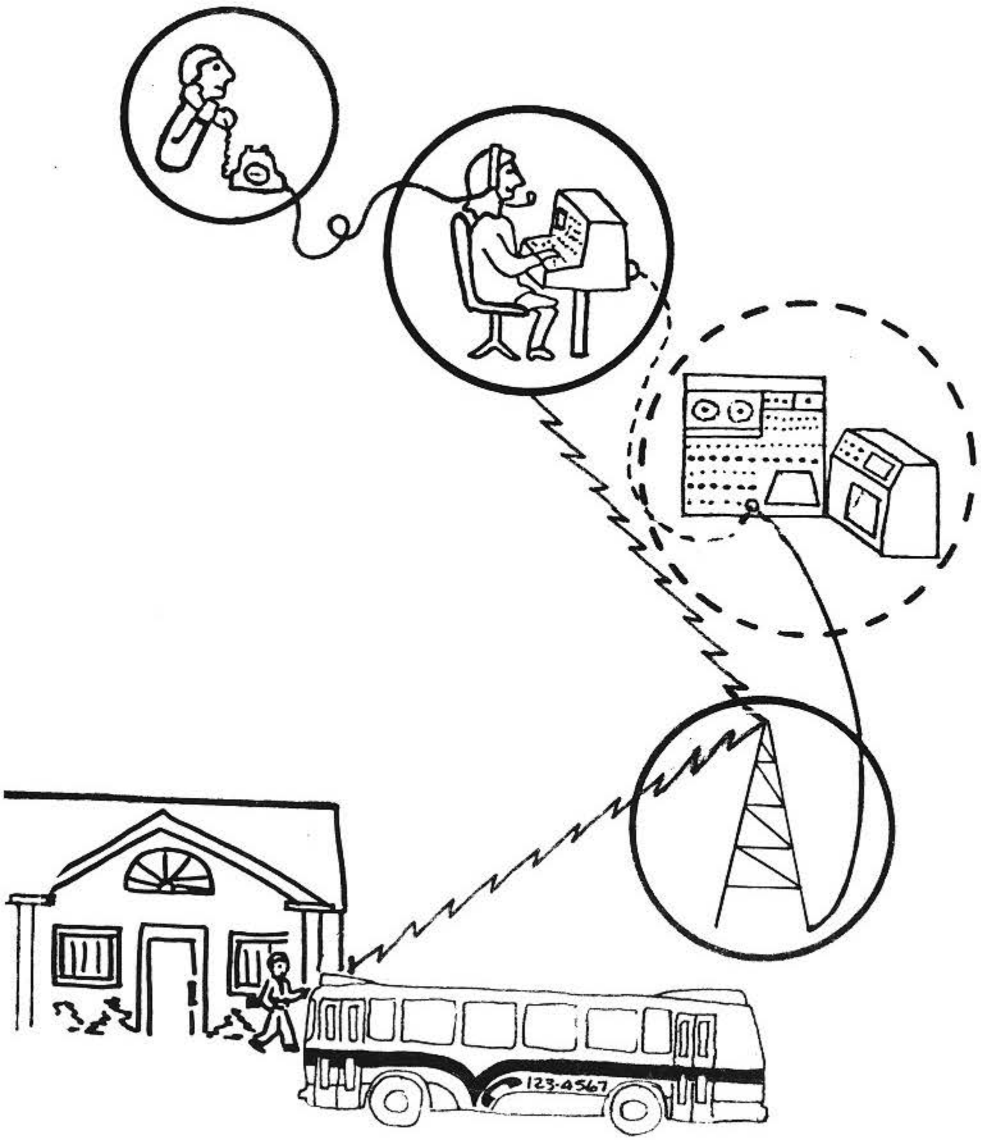
The next division in the paratransit taxonomy separates shared-ride services from systems supplying exclusive service. Exclusive taxi service usually serves only one person or a small gropu of individuals traveling together, and may be accessed either by telephoning or by hailing. Vehicle rental agencies also offer exclusive service. This report focuses on shared-ride services, and excludes all exclusive-ride services.

PARATRANSIT TAXONOMY



(Source: SYSTAN)

SERVICE REQUEST AND VEHICLE DISPATCH PROCEDURE



3.2.3 General Market Versus Target Market

Services may be further divided by the type of market they serve. General-market services are those available to any potential user within the service area. Target-market systems, in contrast, are designed for specific markets, and usage is restricted to persons meeting certain eligibility requirements. Typically, these are services for the elderly, handicapped, persons of low income, school children, or any combination of these users. In other cases, systems may be designed to serve certain types of trips, such as the journey to work or shopping trips.

3.2.4 Advance Request Versus Immediate Request

Rides for either general or target market service may be accessed by advance arrangement or by requesting immediate service. Advance request service accepts orders for pick-up at a specified time later in the day or for a subsequent day. These orders may be standing requests for daily or weekly service, renewed by the week or by the month, or they may be one-time-only requests for service. Advance-request service, commonly called subscription service, may operate without coordinated dispatching or may be physically-integrated with other coordinated dispatch services in order to share vehicles and drivers. Therefore, subscription service appears on both the non-coordinated and coordinated branches of the classification tree.

Immediate-request service provides pick-ups as soon as the request can be scheduled, in the manner of exclusive-ride taxis. Some systems accept only advance requests (requiring several hours notice), while others will accept both advance and immediate requests.

3.2.5 Dial-A-Bus Versus Shared-Ride Taxi and Limousine Service

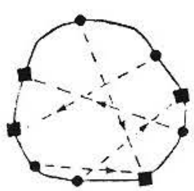
Both immediate- and advance-request services may be offered in one of three modes, which differ primarily by the type of vehicle employed. Dial-a-bus (DAB) service is provided by small buses or vans; limousine service uses large luxury automobiles; and shared-ride taxi service employs taxi vehicles, which are essentially passenger cars. The services differ also by the type of operator. Shared-ride taxi service is generally offered by private taxi operators; limousine service is usually provided by private operators who may also be taxi operators; while DAB vehicles are operated by private or public organizations. However, taxi operators could theoretically offer DAB services, and public operators could use automobiles for dial-a-ride service, so the classifications are not mutually exclusive.

3.2.6 Unconstrained Versus Partially-Constrained Routes and Schedules

Any of the coordinated-dispatch services may be offered through a variety of routes and schedule patterns, as described below.

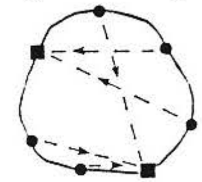
(A) Unconstrained Route and Schedule

(i) Many-to-Many: Demand-responsive transit service that serves any origin, such as a home, and any destination within a service area.

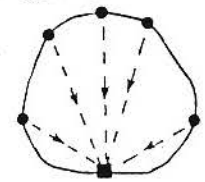


(B) Partially-Constrained Route and Schedule

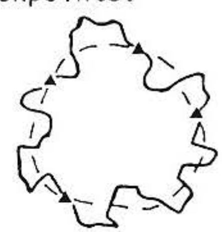
(i) Many-to-Few: Demand-responsive transit that serves any origin, such as a home, and a few pre-selected destinations, typically activity centers or transfer points.

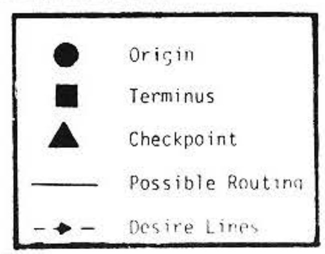


(ii) Many-to-One: Demand-responsive transit that serves many origins, such as homes, and only one destination, such as a shopping center or a commuter rail station (also called gather-and-scatter service).

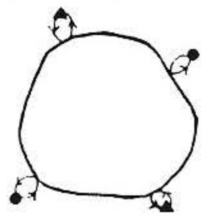


(iii) Deviation From Point: A demand-responsive transit service which makes regularly-scheduled stops at designated points but is free to provide door-to-door service between checkpoints.





(iv) Deviation From Route: A demand-responsive transit service pattern in which a normally fixed-route bus leaves the route upon request to serve patrons not on the fixed route.

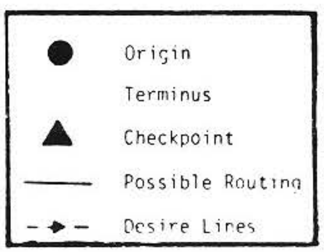


Schedule and route constraints may vary by time of day within a single system. For example, subscription service may be offered during peak operating hours, while many-to-many requests may be honored during the off-peak period. Subscription service is usually offered as a many-to-few service, while airport limousines are an example of a many-to-one service.

3.2.7 Door-to-Door Versus Limited-Doorstop Service

Any of the above route schedule options may be offered as a door-to-door or limited-doorstop service, as defined below:

- Door-to-Door Service. Demand-responsive transit providing service from any point of origin to any point of destination (door-stop to doorstop).



- Limited-Doorstop Service. Demand-responsive transit providing service from selected points of origin and destination, requiring users to walk to the selected points. The procedure may be used in many-to-many, many-to-few, many-to-one, or route- and point-deviation service.

3.2.8 Institutional Arrangements

Paratransit services may be offered through a variety of institutional arrangements. They may be controlled to various degrees by local government, community cooperatives, private entrepreneurs, or social service agencies. Any attempt to graph the range of possible institutional arrangements and services quickly reduces the branching tree of the taxonomy to a tangled briarpatch. Section 6 of this review discusses institutional issues in some detail. One institutional arrangement worthy of note in this discussion is the brokerage concept, which attempts to coordinate all classifications of transit and paratransit by matching services with potential users and vice versa. Typically, the broker provides information for the transit user, but may also be empowered to schedule requests on behalf of paratransit system operators. The broker can also play a more catalytic role by identifying unmet transit needs and persuading suppliers to modify or expand their services to meet those needs.

3.3 Paratransit Integration: The Scope of the Report

Paratransit services may prove most effective when they are coordinated with conventional fixed-route transit systems to form an integrated transit system. There are numerous facets of service which may be integrated, including geographic coverage, scheduling, management, fare collection, resource utilization, equipment maintenance and use, and institutional arrangements. Thus, the term integration is a relative one covering a broad range of meanings. When used herein, it is intended to distinguish a service with a substantial number of integrated facets from separate transportation services operating side by side.

This report focuses on the subset of paratransit services that can be most effectively integrated with fixed-route transit. These services are typically distinguished by the following set of characteristics. They:

1. Are demand-responsive;
2. Use coordinated vehicle dispatching;
3. Offer shared-ride services;
4. Employ paid professional drivers;
5. Are available to the public;
6. Operate on existing street networks; and
7. Have flexible rather than fixed routes.

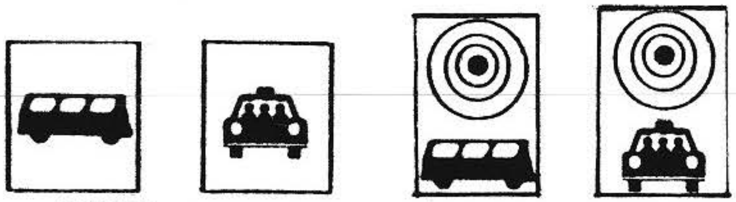
Services exhibiting these characteristics and falling within the scope of this report are shown in the shaded portion of the taxonomy exhibit.

Not all paratransit services lend themselves easily to integration. Those that can be integrated are typically operated under a central dispatching control that assigns passengers to vehicles and dispatches vehicles to pick-up and drop-off points according to demand. These systems have sometimes been called demand-responsive, a term which in the past has been loosely applied to all paratransit services. Thus, the term "demand-responsive" is somewhat ambiguous, and can be interpreted to mean either real time or pre-arranged responsiveness.

Examination of existing systems suggests that the vast majority of paratransit installations are not currently integrated with fixed-route service, but rather operate as stand-alone paratransit services in small communities. These services are typically tailored to fit community needs by incorporating several of the options identified in the taxonomy. Many such stand-alone services reflect the characteristics included within the scope of this report, and could be integrated with fixed-route service. On the basis of recent experience, it is anticipated that stand-alone paratransit will be the fastest-growing systems of the future. Therefore, those stand-alone systems characterized by coordinated dispatching and the remaining features identified are included in this report.

The services considered and those not considered in this report are shown in the exhibit on the following page. A guide to material on selected systems not included is contained in Appendix 5.

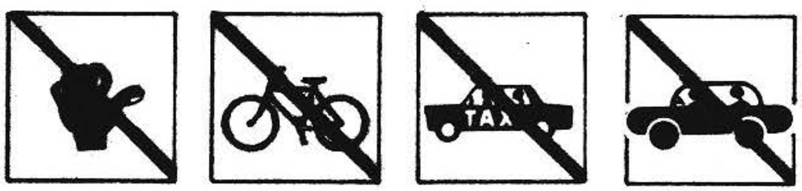
SERVICES CONSIDERED



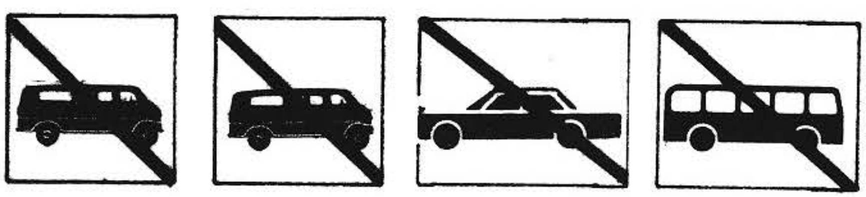
GENERAL MARKET — Dial-A-Bus; Shared-Ride Taxi

TARGET MARKET — Dial-A-Bus; Shared-Ride Taxi

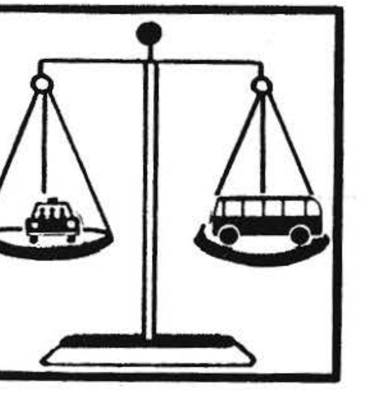
SERVICES NOT CONSIDERED



Hitch | Bike | Exclusive-Ride Taxi | Carpool



Vanpool | Jitney | Limousine | Subscription Bus



4

WHAT PARATRANSIT DOES

4.0 WHAT PARATRANSIT DOES

4.1 System Objectives: Myth and Reality

A wide variety of objectives has been cited by communities as the motivation for introducing paratransit systems. These objectives reflect both long-term social goals and more immediate shortcomings in the existing transit system. The accompanying list contains a representative tabulation of paratransit goals and objectives culled from actual experience and published theory. Although the list is impressive, paratransit systems have sometimes failed to live up to the full expectations of the goal-setters. Whereas paratransit systems have the potential for fulfilling certain of the listed goals, great care is required in planning, implementing, and operating these systems if they are to be effective.

Paratransit is not a panacea for the full range of social, environmental, and mobility problems commonly associated with today's transportation systems. One of the most serious pitfalls in planning and implementing paratransit systems is the generation of high expectations which cannot possibly be met by a small fleet of buses. Clearly, the objectives set for a service should bear a realistic relationship to the service's actual potential. It is important to form an early appreciation for the likely impacts of paratransit systems to avoid misunderstandings and disappointments in later stages. Based on existing experience, the major impacts of paratransit services are likely to be:

- Improved mobility for people permanently or temporarily without access to private automobiles or high-quality transit service;
- Reduced total user cost of transportation for commuters, taxi users, and others (but not necessarily total costs to society); and

PARATRANSIT GOALS AND OBJECTIVES CITED BY EXISTING PARATRANSIT SYSTEMS

Social Objectives

- Alleviate necessity of chauffeuring non-drivers
- Increase mobility of transit dependent
- Reduce congestion, pollution, energy consumption, noise and land area needed for parking
- Reduce multiple car ownership
- Increase utilization of social, recreational and medical services
- Increase employment opportunities

Transit System Objectives

- Provide expanded service into areas not well-covered by conventional transit (transit equity)
- Replace marginal bus routes
- Feed express buses or other fixed-route systems
- Increase ridership on express buses or other fixed-route systems
- Provide more efficient off-peak service
- Identify promising patterns for conventional fixed-route service
- Improve overall system efficiency and productivity
- Provide additional peak-period capacity
- Provide higher quality service (i.e. more flexible, pleasant, reliable and convenient)
- Minimize capital investment
- Test use of new equipment and techniques
- Achieve and maintain low operating subsidy
- Provide greater personal security on transit

(Source: SYSTAN)

- Reduced congestion or parking requirements at individual employment and activity centers. (Reference 31)

Noticeably missing from the list of major impacts are the important national concerns of energy and environmental protection. Today, paratransit offers only a marginal solution to energy and environmental problems. This role may become more important in the future, in the event that energy shortages cause more riders to transfer from the automobile to alternative paratransit services.

Several situations in which paratransit is more likely to play an effective role in a community or region are listed in the accompanying table. The cases identified in this table all represent situations which have led to the implementation of paratransit services. The services represented have not been uniformly successful. In cases in which systems have failed, it is not always clear whether the failure was due to an inappropriate use of paratransit or to deficiencies in planning, design, or implementation. What is clear is that it takes careful analysis and a firm sense of purpose to realize the full potential of paratransit operations.

At this time in the evolution of paratransit systems, the greatest number of successes have been recorded by target market systems and by systems providing the only transit in town. Several integrated systems have proven to be successful, but there have also been some notable failures in which integrated systems have been totally or partially discontinued or replaced with fixed-route service.

4.2 The Choice of Paratransit or Conventional Transit

Conventional fixed-route transit services and flexibly-routed paratransit services have distinctly different characteristics, and certain general observations can be made regarding the relative suitability of these characteristics in specific settings. However, there are few uniformly reliable rules for selecting paratransit over conventional transit or vice versa. In Greece, New York, an attempt to replace fixed-route, off-peak buses with dial-a-ride service in corridors where transit has existed for 75 years failed. In Orange County, California, a fixed-route service replaced a dial-a-bus service because of conflicts with taxi operators. The fixed-route service drew far fewer riders and was replaced by dial-a-ride when the conflicts were resolved. The settings in each case were significantly different, but in both cases the dial-a-ride service seemed, on paper, to be the more attractive service.

In spite of the uncertainties about behavioral response to either fixed-route or paratransit, there are some general guidelines for choosing between the two services. The first factors that should be considered are the intrinsic differences in the services as they relate to the perceived needs of the potential users. Paratransit services are basically more convenient than conventional transit services, since their pick-up points and times are tailored to demand. Because paratransit routes and schedules must be flexible enough to be demand-responsive, they will generally be less reliable than fixed-route buses operating on a schedule of predictable pick-up and arrival times. Thus, the choice between paratransit and fixed-route transit may reflect a choice between convenience and predictability. For some users, such as the elderly and handicapped, the convenience of door-to-door service may be necessary,

POTENTIAL PARATRANSIT ROLES

	SITUATION	POTENTIAL PARATRANSIT ROLE
Conventional Fixed-Route Systems Exist	A sparse fixed-route bus or rail system exists with a perceived need for feeder service.	Paratransit may provide feeder service.
	A fairly dense fixed-route system exists, but is radially oriented and does not serve cross-town trips which are not radial.	Paratransit may serve cross-town trips.
	A fixed-route system exists but contains a number of very lightly used routes.	Paratransit may be used to replace lightly used fixed routes or to determine promising patterns for a modified fixed-route system.
	A fixed-route system exists but does not provide equitable coverage to the entire political jurisdiction paying the transit bill. Although political forces may be demanding "transit equity," expansion of the fixed-route system is not perceived as being cost-effective.	Paratransit may be used to increase system coverage in a more cost-effective fashion.
Conventional Transit May Or May Not Exist	There is a perceived need for service in areas expected to provide fairly low trip densities.	Paratransit may prove to be more cost-effective than conventional transit.
	There is a perceived need to provide transit service to elements of the population such as the elderly and the handicapped who either have no alternative form of transportation or who would benefit from door-to-door service.	Paratransit may be a cost-effective means of providing target market service to special population groups.
	Heavy commuting causes peak traffic congestion or air pollution, or a social goal exists to reduce vehicle miles traveled (VMT).	Subscription service may be introduced as a component of the existing service to reduce peak-period congestion.
	Many paratransit services are operated in an uncoordinated fashion by social service agencies.	Paratransit may be used to consolidate separate services, or a brokerage system may be introduced to coordinate existing demands.
No Transit Service Exists	No transit exists in an area of fairly high population density where a high potential demand is perceived, although there is little knowledge of promising transit patterns.	Paratransit may be used to test the transit market, perhaps, as a prologue to a fixed-route system or an integrated system composed of both conventional and paratransit services.

(Source: SYSTAN)

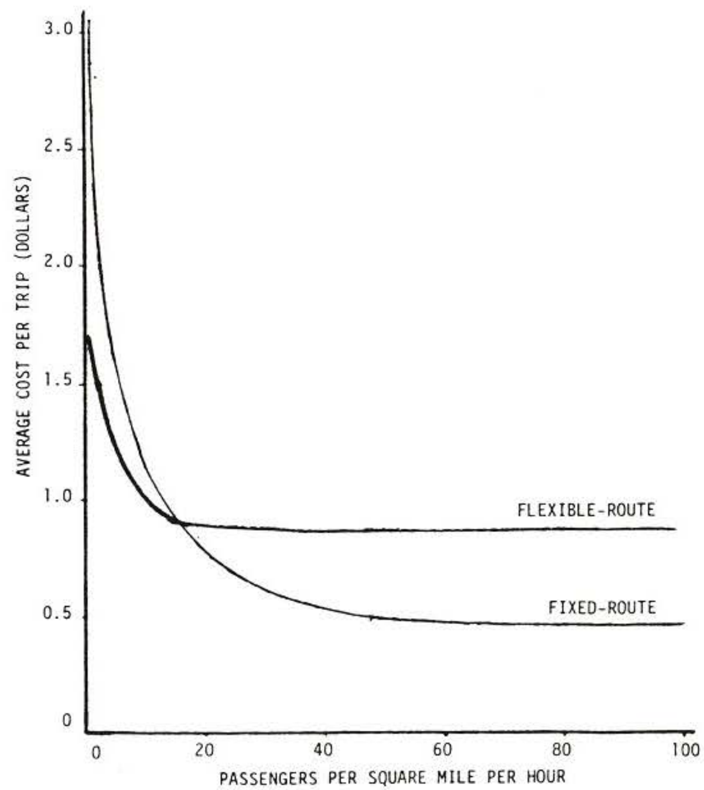
while schedule predictability may be essential to other users, such as commuters, who must be in a particular place at a fixed time.

Certain forms of paratransit service are more reliable than others. Pre-arranged subscription service, for example, can be as reliable as fixed-route bus service and may be an appropriate choice for serving a commuter market. Demand-responsive dial-a-ride systems may also be operated with an acceptable degree of reliability, but such an operation requires careful design, training, and operational debugging. "Without a strong commitment to dispatching quality and constant management attention, a Dial-A-Ride system runs a risk of providing unreliable service which is unattractive to those with needs to be in particular places at fixed times." (Reference 61)

In areas of high demand density, the productivity of fixed-route service (measured in terms of passengers carried per vehicle-hour) is significantly higher than that of paratransit service. Consequently, the cost of providing the fixed-route service is proportionally lower when vehicle operating costs are comparable. The accompanying exhibit plots typical fixed-route and paratransit system costs over a range of demand densities. The cost of fixed-route service is relatively high for low levels of demand, and drops to a relatively constant level once a minimum service level is exceeded and buses run at capacity. Since flexibly-routed service can be tailored to fit any demand level, paratransit service is less costly at low demand levels than fixed-route service. At increasingly high demand levels, however, fixed-route service becomes less costly than flexibly-routed service. The demand level at which this crossover occurs is governed by a number of factors, including service area size; population density; minimum service levels; peak/off-peak demand patterns; the timing, orientation and lengths of the trips served; prevailing wage agreements; and union work rules. Theoretically, if prospective demand densities are less than about ten demands per square mile per hour, dial-a-ride is less costly than fixed-route service

TYPICAL TRIP COSTS AS A FUNCTION OF DEMAND

Paratransit and Conventional
Fixed-Route Service



(Source: SYSTAN)

on a per-passenger basis, so long as other costs are comparable. Between ten and eighty demands per square mile per hour, the relative cost-effectiveness of fixed- and flexible-route services depends on other factors. If land use patterns and travel patterns suggest that the demand is concentrated in travel corridors, fixed-route service may be preferable.

Although the specific levels of the cost characteristics are dependent on a large number of factors, the general behavior of the fixed- and flexible-route curves shown in the prior graph is typical. Flexible-route service enjoys the greatest cost advantages for low demand levels in the less densely-populated areas of a region. In higher demand density areas, the number of passengers per vehicle-hour will be lower for paratransit than for transit, and the unit costs of paratransit will be higher, if operating costs are comparable. Costs are not always comparable, as many paratransit systems are operated with lower than union-scale wage rates under flexible work rules which allow part-time drivers and permit the supply of buses to adjust to the peaking of demand throughout the day. Therefore, paratransit systems may operate at comparable or lower costs than fixed-route systems, even in fairly high demand density areas.

There is evidence that in areas with demand densities sufficiently high to support some conventional transit, there may also be a role for paratransit. It is likely that future transit systems serving areas of high demand density may be hybrid systems composed of various transit/paratransit combinations, or those paratransit services--such as route and point deviation--which within themselves mix fixed- and flexible-route features.

A good deal of judgment needs to be applied in interpreting the crossover point shown in the average cost graph. At low transit mode shares, flexible-route service is considerably less risky than fixed-route service. That is, the cost of providing fixed-route service for a demand that fails to materialize can be considerably higher than the cost of providing flexible-route service sized to fit whatever demand exists. If demand does materialize, moreover, there is an upper bound on the per-trip savings available from conventional fixed-route operations. This suggests an incremental approach using flexible-route service might be a more appropriate means of introducing transit service in a currently unserved area, even if it is expected that the area demand will be large enough to justify fixed-route service. Moreover, a dial-a-ride system often has an implementation advantage for new service in areas with little or no history of transit service, as some experience suggests that demand for dial-a-ride service may develop more quickly than demand for more conventional fixed-route service (Reference 61).

A recent review of dial-a-ride operating characteristics suggests that there are at least two major areas where dial-a-ride is inferior to fixed-route service even for low-density service areas: "In the first instance, an area with some existing fixed-route service will typically have developed a hard core of bus riders who use the routed system knowledgably, and for whom it is well suited. They will be highly resistant to changes in that service, and will often regard dial-a-ride as an inferior substitute, even if it allows them service to a broader mix of destinations. Accustomed to waiting at a bus stop at known times, they will be unwilling to request service by telephone. While they will normally be counterbalanced by a much larger number of dial-a-ride users who had not previously ridden the routed service, they will complain loudly." (Reference 61) This suggests that, where demand permits, both fixed- and flexible-route service might be offered within the same area during any transition phase.

"Secondly, without special design elements such as zones with external destinations, hierarchical subsystems, and combinations with fixed-route service, long trips will be poorly served by dial-a-ride. By its very nature, dial-a-ride is circuitously routed. It should not be expected to serve trips of longer than 3-4 miles (line of sight) in suburban areas without such features." (Reference 61)

The accompanying exhibit summarizes comparable features of dial-a-ride and fixed-route systems, incorporating the discussion above and other relatively obvious points for completeness.

4.3 Shared-Ride Paratransit Versus Exclusive-Ride Taxi

As demand densities increase, paratransit modes should evolve into fixed-route transit systems or integrated combinations of fixed-route and demand-responsive systems. At the other end of the spectrum, for very low demand densities, the service provided by shared-ride demand-responsive service becomes indistinguishable from that provided by exclusive-ride taxis. If there are not enough riders to provide ride-sharing opportunities, paratransit vehicle productivity will clearly be no different from that of conventional taxi service. So long as the costs of shared-ride paratransit service and exclusive-ride taxi service are comparable, as is the case in most existing low-density systems (see Section 5), the choice between the two forms of service is marginal in areas of extremely low density (i.e., under two demands per square mile per hour). If transit union wage scales or work rules cause shared-ride service to be significantly more expensive than exclusive-ride taxi operations, which are typically offered under more flexible labor agreements, taxi service becomes the clear choice in sparsely-populated areas. In areas of low demand density in which shared-ride services are significantly more expensive than conventional taxi service, certain social aims (such as mobility for the elderly and handicapped) may best be met by providing members of the target population with subsidized rides in local taxis.

DIAL-A-RIDE VS. FIXED-ROUTE
SERVICE APPLICABILITY

(Comparing systems with the same overall service level over the same area)

Feature	Dial-A-Ride	Fixed-Route
Cost	Better comparative performance in low-density areas.	Better performance in high-density areas.
Trips Served	Best for scattered local trips.	Best for long trips in corridors.
Riders Served	Draws varied patronage, many elderly and young, miscellaneous types.	Primarily commuter oriented.
Peaking Behavior	Often shows midday peaking.	Morning and afternoon work trip peaks.
Ridership Growth	Usually shows fast growth.	Often takes many months to develop patronage.
Reliability	Weak point; needs careful and constant attention.	Easier to maintain planned service quality.
Coverage	Available equally to all service area points.	Different residences and businesses are nearer or farther from routes.

(Source: SEMTA, Reference 61)

4.4 Paratransit Versus Non-Transit Services

Improved transit service is only one of the means available for addressing the wide range of community goals commonly cited in plans for new transit or paratransit services. These goals typically include a desire for increased accessibility of community services; improved mobility for the elderly and handicapped; and reduced congestion, air pollution, and energy consumption. (See the previous list of paratransit objectives.) These goals can often be approached by steps outside the transsit planning process. Policymakers and planners should balance transit approaches against non-transit measures early in the planning process. Although many goals seem to point naturally to a transit solution, closer and more creative consideration may reveal cost-effective approaches outside the realm of transit and paratransit services.

Some non-transit approaches may be beyond the control of local planners and decisionmakers, as is the case with technological attempts to develop less polluting, more energy-efficient vehicles and fuels. Local traffic congestion, however, might be efficiently relieved by staggering local work hours. The desire to make more community services available to the elderly and handicapped might be addressed by putting the services themselves on wheels, as is the case with bookmobiles and mobile health care units. The possibility of arranging for user-side subsidies to provide taxi service for the elderly and handicapped is another alternative which may meet transit-oriented goals in a more cost-effective fashion than capital investment in new transit services.

Many passenger trips made to obtain information, purchase goods, pay bills, or prepare papers may be replaced by a combination of mail service and goods transportation. Voting and registration for social services are examples of functions often requiring personal appearance, but these functions could eventually be replaced by mail. Closed-circuit television may provide a means for bringing meetings to the homes of citizens and reducing their need for transit. Again, many of these non-transit alternatives may not be within the jurisdiction of the community, but others may be. Some of the functions served by transit also provide an element of social contact which would be lost if those functions were to be performed remotely.

4.5 Sources of Further Information

The generalities discussed in this and earlier sections provide a general framework for choosing among paratransit, conventional transit, and non-transit options, but provide little quantitative basis for making a choice in a specific situation. More detail regarding the choices available in developing a paratransit system may be found in SYSTAN's Paratransit Integration Guidelines. To further aid such choices, decisionmakers should have a clear understanding of the operating characteristics of paratransit systems in a variety of settings. Appendix 4 tabulates extensive data from nearly 130 operating systems. The results of this tabulation are summarized in the next section.

5

WHAT EXISTING PARATRANSIT SYSTEMS ARE LIKE

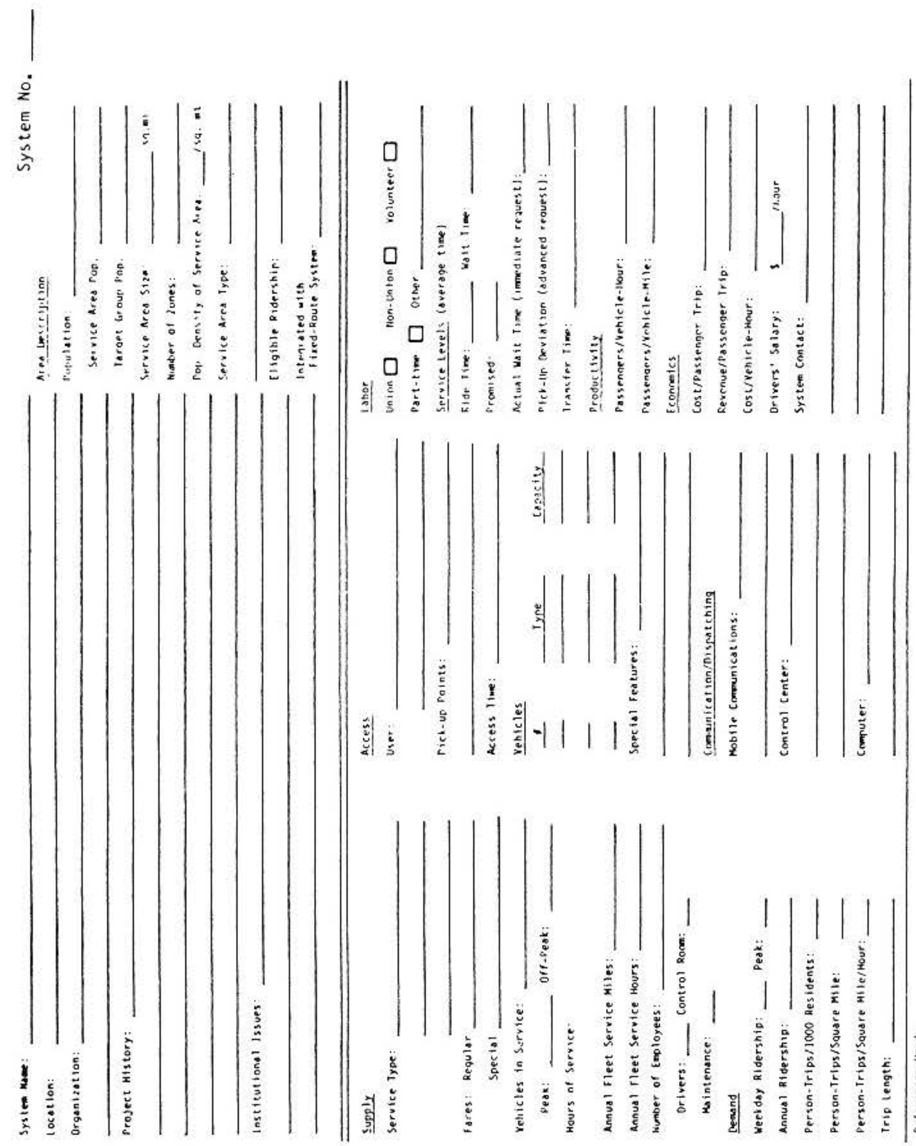
SYSTEM SUMMARY SHEET

5.0 WHAT EXISTING PARATRANSIT SYSTEMS ARE LIKE

5.1 Introduction

Information from existing paratransit systems provides a yardstick for decisionmakers considering paratransit for their jurisdictions, enabling them to predict what might be expected of paratransit systems in their own areas. Aggregate statistics indicate the range and expected value of such important factors as demand, service levels, and costs. In addition to reviewing aggregate statistics, planners and decisionmakers may wish to identify one or more existing systems which closely resemble the prospective system in configuration, area, and population served. By taking a detailed look at similar systems in similar settings, the decisionmaker adds another dimension to the review process. To aid in this process, detailed statistical breakdowns for a sample of 129 operating systems are included in this state-of-the-art review (see Appendix 4). Although no two communities are alike, and the experience of one community may not provide the level of confidence needed for detailed system design, information from existing operations can greatly aid the preliminary planning process.

The systems surveyed for this report were identified by an exhaustive literature search, discussions with many paratransit professionals--planners and operators--and requests to each of the 245 Metropolitan Planning Organizations (MPO's) in the United States to identify paratransit services in their areas. Data on the systems identified in this fashion were collected by writing each system manager and requesting the set of information in the System Summary Sheets (Appendix 4), as shown to the right. A form containing the information requested is shown in Appendix 6.



(Source: SYSTAN)

5.2 Counting Paratransit Systems

To assess the extent of the implementation of paratransit systems with coordinated dispatching in the U.S. today, an attempt was made to count all paratransit systems falling within the scope of this study. This attempt resulted in the identification of 308 such systems; a list of these systems is included in Appendix 3. The accompanying exhibit breaks these systems down into the major classifications of general/target market and dial-a-bus (DAB)/shared-ride taxi (SRT) types. Also shown separately are three integrated systems--consisting of both paratransit and conventional transit--and six mixed systems. The mixed systems are those in which the operating entity both provides the service with its own vehicles (DAB) and contracts for service with private operators (SRT).

Target market systems which operate under coordinated dispatching are typically offered by transit authorities, counties, cities, Councils on Aging, Community Action Agencies, and Economic Development Councils. The great majority of these target market systems are intended to serve both handicapped and elderly patrons. Not included in the count are systems which are only available to social service agency clientele. An exhaustive count of all target market systems, including agency services, is difficult to obtain, since many small systems are not required to report their existence to any central authority. For example, many senior retirement homes have a single van or automobile used for collective transportation and driven by a volunteer or staff member as an incidental duty. These smaller, ad hoc services were not included in the survey of target market systems, and are not reflected in the operating statistics presented in this section.

INVENTORY OF U.S. PARATRANSIT SYSTEMS

	General Market	Target Market	Unclassified	Total
Dial-A-Bus	74 (12)**	135 (4)**		209
Shared-Ride Taxi	42 (3)**	27 (3)**		69
Integrated	3	--		3
Mixed*	1	5 (1)**		6
Unclassified	2	11	8	21
TOTAL	122	178	8	308

* Systems which offer both DAB and SRT service.
** The numbers in parentheses indicate discontinued systems which are not included in the totals.

(Source: SYSTAN)

Some idea of the total number of target market systems in the United States has been provided in a state-of-the-art report on Transportation for Older Americans (Reference 141). This report contains estimates of 1,000 to 1,500 projects providing transportation for older Americans as of July 1974. This range was based on identification of 920 systems, including 314 which were identified by service (see the accompanying exhibit). Of this 314, about 64%--or 200--were demand-responsive or had demand-responsive components.

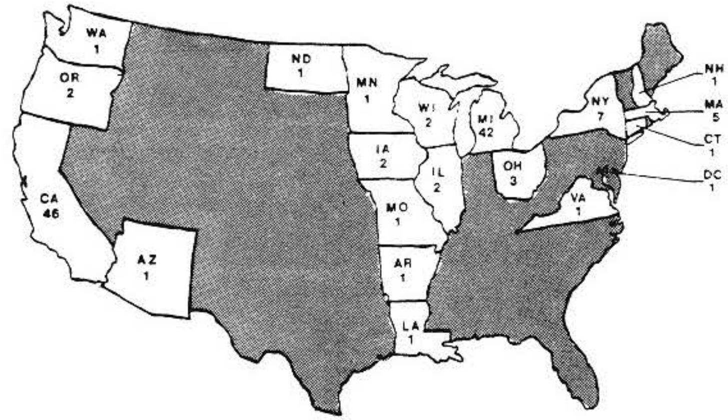
TRANSPORTATION PROJECTS SERVING OLDER AMERICANS

(By Type of Service as of July 1974)

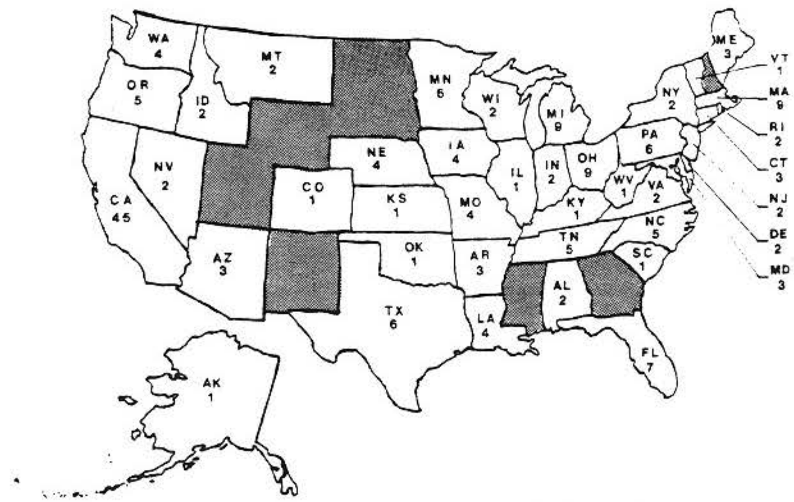
Type of Service	Number	Percent
Demand-Responsive	112	35.7
Combined Demand-Response & Fixed Route/Schedule	88	28.0
Fixed Route/Schedule	55	17.5
Volunteer Systems	48	15.2
Taxi: Reduced Fares	11	3.6
Not Identified by Service	606	–
TOTAL	920	–
Total of Identified Projects	314	100.0

(Source: Revis, Reference 141)

122 GENERAL MARKET DRT SERVICES OPERATING IN 19 STATES AND WASHINGTON, D.C. (March 1978)



178 TARGET MARKET DRT SERVICES OPERATING IN 41 STATES



Source: SYSTAN

5.3 The Location of Paratransit Services

The locations of the 122 general market systems are shown in the map on the previous page. Although no gen-pattern is evident, a high proportion of the services can be found in Michigan and California. One factor which may have contributed to this proportion is the presence of firms in these states which were active in early dial-a-ride research and experimentation. Both General Motors and the Ford Motor Companies in Michigan were active in dial-a-ride work. Ford provided technical assistance to the Ann Arbor system, and one of its employees who worked in dial-a-ride became executive director of the Ann Arbor Transit Authority. The Ann Arbor system had a significant influence on State legislators in Michigan, who passed legislation providing start-up financial assistance to cities implementing dial-a-ride systems. In California, many of the systems are probably the result of the marketing efforts of firms there which implement and manage dial-a-ride systems on contract. Some of these firms gained early experience in dial-a-ride as contract operators for demonstration systems. Many California cities are products of the urban sprawl which accompanied increasing automobile usage; hence, they have no transit history and are difficult to service with conventional transit. These cities are prime candidates for dial-a-ride systems, and are fertile marketing grounds for contract operators.

Target market systems are more widely dispersed throughout the United States than general market systems. The map on the previous page depicts the geographic dispersion of the 178 target market systems located in 41 states, over twice as many states as were represented in the general market sample.

The accompanying exhibit shows the type of setting served by general market and target market paratransit systems. Most of the general market systems operate in small cities, serve the entire city, and provide the only

PARATRANSIT SETTINGS

	General Market Percent of Systems	Target Market Percent of Systems
Type of Setting	(63 Systems)	(36 Systems)
Large urbanized area	1.6	33.3
Small urbanized area	19.0	25.0
Small city	61.9	16.7
Rural	17.5	25.0
	100.0	100.0
Service Area Scope	(55 Systems)	(35 Systems)
Entire city	58.2	62.9
Section of city	21.8	20.0
Urban area	10.9	28.6
Suburban area	18.2	14.3
Entire county	9.1	25.7
Rural	10.9	25.7
	129.1*	177.1*
Modes Integrated With Paratransit	(40 Systems)	(29 Systems)
Local fixed-route bus	40.0	17.2
Intercity fixed-route bus	7.5	3.4
DRT in other zones	17.5	6.9
No other service	50.0	72.4
Rail	7.5	--
Other	20.0	6.9
	142.5*	106.9*

*Multiple responses account for over 100% response.

(Source: SYSTAN)

local transit. While most target market operations also provide citywide service, they typically serve larger urbanized areas than do general market systems.

5.4 Profiles of Typical Paratransit Systems

Based on information from existing systems, profiles of typical paratransit systems of varying types are developed in this section. Subsequent sections explore the characteristics of existing systems in more detail. Data is not available for all of the 308 paratransit systems identified. The characteristics described in this section are based on 119 systems for which fairly complete data were sent in response to requests for information. The composition of this sample is shown in the accompanying exhibit, and the statistics for these systems are summarized in the three following exhibits.

As explained earlier in this report, services were grouped into two major classifications -- general market and target market -- and three subclassifications -- dial-a-ride, shared-ride taxi, and integrated services. (Mixed systems, or combinations of dial-a-ride and shared-ride taxi, are not considered separately since their characteristics can be inferred from their components.) These classifications were chosen because they represent the major options available to public officials, policymakers, and planners. Moreover, the operating performance of these systems is different. Data revealing the similarities and differences between these system options can aid these officials, policymakers and planners early in the decisionmaking process.

With the exception of the integrated system and target market shared-ride taxi subclassifications, sufficient responses were received in each of the major classifications and subclassifications to provide an accurate picture of representative systems. Integrated systems are currently operating in Ann Arbor,* Rochester and Westport, but they do not provide sufficient data to support conclusions regarding integrated paratransit operations. Using selected statistics, overviews of four types of service are presented on the following pages:

General Market - Dial-A-Bus (DAB);
General Market - Shared-Ride Taxi (SRT);
Target Market - DAB; and
Target Market - SRT.

The profiles are based on median values of various site and service characteristics represented in the sample. The ranges of these variables are also included because they were often large, so the "typical" values tend to mask the fact that widely different systems are feasible.

SAMPLE SIZES USED TO DEVELOP SYSTEM STATISTICS

System Type	Sample Size U.S. Systems	Sample Size Canadian Systems
General Market-DAB	50	7
General Market-SRT	28	1
Target Market-DAB	31	-
Target Market-SRT	7	-
Integrated Systems	3	-
Total	119	8

The Canadian systems have been separated from the U.S. systems because they are significantly different in the type of service offered and performance statistics (see statistics on the second general market exhibit which follow).

*NOTE: The Ann Arbor system was discontinued shortly after the compilation of the accompanying data.

GENERAL MARKET

	DAB			SRT			ALL		
	Median	Range	No. of Systems	Median	Range	No. of Systems	Median	Range	No. of Systems
POPULATION (in 1000s)	18.0	2.1-244	50	34.2	10.5-315	28	25.0	2.1-315	78
SERVICE AREA (sq. miles)	7.6	1.6-3372	50	11.4	4-151	28	9.6	1.6-3372	78
POLULATION DENSITY (pop/sq mi)	2059	10-18733	50	4110	838-13478	28	2462	10-18733	78
FLEET SIZE (vehicles)	4.6	1-18	50	5.8	1-75	28	5.0	1-75	78
SERVICE HOURS/DAY	11.9	6-24	45	12.0	7-24	26	12.0	6-24	71
FARES (in dollars)	.50	0-2.00	40	.50	.15-1.00	21	.50	0-2.00	61
ANNUAL VEH. HOURS (1000s)	8.8	1.6-63.3	38	11.9	2.1-44.4	22	10.6	1.6-63.3	60
ANNUAL VEH. MILES (1000s)	145.0	18-841	37	153.8	26-792	17	152.2	18-841	54
WEEKDAY RIDERSHIP	206	14-1000	50	260	20-3200	28	220	14-3200	78
PERSON TRIPS/1000 POP./DAY	9.8	.81-65.2	50	4.3	.98-27.6	28	8.4	.81-65.2	78
PERSON TRIPS/SQ MI/HOUR	2.4	.005-16.7	45	1.40	.19-5.0	26	1.76	.005-16.7	71
TRIP LENGTH (miles)	1.85	.5-9.5	12	2.55	.8-3.7	12	2.25	.5-9.5	24
RIDE TIME (minutes)	14.8	7-30	23	10.2	1-20	11	13.2	1-30	34
ACTUAL WAIT TIME (mins)	15.0	5-37	21	15.0	2-27	16	15.0	2-37	37
PASSENGERS/VEH. HR	5.86	1.8-11.0	38	5.49	2.8-8.7	22	5.76	1.7-10.7	60
PASSENGERS/VEH. MI	.46	.08-.94	37	.46	.22-.74	17	.46	.08-.94	54
COST/PASSENGER ($)	1.82	.85-4.47	35	1.70	1.05-2.94	11	1.78	.85-4.47	46
REVENUES/PASSENGER ($)	.29	.21-.59	10	.45	.37-.92	6	.37	.21-.92	16
COST/VEH. HR ($)	10.00	5.14-22.04	31	9.95	8.97-14.65	11	9.96	5.14-22.04	42
DRIVERS WAGE ($)	4.00	3-5.67	13	3.35	2.80-4.00	10	3.53	2.80-5.67	23
DRIVERS FRINGE BEN. (%)	24	15-40	7	22.5	20-24	4	23.2	15-40	11
NO. OF EMPLOYEES	8.8	1-29	27	8.2	5-165	8	8.6	1-165	35

(Source: SYSTAN)

GENERAL MARKET

	INTEGRATED SYSTEMS						CANADIAN DAB		
	Median	Range	No. of Systems				Median	Range	No. of Systems
POPULATION (in 1000s)	105	30-180	3				20.8	10.9-63.0	7
SERVICE AREA (sq. miles)	22.8	22.2-45.0	3				6	3.0-12.0	7
POPULATION DENSITY (pop. sq. mile)	4000	1351-4605	3				3043	1815-7000	7
FLEET SIZE (vehicles)	26	11-48	3				8	3-26	7
SERVICE HOURS/DAY	15.8	8-19.2	3				18	11-19	5
FARES (in dollars)	1.25	.35-3.00	3				.45	.40-.55	7
ANNUAL VEH. HOURS (1000s)	29.5	22.6-104.0	3				17.2	14.4-67.2	5
ANNUAL VEH. MILES (1000s)	—	250-412	2				171.6	93.6-672	5
WEEKDAY RIDERSHIP	460	400-2500	3				1100	457-2800	7
PERSON TRIPS/1000 POP./DAY	13.3	4.4-13.9	3				63.4	22.5-73.3	7
PERSON TRIPS/SQ. MI./HOUR	2.5	1-3.5	3				9.3	4.5-24.6	5
TRIP LENGTH (miles)	2.6	2.3-3.7	3				4.2	3.3-5.0	4
RIDE TIME (minutes)	12.2	11-15	3				14	12-17	5
ACTUAL WAIT TIME (minutes)	17.0	6.4-20.0	3				12	10-25	5
PASSENGERS/VEH. HOUR	5.1	3.4-5.6	3				9.6	9.0-12.1	5
PASSENGERS/VEH. MILE	—	.24-.46	2				1.08	.77-1.39	5
COST/PASSENGER ($)	—	3.54-4.22	2				—	1.31-2.82	2
REVENUES/PASSENGER ($)	.55	.23-1.40	3				—	.39-.41	2
COST/VEH. HOUR ($)	—	19.85-21.46	2				27.10	—	1
DRIVERS WAGE ($)	5.15	4.00-6.61	3				6.87	—	1
DRIVERS FRINGE BEN. (%)	20	—	1				36	—	1
NO. OF EMPLOYEES	—	26-28	2				10	—	1

(Source: SYSTAN)

TARGET MARKET

	DAB			SRT			ALL		
	Median	Range	No. of Systems	Median	Range	No. of Systems	Median	Range	No. of Systems
POPULATION (in 1000s)	159.0	6.0-3367	28	59.9	20-121	7	130.0	6.0-3367	35
ELIGIBLE POPULATION (1000s)	15.4	.075-220	20	3.0	2.2-7.0	3	14.9	.075-220	23
SERVICE AREA (sq. miles)	106.0	.8-5700	29	22.0	3-94	7	88.4	.8-5700	36
ELIGIBLE POP/SQ. MI.	150	2-953	18	200	88-320	3	160	2-953	21
FLEET SIZE (vehicles)	5.2	1-50	29	4.0	1-32	7	5.1	1-50	36
SERVICE HRS/DAY	10.8	6-18	28	9.2	8-12	5	10.6	6-18	33
FARES (in dollars)	.005	0-1.00	24	.50	.25-.50	4	.25	0-1.00	28
ANNUAL VEH. HRS. (1000s)	10.9	1.2-278	17	8.3	2.0-45.2	3	9.2	1.2-278	20
ANNUAL VEH. MILES (1000s)	176.4	21.6-3480	22	47.0	39.9-149	4	110.3	21.6-3480	26
WEEKDAY RIDERSHIP	132	7-1480	29	50.0	14-285	7	80.5	7-1480	36
PERSON TRIPS/1000 Eligible Population/DAY	8.0	.9-1467	18	26.7	10.3-40.5	3	9.9	.9-1467	21
PERSON TRIPS/SQ.MI./HR	.15	.001-2.4	26	.83	.01-5.7	5	.18	.001-5.7	31
TRIP LENGTH (miles)	4.45	.8-150	18	2.0	.5-3.8	6	4.0	.5-150	24
RIDE TIME (minutes)	20.2	3-90	14	15.5	15-20	2	20.0	3-90	16
ACTUAL WAIT TIME (minutes)	20.2	5-35	7	25.5	15-45	4	25.0	5-45	11
PASSENGERS/VEH. HR.	3.0	1.0-16.2	17	6.7	1.9-6.8	3	3.0	1.0-16.2	20
PASSENGERS/VEH. MI.	.22	.03-3.13	22	.54	.34-.75	4	.28	.03-3.13	26
COST/PASSENGER ($)	4.05	.34-10.72	13	2.11	—	1	3.89	.34-10.72	14
REVENUES/PASSENGER ($)	.37	.08-2.10	8	.50	—	1	.44	.08-2.10	9
COST/VEH. HR. ($)	13.23	6.92-20.26	11	14.16	—	1	13.23	6.92-20.26	12
DRIVERS WAGE ($)	3.70	2.65-6.08	17	3.30	—	1	3.62	2.65-6.08	18
DRIVERS FRINGE BEN. (%)	18	9-30	12	—	—	—	18	9-30	12
NO. OF EMPLOYEES	9.5	1-181	20	20	—	1	9.6	1-181	21

(Source: SYSTAN)

5.4.1 General Market - Dial-A-Bus

General market DAB systems typically provide service in small cities and serve all or part of the city. Many cities may have areas which are impractical to serve because of terrain obstacles or low population density. In the majority of cases, the service provides the only local mass transit, although many sites also have fixed-route bus systems.

The service areas in which these systems operate have populations of about 18,000 persons living in areas of eight square miles, statistics which are typical of many small cities. Riders are served by five vehicles, dispatched manually for about 12 hours per day. The typical fare is 50¢ a ride.

Weekly ridership averages just over 200 passengers, which are generated at a range of ten trips per thousand population and at an hourly rate of 2.4 trips/square mile of service area. This demand is accommodated by carrying slightly less than six passengers per vehicle-hour. The cost of this service is about $10 per vehicle-hour, comparable to the cost of exclusive-ride taxi. The demand and cost results in a cost per passenger of $1.82 for a two-mile trip. The median revenue per trip is about $.30, lower than the standard $.50 fare due to reduced fares for elderly, handicapped and young riders. The gap between revenues and costs implies that the average system requires a subsidy of about $100,000 per year.

GENERAL MARKET

Dial-A-Bus

SUMMARY STATISTICS

(50 Systems)

AREA

	Median	Range
Population (1000s)	18.0	2.1 - 244
Area (sq.mi.)	7.6	1.6 - 3372
Population Density (pop/sq.mi.)	2059	10 - 18733

SERVICE

	Median	Range
Fleet Size	4.6	1 - 18
Operating Hrs/Day	12.0	6 - 24
Fares	$0.50	$.00 - 2.00

RIDERSHIP

	Median	Range
Weekday Riders	206	14 - 1000
Trips/1000 Pop.	9.8	.8 - 65
Trips/Sq.Mi./Hr.	2.4	.005 - 16.7

TRIPS

	Median	Range
Length (miles)	1.85	.5 - 9.5
Ride Time (min.)	14.8	7 - 30
Wait Time (min.)	15.0	5 - 37

PRODUCTIVITY & COSTS

	Median	Range
Passenger/ Vehicle Hr.	5.9	1.8 - 11.0
Cost/Passenger	$1.82	$.85 - 4.47
Revenue/ Passenger	$0.29	$.21 - .59

(Source: SYSTAN)

5.4.2 General Market - Shared-Ride Taxi

Like DAB systems, general market SRT systems serve small cities but, unlike DAB, the majority serve the entire city. More SRT systems than DAB systems seem to operate in areas where other transit is available.

The median SRT system operates in an 11.4 square mile area having a population of 34,000. Fleets of roughly six vehicles are dispatched manually. These statistics all indicate that SRT systems operate in larger areas than DAB systems. This phenomenon probably reflects a tendency to constrain the boundaries of new DAB servides, while SRT services often supplement existing taxi services, which have traditionally served areas with wider boundaries. There appear to be no inherent design or operating features which would make SRT superior to DAB in larger service areas, except perhaps the greater mobility and maneuverability of automobiles as compared to buses. Like DAB systems, SRT services are available for about 12 hours a day at a base fare of $0.50.

Roughly 260 riders use SRT systems each weekday (25% more than use DAB), but riders are generated at rates (measured by per capita population or per square mile per hour) of about half those found in DAB systems. About 5.5 passengers are carried each vehicle-hour, at a per vehicle-hour cost of $10.00. These figures are essentially equivalent to DAB statistics.

The SRT cost per passenger is a little lower than that of DAB systems, while the revenue recovery is 50% higher. Although the net cost per passenger is lower, the annual subsidy required for SRT is about the same as for DAB systems.

GENERAL MARKET

Shared-Ride Taxi

SUMMARY STATISTICS

(28 Systems)

AREA

	Median	Range
Population (1000s)	34.2	10.5 - 315
Area (sq.mi.)	11.4	4 - 151
Population Density (pop/sq.mi.)	4110	838 - 13478

SERVICE

	Median	Range
Fleet Size	5.8	1 - 75
Operating Hrs/Day	12.0	7 - 24
Fares	$.50	$.15 -1.00

RIDERSHIP

	Median	Range
Weekday Riders	260	20 - 3200
Trips/1000 Pop.	4.3	1.0 - 27.6
Trips/Sq.Mi./Hr.	1.4	.2 - 5.0

TRIPS

	Median	Range
Length (miles)	2.6	.8 - 3.7
Ride Time (min.)	10	1 - 20
Wait Time (min.)	15	2 - 27

PRODUCTIVITY & COSTS

	Median	Range
Passenger/ Vehicle Hr.	5.5	2.85 - 8.7
Cost/Passenger	$1.70	$1.05 - 2.94
Revenue/ Passenger	$ .45	$ .37 - .92

(Source: SYSTAN)

5.4.3 Target Market - Dial-A-Bus

Most target market DAB systems serve portions of large urban areas of about 100 square miles and having populations of 159,000, of which about 10% are eligible for the service.

The DAB fleet consists of about five vehicles operating about 11 hours each day at fares of $.50.

Weekday ridership is about 130 passengers, generated at eight rides per day per 1,000 eligible persons. Measured by riders per vehicle-hour, vehicle productivities average 3.0, about half those of general market systems. This is due to the large service areas and the relatively long trips of 4.4 miles which these systems serve.

The cost per vehicle-hour of $13.00 is higher than that of general market systems, and the cost per passenger of $4.05 is much higher due to the lower productivities (see Section 5.9). The annual subsidy required to operate these systems is higher than that of general market systems, and fewer riders are served, but larger service areas are covered.

TARGET MARKET

Dial-A-Bus

SUMMARY STATISTICS

(29 Systems)

AREA

	Median	Range
Population (1000s)	159	6 - 3367
Eligible Pop. (1000s)	15.4	.075 - 220
Area (sq.mi.)	106.0	.8 - 5700
Elig. Pop. Dens. (pop/sq.mi.)	150	2 - 953

SERVICE

	Median	Range
Fleet Size	5.2	1 - 50
Operating Hrs/Day	10.8	6 - 18
Fares	$.005	0 - $1.00

RIDERSHIP

	Median	Range
Weekday Riders	132	7 - 1480
Trips/1000 Elig. Riders	8.0	.9 - 1467
Trips/Sq.Mi./Hr.	.15	.001 - 2.44

TRIPS

	Median	Range
Length (miles)	4.4	.8 - 150
Ride Time (min.)	20.2	3 - 90
Wait Time (min.)	20.2	5 - 35

PRODUCTIVITY & COSTS

	Median	Range
Passenger/ Vehicle Hr.	3.0	1.0 - 16.2
Cost/Passenger	$4.05	$.34 - 10.72
Revenue/ Passenger	$ .37	$.08 - 2.10

(Source: SYSTAN)

5.4.4 Target Market - Shared-Ride Taxi

Very little data are available on target market SRT services. The data that are available suggests that these systems operate in small urbanized areas or small cities, and serve the entire city. These areas are 22 square miles in size and contain about 60,000 people, about 5% of which are eligible for the service. These areas are considerably smaller than target market DAB service areas.

Four vehicles provide service nine hours per day at a $.50 fare.

About 20 to 30 riders per thousand eligible population ride each day, for a weekday ridership of 50.

Reliable cost data for target market SRT services were not available from the survey due to the small number of respondents.

5.5 Demographic Characteristics

The demographic characteristics of four DAB and four SRT general market service areas are shown in the exhibits on the following two pages. Chosen because the data were readily available, these areas demonstrate the variety in the areas served by general market DAB systems, especially in the percentage of population over age 64 they serve, the use of transit for work trips, and income distribution.

TARGET MARKET

Shared-Ride Taxi

SUMMARY STATISTICS

(7 Systems)

AREA	Median	Range
Population (1000s)	60.0	20 - 121
Eligible Pop. (1000s)	3.0	2.2 - 7.0
Area (sq.mi.)	22.0	3.0 - 94
Elig.Pop.Dens. (pop/sq.mi.)	200	88 - 320

SERVICE	Median	Range
Fleet Size	4.0	1 - 32
Operating Hrs/Day	9.2	8 - 12
Fares	$.50	$.25 - .50

RIDERSHIP	Median	Range
Weekday Riders	50.0	14 - 285
Trips/1000 Elig. Riders	26.7	10.3 - 40.5
Trips/Sq.Mi./Hr.	.83	.01 - 5.74

TRIPS	Median	Range
Length (miles)	2.0	0.5 - 3.8
Ride Time (min.)	15.5	15 - 20
Wait Time (min.)	25.5	15 - 45

PRODUCTIVITY & COSTS	Median	Range
Passenger/ Vehicle Hr.	6.7	1.91 - 6.8
Cost/Passenger	$2.11	-
Revenue/ Passenger	$ .50	-

(Source: SYSTAN)

DEMOGRAPHIC CHARACTERISTICS OF SELECTED DAB SERVICE AREAS

	Ann Arbor Michigan (test area)	Haddonfield New Jersey	La Mirada California	Rochester New York	United States Averages
Population Age Groups (%)					
Under 5	8.0	7.3	7.0	8.8	8.4
5 - 19	23.5	30.7	38.7	27.9	-
20 - 64	60.6	53.2	51.6	55.3	-
Over 64	7.9	8.6	2.7	7.9	9.9
Total Population	14,065	39,882	30,808	55,364	-
Non-College School Enrollment	3,129	11,131	12,981	14,039	-
Number of Workers	6,668	15,338	12,137	23,588	-
Means of Transportation to Work (%)					
Auto Driver	73.3	68.6	84.8	71.0	66.0
Auto Passenger	12.7	9.4	7.0	14.7	11.7
Bus or Street Car	1.5	3.2	0.2	7.1	5.5
Subway: Elevated Train or RR	0.1	10.3	-	0.0	2.3
Walk	8.0	3.7	4.8	5.0	7.4
Worked at Home	1.5	1.6	1.3	1.0	3.5
Other	2.9	3.1	1.8	1.2	3.6
Employment					
Total Civilian Labor Force	6,973	15,878	13,024	24,662	-
Unemployment Percentage	2.9	2.2	4.8	2.2	4.9
Income Groups (%)					
Under $4,000	6.3	21.6	4.1	5.6	14.0
$4,000 - 10,000	21.8	21.6	17.9	20.4	37.0
$10,000 - 15,000	27.5	23.7	36.2	39.2	26.8
$15,000 - 25,000	34.7	30.8	35.3	31.0	17.7
Over $25,000	9.6	14.0	6.5	3.8	4.6
Mean Income $(000)	13.2	15.0	13.9	13.2	9.6*
Automobiles Available					
0	7.0	7.2	1.8	7.1	18.6
1	52.0	43.4	24.2	60.4	51.4
2	33.7	42.4	56.8	28.6	24.3
2+	7.3	7.0	17.3	3.8	5.7

* Median 1970

(Source: U.S. Census of Population, 1970)

DEMOGRAPHIC CHARACTERISTICS OF SELECTED SRT SERVICE AREAS

	Hicksville New York	Little Rock Arkansas	Fullerton California	El Cajon California	United States Averages
Population Age Groups (%)					
Under 5	*	7.8	7.7	8.8	8.4
5 - 19	*	26.6	30.5	29.0	-
20 - 64	*	55.2	55.2	53.4	-
Over 64	*	10.4	6.6	8.8	9.9
Total Population	48,075	192,523	85,826	52,273	-
Non-College School Enrollment	15,136	45,120	24,301	13,976	-
Number of Workers	20,041	77,386	34,339	19,027	-
Means of Transportation to Work (%)					
Auto Driver	68.3	72.2	86.0	80.0	66.0
Auto Passenger	11.2	10.7	6.2	10.1	11.7
Bus or Street Car	1.4	4.8	0.2	0.6	5.5
Subway: Elevated Train or RR	10.2	0.0	0.0	0.0	2.3
Walk	6.0	4.1	3.9	3.4	7.4
Worked at Home	1.0	5.8	1.6	2.3	3.5
Other	1.9	2.4	2.1	3.6	3.6
Employment					
Total Civilian Labor Force	31,331	80,677	37,788	20,530	-
Unemployment Percentage	1.9	3.2	12.1	13.2	4.9
Income Groups (%)					
Under $4,000	3.7	19.0	7.3	13.9	14.0
$4,000 - 10,000	15.4	39.2	25.9	30.4	37.0
$10,000 - 15,000	37.7	24.4	26.8	32.9	26.8
$15,000 - 25,000	34.8	13.2	28.7	18.4	17.7
Over $25,000	8.4	4.2	11.3	4.4	4.6
Mean Income $(000)	13.9	8.6	15.2	11.1	9.6**
Automobiles Available					
0	4.6	21.2	-	-	18.6
1	40.7	42.0	-	-	51.4
2	44.8	32.7	-	-	24.3
2+	9.9	3.5	-	-	5.7

* Reprinted figures in error

** Median 1970

(Source: U.S. Census of Population, 1970)

5.6 Supplying the Service

Several service patterns are possible in providing paratransit service to a community. The selection of a service configuration will depend on a number of considerations, including tripmaking patterns, community objectives, and the current role (if any) of conventional transit. The preponderance of general market systems offer many-to-many service, with less than 15% offering more restrictive service patterns (see exhibit). The majority of target market systems also offer many-to-many service, but a higher percentage offer many-to-few or many-to-one services. Roughly 30% of all target market systems provide these more restrictive services during peak operating hours.

Regardless of market, most systems -- both DAB and SRT -- offer immediate, advance and subscription service. All services offer access by telephone, but it is more common for general market services to allow other access modes; about one-third of all general market systems will stop for street-side hailers, while over 30% of general market DAB systems have some fixed stops.

The vehicle fleets used in general market service range in size from one to seventy-five vehicles, with a median of about five. Seventy percent of the systems have fleet sizes between three and ten. DAB fleet sizes are slightly lower than those of SRT services. Target market fleets also have a median size of 5.0 vehicles. This higher median is due to larger SRT target market fleets. DAB fleet sizes for both target market and general market service are similar.

SERVICE PATTERNS

	GENERAL MARKET		TARGET MARKET	
	DAB	SRT	DAB	SRT
SYSTEMS RESPONDING	48	28	30	5
Many-to-One Peak	12.5%	3.6%	30.0%	14.3%
Many-to-One Off-Peak	6.3	-	23.3	14.3
Many-to-Few Peak	8.3	-	30.0	28.6
Many-to-Few Off-Peak	6.3	-	33.3	28.6
Many-to-Many Peak	72.9	96.4	60.0	85.7
Many-to-Many Off-Peak	83.3	100.0	66.7	85.7
Route Deviation Peak	10.4	-	6.7	0
Route Deviation Off-Peak	6.3	-	10.0	0
Point Deviation Peak	4.2	-	-	0
Point Deviation Off-Peak	2.1	-	-	0
Other Peak	4.2	-	3.3	14.3
Other Off-Peak	2.1	-	3.3	14.3
TOTAL	218.9%*	200.0%*	266.6%*	285.8%*
SYSTEMS RESPONDING	26	14	29	6
Immediate	65.4%	78.6%	31.0%	83.3%
Subscription	80.8	64.3	69.0	-
Advanced	57.7	50.0	96.6	50.0
TOTAL	203.9%*	192.9%*	196.6%*	133.3%*
SYSTEMS RESPONDING	26	12	28	6
Phone	100.0%	100.0%	100.0%	100.0%
Hail	42.3	33.0	3.6	16.7
Fixed Stops	34.6	-	7.1	-
Other	15.4	8.3	3.6	-
TOTAL	192.3%*	141.3%*	114.3%*	116.7%*

* Response higher than 100% due to multiple answers.

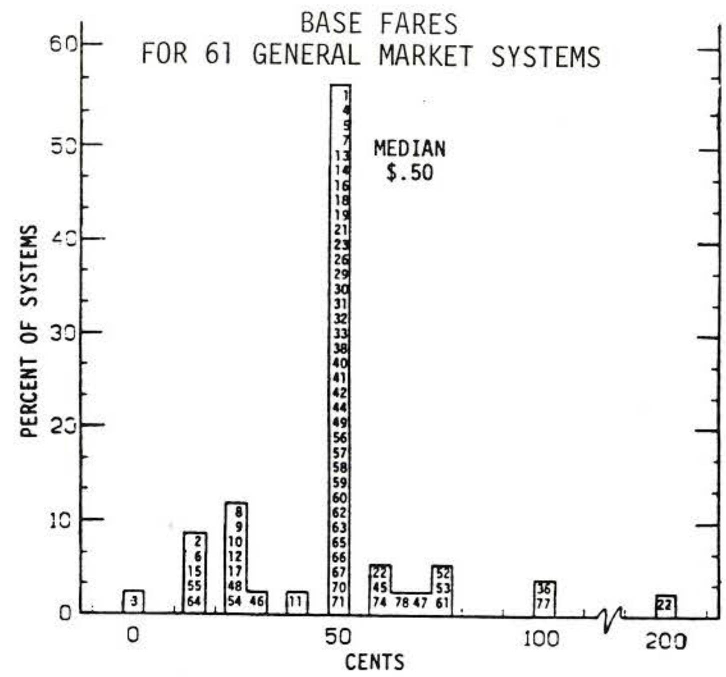
Source: SYSTAN tabulation

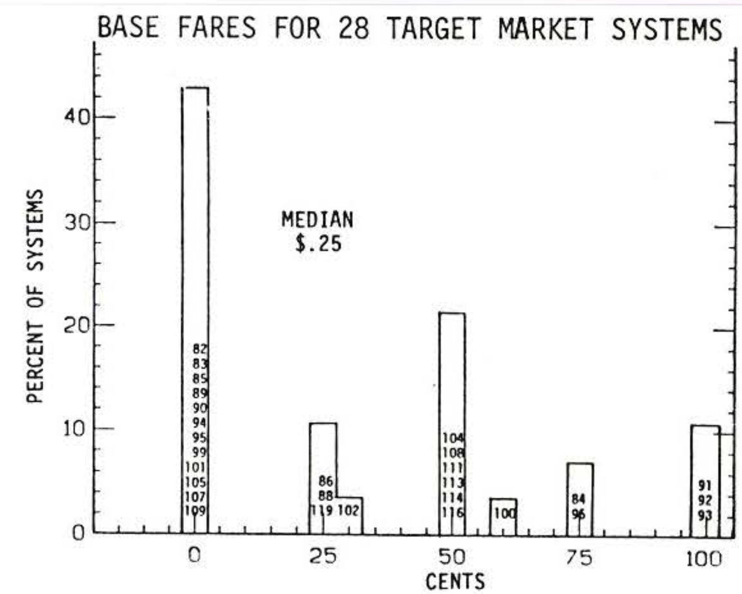
The median fare of all general market systems is \$.50. The median fare for target market systems is \$0.25, a low figure due to the fact that over 40% of the services are fare-free. The fare distributions are shown to the right. The majority of the general market systems have fare structures which offer discounted rides to special groups, usually children and the elderly. The handicapped and elderly are offered special fares in over half of the general market systems.

5.7 Service Users

The median weekday ridership of general market services is 220, with a wide range of ridership levels running from a low of 14 to a high of 3,200 passengers. For target market systems, the ridership is considerably lower, with a median of 80 passengers per weekday and a range of from 7 to 1480. The distribution of ridership are shown in the exhibit on the following page.

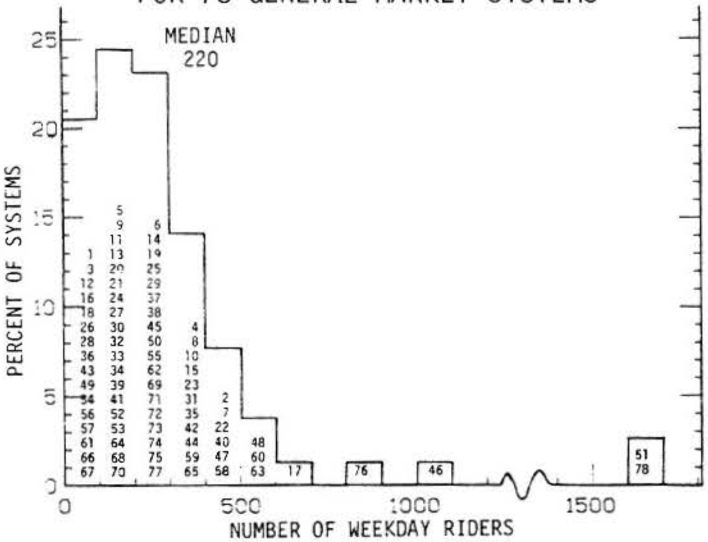
Two measures of demand that are useful for comparing different systems because they factor out area size differences are passengers per capita and passengers per square mile of service area. The median number of passengers per 1,000 eligible residents is 10 for target market service and 8.4 for general market service. These figures are relatively similar, even though the residents eligible for target market service average 10% of the total population. However, when the frequency of tripmaking is measured on a trips per square mile per hour basis, general market services have a median of 1.76 and target market services a median of .18. The difference in this case



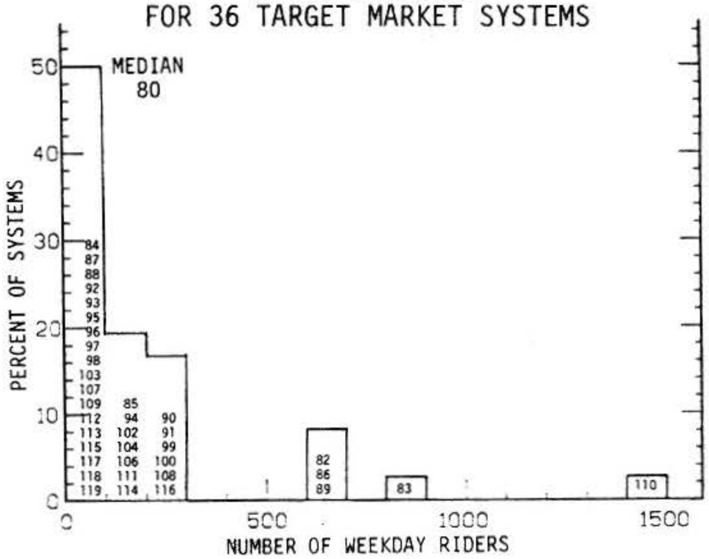


(Source: SYSTAN)

DAILY RIDERSHIP
FOR 78 GENERAL MARKET SYSTEMS



DAILY RIDERSHIP
FOR 36 TARGET MARKET SYSTEMS



(Source: SYSTAN)

reflects the lower density of the population eligible for target market services.

Examples of the user and trip characteristics for eight systems are shown in the following exhibit. The tabulation of characteristics reveals that, although system users vary somewhat from system to system, a variety of riders are attracted to paratransit. The journey to work is the dominant trip purpose reported by the riders of general market systems, while the target market systems shown in the exhibit primarily serve medical trips. The data show that a substantial proportion of riders are transit-dependent. Few of the riders surveyed reported driving as an alternative transportation choice for their paratransit trip. However, when the number of riders who reported that they would be driven if there were no paratransit service available is added to the smaller number reporting driving as a feasible alternative, it is clear that the systems surveyed diverted a certain amount of automobile traffic to paratransit service.

5.8 Service Quality

A relatively small number of operators reported the travel times and other response-time data which comprise service level measures. Moreover, the data reported is probably based on estimates rather than precise measurements, since such measurements tend to be expensive except when collected by a computer-dispatched system. Of those systems that did report, the available data suggest that median ride times for general market services are 13 minutes for trips having a median distance of 2.2 miles. Target market trips are longer, having a median length of 4.0 miles, and hence their median travel time of 20.0 minutes is proportionately longer than that of general market trips.

SAMPLE RIDER CHARACTERISTICS

Variable		GENERAL MARKETS: ANN ARBOR	ROCHESTER	LOS ANGELES: WATTS	FAIRFIELD, CA.	TARGET MARKETS: CLEVELAND	SYRACUSE	MIAMI: DADE CO.	BATON ROUGE
SEX	M	48.0%	17.7%	24.4%	15.0%	8.0%	14.9%	NA	48.0%
	F	52.0	82.3	75.6	85.0	92.0	83.9	NA	52.0
AGE	18	28.0%	31.6%	4.4%	37.0%(24)	0.0%	NA	2.9%(21)	43.4%(20)
	18-44	41.0	32.4	55.6	27.0	5.5 (20-59)	13.1%(59)	25.0 (21-49)	26.4 (21-39)
	45-64	20.0	22.1	13.3	23.0	6.0 (60-64)	6.8 (60-64)	28.8 (50-64)	23.9 (40-64)
	65	11.0	14.0	26.7	12.0	88.5	80.1	43.3	6.3
# CARS IN HOUSE-HOLD	0	7.0%	27.3%	35.5*	36.0%	NA	59.9%	NA	12.7%
	1	52.0	44.7		33.0	NA		NA	42.4
	2	41 (2+)	20.5		22.0	NA		NA	37.4
	3+		7.6		7.0	NA		NA	7.5
PURPOSE OF TRIP	Work	34.0%	38.3%	31.1%	18.0%	--	2.3%	12.7%	--
	School/Soc. Service	23.0	6.8	14.4	4.0	--	--	11.4	--
	Medical	--	1.2	23.3	15.0	49.5%	46.8	24.0	87.0%
	Shopping	22.0	30.9	11.1	20.0	47.5	0.9	19.0	--
	Recreation	8.0	9.3	20.0	20.0	32.0	7.3	17.7	--
	Combina-tion/Other	13.0	13.6	--	29.0	14.0**	42.7**	15.2	13.0
ALTER-NATE MODE	Bus	10.0%	10.4%	56.7%	4.0%	33.0%	11.1%	9.0%(18.8%)+	20.4%
	Walk	19.0	13.4	12.2	36.0	42.0	0.6	-- (--)	2.5
	Taxi	13.0	10.4	5.6	27.0	8.0	21.9	28.0 (14.6)	2.5
	Drive	19.0	4.5	--	8.0	7.0	1.2	-- (--)	5.7
	Be Driven	31.0	29.1	18.9	13.0	38.5	15.8	49.0 (43.8)	45.2
	No Trip	5.0	30.6	6.7	20.0	10.0	22.3	NA (NA)	2.5
	Other	3.0	1.5	--	9.0	8.0	16.1	-- (--)	18.5

* Figure derived from entire service area.
** Figure includes multi-purpose trips.
\+ Percentages for medical (shopping) trips only.

SOURCES:

Ann Arbor: Reference 19

Rochester: SYSTAN, Inc., "Evaluation Plan for the Rochester Integrated Transit Demonstration," prepared for the Transportation Systems Center, U.S. Department of Transportation, October 1975.

Watts: Reference 74

Fairfield: DAVE Systems, Inc., "Fairfield DART Operations, August 11, 1975 - June 30, 1976," Final Report, September 1976.

Cleveland: Regional Transit Authority, "Community Responsive Transit in Cuyahoga County," May 1977.

Miami: Silverman, Fred and Suzanne La Plant, "Use of Taxicabs for Transporting the Handicapped: The Dade County Experience," January 1978.

Baton Rouge: Reference 19

Syracuse: SYSTAN, Inc., "Call-A-Bus Specialized Transportation for the Elderly and Disabled: Syracuse, New York," Final Evaluation Report prepared for Transportation Systems Center, U.S. Department of Transportation, February 1977.

The median wait time for general market service was 15.0 minutes, ranging from 2 to 37 minutes. Almost 85% of the systems surveyed reported wait times of less than 20 minutes. The wait times of DAB and SRT services did not differ significantly. Although fewer systems reported the promised wait time, the data suggest that -- on the average -- the actual wait time is shorter than the promised wait time. That is, buses typically arrive early, and about 60% of the systems surveyed have an average arrival time within ten minutes of the promised arrival time.

Target market systems reported wait times ranging from 5 to 45 minutes, with a median of 25 minutes. Based on a very small sample, the data suggest that these systems were seldom more than 10 minutes late.

Only a few general market services reported transfer times. The available data suggest that transfers, on the average, are accomplished in less than ten minutes.

The service level data suggest that paratransit services are appropriate for those users who will accept wait times and relatively long travel times. In terms of the time required to complete a trip, the paratransit systems studied require considerably more time (by a factor of 3 to 4) than the same trip made by personal automobile. For example, in the Rochester Integrated Transit demonstration in 1977, it has been estimated that a DAB trip taking an average of from 21 to 29 minutes in the suburb of Greece would take about 7.5 minutes by automobile; DAB trips taking from 18 to 26 minutes in the suburb of Irondequoit would take only 6 minutes by automobile (Reference 82).

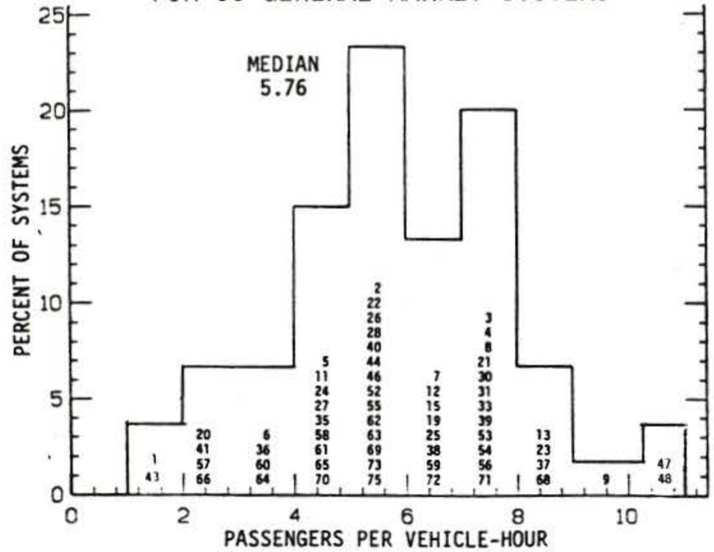
5.9 Is It Cost-Effective?

Paratransit systems have lower average productivities, as measured by passengers per vehicle operating hour, than conventional fixed-route transit systems, but they may also cost less per vehicle operating hour than conventional systems. In practice, the lower operating cost per hour has seldom outweighed the lower productivities, with the result that paratransit systems are usually more costly per passenger than conventional systems. In those cases where paratransit services are offered under the same work rules prevailing in conventional transit systems, the cost per passenger of paratransit service tends to be considerably higher than fixed-route system costs.

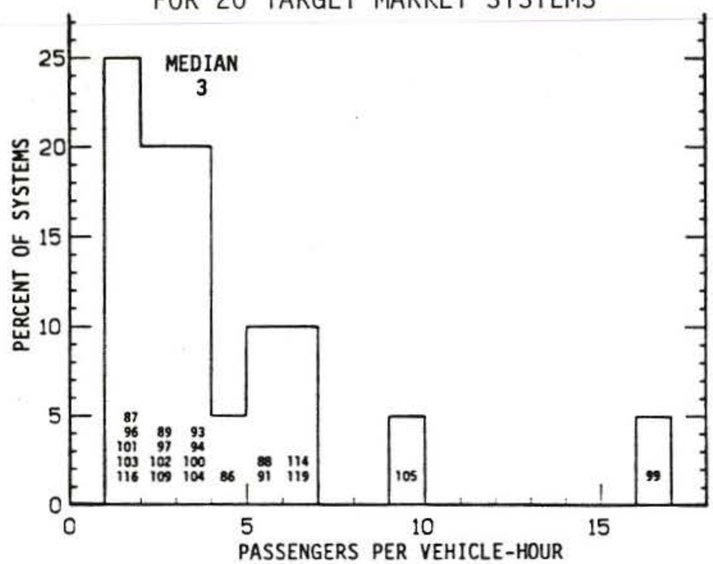
Realistic comparison of fixed-route and paratransit vehicle productivities are difficult to obtain using existing data. Nationally, average fixed-route vehicle productivities range from 30 to 40 passengers per vehicle-hour, but these figures include many routes in densely-populated areas where paratransit is not a potential competitor. Even in less densely-populated cities, where reported fixed-route vehicle productivities range from 20 to 30 passengers per vehicle-hour, the reported averages include figures from highly-productive routes in densely-populated corridors.

Many existing paratransit systems operate in sparsely-populated areas where fixed-route services would not be viable. The productivities reported by general market systems range from 1.8 to 11.0 passengers per vehicle-hour, with a median of 5.76 passengers per vehicle-hour; the distributions are shown on the next page. (Systems containing a substantial number of subscription services would have higher productivities; subscription service productivities may approach those of fixed-route services.) This productivity figure is considerably lower than reported fixed-route productivities, but comparisons from similar

PRODUCTIVITIES
FOR 60 GENERAL MARKET SYSTEMS



PRODUCTIVITIES
FOR 20 TARGET MARKET SYSTEMS



(Source: SYSTAN)

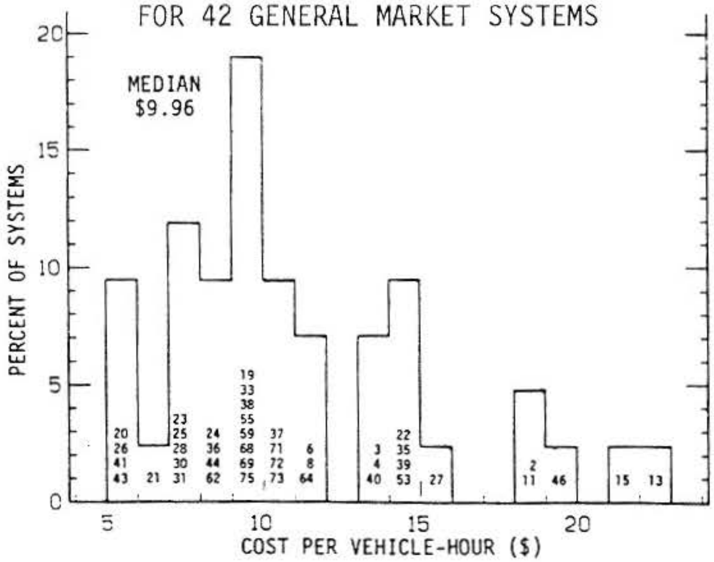
settings are not available. The lower productivity of paratransit service reflects both the price paid for the added convenience of personalized service and the lower population densities of the areas currently served by paratransit.

Target market services have a similar range of productivities to general market services, although there is one system with a productivity of 16.2 passengers per vehicle-hour, as shown in the exhibit to the left. This highly-productive system is a free-fare, many-to-one system (Worcester, Massachusetts).

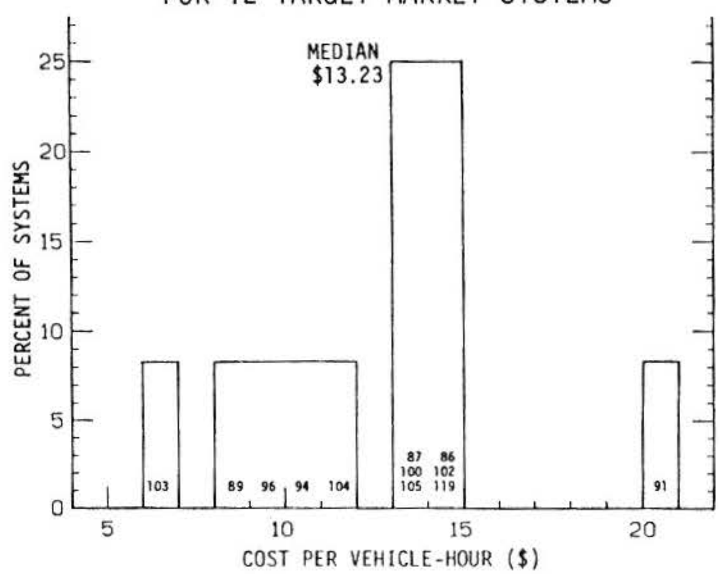
The productivities of the majority of target market systems are somewhat lower than those of general market services. The median productivity reported by target market services was 3.00 passengers per vehicle-hour, a relatively low figure which reflects lower population densities, longer trip lengths than those encountered in general market service, and the longer passenger loading times required for elderly and handicapped passengers.

The vehicle-hour cost of operating conventional buses is in the range of $20 to $30, while 42 general market systems reported a range of $5.14 to $22.04 per vehicle-hour, with a median of about $10, as shown in next exhibit. The costs of DAB and SRT services were not found to be significantly different. The 12 reporting target market systems have a median cost per vehicle-hour of just over $13, but the sample is not large enough to signify that this cost is different than that of general market service.

OPERATING COST PER VEHICLE-HOUR
FOR 42 GENERAL MARKET SYSTEMS



OPERATING COST PER VEHICLE-HOUR
FOR 12 TARGET MARKET SYSTEMS



(Source: SYSTAN)

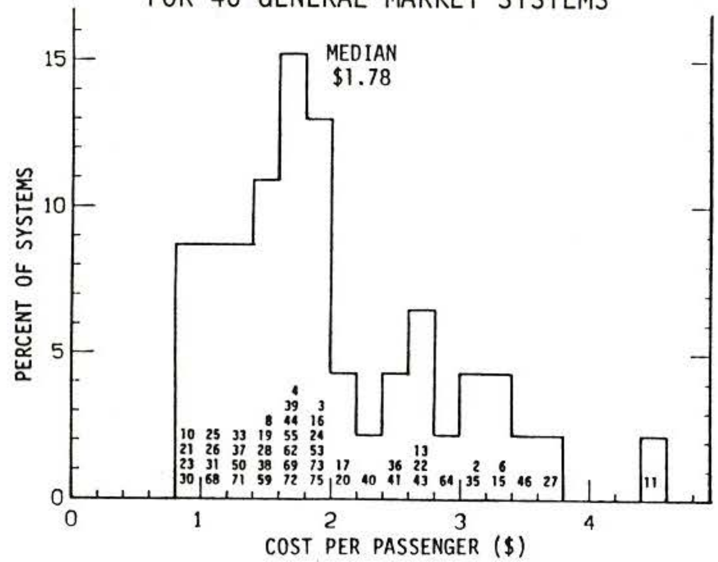
The median cost per passenger derived from hourly vehicle costs and productivities is $1.78 per passenger ($.86 per mile) for general market services and $3.89 per passenger ($.81 per mile) for target market services, as shown in the exhibit on the next page. The median cost of total miles for taxi service is $.41 per mile (Reference 94).

The sample sizes of the systems surveyed were too small to suggest that target market costs per passenger are indeed higher than those of general market services. However, if they truly are higher, then a general market may have some cost advantage under some operating conditions. For example, a service which gave scheduling priority to the target market users and accepted other riders for a higher fare as space was available may be causing the general market users to subsidize the target market users.

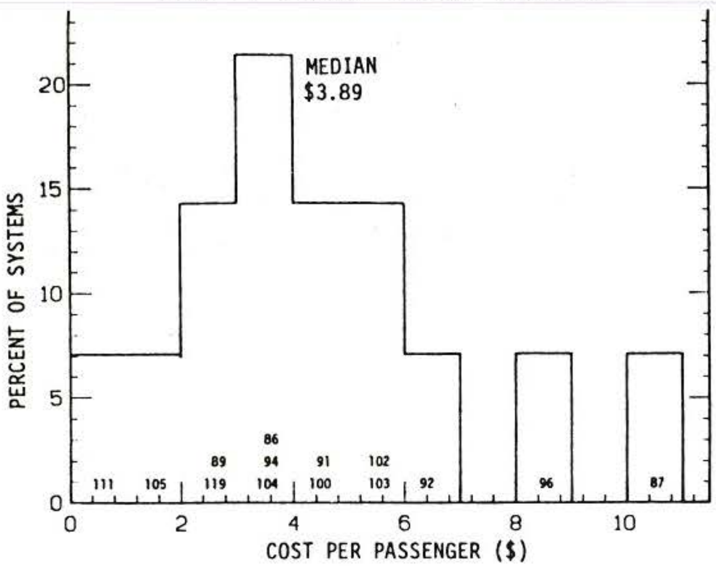
Median revenue levels are $0.37 per passenger for general market service, representing a recovery rate of about 20% of costs, and $0.44 for target market services, a recovery of about 10% of costs.

Typical breakdowns of total capital and operating costs are shown on the next page. The first three systems are operated by DAVE Systems, Inc., and hence probably have compatible accounting systems. Although the Rochester system is more costly on a vehicle-hour basis due to higher labor costs, the relative cost breakdown in percentages is fairly close to the other systems in all categories except labor.

OPERATING COST PER PASSENGER
FOR 46 GENERAL MARKET SYSTEMS



OPERATING COST PER PASSENGER
FOR 14 TARGET MARKET SYSTEMS



(Source: SYSTAN)

EXEMPLARY TOTAL MONTHLY COSTS

	Fairfield 12/75	Merced 11/75	Turlock 12/75	Rochester (Greece) 6/75 - 3/76
Operations				
Management & Labor	62.8%	57.7%	64.3%	68.0%
Vehicle Maintenance	9.0	14.7	11.1	10.9
Vehicle Insurance	5.6	4.9	3.1	----
Fuel	7.8	9.1	5.6	4.4
Telephone	0.7	1.8	1.3	----
Other	0.8	0.6	0.2	4.4
Capital				
Vehicle Depreciation	11.5	10.0	12.5	12.5
Radio Depreciation & Maintenance	1.8	1.2	1.9	----
Total Costs - %	100%	100%	100%	100%
Dollars/Vehicle Mile	.89	.80	.90	1.87
Dollars/Vehicle Hour	10.97	11.59	11.23	20.11
Total Costs	12,810	8,806	7,794	14,213
Total Miles	14,401	11,072	8,653	7,588
Total Hours	1,168	760	694	707
Total Passengers	8,013	6,850	4,613	3,827
Fuel	Propane	Gas	Diesel	Gas

(Source: SYSTAN)

5.10 Sources of Funding

There are few private demand-responsive paratransit systems operating for profit (e.g., SRT services in Little Rock, Arkansas, Hicksville, New York and Madison, Wisconsin) which are supported totally by fare revenues. Demand-responsive systems generally receive substantial portions of operating funds from public subsidies, as shown in the table on the next page. State and city funds are the most common sources of subsidies for general market systems. Federal funding is used by only 28% of general market systems, in sharp contrast to conventional fixed-route transit systems which virtually all receive federal operating grants.

Approximately two-thirds of the target market systems now operating receive city funding. More target market systems than general market systems use federal funds, since there are many more federal programs for target market systems.

The programs providing funds for paratransit systems are shown in the exhibit on the next page. There are a variety of such programs at the local, state and federal levels.

5.11 Implications of Systems Characteristics Data

The available data suggest that viable paratransit systems can be created in a wide variety of cities, and can provide various types of service. It cannot be assumed that these systems will pay for themselves from the farebox, and they require public subsidy which cities are usually able to provide.

Paratransit systems are typically less costly per vehicle-hour than conventional transit, but may be more expensive on a per-passenger basis due to their lower productivities.

As previously stated, the data presented in this state-of-the-art review can be used by planners to obtain an idea of how a paratransit system might perform in their areas as compared to conventional transit systems. When the decision between a general market or a target market system is made, it will usually be based on social goals and resources available.

The available data suggest that DAB and SRT systems have sufficiently similar operating characteristics that the choice between them can be based on considerations of existing supply, such as the availability of either type of service or the question of labor costs.

FUNDING SOURCES

Source	General Market (46 Systems)		Target Market (29 Systems)	
	Number	Percent	Number	Percent
Federal	13	28.3	19	65.5
State	22	47.8	13	44.8
County	4	8.7	4	13.8
City	20	43.5	19	65.5
Special District	3	6.5	3	10.3
Local Organization	3	6.5	7	24.1
Other	5	10.9	--	--
Total	70	152.2	65	224.0

Source: SYSTAN

POTENTIAL RESOURCES FOR FUNDS

Local

Revenue Sharing
Property Tax
Sales Tax
Special Transit District Tax
Community Development Block Grant
Comprehensive Employment and Training Act
(CETA) Grant
Other Public Sources (e.g., income, payroll, public utilities tax)
Private Sources

State

Transit Capital Assistance
Transit Operating Assistance
Technical Assistance
Demonstration Program
Direct Budget Allocation
Special Bond Issues
Other (e.g., lottery)

Federal

Capital Grant (Section 3)
Capital and Operating Grant (Section 5)
Demonstration Grant (Section 6)
Technical Assistance Grant (Section 9)
Private/Non-Private Grant (Section 16(b)(2))
Other (e.g., HEW, HUD)

6

OFF-THE-ROAD ISSUES

6.0 OFF-THE-ROAD ISSUES: THE MAJOR ISSUES IN PARATRANSIT

The major factors influencing the growth and development of paratransit systems are neither technical nor operational, but rather off-the-road issues reflecting institutional arrangements or constraints. These issues include:

1. The coordination of existing paratransit service;
2. The availability of funding
   a. The competition between conventional and paratransit systems
   b. Barriers to private operators;
3. The effective use of the taxi industry;
4. The cost of paratransit service
   a. Labor
   b. public versus private operation
   c. Insurance;
5. Local regulations
   a. Restrictions on shared-ride taxis
   b. Insurance;
6. Federal regulations; and
7. Federal policy for elderly and handicapped users.

This list does not include all off-the-road factors affecting paratransit, but does attempt to identify the most significant issues, many of which will require national attention. These issues do not fall into tidy packages; rather, as the subheadings indicate, they are highly interrelated. Each issue is discussed in the subsequent sections of this chapter.

6.1 Major Issue: Coordination of Existing Services

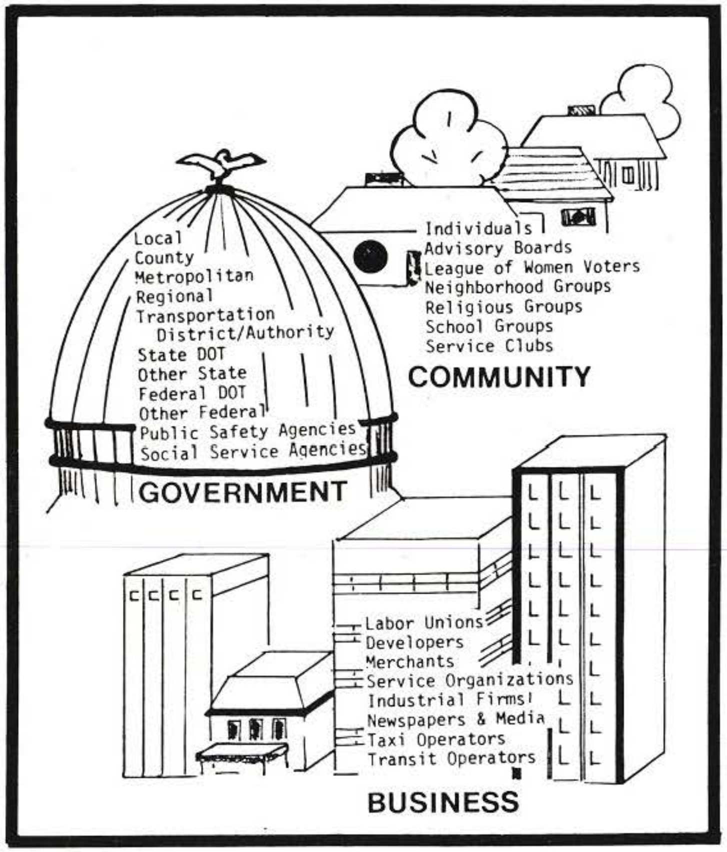
6.1.1 Organizational Considerations

(A) Participants

A number of organizations in every community have an interest in transportation. There are those who plan, advise, fund, manage, operate, use and control (through regulation, politics, etc.). These roles are organized in a variety of often complex institutional arrangements involving many participants. Combinations of roles exist as well; for example, planning and operation may be done by the same organization. The following exhibit shows the array of groups concerned with transportation decisions. During preliminary planning, the affected groups should be included in discussing proposed plans, formulating the role and composition of advisory groups, and selecting the mechanisms for soliciting community input and informing the public of proposed plans. An assessment of the support of both the political community and local citizenry will provide a preliminary indication of the feasibility of initiating a paratransit system.

(B) Organizational Structures

In the past, most demand-responsive paratransit systems have not been developed within a formal planning process or structure, or in an organizational structure of any size or complexity. Paratransit systems have been called "guerilla systems." They have typically grown out of local, often unserved, transportation needs and have been characterized by informal organizational arrangements.



A variety of organizational structures currently exist. The most common are:

Public Paratransit as a Part of Transit Operations:

o Paratransit organization is fully integrated with a fixed-route system (Ann Arbor, Michigan).

o Paratransit is a separate organizational unit within a transit organization (Rochester, New York; Syracuse, New York).

Public Paratransit as a Part of Local Government:

o Paratransit is publicly-owned and managed by a unit of local government (many of the Michigan dial-a-ride systems).

o Paratransit is publicly-owned and managed by a private contractor, either a management and operations (M&O) contractor or a taxi operator (El Cajon, La Mesa, La Habra, and La Mirada, California).

o Paratransit is privately-owned and managed and may provide contractual service for local government (subsidized taxi operations).

Private For-Profit Paratransit:

o Paratransit is privately-owned and operated without subsidy (Little Rock, Arkansas).

Private Not-for-Profit Paratransit:

o Paratransit is organized by a community cooperative which contracts for service (OATS, Missouri) o Paratransit service is provided by a social service agency and integrated with other elements of their programs (almost all urban areas).

Although these arrangements are the most common, alternative arrangements also exist. The brokerage concept has received much attention recently, and is being applied in Knoxville, Tennessee. The brokerage function in Knoxville is carried out by a newly-formed department within the city government. The "broker" acts as a facilitator who "marries" supply and demand, bringing together the providers of transportation and the potential users of the services.

5.1.2 Coordination Concerns

The delivery of paratransit services, particularly by social service agencies, has been characterized by a lack of coordination resulting in inefficiencies and duplication of service. The potential benefits of a well-coordinated service are many.

Over two billion dollars were spent in fiscal year 1976 (Reference 106) by all federal programs that "provide transportation of people in support of program goals." Among the recipients of these funds were the various social service agencies who either operate their own paratransit service or contract for it. In fiscal year 1976, the Departments of Health, Education and Welfare, Housing and Urban Development, Interior, and Labor provided over $200 million for the transportation of people in support of their programs. Thus, significant sums of federal monies are being spent on transportation by agencies that are not in the transportation business. If this funding were available to support coordinated services, very high levels of service might result. Instead, the fragmentation of the federal funding programs has created a corresponding fragmentation of services at the local level. It becomes especially frustrating to those at the local level to see so much funding available for transit but so little available for community-wide services.

Although the possibility of coordinating and perhaps consolidating these services is attractive, the social service agencies themselves are concerned about giving up their existing procedures. They fear that if their transportation needs were to be met by an agency outside their control, the reliability of the services might suffer. Agencies using part-time or volunteer drivers sometimes fear that their transportation costs would escalate; this fear can be traced to the high vehicle-hour costs of most public transit systems. Moreover, the transportation funding provided to these agencies may provide complementary, non-transportation benefits for the agency staff.

Private operators who contract with social service agencies to provide transportation sometimes fear that any consolidation of services would involve public operation, resulting in a loss of business for the private entrepreneur.

The magnitude of funding and the duplication and fragmentation of services has motivated local and regional representatives to search for ways to coordinate these services. As an example, the Metropolitan Transportation Commission (MTC), which oversees federal funding in the San Francisco Bay Area, has recently enacted a regulation which requires agencies seeking approval of funding applications to belong to a "Paratransit Coordinating

Commission." MTC's intent was to increase the "cooperation, coordination, availability, and effectiveness of special transportation services by minimizing overlap and duplication in the use of resources." In Michigan, an effort is being made to achieve coordination by proposing that all planned transportation services funded by any state department be reviewed by the state department of transportation. "The objective is to ensure that no overlap in transportation service provision exists and that recommendations for maximizing the purchasing potential of available funds can be realized." (Reference 118)

Attempts at coordination will continue, and new concepts will evolve and be tested. Federal funding agencies could also take action to motivate coordination. However, fragmentation presently results in the ineffective use of resources and is a major issue in the development of effective paratransit systems.

6.2 Major Issue: Availability of Funding

Funding is the problem most frequently cited by the paratransit operators surveyed; 61% of those responding classified it as a problem, while an additional 20% felt it was a severe problem. Until recently, paratransit has been treated as a stepchild, receiving few of the funding grants awarded under the National Mass Transportation Act. As Kirby et al. (Reference 1) pointed out, capital grant money has traditionally gone to conventional bus and rail services. Only in the past few years has any capital grant money been expended on paratransit services. Funds for dial-a-ride demonstration projects have amounted to $7.4 million, or 3.4% of the total RD&D funds for 1966-1973 (Reference 119).

Instead of receiving federal support, operating assistance monies generally must be pried loose from a transit district or regional transit authority which may be committed to a conventional transit system. Moreover, private taxi operators -- who provide most of the existing paratransit services -- are not eligible for direct federal operating grants.

On the other hand, there is growing interest in paratransit at the federal level, as indicated by the growth of research and demonstration funding of paratransit projects and the proposed federal paratransit policy. There are still constraints on federal funding, however, in terms of operator eligibility and labor-protective legislation.

Although there is a shortage of federal funding for paratransit, local political bodies seem convinced of the value of paratransit services, as many provide support with local funds. Fifty-six percent of the systems surveyed used some or all local funds to cover operating costs. The sources of these funds are property tax revenues, federal revenue-sharing funds, and Community Development Block Grants.

There are indications that state governments are also sensitive to the benefits of paratransit. Michigan has established a program to provide 100% funding in the first year to local communities who contribute $1,000 for dial-a-ride projects. At the end of the year, the communities have the option to buy the equipment for $1.00. Texas reserves 40% of its operating aid for cities under 200,000 population. California designates that 5% of its operating assistance funds to transit districts can be used for community transit, and many of the resultant systems are of the paratransit variety.

6.3 Major Issue: Effective Use of the Taxi Industry

In 1975, taxi operations outgrossed all other transit modes ($3,358 million to $1,861 million), and carried 37% as many revenue passengers as all conventional transit modes (Reference 92). Taxi vehicle-hour operating costs probably averaged slightly less than $10, compared to an estimated average of over $20 for fixed-route buses. These comparisons portray a cost-effective industry which provides a significant portion of urban transportation. More complete comparisons of this type are shown in the exhibit below.

COMPARISON OF TAXI AND TRANSIT INDUSTRIES

(1975)

	Taxicab Industry	Transit Industry (Rail & Bus)
Vehicles (thousands)	193	62.3
Annual Revenue Passengers (millions)	3,104	5,626
Annual Passenger Revenue (millions $)	3,358	1,861
Annual Vehicle-Miles (millions)	7,739	1,990
Employees (thousands)	365	160

(Source: CDC/Wells, Reference 92)

Some trends and conditions will continue to affect the taxi industry. These include the constraints of local regulations on operating in an exclusive-ride mode; the escalating costs of fuel, vehicles and insurance; the dependence for income on fares which have necessarily risen and have negatively affected ridership; and the new, publicly-subsidized, shared-ride paratransit services which may compete with taxis. The extent to which these conditions threaten the viability of the taxi industry is not clear. However, the exclusive-ride taxi is an important service and should be preserved. There are over 2,000 communities whose only public transportation is the taxicab. Many economies could be realized by using the resources of the taxi industry more intensely. The equipment, management, and driver know-how can be used to provide cost-effective shared-ride paratransit.

6.4 Major Issue: The Cost of Paratransit Service

Most paratransit services have lower vehicle productivities than conventional fixed-route systems because of the intrinsic personalized nature of their operation. Exceptions occur in the case of certain subscription bus services, which may have productivities equivalent to conventional bus systems, and in sparsely-populated areas where fixed-route transit cannot attract sufficient aggregated demand to realize higher productivities than a demand-responsive system.

Labor accounts for about 60% of transit expenses in both fixed-route and paratransit operations. Therefore, if similar wage rates prevail for fixed-route and paratransit alternatives in a relatively high-demand area, the paratransit system is likely to have higher costs per passenger due to the higher productivities of fixed-route systems. Where dial-a-bus systems have operated in an integrated system together with bus transit, as in Rochester, New York and Santa Clara County, California, the dial-a-bus systems have had higher costs per passenger. Although the services are different and it can be argued that the personalized nature of dial-a-bus is a premium service which warrants higher cost, in both Rochester and Santa Clara County, and more recently in Ann Arbor, Michigan, the issue of the higher cost of dial-a-bus service became a major concern to political decision-makers. In Santa Clara County, the decision not to reflect the higher cost in proportionally higher fares was one of the factors which led to early system overloads.

The cost of service is partly a labor issue because of the labor-intensive nature of transit. This is indicated by the fact that in four cities operating general market systems under labor agreements with national transit unions (ATU or TWU) and in Ann Arbor, which had a local union, the means of the cost per passenger, hourly vehicle costs, wage rate and employee fringe benefits were all significantly higher than the comparable mean figures for all reporting non-unionized operations (as shown in the exhibit to the right). The operating costs of the unionized systems would be even higher if the figures were adjusted for inflation to a common year.

At the local level, the issue of cost is related to the choice of public or private provider. Public providers are more likely to be unionized, especially if a transit operation already serves the area. The

SERVICE AND LABOR COSTS

	Cost/ Passenger	Cost/ Veh.Hr.	Drivers Wage	Drivers Fringe
Systems with Unionized Labor:				
46 Haddonfield (1974)	3.45	19.90	5.67	35%
48 Columbus (1971-72)	7.56	16.64	8.00	--
80 Ann Arbor (1976-77)	3.54	19.85	5.15	53%
81 Greece (1975)	3.74	16.64	5.90	35%
81 Irondequoit (1976)	7.50	24.82	6.61	43%
Means	3.90	19.57	6.27	41.5%
Systems with Non-Unionized Labor				
Means	2.02	10.93	3.60	24.7%
Number of Systems	33	29	11	6

Source: SYSTAN

issue of labor and cost also relates to the availability of funding. Except for monies specifically allocated for target market services (UMTA Section 16(b)(2)), federal transit funds are available to transit operators only with the concurrence of unionized labor (UMTA Section 13(c)), which essentially "promotes" the use of unionized labor or equivalent wages and work rules. Some relaxation of these constraints seems likely in the proposed UMTA policy on paratransit. Even in cases where a transit authority is free to use private non-unionized paratransit operators, difficulties may arise if the private operation is to be coordinated with a public, unionized operation. Resentment and competition may impede successful coordination.

Another cost factor that limits the supply of paratransit operations is the high cost of insurance for common carriers. Prohibitive insurance costs have constrained entrepreneurial-minded commuters attempting to organize vanpool services to their place of employment. If they carry more than a specified number of passengers, they are deemed to be a common carrier by the local Public Utilities Commission, and are subject to relevant regulations which usually require them to obtain costly liability insurance. In some jurisdictions, non-profit organizations have been created to buy and insure vans to help reduce these costs by increasing the number of vehicles covered.

6.5 Major Issue: Local Regulation

6.5.1 Regulatory and Legal Considerations

"Funding affects what can be done; regulation affects what can't be done; together they affect how it can be done" (Reference 114). Or, as a taxi man expressed his views on regulation, "if it's not in the ordinance, you can't do it." Regulation is often viewed by the operator and the public in negative terms, although most regulations are instituted to protect both the operator and the consumer. The provison of new paratransit services has left many regulatory questions which are not easily answered by existing ordinances. Daniel Roos of the Massachusetts Institute of Technology has pointed out that:

1. Existing regulatory structures are often mandated by enabling laws that predate World War II and that conceptually lack a definition of many paratransit alternatives; and

2. The existence of a dual regulatory structure operates to prevent the effective coordination and integration of different paratransit and conventional transit services. (Reference 114)

Currently, there is a great deal of scrutiny of existing regulations, as the needs for and of paratransit have made some of the "can't do's" obsolete. Some of the regulatory shortcomings which have been identified include the lack of:

1. Uniform definiton of classes of ground transportation;

2. Uniformly-acceptable nomenclature;

3. Definition of boundaries in matters of jurisdiction;

4. Commonly-defined areas subject to regulation;

5. Uniformly-acceptable degrees of regulatory control;

6. Common purpose and constituency of the regulatory bodies and legislative entities responsible for establishing laws and ordinances; and

7. Proper definition of the public interest.

6.5.2 The Regulators

The exhibit at the right matches regulatory areas with the various levels of government having that area under their regulatory purview. The large number of regulatory bodies and regulation areas shown in this exhibit serves to illustrate the complexity of paratransit regulation.

6.5.3 The Regulated

Paratransit regulations can also be related to the type of service offered. Shared-ride taxi is illegal in most U.S. cities. In addition, Kirby et al. (Reference 1) list the following as areas of taxi regulation which tend to constrain their use in providing paratransit service:

1. Entry control (limiting the number of cabs, restricting the number of cab firms, and regulations allowing monopolistic operations);

2. Financial responsibility (public liability insurance);

PROFILE CHART OF REGULATORY FRAMEWORK

	Areas Subject to Regulation								
Regulatory Body	Rates and Fares	Insurance	Equipment	Drivers	Route	Licensing and Taxes	Fees	Accounting	Entry Control
Federal									
Interstate Commerce Commission	x	x			x			x	x
Federal safety standards			x						
Airport commission	x	x	x	x	x		x	x	x
State									
Public utility commission or state corporation commission	x	x	x		x	x	x	x	x
Department of motor vehicles		x	x	x					
Airport commission	x	x	x	x	x		x	x	x
Secretary of state	x	x	x	x	x	x	x	x	x
Department of transportation	x	x	x	x	x	x	x	x	x
County									
Department of motor vehicles		x	x	x		x			
Public utility commission	x	x	x	x	x	x	x	x	
Airport commission	x	x	x	x	x		x	x	x
Department of transportation	x	x	x	x	x	x	x	x	x
City									
Department of motor vehicles		x	x	x		x	x		
Police department			x	x		x			
Taxi commission		x	x	x		x	x		x
Airport commission		x	x		x		x		
Department of transportation	x	x	x	x	x	x	x		
Joint metropolitan commission									
Port authority	x	x	x		x		x	x	x
Area transit commission	x	x	x		x		x		x
Airport commission	x	x	x		x		x		

Note: x indicates the area that is subject to regulation by the regulatory body.

(Source: Wolfington, Reference 119)

3. Service standards (vehicle design and safety standards, driver qualifications, and restrictions on methods of operation; and

4. Fares (level of fares, rate structure).

Dial-a-ride service is generally regulated by a public service or utility commission, and must also meet state-imposed motor carrier regulations (Reference 1).

6.5.4 Paratransit in the Courts

Legal action by taxi companies has affected the implementation of new paratransit systems. The six issues at the right are at the heart of the allegations.

6.6 Major Issue: Federal Policy and Regulations

On October 15, 1976, UMTA proposed a policy on paratransit services which included the criteria to be used in funding such services. Earlier regulations issued jointly by UMTA and FHWA in September 1975 emphasized the need for local governments to consider paratransit services in their transportation improvement programs. Paratransit services are defined as "collective (shared-ride) transportation services which are regularly available to the public, i.e., which cannot be reserved for the private and exclusive use of individual passengers" (Reference 8).

The proposed UMTA paratransit policy states that local taxi and private transportation operators should be allowed to participate in the development of local transport plans and programs. In addition, UMTA would not fund a paratransit service for a public transit operator

PARATRANSIT IN THE COURTS

1. Compliance with UMTA grant requirements. In Westport, Connecticut, a taxi firm argued that a demonstration project (using UMTA Section 6 funds) should be subject to the stricter UMTA capital grant conditions (UMTA Section 3) funds which recognize the more permanent effect of such funds on the community. The court ruled that since the service was being offered as a demonstration, the Section 3 provisions did not apply. This decision was appealed and, in January 1978, the U.S. Court of Appeals also ruled against the taxi company but disagreed with the lower court's findings. The appeals court ruled that the Westport Taxi Service was not a mass transportation company because it operated under a taxi ordinance allowing shared-ride only with the consent of the first rider. The taxi company was therefore not eligible for protection under Section 3(e). Although significant, this decision does not completely define when a taxi company does or does not offer a mass transportation service (see 6. below).

2. License provisions granted by a municipality. In Ann Arbor, Michigan, a taxi company argued that the city, by granting it a license to provide taxi service, implicitly agreed not to engage in competitive services such as the new dial-a-ride system. The court ruled that there was no exclusive franchise granted to the taxi company. In Westport, Connecticut, the taxi company argued that the "certificate of public convenience and necessity" guaranteed them freedom from competition from the government. The court decided that, as there was no explicit guarantee in the certificate, no violation occurred and, further, franchises granted in the public interest should favor the public.

3. Deprivation of property without adequate compensation. This claim stems from interpretation of a license or certificate as the receiver's property. In four separate cases (Ann Arbor, Michigan; Westport, Connecticut; St. Joseph-Benton Harbor, Michigan; and Merced, California), the courts ruled that competition from the government, by itself, does not constitute the taking of property.

4. Equal protection under the law. This issue was based on whether paratransit services and taxis should be regulated in the same way. In Ann Arbor, the taxi company argued that the dial-a-ride service was the same service as that offered by the taxis. The court ruled that dial-a-ride was not an exclusive-ride service nor could passengers control the vehicle's route, and this excluded them from taxi-licensing requirements.

5. Unfair competition. The issue of unfair competition in Ann Arbor was decided when the court ruled that it was not the intent of the transit district to market its services as those of the taxi company.

6. Buy-out provisions of transit-enabling statutes. In Santa Clara County, California, the legislation that created the county transit district included a buy-out provision for existing transit systems in the district. The taxi companies in the district qualified as both "existing" transit systems, since 40% of their operating revenue came from service within the district, and as a "transit system" since transit was defined broadly as "transportation of passengers and their incidental baggage by any means." In Orange County, California, the legislation creating the transit district used a narrower definition of existing mass transit systems. When the transit district was sued by a taxi company, the taxis did not come under the definition of mass transit service as "transportation of passengers only and their incidental baggage by means of a vehicle or some form of an individual fare-paying basis" (i.e., the passengers pay the scheduled fare). The court ruled that since: (1) taxis charge a flat fare in which the vehicle is hired and the fare is constant, and (2) 1% of the taxi business came from delivery of packages and telegrams, they did not meet the definition of a mass transit service.

(Source: Summarized from Gundersen, Reference 107) in competition with an existing or proposed private paratransit service unless the private operators were given an opportunity to bid for the provision of the service. The proposal states:

> Pursuant to this policy and to Section 3(e) and 4(a) of the Act, UMTA will not provide financial assistance to any publicly-owned mass transportation company or private non-profit organization for the purpose of operating paratransit services in competition with paratransit services already being provided by an existing local taxi operator or other private transportation provider, unless it finds that the officially-developed local transportation program provides to the maximum extent feasible for the participation of private transportation companies (whether or not such companies are providing at the time mass transportation services).
>
> A local transportation program will be found to provide for maximum feasible participation of private transportation companies if it offers local taxi operators and other private transportation providers full opportunities to bid for the provision of any new paratransit services that might be proposed by public bodies for the implementation with the assistance of UMTA funds; and if it provides for the selection of the service provider competitively, on the basis of the highest efficiency and effectiveness, and least cost. (Reference 8)

The proposed UMTA policy also states that:

> Where an organization is providing paratransit service as an incidental adjunct to its main business, UMTA will not consider such organization to be a mass transportation company within the meaning of Section 3(e) of the Act, or a mass transportation company or system with employees entitled to protection under Section 13(c). For example, a private taxi operator providing shared-ride paratransit services or contract services to a public transit authority, e.g., to provide special transportation services for elderly and handicapped persons, could be held to be providing such services on an incidental basis to its main business. (Ibid.)

However, recent Department of Labor rulings have found taxi companies to be providing "mass transportation" services and have extended 13(c) coverage to certain taxi company employees. In a recent Pittsburgh, Pennsylvania brokerage project grant, the Department of Labor ruled that 15% of Colonial Taxi's business was similar to the "mass transportation" service offered under the grant, and the taxi company employees who provided this service were to be covered by the local transit authority-union 13(c) agreement. In New Haven, Connecticut, the Department of Labor rules if 50% of a taxi employee's time is spent providing shared-ride service similar to that to be funded in a Federal operating assistance grant, then 13(c) protection is to be extended to these employees.

While this policy is intended to encourage privately-operated paratransit, conflicts still exist with the Urban Mass Transportation Act's labor protection provision, Section 13(c). The Department of Transportation policy is not in harmony with the Department of Labor, and will probably undergo major revisions before it is issued. Essentially, UMTA is not to give assistance where reduced employment for conventional transit services would result, even though, as Kirby at al. (Reference 1) pointed out, "some of the transit services being provided might be highly inefficient. For example, the federal dial-a-ride experiment in Haddonfield used small buses and employed bus drivers largely because of Section 13(c), when taxicabs might have been a better choice on efficiency grounds. Local officials may therefore be placed in the uncomfortable position of having either to support an inefficient transit system or do without federal funds for public transportation."

The 13(c) section of the UMTA act has been the subject of much controversy, and its implications are not widely understood. In a recent court ruling in New York over Section 13(c) between the Syracuse Regional Transportation Authority and the local ATU union, the court ruled that "13(c) was intended to preserve the rights of employees and to maintain the status quo with respect to the employer's obligation to bargain collectively, not to create new rights for employees or enhance existing ones" (Reference 114). While this may be true, labor will naturally use the provision to negotiate for the inclusion of paratransit systems in their agreements:

> In demand-responsive transit, the arena for much of the contention about 13(c) has been the demonstration projects sponsored by UMTA. In the Haddonfield, New Jersey and Rochester, New York demonstrations, union labor was employed and paid the prevailing wage. The Rochester union agreement is considered a model by organized labor of how dial-a-ride should operate. (Reference 101)

6.7 Major Issue: Federal Policy Regarding Elderly and Handicapped Users

Federal policy dictates requirements for assuring that transit systems are accessible to elderly and handicapped users. Section 16 of the Urban Mass Transportation Act of 1964, as amended, states that "It is hereby declared to be the National policy that elderly and handicapped persons have the same right as other persons to utilize mass transportation facilities and services... (and) that special efforts shall be made in the planning and design of mass transportation facilities and services so that the availability to the elderly and handicapped persons of mass transportation which they can effectively utilize will be assured..."

More recently, Executive Order 11914 (April 28, 1976) stated that every department of the government should establish specific standards for implementing non-discrimination policies as spelled out in Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794).

The proposed rules for implementing Section 504 in the Department of Transportation were listed in the Federal Register, Volume 43, No. 111 (June 8, 1978). The rules state that recipients must "make each program or activity (in a transit system) accessible when viewed in its entirety, but each existing facility or part of a facility need not necessarily be accessible to or usable by the handicapped." Exactly what this implies in practice is yet to be determined.

These regulations affect both transit and paratransit, and may impact the balance between the system types. Many transit jurisdictions had planned to provide accessibility to paratransit service for the elderly and handicapped rather than with capital investments in conventional systems. The reasoning behind this strategy is expressed in the position of the Rochester-Genesee Regional Transportation Authority (RGRTA):

> The introduction of accessible coaches to fixed-route service in the Rochester urban area will not, in our judgment, make public transportation available to a significant number of mentally, physically, or emotionally disabled persons. Rather, implementation of the technology prescribed in the proposed Regulations may only divert resources that are necessary to expand and continue an accessible, door-to-door service that has been available to the disabled population for two years.

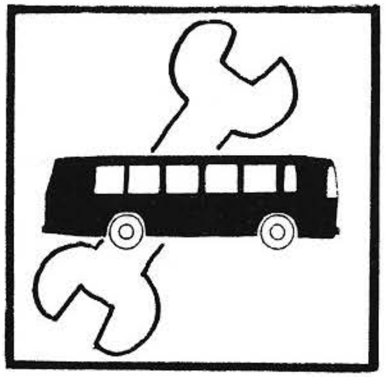
Under these regulations, this strategy does not seem to be acceptable. The possible result seems to be a lessening of the motivation and funding available for paratransit systems.

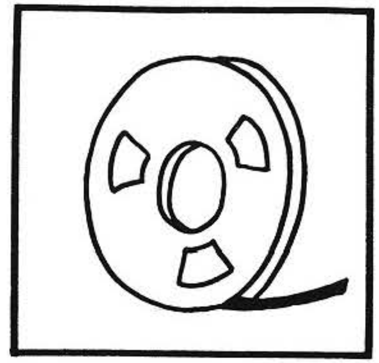
As RGRTA pointed out, accessible fixed-route systems will not provide true accessibility for those who do not have the mobility to get to the fixed-route stops, so there will still be a demand for paratransit systems to serve the elderly and handicapped. Whether transit organizations can afford both paratransit services and lifts or other accessibility aids on fixed-route systems is an issue yet to be resolved.

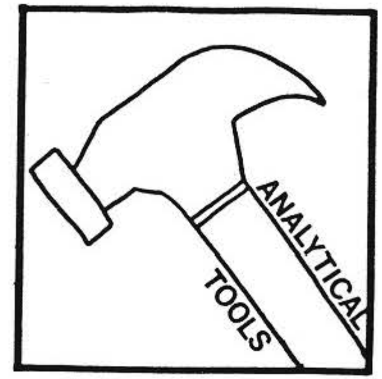
The Section 504 regulations also require that paratransit systems themselves contain a sufficient number of specially-equipped vehicles to provide the same service to the handicapped that is provided to the general public. This raises the question of whether an SRT system is accessible to the handicapped if a driver must assist users personally. Such a requirement for personal service will affect work rules and labor agreements.

Meeting the requirements by including a certain number of specially-equipped vehicles in the fleet places a constraint on the scheduling and dispatching methods of the system, and may also affect its productivity.

As districts devise and implement measures to meet these requirements, more experience will become available to aid planners in determining acceptable options.







7

HARDWARE, SOFTWARE & ANALYTIC TECHNIQUES

7.0 HARDWARE, SOFTWARE AND ANALYTIC TECHNIQUES

7.1 Vehicles and Maintenance

A variety of vehicle sizes may provide paratransit, ranging from passenger automobiles to full-size buses. Vans, small buses and manufacturers' conversions of motor homes are also used. Automobiles have passenger seating capacities of up to five persons, while vans and converted vans can generally seat from 10 to 15 passengers. The distinction between converted motor homes and small buses is intended to differentiate those vehicles whose motor home bodies were merely modified for transit use from those vehicles primarily designed for use as buses. Small buses and converted motor homes generally seat between 15 and 25 passengers. Finally, regular- and mid-sized buses are those used for conventional transit operations, and generally seat 30 and 50 passengers respectively. Most paratransit services, with the exception of subscription services, do not generate sufficiently high load factors to require large vehicles. The advantages and disadvantages of the various vehicle types are tabulated in the exhibit on the following page.

Automobiles, vans and regular buses have large markets for uses other than demand-responsive transportation, and these industries have matured to the point where a small number of manufacturers produce vehicles with a proven reputation for reliability. The market for small buses has expanded only during the past few years. Consequently, many manufacturers have recently entered this market with new or adapted vehicles.

The large number of vehicle alternatives complicates the vehicle selection process. While it is likely that the number of manufacturers will eventually stabilize, in the short run there is the risk of commiting to a manufacturer who may not remain in the field. Moreover, many vehicles have not performed well. A July 1975 report by the U.S. General Accounting Office for the Secretary of Transportation stated that "many of the transit system grantees were having problems procuring small buses and many small buses purchased with federal funds were not reliable and have been or will be replaced after a few years use..." (Reference 238). Two reports have been compiled that evaluate the small transit vehicle models available (References 234 and 240). However, there have been no attempts to rate the different vehicles and no consensus regarding the performance of different vehicles has been reached. Operators contemplating the purchase of a specific vehicle should contact past and current users of that vehicle before making a commitment.

Maintenance of vehicles in demand-responsive service is probably not significantly different in concept from maintenance of other automotive vehicles. Different vehicle types have their own idiosyncrasies which must be recognized and incorporated into a maintenance program. Paratransit operators sometimes find that they must have a greater percentage of spare vehicles than they do for fixed-route fleets, and they may find it beneficial to pay more attention to preventive maintenance. This is because demand-responsive fleets are typically smaller than fixed-route fleets and each vehicle is more critical to system performance. Moreover, service levels in demand-responsive systems are quite sensitive to the supply of vehicles. Whether this sensitivity is greater or less than it is for fixed-route systems depends on the characteristics of the systems. If one bus fails on a fixed route, only users on that route suffer lower service levels. If headways are short and there is excess bus capacity, the loss of a bus might go unnoticed. In demand-responsive systems, however, the loss of a bus degrades service in the entire system.

VEHICLE FEATURES

Vehicle Type	Passenger Capacity	Capital Cost ($1000's)	1975 Operating Costs ($ per mile, excluding labor)	Service Life (Years)	Maintenance		Performance/ Safety	Ease of Entry/Exit	Interior Features
					Ease	Record			
Automobiles and Sedans	4-9	5	.09	2-4	Extensive service network; competitively priced	Fair; limited durability	High maneuverability and acceleration. Relatively high accident rate	Limited or difficult due to low, sleek design; no wheelchair access	Limited seating arrangements; poor space utilization
Vans and Converted Vans	8-17	7-14	.11	4-7	Fairly extensive service network; competitively priced	Fair; limited durability	High maneuverability. Increased safety due to elevated driver position	May be difficult in standard vans or if seating cramped; wheelchair access	Versatile seating
Small Buses	15-30	15-42	Generally higher than vans, but varies widely according to type	5-10	Limited to trained bus (diesel) specialists	Fair to good; durable	Less maneuverability than vans; smoother ride in unitized construction; safety track records not available	Increased size and comfort permits easier boarding; wheelchair access	Greater versatility and passenger comfort
Converted Motor Homes	15-25	Generally less expensive than small buses but prices vary widely; 14-65	N/A	N/A	Limited to trained specialists	Track record not available; questionable durability	Limited maneuverability; safety track records not available	Wheelchair access	Versatile seating
Regular and Mid-Sized Buses	30-50	40-55	.60	12-25	Limited to trained bus diesel specialists	Excellent; reliable and durable	Limited maneuverability; relatively low accident rate	Increased size permits easier boarding and wheelchair access	Versatile seating

N/A - Not Available

(Source: SYSTAN)

Rochester's difficulties in maintaining a multiple-brand vehicle fleet suggest that operators should carefully select one vehicle and then live with it.

Some paratransit systems utilize vans maintained under contract by the private sector. From published data, it is not clear whether vans or buses are more reliable. In the systems which use both and for which there is published data, the vans tend to be new and, hence, direct comparison of reliability statistics is not valid.

Maintenance costs run between 8% to 20% of total operating costs, with the cost per vehicle ranging from less than $500 up to about $3,700 annually (see exhibit below). The cost per mile ranges from just under $.04 to just over $.20, and the cost per hour from $0.30 to $2.85. The exhibit to the right contains the maintenance costs per vehicle-mile for buses and vans in Ann Arbor, Michigan. The bus maintenance costs are

COST OF MAINTENANCE BY TYPE

(Ann Arbor, 7/75 to 3/76)

Type of Maintenance	Dollars/Vehicle-Mile	
	Vans - 51	Buses - 42
Scheduled	.0159*	.0211
Unscheduled	.0338	.0441
Accident	.0038	.0182
Vehicle Improvements	.0023	.0138*
Road Call	.0038	.0060
No Cause	.0001	.0004
Total	.0597	.1036*
Vehicle-Miles	816,081	591,405

*Numbers corrected.

(Source: Reference 67)

EXAMPLE OF MAINTENANCE COSTS

SYSTEM			VEHICLES			MAINTENANCE COST				TOTAL OPERATING COST
Location	Survey No.	Type	Number	Type	Annum Cost	Total	% of Operating	$/Mile	$/Hour	
Fairfield, CA	4	GM/DAB	5	Van	$2,765	$13,825	9	.076	1.16	$153,725
Merced, CA	10	GM/DAB	4	Van	3,105	15,527	15	--	--	105,680
Turlock, CA	14	GM/DAB	4	Van	2,592	10,369	11	--	--	93,528
Alma, MI	19	GM/DAB	4	Bus	3,220	12,880	11	.159	1.56	118,608
Gladwin, MI	30	GM/DAB	3	Van	460	1,360	8	.037	.30	17,000
Grand Haven, MI	31	GM/DAB	7	Van	1,598	11,184	19	.05	.74	59,246
Niles, MI	73	GM/SRT	6	Taxi	3,333	20,000	14	.139	1.49	145,000
Rochester, NY	81	GM/DAB Integ.	26	Bus/Van	3,077	80,000	16	.213	--	485,000
Grand Rapids, MI	100	TM/DAM	11	Bus/Van	3,636	40,000	20	.20	2.85	195,550
Syracuse, NY	104	TM/DAB	6	Bus	3,667	22,000	11	.125	1.29	197,000
Cuyahoga Co., OH	121	TM/DAB SRT	64	Bus/Taxi Van	1,328	85,000	10	.09	1.73	890,000

(Source: SYSTAN)

about 73% higher than van maintenance costs, but the buses are not the small models which are more appropriate for paratransit services. Nevertheless, similar cost differences are reflected in the exhibit on the previous page.

One way to reduce maintenance costs is to use a mobile maintenance van which travels to the vehicles for preventive maintenance, as is being done in Orange County, California (Reference 37). This procedure reduces deadheading to the main maintenance facility and eliminates the need for satellite garages. It is probably most applicable in mild-weather areas like California, where maintenance can be performed out-of-doors.

7.2 Computerization in Paratransit

Computers can perform several specialized functions in paratransit operations, in addition to the standard accounting, bookkeeping and recordkeeping functions which apply to almost any organization. These functions include:

1. Request and tour processing;
2. Fare determination (when fares are based on distance;
3. Request and vehicle scheduling;
4. Vehicle dispatching; and
5. Customer information.

The use of a computer for any of the above functions automatically generates management and evaluation information. Depending upon the comprehensiveness of the computer control system, ridership data, origin/destination data, supply data, and level-of-service data can be easily derived. Manual collection of this data is generally more cumbersome, time-consuming and expensive.

The overwhelming majority of existing paratransit systems have not computerized any of the above functions. Only 4 of the 119 services surveyed reported the use of computers for these functions. However, existing systems are relatively small, and computerization is most appropriate for larger systems where computer usage would result in sizeable decreases in control room personnel requirements.

A few existing demand-responsive operations have computerized-request processing, and several taxi companies (with exclusive-ride services only) also process requests by computer. Computerization of the remaining functions is less common.

7.2.1 Request and Tour Processing

Computerized request processing is accomplished by recording customer request information on a form that can be input into a computer. Telephone operators typically enter this information directly into the computer system as the telephone request is received. To do this, each telephone operator operates an on-line terminal connected to the computer. Tours are then manually organized and the assignment of these tours to vehicles is stored in the computer.

The Ann Arbor Teletran system used a dedicated minicomputer to perform request and tour processing. Although the Ann Arbor system operated in a many-to-many fashion, most passengers used the DAB service to travel to and from a fixed-route bus transfer point. A telephone operator recorded the trip request information and scheduled the request on a tour identified according to zone and time approaching or leaving the transfer point. The dispatcher reviewed all tour lists before they were transmitted to the drivers. After the summer of 1977, when digital communications equipment was installed, drivers received the tour lists automatically.

Limited application of the computerized request processing has also been made in two Canadian DAB systems: Regina and Calgary. In Regina, advance and subscription requests are manually organized into tours and stored on computer. Drivers then receive lists of these tours daily prior to their run, and the control room dispatcher adds incoming immediate requests to these tours and submits the new information to drivers by radio. In Calgary, tours are manually scheduled but are stored on computer and listed off terminals located at central transfer points, where DAB buses converge. Drivers then use these tour lists until returning to the transfer point, where they receive a new list.

Between 1972 and 1977, when the company terminated operations, the Los Angeles Yellow Cab Company processed about 15,000 service requests per day by entering requests directly into the computer file through CRT terminals. The advantage of the processing was a reduction in the amount of paperwork required of the control room staff.

Two advance request processing systems have been tested in Europe. In Germany, a system called RETAX provides terminals (automatic destination selectors) at bus stops upon which users record their desired destinations. The trip request information is processed by a computer, which selects and dispatches the appropriate bus to the requesting stop. In Sweden, the same concept is accomplished by utilizing an adapted telephone as the requesting terminal (Reference 242).

7.2.3 Request and Vehicle Scheduling

Request and vehicle scheduling is the process of assigning a customer to a vehicle. Computerization of this function requires a scheduling algorithm, which assigns requests to tours based on some predetermined service quality or efficiency criteria. Theoretically, this will result in optimal tour configurations based on the criteria used in the scheduling algorithm, thereby improving service levels and vehicle productivity.

To date, request and vehicle scheduling has been computerized in only four locations:

Davenport, Iowa. For a brief period in 1972, the Royal Cab Company scheduled up to 20 shared-ride taxi vehicles by computer. However, the system proved to be inadequate for handling peak-period demand and the company reverted to manual scheduling.

Haddonfield, New Jersey. During the last year of the Haddonfield DAB demonstration, between February 1974 and March 1975, DAB service had computerized request and vehicle scheduling. Services terminated when the demonstration ended in March 1975.

Santa Clara County, California. Computerized request and vehicle scheduling of DAB service began in November 1974 and continued until May 1975. At that time, most DAB service was terminated, and the remaining operations had never been placed under computer control.

Rochester, New York. Computerized request and vehicle scheduling of DAB service by time-sharing began to be implemented in September 1975 and was operating full-time beginning in June 1976. In January 1977, vehicle dispatching was also done automatically as tour directions were sent automatically to vehicles upon driver request. Currently, the number of service areas are being increased. The system will be converted to minicomputer control under an UMTA demonstration grant.

7.2.4 Vehicle Dispatching

Another function of computerization is to dispatch DRT vehicles automatically by sending tour information to a vehicle at the driver's request. Most manual systems require dispatchers to read tours to drivers over the radio. Digital communications equipment is required in order to implement computerized vehicle dispatching, except in an advance-scheduling system in which drivers receive their tour instructions when starting their run. Another alternative is to require drivers to pick up printed tour listings at terminals located along their assigned route.

Computerized dispatching is being done in Rochester. It is a natural extension of computerized request and vehicle scheduling, and will no doubt be combined with systems choosing to computerize these functions.

7.2.5 Customer Information

Computers can directly aid the user in providing schedule information on existing paratransit operations. A research effort in computerized information is being undertaken as part of the Knoxville, Tennessee brokerage demonstration. In this experiment, information on existing fixed-route buses, carpools, vanpools and social service agency transportation is being stored in a computer. Persons with travel needs will then be able to call a central location with their travel request, and those travel mode options meeting that person's needs will be generated by the computer. This information will then be provided to the user along with instructions about how to use each mode (such as who to call in order to join a vanpool that day).

7.3 Analytical Procedures and Tools

The development of integrated paratransit systems has been accompanied by the development of a wide range of modeling and analytical activities designed to shed light on the delicate balance between supply, demand and cost in a paratransit network. Modeling and analytic approaches have ranged from complex simulations to simple rules of thumb. Of the many theoretical models developed to date, relatively few have been applied in a practical planning context, and the results of these limited applications have been mixed.

A comprehensive literature search, accompanied by extensive discussions with members of the paratransit community, has resulted in the identification of more than seventy references dealing with the modeling of flexibly-routed transportation systems (References 158 through 231). This section summarizes the development, classification and application potential of the models represented in this literature. A more detailed examination of model attributes, as well as a comparison of the relative capability and ease of use of similar models, may be found in Reference 159.

7.3.1 Model Classification

A coarse classification system for existing models, based on the level of model complexity and the focus of the modeling effort, divides paratransit models into two distinct groups:

Micromodels, which deal with a fine level of detail and focus on the relationships between individual vehicles and passengers; and

Macromodels, which deal with an aggregate level of detail and focus on individual service and region-wide performance rather than on individual vehicles and passengers.

(A) Micromodels

Micromodels are primarily used to address analytic questions and explore detailed vehicle/passenger relationships within a single service area. Detailed simulations and disaggregate supply/demand models serve as two examples of the general classification of micromodels.

(i) Simulation. The simulation approach attempts to generate a series of artificial events and responses to these events in a manner which resembles the interaction of cause and effect in a real system. Digital computer simulations were among the first approaches to modeling the performance of demand-responsive systems (References 162, 169, 173, 179, 185, 186). Computer simulations enabled the analyst to model those details of the interaction between passengers and vehicles that could not be treated effectively by purely analytic models, and permitted the investigation of different vehicle control algorithms.

Although the simulation approach supports the exploration of detailed system dynamics, it has several serious disadvantages. Simulation models are cumbersome, inflexible, expensive, subject to statistical sampling errors, and limited in the scope of their application. In addition, they usually have extensive data requirements. Extreme caution should be exercised if simulations are to be used in such activities as feasibility analyses, systems design or model calibration. Nonetheless, simulation remains the most effective tool for evaluating paratransit control algorithms, and is one of the few methods currently available for obtaining disaggregate measures of system performance.

(ii) Disaggregate Supply/Demand Models. Few existing models treat paratransit supply and demand interactively at the disaggregate level; that is, few focus on individual tripmakers or socioeconomic groups rather than on entire service areas and treat the relationship between supply and demand interactively. The most significant one has been developed by Cambridge Systematics/Multisystems (Reference 172). This model places a sophisticated analytic tool in the hands of the user without excessive input requirements, and appears to be a valuable tool for analyzing systems which have reached a steady state.

(B) Macromodels

Macromodels may range in complexity from sophisticated stochastic models to simple rules of thumb. Four levels of complexity were identified in classifying macromodels for this state-of-the-art review. These four levels are listed below in order of decreasing complexity:

1. Stochastic models;
2. Deterministic models;
3. Empirical models; and
4. Rules of thumb.

There are no clear lines of demarcation separating these classifications, and the distinctions between categories tend to blur at the edges. General descriptions of each category may be found in the following paragraphs.

(i) Stochastic Models. Stochastic models approach micromodels in level of complexity, depth of detail and data requirements. Relatively few stochastic models of paratransit systems have been developed to date (References 196, 211, 212, 218).

(ii) Deterministic Models. Most recent theoretical efforts to model paratransit system performance may be classified as deterministic models. These models typically treat the stochastic aspects of system performance with deterministic approximations grounded in geometric probability relationships. (References 189, 190, 191, 200, 224 through 227)

(iii) Empirical Models. Empirical models "..attempt to develop simple relationships between the key attributes of system performance and design" (Reference 229), generally through regression analysis. Early empirical models (Wilson et al., Reference 175) used simulations as a basis for generating regression relationships, while more recent models have reflected actual operating experience in developing relationships between such factors as fleet size and demand density or ridership and population (MITRE Guidelines, References 187 and 193).

(iv) Rules of Thumb. Rules of thumb represent a distillation of conventional wisdom, operating experience, modeling results, and quick-and-dirty calculations, reduced to single sentences with the ring, though not the reliability, of axioms. Examples of rules of thumb are the admonition that "...it is considered necessary to maintain the level of service such that the ratio of waiting plus travel time for a demand-responsive trip to the time required to make the same trip by automobile does not exceed 3.0" (Reference 7), or the guidance that "...an average of one seat per 1,040 population" represents a rough cut at the total number of seats needed to start a dial-a-ride service " (City of Los Angeles Guidelines, Reference 199).

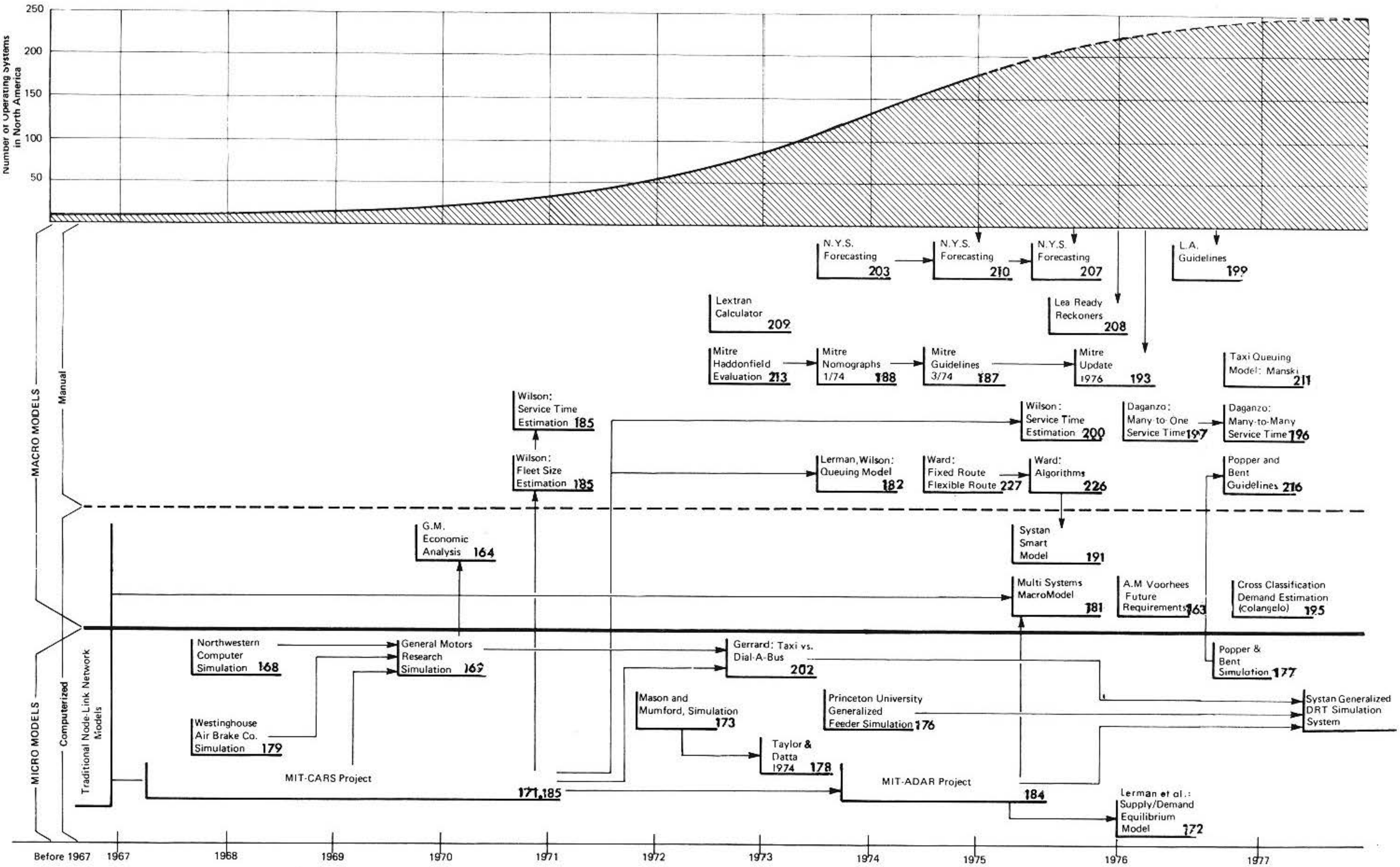
7.3.2 Model Genealogy

The facing exhibit traces the development of paratransit models over time and relates that development to the historical introduction of paratransit systems in U.S. cities. The graph at the top of the exhibit charts the approximate number of operating paratransit systems in U.S. cities between 1967 and 1977. The flow diagrams beneath the graph trace the chronological development of major paratransit macromodels and micromodels over the same period, and graph the genealogical relationships between successive modeling efforts.

Over time, elaborate simulation models have given way to simpler, empirical models as operating experience with actual systems increased. The simpler models are more accessible to planners than the simulation models, require less data to apply, are more easily understood, and offer results that are no less trustworthy than those of complex models for several basic planning tasks. Simulations contributed to the early understanding of demand-responsive systems by illuminating the nature of basic supply/demand relationships and by contributing to the education of the simulation developers, several of whom went on to help plan operating systems and develop less complex models.

Early modelers of paratransit systems not only tended to develop more complex models than later analysts, but they also tended to be more optimistic. Early paratransit models were supply models which treated demand exogenously and had no internal capability for reconciling supply and demand levels. Nor was there much operating experience to provide an external reference for such a reconciliation. Consequently, modeling results were heavily dependent on the level of demand selected by the modeler. Early modelers typically overstated system demand and, as a result, overspecified system service levels. As Wilson had observed, "Early studies of the economic feasibility

HISTORICAL DEVELOPMENT OF PARATRANSIT SYSTEMS AND MODELS



(Source: SYSTAN)

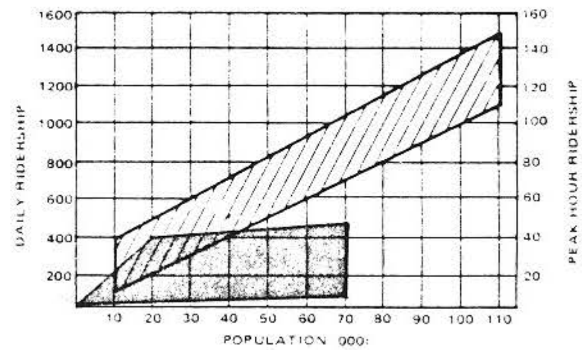
of dial-a-ride suffered particularly from this problem, over-estimating demand by between one and two orders of magnitude, leading to an over-optimistic economic assessment of the system" (Reference 229).

The discrepancy between overly-optimistic early expectations for demand-responsive systems and actual experience is reflected in the facing exhibit, which compares early planning guidelines developed by MITRE (Reference 187) with later operating experience as reflected in the system surveys described in Section 5. As shown, although the range of operating experience reflected in the later surveys overlaps a portion of the area covered by the earlier guidelines, the ridership levels and demand density of actual systems cover but a fraction of the range anticipated by the earlier theoretical work.

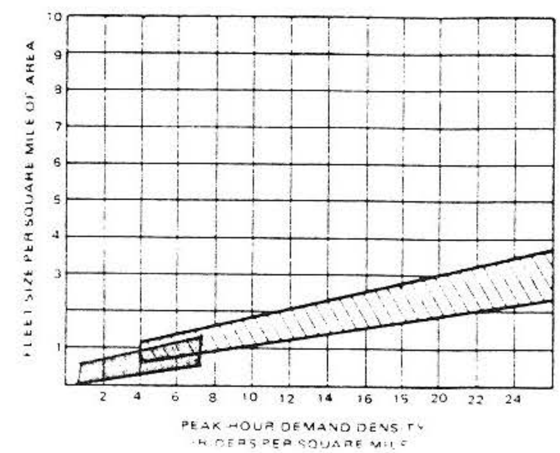
7.3.3 Model Performance

Existing paratransit models have addressed questions of system demand (ridership, fare elasticity), supply (fleet size), performance (level of service, response time), and cost. A hybrid class of models, designated as supply/demand models, have attempted to balance the interlocking relationship between supply and demand. This relationship is typically more complex in demand-responsive systems than in conventional fixed-route systems. In both system types, ridership is heavily dependent on the quality of service. In conventional systems, however, service quality is relatively independent of ridership, except when the capacity of the system is approached. By way of contrast, in demand-responsive systems, service quality may suffer as ridership increases overall ranges of demand. In an attempt to reflect this interactive relationship, certain supply/demand models iterate between ridership estimates

COMPARISON OF EARLY PLANNING GUIDELINES
AND SUBSEQUENT OPERATING EXPERIENCE



DAILY AND PEAK HOUR RIDERSHIP VERSUS POPULATION



FLEET SIZE PER SQUARE MILE VERSUS PEAK HOUR DEMAND DENSITY

Early Planning Guidelines

Actual Operating Range for 66 Systems

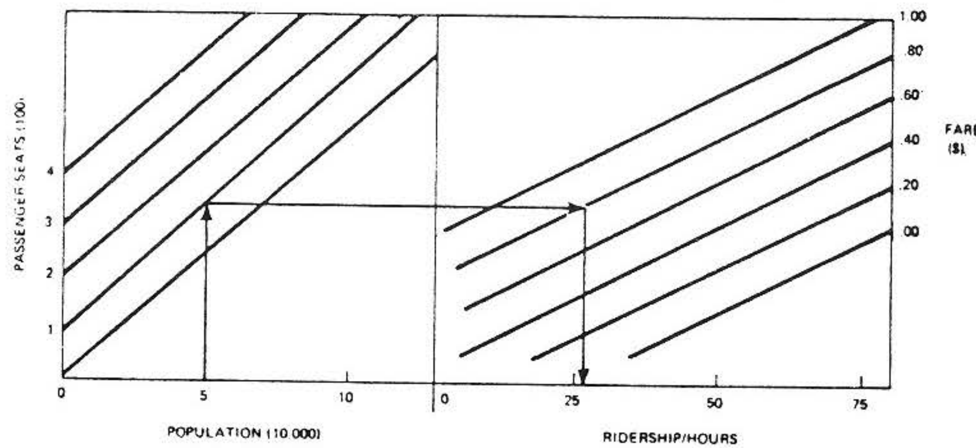
Source: MITRE, Reference 187, and SYSTAN System Surveys and service measurements until an equilibrium point is approached. This iteration may be accomplished by computer, as in the case of the model recently developed by Cambridge Systematics and Multisystems (Reference 172), or by the successive application of nomographs, as in an earlier MITRE model (References 188 and 193).

The nomographs used in the iterative supply/demand model developed by MITRE appear in the facing exhibit. In a recent test of empirical models for predicting paratransit demand (Reference 159), this model proved to be more effective than other regression-based approaches in anticipating ridership for a limited sample of paratransit applications. Most empirical approaches to demand prediction performed poorly in this test, and there seemed to be little connection between the apparent sophistication of an approach and the quality of its results.

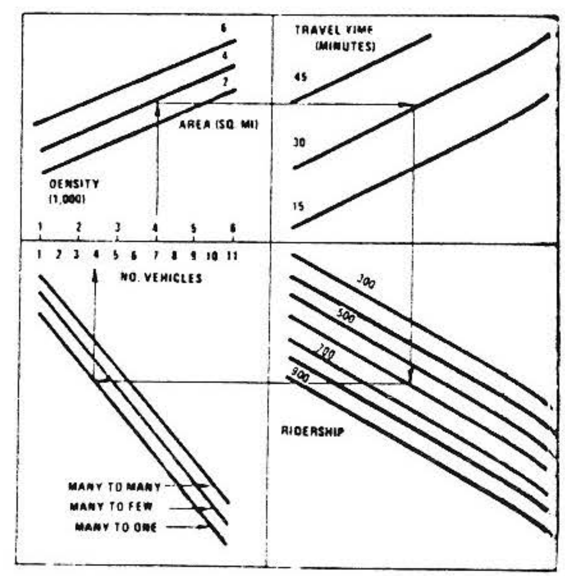
The majority of the paratransit models developed to date can be classified as supply or performance models. These models attempt to compute either vehicle requirements or critical performance measures, or both, as a function of demand. Models designed to estimate fleet size typically treat vehicle requirements as a linear function of demand. If the demand is accurately predicted, most of these models are fairly reliable. A variety of analytic techniques have been developed to estimate such performance parameters as wait and ride times as a function of demand and fleet size (References 184, 189, 191, 224, 225, 226). Given accurate estimates of demand and fleet size, these models have performed adequately in test cases (References 159, 229). Past attempts to model the productivity of demand-responsive systems have tended to be overly optimistic (Reference 159). As more and more operating data reflecting relatively low ridership levels per vehicle become available, techniques for estimating productivity have become increasingly conservative.

SIMULTANEOUS ESTIMATION OF DEMAND AND VEHICLE SUPPLY

a: Nomograph for estimating riders/operating hour



b: Nomograph for estimating vehicle supply



(Source: MITRE, Reference 188)

In practice, the costs of a demand-responsive system vary widely as a function of wage rates, work rules, and union practices. Attempts to model these costs range from simple rules of thumb (References 187, 188, 199) to more complex functions embedded in supply and demand models (References 189, 191). The simpler models typically express cost as a linear function of such key variables as fleet size or wage rates. These models are generally useful for preliminary planning purposes, but care must be taken to ensure that assumptions regarding wage rates, work rules and union practices are accurately reflected in the modeling process.

More attention should also be given to segregating data from different types of systems. At present, many empirical models mix data from many-to-many services with data from many-to-few and subscription services in attempting to develop relationships between demand or fleet size and demographic characteristics.

7.3.4 Potential Uses

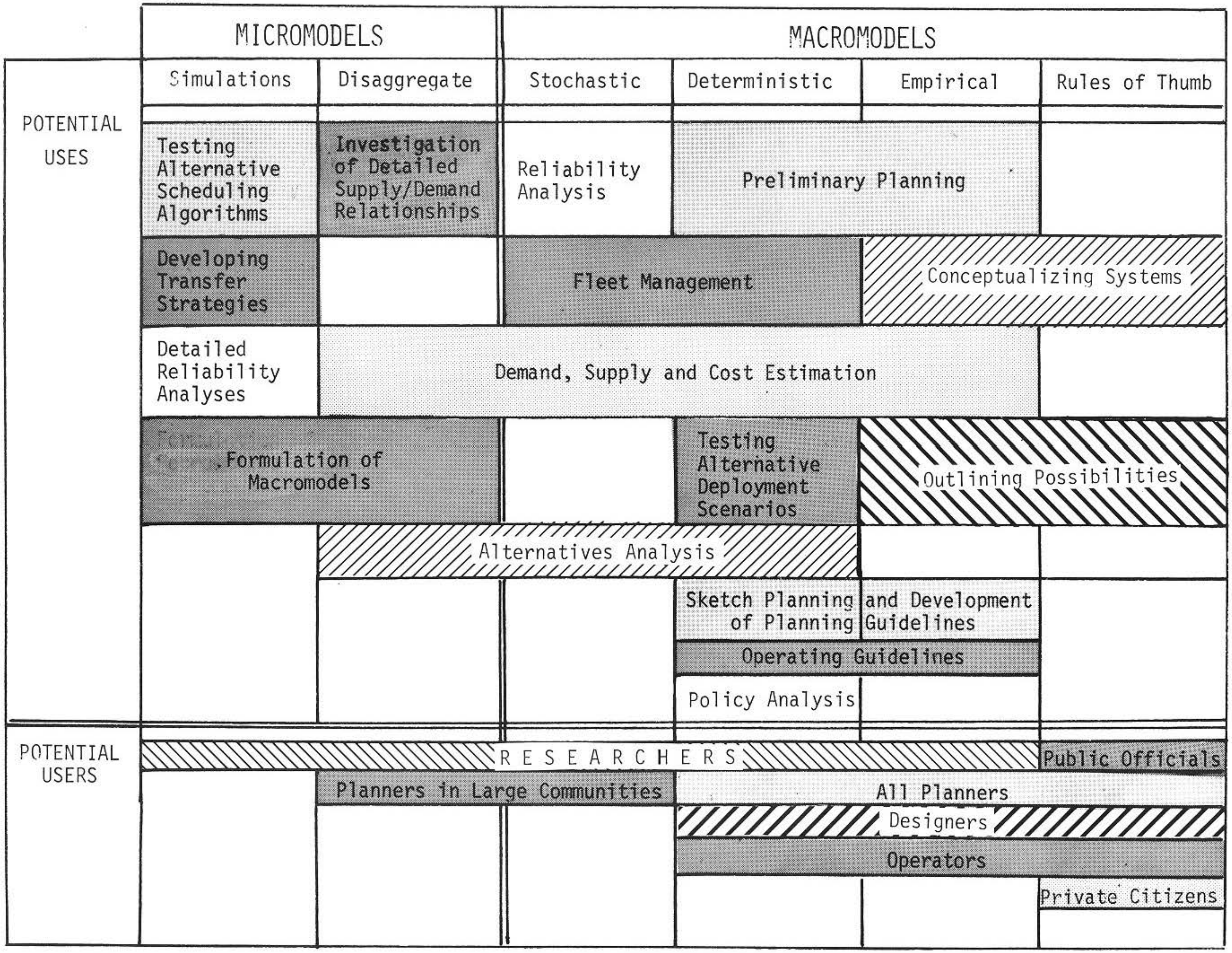
The facing exhibit associates potential model applications with various levels of complexity identified in the model review process. In many cases, an application may span several levels of model complexity. In general, of course, the more complex micromodels are theoretically capable of undertaking any of the tasks designated for less complex models. However, the cost, inflexibility and shaky past record of these models dictate that they be considered only for those tasks that cannot be addressed by the simpler models. By virtue of their position in the mid-range of system complexity, deterministic macromodels appear to have the widest range of potential uses. Simple enough to be used and understood by a wide range of users, they remain sufficiently detailed to provide insights into the complex relationships linking supply, demand and cost parameters.

The exhibit also lists the likely users of each model class. The more complex simulations are generally usable only by experienced researchers, while the simple rules of thumb can be comprehended by the public at large. The relative inaccessibility of the more complex micromodels to the planning community makes it imperative that attention be devoted to translating the output of these models in a format directly usable by the members of this community, perhaps by creating simpler macromodels on the basis of a series of simulation runs.

7.3.5 Summary

As the first of the micromodels developed to represent paratransit systems, computer simulations have been tested in many of the applications listed for all model levels in the last exhibit. These micromodels have shown themselves to be well suited for the detailed analysis necessary in the design and evaluation of scheduling and dispatching algorithms. However, one of the early developers of the simulation approach to paratransit modeling, Nigel Wilson, notes in his review of supply models that "...experience suggests a good deal of caution in the use of simulation models for planning new systems" (Reference 229). Simulation models have not fared well in past planning tasks for a variety of reasons, including their dependence on exogenous demand estimates, their failure to reflect important stochastic elements, their inflexibility, the significant investment of time and cost required for their application, and their relative inaccessibility by the planning community. The planner designing a small demand-responsive system

POTENTIAL MODEL APPLICATIONS



(SOURCE: SYSTAN)

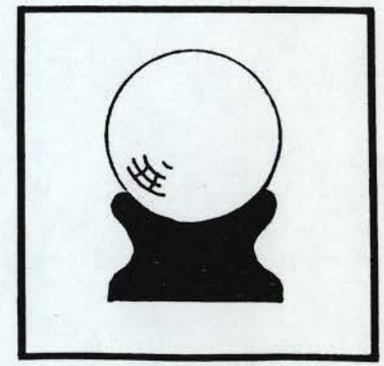
typically does not need the level of detail afforded by a simulation model, lacks the time and sophistication necessary to adapt and apply the model, and could probably not justify the relatively high cost of analysis in light of the relatively low cost of the system itself.

Nonetheless, the simulation approach "...remains the most effective tool in algorithm design and the only way to obtain disaggregate measures of system performance" (Reference 229). Existing simulations have been limited even in these applications by an inability to represent more than one control algorithm and the failure to replicate aggregate performance measures within acceptable limits of accuracy. These deficiencies in existing simulation models have led UMTA to fund the design and development of a more flexible microsimulation model capable of replicating the evaluating a wider range of service and control alternatives (References 190 and 159).

Although simulations have generally not served successfully as direct system design tools, they have played an important role in contributing to the modeler's understanding of paratransit systems, and have supported the development of macromodels appropriate for design work.

Deterministic models appear to be able to reflect many of the important aspects of system operation. If expanded to include such stochastic measures as system reliability, the most complex of these models (i.e., the Multisystems Macromodels, Reference 189, and the SYSTAN SMART model, Reference 191) should prove useful in testing alternative deployment scenarios, evaluating tradeoffs between different service combinations, and developing general guidelines relating system design to area characteristics.

Empirical regression models are currently the most accessible tool for the system planner, and offer the best means for developing rough, rapid estimates of supply, demand, and cost. As more and more operating data become available from different systems, these models should be refined to reflect the impact of such site-specific factors as climate, system service patterns, historical transit ridership, and automobile ownership on supply/demand relationships.



8

FUTURE GROWTH OF PARATRANSIT

8.0 FUTURE GROWTH OF PARATRANSIT

Demand-responsive transit has grown rapidly in the past few years, playing an important role in meeting certain community-wide transit needs (see exhibit on next page). It is not clear whether the S-shaped curves of growth represent the actual pattern of growth (suggesting that future growth will proceed more slowly), or whether the time lag in identifying new systems has caused the reduction in speed of adoption in recent years.

While long-range forecasts are somewhat uncertain, demand-responsive paratransit appears to have a bright growth potential for the immediate future. Many small and rural communities are contemplating their first transit services; larger metropolitan areas are beginning to integrate fixed-route transit and paratransit systems as they realize that no single mode or technology can efficiently serve their many different transit needs.

8.1 The Short-Term Forecast

8.1.1 Measures Used

The short-term forecast for demand-responsive paratransit was made from a survey of the 245 Municipal Planning Organizations (MPO's) throughout the United States. One hundred and eighteen organizations responded with the Annual Elements of their Transportation Improvement Programs (TIP's) as well as some supplementary DRT plans; the responding organizations are listed in Appendix 7. Federal regulations require each community desiring federal monies to identify each proposed project and anticipated funding sources and levels in their Transportation Improvement Programs. Although TIP identification is only required for federally-funded projects, many state and locally-assisted DRT services were included in this review. In addition to MPO responses, fifty-four existing paratransit operations provided information regarding their future plans in response to a separate survey.

Information on future plans was categorized according to general market, target market, dial-a-bus, and shared-ride taxi. In the short term, the mix of categories can be expected to continue the current trend; that is, a majority providing DAB services with an emphasis on target market services. It is also reasonable to assume that these services will be installed in the types of areas which have exhibited considerable paratransit growth in recent years.

The TIP analysis also discussed the following choices for future service plans:

1. No existing or proposed DRT services;
2. Continue or maintain existing DRT service;
3. Expand existing DRT service;
4. Initiate a new DRT service; and
5. Initiate planning and/or feasibility studies.

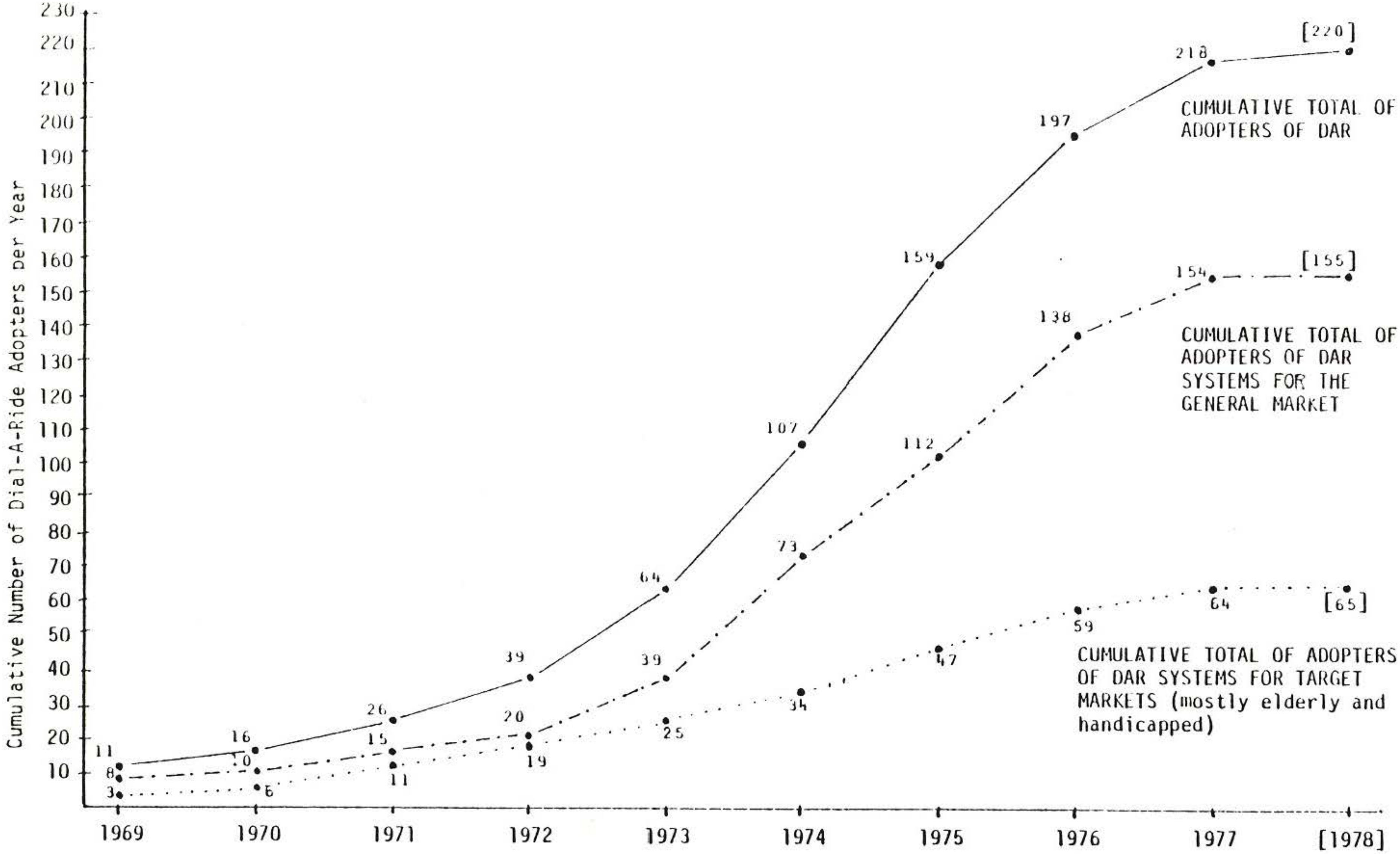
While the number of future paratransit services is probably the best indicator of DRT growth potential, it can be somewhat misleading. For example, today there may be three separate systems operating within one county or region; if these services choose to coordinate or integrate operations, only one system may emerge. While this appears to be a decrease in service on paper, it may actually reflect an expanded level of transit service in the field.

8.1.2 Conclusions

Of the identified future services reflected in the exhibit below, 28% are new services projected for implementation within the next two years. Current operators are also experimenting and planning to improve their services, as approximately 55% of the existing services propose to continue or expand their hours of service, service areas, or to purchase additional

CUMULATIVE NUMBER OF ADOPTERS

OF DIAL-A-RIDE IN THE U.S. BY YEAR



Source: Stanford, Reference 260

vehicles and equipment to meet growing demand. Only 17% of all the MPO respondents had no current DRT service, and more than half of these respondents had demand-responsive planning and feasibility studies underway or proposed within their Annual Element (1978-79).

This data analysis generally reflects a growing interest in DRT service. Thus, assuming a statistically valid MPO sample, and based on the existing number of services identified in the system documentation (refer to Appendix 3), demand-responsive transit forecasters can anticipate a 27% growth rate within the next several years.

8.2 Long-Range Projections

There are several existing projections of the long-term future growth of paratransit. One recent approach by A.M. Voorhees and Associates, Inc. (Reference 258) assessed the prospects of paratransit, under the assumption of moderate automobile disincentives, as a function of socioeconomic characteristics of several sample communities and projects its use to 1995. This study estimated that in urban residential areas, paratransit services (excluding conventional taxi but including subscription, elderly and handicapped, and other demand-responsive services) will carry over 20 million passengers daily, compared to about 10 million on conventional bus transit, as shown on the following page.

Estimates of current bus ridership show approximately five million passenger rides (Reference 11), so the projected growth would represent a 100 percent increase. This seems to be an unreasonably high conventional transit projection, based on the previous ridership

ANALYSES OF FUTURE DRT SERVICES

	Number of Responses	Percent of Responses
No service	18	7
Continue existing DRT service	47	19
Expand existing DRT service	89	36
Initiate new DRT service	69	28
Initiate studies	24	10
Total	247*	100

*Multiple responses possible.

ASSESSMENT OF A PORTION OF 1995 TRANSIT/PARATRANSIT ACTIVITY BASED ON URBAN RESIDENTAL AREAS ONLY

Population Category and Service Concept	Daily Passengers (millions)	Daily Cost of Operations ($millions)	Vehicles Required (thousands)
80 Million Directly Represented			
DRT	7.40	8.5	61.0
Prearranged E&H	2.50	1.9	16.6
Conventional Taxi	2.50	1.9	16.6
Conventional Transit (Bus Only)	4.10	3.6	15.9
TOTAL	14.34	15.3	104.2
110 Million in Other Areas (Range)			
DRT	9-11	10-13	70-100
Prearranged E&H	3-4	2-4	20-25
Conventional Taxi	2-3	8-12	50-75
Conventional Transit (Bus Only)	5-7	4-6	20-25
	19-25	24-35	160-225
Total Urban Residential Area Generated Activity (Range)	33-39	39-50	265-330

NOTES:

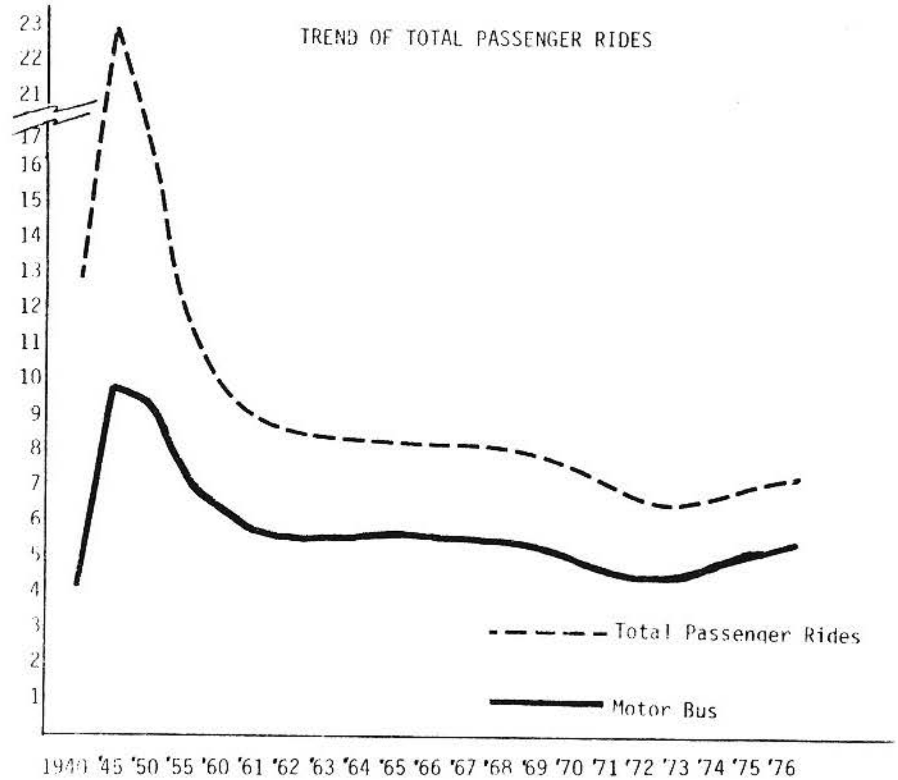
1. Data based on Moderate Auto Disincentives Future.
2. Commercial center and non-home-based taxi use is not included.
3. In the "110 Million Other" estimates, conventional taxi use is assumed understated in the settings and a significant increase allowed.
4. Not all urban area human service transportation (E&H, etc.) is included; also, spare vehicles are not included.

Source: Voorhees Reference 258

trend data reflected in the exhibit. Although the historical data on demand-responsive services is limited, these estimates seem high, and should thus be considered as an upper bound for the long-range future.

The long-range element of the TIP's reflect a continued yet slower growth rate, as DRT services expand, tap, and eventually saturate their potential markets.

Whether these long-range projections are reasonable depends on a number of factors still to be determined. Among the factors that will affect paratransit growth are exogenous events, state and local political perceptions and actions, the ability to resolve institutional and federal policy impediments, as well as certain technological developments. Each of these factors is discussed on the following pages.



Source: APTA, Reference 11

8.2.1 Exogenous Events

The exogenous event most likely to affect the future of paratransit use is the prospective depletion of the supply of petroleum fuels. Barring technological breakthroughs in vehicular energy sources, the virtually unconstrained use of the personal automobile will no longer be a way of life. This, accompanied by the automobile disincentive and transit preference techniques being implemented by local governments, should stimulate the demand for paratransit. Because of the new trips induced by paratransit service and the low productivity of most paratransit systems (except pooling and subscription services), it is unlikely that the sum total of paratransit growth to date has had a measurable impact on total vehicle-miles traveled (VMT). Nonetheless, an energy shortage could attract sufficient paratransit patrons to cause a future decrease in VMT.

In a similar way, air pollution can have a significant impact on future transportation options. There has been a recent trend toward relaxation of air quality standards, particularly for power plants that shift from petroleum-based fuels to coal. The net impact of the large-scale shift back to coal will be a reduction in air quality. The most likely source for compensating reductions in air pollutants is through some restrictions on the use of motor vehicles This could also lead to rapid paratransit growth.

8.2.2 State and Local Actions

The perceptions and resulting actions of state and local government levels will have a profound impact on paratransit growth. The rapid development of paratransit systems in the State of Michigan in response to state-provided start-up funding demonstrates the potential impact of these programs. Minnesota is currently initiating a state demonstration program, and California's legislation provides funds which can be used for community transit. Asking how many states might initiate such programs is equivalent to asking how many states have elected officials who will stake some portion of their political fate on promoting paratransit. The question is unanswerable, but it seems likely that the concept of state programs will grow.

Automobile disincentives and preferential treatment programs for transit represent local actions that are already encouraging the shift from automobile to transit. Land use is often perceived as the major factor in determining a community's character, and hence is a politically sensitive element which is not subject to rapid change. While MPO's may develop plans extolling the virtues of higher density in suburban areas, local governments do not respond positively to changes in zoning ordinances. Thus, if new suburbs are likely to look much the same as existing suburbs, the demand for paratransit services may grow as these outlying low-density communities initiate local neighborhood or feeder demand-responsive services. In Regina, Saskatchewan, land use planning programs are attempting to coordinate inner-city and suburban development through Telebus and fixed-route bus transfer stations.

Future target-market services will be affected by the growing political power of the transit-dependent. The influence of these groups on local decisions has already become a major factor in establishing special transit services to meet their needs. Not only can paratransit systems be designed to meet the unique requirements of the transit-dependent, but the TIP projections identified target-market/DAB services as having the greatest growth potential. These factors, combined with local pressures, should continue to stimulate the long-term growth of target-market services.

8.2.3 Institutional Impediments and Federal Policy

Many of the institutional impediments to paratransit are intertwined with federal policy--especially funding, coordination and labor policy. Since about two-thirds of the 119 existing systems from which data was obtained do not receive federal funding, and hence are not subject to federal constraints, it is likely that paratransit will grow without federal funding and hence regardless of federal policy. However, if there were major breakthroughs in the ability to coordinate existing social service agency transport or in funding or labor-related issues, operators would probably look more favorably toward federal support for paratransit, especially in the more densely-populated areas where coordination or integration with other transit is possible.

Previous experience showed that the federal "elderly and handicapped" legislation spurred the development of specialized equipment and transit services. The current explicit policy of providing accessibility to fixed-route transit systems may reduce the motivation for paratransit systems as a means of serving the elderly and handicapped. It is likely that future changes in federal policy could also affect paratransit growth.

8.2.4 Availability of Funding

The major negative factor which may suppress the growth of paratransit is the availability of funding for subsidies. The recent tendency of the electorate to vote for tax limitations will have an effect on paratransit as available funds are claimed by essential services, leaving a severe shortage for discretionary services such as paratransit. The extent and impact of these limitations is yet to be determined.

8.2.5 Technological Changes

Battery-powered vehicles, new vehicle designs, computerized dispatching, and portable communications devices are a few of the technological improvements which may aid user access to and improve the reliability, comfort and cost-effectiveness of paratransit. The price of such advanced equipment is expected to drop as this technology becomes more widely accepted. Thus, the future potential of computerized demand-responsive transit systems may grow, especially if labor costs and problems continue to increase. These changes could certainly affect the future character and development of paratransit.

8.2.6 Conclusions

The long-range projections made by Voorhees identify what should be considered a hypothetical potential for paratransit growth. Until the uncertainties of funding and other contingencies (such as policies and exogenous events) are resolved, these projections should be considered to be optimistic.

8.3 Summary

Extrapolations of the recent growth of paratransit and the implementation of funding and other programs suggests that there is a growing realization that paratransit has a role to play in the spectrum of transit services. Whether the future growth of these services is slow and steady or becomes accelerated depends on a number of factors, including government action at all levels and the availability of fossil fuels. The one potentially negative factor that may affect this growth is the growing rebellion against taxes and government expenditures, which could reverse the trend.

Based on impressions gained in the development of this State-of-the Art report and the companion Guidelines, the authors feel that future paratransit growth will not consist primarily of pure door-to-door dial-a-bus or shared-ride taxi for the general market. Rather, paratransit growth will be primarily in target market services for the elderly and handicapped and in the potentially more productive, limited-doorstop services for the general market, such as deviation from route, deviation from point, many-to-one and many-to-few services.

The reason for this assessment is that a door-to-door service for the elderly and handicapped is the only service that provides real mobility for this market. Hence, if communities truly wish to serve this market, paratransit systems must be seriously considered. For the general market, door-to-door services are relatively expensive on a per-ride basis, and operators will attempt to reduce these costs by installing the more economical limited-doorstop services.

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GLOSSARY A2

The following terms were compiled and identified according to government and transit industry standards as well as to their generally accepted usage within the transportation field. Where several definitions were found for a single item, the definition most commonly associated with the paratransit industry was used; the terminology adapted by some individual or by specific services and systems may vary.

This glossary was developed for use as a basic source of reference for the guidelines. However, a number of conventional transportation terms not specifically mentioned in the guidelines were included to assist decisionmakers, planners, and others unfamiliar with transit industry jargon. This listing may be useful for general reference purposes.

A2

Access time: Time it takes for a customer to move from trip origination point to a point where the transit system can be boarded, usually by walking.

Administrative costs: Costs associated with management of transit system; total expense of all labor, materials, facilities, equipment, and fees associated with general office functions, legal services, safety, and insurance.

Advance reservation: Demand-responsive transit service that is requested for a future specified time.

Algorithm: Set of rules used in mathematical computations.

Annual element (AE): List of transportation improvement projects proposed for implementation during the first program year of the Transportation Improvement Program (TIP).

APTA: American Public Transit Association (U.S. and Canada).

Areawide service: Transportation services provided throughout an entire area or region (with respect to both origin and destination).

Arrival time: Time at which customer reaches destination (either directly by door-to-door DRT service or after walking from a bus stop). See Vehicle Arrival Time.

Assessed wait time: In travel time calculations for demand-responsive transportation, an assumed value used to represent average wait time.

Attitudinal survey: A questioning and examining of users of transportation facilities to identify psychological factors in regard to transportation services.

ATU: Amalgamated Transit Union; largest transit union.

Authority: Transportation authority responsible to sponsor. Governmental agency or corporation responsible for administering transportation services.

Automatic fare collection (AFC): Controls and equipment which automatically admit passengers upon presentation of fare (e.g., coins, tokens, or farecards). System may also include special equipment for transporting and counting the revenues.

Automatic interfacing: Process of conveying customer requests for demand-responsive transportation service to control center via digital communication in lieu of voice communications.

Automatic vehicle monitoring (AVM): Process of sensing and collecting information on vehicle location via electronic communication equipment; sometimes referred to as automatic vehicle identification or automatic vehicle location system.

Average cost per passenger: Total costs per vehicle-hour divided by the average person-trips/vehicle-hour.

Average fare: Passenger revenue divided by total number of fare-paying riders.

Average productivity: Number of person-trips carried by a typical single vehicle in the system for a given period of time. This can be determined for the peak-hour, off-peak period, or for the entire day of operation. Productivity can then be related to the rate at which fares are collected. Also referred to as vehicle utilization.

Average revenue per one-way person-trip: Passenger revenue divided by revenue passengers; also referred to as average fare.

Average ridership: Average total number of passengers carried by each type of transit service; this can be for daily, weekly, monthly, or yearly periods.

Basic fare: Full fare paid by one person for one transit ride excluding any additional transfer or zone changes.

Block grants: Aid directed at broadly or functionally defined purposes, placing greater reliance on state and local initiative, e.g., HUD's Community Development Block Grant (CD) and DOL's Comprehensive Employment and Training Program (CETA).

Boarding time: Period of time a vehicle is stopped to allow passengers and/or packages to be loaded and unloaded.

Broker: Organization which identifies and matches potential users' needs with available transportation services. Although a broker usually operates no services directly, it may provide advice, information, technical, financial, organizational as well as regulatory and institutional assistance.

Buspool: Prearranged shared-ride service, generally using paid drivers contracted on a regular basis with origins, destinations and schedules determined by the users (typically A.M. and P.M. work or school trips); also referred to as subscription bus service.

Callback: Demand-responsive transit service telephone operator's notification to customer that vehicle is arriving on schedule or will be delayed.

Call-in time: Time at which telephone request for service is received at control center.

Call rate: Total number of telephone requests within a specified period of time, such as per hour or per day.

Cancellation: Incident in DRT service where a customer requesting service calls up and cancels request prior to bus arrival.

Capacity: See Vehicle Capacity.

Capital costs: Fixed expenses associated with initiating transit operations, including the purchase of land, vehicles, facilities and equipment.

Captive riders: Transit passengers who, due to circumstances beyond their control, have no other means of transportation.

Carpool: Prearranged shared-ride paratransit system using private automobiles owned by one or more of the riders, who usually alternate drivers and vehicles for commuting between proximate origins and destinations.

C.A.R.S.: Computer-Aided Routing Systems, used by MIT Urban Systems Laboratory to designate its project on demand-responsive transportation.

Central business district (CBD): Usually the downtown retail trade area of a city with a concentration of retail business offices, theaters, hotels and service businesses. Generally an area of very high land valuation and heavy traffic flow.

C.E.T.A.: Department of Labor's Comprehensive Employment and Training Act of 1973.

Charter service: Hiring or leasing of vehicle(s) and driver(s) for specific occasion(s).

Checkpoint service: Demand-responsive transit service in which passengers are picked up or dropped off at specific predetermined locations rather than at any point in the service area.

Choice riders: Passengers who choose transit even though they have alternative modes (e.g. automobile) available for their use.

Commuter service: Transit service operated primarily during peak hours to meet needs of those who travel regularly between home and work.

Computer-aided system: Demand-responsive transportation service in which some, but not all, control center functions are performed using a computer.

Computerized dispatching: Condition in which the assignment of demand-responsive transit customers to vehicles and the scheduling of vehicles is done by electronic equipment using a predetermined algorithm.

Control center: In demand-responsive transit systems, the facility handling communications with passengers and communications with and dispatching of vehicles.

Controller: Individual responsible for demand-responsive transit service's control center functions (e.g., telephone operator, scheduler, dispatcher).

Coordinated dispatching: A centralized process that assigns passengers to vehicles using procedures intended to balance cost efficiency and timely service.

Conventional bus: Intraurban transit service where vehicle travels a fixed route, operates on a fixed schedule and passengers board and disembark at predetermined stops.

Conventional transit: Regularly scheduled, fixed-route intraurban passenger transportation services, such as bus or rail, available to the public.

Coordination: The bringing together of a number of social service and/or other community agencies in order to cooperatively develop a transportation system to serve all of their combined needs.

Cost per passenger: Performance measure which indicates cost-effectiveness, by relating total transit service expenses to vehicle productivity.

CRT: Cathode-ray tube like a television tube, for use in information display.

Daily demand: Total number of requests for service per day or ridership per day.

Daily rental car: Paratransit service characterized by the leasing or hiring of automobiles by rental agreement, usually for periods less than a year.

Daily vehicle log: Diary used by the vehicle drivers and managers to record daily operating conditions and activities.

D.A.R.T.: Acronym for (1) Dial-A-Ride Transit, name of demand-responsive transportation service in Stratford, Ontario; (2) Demand-Activated Road Transit, name used by the Institute of Public Administration; (3) Dynamically Activated Road Transit; (4) name of Michigan DOT demand-responsive transportation services.

Data element: The smallest unit of information; the measurement of one variable.

Deadheading time: Non-revenue vehicle travel time, such as a transit vehicle returning to the garage.

Dead spots: In radio communications, certain locations or geographical areas where vehicles cannot send or receive communications; typically caused by topographic or structural obstructions.

Deferred service: Demand-responsive transit service request for a single trip to occur at specified later time

Delivery time: Time at which customer disembarks from a vehicle.

Demand-activated (actuated) system: Vehicles which move only in response to requests for a trip or ride; demand-responsive transit system.

Demand density: Indicator of the spatial, temporal or proportional distribution of users of a variable-route transportation service, usually expressed as daily passengers carried per square mile of area served per hour of vehicle operation (pass./sq.mi./hr.), and sometimes daily passengers per 1000 population.

Demand-responsive transportation: Generic term for range of public transportation services characterized by the flexible routing and scheduling of relatively small vehicles to provide shared-occupancy, personalized transportation on demand; implies existence of a coordinated dispatching service; also called flexible-route service.

Destination: The point at which a trip terminates.

Deterministic model: Macromodels that typically treat the stochastic aspects of system performance with deterministic approximations grounded in geometric probability relationships.

Deviation from checkpoint: Demand-responsive transportation service which makes regular scheduled stops at designated checkpoints but is free to provide door-to-door service between checkpoints.

Deviation from route: Demand-responsive transportation service in which a normally fixed-route bus will leave the route upon request (within a defined service area) to serve patrons not on the fixed route.

Dial-a-bus (DAB): Form of shared-ride demand-responsive transportation in which users typically telephone a control center for service and a bus is then dispatched to pick them up and deliver them to their destinations; popular name for demand-responsive transportation service.

Dial-a-ride: Term commonly used for demand-responsive transportation services.

Digital communications: Electronic transmitting and receiving of data in a digital form.

Disaggregate models: Paratransit micromodels which focus on individual tripmakers or socioeconomic groups.

Dispatcher: Person employed in demand-responsive transit system to relay pick-up and drop-off instructions and related service information to vehicle drivers; usually via a 2-way radio.

Dispatching: In demand-responsive transportation systems, process of relaying service instructions to drivers. May include vehicle scheduling, routing and monitoring, and can be manual, or partly or fully automated.

Door-through-door service: Door-to-door service that includes aiding the passenger through the outside entrance of their home or destination.

Door-to-door service: Demand-responsive transit providing service from any point of origin to any point of destination within the service area; doorstep-to-doorstep.

DOT: Acronym for the Federal Department of Transportation.

Down time: Amount of time that a piece of equipment is not available for use during normal operating hours, typically due to a breakdown; also called out-of-service time.

DRT: Demand-responsive transportation or transit service.

Dwell time: Time that a vehicle is stopped while picking up or discharging passengers.

Dynamic routing: Process of constantly modifying vehicle routes to accommodate service requests received since vehicle commenced operations, as opposed to predetermined routes assigned to vehicle.

Egress time: Period of time it takes a customer to move from the point of leaving a vehicle (egress or delivery point) to a final destination, usually by walking.

Elasticity: Measure used to describe the relationship or sensitivity between proportionate changes in ridership (demand) relative to proportionate changes in quality or price (fare) of service.

Elderly and handicapped (E & H): Generally accepted as disadvantaged segment of the transportation market comprised of persons over 65, wheelchair users, and/or semi-ambulatory person; refer to handicapped definition.

Estimated time of pick-up (ETP): Anticipated vehicle arrival time quoted to the customer.

Exclusive-ride taxi (ERT): Traditional taxicab service, limited to soliciting and accepting one party or rider at a time.

Express service: Transit service providing higher speeds with fewer stops than generally exist on other portions of the system or on the same route.

Extra board: Roster of drivers not assigned to runs who fill in for regular drivers when they are off sick, on vacation, or to drive charters, etc. Also referred to as spare board.

Family of services: Transportation system concept which employs a range of vehicle types and services permitting each to be efficiently matched to appropriate densities, characteristics, and needs of the area served.

FARE (Financial Accounting Reporting Elements): A uniform financial and operating data reporting system developed by the Federal government for the transportation industry.

Fare-box revenue: Generally includes transit revenue from fares.

Fare elasticity: See Elasticity.

Federal Capital Assistance: Federally supplied financial aid for transit capital expenditures. Also referred to as UMTA's Section 3 funds.

Federal Operating Assistance: Federally supplied financial aid for transit operations (not capital expenditures). Also referred to as UMTA's Section 5 funds.

Feeder service: Local transportation service which connects with a line-haul express or long-distance transit service (e.g., express bus, commuter rail, or rapid transit).

Few-to-many (FTM): Demand-responsive transportation that serves a few pre-selected origins, typically activity centers or transfer points, and any destination, such as homes; reverse operation of many-to-few service.

FHWA: Acronym for the Federal Highway Administration located within the Federal Department of Transportation.

Fixed costs: Expenses that are independent of level of service being provided.

Fixed-route service: Conventional transit service in which transit vehicles operate exclusively along a predesignated route.

Flag-drop charge: Charge for an initial distance on taxi service which actually defines a minimum fare.

Flag-stop service: Paratransit service accessed by hail.

Flat fare: Fare structure in which there is only one cost for any trip, regardless of origin or destination.

Fleet size: Total number of vehicles dedicated to transportation service in service area; also referred to as vehicle fleet.

Flexible route: Trip pattern which is continuously changed to meet travel demand (e.g., routes traveled by taxis and dial-a-bus services).

Flexicab: Generic term for variety of innovative public transit services that can be offered as extensions or modifications to conventional taxi service.

Franchise: Privilege or right granted a person, group, or organization by a government authority, usually applicable to a geographically specified area.

Fringe benefit costs: Transit system expenditures for employee compensation in addition to wages, salaries, and employer payroll taxes.

Gather: Many-to-one demand-responsive transportation service in which passengers are collected from multiple origins for transportation to a common destination such as a transit terminal, typically involving prescheduled or regular service; opposite of scatter service.

General market (GM): Total population or general public.

Group size: Number of persons traveling together.

Gypsy taxi: Typically illegal, cut-rate hail taxi service provided by individual auto operators entering and leaving market as supply and demand warrants.

Hail: Hand and/or voice signal to cruising vehicle to stop and accept passengers.

Handicapped: (As defined in Section 16(d) of UMTA of 1964 as amended) A person who by reason of illness, injury, age, congenital malfunction, or other permanent or temporary incapacity or disability, including those who are nonambulatory, wheelchair-bound and those with semi-ambulatory capabilities, are unable without special facilities or special planning or design to utilize mass transportation facilities as effectively as persons who are not so affected.

Hardware: The various pieces of equipment necessary for operation: radios, vehicles, computers, etc.

Headway: Time interval between transit vehicles travelling in the same direction on the same route.

HEW: Acronym for the Federal Department of Health, Education and Welfare.

Hitchhike: Form of free shared-ride travel, accessed by hail.

Immediate service: Demand-responsive transportation service requested for pick-up as soon as possible.

Integrated transit/paratransit services: Aligning or restructuring of conventional and flexible routes, fares, schedules, transfers, vehicles and management systems to obtain the greatest ridership at the least unit cost.

Intermodal integration: Coordination between two or more different transit modes whose services are provided by the same or different operators.

Interzonal service: Transportation services provided between or among different designated areas.

In-transit time: Amount of time actually spent travelling in vehicle from origin to destination; the elapsed time between vehicle boarding and exiting by a passenger. Also referred to as on-board travel time.

Intrazonal service: Transportation services provided only within a designated area (e.g., neighborhood loop or shuttle).

ITA: Acronym for the International Taxicab Association (U.S. and Canada).

Jitney: Shared-ride paratransit service characterized by frequent, but unscheduled, operation of small-capacity vehicles such as vans or autos over generally fixed routes and accessed by hail.

Latent demand: Additional travel which may be generated by the introduction of a new transit service.

Layover: Period between the end of one transit run and the beginning of another.

Level of service: Variety of measures meant to denote the quality of service provided to customers, generally in terms of total travel time or a specific component of total travel time. Also referred to as service quality.

Lift: Platform mechanism, adaptable to transit vehicles, to raise and lower wheelchair users into and out of transit vehicles.

Lift operation time: Total time required for a driver to load or unload a passenger in a wheelchair.

Limited doorstop service: Demand-responsive transit providing service from selected points of origin and destination so that users must sometimes walk to the selected points. May apply to many-to-many, many-to-few, many-to-one, or route and point deviation service.

Limited origin/destination service: Demand-responsive transit providing service from a restricted number of origins and/or destinations; class of service which includes many-to-few, many-to-one, route and point deviation.

Limousine: Any of various large and often prestigious passenger vehicles; hired with a driver under hourly contract or for specific trips (e.g., airport service).

Line-haul service: Transit operations along a single corridor or several corridors.

Live clock: Fare calculation device that charges according to the amount of time spent in vehicle; compensates operator for delays in traffic.

Load factor: Number of riders per vehicle as a percentage of the vehicle seating capacity.

Local service: Community transit service operating on fixed routes, picking up and discharging passengers at frequent, designated stops, with consequent low speeds.

Long-range element: The long-term transit and highway projects and programs included in the Transportation Improvement Program (TIP), which forms the basis transportation policy for the region.

Loop service: Transit service characterized by circular or oblong route configuration, usually operating within small areas, permitting transfers to other modes at connecting points.

Low-mobility groups: Persons who because of lack of opportunity or ability to use automobiles, the absence of adequate public transportation, or the lack of motivation or need, travel considerably less than others. Included are all of the transit-dependent groups except, possibly, youth.

Macromodels: Models dealing with coarse levels of detail focusing on individual systems, services and regionwide performance rather than on individual vehicles and passengers.

Maintenance costs: Total expense of all labor, materials, equipment and facilities used to repair and to service transit passenger vehicles, service vehicles, and related transit equipment.

Major Activity Center (MAC): Distinct geographical areas characterized by relatively heavy traffic volumes and densities (e.g., CBD, major air terminals, large universities, large shopping centers, industrial parks, sports arenas).

Manual dispatching: Demand-responsive transportation service that operates without the assistance of automatic data-processing equipment.

Manual service: Demand-responsive transportation service that operates without assistance of automatic data-processing equipment.

Many-to-few: Demand-responsive transportation service that serves any origin, such as a home, and a few preselected destinations, typically major activity centers or transfer points.

Many-to-many: Demand-responsive transportation that serves any origin, such as a home, and any destination within a service area.

Many-to-one: Demand-responsive transportation that serves any origin, such as a home, and only one destination, such as a shopping center or commuter rail station; also called gather.

Marginal cost: Cost of carrying one additional passenger or unit of service.

Market: Term for sets of tripmakers, such as employees commuting to downtown jobs, targeted as potential users of a paratransit service.

Market penetration: Portion of a target group of tripmakers using the paratransit service offered.

Market segment: Individuals with the same combination of transportation needs or demands typically defined by socioeconomic characteristics, trip purpose, spatial or temporal travel patterns.

Mass transit or mass transportation: General term for the collective transportation services available to the public which cannot be reserved for the private and exclusive use of individual passengers.

Measure: Data element used as a reference standard for quantitative comparisons.

Measurement instrument: Source of information or means by which data may be obtained (e.g., a survey).

Metered fares: Fare structure in which the cost of a trip is determined by a measurement instrument, usually a function of miles traveled and travel time.

Metropolitan area: County or set of contiguous counties with one or more "central" cities of 50,000 or more population.

Metropolitan Planning Organization (MPO): Designated by state (e.g., Governor) at UMTA's request, with authority to carry out metropolitan transportation planning decision-making and areawide planning and coordination functions.

Micromodels: Models dealing with fine levels of detail and focusing on the relationships between individual vehicles and passengers.

Mileage fare: Fare structure in which the cost of a trip is a direct function of the length or miles traveled.

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Minibus: Generic class of small bus vehicles, generally seating under 20 passengers, with greater maneuverability, operating flexibility, lower initial cost and shorter expected life than standard-size buses.

Mobile unit: Individual radio receiver/transmitter located in vehicles.

Mobility: Attribute of user, denoting individual's ability and ease of traveling from place to place.

Modal share: Proportion of travelers using each of the various modes; sum total of modal shares for all modes equals one.

Modal split: Proportion of travelers with a defined set of origins and destinations who travel by various modes.

Mode: One of several possible means of urban passenger transport (e.g., auto, fixed-route transit, taxi, dial-a-bus, walking, etc.).

Model: Mathematical expression of relationships among variables representing quantifiable conditions and characteristics.

Multiple-stop dispatching: Vehicle dispatching in which driver is assigned series of stops or "tour" which must be completed before next series is assigned.

Multi-user vehicle system (MUVS): Fleet of user-operated vehicles such as short-term rental cars, organized as a paratransit mode of transportation.

Network: Transportation system configuration involving several connecting routes.

Non-integrated paratransit: Service which operates independently or stands alone, such as a single-vehicle taxicab service.

Non-urbanized areas: Cities, towns and rural places with less than 50,000 population.

No-show: Incident in which a person requesting demand-responsive transportation service does not meet the vehicle when it arrives at the designated pick-up point.

Off-peak period: Time periods during the day when the demand for transit service is low.

On-board survey: Survey of transit users conducted on the vehicle during regular revenue service.

One-to-many: Demand-responsive transportation that serves only one origin, such as a shopping center or transit terminal and many destinations, such as homes; also called scatter; reverse of many-to-one.

Operating costs: Recurring expenses associated with the daily operation of a transportation service, including items such as drivers' and dispatchers' wages, maintenance, fuel, registration and insurance.

Operator: The organization that runs the system on a day-to-day basis.

Order processor: Person employed in demand-responsive transit systems to answer telephones and process requests for services; also referred to as call-taker or telephone operator.

Origin: The spatial beginning of a trip or the zone or location in which a trip begins.

Paratransit: Those forms of intraurban passenger transportation which are available to the public, are distinct from conventional transit (scheduled bus and rail) and can operate over the highway and street system.

Passenger revenue: Fares, including transfer charges and zone charges, paid by transit passengers traveling aboard vehicles operating in regular service; also referred to as farebox revenue.

Passenger trip: The movement of a person on a vehicle between their origin and their destination.

Peak period: Period during the day when demand for transit service is the greatest, typically occurring during the morning (7-9 A.M.) and evening (4-6 P.M.) hours.

Peak service: Transit service provided during the peak period.

Pick-up deviation: Time difference between the predicted or promised pick-up time and the actual pick-up time; sometimes called lateness.

Pick-up points: Geographical locations or sites where vehicles stop for passenger loading.

Pick-up time: Time at which a customer boards a vehicle; sometimes referred to as vehicle arrival time.

Poverty: Families and unrelated individuals are classified as being above or below the poverty level based on the following poverty rates adopted by the Federal Interagency Committee for 1976:

Family Size	Annual Income
1	$2884
2	3711
3	4540
4	5815
5	6876
6	7760
7 or more	9588

Because of differing transportation needs, a distinction is usually made between poor persons in the labor force and outside the labor force.

Prearranged access: Standing request for daily or weekly transportation service, typically renewed by the week or month; commonly called subscription service.

Prearranged trip services: Forms of paratransit, such as carpools, vanpools, and subscription services, aimed at the regularly scheduled daily trip market; typically home-based work trips.

Premium taxi service: Exclusive-ride taxi; one party at a time.

Productivity: Performance measure which indicates the relative operating efficiency of a transportation service, usually expressed as the number of passengers carried per hour or per mile of vehicle operation.

Promised pick-up time: Clock time of vehicle arrival that the control center informs a customer to expect when requesting service; also referred to as predicted pick-up time.

Promised wait time: Lapsed time that the control center informs a customer to expect when requesting service; also referred to as predicted wait time.

Provider-side subsidy: Sum paid directly to operators for supplying certain specified transportation services; also referred to as operator's subsidy.

Public transportation: General term used to describe passenger transportation services available to the general public; broader definition of service than that indicated by the terms "mass transportation", "mass transit" or "conventional transit"; includes taxicab and other paratransit modes.

Publicly-owned transit system: Transportation system owned by any municipality, county, regional authority, state, or other governmental agency, including a transit system operated or managed by a private management firm under contract to the government agency owner.

Punctuality: Mean and variability of pick-up deviation, or lateness in pickup.

Radio teleprinter: Device that converts digital communications to printed form.

Ramps: Inclined passageway which allows handicapped riders to board and disembark from transit vehicles.

Recovery time: Extra time scheduled at the outer terminals of a transit route to allow for rest stops and to help make up lost time.

Reliability: Relates to the variability of predicted and actual waiting times, punctuality and arrival times; also employed in its common meaning of "dependability" when referring to attitudes on transit.

Relief period: Amount of rest time provided within a continuous work assignment for driver comfort and safety.

Research, Development and Demonstrations Program (RD&D): UMTA program to stimulate technological, institutional and operational improvements in public transportation.

Response time: Amount of time between an immediate request for demand-responsive transit service and pick-up; sometimes referred to as wait time; may be used as performance measure to indicate system accessibility and convenience for the user.

Revenue: Fare-box receipts and other income generated by a transit system (e.g., advertising income or charter receipts), not including subsidies.

Revenue-miles: Sum for vehicle, vehicle type or total fleet in a transportation system, of the mileage when the vehicle(s) are available for revenue service; also referred to as vehicle service-miles.

Revenue passengers: Total number of fare-paying riders.

Revenue vehicle hours: Sum for each vehicle, vehicle type, or for system as a whole, of the number of scheduled transit service operating hours.

Reverse commute: Movement from central city residential locations to employment in the suburbs.

Ride quality: Measure of the comfort level experienced in a moving vehicle. May be defined by the vibration, frequency, accelerations, jerk, pitch, yaw and roll.

Ride-sharing: Paratransit which entails prearranging group trips for people traveling at similar times from approximately the same origin to approximately the same destination.

Ride time: Time spent in the transit vehicle between boarding and disembarking.

Route: Fixed path traversed by a transit vehicle in accordance with a predetermined schedule; the combination of street and road sections connecting an origin and destination.

Route deviation: Demand-responsive transportation service pattern in which a normally fixed-route bus will leave the route upon request to serve patrons not on the fixed route.

RTA: Acronym for Regional Transit Authority, a public agency charged with providing public transit services.

RUCUS: Acronym for Run Cutting and Vehicle Scheduling, a computerized transit scheduling program.

Rules of thumb: Distillation of conventional wisdom, operating experience, modeling results, and quick-and-dirty calculations, reduced to single sentences with the ring, although not necessarily the reliability axioms.

Run: One transit vehicle trip in one direction from the beginning to the end of a route. When a transit vehicle makes a round trip on one route, it has completed two runs, sometimes referred to as a tour.

Run guide: Listing of all scheduled runs.

Running time: Time required for normal driving procedures on a projected route, or the scheduled elapsed time between points along a route. May vary at different times of the day due to traffic congestion.

Scatter: One-to-many demand-responsive transportation service in which passengers are distributed to many destinations from a single origin such as a rail depot, typically involving prescheduled or regular service. Opposite of gather service.

Scheduled speed: Average speed that a transit vehicle travels, including dwell times, acceleration and deceleration. Calculated by dividing trip distance by the total elapsed time to complete trip.

Scheduler: Person employed in demand-responsive paratransit system to efficiently match service requests with available supply of vehicles and drivers.

Scheduling algorithm: Mathematical formula which assigns requests to tours based on some predetermined service quality standards or efficiency criteria.

Scheduling function: Control center activity that assigns vehicles to trip tours.

Screenline: Imaginary line dividing the study area into two parts for purposes of analysis.

Scrip: Fare arrangement in which tokens or receipts are used to allow holder or bearer to ride at reduced or no fare.

Seating capacity: Total number of seats available on an operating transit vehicle.

Service and Methods Demonstration (SMD) Program: Program established and overseen by UMTA and TSC in which transit innovations are developed, demonstrated and evaluated for their potential in providing improved transit service.

Service area: Geographic region in which a transit system provides service, usually measured in square kilometers or square miles.

Service frequency: Time interval between passenger vehicles moving over a route in one direction; or number of vehicles moving in the same direction that pass a given point on a route within specified interval of time.

Service loop: System configuration in which vehicles follow a set, continuous, circuitous path.

Service option: Specific form of transportation services defined in terms of operating or service characteristics such as degree of route fixity, service area, service hours, prearrangement requirements, etc.

Service quality: See Level-of-service.

Shared-ride taxi (SRT): Door-to-door transportation service under private ownership available by phone or street hail, for two or more parties using the taxi simultaneously, typically between different origin and/or destination points.

Shoppers' specials: Special paratransit service in which persons are transported to and from shopping and commercial centers (e.g., each week or every other week).

Short-term rental cars: Paratransit service characterized by a multi-user vehicle system (MUVS) offering automobiles for rental to qualified users for short intraurban trips.

Shuttle service: Paratransit service characterized by continuous point-to-point operations, especially a short circuitous route or one connecting two transportation services; depending on route configuration, vehicles may reverse direction of travel.

Simulation: Model which generates a series of artificial events and responses to these events in a manner which resembles the interaction of cause and effect in a real system.

Single-stop dispatching: Operating procedure whereby driver receives instructions for next route segment at each assigned stop.

Sketch planning: Preliminary outline and overview of proposed transportation services with limited technical, operational or economic detail.

SMART: Acronym for the SYSTAN Macroanalytic Regional Transportation Model, developed to test the applicability of different transportation modes in integrated regional transit systems.

SMSA: Acronym for Standard Metropolitan Statistical Area.

Software: Documentation and manuals of service operation such as dispatcher guidelines, training and orientation manuals, computer programs, etc.

Spare board: See Extra board.

"Special efforts": UMTA regulation that mandates "genuine good faith progress in planning service for wheelchair users and semi-ambulatory handicapped persons that is reasonable by comparison with the service provided to the general public and that meets a significant fraction of the actual transportation needs of such persons within a reasonable time period."

Special services: Transit services that are provided on a non-daily or irregular basis to particular target groups.

Specifications: Detailed, objective and exact statement prescribing materials, dimensions, and workmanship for particular vehicles, radio equipment, etc. to be built, installed or manufactured.

Sponsor: Organization with the power to authorize a transit operation.

Spread time: Total elapse of time between the first morning pull-out and the last pull-in of any one day for a driver. Spread time may include two work assignments separated by an idle "swing time". Maximum allowable spread time is usually contained in a labor agreement or inherent in policy practices.

Standard Metropolitan Statistical Area (SMSA): County or group of counties containing at least one city (or twin cities) of 50,000 or more population, plus any adjacent counties which are metropolitan in character and economically and socially integrated with the central county or counties (in New England, towns and cities are the units used rather than counties).

Standard shift: Eight hours or the normal operator work day; also referred to as straight time.

Standard (urban) bus: Transit vehicle designed for short-ride, frequent-stop service, typically containing 30 to 50 seats, two doors for entry and exit, diesel engine located at rear and top speed of 72 to 95 km/hr (45 to 60 mph).

State (of a system): Levels of variables that characteriz a given system at a given time; the levels may be defined statically or within a patterned flux (e.g., "steady state

Steady state: Condition or state at which a system stabilizes following an external influence or start-up.

Stochastic model: Macromodel that approaches micromodels in level of complexity, depth of detail and data requirements.

Straight time: Number of hours worked at the regular wage rate, typically the standard shift.

Subscription (bus) service: Paratransit service provided by advance reservations for the same trip over a long period of time (typically A.M. and P.M. work or school trips); also referred to as buspool.

Subsidy: Grant which makes up the difference between the cost of providing transit service and the fare charged for the service; usually provided by a governmental agency.

Swing time: Amount of time between a driver's driving assignments.

System capacity: Number of passengers a given system is planned to carry in unit time. Usually measured in passengers per hour.

System configuration: The temporal and spatial arrangement of various transportation service options to meet community needs.

Target market: Subset of the service area's total population to which service is directed especially or exclusively; such as elderly, handicapped, low income elderly.

Taxi (conventional): Door-to-door exclusive transportation service under private ownership available by phone or street hail to individuals and small groups traveling together. Also referred to as exclusive ride taxi (ERT).

Telephone hold time: Time that a customer must wait before an order processor can begin processing their request for service. This includes the time that the phone is ringing and the time that the customer is placed on 'hold'.

Telephone service time: Amount of time spent by a call taker to process a request for service, including the time a customer is placed on 'hold' during the conversation.

Terminal time: Time that the bus spends in layover or time recovery at the tour terminal.

Third-party financing: Cost of transit services is paid by someone other than the user, the transit authority, or government agencies; often paid by commercial destination such as a shopping center.

3C planning process: DOT mandate requiring each urbanized area in order to receive federal capital and operating funds to have a continuing, cooperative and comprehensive planning process that results in plans and programs consistent with the comprehensively planned development of the urbanized area.

Tie downs: Devices designed to secure a wheelchair on board a vehicle.

Token: Piece resembling a coin issued as a fare substitute for transit service.

Total labor costs: Sum of annual payroll, employer payroll taxes, and fringe benefit costs.

Total miles: Revenue miles plus any non-productive travel miles, such as returning to the garage.

Total revenue: Sum of receipts derived from provision of transit service plus additional monies related to provision of transit service but derived from other sources; typically the sum of total operating revenue, net auxiliary operating revenue, non-operating income, and total operating assistance.

Total travel time: Total time spent in moving from origin to destination = access time + wait time + ride time + (transfer time + ride time) + egress time. Sometimes referred to as the time which a user actually spends "in the system".

Tour: Route plan and schedule for a paratransit vehicle to serve a specified set of passenger requests; also referred to as vehicle tour.

Traffic generator: Location in the service area that has a high concentration of patrons for a transportation service.

Transbus: Prototype standard-size bus to be used by UMTA for basing all vehicle specifications and procurements issued after September 30, 1979.

Transfer coordination: Process of providing consistently short transfer times.

Transfer station: Specifically located facility which accommodates passengers waiting to move between vehicles and/or modes.

Transfer (wait): Time period between disembarking from a bus and boarding another bus in order to continue the same trip; may include the time on the second vehicle prior to its leaving.

Transit dependents (TD): Those who because of age, income, auto availability, or physical/mental incapabilities must rely on public transportation. Included are the elderly, handicapped, youth, poor and unemployed. Could include, but usually doesn't, those who prefer not to own an auto.

Transit district: Usually refers to organization which operates as an independent entity, usually with tax-based support, providing transit service in a defined geographic area.

Transit operations and management (TOM): Procedures, techniques, and tools sponsored by UMTA for use by transit companies, includes four categories of activities: transit research information, transit operations, transit management, and intermodal integration.

Transportation-handicapped person: Any person who, by reason of illness, injury, age, congenital malfunction, or other permanent or temporary incapacity or disability, is unable without special facilities or special planning or design to utilize mass transportation facilities as effectively as persons who are not so affected.

Transportation Improvement Program (TIP): Staged multi-year (3-5 year) program of transportation improvements including an annual element (AE) which is a prerequisite for receiving federal aid as described under UMTA Act of 1964, as amended.

Transportation Systems Management (TSM): Planning process to evaluate short-term, low-capital improvements and strategies for maximizing efficiency of existing transportation facilities as alternatives to longer range capital-intensive projects; short-range element of TIP developed by each urbanized area.

Travel barrier: Any factor in a transit system which inhibits the use of that service by potential users.

Travel time: Total amount of time taken to move from beginning to end of a trip; also referred to as total travel time.

Trip: Movement of one or more persons from a common origin to a common destination. Also applies to vehicle movement between origin and destination.

Trip generation: Broad term describing the relationship between the urban area and its travel demand, and relating to the number of trips that begin or end in any part of the urban area.

Trip length: Shortest over-the-road distance between the point where the passenger boards the vehicle and the point where rider leaves the vehicle. For shared-ride service the deviations to accommodate other passengers is not included.

Turn key: Operation of locally subsidized transit services by taxi companies under contract to city governmen

TWU: Transit Workers Union.

UMTA: The Federal Urban Mass Transportation Administration; part of the Federal Department of Transportation.

Urban Transportation Planning System (UTPS): Set of computer programs for use in planning multi-modal transportation systems.

Urbanized area: Central city of 50,000 or more population, including the surrounding closely settled area.

User-side subsidy: Sum or discount paid or applied directly to riders of the transit service through some type of voucher system.

UTPS: Acronym for Urban Transportation Planning System.

UTU: United Transit Union.

Van: Vehicle frequently used to provide paratransit service, normally seating 8-15 passengers.

Vanpool: Prearranged shared-ride paratransit system using vans purchased or leased by employer, individual, or other organization for transporting commuters with proximate origins and destinations.

Variable costs: Expenses which change or are modified directly in relation to the amount of output (or service).

Vehicle-actuated control: Transit signal control based on actions of vehicle.

Vehicle arrival time: Time at which vehicle reaches requesting customer's origin or destination; sometimes referred to as pick-up or drop-off time.

Vehicle capacity: Normal maximum number of passengers that the vehicle is designed to accommodate comfortably; includes seated plus standing riders.

Vehicle density: Number of vehicles per unit area; typically, vehicles per square mile (square kilometer).

Vehicle-hours: Total number of hours that each vehicle is in revenue service, including layover time.

Vehicles in service: Total number of vehicles operating in service area; vehicle fleet - vehicles in service = number of back-up vehicles.

Vehicle-miles: Total number of miles each vehicle, vehicle type or total fleet is in revenue service per time period.

Vehicle-miles traveled (VMT): Sum for each vehicle type in a transportation system of the total mileage traveled during the reporting period. Can be classified into in-service (revenue) and non-service (non-revenue) vehicle miles.

Vehicle occupancy: Number of passengers observed aboard a vehicle.

Vehicle seat capacity: Maximum number of passengers that the vehicle is designed to seat.

Vehicle wait time: Time that a bus is stopped while picking up or discharging a passenger; also referred to as dwell time and patron approach time.

Wait time: Time a passenger spends waiting for a transit vehicle to arrive, whether at a bus stop or, in the case of demand-responsive transit, after calling for service; in immediate demand-responsive transit, typically defined as pick-up time minus call-in time.

Youth: Generally, persons who are 17 or under, based on the trend of state legislatures to designate age 18 as the age of adulthood or majority.

Zone: Geographical subset of the service area used to denote area in which many-to-many service operates between all points; designation of area for purposes of tabulating trip data or calculating fares.

Zone fare: Fare structure in which the price is a function of the length of trip measured in terms of defined areas called zones.

SYSTEM INVENTORY A3

The following listing represents an inventory of dial-a-bus and shared-ride taxi systems that were confirmed or discovered during the development of the guidelines material. The listing is organized as follows:

- o Existing U.S. systems, alphabetically by state and within each state, alphabetically by city;
- o Discontinued U.S. systems; and
- o Canadian systems.

This system inventory is not meant to be complete, as the information on some of the systems is sketchy and there are undoubtedly more systems "out there" which need to be added, particularly those providing transportation as part of a social service program. Fifty such systems were uncovered in Michigan alone (in addition to those included in this inventory); they were operated by Councils on Aging, Community Action Agencies and similar groups, and existed under a State elderly and handicapped transit program.

The listing briefly describes each service and, in cases where the documentation was supplied by the system operator or for those systems on which relatively complete information was found, the listing is preceded by a number which corresponds to descriptive information in a System Summary Sheet (Appendix 4).

SYSTEM INVENTORY

ALABAMA, Montgomery — TM/SRT
User-side subsidy demonstration of elderly and handicapped.

ALABAMA, Pickens County — TM/DAB
Demand-responsive transportation for low income persons.

ALASKA, Anchorage — TM/DAB

ARIZONA, Glendale — GM/SRT
City contract with Yellow Cab of Phoenix for many-to-many service; principal users are the elderly.

ARIZONA, Mesa — /SRT
City-wide service begun in July 1977.

#83 ARIZONA, Phoenix — TM/DAB

ARIZONA, Scottsdale - proposed — TM/

#82 ARIZONA, Tucson — TM/DAB

#51 ARKANSAS, Little Rock - North Little Rock — GM/SRT

ARKANSAS, East Central — TM/DAB
Economic Opportunity Agency service for poor and elderly in five rural counties.

ARKANSAS, Mid-Delta — TM/DAB
Community Service system for poor and elderly in two rural counties.

ARKANSAS, South East Arkansas — TM/DAB
Community Action Agency service for poor and elderly in five county rural area.

CALIFORNIA, Anaheim - proposed — GM/DAB
Route deviation dial-a-ride in non-peak hours planned for September 1978.

#52 CALIFORNIA, Arcadia — GM/SRT

#53 CALIFORNIA, Barstow — GM/SRT

CALIFORNIA, Benicia — GM/SRT
Benicia Cab Company has operated shared-ride taxi service since 1973.

#55 CALIFORNIA, Beverly - Fairfax — GM/SRT

CALIFORNIA, Butte County — TM/DAB
Chico Clipper dial-a-ride for elderly and handicapped.

CALIFORNIA, Carpenteria — GM/DAB
Demand-responsive service in off-peak hours.

CALIFORNIA, Cherry Valley — GM/SRT
Route deviation service administered by Riverside Transit Agency and operated by Banning Cab Company.

#56 CALIFORNIA, Claremont — GM/SRT

CALIFORNIA, Coalinga — TM/DAB

#57	CALIFORNIA, Colton	GM/SRT
	CALIFORNIA, Compton - proposed for 1978 Subsidized taxi dial-a-ride for elderly and handicapped.	TM/SRT
	CALIFORNIA, Contra Costa County Feeder service operated by A. C. Transit.	GM/DAB
	CALIFORNIA, Corona Many-to-many within zone and many-to-one between zones; service operated by DAVE Systems.	GM/DAB
#2	CALIFORNIA, East/Northeast Los Angeles	GM/DAB
#60	CALIFORNIA, El Cajon	GM/SRT
#3	CALIFORNIA, El Segundo	GM/DAB
	CALIFORNIA, Escalon	/DAB
	CALIFORNIA, Eureka Shared-ride taxi service, primarily for the handicapped, co-ordinated with corrider service	TM/SRT
#4	CALIFORNIA, Fairfield	GM/DAB
	CALIFORNIA, Fillmore Fillmore minibus, provider modified dial-a-ride bus service.	GM/DAB
	CALIFORNIA, Fortuna Demand-responsive bus for the elderly.	TM/DAB
#113	CALIFORNIA, Fremont City contract with cab company for senior citizen taxi program.	TM/SRT
	CALIFORNIA, Fremont-Newark	GM/DAB
	CALIFORNIA, Fresno "Handyride", a many-to-many service, provided by Fresno Transit for handicapped persons.	TM/DAB
#58	CALIFORNIA, Fullerton	GM/SRT
	CALIFORNIA, Glendora - proposed for 1978	TM/DAB
	CALIFORNIA, Gridley Golden Feather Flyer taxi service for elderly and handicapped.	TM/SRT
	CALIFORNIA, Harbor City-proposed for 1978 Advanced reservation dial-a-ride operated by taxi company.	GM/SRT
	CALIFORNIA, Hawthorne Shared-ride taxi service for elderly.	TM/SRT
#5	CALIFORNIA, Hemet - San Jacinto	GM/DAB
	CALIFORNIA, Hollister area	/DAB
#6	CALIFORNIA, Hollywood - Westlake - East Wilshire	GM/DAB
#114	CALIFORNIA, Huntington Park	TM/SRT
#115	CALIFORNIA, Lafayette Subsidized taxi service for elderly and handicapped.	TM/SRT
#7	CALIFORNIA, La Habra	GM/DAB
#59	CALIFORNIA, La Mesa	GM/SRT
#8	CALIFORNIA, La Mirada	GM/DAB

CALIFORNIA, Lakewood /DAB

#9 CALIFORNIA, Lompoc GM/DAB

CALIFORNIA, Lomita-proposed for 1978 TM/DAB
Twenty-four hour dial-a-ride for elderly and handicapped.

CALIFORNIA, Long Beach TM/SRT
Dial-a-ride for the handicapped.

#15 CALIFORNIA, Los Angeles (Watts) GM/DAB

CALIFORNIA, Los Gatos TM/SRT
Shared-ride taxi service for elderly and handicapped.

CALIFORNIA, Lynwood-proposed for 1978 GM/DAB
One van dial-a-ride operated in city.

CALIFORNIA, Madera County TM/DAB
Senior citizen demand-responsive bus service in rural area.

CALIFORNIA, Manhattan Beach TM/DAB
City-run dial-a-ride for the elderly and handicapped only.

CALIFORNIA, Marin County TM/DAB
"Whistle Stop Wheels" sponsored by the Marin County Senior Co-ordinating Council; run by volunteers

#116 CALIFORNIA, Marysville - Yuba City TM/SRT

CALIFORNIA, Ukiah - proposed GM/DAB
Mendocino Transit Authority is considering modifying present fixed route system with dial-a-ride service.

#10 CALIFORNIA, Merced GM/DAB

#61 CALIFORNIA, Monrovia GM/SRT

#84 CALIFORNIA, Montebello TM/DAB

CALIFORNIA, Morro Bay - proposed

CALIFORNIA, Mountain View TM/SRT
Community Services Co-operative.

CALIFORNIA, Napa County GM/DAB
Dial-a-ride transit system operating many-to-many service.

CALIFORNIA, Nevada County TM/SRT
A senior citizens taxi service, whose service requests are processed through Telecare, an information and referral service.

CALIFORNIA, Norco - discontinued, proposed /DAB

CALIFORNIA, Northridge - Sepulvada TM/DAB
Senior ride van offering door-to-door service through the Area Agency on Aging.

CALIFORNIA, Norwalk TM/DAB
Norwalk transit dial-a-ride minibus with lift, offering many-to-many service.

#62 CALIFORNIA, Ontario - Upland GM/SRT

#63 CALIFORNIA, Orange - Villa Park GM/SRT

#64 CALIFORNIA, Pacoima GM/SRT

#117 CALIFORNIA, Palo Alto TM/SRT

CALIFORNIA, Perris /DAB
Many-to-many dial-a-ride service.

#11 CALIFORNIA, Placer County GM/DAB

CALIFORNIA, Rancho Mirage GM/SRT
Subsidized taxi pilot project begun in June 1977.

CALIFORNIA, Redondo Beach-proposed for 1978 TM/SRT
Twenty-four hour subsidized taxi service for elderly and handicapped persons.

#85 CALIFORNIA, Riverside TM/DAB

#12 CALIFORNIA, Rubidoux GM/DAB

CALIFORNIA, Sacramento TM/DAB
The "Careful Coach" for handicapped persons operated by Sacramento Regional Transit District.

CALIFORNIA, Saddleback Valley - proposed GM/DAB
Dial-a-ride proposed for early 1978.

CALIFORNIA, Salinas TM/
Elderly and handicapped service provided by Salinas Transit.

CALIFORNIA, San Bernardino GM/SRT
City contract with San Bernardino Yellow Cab for dial-a-ride service.

#65 CALIFORNIA, San Bernardino County GM/SRT

#86 CALIFORNIA, San Diego TM/DAB

#87 CALIFORNIA, South East San Diego County TM/DAB

#118 CALIFORNIA, San Leandro TM/SRT

CALIFORNIA, San Mateo TM/DAB
"Redi-Wheels" demand-responsive bus service for the elderly and handicapped.

CALIFORNIA, Santa Ana TM/DAB
Dial-a-lift service operated by Paramed under contract to Orange County Transit District.

CALIFORNIA, South Santa Clara County GM/DAB
Rural portion of former county-wide system still operating eight vehicles.

CALIFORNIA, Santa Clara County TM/SRT
Subsidized taxi service for elderly administered by Economic and Social Opportunities Inc.

CALIFORNIA, Santa Maria - Orcutt - Guadalupe GM/DAB
Demand-responsive system operated by city of Santa Maria.

CALIFORNIA, Sierra County TM/DAB
Telcare service for elderly and handicapped operating in unincorporated part of county.

CALIFORNIA, Solvang - Buelton - Santa Ynez TM/DAB
County of Santa Barbara service primarily for the elderly.

#119 CALIFORNIA, South Gate TM/SRT

CALIFORNIA, Sunnyvale TM/SRT
Subsidized taxi service for the elderly and handicapped.

CALIFORNIA, Tehama County TM/DAB
Rural county van system for senior citizens.

#13 CALIFORNIA, Tracy GM/DAB

CALIFORNIA, Tuolomne County TM/DAB
Rural county service for commuters and handicapped persons.

#14 CALIFORNIA, Turlock GM/DAB

CALIFORNIA, Vallejo TM/SRT
Taxi service for the elderly and handicapped.

CALIFORNIA, Vandenberg Village/Mission Hills GM/DAB
County of Santa Barbara demand-responsive pilot project for 77-78.

CALIFORNIA, Venice-proposed for 1978 GM/SRT
Advanced reservation dial-a-ride operated by taxi company.

CALIFORNIA, West Hollywood TM/
Area Agency on Aging sponsored service for the elderly only.

CALIFORNIA, Whittier TM/SRT
Taxi service for the handicapped.

CALIFORNIA, Woodland TM/
Community care car providing free service for the elderly and handicapped.

COLORADO, Denver TM/DAB
"Handyride", Regional Transit District's subscription service for the handicapped.

CONNECTICUT, Hartford TM/DAB

CONNECTICUT, Lower Naugatuck River Valley TM/DAB
Federal demonstration project for the elderly and handicapped.

#88 CONNECTICUT, West Hartford TM/DAB

#79 CONNECTICUT, Westport GM/SRT Integrated

#89 DELAWARE - State program TM/DAB

#90 DELAWARE, Dover TM/DAB

#120 FLORIDA, Dade County TM/MIX

FLORIDA, Gasden County TM/DAB
Demand-responsive van service for elderly and poor persons.

FLORIDA, Hollywood TM/SRT
"Share-a-ride" pilot project by Broward Company Mass Transit Division; two taxi companies in use.

FLORIDA, Jacksonville-proposed TM/DAB
"Ride Inc.", demand-responsive van service for the handicapped to begin summer of 1978.

FLORIDA, Putnam County TM/DAB
Rural county demand-responsive service for the elderly.

#91 FLORIDA, St. Petersburg TM/DAB

FLORIDA, Suwanne Valley TM/DAB
Rural demand-responsive partially-fixed schedule system for commuters and the elderly.

IDAHO, Boise TM/DAB
City contract with Boise Urban Stages to provide a door-to-door service for the elderly and handicapped.

IDAHO, Ada County TM/DAB
Rural system of vans for transportation of elderly sponsored by Area Agency on Aging.

#16 ILLINOIS, Bensenville GM/DAB

#92 ILLINOIS, Chicago TM/DAB

ILLINOIS, Deerfield GM/DAB
Dial-a-ride system in Chicago area.

INDIANA, Indianapolis TM/DAB
"Care-A-Van" service for the elderly and handicapped.

INDIANA, Lake County TM/DAB
Rural demand-responsive van service the the poor and elderly.

IOWA, Bettendorf GM/DAB
A city system of two demand-responsive vans and one fixed route van; coordinated with a nearby city system (Davenport).

IOWA, Davenport GM/SRT
Shared-ride taxi system.

IOWA, Davenport area TM/DAB
"Senior Lift" operated by a senior citizen advisory council in rural communities; contracts with bus company for handicapped service in Davenport.

IOWA, Des Moines TM/MIX
Special Service Transportation Corp. owns van and also uses taxi and transit services for the elderly and handicapped service.

IOWA, Dubuque TM/DAB
Fixed schedule and demand-responsive service for the elderly in three county rural area.

IOWA, Ottamwa area TM/DAB
Rural multi-county van for the elderly, operated by the Area Agency in Aging.

#93 KANSAS, Topeka TM/DAB

KENTUCKY, Four Northeast Counties TM/DAB
Area Development Council rural bus system for the poor; offers both fixed-route and demand-responsive services.

#94 LOUISIANA, Baton Rouge TM/DAB

LOUISIANA, Beauregard Parish TM/DAB
Community Action Agency van for the poor and elderly in rural area.

LOUISIANA, Jefferson Davis Parish TM/DAB
Community Action Agency service for the elderly in rural area.

#67 LOUISIANA, St. Bernard Parish GM/SRT

LOUISIANA, Tri-Parish TM/DAB
Fixed route and demand-responsive service in rural area for retarded children and the poor.

MAINE, Kennebec - Lincoln - Somerset Counties area TM/DAB
Task Force on Aging van system for the elderly in rural area.

MAINE, North Kennebec County TM/DAB
Demand-responsive van system for human service agency clients in rural area.

#95 MAINE, York County TM/DAB

MARYLAND, Ann Arundel County TM/DAB
Demand-responsive bus service for elderly.

MARYLAND, Baltimore TM/SRT
Shared-ride taxi service for the elderly and handicapped.

MARYLAND, Prince Georges County TM/DAB
Fixed-route bus service with deviations for the elderly in rural area.

#18 MASSACHUSETTS, Bedford GM/DAB
Demand-responsive service provided by Bedford local transit.

#96 MASSACHUSETTS, Boston TM/DAB
"The Ride", a two year demonstration project using van service for the handicapped.

MASSACHUSETTS, Boston GM/SRT
"Share-A-Cab" service from Logan Airport to outlying communities.

MASSACHUSETTS, Brocton TM/MIX
"Dial-A-Bat", Brocton area transit's co-ordinated transport service of social service agencies, elderly and handicapped, and low income persons; uses both buses and taxis.

MASSACHUSETTS, Connecticut Valley GM/DAB
New England Farm Workers Council's fixed route service with deviations in a rural area.

MASSACHUSETTS, Hingham TM/DAB
Free off-peak demand-responsive service in town for elderly persons.

MASSACHUSETTS, Lowell GM/SRT
Shared-ride taxi service.

MASSACHUSETTS, Natick TM/DAB
Demand-responsive service for commuters.

MASSACHUSETTS, Needham GM/DAB
Fixed-route system with hail-option and flexible service upon request.

MASSACHUSETTS, Pittsfield TM/DAB
Demand-responsive van service in rural area for the elderly and welfare recipients.

MASSACHUSETTS, Lower Pioneer Valley TM/DAB
Transit authority many-to-many dial-a-bus for elderly and handicapped persons.

#98 MASSACHUSETTS, Westford TM/DAB
Demand-responsive service within a six-town area.

#97 MASSACHUSETTS, Worcester - SMITS TM/DAB

#99 MASSACHUSETTS, Worcester TM/DAB

#68 MICHIGAN, Adrian GM/SRT

#19 MICHIGAN, Alma GM/DAB

#69 MICHIGAN, Alpena GM/SRT

#20 MICHIGAN, Antrim County GM/DAB

	MICHIGAN, Baraga County Rural demonstration project with F.H.W.A. Section 147 funds; project year to end August 1978.	GM/DAB
#21	MICHIGAN, Belding	GM/DAB
#22	MICHIGAN, Benton Harbor - St. Joe	GM/DAB
#23	MICHIGAN, Big Rapids	GM/DAB
#70	MICHIGAN, Birmingham	GM/SRT
#71	MICHIGAN, Cadillac	GM/SRT
#24	MICHIGAN, Crawford County	GM/DAB
#25	MICHIGAN, Davison	GM/DAB
	MICHIGAN, Detroit Dial-a-bus for seniors and handicapped persons; run by Alpha Communications Development Corp.	TM/DAB
#26	MICHIGAN, Dowagiac	GM/DAB
#27	MICHIGAN, Eastern Upper Peninsula Transportation Authority (EUPTA)	GM/DAB
#28	MICHIGAN, Eaton Rapids	GM/DAB
#29	MICHIGAN, Ferndale - Pleasant Ridge	GM/DAB
#30	MICHIGAN, Gladwin	GM/DAB
#31	MICHIGAN, Grand Haven	GM/DAB
#100	MICHIGAN, Grand Rapids	TM/DAB
#32	MICHIGAN, Harper Woods	GM/DAB
#33	MICHIGAN, Hillsdale	GM/DAB
#72	MICHIGAN, Holland	GM/SRT
#34	MICHIGAN, Houghton - Hancock	GM/DAB
#35	MICHIGAN, Isabella County	GM/DAB
	MICHIGAN, Lakes Area Special Route deviation dial-a-ride.	GM/DAB
#36	MICHIGAN, Lake County	GM/DAB
	MICHIGAN, Livingston County Elderly and handicapped service operating in county area but including service to Ann Arbor.	TM/DAB
#37	MICHIGAN, Ludington	GM/DAB
	MICHIGAN, Macomb County Non-profit corporation provides elderly and handicapped transportation; social service agency found it economic and efficient to arrange client transportation with provider.	TM/DAB
#38	MICHIGAN, Manistee County	GM/DAB
#39	MICHIGAN, Marshall	GM/DAB
#40	MICHIGAN, Midland	GM/DAB
#41	MICHIGAN, Midland County	GM/DAB
	MICHIGAN, Monroe - Frenchtown Lake Erie Transit Commission's planned mix of fixed route and dial-a-ride initiated in 1977	GM/DAB

MICHIGAN, Monroe County TM/DAB
Similar arrangment to Macomb County system.

#42 MICHIGAN, Mount Clemens GM/DAB

MICHIGAN, Muskegon TM/DAB
"Handivan" for the handicapped, formerly a state system run by Muskegon Area Transit.

#73 MICHIGAN, Niles GM/SRT

MICHIGAN, North East Oakland County GM/DAB
"Neotrans" operated by human services agency in five rural townships.

MICHIGAN, Port Huron GM/DAB
Blue Water Area Transportation Commission's planned mix of fixed route and dial-a-ride initiated in 1977.

#74 MICHIGAN, Redford Township GM/SRT

#44 MICHIGAN, Sault Sainte Marie GM/DAB

#75 MICHIGAN, Traverse City GM/SRT

#45 MICHIGAN, Trenton GM/DAB

MICHIGAN, Waterford Township GM/DAB

MICHIGAN, Wayne area TM/DAB
Nankin Transit Commission's system southwest of Detroit for the elderly and handicapped.

MICHIGAN, Wayne County TM/DAB
Office of Aging vehicles for Senior Citizens Centers in Wayne County.

MICHIGAN, Wayne County TM/DAB
"MEDTRAN", many-to-many, off-peak service for transportation of the elderly to medical facilities.

MICHIGAN, West Michigan Four County Public Transit Consortium GM/
Rural demonstration project (funded by FHWA Section 147), started Nov. 1976.

MINNESOTA, Mankato TM/DAB
"MUST", city operated, advanced reservation dial-a-ride bus system for the elderly and handicapped.

MINNESOTA, Moorhead TM/DAB
County Opportunity Council contracts with private operator to provide advanced reservation free dial-a-ride service for the elderly and handicapped.

MINNESOTA, Morris GM/MIX
Taxi-based plus dial-a-bus system.

MINNESOTA, St. Cloud TM/DAB
Dial-a-ride for handicapped provided by St. Cloud Metropolitan Transit Commission.

MINNESOTA, St. Paul - Minneapolis TM/DAB
Metropolitan Transit Commission demonstration started in November 1976 for handicapped persons in north Minneapolis.

MINNESOTA, Scott County TM/DAB
Senior citizen's minibus many-to-many service; until 1976 was a two-county system with Carver County.

MINNESOTA, Carver County TM/DAB
Senior citizen's minibus many-to-many service.

MISSISSIPPI, Jackson /DAB
Jackson Transit Corporation contract with city to provide five to nineteen passenger minibuses.

#101 MISSOURI, Oats TM/DAB

MISSOURI, Fort Leonard Wood GM/SRT
Two shared-ride taxi companies (Fort Cab and Long Cab) offering many-to-many service since 1958.

MISSOURI, Joplin TM/SRT

MISSOURI, St. Louis County TM/DAB
Bi-State Development Agency's "Bus Plus" pilot project in eleven square mile area to start March 1978 with advanced reservation and subscription, curb-to-curb service for the elderly and handicapped.

MISSOURI, Sullivan County TM/DAB
Fixed route with demand-responsive service for the elderly in rural area.

MONTANA, Golden Valley County TM/DAB
Ryegate senior citizen's bus service in a rural area.

MONTANA, Helena TM/DAB
Many-to-many senior citizen service.

NEBRASKA, Blue River area TM/DAB
Fixed schedule with deviations service in rural area for elderly persons.

#102 NEBRASKA, Lincoln TM/DAB

NEBRASKA, Omaha TM/DAB
Metropolitan area transit van service for eligible senior citizens.

#103 NEBRASKA, Western area TM/DAB

NEVADA, Clark County TM/DAB
Economic Opportunity Board system for the elderly and handicapped in Las Vegas area.

NEVADA, Washoe County TM/DAB
Elderport Services system for the elderly and handicapped in Reno and Sparks area.

NEW HAMPSHIRE, Rochester GM/DAB
Rochester dial-a-ride system initiated in 1974 by private entrepreneur.

NEW JERSEY, Cape May County TM/DAB
Dial-A-Ride Escort Service for elderly, handicapped and low income persons.

NEW JERSEY, Sussex - Warren - Somerset Counties TM/DAB
Pioneer On Wheels van system for the elderly in rural area.

#47 NEW YORK, Batavia GM/DAB

#76 NEW YORK, Hicksville GM/SRT

NEW YORK, Huntington GM/SRT
Shared-ride taxi feeder system on Long Island.

NEW YORK, Massapequa GM/SRT
Taxi-based dial-a-ride on Long Island.

NEW YORK, Livingston County — TM/DAB
Advance reservation service for elderly and handicapped persons.

NEW YORK, Oneonta — /DAB
Many-to-many, subscription demand-responsive bus service.

#81 NEW YORK, Rochester — GM/DAB Integrated

NEW YORK, Suffolk County — GM/DAB
Non-fixed route minibus service.

#104 NEW YORK, Syracuse — TM/DAB

NEW YORK, West Orange — GM/DAB
Minibus feeder service to arterial routes.

NORTH CAROLINA, Anson County — TM/DAB
Fixed schedule and demand-responsive sive van service in rural area.

NORTH CAROLINA, Choanoke area — TM/DAB
Demand-responsive service in rural area.

NORTH CAROLINA, Greensboro — TM/DAB
Gate van system for elderly and handicapped persons.

NORTH CAROLINA, Union County — TM/DAB
Community Action Agency van service in rural area.

NORTH CAROLINA, WAKE COUNTY — TM/DAB
Demand-responsive bus service in rural area.

#105 NORTH DAKOTA, West River — TM/DAB

OHIO, Akron — TM/MIX
SCAT system for the elderly and handicapped using small buses in some zones; contract with taxi companies in other zones.

OHIO, Athens - Hocking - Perry Counties — GM/DAB
Tri-county rural transportation system of small buses in rural area.

#121 OHIO, Cuyahoga County (Cleveland) — TM/MIX

#48 OHIO, Columbus — GM/DAB

OHIO, Columbus — TM/SRT
Many-to-many taxi service for the elderly and handicapped.

OHIO, Geauga County — TM/DAB
Dial-a-bus for transit dependents funded as a rural highway demonstration project.

#106 OHIO, Kent — TM/DAB

OHIO, Lake County — TM/DAB
Dial-a-bus service for the elderly and handicapped.

OHIO, Miami — TM/DAB
Miami Valley Regional Transit Authority work and school trip service for the elderly and handicapped.

OHIO, Oberlin — TM/DAB
City operated demand-responsive advance reservation service for the elderly.

OHIO, Youngstown — TM/
Eastgate Development and Transportation Agency service for the elderly and handicapped.

#77 OHIO, Xenia — GM/SRT

OKLAHOMA, Lawton - proposed

OKLAHOMA, Northeastern — TM/DAB
Inter-Tribal Council five-county route deviation van service.

OREGON, Columbia County — TM/DAB
Van service for senior citizens in rural area.

OREGON, Eugene - Springfield — TM/DAB
A dial-a-bus zonal system designed to service an eighteen thousand elderly and handicapped population within the city.

OREGON, Linn County — TM/DAB
Rural bus service for the elderly.

OREGON, Medford — GM/
Route deviation service.

#108 OREGON, Portland — TM/DAB

OREGON, Reedsport — GM/DAB
Fixed route with deviation service for three small towns.

OREGON, Hood River area — TM/DAB
Senior Citizen Transportation Inc. van service for the elderly in rural area.

PENNSYLVANIA, Demand-Responsive Rural Systems

- o Rural Transportation Alliance (Indiana, Pennsylvania) — TM/
- o Chester County Rural Transportation Consortium — TM/
- o Area Transportation Authority of North Central Pennsylvania (Ridgway) — TM/
- o Lancaster Integrated Specialized Transportation System — TM/
- o York Transportation Club — TM/

#109 PENNSYLVANIA, Carbon County — TM/DAB

#110 RHODE ISLAND — TM/DAB

RHODE ISLAND, Cranston — TM/DAB
Transvan service for the elderly and handicapped.

SOUTH CAROLINA, Greenwood — TM/DAB
Six county GMAS transportation program for elderly and poor persons in rural area.

TENNESSEE, Chattanooga — TM/DAB
Advance reservation demand-responsive bus service system.

TENNESSEE, Kingsport area — TM/DAB
Upper East Tennessee Human Development Agency and volunteer Kingsport van service for the elderly, poor and Head Start youth in rural area.

TENNESSEE, Southeast State — TM/DAB
Commuter van program from rural areas to Chattanooga funded as a federal highway demonstration project.

TENNESSEE, Macon County TM/DAB
Fixed schedule and demand-responsive service for the elderly in rural area.

TENNESSEE, McMinnville TM/DAB
Four-county van system for the poor, elderly and handicapped persons in rural area.

#111 TEXAS, Austin TM/DAB

TEXAS, Corpus Christi TM/DAB
City-run system of twelve vans for elderly persons.

TEXAS, Dallas - proposed TM/DAB
Highland Hills Transportation Service of vans for the handicapped.

TEXAS, El Paso TM/DAB
Handy Scat

#112 TEXAS, Houston TM/DAB

TEXAS, San Antonio TM/DAB
Handi-Lift program operative demand-responsive van service for the handicapped.

VERMONT, Winooski (Champlain Valley) TM/DAB
Four-county van service in rural area for human service agency clientele, Head Start and poor persons.

VIRGINIA, Lynchburg TM/
Social service dial-a-ride for elderly, handicapped and mentally retarded persons.

VIRGINIA, Richmond GM/SRT
Many-to-many taxi service.

VIRGINIA, South East area TM/DAB
South East Virginia areawide model program (SEVAMP) advanced reservation service for the elderly.

WASHINGTON, Bremerton GM/SRT
Taxi feeder service to fixed-route transit started in 1977.

WASHINGTON, King County TM/DAB
Run by METRO demand-responsive service for the handicapped in low income HUD housing complex in Seattle area.

WASHINGTON, Richland TM/SRT
Taxi-based service for the elderly and handicapped.

WASHINGTON, Spokane TM/DAB
YMCA contract with city to provide demand-responsive van service for the elderly and handicapped.

WASHINGTON, Yakima County TM/DAB
Interagency County Transportation Exchange, co-ordinated motor pool for the elderly and handicapped.

WASHINGTON D.C. GM/SRT
Shared-ride taxi service.

WEST VIRGINIA TM/DAB
TRIP, user-side subsidy van program for the elderly and handicapped.

78 WISCONSIN, Madison GM/SRT

WISCONSIN, Madison TM/DAB
Madison Metro subscription and demand-responsive service for the elderly and handicapped.

#50 WISCONSIN, Merrill GM/DAB

WISCONSIN, Milwaukee TM/SRT
Handicab service for the handicapped.

DISCONTINUED SYSTEMS

#1 CALIFORNIA, Apple Valley GM/DAB

#54 CALIFORNIA, Bellflower GM/SRT

CALIFORNIA, Catalina Island TM/SRT
Exclusive-ride and shared-ride service, operated by A-1 Taxi Company, mostly for the elderly.

CALIFORNIA, Chico /DAB
"Your Bus", a many-to-many service in the city with a twice-a-day shuttle to Paradise (California).

CALIFORNIA, Richmond GM/DAB
Many-to-many dial-a-ride service in a section of Richmond.

CALIFORNIA, San Ysidro /DAB
Nine van dial-a-bus service funded by Model Cities.

CALIFORNIA, Santa Barbara TM/SRT
Dial-a-ride van service provided by Yellow Cab Company.

CALIFORNIA, Santa Clara County GM/DAB
County-wide dial-a-ride system integrated with fixed-route service.

'66 CALIFORNIA, Victorville GM/SRT

FLORIDA, Fort Walton Beach GM/DAB
Call-a-Bus route deviation service.

FLORIDA, West Palm Beach TM/DAB
The "Liftline", a fixed-route service with deviations for social service recipients.

IOWA, Cedar Rapids TM/DAB
"Seats", a demand-responsive van service for the elderly.

MARYLAND, Columbia GM/DAB
Call-a-ride service within the community replaced by ColumBUS, a minibus service operating on a fixed route.

#17 MARYLAND, Gaithersburg GM/DAB

#80 MICHIGAN, Ann Arbor GM/DAB Integrated

#43 MICHIGAN, Roscomon County GM/DAB

MINNESOTA, Minneapolis GM/DAB
Model Cities demonstration project operated in southern section of city during 1975.

#46 NEW JERSEY, Haddonfield GM/DAB

NEW YORK, Bronx TM/MIX
Dial-a-ride service for the elderly operated in the Bronx from June of 1972 to October 1973.

NORTH CAROLINA, Onslow County TM/DAB
Fixed schedule and demand-responsive service for transit dependent persons in rural area.

#107 OHIO, Kent TM/DAB

OHIO, Mansfield GM/DAB
Early dial-a-ride project, diverting a fixed route van by a direct call to the driver.

#49 TEXAS, Dallas GM/DAB

VIRGINIA, Arlington County GM/SRT
Many-to-many subscription shared-ride taxi service demonstration in 1975. Proposal exists for reinitiating service.

VIRGINIA, Fairfax City GM/DAB
Subscription service during peak hours to transit stops; many-to-many service on other hours of minibus operation service.

WASHINGTON D.C., Anacostia TM/SRT
Many-to-one dial-a-ride feeder service.

CANADIAN SYSTEMS

#122 ALBERTA, Calgary GM/DAB

ALBERTA, Edmonton TM/DAB
DATS minibus system for the handicapped, operated by Edmonton Handibuses Association under contract to the city.

MANITOBA, Winnipeg - discontinued GM/DAB
Service was begun in 1974; replaced by fixed-route service in June 1977 due to high costs.

#123 ONTARIO, Bay Ridges GM/DAB

ONTARIO, Bramalea GM/DAB
Service was begun in 1973; replaced by fixed-route service in 1976 due to heavy demand (600,000 annual ridership in 1975 in a city with 52,000 people).

#124 ONTARIO, Burlington GM/DAB

#125 ONTARIO, Cambridge GM/DAB

ONTARIO, Kingston GM/DAB
System provides off-peak service begun in 1972 serving two zones and expanded to five zones in 1975.

#126 ONTARIO, Kitchener GM/DAB

ONTARIO, Ottawa GM/DAB
Teletranspo system operated by city of Ottawa.

#129 ONTARIO, Peterborough GM/SRT

ONTARIO, Stratford GM/DAB
Many-to-few off-peak service, replacing evening fixed-route bus service.

ONTARIO, Sudbury - discontinued GM/DAB
Subscription service begun in 1972 and terminated in 1974 due to high costs and poor patronage.

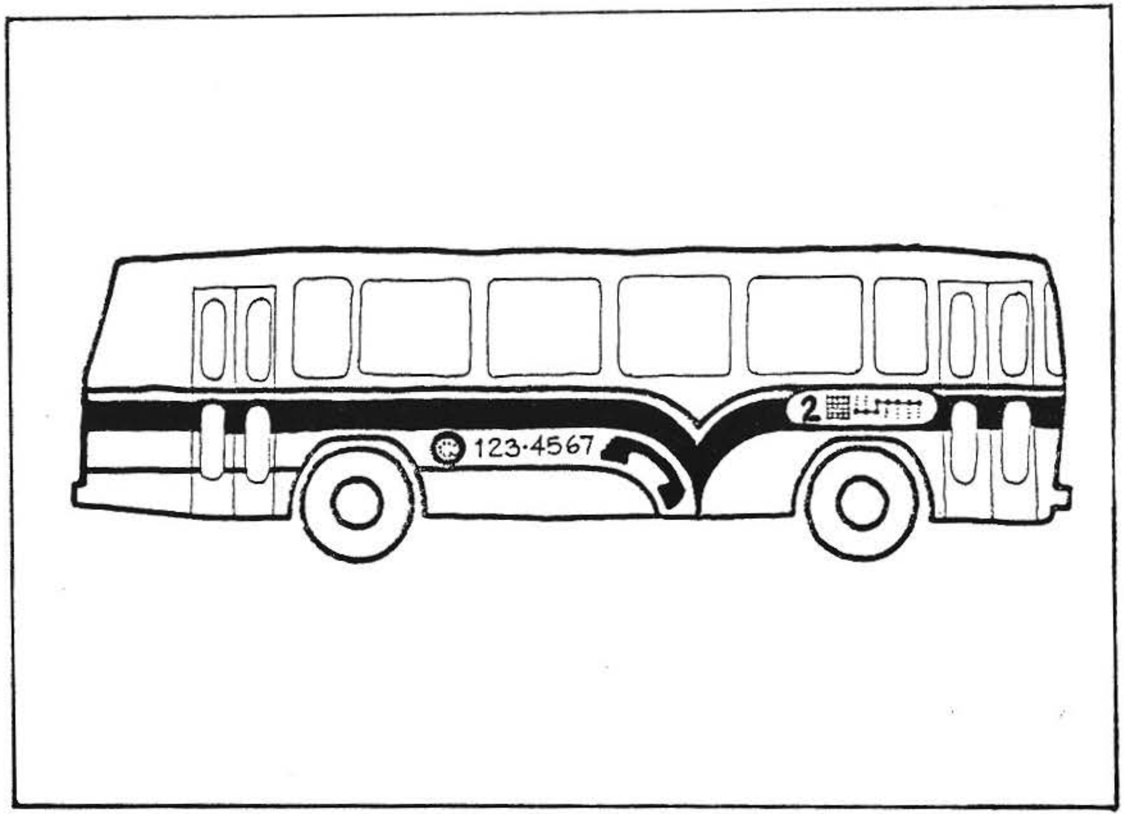
#127 ONTARIO, York Mills - discontinued GM/DAB

#128 SASKATCHEWAN, Regina GM/DAB

SYSTEM SUMMARY SHEETS A4

The summary sheets are arranged and numbered according to the following categories. Each category is also identified by a symbol.

	Number	
General Market - Dial-A-Bus	1-50	
General Market - Shared-Ride Taxi	51-78	
Integrated Systems (Dial-A-Ride portion of system only)	79-81	Appropriate Symbol + Integrated
Target Market - Dial-A-Bus	82-112	
Target Market - Shared-Ride Taxi	113-119	
Target Market - Mixed	120-121	
Canadian Systems	122-129	



General Market Dial-a-Bus

System Name: DIAL-A-RIDE (discontinued)

System No. 1

Location: Apple Valley, Hesperia, California

Organization: Authority & Operator: County of San Bernardino

Project History: DAR began in Aug. 1975 in Apple Valley and expanded to Hesperia in Nov. 1975. Service was discontinued Feb. 1976.

Institutional Issues:

Area Description

Population: 16,000

Service Area Pop. 16,000

Target Group Pop.

Service Area Size: 104 sq.mi.

Number of Zones:

Pop. Density of Service Area: 154/sq. mi

Service Area Type: entire county

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: M to F: peak/off peak

Fares: Regular 50¢

Special

Vehicles in Service: 2

Peak: Off-Peak:

Hours of Service: Mon-Wed-Fri, 8:30am-5pm Apple Valley service; Hesperia service Tues, Thurs

Annual Fleet Service Miles: 39,115

Annual Fleet Service Hours: 2023

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 14 Peak:

Annual Ridership: 3672 est.

Person-Trips/1000 Residents: .88

Person-Trips/Square Mile: .14

Person-Trips/Square Mile/Hour: .02

Trip Length:

Access

User: Phone

Pick-up Points:

Access Time:

Vehicles

#	Type	Capacity
2		5

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other CETA.

Service Levels (average time)

Ride Time: 10min Promised Wait Time:

Actual Wait Time (immediate request): 12min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 1.82

Passengers/Vehicle-Mile: .09

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact:

References Used: system documentation from So. Calif. Ass'n of Gov'ts (SCAG) Statistics. Data year: 1975

System Name: ELACIA DIAL-A-RIDE

System No. 2

Location: East/Northeast Los Angeles, California

Organization: Sponsor: City of Los Angeles
Operator: East L.A. Community Improvem't Ass'n

Project History: HUD funded project for four years; Los Angeles city council voted funding continued

Institutional Issues:

Area Description

Population: 2,800,000

Service Area Pop. 143,562

Target Group Pop.

Service Area Size: 18.6 sq.mi.

Number of Zones:

Pop. Density of Service Area: 7718/sq. mi

Service Area Type: section of city

Eligible Ridership: ALL
Priority to elderly

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/off peak

Fares: Regular 15¢

Special free for handicapped

Vehicles in Service: 8

Peak: Off-Peak:

Hours of Service:
mon.-Fri. 7am - 6pm

Annual Fleet Service Miles: 312,132

Annual Fleet Service Hours: 21,504

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 491 Peak:

Annual Ridership: 123,768

Person-Trips/1000 Residents: 3.4

Person-Trips/Square Mile: 26.0

Person-Trips/Square Mile/Hour: 2.4

Trip Length: 1.8 miles

Access

User: Phone

Pick-up Points: House

Access Time: Adv. reserv. (24 hrs), subscription, group (48 hrs)

Vehicles

#	Type	Capacity
9	van	15
1	van	13

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 15 min. Promised Wait Time:

Actual Wait Time (immediate request): 20 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 5.8

Passengers/Vehicle-Mile: .40

Economics

Cost/Passenger Trip: $3.13

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $18.04

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from L.A. Dept. of Public Util. & Transp., Analysis of Dial-A-Ride in the City of Los Angeles, Nov. 1976; and So. Calif. Assoc. of Govts (SCAG) statistics. Data year: 1976.

System Name:

System No. 3

Location: El Segundo, California

Organization: Sponsor & Operator: City of El Segundo

Project History:

Institutional Issues:

Area Description

Population: 15,750

Service Area Pop. 15,750

Target Group Pop.

Service Area Size: 5.5 sq.mi.

Number of Zones:

Pop. Density of Service Area: 2864/sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: m to m: off peak

Fares: Regular Free

Special

Vehicles in Service: 1

Peak: Off-Peak:

Hours of Service: mon-Fri. 9am-3pm

Annual Fleet Service Miles: 18,000

Annual Fleet Service Hours: 1,560

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 50 est. Peak:

Annual Ridership: 11,558

Person-Trips/1000 Residents: 3.2

Person-Trips/Square Mile: 9.1

Person-Trips/Square Mile/Hour: 1.5

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
1	Van	12

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 7.4

Passengers/Vehicle-Mile: .64

Economics

Cost/Passenger Trip: $1.82

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $13.46

Drivers' Salary: $ /hour

System Contact:

References Used: So. California Association of Governments (SCAG) statistics
Data year: 1976

System Name: DART

System No. 4

Location: Fairfield, California

Organization: Sponsor, Planner & Operator: City of Fairfield, Consultant: DAVE Systems Inc.

Project History: DART system preceded by the Fairfield Flyer - a subsidized taxi service for elderly & handicapped (10-74 to 9-75).

Institutional Issues: minor problems with funding & regulations

Area Description

Population: 44,146

Service Area Pop. 40,000

Target Group Pop.

Service Area Size: 7.8 sq.mi.

Number of Zones:

Pop. Density of Service Area 5128/sq. mi

Service Area Type: section of city

Eligible Ridership: All

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/off peak

Fares: Regular 50¢

Special 25¢ E & H

Vehicles in Service: 5

Peak: 5 Off-Peak: 3

Hours of Service: Mon-Fri 7am-7pm, Sat. - 9am-5pm

Annual Fleet Service Miles: 179,825

Annual Fleet Service Hours: 11,938

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 350 est. Peak:

Annual Ridership: 93,773

Person-Trips/1000 Residents: 8.8

Person-Trips/Square Mile: 44.9

Person-Trips/Square Mile/Hour: 3.7

Trip Length:

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Immed. serv., Adv. reserv., subscription

Vehicles

#	Type	Capacity
5	van	13

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: magnetic map

Computer:

Labor

Union ☐ Non-Union ☒ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 7.9

Passengers/Vehicle-Mile: .52

Economics

Cost/Passenger Trip: $1.74

Revenue/Passenger Trip: $.40

Cost/Vehicle-Hour: $13.64

Drivers' Salary: $ /hour

System Contact: Robt. Berman, City of Fairfield, 1000 Webster St., Fairfield, Calif. 94533

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by City of Fairfield
Data year: 1976

System No. 5

System Name:

Location: Hemet, California

Organization: Sponsor: City of Hemet
Operator: Riverside Transit Agency (4-77)
Dave Systems (1976)

Project History: Service started in Jan. 1974; in late 1976 change operator from city to DAVE systems; and in April 1977, the Riverside Transit Agency took over the system.

Institutional Issues:

Area Description

Population: 16,700

Service Area Pop. 16,700

Target Group Pop.

Service Area Size: 5.9 sq.mi.

Number of Zones:

Pop. Density of Service Area 2831/sq. mi

Service Area Type:

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/off peak

Fares: Regular 50¢

Special free: children

Vehicles in Service: 3

Peak: Off-Peak:

Hours of Service: Mon-Fri 9am-5pm

Annual Fleet Service Miles: 70,125

Annual Fleet Service Hours: 5,760

Number of Employees:•

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 100 Peak:

Annual Ridership: 24,000

Person-Trips/1000 Residents: 6.0

Person-Trips/Square Mile: 16.9

Person-Trips/Square Mile/Hour: 2.1

Trip Length:•

Access

User: Phone

Pick-up Points:•

Access Time:•

Vehicles

#	Type	Capacity
3	van	10

Special Features:

Communication/Dispatching•

Mobile Communications:

Control Center:

Computer:

Labor•

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 7 min. Promised Wait Time:

Actual Wait Time (immediate request): 20 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 4.2

Passengers/Vehicle-Mile: .34

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $4.45/hour 2.75 for part-time

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from: So. Calif. Ass'n of Govts (SCAG) statistics and Calif. DOT, Transguide, SOA 2.44. Data year: 7-75 to 6-76

System Name: Dial-A-Ride

System No. 6

Location: Hollywood-Westlake-E. Wilshire, Calif.

Organization: Sponsor: City of Los Angeles.
operator: Educational & Recreational Services

Project History: Discontinued at the end of 1976. To restart in May 1978 with Golden State Transit as operator. Also to operate as two systems: Hollywood and Westlake-E. Wilshire in an expanded service area.

Institutional Issues: funding problem: budgeted funds exhausted; future funding uncertain

Area Description

Population: 2,800,000

Service Area Pop. 243,535

Target Group Pop.

Service Area Size: 13.0 sq.mi.

Number of Zones:

Pop. Density of Service Area 18733/sq. mi

Service Area Type: section of city

Eligible Ridership: All
Priority to elderly

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/off peak

Fares: Regular 15¢

Special

Vehicles in Service: 9

Peak: Off-Peak:

Hours of Service: Mon.-Fri. 7am-7pm
Sat. 10am-6pm

Annual Fleet Service Miles: 301,728

Annual Fleet Service Hours: 21,240

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 239 Peak:

Annual Ridership: 73,044

Person-Trips/1000 Residents: 1.0

Person-Trips/Square Mile: 18.4

Person-Trips/Square Mile/Hour: 1.5

Trip Length: 3.8 miles

Access

User: Phone

Pick-up Points: House

Access Time: Adv. reserv. (24hr.), subscription, group (48hr)

Vehicles

#	Type	Capacity
9	van	16

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 15 min. Promised Wait Time:

Actual Wait Time (immediate request): 9 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 3.4

Passengers/Vehicle-Mile: .24

Economics

Cost/Passenger Trip: $3.34

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $11.47

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: System documentation from L.A. Dept. of Public Util. & Transp, Analysis of Dial-A-Ride Service in the City of Los Angeles, Nov. 1976; and So. Calif. Assoc. of Govts. (SCAG) statistics. Data year: 1976

System Name: La Habra Dial-A-Ride

System No. 7

Location: La Habra, California

Organization: Authority & Planner: Orange Co. Transit District
Operator: DAVE Systems Inc

Project History: Expanded service area to include City of Brea (10-76).

Institutional Issues: none

Area Description

Population: 65,128

Service Area Pop. 65,128

Target Group Pop.

Service Area Size: 15.8 sq.mi.

Number of Zones: -

Pop. Density of Service Area: 4122/sq. mi

Service Area Type: entire city

Eligible Ridership: ALL

Integrated with Fixed-Route System: · Fixed route bus · D-A-R in other zones

Supply

Service Type: m to m: Peak/Off Peak

Fares: Regular 50¢

Special 25¢ E & H

Vehicles in Service: 10

Peak: 10 Off-Peak: 4

Hours of Service: mon.-Fri 6am-7pm
sat. 6am-7pm

Annual Fleet Service Miles: 295,000

Annual Fleet Service Hours: 21,700

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 470 Peak: 260

Annual Ridership: 144,000

Person-Trips/1000 Residents: 7.2

Person-Trips/Square Mile: 29.7

Person-Trips/Square Mile/Hour: 2.3

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time: Immed., Subscription

Vehicles

#	Type	Capacity
11	small bus	19

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: magnetic map

Computer: no computer

Labor

Union ☐ Non-Union ☒ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 15 min. Promised Wait Time: 30 min.

Actual Wait Time (immediate request): 37 min.

Pick-Up Deviation (advanced request): N/A

Transfer Time: N/A

Productivity

Passengers/Vehicle-Hour: 6.6

Passengers/Vehicle-Mile: .49

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $ .32

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: Sharon Neely
Orange Co. Transit District
1200 N. Main St.
Santa Ana, Calif. 92702

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by Orange Co. Transit District
Data year: FY 1978

System Name: DIAL-A-RIDE

System No. 8

Location: La Mirada, California

Organization: Sponsor: City of La Mirada
Operator: DAVE Systems Inc

Project History:

Institutional Issues: Funding problems - difficulties with UMTA Sec. 5 grant; minor problems with insurance and permits/licensing

Area Description

Population: 39,696

Service Area Pop. 39,696

Target Group Pop.

Service Area Size: 7.0 sq.mi.

Number of Zones:

Pop. Density of Service Area 5671 /sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: M to M: peak/ off peak

Fares: Regular 25¢
Special 10¢ E & H

Vehicles in Service: 7

Peak: Off-Peak:

Hours of Service: Mon-Fri 7am-7pm
Sat. 9am-5pm

Annual Fleet Service Miles: 208,197

Annual Fleet Service Hours: 15,710

Number of Employees: 14

Drivers: 10 Control Room: 2

Maintenance: 2

Demand

Weekday Ridership 389 Peak:

Annual Ridership: 119,399

Person-Trips/1000 Residents: 9.8

Person-Trips/Square Mile: 55.6

Person-Trips/Square Mile/Hour: 4.6

Trip Length:

Access

User: Phone

Pick-up Points:

Access Time: subscription

Vehicles

#	Type	Capacity
3	small bus	18
4	van	12

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 12.7 min Promised Wait Time:

Actual Wait Time (immediate request): 19.9 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 7.6

Passengers/Vehicle-Mile: .57

Economics

Cost/Passenger Trip: $1.53

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $11.64

Drivers' Salary: $3.50/hour 40% fringe benefits

System Contact: Bil Aulenbach
City of La Mirada
13700 La Mirada Blvd.
La Mirada, Calif. 90638

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by City of La Mirada and SCAG statistics.
Data year: 7-75 to 6-76

System Name: Lompoc Transit System

System No. 9

Location: Lompoc, California

Organization: Authority: City of Lompoc
Operator: Community Action Council

Project History: Replaced fixed route system

Institutional Issues: minor problems with political response, legal & regulatory issues.

Area Description

Population: 31,155

Service Area Pop. 31,155

Target Group Pop.

Service Area Size: 2 sq.mi.

Number of Zones:

Pop. Density of Service Area 15578/sq. mi

Service Area Type: entire city

Eligible Ridership: ALL

Integrated with Fixed-Route System: no

Supply

Service Type: M to M: Peak/Off Peak

Fares: Regular 25¢

Special 10¢ E (over 60)

Vehicles in Service: 2

Peak: 2 Off-Peak: 2

Hours of Service: Mon.-Fri. 7:30am-5:30pm
Sat. 9am-4pm

Annual Fleet Service Miles: 66,039

Annual Fleet Service Hours: 4,524

Number of Employees: 6

Drivers: 3 Control Room: 1-2

Maintenance: ½

Demand

Weekday Ridership: 178 Peak:

Annual Ridership: 43,670

Person-Trips/1000 Residents: 5.7

Person-Trips/Square Mile: 89.0

Person-Trips/Square Mile/Hour: 8.9

Trip Length:

Access

User: Phone, hail, fixed stops

Pick-up Points: House, hail, designated stops

Access Time: Immed., subscription, advance reservation

Vehicles

#	Type	Capacity
2	small bus	16

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer: no computer

Labor

Union ☐ Non-Union ☒ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 15 min. Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 9.7

Passengers/Vehicle-Mile: .66

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: Dolores Suter
Lompoc Transit
205 N-H Suite 221
Lompoc, California
93436

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by Lompoc Transit.
Data year: 1977

System Name: DIAL-A-RIDE

System No. 10

Location: Merced, California

Organization: Sponsor: City of Merced

Operator: Merced Transit System

Project History:

Institutional Issues:

Area Description

Population: 30,000

Service Area Pop. 30,000

Target Group Pop.

Service Area Size: 10 sq.mi.

Number of Zones:

Pop. Density of Service Area 3000 /sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/off peak

Fares: Regular 25¢

Special free-children

Vehicles in Service: 4

Peak: Off-Peak:

Hours of Service:
Mon-Fri 7:15am - 5:15 pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees: 6

Drivers: 5.5 Control Room:

Maintenance: 1

Demand

Weekday Ridership: 330 Peak:

Annual Ridership: 85,800 est.

Person-Trips/1000 Residents: 11.0

Person-Trips/Square Mile: 33.0

Person-Trips/Square Mile/Hour: 3.3

Trip Length: 1.7 miles

Access

User: Phone

Pick-up Points: House, designated Points

Access Time: Adv. reserv. (6 hrs), subscription

Vehicles

#	Type	Capacity
4	van	14

Special Features: no lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 14.5 min Promised Wait Time: 20 min.

Actual Wait Time (immediate request): 20.5 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip: $ .93

Revenue/Passenger Trip: $ .25

Cost/Vehicle-Hour:

Drivers' Salary: $3.75 /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from report: DOT/UMTA, Small City Transit, Merced, Ca., March 1976; DAVE Systems Background Data Sheet. Data year: mid 74 - mid 75

System Name: Placer Co. minibus

System No. 11

Location: Placer Co., California

Organization: Planned and operated by Placer County

Project History: Initiated in 1-74, additional routes were added 5-75 which increased ridership. In 7-76 a pilot project for short route tried which was unsuccessful and discontinued.

Institutional Issues: severe insurance problem: rates have increased 100% over past two years. minor problems with regulations and political response

Area Description

Population: 95,000

Service Area Pop. 95,000

Target Group Pop.

Service Area Size: 700 sq.mi.

Number of Zones: 28

Pop. Density of Service Area: 136/sq. mi

Service Area Type: entire county: rural

Eligible Ridership: ALL

Integrated with Fixed-Route System: local fixed-route bus

Supply

Service Type: Deviation from route: peak/off peak

Fares: Regular 40¢

Special 75¢ excursion

Vehicles in Service: 4

Peak: Off-Peak:

Hours of Service: mon.-Fri. 6:30am-6:30pm

Annual Fleet Service Miles: 145,000

Annual Fleet Service Hours: 7,500

Number of Employees: 7

Drivers: 6 Control Room: 1

Maintenance: contract

Demand

Weekday Ridership: 121 Peak:

Annual Ridership: 30,200

Person-Trips/1000 Residents: 1.3

Person-Trips/Square Mile: .2

Person-Trips/Square Mile/Hour: .01

Trip Length:

Access

User: Phone, flag stops

Pick-up Points: House

Access Time: Advance reservation (24 hrs)

Vehicles

#	Type	Capacity
3	van	12
1	small bus	24
1	cab	12

Special Features:

Communication/Dispatching

Mobile Communications: telephone

Control Center:

Computer: no computer

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 30 min. Promised Wait Time:

Actual Wait Time (immediate request): 10 min.

Pick-Up Deviation (advanced request): 5 min.

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 4.0

Passengers/Vehicle-Mile: .21

Economics

Cost/Passenger Trip: $4.47

Revenue/Passenger Trip: $.25

Cost/Vehicle-Hour: $18.00

Drivers' Salary: $4.75/hour + 20% fringe benefits

System Contact: Grayson Marshall
Transit manager
Placer Co. minibus
Dept. of Public works
11444 B Ave
Auburn, Calif. 95603

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by Transit manager, Placer County
Data year: 1976

System Name: DIAL-A-RIDE

System No. 12

Location: Rubidoux, California

Organization: Sponsor: County of Riverside
Operator: Orange Cab (since 6-77)
formerly Omnitrans operated

Project History:

Institutional Issues:

Area Description

Population: 17,493

Service Area Pop. 17,493

Target Group Pop.

Service Area Size: 8.5 sq.mi.

Number of Zones:

Pop. Density of Service Area 2058/sq. mi

Service Area Type: suburban area

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: m to F: peak/off peak

Fares: Regular 25¢

Special Free - children

Vehicles in Service: 1

Peak: Off-Peak:

Hours of Service: mon - Fri 6:30am - 7:30pm
sat. - 7am - 7pm

Annual Fleet Service Miles: 60,480

Annual Fleet Service Hours: 3,931

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 79 Peak:

Annual Ridership: 23,849 est.

Person-Trips/1000 Residents: 4.5

Person-Trips/Square Mile: 9.3

Person-Trips/Square Mile/Hour: .8

Trip Length:

Access

User: Phone, hail

Pick-up Points:

Access Time:

Vehicles

#	Type	Capacity
1	small bus	18

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 10 min Promised Wait Time:

Actual Wait Time (immediate request): 11 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 6.1

Passengers/Vehicle-Mile: .39

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $5.37/hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: System documentation from: So. Calif. Ass'n of Gov'ts (SCAG) Statistics and Calif. DOT, Transguide, SOA 2.82. Data year: 75-76

System Name: Good Sam Trans

System No. 13

Location: Tracy, California

Organization: Authority & Planner: City of Tracy
Operator: Dave Systems

Project History: Increased hours of operation from 6pm to 7pm

Institutional Issues: severe insurance problem: cost of covering non-profit group liability insurance; minor problems with regulation, licensing, funding and political response.

Area Description

Population: 16,500

Service Area Pop. 16,500

Target Group Pop.

Service Area Size: 5 sq.mi.

Number of Zones:

Pop. Density of Service Area: 3300/sq. mi

Service Area Type: entire city

Eligible Ridership: ALL

Integrated with Fixed-Route System: no

Supply

Service Type: M to M: Peak/Off Peak

Fares: Regular 50¢

Special 25¢ E&H

Vehicles in Service: 4

Peak: 3 Off-Peak: 2

Hours of Service: Mon.-Fri. 7am-7pm

Annual Fleet Service Miles: 61,581

Annual Fleet Service Hours: 4,408

Number of Employees: 8

Drivers: 4 Control Room: 2

Maintenance: —

Demand

Weekday Ridership: 151 Peak:

Annual Ridership: 36,117

Person-Trips/1000 Residents: 9.2

Person-Trips/Square Mile: 30.2

Person-Trips/Square Mile/Hour: 2.5

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time: Adv. reservation, subscription

Vehicles

#	Type	Capacity
2	van	6
2	van	14

Special Features: 2 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: magnetic map

Computer: no computer

Labor

Union ☐ Non-Union ☒ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 11.9 min Promised Wait Time: 19.6 min.

Actual Wait Time (immediate request): N/A

Pick-Up Deviation (advanced request): 19.3 min.

Transfer Time: N/A

Productivity

Passengers/Vehicle-Hour: 8.2

Passengers/Vehicle-Mile: .59

Economics

Cost/Passenger Trip: $2.69

Revenue/Passenger Trip: $.29

Cost/Vehicle-Hour: $22.04

Drivers' Salary: $ 3— /hour

System Contact: Teri Wilson
City of Tracy
P.O. Box 1029
Tracy, California
95376

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by City of Tracy
Data year: 11/76 to 11/77

System Name: DIAL-A-RIDE

System No. 14

Location: Turlock, California

Organization: Sponsor: City of Turlock
Operator & Consultants: DAVE Systems Inc

Project History:

Institutional Issues:

Area Description

Population: 18,000

Service Area Pop. 18,000

Target Group Pop.

Service Area Size: 10 sq.mi.

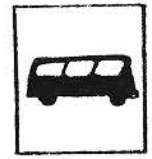
Number of Zones:

Pop. Density of Service Area 1800/sq. mi

Service Area Type:

Eligible Ridership: All

Integrated with Fixed-Route System:



Supply

Service Type: m to m: peak/ off peak

Fares: Regular 50¢

Special 25¢ over 60 yrs.

Vehicles in Service: 4

Peak: Off-Peak:

Hours of Service: mon-Fri 7:30 am - 5:30 pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership 248 Peak:

Annual Ridership: 64,480 est.

Person-Trips/1000 Residents: 13.8

Person-Trips/Square Mile: 24.8

Person-Trips/Square Mile/Hour: 2.5

Trip Length:

Access

User: Phone

Pick-up Points:

Access Time:

Vehicles

#	Type	Capacity
3	small bus	16
1	van	6

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request): 20 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip: $1.32

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $8.81

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from reports: Calif. DOT, Transguide, SOA 2.98. and TSM from Stanislaus Co., Calif. cost data: DAVE Systems 12-75
Data Year: ?1977

System Name: DIAL-A-RIDE (WILCAC)

System No. 15

Location: Watts, California

Organization: Sponsor: City of Los Angeles
Operator: Watts Labor Community Action Com.

Project History: HUD funded project for four years; Los Angeles city council voted funding continued.

Institutional Issues:

Area Description

Population: 2,800,000

Service Area Pop. 122,445

Target Group Pop.

Service Area Size: 9.6 sq.mi.

Number of Zones:

Pop. Density of Service Area 12755/sq. mi

Service Area Type: section of city

Eligible Ridership: All
Priority to elderly

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/off peak

Fares: Regular 15¢

Special free for handicapped

Vehicles in Service: 9

Peak: Off-Peak:

Hours of Service:
mon.-Fri. 7am to 6pm

Annual Fleet Service Miles: 175,212

Annual Fleet Service Hours: 13,188

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 343 Peak:

Annual Ridership: 86,436

Person-Trips/1000 Residents: 2.8

Person-Trips/Square Mile: 35.7

Person-Trips/Square Mile/Hour: 3.2

Trip Length: 2.1 miles

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
7	van	11
2	van	15

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 30 min. Promised Wait Time:

Actual Wait Time (immediate request): 20 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 6.6

Passengers/Vehicle-Mile: .49

Economics

Cost/Passenger Trip: $3.35

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $21.97

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from L.A. Dept. of Public Util. & Transp., Analysis of Dial-A-Ride in the City of Los Angeles, Nov. 1976; and So. Calif. Assoc. of Govts (SCAG) statistics. Data year: 1976

System Name: Dial-A-Bus

System No. 16

Location: Bensenville, Illinois

Organization:

Project History:

Institutional Issues: "Because of high cost factor, many local elected officials are against the system."

Area Description

Population: 13,900

Service Area Pop. 13,900

Target Group Pop.

Service Area Size: 7 sq.mi.

Number of Zones:

Pop. Density of Service Area: 1985/sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System:
- local fixed route bus
- intercity bus

Supply

Service Type: M to M: off peak

Fares: Regular 50¢

Special 25¢ elderly, students

Vehicles in Service: 3

Peak: Off-Peak: 3

Hours of Service:
M – F 8:30 am – 2:30 pm

Annual Fleet Service Miles: 30,000

Annual Fleet Service Hours:

Number of Employees: 9

Drivers: 6 Control Room: 2

Maintenance: 3

Demand

Weekday Ridership: 85 Peak: –

Annual Ridership: 22,000

Person-Trips/1000 Residents: 6.1

Person-Trips/Square Mile: 12.1

Person-Trips/Square Mile/Hour: 2.0

Trip Length:

Access

User: Phone
Hail

Pick-up Points:

Access Time: Immed. service

Vehicles

#	Type	Capacity
4	small bus	23

Special Features: –

Communication/Dispatching

Mobile Communications: 2 way radio

Control Center:

Computer: no computer

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☒ Other

Service Levels (average time)

Ride Time: 15 min. Promised Wait Time: 15-20 min.

Actual Wait Time (immediate request): 20 min.

Pick-Up Deviation (advanced request): 20 min.

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile: .73

Economics

Cost/Passenger Trip: $ 1.82

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $4.44/hour

System Contact: Frank DeVita
Village of Bensenville
700 W. Irving Park Rd.
Bensenville, Ill. 60106

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by Village of Bensenville.
Data year: 1977

System Name: DIAL-A-RIDE (discontinued)

System No. 17

Location: Gaithersburg, Maryland

Organization: Planner: County Office of Transp. Planning; Operator: Montgomery Co. DOT; Consultant: DAVE Systems Inc.

Project History: Service initiation in April 1975, gradually extend service: 7-75 add 1/2 hr. to service hours; 9-75 peak hour subscrip. service extended. Then services cut back 10-75

Institutional Issues: Because of deficit/passenger trip of over $2.00 Co. Executive recommended FY77 budget of a fixed-route system in lieu of highly labor intensive DAR. Budget constraints then eliminated even the fixed-route service. No service 6-76 to 11-76 when 4 fixed route services started.

Area Description

Population: 27,000

Service Area Pop. 27,000

Target Group Pop.

Service Area Size: 6.5 sq.mi.

Number of Zones: 2

Pop. Density of Service Area: 4154/sq. mi

Service Area Type:

Eligible Ridership: ALL

Integrated with Fixed-Route System:
- local fixed-route bus
- demand-responsive system in second zone

Supply

Service Type: M to F: peak; M to M: off peak

Fares: Regular 25¢

Special

Vehicles in Service: 8

Peak: Off-Peak:

Hours of Service: Subscription: M-F 6-9am, 4-7pm; Dial-a-Ride 9am-4pm; Sat. 10am-6pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees:

Drivers: 18 Control Room: 5

Maintenance:

Demand

Weekday Ridership: 600 Peak:

Annual Ridership: 187,000 est.

Person-Trips/1000 Residents: 22.2

Person-Trips/Square Mile: 92.3

Person-Trips/Square Mile/Hour: 7.1

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time: Immed. service, subscription

Vehicles

#	Type	Capacity

Special Features:

Communication/Dispatching

Mobile Communications: 1-way paging device, telephone, 2-way radio

Control Center:

Computer: no computer

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other County Employees

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip: $2.16

Revenue/Passenger Trip: $.21

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: System documentation from reports: Gaithersburg Dial-A-Ride System June 1977; overview of Gaithersburg Dial-A-Ride; Takoma Park/Silver Spring Fixed Route minibus systems, March 1976. Paratransit service in the Wash. Metro. Area - March 1977.

Data year: 1976

System Name: Bedford Local Transit

System No. 18

Location: Bedford, Mass.

Organization: Sponsor: Town of Bedford; Authority: Bedford Local Transit; Contractor: Metropolitan Coach

Project History:

Institutional Issues: funding: 50% state subsidy; revenue accounts for only 15% of expenses. "Public support appears to be dependent on service benefits to them + 50% state subsidy + evidence of cost cutting."

Area Description

Population: 12,500

Service Area Pop. 12,500

Target Group Pop.

Service Area Size: 14 sq.mi.

Number of Zones:

Pop. Density of Service Area 893/sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System: local fixed route bus

Supply

Service Type: m to m: peak/off peak

Fares: Regular 50¢

Special 25¢ E&H; 30¢ children

Vehicles in Service: 3

Peak: Off-Peak:

Hours of Service: mon - Fri 7:45 am - 5 pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees: 5

Drivers: 2 Control Room: 1

Maintenance: 1 Admin. 1

Demand

Weekday Ridership: 65 Peak:

Annual Ridership: 28,000

Person-Trips/1000 Residents: 5.2

Person-Trips/Square Mile: 4.6

Person-Trips/Square Mile/Hour: .5

Trip Length:

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Immed., advance reservation (1 hr.)

Vehicles

#	Type	Capacity
6	small bus	27

Special Features: none

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: no computer

Computer:

Labor

Union ☐ Non-Union ☒ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 8 min. Promised Wait Time: 30 min.

Actual Wait Time (immediate request): 12 min.

Pick-Up Deviation (advanced request): 5 min.

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $ .33

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: Daniel White
Bedford Local Transit
Town Hall, 16 So. Road
Bedford, Mass.
01730

References Used: system documentation supplied by Town of Bedford
Data year: 1977

SYSTEM SUMMARY SHEETS

System No. 19

System Name:

Location: Alma, Michigan

Organization:

Operator: City of Alma

Project History:

Institutional Issues:

Area Description

Population: 9790

Service Area Pop. 9,790

Target Group Pop.

Service Area Size: 4.6 sq.mi.

Number of Zones:

Pop. Density of Service Area 2128/sq. mi

Service Area Type:

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: M to M: peak/off peak

Fares: Regular 50¢

Special 25¢ seniors 0,25¢,50¢ children

Vehicles in Service: 4

Peak: 3 Off-Peak:

Hours of Service: Mon-Fri 6:30am - 10pm; Sat 8am - 6pm

Annual Fleet Service Miles: 81,157

Annual Fleet Service Hours: 8,254

Number of Employees: 8.5

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 205 Peak:

Annual Ridership: 55,161

Person-Trips/1000 Residents: 20.9

Person-Trips/Square Mile: 44.6

Person-Trips/Square Mile/Hour: 2.9

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
4	small bus	15-17

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 6.7

Passengers/Vehicle-Mile: .68

Economics

Cost/Passenger Trip: $ 1.50

Revenue/Passenger Trip: $ .29

Cost/Vehicle-Hour: $ 10.00

Drivers' Salary: $ /hour

System Contact:

Dept. of State Hwys & Transp.
P.O. Box 30050
Lansing, Michigan
48909

References Used: system documentation supplied by State of Michigan DART Program.
Data year: 1977

SYSTEM SUMMARY SHEETS

System No. 20

System Name:

Location: Antrim County, Michigan

Organization:

Operator: Antrim County

Project History:

Institutional Issues:

Area Description

Population: 12,612

Service Area Pop. 12,612

Target Group Pop.

Service Area Size: 467 sq.mi.

Number of Zones:

Pop. Density of Service Area: 27/sq. mi

Service Area Type: rural County

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: M to M: peak/ off peak

Fares: Regular

Special

Vehicles in Service: 5

Peak: Off-Peak:

Hours of Service:

Annual Fleet Service Miles: 237,726

Annual Fleet Service Hours: 11,253

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 126 Peak:

Annual Ridership: 31,413

Person-Trips/1000 Residents: 10.0

Person-Trips/Square Mile: .3

Person-Trips/Square Mile/Hour:

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
5		

Special Features: 2 with lifts

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 2.8

Passengers/Vehicle-Mile: .13

Economics

Cost/Passenger Trip: $ 2.14

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $ 5.99

Drivers' Salary: $ /hour

System Contact: Dept. of State Hwys & Transp. P.O. Box 30050 Lansing, Michigan 48909

SYSTEM SUMMARY SHEETS

References Used: system documentation from: State of Michigan DART Program. Data year: 1977

System No. 21

System Name:

Location: Belding, Michigan

Organization:

Operator: City of Belding

Project History:

Institutional Issues:

Area Description

Population: 5321

Service Area Pop. 5,321

Target Group Pop.

Service Area Size: 4.7 sq.mi.

Number of Zones:

Pop. Density of Service Area: 1132 /sq. mi

Service Area Type:

Eligible Ridership: ALL

Integrated with Fixed-Route System:

Supply

Service Type: m-to-m: peak/off peak

Fares: Regular 50¢

Special 25¢ seniors, 0.25¢ children

Vehicles in Service: 2

Peak: Off-Peak:

Hours of Service:

mon-Fri 6:30am-9:30pm

Annual Fleet Service Miles: 41,696

Annual Fleet Service Hours: 3,976

Number of Employees: 4

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 105 Peak:

Annual Ridership: 29,178

Person-Trips/1000 Residents: 19.7

Person-Trips/Square Mile: 22.3

Person-Trips/Square Mile/Hour: 1.5

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
2		

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 7.3

Passengers/Vehicle-Mile: .70

Economics

Cost/Passenger Trip: $ .85

Revenue/Passenger Trip: $ .23

Cost/Vehicle-Hour: $ 6.22

Drivers' Salary: $ /hour

System Contact:

Dept. of State Hwys & Transp.
P.O. Box 30050
Lansing, Michigan
48909

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by State of Michigan DART Program. Data year: 1977

System Name:

System No. 22

Location: Benton Harbor, Michigan

Organization:
Operator: Twin City Area Transit Authority

Project History:

Institutional Issues:

Area Description

Population: 56,828

Service Area Pop. 56,828

Target Group Pop.

Service Area Size: 51.6 sq.mi.

Number of Zones:

Pop. Density of Service Area: 1101/sq. mi

Service Area Type:

Eligible Ridership: ALL

Integrated with Fixed-Route System:

Supply

Service Type: M to M: peak/off peak

Fares: Regular 60¢

Special 30¢ seniors 25¢ children

Vehicles in Service: 17

Peak: Off-Peak:

Hours of Service:
Mon - Fri 6:30 am - 6:30 pm
Sat 9 am - 6 pm

Annual Fleet Service Miles: 346,003

Annual Fleet Service Hours: 22,953

Number of Employees: 27.5

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership 450 Peak:

Annual Ridership: 120,721

Person-Trips/1000 Residents: 7.9

Person-Trips/Square Mile: 8.7

Person-Trips/Square Mile/Hour: .7

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
17		

Special Features: 3 with lifts

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 5.3

Passengers/Vehicle-Mile: .35

Economics

Cost/Passenger Trip: $ 2.69

Revenue/Passenger Trip: $ .41

Cost/Vehicle-Hour: $ 14.14

Drivers' Salary: $ /hour

System Contact:
Dept. of State Hwys & Transp.
P.O. Box 30050
Lansing, Michigan
48909

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by State of Michigan DART Program. Data year: 1977

System Name: Big Rapids Dial-A-Ride

System No. 23

Location: Big Rapids, Michigan

Organization: Authority & Planner: City of Big Rapids.
Operator: City

Project History:

Institutional Issues: minor problems with funding, legal/regulation issues

Area Description

Population: 11,995

Service Area Pop. 11,995

Target Group Pop.

Service Area Size: 5.1 sq.mi.

Number of Zones:

Pop. Density of Service Area: 2352/sq. mi

Service Area Type: entire city

Eligible Ridership: ALL

Integrated with Fixed-Route System: no

Supply

Service Type: M to M: peak/off peak

Fares: Regular 50¢

Special 25¢ E+H, children

Vehicles in Service: 5

Peak: 5 Off-Peak: 4

Hours of Service: Mon.-Fri. 6:30am-6:30pm
Sat. 9am-6:30pm

Annual Fleet Service Miles: 139,179

Annual Fleet Service Hours: 12,626

Number of Employees: 12

Drivers: 10 Control Room: 2

Maintenance: 2

Demand

Weekday Ridership: 363 Peak:

Annual Ridership: 102,670

Person-Trips/1000 Residents: 30.3

Person-Trips/Square Mile: 71.2

Person-Trips/Square Mile/Hour: 5.9

Trip Length: 1.3 miles

Access

User: Phone, hail

Pick-up Points: House, hail, designated points.

Access Time: Immed. subscription, advance reservation

Vehicles

#	Type	Capacity
4	van	12
1	van	10

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☑ Other

Service Levels (average time)

Ride Time: 10 min Promised Wait Time: 10 min.

Actual Wait Time (immediate request): 10 min.

Pick-Up Deviation (advanced request): 10 min.

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 8.1

Passengers/Vehicle-Mile: .74

Economics

Cost/Passenger Trip: $.94

Revenue/Passenger Trip: $.34

Cost/Vehicle-Hour: $7.62

Drivers' Salary: $ /hour

System Contact: Walter Miller, Mgr.
Big Rapids Dial-A-Ride
701 N. State St.
Big Rapids, Mich.
49307

References Used: system documentation supplied by Big Rapids City and State of Michigan DART program. Data year: 1977

System No. 24

System Name:

Location: Crawford County, Michigan

Organization:

Operator: County Aging Commission

Project History:

Institutional Issues:

Area Description

Population: 6,482

Service Area Pop. 6,482

Target Group Pop.

Service Area Size: 540 sq.mi.

Number of Zones:

Pop. Density of Service Area: 12 /sq. mi

Service Area Type: entire rural county

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/off peak

Fares: Regular

Special

Vehicles in Service: 4

Peak: Off-Peak:

Hours of Service:

Annual Fleet Service Miles: 201,800

Annual Fleet Service Hours: 10,596

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 190 est. Peak:

Annual Ridership: 49,452

Person-Trips/1000 Residents: 29.3

Person-Trips/Square Mile: .35

Person-Trips/Square Mile/Hour:

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
4		

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 4.7

Passengers/Vehicle-Mile: .24

Economics

Cost/Passenger Trip: $1.85

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $8.65

Drivers' Salary: $ /hour

System Contact:

Dept. of State Hwys & Transp.
P.O. Box 30050
Lansing, Michigan
48909

References Used: system documentation from: State of Michigan DART Program.
Data year: 1977

SYSTEM SUMMARY SHEETS

System Name:

System No. 25

Location: Davison, Michigan

Organization: Operator: City of Davison

Project History:

Institutional Issues:

Area Description

Population: 5259

Service Area Pop. 5,259

Target Group Pop.

Service Area Size: 1.6 sq.mi.

Number of Zones:

Pop. Density of Service Area 3287/sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/off peak

Fares: Regular

Special

Vehicles in Service: 4

Peak: Off-Peak:

Hours of Service:

Annual Fleet Service Miles: 103,623

Annual Fleet Service Hours: 8,826

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 215 est. Peak:

Annual Ridership: 61,568

Person-Trips/1000 Residents: 40.9

Person-Trips/Square Mile: 134.4

Person-Trips/Square Mile/Hour:

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
4		

Special Features: 2 with lifts

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 7.0

Passengers/Vehicle-Mile: .59

Economics

Cost/Passenger Trip: $1.10

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $7.69

Drivers' Salary: $ /hour

System Contact:
Dept. of State Hwys & Transp.
P.O. Box 30050
Lansing, Michigan
48909

SYSTEM SUMMARY SHEETS

References Used: system documentation from: State of Michigan DART Program.
Data year: 1977

System Name:

System No. 26

Location: Dowagiac, Michigan

Organization: Authority & Operator: City of Dowagiac

Project History:

Institutional Issues:

Area Description

Population: 6,583

Service Area Pop. 7,883

Target Group Pop.

Service Area Size: 4.1 sq.mi.

Number of Zones:

Pop. Density of Service Area: 1923/sq. mi

Service Area Type: entire city & suburban area

Eligible Ridership: ALL

Integrated with Fixed-Route System: no

Supply

Service Type: Deviation from route: peak; m to m: off peak

Fares: Regular 50¢

Special 25¢ E & H, children

Vehicles in Service: 3

Peak: Off-Peak:

Hours of Service: mon. - Fri. 8am - 6pm

Annual Fleet Service Miles: 33,173

Annual Fleet Service Hours: 4,072

Number of Employees: 6

Drivers: 3 Control Room: 2

Maintenance: 1

Demand

Weekday Ridership: 85 Peak:

Annual Ridership: 21,765

Person-Trips/1000 Residents: 10.8

Person-Trips/Square Mile: 20.7

Person-Trips/Square Mile/Hour: 2.1

Trip Length: 1 mile

Access

User: Phone, hail, fixed stops

Pick-up Points: designated points

Access Time: subscription; immed. service

Vehicles

#	Type	Capacity
2	van	12
1	van	6

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer: no computer

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 10min. Promised Wait Time: 15 min.

Actual Wait Time (immediate request): 5 min.

Pick-Up Deviation (advanced request): 5 min.

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 5.3

Passengers/Vehicle-Mile: .66

Economics

Cost/Passenger Trip: $1.11

Revenue/Passenger Trip: $.32

Cost/Vehicle-Hour: 5.92

Drivers' Salary: $ /hour

System Contact: Larry Shaw, Ass't Dir. Dept. of Public Services 203 Chestnut St. Dowagiac, Mich. 49047

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by City of Dowagiac

Data year: 1977

System Name: EUPTA Rural Busing Transportation

System No. 27

Location: East Upper Peninsula, Michigan

Organization: Authority: EUPTA ; operator: Transit Authority

Project History: Federal Highway Administration Rural Demonstration project

Institutional Issues: no problems.

Area Description

Population: 33,725

Service Area Pop. 33,725

Target Group Pop.

Service Area Size: 3372 sq.mi.

Number of Zones: 3

Pop. Density of Service Area: 10/sq. mi

Service Area Type: rural area

Eligible Ridership: All

Integrated with Fixed-Route System: local fixed route bus

Supply

Service Type: M to O: peak ; M to M: off peak

Fares: Regular $2.00

Special 1.00 E & H

Vehicles in Service: 5

Peak: Off-Peak:

Hours of Service: mon.-Fri. 8am-3:10pm

Annual Fleet Service Miles: 208,000

Annual Fleet Service Hours: 8,176 est.

Number of Employees:

Drivers: 6 Control Room:

Maintenance:

Demand

Weekday Ridership: 132 Peak:

Annual Ridership: 33,463

Person-Trips/1000 Residents: 3.9

Person-Trips/Square Mile: .04

Person-Trips/Square Mile/Hour: .01

Trip Length:

Access

User: Phone, hail, fixed stops

Pick-up Points: House, hail, designated points

Access Time:

Vehicles

#	Type	Capacity
5	small bus	16

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☒ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 4.1

Passengers/Vehicle-Mile: .16

Economics

Cost/Passenger Trip: 3.77

Revenue/Passenger Trip: $ .36

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: R. Woods, R. Stern
East Upper Peninsula Transportation Auth.
P.O. Box 187
Kinross, Mich. 49752

References Used: system documentation supplied by EUPTA
Data year: 1977

SYSTEM SUMMARY SHEETS

System No. 28

System Name:

Location: Eaton Rapids, Michigan

Organization:

Operator: City of Eaton Rapids

Project History:

Institutional Issues:

Area Description

Population: 4,494

Service Area Pop. 4,494

Target Group Pop.

Service Area Size: 2.7 sq.mi.

Number of Zones:

Pop. Density of Service Area 1664 /sq. mi

Service Area Type: City

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/off peak

Fares: Regular

Special

Vehicles in Service: 2

Peak: Off-Peak:

Hours of Service:

Annual Fleet Service Miles: 35,509

Annual Fleet Service Hours: 3,105

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 55 est. Peak:

Annual Ridership: 16,183

Person-Trips/1000 Residents: 12.2

Person-Trips/Square Mile: 20.4

Person-Trips/Square Mile/Hour:

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
2		

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 5.2

Passengers/Vehicle-Mile: .46

Economics

Cost/Passenger Trip: $1.49

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $7.77

Drivers' Salary: $ /hour

System Contact:
Dept. of State Hwys & Transp.
P.O. Box 30050
Lansing, Michigan
48909

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by: State of Michigan DART Program.
Data year: 1977

System Name: DIAL-A-RIDE

System No. 29

Location: Ferndale-Pleasant Ridge, Michigan

Organization: Sponsor: SEMTA (So. E. Mich. Trans. Auth.)
Operator: City of Ferndale

Project History:

Institutional Issues:

Area Description

Population: 32,130

Service Area Pop. 32,130

Target Group Pop.

Service Area Size: 4.8 sq.mi.

Number of Zones:

Pop. Density of Service Area 6694/sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: M to M: peak/ off peak

Fares: Regular 50¢
Special 25¢ seniors children

Vehicles in Service: 4

Peak: Off-Peak:

Hours of Service: mon-Fri 6:30am-6:30pm; Sat - 10am - 4:00pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees: 4

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 220 est. Peak:

Annual Ridership: 52,800 est.

Person-Trips/1000 Residents: 6.8

Person-Trips/Square Mile: 45.8

Person-Trips/Square Mile/Hour: 3.8

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
4		

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $ .31

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: Michael Dewey
Small Bus Mgr., SEMTA
211 W. Fort St.
Detroit, Michigan
48226

SYSTEM SUMMARY SHEETS

References Used: System documentation from: SEMTA
Data year: 1977

System Name: Dial-A-Ride

System No. 30

Location: Gladwin, Michigan

Organization: Sponsor, Authority & Planner: City of Gladwin
Operator: Gladwin Dial-A-Ride

Project History: Expanded fleet twice; added school route

Institutional Issues: Problems with funding & political response. County opposition exists to funding "expensive public transportation which must be funded through scarce local funds."

Area Description

Population: 2,071

Service Area Pop. 2,071

Target Group Pop.

Service Area Size: 2.4 sq.mi.

Number of Zones: -

Pop. Density of Service Area: 863/sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System: none

Supply

Service Type: M to M: peak*/ off peak

* Fixed route with door to door deviation during peak

Fares: Regular 50¢

Special 25¢ seniors, 25¢ children

Vehicles in Service: 3

Peak: 3 Off-Peak: 2

Hours of Service: Mon-Fri 7:30am-4:30pm

Annual Fleet Service Miles: 36,635

Annual Fleet Service Hours: 4,528

Number of Employees: 4

Drivers: 2.5 Control Room: 1.5

Maintenance:

Demand

Weekday Ridership: 135 Peak:

Annual Ridership: 34539

Person-Trips/1000 Residents: 65.2

Person-Trips/Square Mile: 56.2

Person-Trips/Square Mile/Hour: 7.0

Trip Length: 1 mile

Access

User: Phone, hail

Pick-up Points: House, hail, designated points

Access Time: Immed., advance reservation, subscription

Vehicles

#	Type	Capacity
3	vans	30

Special Features: 2 with lift

Communication/Dispatching

Mobile Communications: 2-way radios

Control Center: no computer

Computer:

Labor

Union ☐ Non-Union ☒ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time: 15 min.

Actual Wait Time (immediate request): 10 min.

Pick-Up Deviation (advanced request): 5 min.

Transfer Time: not applicable

Productivity

Passengers/Vehicle-Hour: 7.6

Passengers/Vehicle-Mile: .94

Economics

Cost/Passenger Trip: $ .99

Revenue/Passenger Trip: $ .14

Cost/Vehicle-Hour: $ 7.53

Drivers' Salary: $ /hour

System Contact: Sheila Hall
Gladwin Dial-A-Ride
130 W. Maple
Gladwin, Michigan
48624

References Used: System documentation supplied by City of Gladwin.
Data year: 1977

System Name: Tri-Cities Dial-A-Ride

System No. 31

Location: Grand Haven, Michigan

Organization: Authority, Planner & Operator: Tri-Cities Transportation Authority

Project History:

Institutional Issues: minor problem with legal/regulations issue. Good backing from citizens and business community.

Area Description

Population: 18,000

Service Area Pop. 18,000

Target Group Pop.

Service Area Size: 7.5 sq.mi.

Number of Zones:

Pop. Density of Service Area: 2400/sq. mi

Service Area Type: entire city

Eligible Ridership: ALL

Integrated with Fixed-Route System: no

Supply

Service Type: M to M: peak; M to F: off peak

Fares: Regular 50¢

Special 25¢ Elderly, children

Vehicles in Service: 7

Peak: 7 Off-Peak: 5

Hours of Service: Mon.-Thurs. 6am-6pm
FRI.- 6am-9pm
SAT.- 8am-5pm

Annual Fleet Service Miles: 211,287

Annual Fleet Service Hours: 15,129

Number of Employees: 7

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 385 Peak:

Annual Ridership: 108,081

Person-Trips/1000 Residents: 21.4

Person-Trips/Square Mile: 51.3

Person-Trips/Square Mile/Hour: 4.3

Trip Length: 2.8

Access

User: Phone-includes direct lines from bus stops & stores

Pick-up Points: House

Access Time: Immed., Advance reserv., subscription

Vehicles

#	Type	Capacity
5	van	12
2	van	8

Special Features: 2 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer: no computer

Labor

Union ☐ Non-Union ☒ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 15 min. Promised Wait Time: 15 min.

Actual Wait Time (immediate request): 15 min.

Pick-Up Deviation (advanced request): 45 min.

Transfer Time: 10 min.

Productivity

Passengers/Vehicle-Hour: 7.1

Passengers/Vehicle-Mile: .51

Economics

Cost/Passenger Trip: $ 1.03

Revenue/Passenger Trip: $ .35

Cost/Vehicle-Hour: $ 7.38

Drivers' Salary: $3.53/hour 26% fringe benefits

System Contact: David Warber, Ass't Mgr.
Tri-Cities Dial-A-Ride
20 N. Fifth St.
Grand Haven, mich.
49417

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by Tri-Cities Dial-A-Ride and state of michigan DART program. Data year: 1977

System Name: DIAL-A-RIDE

System No. 32

Location: Harper Woods, Michigan

Organization: Sponsor: SEMTA (So.E. Mich. Trans. Auth.)
Operator: City of Harper Woods

Project History:

Institutional Issues:

Area Description

Population: 18,600

Service Area Pop. 18,600

Target Group Pop.

Service Area Size: 2.6 sq.mi.

Number of Zones:

Pop. Density of Service Area: 7154/sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/off peak

Fares: Regular 50¢

Special 25¢ children students

Vehicles in Service: 2

Peak: Off-Peak:

Hours of Service:
mon-Fri 9am-5pm

Annual Fleet Service Miles:*

Annual Fleet Service Hours:*

Number of Employees: 3

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 150 est. Peak:

Annual Ridership: 36,000 est.

Person-Trips/1000 Residents: 8.1

Person-Trips/Square Mile: 57.7

Person-Trips/Square Mile/Hour: 7.2

Trip Length:*

Access

User: Phone

Pick-up Points:

Access Time:

Vehicles

#	Type	Capacity
2		

Special Features:

Communication/Dispatching -

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $ .32

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: Michael Dewey
Small Bus Mgr., SEMTA
211 W. Fort St.
Detroit, Michigan
48226

References Used: system documentation supplied by: SEMTA
Data year: 1977

SYSTEM SUMMARY SHEETS

System Name: ______

System No. 33

Location: Hillsdale, Michigan

Organization: ______

Operator: City of Hillsdale

Project History: ______

Institutional Issues: ______

Area Description

Population: 7,728

Service Area Pop. 7,728

Target Group Pop. ______

Service Area Size: 4.3 sq.mi.

Number of Zones: ______

Pop. Density of Service Area: 1797/sq. mi

Service Area Type: ______

Eligible Ridership: ALL

Integrated with Fixed-Route System: ______

Supply

Service Type: m to m: peak/off peak

Fares: Regular 50¢

Special 25¢ seniors, children

Vehicles in Service: 4

Peak: ______ Off-Peak: ______

Hours of Service: Mon-Thurs 6:30am-6:30pm; Fri. 6:30am-9:30pm; Sat. 8am-6pm

Annual Fleet Service Miles: 79,943

Annual Fleet Service Hours: 7,480

Number of Employees: 6

Drivers: ______ Control Room: ______

Maintenance: ______

Demand

Weekday Ridership: 192 Peak: ______

Annual Ridership: 55,121

Person-Trips/1000 Residents: 24.8

Person-Trips/Square Mile: 44.7

Person-Trips/Square Mile/Hour: 3.7

Trip Length: ______

Access

User: Phone

Pick-up Points: House

Access Time: ______

Vehicles

#	Type	Capacity
4		

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications: ______

Control Center: ______

Computer: ______

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other ______

Service Levels (average time)

Ride Time: ______ Promised Wait Time: ______

Actual Wait Time (immediate request): ______

Pick-Up Deviation (advanced request): ______

Transfer Time: ______

Productivity

Passengers/Vehicle-Hour: 7.4

Passengers/Vehicle-Mile: .69

Economics

Cost/Passenger Trip: $ 1.32

Revenue/Passenger Trip: $ .31

Cost/Vehicle-Hour: 9.77

Drivers' Salary: $______/hour

System Contact: Dept. of State Hwys & Transp.
P.O. Box 30050
Lansing, Michigan
48909

References Used: system documentation supplied by State of Michigan DART Program.
Data year: 1977

SYSTEM SUMMARY SHEETS

System Name: Houghton County Public Transit

Location: Houghton County, Michigan

Organization: Sponsor: Co. Board of Commissioners; Authority: Co. Public Trans. Commission; Planner: West. Upper Penin. Plan. & Dev. Region; operator: Houghton County Public Transit

Project History: City of Houghton began service in 1974; in Nov. '77 Houghton County began operation in cities of Houghton and Hancock; in March 1978 began as county-wide system (county phase a state demon.)

Institutional Issues: minor problem with permits/licensing

System No. 34

Area Description

Population: 34,652

Service Area Pop. 34,652

Target Group Pop.

Service Area Size: 1019 sq.mi.

Number of Zones:

Pop. Density of Service Area: 34 /sq. mi

Service Area Type: entire city and county

Eligible Ridership: ALL

Integrated with Fixed-Route System:

Supply

Service Type: M to M: peak/off peak

Fares: Regular 50¢ - $1.50

Special 25¢ E&H, children

Vehicles in Service: 8

Peak: Off-Peak:

Hours of Service: Mon. - Fri. 6am - 6pm; Sat. 8am - 6pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees: 9

Drivers: 4 Control Room: 3

Maintenance: 1

Demand

Weekday Ridership: 180 Peak:

Annual Ridership: not available

Person-Trips/1000 Residents: 5.2

Person-Trips/Square Mile: .2

Person-Trips/Square Mile/Hour: .02

Trip Length:

Access

User: Phone, hail, fixed stops

Pick-up Points: House, hail, designated points

Access Time: Immed. service, Advance reserv. (1/2 hr.)

Vehicles

#	Type	Capacity
	van	8
	small bus	17
	large bus	12

Special Features: 2 with lifts

Communication/Dispatching

Mobile Communications: telephone, 2-way radio

Control Center:

Computer: no computer

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 30 min. Promised Wait Time: 22.5 min.

Actual Wait Time (immediate request): 15 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $3.50 /hour 15% fringe benefits

System Contact: Aloysius Britz
Houghton Co. Public Transit
P.O. Box 88
Hancock, Michigan 49930

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by Houghton Co. Public Transit. Data year: 2 months 1977

System Name:

System No. 35

Location: Isabella County, Michigan

Organization: Authority: City & County Transp. Commission
Operator: (manager hired by Commission)

Project History: mid-1977 Mt. Pleasant DAR merged with Isabella County DAR.

Institutional Issues:

Area Description

Population: 44,594

Service Area Pop. 44,594

Target Group Pop.

Service Area Size: 572 sq.mi.

Number of Zones:

Pop. Density of Service Area: 78 /sq. mi

Service Area Type: entire county

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/off peak

Fares: Regular 50-1.00
Special 25-50¢ seniors; 0, 25, 50¢ children

Vehicles in Service: 11

Peak: 10 Off-Peak:

Hours of Service: mon-Fri 7am-5:30 pm

Annual Fleet Service Miles: 323,936

Annual Fleet Service Hours: 21,351

Number of Employees: 2.5

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 331 Peak:

Annual Ridership: 100,204

Person-Trips/1000 Residents: 7.4

Person-Trips/Square Mile: .6

Person-Trips/Square Mile/Hour: .06

Trip Length: •

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
11	small bus	

Special Features:

Communication/Dispatching •

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor •

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time) •

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 4.7

Passengers/Vehicle-Mile: .31

Economics

Cost/Passenger Trip: $3.08

Revenue/Passenger Trip: $.50

Cost/Vehicle-Hour: $14.44

Drivers' Salary: $ /hour

System Contact:
Dept. of State Hwys & Transp.
P.O. Box 30050
Lansing, Michigan
48909

References Used: system documentation supplied by State of Michigan DART Program

Data year: 1977

SYSTEM SUMMARY SHEETS

System Name: Lake County Transpo

System No. 36

Location: Lake County, Michigan

Organization: Authority & Operator: Transportation Authority

Project History:

Institutional Issues: severe funding problem as Lake Co. did not want to support second year of system operation (1/3 of operating cost).

Area Description

Population: 2,647

Service Area Pop. 2,647

Target Group Pop.

Service Area Size: 120.3 sq.mi.

Number of Zones:

Pop. Density of Service Area: 22 /sq. mi

Service Area Type: rural co.

Eligible Ridership: ALL + parcels

Integrated with Fixed-Route System: no

Supply

Service Type: m to O, m to F, Dev. from route & checkpoint; peak m to m; off peak

Fares: Regular $1 —

Special 50¢ E&H, students

Vehicles in Service: 3

Peak: 3 Off-Peak: 2

Hours of Service: mon.-Fri. 6:30am - 6pm
sat. — 9am - 5:30pm

Annual Fleet Service Miles: 105,180

Annual Fleet Service Hours. 6,663

Number of Employees: 9

Drivers: 5 Control Room: 3

Maintenance: ___ surveyor 1

Demand

Weekday Ridership: 78 Peak: ___

Annual Ridership: 21464

Person-Trips/1000 Residents: 29.5

Person-Trips/Square Mile: .6

Person-Trips/Square Mile/Hour: .1

Trip Length:

Access

User: Phone, hail

Pick-up Points: House, hail, designated points

Access Time: Immed. service, adv. reserv., subscription

Vehicles

#	Type	Capacity

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications: telephone, 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☑

Part-time ☑ Other

Service Levels (average time)

Ride Time: ___ Promised Wait Time: ___

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 3.2

Passengers/Vehicle-Mile: .20

Economics

Cost/Passenger Trip: $2.54

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $8.19

Drivers' Salary: $____/hour

System Contact: Martin Brown
Transpo - DART
833 Seventh St.
Baldwin, mich.
49304

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by Transpo - DART and state of michigan DART program. Data year: 1977

System No. 37

System Name:

Location: Ludington, Michigan

Organization:

Operator: City of Ludington

Project History:

Institutional Issues:

Area Description

Population: 9521

Service Area Pop. 9521

Target Group Pop.

Service Area Size: 4.3 sq.mi.

Number of Zones:

Pop. Density of Service Area 2214/sq. mi

Service Area Type:

Eligible Ridership: ALL

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/off peak

Fares: Regular 50¢, 75¢

Special 25¢, 35¢ seniors 0, 25¢, 35¢ children

Vehicles in Service: 5

Peak: Off-Peak:

Hours of Service: mon - Thurs 6am - 6pm Fr. 6am - 7pm sat. 8am - 6pm sun 9am - 1 pm

Annual Fleet Service Miles: 97,489

Annual Fleet Service Hours: 8,076

Number of Employees: 6.5

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership 255 Peak:

Annual Ridership: 72,128

Person-Trips/1000 Residents: 26.8

Person-Trips/Square Mile: 59.3

Person-Trips/Square Mile/Hour: 4.9

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
5		

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 8.9

Passengers/Vehicle-Mile: .74

Economics

Cost/Passenger Trip: $1.21

Revenue/Passenger Trip: $.37

Cost/Vehicle-Hour: $10.78

Drivers' Salary: $ /hour

System Contact:

Dept. of State Hwys & Transp.
P.O. Box 30050
Lansing, Michigan
48909

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by State of Michigan DART program. Data year: 1977

System Name:

Location: Manistee County, Michigan

Organization:

Operator: Manistee Co. Council on Aging

Project History:

Institutional Issues:

System No. 38

Area Description

Population: 18,404

Service Area Pop. 18,404

Target Group Pop.

Service Area Size: 408 sq.mi.

Number of Zones:

Pop. Density of Service Area: 45 /sq. mi

Service Area Type:

Eligible Ridership: ALL

Integrated with Fixed-Route System:

Supply

Service Type:

Fares: Regular 50¢

Special 25¢ seniors children

Vehicles in Service: 6

Peak: Off-Peak:

Hours of Service: Mon - Thurs 6:30am-6:30pm
Fri. 6:30am - 6 pm
Sat. 8 am - 6 pm

Annual Fleet Service Miles: 165,417

Annual Fleet Service Hours: 9,684

Number of Employees: 7

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 219 Peak:

Annual Ridership: 62,431

Person-Trips/1000 Residents: 11.9

Person-Trips/Square Mile: .5

Person-Trips/Square Mile/Hour: .04

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
6		

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 6.4

Passengers/Vehicle-Mile: .38

Economics

Cost/Passenger Trip: $ 1.44

Revenue/Passenger Trip: $ .36

Cost/Vehicle-Hour: $ 9.27

Drivers' Salary: $ /hour

System Contact:
Dept. of State Hwys & Transp.
P.O. Box 30050
Lansing, Michigan
48909

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by State of Michigan DART Program.
Data year: 1977

System Name:

System No. 39

Location: Marshall, Michigan

Organization: Authority, Planner and Operator: City of Marshall

Project History:

Institutional Issues: minor problem with labor work rules

Area Description

Population: 7253

Service Area Pop. 7253

Target Group Pop.

Service Area Size: 4.6 sq.mi.

Number of Zones: 2

Pop. Density of Service Area: 1577/sq. mi

Service Area Type: entire city plus part of suburban area

Eligible Ridership: ALL

Integrated with Fixed-Route System: no

Supply

Service Type: M to O: peak
M to M: off peak

Fares: Regular 50¢ - 75¢

Special 25¢ - 35¢ Elderly, children

Vehicles in Service: 3

Peak: 3 Off-Peak: 2

Hours of Service: Mon.-Fri. 6am - 6pm
Sat. - 8am - 6pm

Annual Fleet Service Miles: 82,911

Annual Fleet Service Hours: 5,490

Number of Employees: 7

Drivers: 6 Control Room: 1

Maintenance:

Demand

Weekday Ridership: 154 Peak: 110

Annual Ridership: 43,610

Person-Trips/1000 Residents: 21.2

Person-Trips/Square Mile: 33.5

Person-Trips/Square Mile/Hour: 2.8

Trip Length: .5 miles

Access

User: Phone, hail

Pick-up Points: House, hail, designated points

Access Time: Immed. service, adv. reserv., subscription

Vehicles

#	Type	Capacity
2	small bus	12
1	small bus	6

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☒ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 15 min. Promised Wait Time: 15 min.

Actual Wait Time (immediate request): 10 min.

Pick-Up Deviation (advanced request): 5 min.

Transfer Time: 10 min.

Productivity

Passengers/Vehicle-Hour: 7.9

Passengers/Vehicle-Mile: .53

Economics

Cost/Passenger Trip: $1.78

Revenue/Passenger Trip: $.34

Cost/Vehicle-Hour: $14.15

Drivers' Salary: $3.15/hour 23% fringe benefits

System Contact: Beth Morse
DART - Marshall
323 W. Michigan Ave.
Marshall, Mich.
49068

References Used: system documentation supplied by DART - Marshall
Data year: 1977

SYSTEM SUMMARY SHEETS

System No. 40

System Name:

Location: Midland, Michigan

Organization:
Sponsor & Operator: City of Midland

Project History:
Co-ordinated transfer with County of Midland Dial-A-Ride.

Institutional Issues:

Area Description

Population: 35,176

Service Area Pop. 35,176

Target Group Pop.

Service Area Size: 24.9 sq.mi.

Number of Zones:

Pop. Density of Service Area 1413/sq. mi

Service Area Type:

Eligible Ridership: ALL

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/off peak

Fares: Regular 50¢

Special 25¢ seniors 0, 25¢, 50¢ children

Vehicles in Service: 13

Peak: Off-Peak:

Hours of Service: Mon.-Fri 6:15am-11pm, Sat. 8am-6pm, Sun. 9am-5pm

Annual Fleet Service Miles: 357,098

Annual Fleet Service Hours: 22,984

Number of Employees: 19.5

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 480 Peak:

Annual Ridership: 134,648

Person-Trips/1000 Residents: 13.6

Person-Trips/Square Mile: 19.3

Person-Trips/Square Mile/Hour: 1.2

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
13		

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 5.9

Passengers/Vehicle-Mile: .38

Economics

Cost/Passenger Trip: $ 2.27

Revenue/Passenger Trip: $ .36

Cost/Vehicle-Hour: $ 13.32

Drivers' Salary: $ /hour

System Contact:
Dept. of State Hwys & Transp.
P.O. Box 30050
Lansing, Michigan
48909

References Used: System documentation supplied by State of Michigan DART Program. Data year: 1977

SYSTEM SUMMARY SHEETS

System Name: DIAL-A-RIDE (state demonstration) System No. 41

Location: MIDLAND COUNTY, MICHIGAN

Organization: Sponsor: Midland County
Operator: (private co.) RCM Transit

Project History: Co-ordinated transfer with City of Midland Dial-A-Ride. Five dial-a-ride vehicles operate in four zones & 1 fixed route bus interfaces with zones providing connector service between zones.

Institutional Issues:

Area Description

Population: 32,000

Service Area Pop. 32,000

Target Group Pop.

Service Area Size: 492 sq.mi.

Number of Zones: 4

Pop. Density of Service Area: 65/sq. mi

Service Area Type: rural county

Eligible Ridership: All

Integrated with Fixed-Route System:
- local fixed route bus
- D-A-R in other zones

Supply

Service Type: M to O; between zones
M to M: peak/off peak within zones

Fares: Regular 50¢

Special 25¢ E&H, children

Vehicles in Service: 5 dial-a-ride

Peak: Off-Peak:

Hours of Service: Mon.-Fri. 7am-6pm
Sat. 8am-6pm

Annual Fleet Service Miles: 428,469

Annual Fleet Service Hours: 15234

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 127 est. Peak:

Annual Ridership: 35,616 est.

Person-Trips/1000 Residents: 3.9

Person-Trips/Square Mile: .3

Person-Trips/Square Mile/Hour: .02

Trip Length:

Access

User: Phone, fixed stops

Pick-up Points: House, designated points

Access Time: Immed. service, subscription

Vehicles

#	Type	Capacity
5		

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 2.2

Passengers/Vehicle-Mile: .08

Economics

Cost/Passenger Trip: $2.60

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $5.62

Drivers' Salary: $ /hour

System Contact:
Dept. of State Hwys & Transp.
P.O. Box 30050
Lansing, Michigan
48909

SYSTEM SUMMARY SHEETS

References Used: system documentation from: state of Michigan DART Program; Transp. Improvement Program (TIP)
Data Year: 1977 (9 mos. operating experience - figures annualized)

System Name: DIAL-A-RIDE

System No. 42

Location: Mt. Clemans, Michigan

Organization: Sponsor: SEMTA (So. E. Mich. Trans. Auth.)
Operator: City of Mt. Clemans

Project History:

Institutional Issues:

Area Description

Population: 20,300

Service Area Pop. 20,300

Target Group Pop.

Service Area Size: 4 sq.mi.

Number of Zones:

Pop. Density of Service Area 5075/sq. mi

Service Area Type:

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/ off peak

Fares: Regular 50¢
Special 25¢ seniors children

Vehicles in Service: 6

Peak: Off-Peak:

Hours of Service:
mon - Fri 7am - 6pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees: 6

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 307 Peak:

Annual Ridership: 75,600

Person-Trips/1000 Residents: 15.1

Person-Trips/Square Mile: 76.8

Person-Trips/Square Mile/Hour: 7.0

Trip Length:

Access

User: Phone

Pick-up Points:

Access Time:

Vehicles

#	Type	Capacity
6		

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $ .36

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: Michael Dewey
Small Bus Mgr., SEMTA
211 W. Fort St.
Detroit, Michigan
48226

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by: SEMTA
Data year: 1977

System Name: (discontinued)

System No. 43

Location: Roscoman County, michigan

Organization: Operator: County

Project History:

Institutional Issues:

Area Description

Population: 9,892

Service Area Pop. 9,892

Target Group Pop.

Service Area Size: 521 sq.mi.

Number of Zones:

Pop. Density of Service Area: 19 /sq. mi

Service Area Type:

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: M to M: peak/ off peak

Fares: Regular 50¢, 75¢, $1.00

Special 25¢, 35¢, 50¢ seniors

Vehicles in Service: 3

Peak: Off-Peak:

Hours of Service: mon - Fri 6 am - 6 pm

Annual Fleet Service Miles: 169,404 est.

Annual Fleet Service Hours: 8,568 est.

Number of Employees: 6

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 63 Peak:

Annual Ridership: 16,080 est.

Person-Trips/1000 Residents: 6.4

Person-Trips/Square Mile: .12

Person-Trips/Square Mile/Hour:

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
3		

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 1.9

Passengers/Vehicle-Mile: .10

Economics

Cost/Passenger Trip: $2.74

Revenue/Passenger Trip: $.48

Cost/Vehicle-Hour: $5.14

Drivers' Salary: $ /hour

System Contact: Dept. of State Hwys & Transp. P.O. Box 30050 Lansing, michigan 48909

SYSTEM SUMMARY SHEETS

References Used: system documentation from: State of michigan DART Program. Data year: 5-75 to 5-76

System Name:

System No. 44

Location: Sault Ste. Marie, Michigan

Organization:

Operator: Community Action Agency

Project History:

Institutional Issues:

Area Description

Population: 15,136

Service Area Pop. 15,136

Target Group Pop.

Service Area Size: 15.7 sq.mi.

Number of Zones:

Pop. Density of Service Area: 964/sq. mi

Service Area Type:

Eligible Ridership: ALL

Integrated with Fixed-Route System:

Supply

Service Type: M to M: peak/ offpeak

Fares: Regular 50¢

Special 25¢ Seniors

Vehicles in Service: 9

Peak: Off-Peak:

Hours of Service: Mon.-Thurs. 7:30am-10pm
Fri 7:30am-11pm
Sat.-Sun 8am-6pm

Annual Fleet Service Miles: 188,600

Annual Fleet Service Hours: 15,429

Number of Employees: 12

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 343 Peak:

Annual Ridership: 78,310

Person-Trips/1000 Residents: 22.7

Person-Trips/Square Mile: 21.8

Person-Trips/Square Mile/Hour: 1.5

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
9		

Special Features: 2 with lifts

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 5.1

Passengers/Vehicle-Mile: .42

Economics

Cost/Passenger Trip: $ 1.66

Revenue/Passenger Trip: $ .32

Cost/Vehicle-Hour: $ 8.41

Drivers' Salary: $ /hour

System Contact:
Dept. of State Hwys & Transp.
P.O. Box 30050
Lansing, Michigan
48909

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by State of Michigan DART Program.
Data year: 1977

System Name: Trenton Dial-A-Ride

System No. 45

Location: Trenton, Michigan

Organization: Sponsor: SEMTA (So. E. Mich. Trans. Auth.)
Operator: City of Trenton

Project History:

Institutional Issues:

Area Description

Population: 24,400

Service Area Pop. 24,400

Target Group Pop.

Service Area Size: 7.4 sq.mi.

Number of Zones:

Pop. Density of Service Area 3297/sq. mi

Service Area Type:

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/off peak

Fares: Regular 60¢

Special 30¢ E & H children/students

Vehicles in Service: 5

Peak: Off-Peak:

Hours of Service:

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees: 14

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 230 Peak:

Annual Ridership:

Person-Trips/1000 Residents: 9.4

Person-Trips/Square Mile: 31.1

Person-Trips/Square Mile/Hour:

Trip Length:

Access

User: Phone

Pick-up Points:

Access Time:

Vehicles

#	Type	Capacity

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: Michael Dewey
Small Bus Mgr., SEMTA
211 W. Fort St.
Detroit, Michigan
48226

References Used: system documentation supplied by SEMTA
Data year: 1977

SYSTEM SUMMARY SHEETS

System Name: Dial-A-Ride (discontinued demonstration)

System No. 46

Location: Haddonfield, New Jersey

Organization: Sponsor & operator: New Jersey DOT
Planners: LEX & DAVE Systems: Mitre; Wilbur Smith & Assoc.

Project History:

Institutional Issues:

Area Description

Population: 40,100

Service Area Pop. 40,100

Target Group Pop.

Service Area Size: 10.9 sq.mi.

Number of Zones: 6

Pop. Density of Service Area 3679/sq. mi

Service Area Type: 4 suburban cities

Eligible Ridership: All

Integrated with Fixed-Route System: • rail • fixed route shuttle

---

Supply

Service Type: m to m: peak/ m to o: off peak Deviation from route:

Fares: Regular 30¢

Special 15¢ seniors

Vehicles in Service: 14

Peak: Off-Peak:

Hours of Service: 7 days/week, 24 hrs.

Annual Fleet Service Miles: 840,755 est.

Annual Fleet Service Hours: 63,306 est.

Number of Employees:

Drivers: 36 Control Room: 4

Maintenance: 4

Demand

Weekday Ridership: 1000 Peak:

Annual Ridership: 365,000 est.

Person-Trips/1000 Residents: 24.9

Person-Trips/Square Mile: 91.7

Person-Trips/Square Mile/Hour: 3.8

Trip Length: 3.2 miles

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Immed. service, subscription

Vehicles

#	Type	Capacity
6	small bus	10
11	small bus	17
1	small bus	11

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: computer

Computer: address location; vehicle assignment; route determination

Labor

Union ☒ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 12.5 min Promised Wait Time:

Actual Wait Time (immediate request): 20 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 5.8

Passengers/Vehicle-Mile: .43

Economics

Cost/Passenger Trip: 3.45

Revenue/Passenger Trip: $.28

Cost/Vehicle-Hour: 19.90

Drivers' Salary: $5.67/hour 35% fringe benefits

System Contact:

SYSTEM SUMMARY SHEETS

References Used: New Jersey DOT, Haddonfield Dial-A-Ride, Final Report, 1974.

Data year: 1973-1974

System Name: Dial-A-Bus

System No. 47

Location: Batavia, New York

Organization: Authority, Planner & Operator: Rochester-Genesee RTA; Consultant: Co. Dept. of Planning

Project History: Profitable operation for two years with revenue from school bus service and charter contracts; changes in Federal law required divesting of school buses and cessation of competing for charter work with private contractors

Institutional Issues: severe problems with funding & political response (see above); minor problems with labor & community response.

Area Description

Population: 17,000

Service Area Pop. 17,000

Target Group Pop.

Service Area Size: 5.5 sq.mi.

Number of Zones:

Pop. Density of Service Area: 3091 /sq. mi

Service Area Type: entire city

Eligible Ridership: ALL

Integrated with Fixed-Route System: no

Supply

Service Type: m to m : peak
m to o : off peak

Fares: Regular 70¢
Special 35¢ E & H
50¢ subscription, certain hr. riders

Vehicles in Service: 4

Peak: 4 Off-Peak: 4

Hours of Service:
mon.-Fri 6am - 6pm

Annual Fleet Service Miles: 104,000 est.

Annual Fleet Service Hours: 7,800 est.

Number of Employees: 8

Drivers: 6 Control Room: 2

Maintenance: 0

Demand

Weekday Ridership: 400 Peak:

Annual Ridership: 86,400

Person-Trips/1000 Residents: 23.5

Person-Trips/Square Mile: 72.7

Person-Trips/Square Mile/Hour: 6.1

Trip Length:

Access

User: Phone, fixed stops (to college only)

Pick-up Points: House, designated points

Access Time: Immed. service, subscription

Vehicles

#	Type	Capacity
2	large bus	23
5	small bus	15

Special Features: none

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer: no computer

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 15 min Promised Wait Time: 15 min.

Actual Wait Time (immediate request): 5 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 11.0

Passengers/Vehicle-Mile: .8

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $4.16 /hour

System Contact: Ruth Mulcahy
Genesee Dept. of Planning
3837 West main St. Rd.
Batavia, New York
14020

References Used: system documentation supplied by Genesee Co. Dept. of Planning
Data year: 4-76 to 3-77

SYSTEM SUMMARY SHEETS

System Name: Model Cities Dial-A-Ride

System No. 48

Location: Columbus, Ohio

Organization: Sponsor: Model Cities; Authority: City of Columbus; Operator: Mid-Ohio Regional Planning Com. & Columbus Transit Co.; Consultant: Ford Motor Co.

Project History:

Institutional Issues: Competition with taxicabs - violate franchise. Constraint: required dial-a-ride base route system with deviations for door-to-door service

Area Description

Population: 539,000

Service Area Pop.: 37,045

Target Group Pop.:

Service Area Size: 2.5 sq.mi.

Number of Zones:

Pop. Density of Service Area: 14818/sq. mi

Service Area Type: section of city

Eligible Ridership: All

Integrated with Fixed-Route System: coordinated transfer times with fixed route bus

Supply

Service Type: Deviation from route: peak/off peak

Fares: Regular 25¢

Special 10¢ youth

Vehicles in Service: 4

Peak: 4 Off-Peak: 3

Hours of Service: Mon - Fri 6:30am - 6:30pm Sat. 8am - 5pm

Annual Fleet Service Miles:

Annual Fleet Service Hours: 15,000 approx.

Number of Employees: 10

Drivers: 3 Control Room: 5

Maintenance: 2

Demand

Weekday Ridership: 500 est. Peak:

Annual Ridership: 160,000 est.

Person-Trips/1000 Residents: 13.5

Person-Trips/Square Mile: 200

Person-Trips/Square Mile/Hour: 16.7

Trip Length:

Access

User: Phone, hail, checkpoints

Pick-up Points: House, hail, designated points

Access Time: subscription: advance reservation

Vehicles

#	Type	Capacity
4	small bus	19

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: magnetic map, no computer

Computer:

Labor

Union ☒ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 18.6 min Promised Wait Time:

Actual Wait Time (immediate request): 26.8 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 10.7

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip: $1.56

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $16.64

Drivers' Salary: $8.00/hour

System Contact:

References Used: Report on the Columbus, Ohio Model Cities 2nd Year Transit Project, Mid-Ohio Regional Planning Comm. & Ford Motor Co., 1972. Data year: 10-71 to 9-72.

SYSTEM SUMMARY SHEETS

System Name: Dial-A-Ride (Urban Corridor Demonstration) Discontinued

System No. 49

Location: Dallas, Texas

Organization: Sponsor: City of Dallas
Authority & Operator: Dallas Transit System.

Project History: Project terminated after five months. Extremely low ridership; concluded that in areas of high income & higher than average auto ownership, the availability of door to door DAR is not a signif. factor in influencing transit needs.

Institutional Issues: many to many operation of serious concern to taxi operators particularly the subsidy factor (unfair competition); many to one (Park & Ride lot) not serious concern.

Area Description

Population: 844,401

Service Area Pop. 32,000

Target Group Pop.

Service Area Size: 13 sq.mi.

Number of Zones:

Pop. Density of Service Area 2462/sq. mi

Service Area Type: section of city: suburban

Eligible Ridership: All

Integrated with Fixed-Route System: • Park & Ride express bus service

Supply

Service Type: M to O: peak
M to M: off peak

Fares: Regular 50¢
Special 25¢ E & H

Vehicles in Service: 4

Peak: 4 Off-Peak: 1

Hours of Service:
Mon-Fri 6 am - 8 pm

Annual Fleet Service Miles: not avail.

Annual Fleet Service Hours: not avail.

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 26 Peak:

Annual Ridership: not avail.

Person-Trips/1000 Residents: .8

Person-Trips/Square Mile: 2.0

Person-Trips/Square Mile/Hour: .14

Trip Length: 9.5 miles

Access

User: Phone, fixed stops

Pick-up Points: House

Access Time: Immed. service, subscription

Vehicles

#	Type	Capacity
5	small bus	19

Special Features: none

Communication/Dispatching

Mobile Communications: telephone, 2-way radio

Control Center:

Computer: no computer

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: Gary Hufstedler
Dallas Transit System
101 N. Peak
Dallas, Texas 75226

SYSTEM SUMMARY SHEETS

References Used: Dallas Transit System, City of Dallas, DIAL-A-Ride Demonstration - urban Corridor Demonstration Program, 10-76.
Data year: 1975

System Name: Merrill-Go-Round

System No. 50

Location: Merrill, Wisconsin

Organization: Sponsor: Wisconsin Dept. of Transportation
Operator: Merrill Transit Commission

Project History: April 1975, service started as state demonstration project to replace expensive taxi subsidy program and an electric Dial-A-Bus for elderly & handicapped.

Institutional Issues: Project regulated by State Public Service Commission as a fixed-route system. This fact could make future changes in fare & service difficult. Funding uncertain at time of report (3/76)

Area Description

Population: 9,500

Service Area Pop. 9,500

Target Group Pop.

Service Area Size: 5.5 sq.mi.

Number of Zones:

Pop. Density of Service Area: 1727/sq. mi

Service Area Type: small city

Eligible Ridership: All

Integrated with Fixed-Route System: no

Supply

Service Type: Deviation from checkpoint: peak/off peak

Fares: Regular 25¢ · 40¢ - 50¢

Special 15¢ Students

Vehicles in Service: 2

Peak: Off-Peak:

Hours of Service: Mon-Thurs 6:30-6pm
Fri. 6:30 - 9:30pm
Sat, Sun 8-5pm

Annual Fleet Service Miles: (220/day)

Annual Fleet Service Hours: (22/day)

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 228 Peak:

Annual Ridership: 63,500 est.

Person-Trips/1000 Residents: 24.0

Person-Trips/Square Mile: 41.4

Person-Trips/Square Mile/Hour: 3.6

Trip Length: 5 miles

Access

User: Phone, fixed stops

Pick-up Points: House, designated points

Access Time: Immediate.

Vehicles

#	Type	Capacity
3	small bus	23

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 9.6

Passengers/Vehicle-Mile: n/a

Economics

Cost/Passenger Trip: $ .99

Revenue/Passenger Trip: $ .26

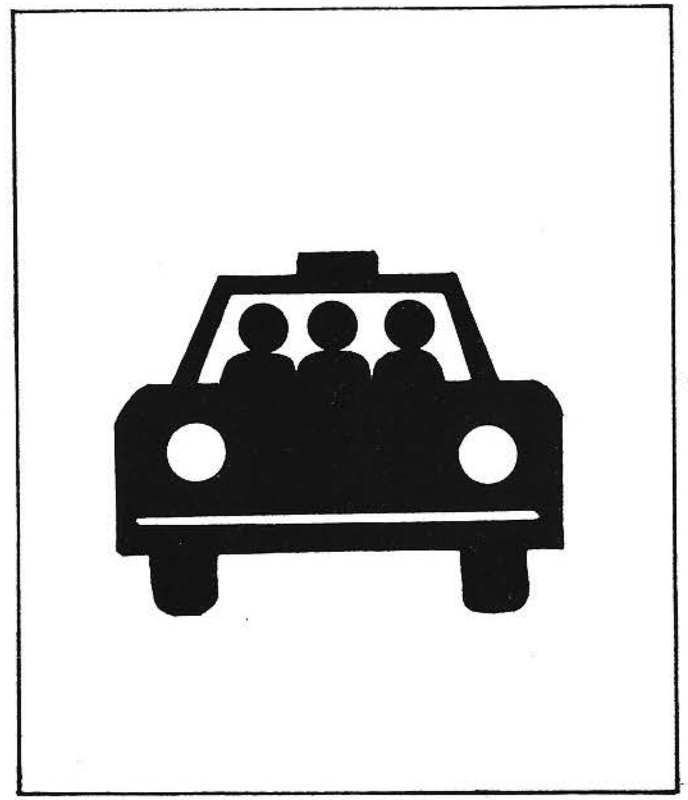
Cost/Vehicle-Hour: $9.49

Drivers' Salary: $4.00/hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: UMTA, Service and Methods Demonstrations, Small City Transit, Merrill Wisconsin, March 1976.



General Market Shared-Ride Taxi

System Name: Black & White Cab

System No. 51

Location: Little Rock, Arkansas

Organization: Authority & Operator: Black & White Cab

Project History: Service with shared-ride taxis began in 1952.

Institutional Issues: Political response and insurance have been problem areas. Have recently eliminated high city license of $75/car. Working on sales and gas tax exemption from state.

Area Description

Population: 315,000

Service Area Pop. 315,000

Target Group Pop.

Service Area Size: 150.8 sq.mi.

Number of Zones: 91

Pop. Density of Service Area 2089/sq. mi

Service Area Type: entire county including Little Rock & N. Little Rock

Eligible Ridership: All + parcels

Integrated with Fixed-Route System: local fixed-route bus

Supply

Service Type: M to M: peak / off peak

Fares: Regular 65¢ 1st zone, 25¢/person extra; 35¢ each zone thereafter

Special

Vehicles in Service: 75

Peak: 68 Off-Peak: 55

Hours of Service: mon-Sun 24 hrs

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees: 165

Drivers: 140 Control Room: 20

Maintenance: 5

Demand

Weekday Ridership: 3200 Peak:

Annual Ridership: 1,300,000

Person-Trips/1000 Residents: 10.2

Person-Trips/Square Mile: 21.2

Person-Trips/Square Mile/Hour: .9

Trip Length: 2.2 miles

Access

User: Phone; bus, airport terminals

Pick-up Points: House, designated Points

Access Time: Immed. serv., adv. reserv., subscription

Vehicles

#	Type	Capacity
75	cab	5-7

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer: no computer

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☑ Other

Service Levels (average time)

Ride Time: 12 min. Promised Wait Time: none

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $ .92

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: John W. Hall
Black & White Cab
1010 Markham St.
Little Rock, Ark.
72201

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by Black & White Cab
Data year: 1977

System No. 52

System Name:

Location: Arcadia, California

Organization: Sponsor: City of Arcadia
Operator: San Gabriel Valley Cab Co.

Project History:

Institutional Issues: severe problems with regulations, insurance 13C labor contract, and funding. "Burdensome federal regulations for funding yet unreceived."

Area Description

Population: 46,400

Service Area Pop. 46,400

Target Group Pop.

Service Area Size: 11.3 sq.mi.

Number of Zones:

Pop. Density of Service Area 4106/sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: MtoM: peak/off peak

Fares: Regular 75¢
Special 50¢ E & H

Vehicles in Service: 3

Peak: Off-Peak:

Hours of Service: mon-sun 7am-7pm

Annual Fleet Service Miles: 163,991

Annual Fleet Service Hours: 9,370

Number of Employees: 5

Drivers: 3 Control Room: 2

Maintenance:

Demand

Weekday Ridership: 145 Peak:

Annual Ridership: 53,025

Person-Trips/1000 Residents: 3.1

Person-Trips/Square Mile: 10.9

Person-Trips/Square Mile/Hour: .9

Trip Length: 2.5 miles

Access

User: Phone

Pick-up Points: House

Access Time: Immed. service

Vehicles

#	Type	Capacity
3	cab	5

Special Features: no lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: map and pins

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☑ Other

Service Levels (average time)

Ride Time: 12.1 min Promised Wait Time:

Actual Wait Time (immediate request): 16.8 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 5.7

Passengers/Vehicle-Mile: .32

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $ .67

Cost/Vehicle-Hour:

Drivers' Salary: $3.25/hour

System Contact: Jay Corey
City of Arcadia
240 W. Huntington Dr.
Arcadia, Calif 91006

References Used: system documentation from: So. Calif. Ass'n of Govts (SCAG) statistics and City of Arcadia
Data year: 7-75 to 6-76

System Name: DIAL-A-RIDE

System No. 53

Location: Barstow, California

Organization: Sponsor: City of Barstow
Operator: Yellow Cab of Barstow

Project History:

Institutional Issues: no problems

Area Description

Population: 18,600

Service Area Pop. 18,600

Target Group Pop.

Service Area Size: 21.9 sq.mi.

Number of Zones:

Pop. Density of Service Area 849/sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System: none

Supply

Service Type: m to m: peak/ off peak

Fares: Regular 75¢

Special 25¢ E & H

Vehicles in Service: 4

Peak: 3-4 Off-Peak: 2

Hours of Service: mon-Fri 7am-6pm
Sat. 10am-6pm
Sun. 9am-2pm

Annual Fleet Service Miles: 91,165

Annual Fleet Service Hours: 6,174

Number of Employees:*

Drivers: 2.5 Control Room:

Maintenance:

Demand

Weekday Ridership: 136 est. Peak:

Annual Ridership: 45,290

Person-Trips/1000 Residents: 7.3

Person-Trips/Square Mile: 6.2

Person-Trips/Square Mile/Hour: .6

Trip Length:*

Access

User: Phone

Pick-up Points: House

Access Time: Immed. service

Vehicles

#	Type	Capacity
4	cab	7

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: no computer

Computer:

Labor

Union ☐ Non-Union ☒ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 9.3 min. Promised Wait Time:

Actual Wait Time (immediate request): 16 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 7.3

Passengers/Vehicle-Mile: .50

Economics

Cost/Passenger Trip: \$2.00

Revenue/Passenger Trip: .37

Cost/Vehicle-Hour: \$14.65

Drivers' Salary: \$3.50/hour

System Contact: Clifton W. Lesley
City of Barstow
220 E. Mt. View Ave.
Barstow, Calif. 92311

SYSTEM SUMMARY SHEETS

References Used: system documentation from: So. Calif. Ass'n of Gov'ts (SCAG) statistics and City of Barstow Data year: 1977

System Name: (discontinued)

System No. 54

Location: Bellflower, California

Organization: Sponsor: City of Bellflower
Operator: Southeast Taxi Co.

Project History: Began operation in June 1975; discontinued June 1976.

Institutional Issues:

Area Description

Population: 51,700

Service Area Pop. 51,700

Target Group Pop.

Service Area Size: 6.1 sq.mi.

Number of Zones:

Pop. Density of Service Area 8475/sq. mi

Service Area Type:

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/offpeak

Fares: Regular 25¢

Special

Vehicles in Service: 1

Peak: Off-Peak:

Hours of Service: mon-Fri 9am-5pm, Sun · 5 hours

Annual Fleet Service Miles: •

Annual Fleet Service Hours: 2,064

Number of Employees: •

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 63 Peak:

Annual Ridership: 16,172 est.

Person-Trips/1000 Residents: 1.2

Person-Trips/Square Mile: 10.3

Person-Trips/Square Mile/Hour: 1.3

Trip Length: •

Access

User: Phone

Pick-up Points:

Access Time:

Vehicles

#	Type	Capacity
1	van	10

Special Features:

Communication/Dispatching •

Mobile Communications:

Control Center:

Computer:

Labor •

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request): 26.6 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 7.8

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from: So. Calif. Ass'n of Gov'ts (SCAG) statistics
Data year: 1975

System Name: Dial-A-Ride

System No. 55

Location: Beverly-Fairfax (Los Angeles), California

Organization: Sponsor: City of Los Angeles
Operator: Yellow Cab Co.

Project History: Discontinued at the end of 1976. To restart in May 1978 with Golden State Transit as operator.

Institutional Issues: severe insurance problem: Yellow Cab unable to obtain insurance coverage

Area Description

Population: 2,800,000

Service Area Pop. 83,567

Target Group Pop.

Service Area Size: 6.2 sq.mi.

Number of Zones:

Pop. Density of Service Area 13479/sq. mi

Service Area Type: section of city

Eligible Ridership: ALL Priority to elderly

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/off peak

Fares: Regular 15¢

Special

Vehicles in Service: 6

Peak: Off-Peak:

Hours of Service: Mon.-Fri. 7am-7pm
Sat. - 10am-6pm

Annual Fleet Service Miles: 167,928

Annual Fleet Service Hours: 14,628

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 266 Peak:

Annual Ridership: 81,300

Person-Trips/1000 Residents: 32

Person-Trips/Square Mile: 42.9

Person-Trips/Square Mile/Hour: 3.6

Trip Length: 2.1 miles

Access

User: Phone

Pick-up Points: House

Access Time: Immed. service, adv. reserv. (24 hrs), subscription, group (48 hrs)

Vehicles

#	Type	Capacity
6	cab	5

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 10 min. Promised Wait Time:

Actual Wait Time (immediate request): 24 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 5.6

Passengers/Vehicle-Mile: .48

Economics

Cost/Passenger Trip: $1.79

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $9.95

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from L.A. Dept. of Public Util. & Transp. Analysis of Dial-A-Ride Service in the City of Los Angeles, Nov. 1976; and So. Calif. Assoc. of Govts (SCAG) Statistics. Data year: 1976

System Name: DIAL-A-RIDE

System No. 56

Location: Claremont, California

Organization: Sponsor: City of Claremont
Operator: Paul's Yellow Cab

Project History: Service began in Oct. 1974; in Sept. 1976 increased fare from 35¢ to 50¢ with result of ridership decrease of 3.3%. July 1977 introduced fixed route shuttle service for Seniors; rapid decrease in demand so Sept. 1977 return to regular DAR.

Institutional Issues: no problems

Area Description

Population: 24,950

Service Area Pop. 24,950

Target Group Pop.

Service Area Size: 18 sq.mi.

Number of Zones:

Pop. Density of Service Area 1386/sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System: local fixed-route bus

Supply

Service Type: M to M: peak/off peak

Fares: Regular 50¢

Special $1.50: weekends, after hours

Vehicles in Service: 2

Peak: 2 Off-Peak: 1

Hours of Service: Mon-Fri 8am-5:30pm other hours and weekends avail. at special fee

Annual Fleet Service Miles: 26,100

Annual Fleet Service Hours: 2,534

Number of Employees:

Drivers: 2+ Control Room: 2

Maintenance:

Demand

Weekday Ridership: 76 Peak:

Annual Ridership: 19,404

Person-Trips/1000 Residents: 3.0

Person-Trips/Square Mile: 4.2

Person-Trips/Square Mile/Hour: .4

Trip Length: 1.4 miles

Access

User: Phone, hail

Pick-up Points: House, hail

Access Time: Immed. service

Vehicles

#	Type	Capacity
2	cab	5

Special Features: no lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer: no computer

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 10 min. Promised Wait Time: 20 min.

Actual Wait Time (immediate request): 5 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 7.7

Passengers/Vehicle-Mile: .74

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $ .50

Cost/Vehicle-Hour:

Drivers' Salary: $3.00/hour

System Contact: Paul Betzman
City of Claremont
207 Harvard Ave
Claremont, Calif.
91711

SYSTEM SUMMARY SHEETS

References Used: system documentation from city of Claremont and So. Calif. Ass'n of Gov'ts Statistics.
Data year: 1976

System Name:

System No. 57

Location: Colton, California

Organization: Sponsor: City of Colton
Operator: San Bernardino Yellow Cab

Project History:

Institutional Issues:

Area Description

Population: 18,270

Service Area Pop. 18,270

Target Group Pop.

Service Area Size: 4 sq.mi.

Number of Zones:

Pop. Density of Service Area 4568/sq. mi

Service Area Type:

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/ off peak

Fares: Regular 50¢

Special

Vehicles in Service: 3

Peak: Off-Peak:

Hours of Service: MON-FRI 8am-7pm

Annual Fleet Service Miles:

Annual Fleet Service Hours: 3,770

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 42 Peak:

Annual Ridership: 10,800 est.

Person-Trips/1000 Residents: 2.3

Person-Trips/Square Mile: 10.5

Person-Trips/Square Mile/Hour: 1.0

Trip Length:

Access

User: Phone

Pick-up Points:

Access Time:

Vehicles

#	Type	Capacity
3	Cab	5

Special Features: no lifts

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 2.9

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from: So. Calif. Ass'n of Govts (SCAG) statistics
Data year: 75-76

System Name: El Cajon Express

System No. 60

Location: El Cajon, California

Organization: Sponsor: City of El Cajon
Operator: San Diego Yellow Cab Inc.

Project History: 1973 City had local bus service under contract with San Diego Transit Corp. Low utilization led to "experimental" project with Yellow Cab.

Institutional Issues:

Area Description

Population: 60,500

Service Area Pop. 60,500

Target Group Pop.

Service Area Size: 12 sq.mi.

Number of Zones:

Pop. Density of Service Area 5042/sq. mi

Service Area Type: suburban area

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/off peak

Fares: Regular 50¢

Special

Vehicles in Service: 14

Peak: Off-Peak:

Hours of Service:
mon - Sun 24 hrs

Annual Fleet Service Miles: 792,000 est.

Annual Fleet Service Hours: 44,400 est.

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 550 Peak:

Annual Ridership: 176,818

Person-Trips/1000 Residents: 9.1

Person-Trips/Square Mile: 45.8

Person-Trips/Square Mile/Hour:

Trip Length: 3.4 miles

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
18	cab	5

Special Features: no lifts

Communication/Dispatching

Mobile Communications: two-way radio

Control Center:

Computer:

Labor

Union ☑ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time: 30 min.

Actual Wait Time (immediate request): 20 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 4.0

Passengers/Vehicle-Mile: .22

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $ .38

Cost/Vehicle-Hour: 9.70

Drivers' Salary: $ /hour

System Contact:

References Used: system documentation from reports: DOT/UMTA, Small City Transit, El Cajon, California: City-wide Shared-Ride Taxi Service, March 1976; Wilbur Smith & Assoc., Dial-A-Ride Guidelines, San Diego Region, Dec. 1976.

Data year: 1976

System Name: Fullerton Dial-A-Ride

System No. **58**

Location: Fullerton, California

Organization: Authority & Planner: Orange Co. Transit District
Operator: Yellow Cab of No. Orange Co.

Project History:

Institutional Issues: none

Area Description

Population: 94,000

Service Area Pop. 94,000

Target Group Pop.

Service Area Size: 22 sq.mi.

Number of Zones: –

Pop. Density of Service Area: 4273/sq. mi

Service Area Type: entire city

Eligible Ridership: ALL

Integrated with Fixed-Route System:
- local fixed-route bus
- DAR in other zones
- Park & Ride service

Supply

Service Type: M to M: Peak/Off Peak

Fares: Regular 50¢

Special 25¢ E&H

Vehicles in Service: 11

Peak: 11 Off-Peak: 8

Hours of Service: Mon.–Fri. 6am-7pm
Sat. 6am-7pm

Annual Fleet Service Miles: 460,000

Annual Fleet Service Hours: 28,000

Number of Employees:

Drivers: ___ Control Room: ___

Maintenance: ___

Demand

Weekday Ridership: 400 Peak: 200

Annual Ridership: 138,000

Person-Trips/1000 Residents: 4.3

Person-Trips/Square Mile: 18.2

Person-Trips/Square Mile/Hour: 1.4

Trip Length: N/A

Access

User: Phone

Pick-up Points: House

Access Time: Immed., Subscription

Vehicles

#	Type	Capacity
5	small bus	19
7	Cab	7

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: magnetic map

Computer: no computer

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 17.5 min. Promised Wait Time: 25 min.

Actual Wait Time (immediate request): 25 min.

Pick-Up Deviation (advanced request): N/A

Transfer Time: N/A

Productivity

Passengers/Vehicle-Hour: 4.9

Passengers/Vehicle-Mile: .30

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $ .37

Cost/Vehicle-Hour:

Drivers' Salary: $____/hour

System Contact: Sharon Neely
Orange Co. Transit District
1200 N. Main St.
Santa Ana, California
92702

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by Orange Co. Transit District
Data year: FY 78

System Name: DIAL-A-RIDE

System No. 59

Location: La Mesa, California

Organization: Sponsor: City of La Mesa
Operator: San Diego Yellow Cab

Project History: In 1974 City reached agreement with San Diego Transit Corp. to terminate local bus operations (2 shuttles, $100,000/year & 200 riders/week). Then city qualified itself as "operator" to become eligible for LTF (local trans. funds) and purchased 6 sedans. Contract with cab co. to operate.

Institutional Issues: Insurance problem: service discontinued for one month (12.76) because of cab insurance prob.; reinstated under new ownership.

Area Description

Population: 45,000

Service Area Pop. 45,000

Target Group Pop.

Service Area Size: 7 sq.mi.

Number of Zones:

Pop. Density of Service Area: 6429/sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/off peak

Fares: Regular 50¢

Special

Vehicles in Service: 6

Peak: 6 Off-Peak: 6

Hours of Service: Mon-Fri 7am-9pm
sat 8am-6pm
Sun 7:30am-1:00

Annual Fleet Service Miles: 270,000

Annual Fleet Service Hours: 16,500

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 375 Peak:

Annual Ridership: 110,000 est.

Person-Trips/1000 Residents: 8.3

Person-Trips/Square Mile: 53.4

Person-Trips/Square Mile/Hour: 3.8

Trip Length: 3.6 miles

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
6	cab	5

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☑ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request): 10 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 6.7

Passengers/Vehicle-Mile: .41

Economics

Cost/Passenger Trip: $1.46

Revenue/Passenger Trip: $.46

Cost/Vehicle-Hour:

Drivers' Salary: $3.80/hour 24% fringe benefits

System Contact:

SYSTEM SUMMARY SHEETS

References Used: System documentation from reports: Wilbur Smith & Assoc., Dial-A-Ride guidelines, Dec. 1976; California DOT, Transguide, p 2.49. Data year: 1976

San Diego Region

System Name: DIAL-A-RIDE

System No. 61

Location: Monrovia, California

Organization: Sponsor: City of Monrovia
Operator: San Gabriel Valley Cab Co.

Project History:

Institutional Issues:

Area Description

Population: 29,000

Service Area Pop. 29,000

Target Group Pop.

Service Area Size: 13.7 sq.mi.

Number of Zones:

Pop. Density of Service Area 2117/sq. mi

Service Area Type: entire City

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/off peak

Fares: Regular 75¢

Special

Vehicles in Service: 1+

Peak: Off-Peak:

Hours of Service: Mon-Fri 9am-4pm

Annual Fleet Service Miles:*

Annual Fleet Service Hours: 2,240

Number of Employees:*

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 41 Peak:

Annual Ridership: 10432 est.

Person-Trips/1000 Residents: 1.4

Person-Trips/Square Mile: 2.9

Person-Trips/Square Mile/Hour: .4

Trip Length:*

Access

User: Phone

Pick-up Points:

Access Time:

Vehicles

#	Type	Capacity
1	cab	5

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor*

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)*

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 4.7

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $3.25/hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from: So. Calif. Ass'n of Govts (SCAG) statistics and Calif. DOT, Transguide, SOA 2.62. Data Year: 1976

System Name:

System No. 62

Location: Ontario-Upland, California

Organization: Sponsor: SANBAG; Authority & Planner: West Valley Transit Service; Operator: Paul's Yellow Cab

Project History: Ontario and Uplands systems are co-ordinated by same provider with transfer service available at city limits

Institutional Issues: "Funding & legal regulations are problems because of the complex nature of funding sources & UMTA restrictions. Also because of lag time to receive funding." (FY77 applied for UMTA Sec. 3 & 5 money)

Area Description

Population: 102,800

Service Area Pop.: 102,800

Target Group Pop.:

Service Area Size: 32 sq.mi.

Number of Zones: 2

Pop. Density of Service Area 3212/sq. mi

Service Area Type: suburban area

Eligible Ridership: All

Integrated with Fixed-Route System: · local fixed-route bus · intercity bus

Supply

Service Type: m to m: peak / off peak

Fares: Regular 50¢

Special 25¢ E & H

Vehicles in Service: 7

Peak: Off-Peak:

Hours of Service: mon-Fri 9:15am-4:45pm

Annual Fleet Service Miles: 171,060

Annual Fleet Service Hours: 14832

Number of Employees: (contract with cab co.)

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership 263 Peak:

Annual Ridership: 78,142

Person-Trips/1000 Residents: 2.6

Person-Trips/Square Mile: 8.2

Person-Trips/Square Mile/Hour: 1.0

Trip Length: 1.5 miles

Access

User: Phone

Pick-up Points: House, anywhere within city

Access Time: Immed. service; advance reservation

Vehicles

#	Type	Capacity
2	cab	5
4	cab	8
1	cab	

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 8 min Promised Wait Time:

Actual Wait Time (immediate request): 15.1 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 4.5

Passengers/Vehicle-Mile: .39

Economics

Cost/Passenger Trip: $1.70

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $8.97

Drivers' Salary: $3.00/hour

System Contact: Michael O'Connor, City of Ontario, City Hall, Ontario, California 91761

SYSTEM SUMMARY SHEETS

References Used: system documentation from: So. Calif. Ass'n of Govts (SCAG) statistics, City of Ontario, and Calif. DOT, Transguide, SOA 2.69. Data year: 1977

System Name: Orange-Villa Park Dial-A-Ride.

System No. 63

Location: Orange, California

Organization: Authority & planner - Orange Co. Transit District
Operator - Yellow Cab of No. Orange Co.

Project History: DAR implemented 7-75 and discontinued one year later. The District was sued by local taxi company and DAR ceased operation by court order. Subsequent court action upheld legality of DAR service which resumed 7-77

Institutional Issues: legal problems (see above)

Area Description

Population: 92,500

Service Area Pop. 92,500

Target Group Pop.

Service Area Size: 19.6 sq.mi.

Number of Zones: 2

Pop. Density of Service Area: 4719/sq. mi

Service Area Type: entire city

Eligible Ridership: ALL

Integrated with Fixed-Route System:
- Local fixed route bus
- DAR in other zones
- Park & Ride Service

Supply

Service Type: M to M: Peak/Off Peak

Fares: Regular 50¢

Special 25¢ E&H

Vehicles in Service: 11

Peak: 11 Off-Peak: 8

Hours of Service: Mon.-Fri. 6-7
Sat. 6-7

Annual Fleet Service Miles: 403,700

Annual Fleet Service Hours: 26,600

Number of Employees:

Drivers: ___ Control Room: ___

Maintenance: ___

Demand

Weekday Ridership: 500 Peak: 280

Annual Ridership: 157,000

Person-Trips/1000 Residents: 5.4

Person-Trips/Square Mile: 25.5

Person-Trips/Square Mile/Hour: 2.0

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time: Immed., Subscription

Vehicles

#	Type	Capacity
5	small bus	19
7	cabs	7

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: magnetic map

Computer: no computer

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 17.5 min. Promised Wait Time: 20 min.

Actual Wait Time (immediate request): 25 min.

Pick-Up Deviation (advanced request): N/A

Transfer Time: N/A

Productivity

Passengers/Vehicle-Hour: 5.9

Passengers/Vehicle-Mile: .39

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $ .37

Cost/Vehicle-Hour:

Drivers' Salary: $____/hour

System Contact: Sharon Neely
Orange Co. Transit District
1200 N. Main St.
Santa Ana, Calif. 92702

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by Orange Co. Transit District
Data year: FY1978

System Name: Dial-A-Ride

System No. 64

Location: Pacoima (Los Angeles), California

Organization: Sponsor: City of Los Angeles
Operator: Paratransit Ltd. - Valley Checker Cab

Project History: Discontinued at the end of 1976. To restart May 1978 with Golden State Transit as operator

Institutional Issues: funding problems: no procedure established by city to receive bids; budgeted year funds exhausted; may restart in 1978

Area Description

Population: 2,800,000

Service Area Pop.: 65,650

Target Group Pop.:

Service Area Size: 11.4 sq.mi.

Number of Zones:

Pop. Density of Service Area: 5759/sq. mi

Service Area Type: section of city

Eligible Ridership: All
Priority to elderly

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/off peak

Fares: Regular 15¢

Special

Vehicles in Service: 4

Peak: Off-Peak:

Hours of Service: Mon.-Fri. 7am-7pm
Sat. 10am-6pm

Annual Fleet Service Miles: 134,840

Annual Fleet Service Hours: 9,574

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 121 Peak:

Annual Ridership: 37,224

Person-Trips/1000 Residents: 1.8

Person-Trips/Square Mile: 10.6

Person-Trips/Square Mile/Hour: .9

Trip Length: 3.7 miles

Access

User: Phone

Pick-up Points: House

Access Time: Immed. service, adv. reserv. (24 hrs), subscription

Vehicles

#	Type	Capacity
4	cab	7

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 4 min. Promised Wait Time:

Actual Wait Time (immediate request): 12 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 3.9

Passengers/Vehicle-Mile: .28

Economics

Cost/Passenger Trip: $2.94

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $11.42

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: System documentation from L.A. Dept. of Public Util. & Transp., Analysis of Dial-A-Ride Service in the City of Los Angeles Nov. 1976; and So. Calif. Assoc. of Govts (SCAG) statistics. Data year: 1976

System Name: DIAL-A-RIDE

System No. 65

Location: San Bernardino, California

Organization: Sponsor: City of San Bernardino
Operator: San Bernardino Yellow Cab

Project History:

Institutional Issues:

Area Description

Population: 104,251

Service Area Pop. 85,000

Target Group Pop.

Service Area Size: 16 sq.mi.

Number of Zones:

Pop. Density of Service Area 5313/sq. mi

Service Area Type: section of city

Eligible Ridership: All

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/off peak

Fares: Regular 50¢

Special

Vehicles in Service: 10

Peak: Off-Peak:

Hours of Service: Mon-Fri 7am-7pm
Sun 9am-4pm

Annual Fleet Service Miles:

Annual Fleet Service Hours: 20,328

Number of Employees: 15

Drivers: 11 Control Room: 2

Maintenance: 2

Demand

Weekday Ridership: 329 Peak:

Annual Ridership: 100,992

Person-Trips/1000 Residents: 3.9

Person-Trips/Square Mile: 20.6

Person-Trips/Square Mile/Hour: 1.7

Trip Length: 2.7 miles

Access

User: Phone

Pick-up Points: house, designated points

Access Time: Immed. Service

Vehicles

#	Type	Capacity
10	cab	7

Special Features: no lifts

Communication/Dispatching

Mobile Communications: telephone, 2-way radio

Control Center:

Computer: no computer

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time: 30 min.

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 5.0

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $4⁻/hour 23% fringe benefits

System Contact: Tom Crawford
City of San Bernardino
300 No. D Street
San Bernardino, Calif.
92418

References Used: system documentation supplied by City of San Bernardino and So. Calif. Assn of Gov'ts (SCAG) statistics. Data year: 1977

System Name: DIAL-A-RIDE (discontinued)

System No. 66

Location: Victorville, California

Organization: Sponsor: City of Victorville

Operator: Victor Valley Yellow Cab

Project History: Began in Sept. 1975 and ended in March 1976.

Institutional Issues:

Area Description

Population: 12,650

Service Area Pop. 12,650

Target Group Pop.

Service Area Size: 15.1 sq.mi.

Number of Zones:

Pop. Density of Service Area 838/sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: M to M: peak/off peak

Fares: Regular 50¢

Special

Vehicles in Service: 1

Peak: Off-Peak:

Hours of Service: Mon-Fri. - 7am-6pm

Annual Fleet Service Miles: 35,396

Annual Fleet Service Hours: 2,772

Number of Employees:•

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 31 Peak:

Annual Ridership: 7,908 est.

Person-Trips/1000 Residents: 2.5

Person-Trips/Square Mile: 2.1

Person-Trips/Square Mile/Hour: .2

Trip Length:•

Access

User: Phone

Pick-up Points:

Access Time:

Vehicles

#	Type	Capacity
1	cab	5

Special Features:

Communication/Dispatching•

Mobile Communications:

Control Center:

Computer:

Labor •

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request): 10 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 2.9

Passengers/Vehicle-Mile: .22

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from: So. Calif. Ass'n of Gov'ts (SCAG) statistics and Calif. DOT, Transguide, SOA 2.124. Data year: 75-76

System Name: BUCAT (demonstration)

System No. 67

Location: St. Bernard Parish, Louisiana

Organization: Authority: St. Bernard Parish Police Jury; Planner: Reg'l Plan. Comm.; Operator: Arabi Cab/St. Bernard Parish Bus Co.

Project History: Demonstration of combination bus-cab feeder system.

Institutional Issues: minor regulatory problem: Federal regulation prohibits taxi & bus operations to use same frequency band. may require dispatcher to change freq. each time to talk to cabs & buses.

Area Description

Population: 57,400

Service Area Pop. 20,500

Target Group Pop.

Service Area Size: 4 sq.mi.

Number of Zones:

Pop. Density of Service Area 5125/sq. mi

Service Area Type: section of city, suburban area

Eligible Ridership: All

Integrated with Fixed-Route System: local fixed-route bus

Supply

Service Type: M to O: peak; M to M: off peak

Fares: Regular 50¢ joint fare - SRT & fixed route bus.

Special 25-50¢ transfer; 1/2 fare - seniors/off peak

Vehicles in Service: 21

Peak: Off-Peak:

Hours of Service: mon-sat 6am-7pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees:

Drivers: Control Room: 1

Maintenance:

Demand

Weekday Ridership: 20 Peak:

Annual Ridership: 5,400 est.

Person-Trips/1000 Residents: 1.0

Person-Trips/Square Mile: 5.0

Person-Trips/Square Mile/Hour: .4

Trip Length:

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Adv. reserv., subscription

Vehicles

#	Type	Capacity
21	cab	8

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer: no computer

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from reports: Urban Institute, Some Promising Innovations in Taxicab Operations; Part IV Program Narrative received from California Dept. of Transportation. Data year: 1976.

System Name:

System No. 68

Location: Adrian, Michigan

Organization:

Operator: (taxi co.)

Project History:

Institutional Issues:

Area Description

Population: 23,382

Service Area Pop. 23,382

Target Group Pop.

Service Area Size: 6.2 sq.mi.

Number of Zones:

Pop. Density of Service Area 3771/sq. mi

Service Area Type:

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/off peak

Fares: Regular

Special

Vehicles in Service: 5

Peak: Off-Peak:

Hours of Service:

Annual Fleet Service Miles: 170,140

Annual Fleet Service Hours: 11,856

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 197 Peak:

Annual Ridership: 103,157

Person-Trips/1000 Residents: 8.4

Person-Trips/Square Mile: 31.8

Person-Trips/Square Mile/Hour:

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
5		

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 8.7

Passengers/Vehicle-Mile: .61

Economics

Cost/Passenger Trip: $1.05

Revenue/Passenger Trip:

Cost/Vehicle-Hour: $9.12

Drivers' Salary: $ /hour

System Contact:

Dept. of State Hwys & Transp.
P.O. Box 30050
Lansing, Michigan
48909

References Used: System documentation from: State of Michigan DART Program.

Data year: 1977

SYSTEM SUMMARY SHEETS

System Name:

Location: Alpena, Michigan

Organization:

Operator: City Cab

Project History:

Institutional Issues:

System No. 69

Area Description

Population: 19,805

Service Area Pop. 19,805

Target Group Pop.

Service Area Size: 10.4 sq.mi.

Number of Zones:

Pop. Density of Service Area: 1904/sq. mi

Service Area Type:

Eligible Ridership: ALL

Integrated with Fixed-Route System:

Supply

Service Type: M to M: peak/ off peak

Fares: Regular 50¢, 75¢

Special 25¢, 40¢ seniors children

Vehicles in Service: 5

Peak: Off-Peak:

Hours of Service: Mon.–Thurs. 6:30am-8:30pm Fri 6:30am-10:30 pm
Sat. 8am-6pm Sun. 9am-5pm

Annual Fleet Service Miles: 153,786

Annual Fleet Service Hours: 12,042

Number of Employees: 9.5

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 232 Peak:

Annual Ridership: 71,226

Person-Trips/1000 Residents: 11.7

Person-Trips/Square Mile: 22.3

Person-Trips/Square Mile/Hour: 1.6

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
5		

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 5.9

Passengers/Vehicle-Mile: .46

Economics

Cost/Passenger Trip: $ 1.68

Revenue/Passenger Trip: $ .41

Cost/Vehicle-Hour: $ 9.91

Drivers' Salary: $ /hour

System Contact:

Dept. of State Hwys & Transp.
P.O. Box 30050
Lansing, Michigan
48909

References Used: system documentation supplied by State of Michigan DART Program
Data year: 1977

SYSTEM SUMMARY SHEETS

System Name: DIAL-A-RIDE

System No. 70

Location: Birmingham, Michigan

Organization: Authority: SEMTA (So.E. Mich.Trans.Auth.)
Operator: Birmingham Taxi

Project History:

Institutional Issues:

Area Description

Population: 34,000

Service Area Pop. 34,000

Target Group Pop.

Service Area Size: 6 sq.mi.

Number of Zones:

Pop. Density of Service Area 5667/sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: M to M: peak/off peak

Fares: Regular 50¢
Special 25¢ seniors children

Vehicles in Service: 4

Peak: Off-Peak:

Hours of Service: Mon-Thurs 6:30am-6:30pm
Fri - 6:30am - 9:30pm
Sat 10am - 6pm Sun 10am - 2pm

Annual Fleet Service Miles:

Annual Fleet Service Hours: 8,436

Number of Employees: 5

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 123 est. Peak:

Annual Ridership: 38,400 est.

Person-Trips/1000 Residents: 3.6

Person-Trips/Square Mile: 20.5

Person-Trips/Square Mile/Hour: 1.7

Trip Length:

Access

User: Phone

Pick-up Points:

Access Time:

Vehicles

#	Type	Capacity
4		

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 4.6

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $ .33

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: Michael Dewey
Small Bus Mgr., SEMTA
211 W. Fort St.
Detroit, Michigan
48226

SYSTEM SUMMARY SHEETS

References Used: system documentation from: SEMTA
Data year: 1977

System Name:

System No. 71

Location: Cadillac, Michigan

Organization: Operator: Cadillac Cab

Project History:

Institutional Issues:

Area Description

Population: 10,490

Service Area Pop. 10,490

Target Group Pop.

Service Area Size: 6.1 sq.mi.

Number of Zones:

Pop. Density of Service Area: 1720/sq. mi

Service Area Type:

Eligible Ridership: ALL

Integrated with Fixed-Route System:

Supply

Service Type: m-to-m: peak/off peak

Fares: Regular 50¢

Special 25¢ seniors, 0.25¢ children

Vehicles in Service: 4

Peak: Off-Peak:

Hours of Service: Mon.-Thurs 6am-6pm; Fri 6am-9pm; Sat 8am-6pm

Annual Fleet Service Miles: 135,578

Annual Fleet Service Hours: 11,071

Number of Employees: 7

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 289 Peak:

Annual Ridership: 83,157

Person-Trips/1000 Residents: 27.6

Person-Trips/Square Mile: 47.4

Person-Trips/Square Mile/Hour: 3.9

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
4		

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 7.5

Passengers/Vehicle-Mile: .61

Economics

Cost/Passenger Trip: $ 1.34

Revenue/Passenger Trip: $ .31

Cost/Vehicle-Hour: $ 10.06

Drivers' Salary: $ /hour

System Contact: Dept. of State Hwys & Transp., P.O. Box 30050, Lansing, Michigan 48909

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by State of Michigan DART program. Data year: 1977

System No. 72

System Name:

Location: Holland, Michigan

Organization: Operator: Warm Friend, Inc.

Project History:

Institutional Issues:

Area Description

Population: 27,137

Service Area Pop. 27,137

Target Group Pop.

Service Area Size: 14.2 sq.mi.

Number of Zones:

Pop. Density of Service Area: 1911 /sq. mi

Service Area Type:

Eligible Ridership: ALL

Integrated with Fixed-Route System:

Supply

Service Type: M to M: peak/ off peak

Fares: Regular 50¢, 75¢

Special 25¢ seniors

0, 50¢, 75¢ children

Vehicles in Service: 6

Peak: Off-Peak:

Hours of Service:

Mon-Fri 6am-6pm

Annual Fleet Service Miles: 152,094

Annual Fleet Service Hours: 12,550

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 299 Peak:

Annual Ridership: 79,181

Person-Trips/1000 Residents: 11.0

Person-Trips/Square Mile: 21.1

Person-Trips/Square Mile/Hour: 1.8

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
6		

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 6.3

Passengers/Vehicle-Mile: .52

Economics

Cost/Passenger Trip: $1.67

Revenue/Passenger Trip: $.33

Cost/Vehicle-Hour: $10.56

Drivers' Salary: $ /hour

System Contact:

Dept. of State Hwys & Transp.

P.O. Box 30050

Lansing, Michigan

48909

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by State of Michigan DART Program

Data year: 1977

System No. 73

System Name:

Location: Niles, Michigan

Organization: Sponsor: City of Niles
Planner & Operator: Waltman Enterprises Inc.

Project History: Wheelchair bus added in 1975. Community voted ½ mill. to support operation from August 1978 through end of July 1980.

Institutional Issues: Cost for insurance has increased approximately 40-50% each year since 1975.

Area Description

Population: 12,988

Service Area Pop. 12,988

Target Group Pop.

Service Area Size: 5.2 sq.mi.

Number of Zones:

Pop. Density of Service Area 2498/sq. mi

Service Area Type: entire city

Eligible Ridership: ALL

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/off peak

Fares: Regular 50¢ - 75¢

Special 25¢ - E + children

Vehicles in Service: 6

Peak: Off-Peak:

Hours of Service: Mon.-Thurs. 6am-6pm
Fri. 6am-9 pm
Sat. 8am-6 pm

Annual Fleet Service Miles: 143,979

Annual Fleet Service Hours: 13,381

Number of Employees: 14

Drivers: 11 Control Room: 1

Maintenance: 1

Demand

Weekday Ridership: 260 Peak:

Annual Ridership: 73,435

Person-Trips/1000 Residents: 20.0

Person-Trips/Square Mile: 50.0

Person-Trips/Square Mile/Hour: 4.2

Trip Length: .75 miles

Access

User: Phone, hail

Pick-up Points: House, hail, designated points.

Access Time: Advance reserv. (24 hrs) subscription

Vehicles

#	Type	Capacity
5	cab	
1	bus	

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 5.5

Passengers/Vehicle-Mile: .51

Economics

Cost/Passenger Trip: $1.98

Revenue/Passenger Trip: $.38

Cost/Vehicle-Hour: $10.84

Drivers' Salary: $4– /hour 20% fringe benefits

System Contact: William Waltman
Waltman Enterprises
301 No. Front St.
Niles, Michigan 49120

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by Waltman Enterprises, Inc. and State of Michigan DART program.
Data year: 1977

System Name: Redford Dial-A-Ride

Location: Redford Township, Michigan

Organization: Sponsor: SEMTA (So. E. Mich. Trans. Auth.)
Operator: N.W. Transport

Project History:

Institutional Issues:

System No. 74

Area Description

Population: 66,600

Service Area Pop. 66,600

Target Group Pop.

Service Area Size: 11.2 sq.mi.

Number of Zones:

Pop. Density of Service Area 5946/sq. mi

Service Area Type:

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: M to M: peak/off peak

Fares: Regular 60¢

Special 30¢ seniors children

Vehicles in Service: 6

Peak: Off-Peak:

Hours of Service:
Mon-Fri 6:30am - 6:30pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees: 4.5

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 208 Peak:

Annual Ridership: 50,400 est.

Person-Trips/1000 Residents: 3.1

Person-Trips/Square Mile: 18.6

Person-Trips/Square Mile/Hour: 1.5

Trip Length:

Access

User: Phone

Pick-up Points:

Access Time:

Vehicles

#	Type	Capacity
6		

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $ .41

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: Michael Dewey
Small Bus Mgr., SEMTA
211 W. Fort St.
Detroit, Michigan
48226

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by: SEMTA
Data year: 1977

System Name:

System No. 75

Location: Traverse City, Michigan

Organization: Sponsor & planner: City of Traverse City
Operator: Number 1 Cab Co.

Project History: One year after service initiation (5-74) increased fares to points beyond city limits with resulting 50% decrease in ridership outside city.

Institutional Issues: severe insurance problems: due to no-fault provisions in Mich.; unwillingness of carriers to assume risk, espec. handicapped transportation.

Area Description

Population: 18,048

Service Area Pop. 26,321

Target Group Pop.

Service Area Size: 17.8 sq.mi.

Number of Zones:

Pop. Density of Service Area: 1479/sq. mi

Service Area Type: entire city plus suburban area

Eligible Ridership: ALL

Integrated with Fixed-Route System:

Supply

Service Type: M to M: peak/off peak

Fares: Regular 50¢ - 1.00

Special 25¢ - 50¢ Elderly, children

Vehicles in Service: 5

Peak: 5 Off-Peak: 2

Hours of Service: Mon.-Thurs. 6am - 6pm
Fri. - 6am - 9 pm
Sat. - 9:30am - 5 pm

Annual Fleet Service Miles: 132,000

Annual Fleet Service Hours: 14,400

Number of Employees: 8

Drivers: 7 Control Room: 1

Maintenance: .5

Demand

Weekday Ridership: 260 Peak:

Annual Ridership: 72,000

Person-Trips/1000 Residents: 9.9

Person-Trips/Square Mile: 14.6

Person-Trips/Square Mile/Hour: 1.2

Trip Length: 3

Access

User: Phone, hail

Pick-up Points: House, hail

Access Time: Immed. service, subscription

Vehicles

#	Type	Capacity
6	van	12

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: manual log & vehicle assignment system

Computer: no computer

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 20 min. Promised Wait Time: 30 min.

Actual Wait Time (immediate request): 20 min.

Pick-Up Deviation (advanced request): 50 min.

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 5.0

Passengers/Vehicle-Mile: .54

Economics

Cost/Passenger Trip: 1.81

Revenue/Passenger Trip: $.38

Cost/Vehicle-Hour: 9.03

Drivers' Salary: $3.50/hour 22% fringe benefits

System Contact: Craig Horvath
No. 1 Cab Company
721 Beitner St.
Traverse City, Mich.
49684

References Used: system documentation supplied by No. 1 Cab Company
Data year: 11-76 to 11-77

SYSTEM SUMMARY SHEETS

System Name: Orange & White Taxi

System No. 76

Location: Hicksville, Long Island, New York.

Organization: Sponsor & Operator: Orange & White Taxi

Project History: system began operation in 1961.

Institutional Issues:

Area Description

Population: 48,100

Service Area Pop. 48,100

Target Group Pop.

Service Area Size: 6.8 sq.mi.

Number of Zones:

Pop. Density of Service Area 7074/sq. mi

Service Area Type: entire city

Eligible Ridership: All + parcels

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/ off peak

Fares: Regular

Special

Vehicles in Service: 40

Peak: 40 Off-Peak: 20

Hours of Service: mon-sun 24 hrs

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees:

Drivers: 90 Control Room: 10

Maintenance: 4

Demand

Weekday Ridership: 814 Peak:

Annual Ridership: 296,300 est.

Person-Trips/1000 Residents: 16.9

Person-Trips/Square Mile: 119.7

Person-Trips/Square Mile/Hour: 4.9

Trip Length:

Access

User: Phone

Pick-up Points: house, designated points (taxi stands)

Access Time: Immed. service.

Vehicles

#	Type	Capacity
40	cab	5

Special Features:

Communication/Dispatching

Mobile Communications: one-way paging device

Control Center: manual dispatch, radio

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request): 9 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from report: Lea Transit Compendium, *Paratransit*, vol. II #8, 1975. Data year: 1975

System No. 77

System Name: (demonstration)

Location: Xenia, Ohio

Organization: Authority: City of Xenia, Operator: Xenia Taxi Service (contract with city)

Project History: Demonstration began in 1974, to terminate in 1978. Evolved from fixed route bus system to mix of paratransit services: SRT, exclusive-ride taxi, subscription & charter service.

Institutional Issues:

Area Description

Population: 28,000

Service Area Pop.: 28,000

Target Group Pop.:

Service Area Size: 9 sq.mi.

Number of Zones:

Pop. Density of Service Area 3111 /sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System:

Supply

Service Type: M to M: peak/off peak

Fares: Regular Range: 50¢/passgr. off-peak adv. reserv. to 1.00 for immed. service

Special

Vehicles in Service: 12

Peak: Off-Peak:

Hours of Service: 7 days/week 7am - 7pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 259 Peak:

Annual Ridership: 80,000 est.

Person-Trips/1000 Residents: 9.2

Person-Trips/Square Mile: 28.8

Person-Trips/Square Mile/Hour: 2.4

Trip Length: 3.1 miles

Access

User: Phone

Pick-up Points:

Access Time: subscription, adv. reservation, immed.

Vehicles

#	Type	Capacity
7	SRT cabs	
5	small buses for advance reservation & subscription service	

Special Features: 1 bus with lift

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 13 min Promised Wait Time:

Actual Wait Time (immediate request): 15 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 3.8

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip: 2.89

Revenue/Passenger Trip: .88 SRT

Cost/Vehicle-Hour: 11.00

Drivers' Salary: $2.80/hour

System Contact:

References Used: UMTA, Services & Methods Demonstrations Annual Report (draft) 1977. Results: computed average: SRT 56% of all trips; subscription 29%; charter 15%.

System Name: Badger Cab Co.

System No. 78

Location: Madison, Wisconsin

Organization: Sponsor & Operator: Badger Cab Co.

Project History: shared-taxi service initiated in 1933.

Institutional Issues:

Area Description

Population: 200,000

Service Area Pop. 200,000

Target Group Pop.

Service Area Size: 48.5 sq.mi.

Number of Zones: 16

Pop. Density of Service Area: 4124/sq. mi

Service Area Type: entire city

Eligible Ridership: All + package delivery

Integrated with Fixed-Route System: no

Supply

Service Type: M to M: peak/ off peak

Fares: Regular 65¢ within zone 80¢ 1 zone to another

Special 15¢ each add'l person to same destination

Vehicles in Service: 30

Peak: Off-Peak:

Hours of Service: Mon-Sun. 24 hrs.

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees:

Drivers: 65 Control Room: 6

Maintenance: 2 Admin. 2

Demand

Weekday Ridership 2466 Peak:

Annual Ridership: 641,000 est.

Person-Trips/1000 Residents: 12.3

Person-Trips/Square Mile: 50.8

Person-Trips/Square Mile/Hour: 2.1

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
30	Cab	—

Special Features:

Communication/Dispatching

Mobile Communications: one-way paging device

Control Center: manual dispatching

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

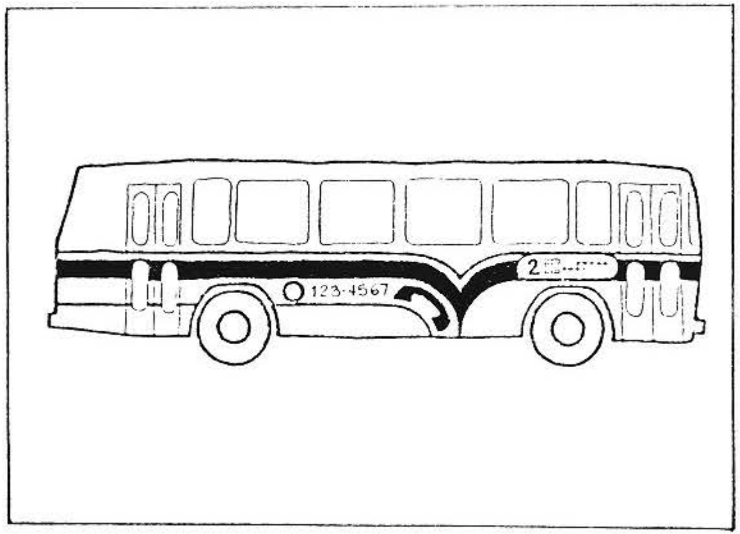
Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from report: Lea Transit Compendium, Paratransit, Vol. 11 #8, 1975

Data year: 1975



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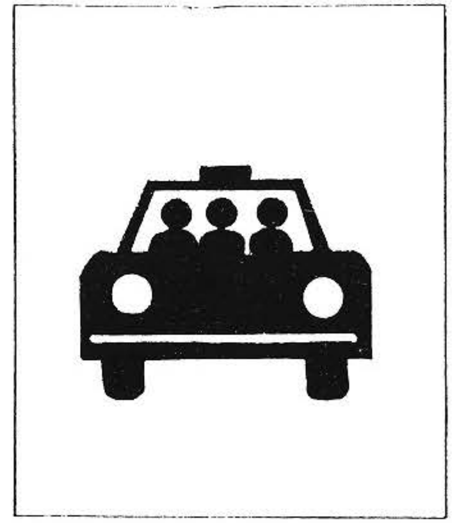


Institutional Integration

System Name: MAXYTAXY (demonstration) System No. 79

Location: Westport, Conn.

Organization: Authority: Westport Transit District; Operator: Westport Transport Corp.; Consultant: Multisystems

Project History: Service initiation of shared-taxi in 4-77 followed by initiation of E & H, am fixed route supplement, pm fixed route supplement in 5-77 with resulting increase in pre-existing fixed-route service.

Institutional Issues: Problems with insurance and labor management. Local taxi operation sued District; case now in U.S. Circuit Court of Appeals.

Area Description

Population: 30,000

Service Area Pop. 30,000

Target Group Pop.

Service Area Size: 22.2 sq.mi.

Number of Zones: 15

Pop. Density of Service Area: 1351/sq. mi

Service Area Type: entire city

Integrated

Eligible Ridership: All + parcels

Integrated with Fixed-Route System: • local fixed-route bus • rail

Supply

Service Type: m to m: peak/off peak

Fares: Regular 1.00 to 3.00

Special

Vehicles in Service: 11

Peak: 7 Off-Peak: 4

Hours of Service: Mon-Thurs 5:45 am - 1:00 am; Fri - Sat 5:45 am - 2:00 am; Sun 5:45 am - 1:00 am

Annual Fleet Service Miles: 412,000 est.

Annual Fleet Service Hours: 29,500 est.

Number of Employees: 26

Drivers: 19 Control Room: 5

Maintenance: 2

Demand

Weekday Ridership: 400 est. Peak:

Annual Ridership: 100,000 est.

Person-Trips/1000 Residents: 13.3

Person-Trips/Square Mile: 18.0

Person-Trips/Square Mile/Hour: 1.0

Trip Length: 3.7 miles

Access

User: Phone, hail

Pick-up Points: House, hail, designated points

Access Time: Immed. service, adv. reserv., subscription

Vehicles

#	Type	Capacity
11	van	16

Special Features: 2 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: magnetic map

Computer: no computer

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☑ Other

Service Levels (average time)

Ride Time: 12.25 min. Promised Wait Time:

Actual Wait Time (immediate request): 6.4 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 3.4

Passengers/Vehicle-Mile: .24

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $ 1.40

Cost/Vehicle-Hour:

Drivers' Salary: $4.00/hour 20% fringe benefits

System Contact: Richard Clair, Westport Transit District, 304 Post Rd. East, Westport, Conn. 06880

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by Westport Transit District. Data year: 1977 (service initiated 4-77)

System Name: Dial-A-Ride (Portion of Teltran System) - discontinued

System No. 80

Location: Ann Arbor, Michigan

Organization: Authority, Planner & Operator: Ann Arbor Transportation Authority

Project History: Began with Pilot Project in 1971, add zones one to two at a time starting Sept. 1973 after pilot project over. Final zone added June 1976. Rural service area added July 1976.

Institutional Issues: Severe legal and funding problems: taxi lawsuit and state funding uncertain year to year.

Area Description

Population: 180,000

Service Area Pop. 180,000

Target Group Pop.

Service Area Size: 45 sq.mi.

Integrated

Number of Zones: 16

Pop. Density of Service Area 4000/sq. mi

Service Area Type: entire city; county for E & H only

Eligible Ridership: All

Integrated with Fixed-Route System:
- local fixed-route bus
- DAR in other zones

Supply

Service Type: within zones - M to M: peak, off-peak; M to F: peak, off-peak; M to O: peak, off-peak between zones

Fares: Regular 35¢

Special

Vehicles in Service: 48

Peak: 32 Off-Peak: 19

Hours of Service: Mon-Fri 6am - 9:45pm; Sat-Sun 8am - 6pm

Annual Fleet Service Miles:

Annual Fleet Service Hours: 103,980

Number of Employees: 260 Teletran Sys.

Drivers: 210 Control Room: 20

Maintenance: 20

Demand

Weekday Ridership 2500 est. Peak:

Annual Ridership: 750,000 est.

Person-Trips/1000 Residents: 13.9

Person-Trips/Square Mile: 55.6

Person-Trips/Square Mile/Hour: 3.5

Trip Length: 2.3 miles

Access

User: Phone, hail, fixed stops

Pick-up Points: House, designated points

Access Time: Adv. reserv. (30 min.), subscription

Vehicles

#	Type	Capacity
48	van	12

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio, digital-video

Control Center: dedicated computer

Computer: does storage/retrieval of orders, assignment to tours

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other Independent Employees union

Service Levels (average time)

Ride Time: 15 min. Promised Wait Time: 20 min.

Actual Wait Time (immediate request): 28 min.

Pick-Up Deviation (advanced request): 5 min.

Transfer Time: 4 min.

Productivity •

Passengers/Vehicle-Hour: 5.6

Passengers/Vehicle-Mile:

Economics •

Cost/Passenger Trip: 3.54

Revenue/Passenger Trip: .23

Cost/Vehicle-Hour: 19.85

Drivers' Salary: \$5.15/hour

System Contact: Karl Guenther, Ann Arbor Transp. Auth., 3700 Carpenter Road, Ypsilanti, Mich. 48197

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by Ann Arbor Transp. Auth. and UMTA/TSC System Method & Demonstration Evaluation, March 1977. (cost data is FY76)

Data Year: 7-76 to 6-77

System Name: PERT (demonstration)

System No. 81

Location: Rochester, New York

Organization: Authority & Planner: Rochester-Genesee Reg'l Transp. Auth.; Operator: Regional Transit Service; Consultants: Mass. Institute of Technology; SYSTAN, INC.

Project History: Service area expansions: 6-74, 9-74, 11-74, 9-75, 4-76. Jan. 1977: reduction in operating hours; eliminate some services. June 1977: eliminate some services

Institutional Issues: Problems with labor contract and funding: delays in negotiating caused one month's interruption in service.

Area Description

Population: 105,000

Service Area Pop. 105,000

Target Group Pop.

Service Area Size: 22.8 sq.mi.

Number of Zones: 2

Pop. Density of Service Area 4605/sq. mi

Service Area Type: suburban area

Eligible Ridership: ALL

Integrated with Fixed-Route System: local fixed-route bus

Integrated

Supply

Service Type: M to O: peak (subscription, handicapped)
M to F: offpeak (handicap)
M to M: off peak (Dial-A-Bus)
Dew Ridge: Dev. from ckpoint combined with fixed route: off peak

Fares: Regular 75¢ Dew Ridge; 1.25 Dial-A-Bus

Special 35¢, 50¢ E & H

Vehicles in Service: 26

Peak: Off-Peak:

Hours of Service: Mon-Fri. 8 am - 4 pm

Annual Fleet Service Miles: 250,000

Annual Fleet Service Hours: 22,600

Number of Employees:

Drivers: 14 Control Room: 4

Maintenance: —

Demand

Weekday Ridership: 460 Peak: 50

Annual Ridership: 115,000

Person-Trips/1000 Residents: 4.4

Person-Trips/Square Mile: 20.2

Person-Trips/Square Mile/Hour: 2.5

Trip Length: 2.6 miles

Access

User: Phone, fixed stops

Pick-up Points: House, designated points

Access Time: Immed. service, adv. reserv., subscription

Vehicles

#	Type	Capacity
7	small bus	25
12	small bus	17
7	van	10,17,20

Special Features: 7 with lifts

Communication/Dispatching

Mobile Communications: digital-video

Control Center: magnetic map; Computer: time-shared with other functions.

Computer: does address location; vehicle assignment; route determination; mgmt info.

Labor

Union ☒ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 11 min. Promised Wait Time:

Actual Wait Time (immediate request): 17 min.

Pick-Up Deviation (advanced request): 6 min.

Transfer Time: 8 min. avg.

Productivity

Passengers/Vehicle-Hour: 5.1

Passengers/Vehicle-Mile: .46

Economics

Cost/Passenger Trip: $4.22

Revenue/Passenger Trip: $.55

Cost/Vehicle-Hour: $21.46

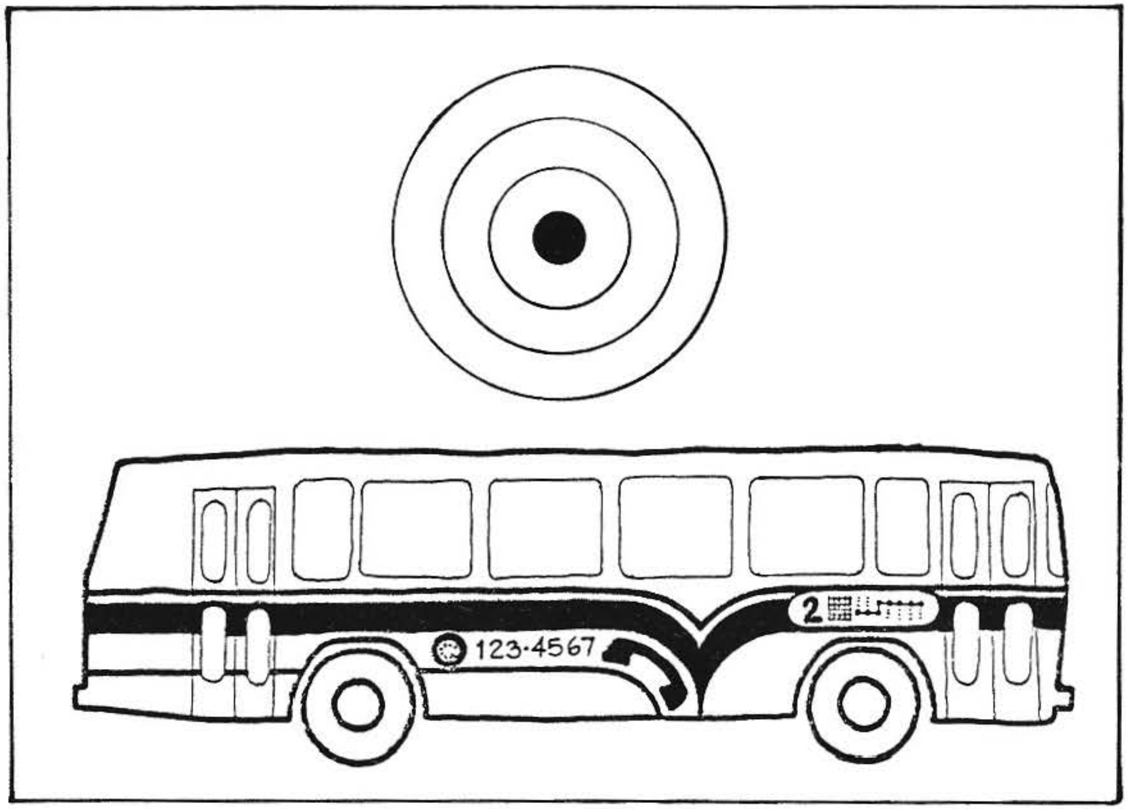
Drivers' Salary: $6.61/hour

System Contact: Bill Evans
Rochester-Genesee Reg'l Transp. Authority
55 St. Paul St.
Rochester, New York 14604

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by Systan Inc., demonstration evaluator

Data year: 1977



Target Market Dial-a-Bus

System Name: Special Needs Transportation

System No. 82

Location: Tucson, Arizona

Organization: Sponsor, Planner & Operator: City of Tucson; Consultant: DAVE Systems

Project History: DRT service initiated as a "model cities" project in 1971, serving only a small area of the inner city. In July 1973 service was expanded to entire city & combined with wheelchair service formerly provided by Easter Seal Society. All staff & equipment absorbed by the city.

Institutional Issues: severe legal problem: city sued by private carrier. As result, system can only carry poverty-level citizens (U.S. Dept. of Labor standards).

Area Description

Population: 310,000

Service Area Pop.:

Target Group Pop.: not available

Service Area Size: 97 sq.mi.

Number of Zones:

Pop. Density of Service Area 3196 /sq. mi

Eligible Pop. Density ____ /sq. mi

Service Area Type: entire city

Eligible Ridership: E&H, low income

Integrated with Fixed-Route System: no

Supply

Service Type: M to M, M to F, M to O: peak/off peak

Fares: Regular Free

Special

Vehicles in Service: 28

Peak: 25 Off-Peak: 3

Hours of Service: Mon-Fri 7am-10:30pm

Annual Fleet Service Miles: 620,702

Annual Fleet Service Hours: N/A

Number of Employees: 35

Drivers: 26 Control Room: 5

Maintenance: 0

Demand

Weekday Ridership 680 Peak:

Annual Ridership: 180,000

Person-Trips/1000 Residents: 2.2

Person-Trips/1000 Eligible Pop.

Person-Trips/Square Mile: 7.0

Person-Trips/Square Mile/Hour: .45

Trip Length: 4.6 miles

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Adv. reserv. (2 hrs), subscription

Vehicles

#	Type	Capacity
10	van	8
13	van	11
5	van	15

Special Features: 10 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: magnetic map, visible files

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☑ Other City employees

Service Levels (average time)

Ride Time: N/A Promised Wait Time: N/A

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile: .29

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $5.29/hour 18% fringe benefits

System Contact: Larry Wren
Special Needs Transp. Service
City of Tucson
P.O. Box 27210
Tucson, Arizona 85726

References Used: system documentation supplied by City of Tucson. Data year: 7-76 to 6-77

System Name:

System No. 83

Location: Phoenix, Arizona

Organization: Sponsor: Phoenix Human Resources Dept.
Operator: Phoenix Transit Corp.

Project History:

Institutional Issues:

Area Description

Population: 863,000

Service Area Pop. 150,000

Target Group Pop. 15,000

Service Area Size: 63 sq.mi.

Number of Zones:

Pop. Density of Service Area 2381/sq. mi

Eligible Pop. Density 238/sq. mi

Service Area Type:

Eligible Ridership: elderly, low income

Integrated with Fixed-Route System:

Supply

Service Type: M to F: peak/ off peak

Fares: Regular Free

Special

Vehicles in Service: 23

Peak: Off-Peak:

Hours of Service: Mon.-Fri. 8 am - 5 pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees: 10

Drivers: 8 Control Room: 2

Maintenance:

Demand

Weekday Ridership: 850 Peak:

Annual Ridership: 204,000 est.

Person-Trips/1000 Residents: 5.7

Person-Trips/1000 Eligible Pop. 56.7

Person-Trips/Square Mile: 13.5

Person-Trips/Square Mile/Hour: 1.5

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time: Advance reserv. (24 hrs.)

Vehicles

#	Type	Capacity
21	vans	
2	large bus	35

Special Features: 0

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: –

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: T.J. Ross
City of Phoenix
251 W. Wash. St.
Phoenix, Ariz. 85003

SYSTEM SUMMARY SHEETS

References Used: Maricopa Association of Governments, Existing Specialized Transit in the Phoenix Metro. Area, July 1977. Data year: FY 77.

System Name: DIAL-A-RIDE

System No. 84

Location: Montebello, California

Organization: Operator: Montebello Muni. Transit

Project History:

Institutional Issues:

Area Description

Population: 47,200

Service Area Pop.

Target Group Pop. 4248

Service Area Size: 8.2 sq.mi.

Number of Zones:

Pop. Density of Service Area 5756/sq. mi

Eligible Pop. Density 518/sq. mi

Service Area Type: entire city

Eligible Ridership: Elderly (92% of riders)

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/off peak

Fares: Regular 75¢

Special 35¢ E&H
50¢ children

Vehicles in Service: 1

Peak: Off-Peak:

Hours of Service:
mon-Fri 9am-5pm

Annual Fleet Service Miles: 21,600 est.

Annual Fleet Service Hours:

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 43 Peak:

Annual Ridership: 11,180 est.

Person-Trips/1000 Residents: .9

Person-Trips/1000 Eligible Pop. 10.0

Person-Trips/Square Mile: 5.2

Person-Trips/Square Mile/Hour: .7

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time:

Vehicles

#	Type	Capacity
1	large bus	35

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request): 15 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile: .52

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact:

References Used: system documentation from: So. Calif. Ass'n of Gov'ts (SCAG) statistics and Calif. DOT, Transguide, SOA 2.63.
Data year: ?1976

SYSTEM SUMMARY SHEETS

System Name: Special Transit Service

System No. 85

Location: Riverside, California

Organization: Sponsor & operator } City of Riverside

Project History:

Institutional Issues:

Area Description

Population: 158,000

Service Area Pop.

Target Group Pop. ?

Service Area Size: 80 sq.mi.

Number of Zones:

Pop. Density of Service Area 1975/sq. mi

Eligible Pop. Density /sq. mi

Service Area Type:

Eligible Ridership: E & H

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/ off peak

Fares: Regular free

Special

Vehicles in Service: 5

Peak: Off-Peak:

Hours of Service: Mon-Fri - 8am - 5pm
Sat - Sun - 8am - 3pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees:•

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 175 est. Peak:

Annual Ridership: 52,800 est.

Person-Trips/1000 Residents: 1.1

Person-Trips/1000 Eligible Pop.

Person-Trips/Square Mile: 2.2

Person-Trips/Square Mile/Hour: .2

Trip Length:•

Access

User: Phone

Pick-up Points:

Access Time: Adv. reserv. (14 hrs) subscription

Vehicles

#	Type	Capacity
5	small bus	

Special Features: 1 with lift

Communication/Dispatching

Mobile Communications:

Control Center: radio dispatch.

Computer:

Labor•

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)•

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from: Calif. DOT, Transguide, SOA 2.79

Data Year: 1976

System Name: Dial-A-Ride

System No. 86

Location: San Diego, California

Organization: Sponsor: City of San Diego & Operator

Project History: City consolidated three systems: model cities, Linda Vista Dial-A-Bus, and Senior Citizens Mobility Project in Sept. 1974.

Institutional Issues: no problems

Area Description

Population: 855,000

Service Area Pop.

Target Group Pop. 101,000

Service Area Size: 106 sq.mi.

Number of Zones:

Pop. Density of Service Area 8066/sq. mi

Eligible Pop. Density 953/sq. mi

Service Area Type: section of city

Eligible Ridership: E & H only

Integrated with Fixed-Route System: no

Supply

Service Type: m to O: m to m: peak/off peak

Fares: Regular 25¢

Special 10¢ with SDTC monthly pass

Vehicles in Service: 18

Peak: 18 Off-Peak:

Hours of Service: mon.-Fri.: 8am-6pm

Annual Fleet Service Miles: 625,000

Annual Fleet Service Hours: 34,560

Number of Employees: 30.5

Drivers: 21 Control Room: 4

Maintenance: 0

Demand

Weekday Ridership 600 Peak:

Annual Ridership: 140,000

Person-Trips/1000 Residents: .7

Person-Trips/1000 Eligible Pop. 5.9

Person-Trips/Square Mile: 5.7

Person-Trips/Square Mile/Hour: .6

Trip Length: 4.6 miles

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Immed. service, adv. reserv. (24hrs), subscription

Vehicles

#	Type	Capacity
12	small bus	19
9	van	11

Special Features: 3 with lifts

Communication/Dispatching

Mobile Communications: telephone 2-way radio

Control Center: manual dispatching

Computer:

Labor

Union ☐ Non-Union ☑ 8 Volunteer ☐

Part-time ☑ 3 Other Indep. union-10

Service Levels (average time)

Ride Time: 12 min Promised Wait Time: 20 min.

Actual Wait Time (immediate request): 30 min.

Pick-Up Deviation (advanced request):

Transfer Time: no info.

Productivity

Passengers/Vehicle-Hour: 4.0

Passengers/Vehicle-Mile: .22

Economics

Cost/Passenger Trip: $3.58

Revenue/Passenger Trip: $.22

Cost/Vehicle-Hour: $14.50

Drivers' Salary: $4.40/hour 19% fringe benefits

System Contact: J.F. Riley
City of San Diego
Special Transp. Div.
1970 B Street
San Diego, Calif. 92102

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by City of San Diego.
Data year: 7-76 to 7-77.

System Name: Rural Bus System

System No. 87

Location: So. East San Diego County, California

Organization: Authority, Planner & Operator: Dept. of Transportation, County of San Diego

Project History: County took over operation of S.E. Senior Citizen Mobility Project in Jan. 1976. System provides "lifeline" function for rural residents. System is fixed-route service with demand-responsive option, requiring 24 hr. notice.

Institutional Issues: Insurance problem solved "by insuring these vehicles within larger policy covering all county vehicles. For small agencies, this solution may not be available.

Area Description

County Population: 1,559,505

Service Area Pop.: 22,000

Target Group Pop.: 22,000

Service Area Size: 800 sq.mi.

Number of Zones:

Pop. Density of Service Area: 28/sq. mi

Eligible Pop. Density 28/sq. mi

Service Area Type: rural section of county

Eligible Ridership: transit dependent; available to all

Integrated with Fixed-Route System: •local fixed-route bus •intercity bus

Supply

Service Type: Deviation from route: off peak

Fares: Regular $1.25 outer 1/3 service area

~~Special~~ $1.00 middle 1/3 service area

$.75 inner 1/3 service area

Vehicles in Service: 2

Peak: – Off-Peak: 2

Hours of Service: 4 route schemes approx. hrs covered: Mon-Fri, 8-11am 2:30-5:30pm

Annual Fleet Service Miles: 73,080

Annual Fleet Service Hours: 4,130

Number of Employees: 3

Drivers: 2 Control Room: 1

Maintenance:

Demand

Weekday Ridership: 20 (average 2 demand responsive trips) Peak:

Annual Ridership: 5100 (510 est. demand-resp.)

Person-Trips/1000 Residents: .9

Person-Trips/1000 Eligible Pop. .9

Person-Trips/Square Mile: .03

Person-Trips/Square Mile/Hour: .01

Trip Length: 30 miles

Access

User: Phone, hail

Pick-up Points: House, hail, designated points

Access Time: Immediate, advance reserv. (24 hrs.)

Vehicles

#	Type	Capacity
2	van	14

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: no computer

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 2.5 hrs Promised Wait Time: N/A

Actual Wait Time (immediate request): N/A

Pick-Up Deviation (advanced request): N/A

Transfer Time: 10 min.

Productivity

Passengers/Vehicle-Hour: 1.2

Passengers/Vehicle-Mile: .07

Economics

Cost/Passenger Trip: $10.72

Revenue/Passenger Trip: $1.00

Cost/Vehicle-Hour: $13.24

Drivers' Salary: $ /hour

System Contact: W.A. Hoeben
County of San Diego
Bldg. 2 - 5555 Overland Ave.
San Diego, Calif. 92123

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by County of San Diego
Data year: 1977

System Name: Dial-A-Ride

System No. 88

Location: West Hartford, Conn.

Organization: Sponsor: Town of West Hartford; Planner: Dept. of Social Services (Town); Operator: Dept. of Social Services

Project History: most trips to downtown Hartford are medical trips with no available tie in to public transit...

Institutional Issues:

Area Description

Population: 68031

Service Area Pop. 68,031

Target Group Pop. 16,000

Service Area Size: 240 sq.mi.

Number of Zones:

Pop. Density of Service Area: 283/sq. mi

Eligible Pop. Density 67/sq. mi

Service Area Type: entire city

Eligible Ridership: elderly

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/off peak

Fares: Regular

Special contributions: 25¢

Vehicles in Service: 2

Peak: 2 Off-Peak: 2

Hours of Service: mon - Fri. - 8:30am - 4:30pm

Annual Fleet Service Miles:

Annual Fleet Service Hours: 1,750

Number of Employees: 2

Drivers: 2 Control Room:

Maintenance:

Demand

Weekday Ridership: 40 est. Peak:

Annual Ridership: 10,000

Person-Trips/1000 Residents: .59

Person-Trips/1000 Eligible Pop. 2.5

Person-Trips/Square Mile: .2

Person-Trips/Square Mile/Hour: .02

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time: advance reservation (48 hrs.)

Vehicles

#	Type	Capacity
1	van	10
1	auto	6

Special Features: –

Communication/Dispatching

Mobile Communications:

Control Center: telephone

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 20 min Promised Wait Time: 15 min.

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request): 10 min.

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 5.7

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $____/hour

System Contact: Banita Burstein
West Hartford Social Services
50 South Main
West Hartford, Conn.
06107

References Used: system documentation supplied by Town of West Hartford.
Data year: 1977

SYSTEM SUMMARY SHEETS

System Name: DAST

System No. 89

Location: State of Delaware

Organization: Sponsor: State Dept. of Highways & Transportation; Operator: DAST (Delaware Authority for Spec. Transp.)

Project History: Provide specialized transportation services state-wide.

Institutional Issues: Legal & labor problems: enabling legislation forbids direct requests from clients - requests from agencies only. Labor question arose when DAST (non-union) proposed & ATU DART system existed in service area.

Area Description

Population: 574,692

Service Area Pop.: 574,692

Target Group Pop.: ?

Service Area Size: 2057 sq.mi.

Number of Zones:

Pop. Density of Service Area: 279/sq. mi

Eligible Pop. Density ____/sq. mi

Service Area Type: entire state

Eligible Ridership: elderly, handicapped, low income, mobility limited

Integrated with Fixed-Route System: taxis

Supply

Service Type: m to m: peak/off peak

Fares: Regular ____

Special ____

Vehicles in Service: 38

Peak: ____ Off-Peak: ____

Hours of Service: Mon - Fri 6am - 6pm

Annual Fleet Service Miles: 800,496

Annual Fleet Service Hours: 62,400

Number of Employees: 34.5

Drivers: 28.5 Control Room: 6

Maintenance: –

Demand

Weekday Ridership: 640 est. Peak: ____

Annual Ridership: 167,000

Person-Trips/1000 Residents: 1.11

Person-Trips/1000 Eligible Pop. —

Person-Trips/Square Mile: .3

Person-Trips/Square Mile/Hour: .03

Trip Length: 5 miles

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Immed., advance reserv. (24 hr.), subscrip.

Vehicles

#	Type	Capacity

Special Features: 5 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☒ Volunteer ☐

Part-time ☒ Other ____

Service Levels (average time)

Ride Time: ____ Promised Wait Time: ____

Actual Wait Time (immediate request): ____

Pick-Up Deviation (advanced request): ____

Transfer Time: ____

Productivity

Passengers/Vehicle-Hour: 2.7

Passengers/Vehicle-Mile: .21

Economics

Cost/Passenger Trip: 2.99

Revenue/Passenger Trip: ____

Cost/Vehicle-Hour: 8.00

Drivers' Salary: $4.50/hour

System Contact: ____

SYSTEM SUMMARY SHEETS

References Used: Crain and Associates, Transportation Solutions for Handicapped, Vol. 4, 8-76. Poulitz, "Overcoming Institutional Barriers," Paratransit 1976
Data year: 1976

System Name: Senior Surrey

System No. 90

Location: Dover, Delaware

Organization: Sponsor & Authority: City of Dover; Planner & Consultant: DAVE Systems; operator: City of Dover

Project History: No other transportation in Dover "so the elderly & handicapped had to rely on taxis & friends..."

Institutional Issues: no problems

Area Description

Population: 27,268

Service Area Pop. 27,268

Target Group Pop. 3,000

Service Area Size: 23 sq.mi.

Number of Zones:

Pop. Density of Service Area: 1186/sq. mi

Eligible Pop. Density 130/sq. mi

Service Area Type: entire city

Eligible Ridership: elderly & handicapped

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/off peak

Fares: Regular Free

Special

Vehicles in Service: 5

Peak: 5 Off-Peak: 3

Hours of Service: mon - Fri 7 am - 6 pm

Annual Fleet Service Miles: 59,000

Annual Fleet Service Hours:

Number of Employees: 10

Drivers: 6 Control Room: 3

Maintenance: Superuisor 1

Demand

Weekday Ridership 235 est. Peak:

Annual Ridership: 61,000

Person-Trips/1000 Residents: 8.6

Person-Trips/1000 Eligible Pop. 78

Person-Trips/Square Mile: 10.2

Person-Trips/Square Mile/Hour: .9

Trip Length: 1.7 miles

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Immed., advance reserv.; subscrip.

Vehicles

#	Type	Capacity
	van	

Special Features: 1 with lift & ramp

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: no computer

Computer:

Labor

Union ☐ Non-Union ☒ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 14.8 min Promised Wait Time: 37.9 min.

Actual Wait Time (immediate request): 35 min.

Pick-Up Deviation (advanced request): 5 min.

Transfer Time: N/A

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile: 1.03

Economics

Cost/Passenger Trip: 1.36

Revenue/Passenger Trip: —

Cost/Vehicle-Hour:

Drivers' Salary: $3.20/hour 29% fringe benefits

System Contact: Fran Hettinger
Dover Senior Surrey
P.O. Box 475
Dover, Delaware

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by City of Dover. Data year: 1976

System Name: DART

System No. 91

Location: St. Petersburg, Florida

Organization: Sponsor: City of St. Petersburg; Authority: St. Petersburg Municipal Transit; Operator: DART (city)

Project History: service initiated in 1973; in Nov. 1975 the territory was expanded with a resulting increase in service.

Institutional Issues:

Area Description

Population: 265,000

Service Area Pop. 265,000

Target Group Pop. 30,000

Service Area Size: 60 sq.mi.

Number of Zones: —

Pop. Density of Service Area 4417/sq. mi

Eligible Pop. Density 500/sq. mi

Service Area Type: entire city

Eligible Ridership: handicapped

Integrated with Fixed-Route System: no

Supply

Service Type: M to O: peak; M to F & M to M: off peak

Fares: Regular $1.00

Special

Vehicles in Service: 6

Peak: Off-Peak:

Hours of Service: Mon-Fri 7:30am-6:00pm; Sun. 8:00am-2:00pm

Annual Fleet Service Miles: 187,000

Annual Fleet Service Hours: 12,000

Number of Employees: 10

Drivers: 8 Control Room: 2

Maintenance: —

Demand

Weekday Ridership 250 Peak:

Annual Ridership: 60,000

Person-Trips/1000 Residents: .9

Person-Trips/1000 Eligible Pop. 8.3

Person-Trips/Square Mile: 4.2

Person-Trips/Square Mile/Hour: .4

Trip Length:

Access

User: Phone

Pick-up Points: designated points

Access Time: Immed., adv. reserv. (24 hrs.), subscrip.

Vehicles

#	Type	Capacity
8	van	13

Special Features: 6 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: no computer

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other IBFO

Service Levels (average time)

Ride Time: 20 min Promised Wait Time: 20 min.

Actual Wait Time (immediate request): —

Pick-Up Deviation (advanced request): —

Transfer Time: —

Productivity

Passengers/Vehicle-Hour: 5.0

Passengers/Vehicle-Mile: .32

Economics

Cost/Passenger Trip: 4.05

Revenue/Passenger Trip: $1.00

Cost/Vehicle-Hour: 20.26

Drivers' Salary: $____/hour

System Contact: Derek Spain
St. Petersburg Municipal Transit System
P.O. Box 2842
St. Petersburg, Fla. 33731

References Used: system documentation supplied by City of St. Petersburg
Data year: 10-76 to 9-77.

SYSTEM SUMMARY SHEETS

System Name: MOSCH Special Transportation Service

System No. 92

Location: Chicago, Illinois

Organization: Sponsor: City of Chicago; Operator: Cook DuPage Trans. Inc.

Project History:

Institutional Issues: severe problems with funding and permit/licensing. Conflict with taxi franchise.

Area Description

Population: 3,367,000

Service Area Pop.:

Target Group Pop.: ?

Service Area Size: 250 est. sq.mi.

Number of Zones:

Pop. Density of Service Area: ____/sq. mi

Eligible Pop. Density ____/sq. mi

Service Area Type: entire city

Eligible Ridership: E & H

Integrated with Fixed-Route System: no

Supply

Service Type: M to M: peak; M to F: off peak

Fares: Regular 1.00 for handicapped only (reduced from 1.50. 1st 9 mos.)

Special

Vehicles in Service: 4

Peak: ____ Off-Peak: ____

Hours of Service: mon-Fri 6am-8pm

Annual Fleet Service Miles: 109,800 est.

Annual Fleet Service Hours: not avail.

Number of Employees:

Drivers: ____ Control Room: ____

Maintenance: ____

Demand

Weekday Ridership: 43 Peak: ____

Annual Ridership: 10,753

Person-Trips/1000 Residents: .01

Person-Trips/1000 Eligible Pop.:

Person-Trips/Square Mile: .2

Person-Trips/Square Mile/Hour: .01

Trip Length: 8.3 miles

Access

User: Phone

Pick-up Points: House

Access Time: Adv. reservation (24-48 hrs)

Vehicles

#	Type	Capacity
4	van	3+4 wheelchrs

Special Features: 4 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: computer: management info.

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 39 min. Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile: .10

Economics

Cost/Passenger Trip: $6.75

Revenue/Passenger Trip: $1.20

Cost/Vehicle-Hour:

Drivers' Salary: $____/hour

System Contact: George Ducas
Mayor's Off. for Sr. Cit. & Handi.
180 No. La Salle St.
Chicago, Ill. 60601

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by mayor's office for senior citizens & handicapped (MOSCH)

Data year: 7-76 to 6-77

System Name: The LIFT

System No. 93

Location: Topeka, Kansas

Organization: Sponsor: City of Topeka
Authority & Operator: Topeka Metro. Transit Auth.

Project History: After service initiation in 7-76, an additional bus was put in service in 10-76.

Institutional Issues: minor labor contract and funding problems. "Realistically" funded at present time.

Area Description

Population: 130,000

Service Area Pop.

Target Group Pop. not available

Service Area Size: 170 sq.mi.

Number of Zones:

Pop. Density of Service Area: 765/sq. mi

Eligible Pop. Density ____/sq. mi

Service Area Type: urbanized area including city & rural

Eligible Ridership: Priority to E & H

Integrated with Fixed-Route System: no

Supply

Service Type: M to O, M to F, Deviation from route: Peak; M to M: off peak

Fares: Regular 1.00

Special none

Vehicles in Service: 2

Peak: ____ Off-Peak: ____

Hours of Service: mon.-Fri. 6:30am to 6:30pm

Annual Fleet Service Miles: 74,115

Annual Fleet Service Hours: 5,286

Number of Employees: 5.5

Drivers: 3 Control Room: 2

Maintenance: .5

Demand

Weekday Ridership: 80 Peak: 50

Annual Ridership: 20,800 est.

Person-Trips/1000 Residents: .6

Person-Trips/1000 Eligible Pop. ____

Person-Trips/Square Mile: .5

Person-Trips/Square Mile/Hour: .04

Trip Length: 3 miles

Access

User: Phone

Pick-up Points: House

Access Time: Adv. reserv. (24 hrs), subscription

Vehicles

#	Type	Capacity
3	small bus	13+4 wheelchrs

Special Features: 3 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer: no computer

Labor

Union ☑ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 20 min. Promised Wait Time: 20 min.

Actual Wait Time (immediate request): 20 min.

Pick-Up Deviation (advanced request):

Transfer Time: none

Productivity

Passengers/Vehicle-Hour: 3.9

Passengers/Vehicle-Mile: .28

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $1.00

Cost/Vehicle-Hour:

Drivers' Salary: $____/hour

System Contact: Jack Malone
Topeka Metro. Transit Auth.
201 N. Kansas
Topeka, Kansas 66603

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by Topeka Metro. Transit Authority
Data year: 6-76 to 6-77

System Name: STS (Special Transportation Service)

System No. 94

Location: Baton Rouge, Louisiana

Organization: Authority & Operator: Capitol Transportation Corp.

Project History: Initiated in Sept. 1974; trip destinations expanded and a 5th vehicle added in Oct-Nov 1974; discontinued due to drivers strike in Dec 1975; and, renewed under HEW Title XX Grant in Jan. 1976.

Institutional Issues:

Area Description

Population: 248,000

Service Area Pop. 248,000

Target Group Pop. 18,300

Service Area Size: 88 sq.mi.

Number of Zones: 5

Pop. Density of Service Area: 2818/sq. mi

Eligible Pop. Density 208/sq. mi

Service Area Type: entire city

Eligible Ridership: elderly & handicapped

Integrated with Fixed-Route System: no

Supply

Service Type: M to F: peak/off peak

Fares: Regular Free

Special

Vehicles in Service: 5

Peak: Off-Peak:

Hours of Service:
Mon - Fri: 7:30 am - 5:30 pm

Annual Fleet Service Miles: 263,220

Annual Fleet Service Hours: 10,860

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 132 Peak:

Annual Ridership: 33,157

Person-Trips/1000 Residents: .5

Person-Trips/1000 Eligible Pop. 7.2

Person-Trips/Square Mile: 1.5

Person-Trips/Square Mile/Hour: .15

Trip Length: 3.7 miles

Access

User: Phone

Pick-up Points: House

Access Time: Advance reserv. (24 hrs.)

Vehicles

#	Type	Capacity
6	van	12

Special Features: 2 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: magnetic map

Computer:

Labor

Union ☒ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 3.0

Passengers/Vehicle-Mile: .13

Economics

Cost/Passenger Trip: 3.51

Revenue/Passenger Trip: -

Cost/Vehicle-Hour: 10.72

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: UMTA, Services & Methods Demonstrations, Annual Report, April 1977; Evaluation Report, Nov. 1976.
Data year: 9/74 to 8/75.

System Name:

Location: Sanford, Maine

Organization: Authority, Planner & Operator: York County Community Action Corp.

Project History:

Institutional Issues: severe funding problem due to uncertainty year to year. Minor problems with insurance and community response

System No. 95

Area Description

Population: 140,000

Service Area Pop.

Target Group Pop.

Service Area Size: 1,000 sq.mi.

Number of Zones:

Pop. Density of Service Area: 140/sq. mi

Eligible Pop. Density ___/sq. mi

Service Area Type: rural county

Eligible Ridership: E & H, low income

Integrated with Fixed-Route System:

Supply

Service Type: m to 0: peak

Fares: Regular free

Special

Vehicles in Service: 13

Peak: Off-Peak:

Hours of Service: mon.-Fri. 6:30am-5pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees:

Drivers: 13 Control Room: 2

Maintenance: 1

Demand

Weekday Ridership: 60 Peak:

Annual Ridership: 15,000

Person-Trips/1000 Residents: .4

Person-Trips/1000 Eligible Pop.

Person-Trips/Square Mile: .1

Person-Trips/Square Mile/Hour: .006

Trip Length: 40 miles

Access

User: Phone

Pick-up Points: House

Access Time: Advance reserv. (24 hr.)

Vehicles

#	Type	Capacity
10	van	16
3	van	12+2 wheelchrs

Special Features: 3 with lifts & ramps

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 60 min Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $3.25/hour 18% fringe benefits

System Contact: Lucille Simpson
York Co. Community Action Corp.
Box 72
Sanford, maine 04072

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by York Co. Community Action Corp.
Data year: Nov. '76 - Oct. '77

System Name: The Ride

System No. 96

Location: Boston, Massachusetts

Organization: Authority & Planner: MBTA ; Operator: T.H.E.M. Inc.

Project History: Started in April 1977 as a two year demonstration; altered service area in Jan 1978 which improved productivity.

Institutional Issues: minor problems with insurance, funding and community/political response.

Area Description

Population: 641,071

Service Area Pop. 100,000

Target Group Pop. 10,000

Service Area Size: 15 sq.mi.

Number of Zones: 5

Pop. Density of Service Area: 6667/sq. mi

Eligible Pop. Density 667/sq. mi

Service Area Type: section of city

Eligible Ridership: handicapped

Integrated with Fixed-Route System: no

Supply

Service Type: M to M: peak/off peak

Fares: Regular 75¢

Special $3 - agency funded trips

Vehicles in Service: 4

Peak: ______ Off-Peak: ______

Hours of Service: Mon-Thurs 7am-6pm Fri 7am-1am Sat. 10am-1am

Annual Fleet Service Miles: 88,000

Annual Fleet Service Hours: 11,200

Number of Employees:

Drivers: 4 Control Room: 3

Maintenance: –

Demand

Weekday Ridership: 80 Peak: 55

Annual Ridership: 12,000

Person-Trips/1000 Residents: .8

Person-Trips/1000 Eligible Pop. 8

Person-Trips/Square Mile: 5.3

Person-Trips/Square Mile/Hour: .5

Trip Length: 4.0 miles

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Immed., subscrip., adv. reserv. (24 hr.)

Vehicles

#	Type	Capacity
5	van	9

Special Features: 4 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: no computer

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 25 min Promised Wait Time: 10 min.

Actual Wait Time (immediate request): 30 min.

Pick-Up Deviation (advanced request): 5 min.

Transfer Time: N/A

Productivity

Passengers/Vehicle-Hour: 4.3

Passengers/Vehicle-Mile: .55

Economics

Cost/Passenger Trip: 8.75

Revenue/Passenger Trip: $ .95

Cost/Vehicle-Hour: 9.38

Drivers' Salary: $4.00/hour 15% fringe benefits

System Contact: A. J. Kinahan
Mass. Bay Trans. Auth.
- Special Needs
45 High Street
Boston, Mass 02110

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by MBTA
Data year: 1977?

System Name: SMITS - special mobility impaired transit service

System No. 97

Location: Central Massachusetts

Organization: Sponsor: Worcester Council on Aging; Authority: Worcester Regional Transit Auth.; Planner: Central Mass. Reg'l Plan. Commission; Operators: Handicapped Transp. & Jewish Service Ctr for Older Adults

Project History:

Institutional Issues: minor funding problem

Area Description

Population: 292,748

Service Area Pop.:

Target Group Pop.: 13,000

Service Area Size: 298.6 sq.mi.

Number of Zones:

Pop. Density of Service Area: 980/sq. mi

Eligible Pop. Density 44/sq. mi

Service Area Type: 13 cities & towns

Eligible Ridership: Handicapped

Integrated with Fixed-Route System: no

Supply

Service Type: M to M: peak/off peak

Fares: Regular 1⁰⁰ peak hour

Special 50¢ off peak free - elderly

Vehicles in Service: 3

Peak: Off-Peak:

Hours of Service: Mon.-Fri. 6am-6pm subscription 6-9am; 3-6pm

Annual Fleet Service Miles:

Annual Fleet Service Hours: 9,156

Number of Employees:

Drivers: 6 Control Room: 4

Maintenance:

Demand

Weekday Ridership: 80 est. Peak:

Annual Ridership: 19,176

Person-Trips/1000 Residents: .3

Person-Trips/1000 Eligible Pop. 6

Person-Trips/Square Mile: .3

Person-Trips/Square Mile/Hour: .02

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time: Adv. reserv. (72 hrs) subscription

Vehicles

#	Type	Capacity
2	van	5+2 wheelchr.
1	van	4+3 wheelchr.

Special Features: 3 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer: no computer

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☑ Other

Service Levels (average time).

Ride Time: 15 min. Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request): 5 min.

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 2.1

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $____/hour

System Contact: Janet Kraus
Central Mass. Reg'l Plan. Com.
71 Elm St.
Worcester, Mass. 01609

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by Central Mass Regional Planning Commission

Data year: 7-76 to 7-77

System Name: Westford Senior Bus

System No. 98

Location: Westford, Massachusetts

Organization: Authority: Lowell Regional Transit Authority, operator: Leasing Systems Development Corp.

Project History: Started in July 1976 and replaced the existing service.

Institutional Issues: Problem with community response: town composed of small villages with different objectives. Need strong input from local organizations & groups.

Area Description

Population: 13,200

Service Area Pop.:

Target Group Pop.: 2,000

Service Area Size: ___ sq.mi.

Number of Zones: –

Pop. Density of Service Area: ___/sq. mi

Eligible Pop. Density ___/sq. mi

Service Area Type: suburban area

Eligible Ridership: elderly & handicapped

Integrated with Fixed-Route System: no

Supply

Service Type: m to O
m to F: peak/off peak
m to m & route deviation : off peak

Fares: Regular 30¢ in town

Special 15¢ out of town

Vehicles in Service: 1-3

Peak: 1-3 Off-Peak: 1

Hours of Service: Mon-Thurs 9am-4pm
Fri: nutrition only
Sun: church only

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees: 3

Drivers: 1 Control Room: 1

Maintenance: 1

Demand

Weekday Ridership: 8.6 Peak:

Annual Ridership: 2,000

Person-Trips/1000 Residents: .6

Person-Trips/1000 Eligible Pop. 4.3

Person-Trips/Square Mile:

Person-Trips/Square Mile/Hour:

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time: Immed., subscrip., adv. reserv. (24 hrs)

Vehicles

#	Type	Capacity
	van	10-12
	small bus	16-25

Special Features: none

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: no computer

Computer:

Labor

Union ☐ Non-Union ☒ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: ___ Promised Wait Time: 10 min.

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip: 9.80

Revenue/Passenger Trip: $.23

Cost/Vehicle-Hour:

Drivers' Salary: $3.70/hour 11% fringe benefits

System Contact: Joe Potzka
Lowell Regional Transit Auth.
10 Kearney Square
Lowell, Mass. 01852

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by Lowell Regional Transit Authority, Data year: 7-76 to 7-77.

System Name: Elder Shopper Special

System No. 99

Location: Worcester, Massachusetts

Organization: Sponsor: Worcester Council on Aging; Authority: Worcester Regional Transit Auth.; Planner: Central Mass. Regional Plan. Commission; operator: Worcester Bus Co.

Project History:

Institutional Issues: severe labor problems: strained labor relations as union drivers insist on having escorts on board to assist passengers; recently refused overtime hours and a few trips had to be curtailed.

Area Description

Population: 176,572

Service Area Pop.:

Target Group Pop.: 35,067

Service Area Size: 38.5 sq.mi.

Number of Zones: 5

Pop. Density of Service Area: 4586/sq. mi

Eligible Pop. Density 911/sq. mi

Service Area Type: entire city

Eligible Ridership: Elderly

Integrated with Fixed-Route System: no

Supply

Service Type: M to O: off peak

Fares: Regular Free

Special

Vehicles in Service: 5

Peak: Off-Peak:

Hours of Service: mon.-Fri. 9am-4pm

Annual Fleet Service Miles: 36,455

Annual Fleet Service Hours: 3,705

Number of Employees:

Drivers: 5 Control Room: 6*

Maintenance: __ *3 escorts

Demand

Weekday Ridership: 250 est. Peak:

Annual Ridership: 60,052

Person-Trips/1000 Residents: 1.4

Person-Trips/1000 Eligible Pop. 1.1

Person-Trips/Square Mile: 6.5

Person-Trips/Square Mile/Hour: .9

Trip Length:

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Adv. reservation, subscription

Vehicles

#	Type	Capacity
5	small bus	21

Special Features:

Communication/Dispatching

Mobile Communications: none

Control Center:

Computer: no computer

Labor

Union ☑ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 15 min. Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request): 5 min.

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 16.2

Passengers/Vehicle-Mile: 1.65

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $____/hour

System Contact: Janet Kraus
Central Mass Reg'l Plan. Com.
71 Elm St
Worcester, Mass. 01609

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by Central Mass. Regional Planning Commission. Data year: 7-76 to 6-77

System Name: Go Bus

System No. 100

Location: Grand Rapids, Michigan

Organization: Operator: Grand Rapids Area Transit Authority

Project History: Authority in process of co-ordinating all area agency special transportation programs, including public schools, with grant received from H.E.W.

Institutional Issues: minor problems with insurance, labor workrules, community & political response

Area Description

Population: 350,000

Service Area Pop.:

Target Group Pop.: (not given)

Service Area Size: 125 sq.mi.

Number of Zones:

Pop. Density of Service Area: 2800/sq. mi

Eligible Pop. Density ____/sq. mi

Service Area Type: 6 cities & part of county

Eligible Ridership: E & H - agency clients only

Integrated with Fixed-Route System:

Supply

Service Type: m to O, m to Few, m to M: peak/off peak

Fares: Regular 60¢

Special 50¢ - 10 rides. 25¢ - group rides 10 or more

Vehicles in Service: 9

Peak: 9 Off-Peak: 6-7

Hours of Service: Mon.-Fri. 6am-6pm; Sat. 8am-6pm

Annual Fleet Service Miles: 200,000

Annual Fleet Service Hours: 14,000

Number of Employees: 9

Drivers: 7 Control Room: 2

Maintenance: 1.5

Demand

Weekday Ridership: 275 Peak:

Annual Ridership: 45,000

Person-Trips/1000 Residents: .8

Person-Trips/1000 Eligible Pop.:

Person-Trips/Square Mile: 2.2

Person-Trips/Square Mile/Hour: .2

Trip Length: 4.4 miles

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Advance reserv. (24 hrs) subscription

Vehicles

#	Type	Capacity
2	van	8
3	small bus	14
6	small bus	21

Special Features: 5 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer: no computer

Labor

Union ☒ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 22.5 min Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time: N/A

Productivity

Passengers/Vehicle-Hour: 3.2

Passengers/Vehicle-Mile: .22

Economics

Cost/Passenger Trip: $4.34

Revenue/Passenger Trip: $.44

Cost/Vehicle-Hour: $13.96

Drivers' Salary: $5.50/hour 25% fringe benefits

System Contact: David Needham, Grand Rapids Area Transit Auth., 1151 Sheldon SE, Grand Rapids, Mich. 49507

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by Grand Rapids Area Transit Auth. Data year: 77-78

System Name: OATS, Inc.

System No. 101

Location: Missouri (Columbia, Headquarters)

Organization: Sponsor: OATS, Inc.

Project History: Started in Fall of 1971; "has survived many storms since 1971" and expanded to cover 89 counties in the state. "unusual concept of citizen involvement in management."

Institutional Issues: Problems with insurance and funding. Insurance: "very costly, too few bidders Funding: needs outstrip available funds, lack of funding continuity & lack of funding certainty."

Area Description

Population: 4,676,501

Service Area Pop.:

Target Group Pop.: 220,000

Service Area Size: 68,995 sq.mi.

Number of Zones:

Pop. Density of Service Area: 68 /sq. mi

Eligible Pop. Density 3.2 /sq. mi

Service Area Type: 89 counties

Eligible Ridership: elderly & handicapped

Integrated with Fixed-Route System:

Supply

Service Type: M to O, M to F, M to M, Deviation from route

Fares: Regular

Special

Vehicles in Service: 116

Peak: Off-Peak:

Hours of Service: mon-FRI 7am-7pm sun - as requested

Annual Fleet Service Miles: 3,480,000

Annual Fleet Service Hours: 278,400

Number of Employees: 181

Drivers: 152 Control Room: 28 Ops-Adm.

Maintenance: 1

Demand

Weekday Ridership: 1100 Peak:

Annual Ridership: 280,000

Person-Trips/1000 Residents: .2

Person-Trips/1000 Eligible Pop. 5.0

Person-Trips/Square Mile: .02

Person-Trips/Square Mile/Hour: negligible

Trip Length: 8 miles

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Adv. reserv. (24hrs-2wks) subscription

Vehicles

#	Type	Capacity
	van	15
	small bus	36
	large bus	54

Special Features:

Communication/Dispatching

Mobile Communications: one-way paging device; 2-way radio

Control Center: maps

Computer: billing; mailing list

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☑ Other

Service Levels (average time)

Ride Time: N/A Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 1.01

Passengers/Vehicle-Mile: .08

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $3.00 /hour 9% fringe benefits

System Contact: Peter M. Schauer
OATS, Inc.
601 Bus Loop 70 W
Parkade Plaza
Columbia, Missouri

References Used: system documentation supplied by OATS, Inc.
Data year: 1977-78.

SYSTEM SUMMARY SHEETS

System Name: LTS Handi-Bus

System No. 102

Location: Lincoln, Nebraska

Organization: Sponsor: Lincoln Commission on Aging
Authority & Operator: Lincoln Transp. Service (city-owned)

Project History:

Institutional Issues:

Area Description

Population: 186,800

Service Area Pop.:

Target Group Pop. 11,380

Service Area Size: 51 sq.mi.

Number of Zones:

Pop. Density of Service Area: 3663/sq. mi

Eligible Pop. Density 223/sq. mi

Service Area Type: city & county

Eligible Ridership: elderly & handicapped

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/ off peak

Fares: Regular 30¢

Special

Vehicles in Service:

Peak: Off-Peak:

Hours of Service:
7 days/week

Annual Fleet Service Miles: 204,450

Annual Fleet Service Hours: 15,000

Number of Employees:

Drivers: Control Room: 1

Maintenance:

Demand

Weekday Ridership: 150 est. Peak:

Annual Ridership: 39,700

Person-Trips/1000 Residents: .80

Person-Trips/1000 Eligible Pop. 13.2

Person-Trips/Square Mile: 2.9

Person-Trips/Square Mile/Hour:

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time: Advance reserv. (24 hrs.)

Vehicles

#	Type	Capacity
1	small bus	20
2	van	11
4	van	6-9

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 2.6

Passengers/Vehicle-Mile: .19

Economics

Cost/Passenger Trip: $5.41

Revenue/Passenger Trip: $.31 ?

Cost/Vehicle-Hour: $14.31

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: Wilbur Smith & Assoc., County-wide Transit Dependent study, 10-77.
Data year: 1976

System Name: Senior Handibus

System No. 103

Location: Western Nebraska

Organization: Sponsor: Six Neb. cities; Authority: Neb. Dept. of Roads; Planner & Operator: Community for Senior Handibus Committee

Project History:

Institutional Issues: Insurance and political response problems: high cost of insurance; local village councils funding service as county refuses to.

Area Description

Population: 6000

Service Area Pop.:

Target Group Pop.:

Service Area Size: 800 sq.mi.

Number of Zones:

Pop. Density of Service Area: 8 /sq. mi

Eligible Pop. Density: /sq. mi

Service Area Type: County

Eligible Ridership: E & H, low income

Integrated with Fixed-Route System:

Supply

Service Type: M to O, M to F, M to M, Deviation from Route: off peak

Fares: Regular 2^{50} to Lincoln, 2^{00} to Beatrice, Fairburg
~~Special~~ 1^{00} in county

Vehicles in Service: 1

Peak: Off-Peak: 1

Hours of Service: Mon. - Fri. 8am - 6pm

Annual Fleet Service Miles: 23,956

Annual Fleet Service Hours: 1,250

Number of Employees: 3

Drivers: 1 Control Room: 2

Maintenance:

Demand

Weekday Ridership: 7 Peak:

Annual Ridership: 1500

Person-Trips/1000 Residents: 1.2

Person-Trips/1000 Eligible Pop.:

Person-Trips/Square Mile: .01

Person-Trips/Square Mile/Hour: .001

Trip Length: 150 miles

Access

User: Phone

Pick-up Points: House, designated Points

Access Time: Adv. reserv. (1 hr.)

Vehicles

#	Type	Capacity
1	van	15

Special Features:

Communication/Dispatching

Mobile Communications: telephone

Control Center:

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 1.5 hrs. Promised Wait Time: 30 min.

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request): 10 min.

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 1.2

Passengers/Vehicle-Mile: .06

Economics

Cost/Passenger Trip: $5.77

Revenue/Passenger Trip: $2.10

Cost/Vehicle-Hour: $6.92

Drivers' Salary: $ 3^{00} /hour

System Contact: Marlene Bartels
Senior Handibus
Western, Nebraska
68464

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by Senior Handibus manager. Data year: 7/76 to 6/77.

System Name: Call-A-Bus (demonstration) System No. 104

Location: Syracuse, New York

Organization: Authority: Central New York Regional Transp. Authority; Operator: CNY Centro Inc.

Project History: Demonstration period: Oct. 1973 to Oct 1975. In Dec. 1974, 7-day service restricted to 44-mile area: city of Syracuse + 3 suburbs; other areas of county to have service once a week resulting in expanded capacity by concentrating trips within smaller area. April 1975 added service for handicapped in wheelchairs.

Institutional Issues: minor problems with labor work rules and political response. Private wheelchair taxi co. concerned Call-A-Bus (subsidized) would adversely effect taxi business.

Area Description

Population: 472,835

Service Area Pop.

Target Group Pop. 56,681

Service Area Size: 794 sq.mi.

Number of Zones:

Pop. Density of Service Area: 596/sq. mi

Eligible Pop. Density 71 /sq. mi

Service Area Type: urbanized area, entire county

Eligible Ridership: E & H

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/off peak

Fares: Regular 50¢

Special 60¢-1.00 trips outside city

Vehicles in Service: 5

Peak: Off-Peak:

Hours of Service: mon-Fri. 6am-12pm; sat. 10am-6pm; sun. 8am-4pm

Annual Fleet Service Miles: 175,875

Annual Fleet Service Hours: 17,000

Number of Employees:

Drivers: 7 Control Room: 4

Maintenance:

Demand

Weekday Ridership: 140 est. Peak:

Annual Ridership: 51,048

Person-Trips/1000 Residents: .3

Person-Trips/1000 Eligible Pop. 2.5

Person-Trips/Square Mile: .2

Person-Trips/Square Mile/Hour: .01

Trip Length: 4.3 miles

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Adv. reserv. (48 hrs), subscription

Vehicles

#	Type	Capacity
4	small bus	8+2 wheelchrs
1	small bus	15
1	large bus	13+10 wheelchrs

Special Features: 5 with lifts

Communication/Dispatching

Mobile Communications:

Control Center: manually scheduled

Computer: no computer

Labor

Union ☑ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time).

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 3.0

Passengers/Vehicle-Mile: .29

Economics

Cost/Passenger Trip: $ 3.86

Revenue/Passenger Trip: $ .50

Cost/Vehicle-Hour: $ 11.59

Drivers' Salary: $5.60/hour 30% fringe benefits

System Contact: John Przepiora, Central N.Y. Reg'l Transp. Auth., 508 Midtown Plaza, Syracuse, New York 13120

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by Central N.Y. Regional Transp. Auth. and UMTA/TSC Service and Methods Demo. Program, 4-77.
Data year: 4-76 to 3-77

System Name: West River Transportation Demonstration Program

System No. 105

Location: North Dakota - 6 county area

Organization: Sponsor: No. Dakota Highway Dept.; Planner: W.C. Gilman & Co.; Consultant: Technical Planning Info. Inc.; Operator: West River Transport Council

Project History:

Institutional Issues: severe insurance problem with rates ranging from $600 to over $2000 per year. Average rate is $1200. Some companies "will not accept these power wheelchair lift equipped buses at all."

Area Description

Population: 85,667

Service Area Pop.:

Target Group Pop.: 12,103 (elderly)

Service Area Size: 5,700 est. sq. mi.

Number of Zones:

Pop. Density of Service Area: 15 /sq. mi

Eligible Pop. Density 2 /sq. mi

Service Area Type: rural

Eligible Ridership: elderly, handicapped, transp. deprived

Integrated with Fixed-Route System: no

Supply

Service Type: M to M: peak/off peak

Fares: Regular Free

Special

Vehicles in Service: 8

Peak: - Off-Peak: -

Hours of Service: varies widely

Annual Fleet Service Miles: 52,484

Annual Fleet Service Hours: 5,500

Number of Employees: 9

Drivers: 7 Control Room:

Maintenance:

Demand

Weekday Ridership: 208 est. Peak:

Annual Ridership: 54,000 est.

Person-Trips/1000 Residents: 2.4

Person-Trips/1000 Eligible Pop. 17.2

Person-Trips/Square Mile: .04

Person-Trips/Square Mile/Hour:

Trip Length:

Access

User: Phone, fixed stops

Pick-up Points: House, hail, designated stops

Access Time:

Vehicles

#	Type	Capacity
9	van	12+2 w/chair

Special Features: 8 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time) varies widely

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 9.8

Passengers/Vehicle-Mile: 1.03

Economics

Cost/Passenger Trip: 1.35

Revenue/Passenger Trip: -

Cost/Vehicle-Hour: 13.23

Drivers' Salary: $2.75 /hour 9% fringe benefits

System Contact: David Thompson
Transportation Services
No. Dakota State Highway Dept.
Capital Grounds
Bismarck, No. Dakota 58505

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by No. Dakota Highway Dept.
Data year: 6-77 to 6-78

System Name: Campus Bus Service

System No. 106

Location: Kent, Ohio

Organization: Sponsor: Kent State University
Authority: Portage Area Transit Auth. (PARTA)

Project History:

Institutional Issues: Insurance and funding problems: increase in insurance and company specified operating rules. Minor problems with labor and community response.

Area Description

Population: 25,000

Service Area Pop.

Target Group Pop. 75

Service Area Size: 3 sq.mi.

Number of Zones: 2

Pop. Density of Service Area. ___/sq. mi

Eligible Pop. Density 25/sq. mi

Service Area Type: section of city

Eligible Ridership: Handicapped: wheelchair only

Integrated with Fixed-Route System: local fixed-route bus

Supply

Service Type: m to m: peak/off peak

Fares: Regular $1.05/mile zonefare
Special $16— for 3 months

Vehicles in Service: 2

Peak: ______ Off-Peak: ______

Hours of Service: mon - Fri 7am - 10pm
Sat. - 9am - 6pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees: 26.5

Drivers: 25 Control Room: 1

Maintenance: .5

Demand

Weekday Ridership: 110 Peak: ___

Annual Ridership: 29,000 est.

Person-Trips/1000 Residents: ___
Person-Trips/1000 Eligible Pop. 1466
Person-Trips/Square Mile: 36.4

Person-Trips/Square Mile/Hour: 2.4

Trip Length: .8 miles

Access

User: Phone

Pick-up Points: House, designated Points

Access Time: Adv. reserv. (1/2 hr), subscription

Vehicles

#	Type	Capacity
2		

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: computer

Computer: does vehicle assignment, route determination

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☑ Other

Service Levels (average time)

Ride Time: ______ Promised Wait Time: 30 min.

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $2.65/hour

System Contact: J. F. Ala
(216) 672-2712

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by Kent State University
Data year: ?1977

System Name: DRUBS (discontinued)

System No. 107

Location: Kent State University, Kent, Ohio

Organization: Planner: Kent State
Operator: Office of Parking & Traffic

Project History:

Institutional Issues:

Area Description

Population: 25,000 (city)

Service Area Pop.

Target Group Pop. 105 households

Service Area Size: .75 sq.mi.

Number of Zones: 3

Pop. Density of Service Area: ____/sq. mi

Eligible Pop. Density ____/sq. mi

Service Area Type: section of city

Eligible Ridership: Kent State: students, faculty, staff

Integrated with Fixed-Route System: local fixed-route bus

Supply

Service Type: M to O: peak/ off peak

Fares: Regular free

Special

Vehicles in Service: 1

Peak: Off-Peak:

Hours of Service:

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 55 Peak:

Annual Ridership: not avail.

Person-Trips/1000 Residents: -

Person-Trips/1000 Eligible Pop.

Person-Trips/Square Mile: 68.8

Person-Trips/Square Mile/Hour:

Trip Length:

Access

User: Phone, terminal at stops

Pick-up Points: House

Access Time: Immed. service, subscription

Vehicles

#	Type	Capacity
1	small bus	

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center: electronic control system

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $____/hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied in: DRUBS Demand Routed Urban Bus Service Report sent by Kent State, Center for Urban Regionalism.
Data year: 1971

System Name: The Lift (demonstration)

System No. 108

Location: Portland, Oregon

Organization: Authority: Tri Met; Planners: Tri Met, City of Portland Bur. of Human Resources; Operator: Tri Met; Consultant: DAVE Systems Inc.

Project History: Demonstration to test automatic fare identification recorder, a computerized billing system for social serv. agencies; to coordinate special transp. services through contracts for service with public agencies and social service organizations.

Institutional Issues: Dept. of HEW decided Lift fare structure permitted participation by State in a contract for LIFT Service.

Area Description

Population: 400,000

Service Area Pop.:

Target Group Pop.: 21,000

Service Area Size: 89.1 sq.mi.

Number of Zones:

Pop. Density of Service Area: 4489 sq. mi

Eligible Pop. Density 236/sq. mi

Service Area Type: entire city

Eligible Ridership: E & H

Integrated with Fixed-Route System:

Supply

Service Type:

Fares: Regular 50¢

Special Free if agency sponsored

Vehicles in Service: 15

Peak: Off-Peak:

Hours of Service: mon-Fri 7am-7pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees:

Drivers: Control Room: 5

Maintenance:

Demand

Weekday Ridership: 207 est. Peak:

Annual Ridership: 52,000 est.

Person-Trips/1000 Residents: .5

Person-Trips/1000 Eligible Pop. 9.9

Person-Trips/Square Mile: .2

Person-Trips/Square Mile/Hour: .02

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time: Adv. reserv. (24-48 hrs) subscription

Vehicles

#	Type	Capacity
15	small bus	16

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: manual scheduling, large wall map

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: Dennis Chapman Planning Dept. - TRI-MET 520 S.W. Yamhill Portland, Oregon 97204

SYSTEM SUMMARY SHEETS

References Used: system documentation from material supplied by TRI-MET. Data Year: 12-76 to 11-77

System Name: Carbon Co. minibus

System No. 109

Location: Carbon County, Penn.

Organization: Sponsor: Carbon Co. Action Committee

Project History:

Institutional Issues: minor insurance problem

Area Description

Population: 50,573

Service Area Pop. 50,573

Target Group Pop.

Service Area Size: 404 est. sq.mi.

Number of Zones: 5

Pop. Density of Service Area: 125/sq. mi

Eligible Pop. Density ____/sq. mi

Service Area Type: entire county

Eligible Ridership: E & H, low income

Integrated with Fixed-Route System: no

Supply

Service Type: M to F: peak/off peak

Fares: Regular Free

Special

Vehicles in Service: 1

Peak: 1 Off-Peak: 1

Hours of Service: mon - Fri 8:30 am - 4 pm

Annual Fleet Service Miles: 25,941

Annual Fleet Service Hours: 1820

Number of Employees: 2

Drivers: 1 Control Room: 2

Maintenance: 0

Demand

Weekday Ridership: 21 est. Peak:

Annual Ridership: 5348

Person-Trips/1000 Residents: .4

Person-Trips/1000 Eligible Pop.

Person-Trips/Square Mile: .2

Person-Trips/Square Mile/Hour: .02

Trip Length: 24 miles

Access

User: Phone

Pick-up Points:

Access Time: Adv. reserv. (24 hrs)

Vehicles

#	Type	Capacity
1	van	10

Special Features:

Communication/Dispatching

Mobile Communications: telephone

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other CETA

Service Levels (average time)

Ride Time: 30 min. Promised Wait Time: 15 min.

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 2.9

Passengers/Vehicle-Mile: .21

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $3.50/hour

System Contact: Ronald Slivka
Carbon Co. Action Comm.
61 Broadway
Jim Thorpe, Penn.
18229

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by Carbon Co. Action Committee.
Data year: 4/76 to 3/77.

System Name: Senior Citizen Transportation, Inc.

System No. 110

Location: Rhode Island

Organization: Sponsor: State Division on Aging; Authority: State Public Transit Authority; Operator: Sr. Citizens Transp. Inc. (private non-profit organization)

Project History: Started in February 1973, and in Feb. 1974 centralized all transportation services instead of subcontracting with community action agencies. Results were increased ridership & reduced costs. Oct. 1976 began specialized service for handicapped.

Institutional Issues: Individual agencies were reluctant to share resources, took a long time to obtain FCC license and shared frequency made communication difficult.

Area Description

Population: 1,000,000

Service Area Pop.:

Target Group Pop.: 147,000 (elderly)

Service Area Size: 1049 sq.mi.

Number of Zones:

Pop. Density of Service Area: 953/sq. mi

Eligible Pop. Density: 140/sq. mi

Service Area Type:

Eligible Ridership: elderly & handicapped only

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/off peak

Fares: Regular: Free

Special:

Vehicles in Service: 45

Peak: Off-Peak:

Hours of Service: Mon - Fri: 8:30am - 4:30pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees: 60

Drivers: 44 Control Room: 9

Maintenance: 4 Admin. 3

Demand

Weekday Ridership: 1480 est. Peak:

Annual Ridership: 385,000 est.

Person-Trips/1000 Residents: 1.5

Person-Trips/1000 Eligible Pop.: 10.1

Person-Trips/Square Mile: 1.6

Person-Trips/Square Mile/Hour: .2

Trip Length:

Access

User: Phone, fixed stops

Pick-up Points: House, designated points

Access Time: subscription adv. reservation (48 hrs.)

Vehicles

#	Type	Capacity
50	van	

Special Features: 8 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: magnetic map, no computer

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip: $1.63

Revenue/Passenger Trip: –

Cost/Vehicle-Hour:

Drivers' Salary: $3.60/hour

System Contact: Rhode Island Dept. of Community Affairs, Division on Aging, Providence, Rhode Island

SYSTEM SUMMARY SHEETS

References Used: system documentation from material supplied by Senior Citizen's Transportation, Inc.
Data year: 7-76 to 6-77.

System Name: Austin Transit System

System No. 111

Location: Austin, Texas

Organization: Sponsor: City of Austin; Authority: American Transit Corp.; Operator: Austin Transit System

Project History: Began in 10-75 transporting Dept. of Public welfare clients. 7-76 add Special Transit Service for transit limited & transit restricted.

Institutional Issues: no institutional problems

Area Description

Population: 308,000

Service Area Pop.

Target Group Pop. 15,000

Service Area Size: 360 sq.mi.

Number of Zones: -

Pop. Density of Service Area 856/sq. mi

Eligible Pop. Density 42/sq. mi

Service Area Type: urbanized area including rural & co.

Eligible Ridership: handicapped

Integrated with Fixed-Route System: no

Supply

Service Type: M to M: peak/off peak

Fares: Regular 50¢

Special

Vehicles in Service: 5

Peak: Off-Peak:

Hours of Service: Mon-Fri 7am-10pm, sat 12 noon - midnight, sun 9am-9pm

Annual Fleet Service Miles: 239,817

Annual Fleet Service Hours: -

Number of Employees: 11

Drivers: 9 Control Room: 2

Maintenance: -

Demand

Weekday Ridership: 150 Peak: 80

Annual Ridership: 26831

Person-Trips/1000 Residents: .5

Person-Trips/1000 Eligible Pop. 10

Person-Trips/Square Mile: 4

Person-Trips/Square Mile/Hour: .03

Trip Length: 4 miles

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Adv. reserv. (24 hrs), subscription

Vehicles

#	Type	Capacity
2	van	5+4 wheelchrs
3	van	4+3 wheelchrs

Special Features: 5 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer: no computer

Labor

Union ☑ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: - Promised Wait Time: 30 min.

Actual Wait Time (immediate request): 20 min.

Pick-Up Deviation (advanced request): 0

Transfer Time: -

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile: 3.13

Economics

Cost/Passenger Trip: $ .34

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ 5— /hour 16% fringe benefits

System Contact: Patrick Collins
Austin Transit System
P.O. Box 1943
Austin, Texas 78767

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by Austin Transit System.
Data year: 10-76 to 9-77

System Name: Pick-me-up

System No. 112

Location: Houston, Texas

Organization: Sponsor & Planner: City of Houston, Office of Public Transp.; Operator: Houtran Inc.

Project History: System result of pressure from handicapped community. Plans in formative stage for a transportation broker "to capture & supplement existing paratransit services."

Institutional Issues: minor labor problems

Area Description

Population: 1,232,802

Service Area Pop. ?

Target Group Pop. ?

Service Area Size: 35 sq.mi.

Number of Zones:

Pop. Density of Service Area: ___/sq. mi

Eligible Pop. Density ___/sq. mi

Service Area Type: section of city

Eligible Ridership: E & H

Integrated with Fixed-Route System: no

Supply

Service Type: M to F: peak/off peak

Fares: Regular 50¢

Special

Vehicles in Service: 5

Peak: Off-Peak:

Hours of Service: Mon-Fri 8am-10pm Sat-Sun 10am-10pm

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees: 10

Drivers: 6 Control Room: 2

Maintenance: ___ Monitor & Evaluate 2

Demand

Weekday Ridership: 40 Peak: 30

Annual Ridership: not avail.

Person-Trips/1000 Residents:

Person-Trips/1000 Eligible Pop.

Person-Trips/Square Mile: 1.1

Person-Trips/Square Mile/Hour: .08

Trip Length: 4 miles

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Adv. reserv. (48 hrs), subscription

Vehicles

#	Type	Capacity
6	small bus	10+3 wheelchrs

Special Features: 6 with lifts

Communication/Dispatching

Mobile Communications: telephone

Control Center: manual routing & scheduling

Computer:

Labor

Union ☒ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 30 min Promised Wait Time: 30 min.

Actual Wait Time (immediate request): 5 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $ .50

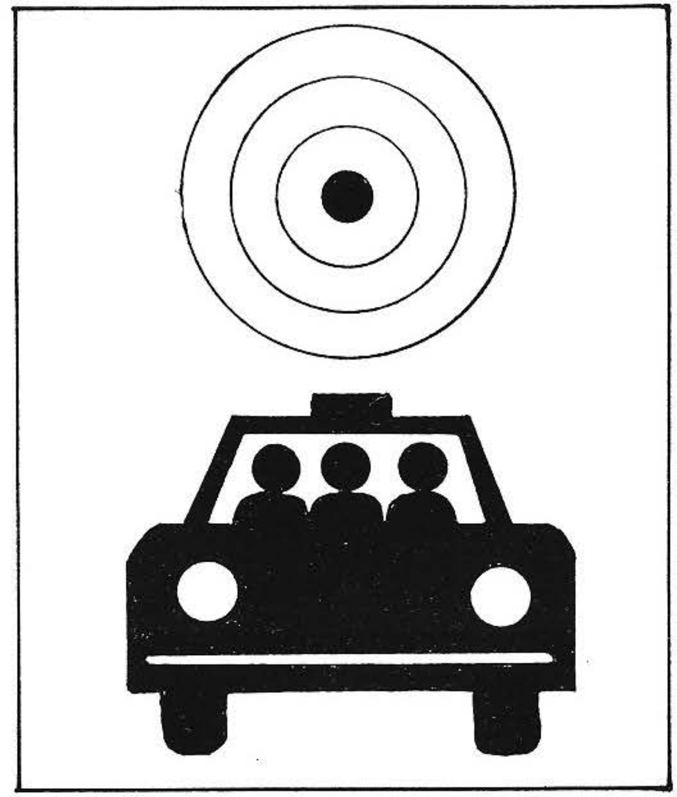
Cost/Vehicle-Hour:

Drivers' Salary: $6.08/hour 25% fringe benefits

System Contact: David Warren
Office of Public Transp.
City of Houston
P.O. Box 1562
Houston, Texas
77002

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by City of Houston, Office of Public Transp.
Data year: start of service 11-16-77



Target Market Shared Ride Taxi

System Name: Senior Citizen Taxi Service

System No. 113

Location: Fremont, California

Organization: Sponsor: Alameda County; Operator: Tri-City Cab Co.

Project History: City obtains Federal Older American Act monies from county; pays taxi co. on a contractural basis.

Institutional Issues:

Area Description

Population: 121,000

Service Area Pop.:

Target Group Pop.: ?

Service Area Size: 94 sq.mi.

Number of Zones:

Pop. Density of Service Area: 1287/sq. mi

Eligible Pop. Density ____/sq. mi

Service Area Type: entire city

Eligible Ridership: elderly

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/off peak

Fares: Regular 50¢

Special

Vehicles in Service: 1

Peak: ____ Off-Peak: ____

Hours of Service: Mon.-Fri. 6am-6pm; Sat & Sun: 6am-1

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees:

Drivers: 1 Control Room: 2

Maintenance: 0

Demand

Weekday Ridership: 14 est. Peak:

Annual Ridership: 3600

Person-Trips/1000 Residents: .12

Person-Trips/1000 Eligible Pop.

Person-Trips/Square Mile: .2

Person-Trips/Square Mile/Hour: .01

Trip Length: 3 miles

Access

User: Phone

Pick-up Points: House

Access Time: Adv. reserv. (24 hrs.)

Vehicles

#	Type	Capacity
1	Cab	4

Special Features: none

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: no computer

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 15 min Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $____/hour

System Contact: Pam McCann, Program Sources Co-ord'r for Aging, City of Fremont, Fremont, Calif. 94538

References Used: system documentation supplied by City of Fremont
Data year: 1977

SYSTEM SUMMARY SHEETS

System Name: DIAL-A-RIDE

System No. 114

Location: Huntington Park, California

Organization: Sponsor: City of Huntington Park
Operator: All American Cab Co.

Project History:

Institutional Issues:

Area Description

Population: 33,744

Service Area Pop. 33,744

Target Group Pop.

Service Area Size: 3 sq.mi.

Number of Zones:

Pop. Density of Service Area 11248 /sq. mi

Eligible Pop. Density ____ /sq. mi

Service Area Type: entire city

Eligible Ridership: E & H

Integrated with Fixed-Route System:

Supply

Service Type: m to m: peak/ off peak

Fares: Regular 50¢

Special 25¢ E+H children

Vehicles in Service: 3

Peak: Off-Peak:

Hours of Service: mon-Sat 9am-6pm; Sun. 8am-2pm

Annual Fleet Service Miles: 75,340

Annual Fleet Service Hours: 8287

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 155 Peak:

Annual Ridership: 56,479 est.

Person-Trips/1000 Residents: 4.6

Person-Trips/1000 Eligible Pop.

Person-Trips/Square Mile: 51.7

Person-Trips/Square Mile/Hour: 5.7

Trip Length: 1.5 miles

Access

User: Phone

Pick-up Points:

Access Time:

Vehicles

#	Type	Capacity
1	van	12
2	van	15

Special Features: no lifts

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request): 25 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 6.8

Passengers/Vehicle-Mile: .75

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $3.30/hour

System Contact:

References Used: system documentation from: So. Calif. Ass'n of Govt's Statistics and Calif. DOT, Transguide, SOA 2.46

Data Year: 75-76

System Name: Subsidized Taxi Service for Elderly

System No. 115

Location: Lafayette, California

Organization: Sponsor: City of Lafayette; Operators: Checker Cab, Blue Cab

Project History: Service started in 1974; in 1978 a $ 300 per person limit on coupon books per year for trips was initiated plus a 30 mile trip limit as it was felt some elderly were overusing the system.

Institutional Issues: Elderly unhappy, reportedly, with limitation. Checker Cab to discontinue service 10/78 - felt business was cut back by ceiling of $ 300.

Area Description

Population: 20,000

Service Area Pop.:

Target Group Pop.: ?

Service Area Size: 49 sq.mi.

Number of Zones:

Pop. Density of Service Area: 408/sq. mi

Eligible Pop. Density ___/sq. mi

Service Area Type: suburban area

Eligible Ridership: elderly

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/ Off peak

Fares: Regular (metered zones

Special coupon books)

Vehicles in Service: 3

Peak: 3 Off-Peak: 2

Hours of Service: mon-Fri 6am-6pm Sat.: appt only

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees:

Drivers: 4* Control Room: 2

Maintenance: ___ * two cab companies

Demand

Weekday Ridership: 32 Peak: ___

Annual Ridership: 10,000 est.

Person-Trips/1000 Residents: 1.6

Person-Trips/1000 Eligible Pop. ___

Person-Trips/Square Mile: .6

Person-Trips/Square Mile/Hour: .05

Trip Length: .5

Access

User: Phone

Pick-up Points: House

Access Time: Immed., adv. reservation (24 hr.)

Vehicles

#	Type	Capacity
4	Cab	4

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☑ Volunteer ☐

Part-time ☐ Other ___

Service Levels (average time)

Ride Time: 15-30 min. Promised Wait Time: 5-10 min.

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $___/hour

System Contact: E.C. Marriner
City manager
City of Lafayette
975 Oakland St.
Lafayette, Calif. 94549

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by City of Lafayette and cab companies. Data year: '77-'78

System Name: OurCar

System No. 116

Location: Marysville, Yuba City, California

Organization: Authority & Planner: HUB Area Transit Auth.
Operator: Yellow Cab Co.

Project History:

Institutional Issues: Problems with insurance, political response, funding, licensing. Politicians did not feel "there were transit needs in the area." Threat of suit and pressure of senior citizens helped promote existing service. major concern is loss of local funds (SB 325) to street and road projects.

Area Description

Population: 52,763
Service Area Pop.:
Target Group Pop.: 7,041
Service Area Size: 22 sq.mi.
Number of Zones:
Pop. Density of Service Area 2398/sq. mi
Eligible Pop. Density 320/sq. mi
Service Area Type: 2 cities
Eligible Ridership: E&H
Integrated with Fixed-Route System: no

Supply

Service Type: M to M, M to F, M to O: peak/off peak

Fares: Regular 50¢ for rider; cab uses meter - city reimburses cab for difference
Special

Vehicles in Service: 15
Peak: Off-Peak:

Hours of Service: Mon-Fri 8am-5pm Sat 9am-3pm Sun 8am-3pm

Annual Fleet Service Miles: 148,867

Annual Fleet Service Hours: 45,240

Number of Employees: 20 (taxi)
Drivers: 15 Control Room: 3
Maintenance: 2

Demand

Weekday Ridership: 285 Peak:

Annual Ridership: 86,435

Person-Trips/1000 Residents: 5.4

Person-Trips/1000 Eligible Pop. 40.5

Person-Trips/Square Mile: 13.0

Person-Trips/Square Mile/Hour: 1.4

Trip Length: 3.8

Access

User: Phone

Pick-up Points: House

Access Time: Immed. service, Adv. reservation (24 hr.)

Vehicles

#	Type	Capacity
9	cab	5
2	van	8
4	stn. wagon	8

Special Features: 2 vans have lifts

Communication/Dispatching

Mobile Communications: telephone, 2-way radio

Control Center: manual dispatch

Computer: no computer

Labor

Union ☐ Non-Union ☒ Volunteer ☐
Part-time ☐ Other

Service Levels (average time)

Ride Time: N/A Promised Wait Time: 30 min.

Actual Wait Time (immediate request): 45 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 1.9

Passengers/Vehicle-Mile: .58

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: Pat Weston
HUB Area Transit Authority
(916) 742-9226

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by: HUB Area Transit Authority
Data year: 1977

System Name: Project Mobility

System No. 117

Location: Palo Alto, California

Organization: Sponsor & Planner: City of Palo Alto
Operator: Palo Alto - Menlo Park Yellow Cab

Project History: Limited enrollment to lower income applicants in 12-75. Approximately 150 riders were no longer eligible for service; growth rate was slowed down.

Institutional Issues: minor problem with funding; would like County Transit District to pay for part of service

Area Description

Population: 61,683

Service Area Pop.

Target Group Pop. 1500-3000

Service Area Size: 25.7 sq.mi.

Number of Zones:

Pop. Density of Service Area 2400/sq. mi

Eligible Pop. Density 88/sq. mi

Service Area Type: entire city

Eligible Ridership: low income E & H

Integrated with Fixed-Route System:

Supply

Service Type: M to M: Peak/Off Peak

Fares: Regular $1.00 - 1st 1/5 mile, .20 - each additional 1/5 mi.

Special none

Vehicles in Service: 24

Peak: 16 Off-Peak: 16-5

Hours of Service: 7 days/week, 24 hours

Annual Fleet Service Miles: 44,614

Annual Fleet Service Hours: no record

Number of Employees:

Drivers: 40 Control Room:

Maintenance:

Demand

Weekday Ridership: 60 Peak:

Annual Ridership: 22,000

Person-Trips/1000 Residents: 1.0

Person-Trips/1000 Eligible Pop. 26.7

Person-Trips/Square Mile: 2.3

Person-Trips/Square Mile/Hour: .1

Trip Length: 2 miles

Access

User: Phone

Pick-up Points: House, designated Points

Access Time: Immed. service

Vehicles

#	Type	Capacity
24	cab	4

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☑ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time: 15 min.

Actual Wait Time (immediate request): 15 min.

Pick-Up Deviation (advanced request): 5 min.

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile: .49

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip: $.50

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: Joan Thompson
City of Palo Alto
250 Hamilton Ave.
Palo Alto, Calif. 94301

SYSTEM SUMMARY SHEETS

References Used: System documentation supplied by City of Palo Alto
Data year: 7-76 to 7-77

System Name: (subsidized taxi service)

System No. 118

Location: San Leandro, California

Organization: Sponsor: Alameda Co. Area Agency on Aging; Authority & Planner: San Leandro Dept. of Human Resources; Operator: Veterans Yellow Cab of Hayward

Project History:

Institutional Issues: problems with insurance and funding.

Area Description

Population: 68,600

Service Area Pop.:

Target Group Pop.: 3,000

Service Area Size: 15 sq.mi.

Number of Zones: -

Pop. Density of Service Area: 4573/sq. mi

Eligible Pop. Density: 200/sq. mi

Service Area Type: entire city

Eligible Ridership: Elderly

Integrated with Fixed-Route System: no

Supply

Service Type: M to F: peak/off peak

Fares: Regular: meter rate.

Special:

Vehicles in Service: 32

Peak: Off-Peak:

Hours of Service: Mon-Sun 24 hrs

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees: 3 plus drivers

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 31 Peak:

Annual Ridership: 9,340

Person-Trips/1000 Residents: .45

Person-Trips/1000 Eligible Pop.: 10.3

Person-Trips/Square Mile: 2.1

Person-Trips/Square Mile/Hour: .1

Trip Length: 2 miles

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Immed. service

Vehicles

#	Type	Capacity
32	cab	5

Special Features:

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other: Independent union

Service Levels (average time)

Ride Time: unknown Promised Wait Time: 15 min.

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: Jim O'Leary
City of San Leandro
835 E. 14th St.
San Leandro, Calif.
94577

References Used: system documentation supplied by City of San Leandro
Data Year: 6-76 to 5-77

SYSTEM SUMMARY SHEETS

System Name: Phone-A-Ride

System No. 119

Location: South Gate, California

Organization: Authority & Planner: City of South Gate
Operator: Southeast Taxi Co.; Consultant: Mark Briggs & Associates

Project History:

Institutional Issues: minor problems with funding, regulations and labor were reduced or eliminated when city contracted with the taxi co. to provide the service.

Area Description

Population: 59,921

Service Area Pop.:

Target Group Pop.:

Service Area Size: 7.5 sq.mi.

Number of Zones:

Pop. Density of Service Area: 7989/sq. mi

Eligible Pop. Density: /sq. mi

Service Area Type: entire city

Eligible Ridership: All

Integrated with Fixed-Route System: no

Supply

Service Type: M to M: peak/off peak

Fares: Regular 25¢

Special

Vehicles in Service: 1

Peak: Off-Peak:

Hours of Service: mon-Fri 9am-5pm

Annual Fleet Service Miles: 39,900

Annual Fleet Service Hours: 2048

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 50 Peak:

Annual Ridership: 13,734

Person-Trips/1000 Residents: .8

Person-Trips/1000 Eligible Pop.:

Person-Trips/Square Mile: 6.7

Person-Trips/Square Mile/Hour: .8

Trip Length:

Access

User: Phone, mail

Pick-up Points: House

Access Time: Immed. service

Vehicles

#	Type	Capacity
1	van	10

Special Features: no lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 20 min Promised Wait Time: 30 min.

Actual Wait Time (immediate request): 30 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 6.7

Passengers/Vehicle-Mile: .34

Economics

Cost/Passenger Trip: 2.11

Revenue/Passenger Trip: .22

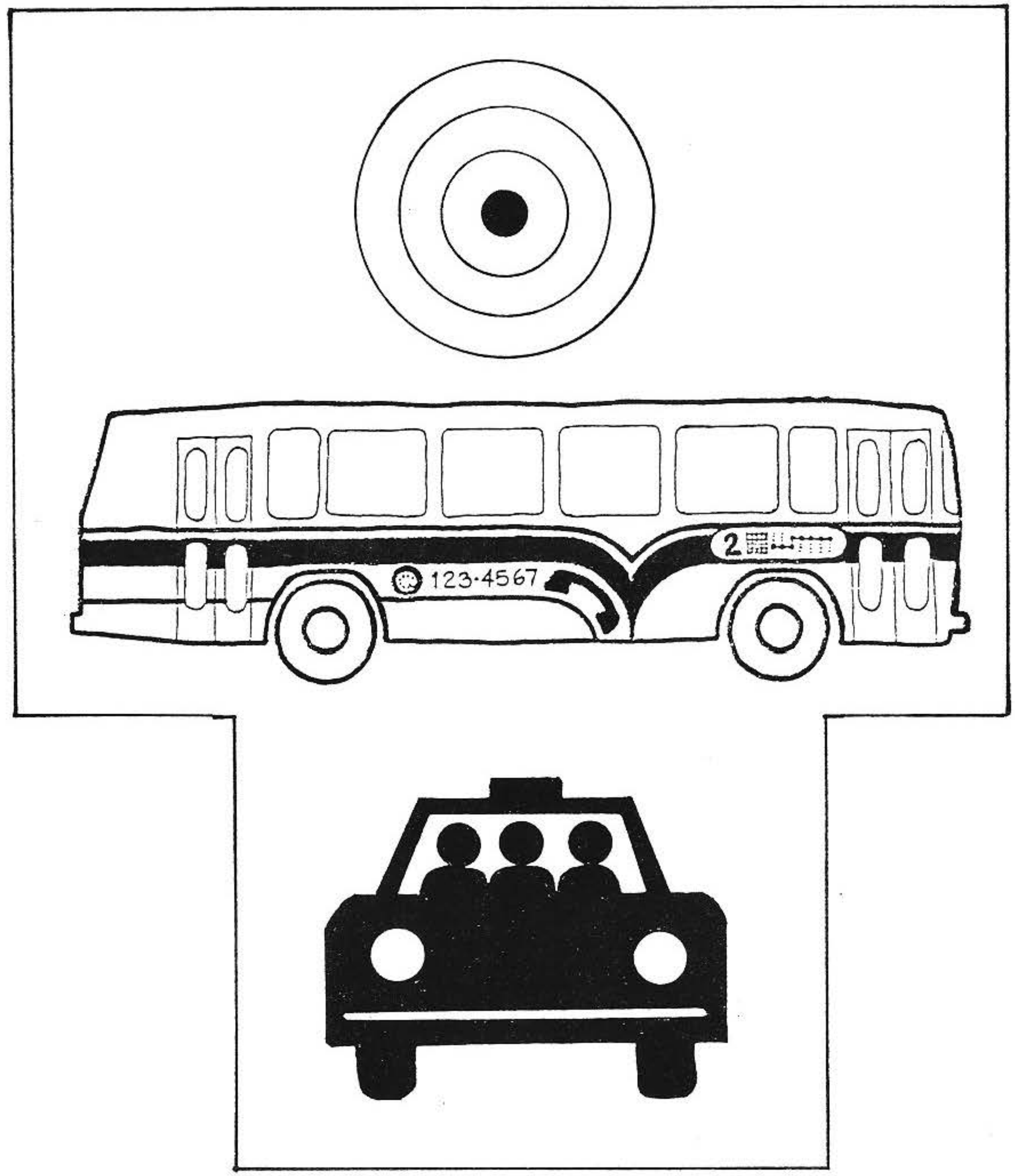
Cost/Vehicle-Hour: 14.16

Drivers' Salary: $ /hour

System Contact: Miquel Sanchez
City of South Gate
8650 California Ave.
South Gate, Calif.
90280

References Used: system documentation from the City of South Gate.
Data year: 8-76 to 7-77

SYSTEM SUMMARY SHEETS



Target Market Mixed Systems

System Name: Special Transportation Service (STS)

System No. 120

Location: Dade County, Florida

Organization: Sponsor: Dade Co.; Planner: STS Project Office; Operators: 2 private taxi co., 1 van service

Project History: Began in June 1976. March 1977 voucher sales were limited to 16 reservation or 40 subscrip. trips. Users could purchase add'l vouchers at higher cost ($3-/trip). This step limited amount of user travel and decreased system costs.

Institutional Issues: minor problems with funding, legal/regulatory issues + permits/licensing.

Area Description

Population: 1,500,000

Service Area Pop.:

Target Group Pop.: 5,200

Service Area Size: 2042 sq.mi.

Number of Zones:

Pop. Density of Service Area: 735/sq. mi

Eligible Pop. Density 2.6/sq. mi

Service Area Type: urbanized area, entire county

Eligible Ridership: handicapped

Integrated with Fixed-Route System: no

Supply

Service Type: m to m: peak/off peak

Fares: Regular 1^{00} prepaid voucher

Special 3^{00} add'l vouchers

Vehicles in Service:

Peak: Off-Peak:

Hours of Service: mon-sun 6am - midnight

Annual Fleet Service Miles: 507,360

Annual Fleet Service Hours:

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 300 Peak:

Annual Ridership: 67,700 est.

Person-Trips/1000 Residents: .2

Person-Trips/1000 Eligible Pop.: 57.7

Person-Trips/Square Mile: 15

Person-Trips/Square Mile/Hour: .01

Trip Length: 9.7 miles

Access

User: Phone

Pick-up Points: House, designated points

Access Time: Adv. reserv. (12 hrs), subscription

Vehicles

#	Type	Capacity
	van	
	cab	

Special Features:

Communication/Dispatching

Mobile Communications: telephone

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time: 15 min.

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile: .18

Economics

Cost/Passenger Trip: $9.58

Revenue/Passenger Trip: $1.00

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from report: Silverman & LaPlant, Use of Taxicabs for Transporting the Handicapped: The Dade Co. Experience. Data year: 6-76 to 6-77.

System Name: Community Responsive Transit (CRT)

System No. 121

Location: Cuyahoga County, Ohio

Organization: Authority & Planner: CRT, a department of Greater Cleveland Regional Transit Auth. Operator: CRT & Yellow Cab Co.

Project History: service initiation in 7/76 in 3 service areas; 10-76 add 3 contract service areas (Yellow Cab); 11-76 add 2 in-house & 2 contract areas; 8-77 add 1 in-house area; 8-77 implement computer-assisted scheduling system; and 9-77 implement 6 more contract areas

Institutional Issues: Yellow Cab had minor problem obtaining insurance. minor problems for CRT with labor, community & political response.

Area Description

Population: 1,592,613

Service Area Pop.:

Target Group Pop.: 170,000

Service Area Size: 450 sq.mi.

Number of Zones: 17

Pop. Density of Service Area: 3539/sq. mi

Eligible Pop. Density: 378/sq. mi

Service Area Type: entire county

Eligible Ridership: E & H

Integrated with Fixed-Route System: no

Supply

Service Type: M to F: off peak; M to M: off peak

Fares: Regular: free

Special:

Vehicles in Service: 64 in-house & contract

Peak: Off-Peak:

Hours of Service: Mon-Fri 9am-5pm; Sun. - 8:30am-2:30pm

Annual Fleet Service Miles: 950,000

Annual Fleet Service Hours: 49,000

Number of Employees: 58+

Drivers: 44 Control Room: 10

Maintenance:

Admin.: 4

+does not include contractor staff

Demand

Weekday Ridership: 700 Peak:

Annual Ridership: 203,125

Person-Trips/1000 Residents: .4

Person-Trips/1000 Eligible Pop.: 4.1

Person-Trips/Square Mile: 1.6

Person-Trips/Square Mile/Hour: .2

Trip Length:

Access

User: Phone

Pick-up Points: House

Access Time: Advance reserv. (24hr) subscription

Vehicles

#	Type	Capacity
3	small bus	18
2	small bus	12+2 wheel chr.
2	van	7+1 wheel chr.
27	small bus	15
15	small bus	18
15	cabs	7

Special Features: 23 with lifts

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: dedicated computer

Computer: does address location, mgmt. info., shows each vehicle run with scheduled rides.

Labor

Union ☑ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 15 min. Promised Wait Time: 15 min.

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request): 5 min.

Transfer Time: N/A

Productivity

Passengers/Vehicle-Hour: 4.1

Passengers/Vehicle-Mile: .21

Economics

Cost/Passenger Trip: 4.38

Revenue/Passenger Trip:

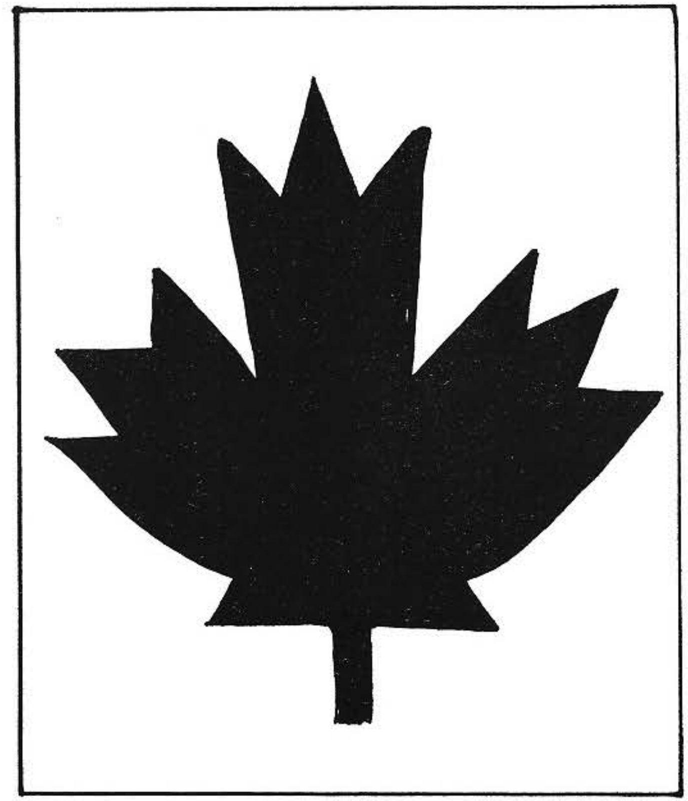
Cost/Vehicle-Hour: 18.16

Drivers' Salary: $5.12/hour 25% fringe benefits

System Contact: J.R. Groth / L. Green
Greater Cleveland Reg'l Transit Auth.
Community Responsive Transit Dept.
1404 E 9th St.
Cleveland, Ohio 44144

References Used: System documentation supplied by CRT, Cleveland, Ohio.
Data year: 12-76 to 12-77

SYSTEM SUMMARY SHEETS



Canadian Systems

System Name: DART

System No. 122

Location: Calgary, Alberta

Organization: Sponsor: Ministry of Transport & Comm. (MTC), Alberta
Operator: City of Calgary

Project History: Started in Dec. 1973; changed to full day service in Mar. 1974. Begun in S. W. corner of city, a 6th zone was added in Mar. 1977; a 7th to be added in Dec. 1977.

Institutional Issues:

Area Description

Population: 470,000

Service Area Pop. 15,000

Target Group Pop.

Service Area Size: 3 sq.mi.

Number of Zones: 6

Pop. Density of Service Area 5000/sq. mi

Service Area Type: section of city

Eligible Ridership: All

Integrated with Fixed-Route System: feeder to line-haul bus

Supply

Service Type: M to O

Fares: Regular 45¢ (35¢ + 10¢ premium)

Special

Vehicles in Service: 15

Peak: 6 Off-Peak: 3

Hours of Service: Mon – Sun:

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees:

Drivers: Control Room:

Maintenance:

Demand

Weekday Ridership: 1100 est. Peak:

Annual Ridership: 343,161

Person-Trips/1000 Residents: 73.3

Person-Trips/Square Mile: 366.7

Person-Trips/Square Mile/Hour:

Trip Length:

Access

User: Phone, hail

Pick-up Points:

Access Time: subscription

Vehicles

#	Type	Capacity
15		

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer: Dispatching (testing)

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 13.5

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact: D. M. Calver
City of Calgary Trans. Dept.
P.O. Box 2100
Calgary, Alberta T2P2M5

SYSTEM SUMMARY SHEETS

References Used: system documentation supplied by City of Calgary, Calgary Paratransit Project, Oct. 1977 and report on Canadian paratransit by Suen and Lenuen of Transport Canada, Nov. 1977. Data Year: 1976

System Name: Dial-A-Bus

System No. 123

Location: Bay Ridges, Ontario

Organization: Sponsor: Ministry of Transport & Comm. (MTC), Ontario
Operator: City of Pickering

Project History: service began in July 1970; expanded in 1973 to include most of the city

Institutional Issues:

Area Description

Population:

Service Area Pop. 23,650

Target Group Pop.

Service Area Size: 12 sq.mi.

Number of Zones:

Pop. Density of Service Area: 1971 /sq. mi

Service Area Type:
entire City

Eligible Ridership: All

Integrated with Fixed-Route System: feeder to train

Supply

Service Type: MtoF: peak

Fares: Regular 50¢

Special

Vehicles in Service:

Peak: 9 Off-Peak: 5

Hours of Service:

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees:

Drivers: 25 Control Room:

Maintenance:

Demand

Weekday Ridership: 1500 est. Peak:

Annual Ridership: 389,660

Person-Trips/1000 Residents: 63.4

Person-Trips/Square Mile: 125.0

Person-Trips/Square Mile/Hour:

Trip Length:

Access

User: Phone

Pick-up Points:

Access Time: Immediate, subscrip.

Vehicles (1974 data)

#	Type	Capacity
3	small bus	17
5	small bus	12
6	small bus	11

Special Features:

Communication/Dispatching

Mobile Communications: radio

Control Center:

Computer:

Labor

Union ☑ Non-Union ☐ Volunteer ☐

Part-time ☑ Other

Service Levels (average time)

Ride Time: Promised Wait Time:

Actual Wait Time (immediate request):

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 11.8

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: system documentation from report by Suen and Lehuen, Urban Transp. Research Branch, CSTA Transport Canada, NOV. 1977. Data year: ? 1976.

System Name: Dial-A-Bus

System No. 124

Location: Burlington, Ontario

Organization: Sponsor: ministry of Transport + Comm. (MTC) Ontario
Operator: City of Burlington

Project History: service begun in may 1974; high ridership (154,000/year in 1976) may mean future expansion or replacement with fixed-route service.*

Institutional Issues:

Area Description

Population:

Service Area Pop. 10,890

Target Group Pop.

Service Area Size: 6 sq.mi.

Number of Zones: 3

Pop. Density of Service Area: 1815 sq. mi

Service Area Type: residential area of city

Eligible Ridership: All

Integrated with Fixed-Route System: feeder to line-haul bus

Supply

Service Type: m to O: peak/off peak

Fares: Regular 40¢

Special rates for E+H, students

Vehicles in Service: 3

Peak: 3 Off-Peak: 3

Hours of Service: mon.-sat.: 6am-11pm

Annual Fleet Service Miles: 93,600 est.

Annual Fleet Service Hours: 15,900 est.

Number of Employees:

Drivers: 3/shift Control Room: 2+

Maintenance: 1

Demand

Weekday Ridership: 457 Peak:

Annual Ridership: 130,000 est.

Person-Trips/1000 Residents: 42.0

Person-Trips/Square Mile: 76.2

Person-Trips/Square Mile/Hour: 4.5

Trip Length:

Access

User: Phone

Pick-up Points:

Access Time:

Vehicles

#	Type	Capacity
6		

Special Features: 1 special van for wheelchairs

Communication/Dispatching

Mobile Communications: radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 14 min. Promised Wait Time:

Actual Wait Time (immediate request): 10 min.

Pick-Up Deviation (advanced request):

Transfer Time: 30 min.

Productivity

Passengers/Vehicle-Hour: 8.2

Passengers/Vehicle-Mile: 1.39

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: Lea Transit Compendium, Para-Transit, Vol. II #8, 1975; *report by Suen and Lehuen, Urban Transp. Research Branch, CSTA Transport Canada, Nov. 1977. Data year: ?74-75

System Name: Dial-A-Bus - discontinued

System No. 125

Location: Cambridge, Ontario

Organization: Sponsor: Ministry of Transport Canada; Ministry of Highways & Transport, Alberta; Operator: City of Cambridge

Project History: started in May 1974; replaced by fixed-route in 1976 because of high demand & flexible service too costly. Ridership: 161,889 in 1975.*

Institutional Issues:

Area Description

Population:

Service Area Pop. 24,346*

Target Group Pop.

Service Area Size: 8 sq.mi.

Number of Zones: 6

Pop. Density of Service Area 3043/sq. mi

Service Area Type: section of city

Eligible Ridership: All

Integrated with Fixed-Route System: feeder to line-haul bus

Supply

Service Type: M to O: peak/off peak

Fares: Regular 40¢

Special 20¢ E&H, 10¢ students

Vehicles in Service: 5

Peak: 5 Off-Peak: 5

Hours of Service: Mon-Sat: 7:30am-6:30pm

Annual Fleet Service Miles: 171,600 est.

Annual Fleet Service Hours: 17,160 est.

Number of Employees:

Drivers: 9 Control Room: 3+

Maintenance: 1

Demand

Weekday Ridership: 548 Peak:

Annual Ridership: 156,000 est.

Person-Trips/1000 Residents: 22.5

Person-Trips/Square Mile: 68.5

Person-Trips/Square Mile/Hour: 6.2

Trip Length: 5 miles

Access

User: Phone

Pick-up Points: House, designated points

Access Time:

Vehicles

#	Type	Capacity
6		

Special Features:

Communication/Dispatching

Mobile Communications: radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 13 min Promised Wait Time:

Actual Wait Time (immediate request): 25 min.

Pick-Up Deviation (advanced request):

Transfer Time: 25 min.

Productivity

Passengers/Vehicle-Hour: 9.0

Passengers/Vehicle-Mile: .91

Economics

Cost/Passenger Trip:

Revenue/Passenger Trip:

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: Lea Transit Compendium, Para-Transit, Vol. 11 #8, 1975; *report by Suen and Lehuen, Urban Transp. Research Branch, CSTA Transport Canada, Nov. 1977. Data year: ? 74-75.

System Name: Kitchener Transit

System No. 126

Location: Kitchener, Ontario

Organization: Sponsor: Ministry of Transport & Comm. (MTC), Ontario
Operator: City of Kitchener

Project History: Began service in October 1974; experienced a 3-month transit strike in 1975.

Institutional Issues: minor problems with labor contracts & rules.

Area Description

Population: 111,800

Service Area Pop. 11,000

Target Group Pop.

Service Area Size: 4.2 sq.mi.

Number of Zones: 3

Pop. Density of Service Area 2619/sq. mi

Service Area Type: section of city

Eligible Ridership: All

Integrated with Fixed-Route System: feeder to fixed-route bus

Supply

Service Type: M to M
M to O

Fares: Regular 45¢ + 10¢ premium
Special 25¢ seniors & children

Vehicles in Service: 3

Peak: 3 Off-Peak: 3

Hours of Service:
mon.-sat.: 6am-midnight

Annual Fleet Service Miles: 178,610

Annual Fleet Service Hours: 14,352

Number of Employees: 10

Drivers: 7 Control Room: 3

Maintenance:

Demand

Weekday Ridership: 700 Peak: 330

Annual Ridership: 138,000

Person-Trips/1000 Residents: 63.6

Person-Trips/Square Mile: 166.7

Person-Trips/Square Mile/Hour: 9.3

Trip Length: 5 miles

Access

User: Phone

Pick-up Points: House, shopping center, designated points

Access Time: Adv. reservation (30 min)

Vehicles

#	Type	Capacity
3	small bus	18

Special Features: none

Communication/Dispatching

Mobile Communications: 2-way radio

Control Center: no computer

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☑ Other CBRT

Service Levels (average time)

Ride Time: 17 min. Promised Wait Time: 20 min.

Actual Wait Time (immediate request): 15 min.

Pick-Up Deviation (advanced request):

Transfer Time: 8 min.

Productivity

Passengers/Vehicle-Hour: 9.6

Passengers/Vehicle-Mile: .77

Economics

Cost/Passenger Trip: $ 2.82

Revenue/Passenger Trip: $ .39

Cost/Vehicle-Hour: $ 27.10

Drivers' Salary: $ 6.87 /hour 36% fringe benefits

System Contact: W. R. Dawson
City of Kitchener
P.O. Box 1118
Kitchener, Ontario
N2G 4G7

References Used: system documentation supplied by City of Kitchener.
Data year: 1976-77.

SYSTEM SUMMARY SHEETS

System Name: Dial-A-Bus - discontinued

System No. 127

Location: York Mills (Toronto), Ontario

Organization: Sponsor: Ministry of Transport & Comm., Ontario. Operator: City of Toronto

Project History: System started in Oct. 1973; abandoned in 1976 due to high costs & poor patronage*

Institutional Issues:

Area Description

Population: 150,300

Service Area Pop.: 20,800

Target Group Pop.:

Service Area Size: 3.43 sq.mi.

Number of Zones: 3

Pop. Density of Service Area: 6064/sq. mi

Service Area Type:

Eligible Ridership: All

Integrated with Fixed-Route System: feeder to line-haul bus

Supply

Service Type: M to O: peak; M to F: off peak

Fares: Regular 50¢

Special 30¢ students, 20¢ children

Vehicles in Service: 8

Peak: 8 Off-Peak: 6

Hours of Service: Mon.-Fri. 6:30am - 10:30pm

Annual Fleet Service Miles: 325,000 est.

Annual Fleet Service Hours: 31,980 est.

Number of Employees:

Drivers: 16 Control Room: 8

Maintenance: 1-2

Demand

Weekday Ridership: 1350 Peak:

Annual Ridership: 351,000 est.

Person-Trips/1000 Residents: 64.9

Person-Trips/Square Mile: 393.6

Person-Trips/Square Mile/Hour: 24.6

Trip Length: 3.3 miles

Access

User: Phone

Pick-up Points: House, designated points

Access Time:

Vehicles

#	Type	Capacity
8	vans	

Special Features:

Communication/Dispatching

Mobile Communications:

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 15 min. Promised Wait Time:

Actual Wait Time (immediate request): 12 min.

Pick-Up Deviation (advanced request):

Transfer Time:

Productivity

Passengers/Vehicle-Hour: 11.0

Passengers/Vehicle-Mile: 1.08

Economics

Cost/Passenger Trip: $1.51

Revenue/Passenger Trip: $.41

Cost/Vehicle-Hour:

Drivers' Salary: $____/hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: Lea Transit Compendium, Para-Transit, Vol. II #8, 1975; * report by Suen and Lehuen, Urban Transp. Research Branch, CSTA Transport Canada, Nov. 1977. Data year: 1975.

System Name: Telebus

System No. 128

Location: Regina, Saskatchewan

Organization: Sponsor: Ministry of Transport, Canada; Dept. of Highways & Transp., Saskatchewan; Operator: City of Regina

Project History: Started in Sept. 1971 and expanded in June of 1972; now serves 140,000 population over 25 sq. mi. Overall public transit system passenger volume increased 3% due to Telebus

~~Institutional Issues:~~ which is considered to have arrested the decline in transit usage that was occurring in the city.*

Area Description

Population: 140,000

Service Area Pop. 63,000

Target Group Pop. ______

Service Area Size: 9 sq.mi.

Number of Zones: 14

Pop. Density of Service Area: 7000/sq. mi

Service Area Type: section of city

Eligible Ridership: All

Integrated with Fixed-Route System: feeder to line-haul bus

Supply

Service Type: M to O
M to F

Fares: Regular 45¢

Special ______

Vehicles in Service: ______

Peak: 14+ Off-Peak: 14

Hours of Service: Mon-Sat: 6am-12am
Sun: 1:40pm-9pm

Annual Fleet Service Miles: 672,100 est.

Annual Fleet Service Hours: 67,210 est.

Number of Employees: ______

Drivers: ___ Control Room: ___

Maintenance: ___

Demand

Weekday Ridership: 2800 est. Peak: ___

Annual Ridership: 812,000 est.

Person-Trips/1000 Residents: 44.4 est.

Person-Trips/Square Mile: 311.1 est.

Person-Trips/Square Mile/Hour: 17.3 est.

Trip Length: 3.5 miles

Access

User: Phone

Pick-up Points: House, shopping center, designated points

Access Time: Immed., subscription, Adv. reservation

Vehicles

#	Type	Capacity
16	van	19 seats + 10 stand.
6	van	14 + 8
4	van	22 + 10

Special Features: ______

Communication/Dispatching

Mobile Communications: radio

Control Center: ______

Computer: ______

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other ______

Service Levels (average time)

Ride Time: 12 min. Promised Wait Time: ______

Actual Wait Time (immediate request): 10 min.

Pick-Up Deviation (advanced request): ______

Transfer Time: 5 min.

Productivity

Passengers/Vehicle-Hour: 12.1 est.

Passengers/Vehicle-Mile: 1.2 est.

Economics

Cost/Passenger Trip: ______

Revenue/Passenger Trip: ______

Cost/Vehicle-Hour: ______

Drivers' Salary: $______/hour

System Contact: ______

SYSTEM SUMMARY SHEETS

References Used: Lea Transit Compendium, Para-Transit, Vol. II #8, 1975; *report by Suen and Lehuen, Urban Transp. Research Branch, CSTA Transport Canada, Nov. 1977.
Data Year: 74-75. (Est. figures by system)

System Name: Transcab

System No. 129

Location: Peterborough, Ontario

Organization: Sponsor: Ministry of Transport & Comm., Ontario & City of Peterborough; Operator: Call-a-Cab taxi under contract to Border Transit

Project History: Began in 1974 as a 9-month trial project; service continued and is presently funded by the city. It has tripled transit usage in the city. Placed in area not economically serviced by fixed-route bus & where dial-a-bus would be too costly. When not required for Transcab service, taxis operate regular service.*

~~Institutional Issues:~~

Area Description

Population: 58,000

Service Area Pop.: 3,400

Target Group Pop.:

Service Area Size: 4.4 sq.mi.

Number of Zones: 2

Pop. Density of Service Area: 778/sq. mi

Service Area Type: section of city (low density area)

Eligible Ridership: All

Integrated with Fixed-Route System: feeder to fixed-route bus

Supply

Service Type: M to F: peak/off peak

Fares: Regular 35¢

Special 25¢ seniors, children

Vehicles in Service: 20

Peak: 20 Off-Peak: 5-8

Hours of Service: Mon.-Sat.: 6:15am-12:15am

Annual Fleet Service Miles:

Annual Fleet Service Hours:

Number of Employees:

Drivers: 60 Control Room: 8

Maintenance: —

Demand

Weekday Ridership: 200 Peak: —

Annual Ridership: 57,000 est.

Person-Trips/1000 Residents: 58.8

Person-Trips/Square Mile: 45.4

Person-Trips/Square Mile/Hour: 2.5

Trip Length: 2.6 miles

Access

User: Phone

Pick-up Points: House, designated transfer points

Access Time:

Vehicles

#	Type	Capacity
20	cabs	
—		
—		

Special Features:

Communication/Dispatching

Mobile Communications: radio

Control Center:

Computer:

Labor

Union ☐ Non-Union ☐ Volunteer ☐

Part-time ☐ Other

Service Levels (average time)

Ride Time: 10 min. Promised Wait Time:

Actual Wait Time (immediate request): 30 min.

Pick-Up Deviation (advanced request):

Transfer Time: 1-3 min.

Productivity

Passengers/Vehicle-Hour:

Passengers/Vehicle-Mile:

Economics

Cost/Passenger Trip: $.90

Revenue/Passenger Trip: $.29

Cost/Vehicle-Hour:

Drivers' Salary: $ /hour

System Contact:

SYSTEM SUMMARY SHEETS

References Used: Lea Transit Compendium, Para-Transit, Vol. 11 #8, 1975; * report by Suen and Lehuen, Urban Transp. Research Branch, CSTA Transport Canada, Nov. 1977. Data year: 74-75

INTRODUCTION

This section has been designed for use as a basic reference guide to alternative paratransit arrangements. The characteristics of each system are briefly outlined, and existing applications are noted where possible. Although this appendix is not meant to offer guidance, the annotated bibliography should serve to identify handbooks and manuals that are useful in all stages of system development.

Carpools

Prearranged shared-ride services using private automobiles (usually owned by one or more of the members), with compensation provided either by members supplying vehicles on alternate days or by cash payments to the driver; usually most effective as commuter service, when members reside and work in the same general area and where working hours are similar.

- Special Features
  - Rapid, almost immediate implementation;
  - Relatively low cost, negligible capital costs;
  - Initiative usually from group of private individuals;
  - Areawide/employer-based initiatives may offer additional incentive;
  - Information to use in developing base maps, geographic identifiers, mechanical (e.g., locater boards, pin maps) and computer matching (FHWA COBOL program) techniques, and incentive programs are available from the Office of Public Affairs, U.S. Department of Transportation, Washington, D.C.
- Major Users/Sites

  FHWA survey in September 1974 reported that 147 out of 278 urbanized areas surveyed had carpool-matching services available; 81 carpool demonstration projects have been funded.
- Institutional Issues
  - No major regulatory problems; and
  - Insurance discounts usually insignificant.

Vanpools

Prearranged shared-ride service using vans purchased or leased by an employer, the individual, or other organization for transporting commuters with proximate origins and destinations.

A5

Vanpools

o Features

- Accommodate 8-15(usually 12) passengers/vehicles;
- Average round trip/van/day usually exceeds 30 miles;
- Greatest market/economic potential: medium to large urban areas with sizeable number of long commuter trips; large employers;
- Usually door-to-door service; can serve lower employee concentrations than buses;
- Ridership subscription;
- Designated employee as driver; receives work trip at no cost; access to vehicle in off-hours; may have additional incentives; back-up drivers;
- Rates usually cover ownership, operation, administration and maintenance costs; may be channeled through company;
- Usually employer-organized.

o Institutional Issues

- Laws and restrictions vary from state to state; depends on how vehicle is classified;
- Usually falls under state public utility/service commissions jurisdiction and involve licensing, recordkeeping, taxation, registration and safety requirements;
- Employee's workmen's compensation coverage depends on State's view of employer involvement;
- Generally high insurance costs (1975 estimates: $400-700/van/year); further increases force fare hikes;
- Motivating employer sponsorship; employer usually breaks even--needs initial capital to purchase vans;
- Public transit opposition.

o Employer Advantages

- Reduce parking facilities need;
- Reduce traffic congestion near offices;
- Broader labor market--(autoless workers);
- Less tardiness and absenteeism;
- Employee morale booster;
- Increased efficiency--employees complete work within certain period of time to be able to ride with van;
- Reduced company transportation costs--use vans as company car;
- Tax benefits;
- Favorable corporate image and publicity.

o Employee (User) Advantages

- Monetary savings;
- Convenience;
- Relaxing/less tedious;
- Reliable/dependable;
- Safer;
- Frees up second car in household.

o Non-user (Community) Advantages

- Conserves energy;
- Reduces pollution;
- Reduces traffic congestion;
- Reduces need for auto-related facilities;
- Eliminate need for public transit service in outlying areas.

o Employer Disadvantages

- Administrative costs;
- Initial capital outlay for vans.

o Employee Disadvantages

- Increased travel time;
- Less flexibility;
- Most cases, subscription service--(e.g., must pay for vacation/sick days they don't ride).

UNITED STATES VANPOOL PROGRAMS

YEAR	LOCATION	SPONSOR/OPERATOR	FLEET SIZE
1940's	Portsmouth, Virginia	Navy Shipyard	30
1964	New Jersey & Manhattan (New York and New Jersey)	Monarch Associates	-
1967	Washington, D.C.	FHWA	1
1970	Sussex, New Jersey	Sussex Commuter Club	1
	Decatur, Alabama	Browns Ferry Nuclear	40+
		Power Plant Employees	-
		Grumann Aircraft Plant	20-25
	Nassau County, New York (Long Island)		-
1973	St. Paul, Minnesota	3-M Company	92
	Atlanta, Georgia	MODNAR	4
	St. Paul, Minnesota	CENEX	22
	Corning, New York	Corning Glassworks	10
	Brattleboro, Vermont	Erving Paper Mills	6
1974	Minneapolis, Minnesota	General Mills	19
	Amarillo, Texas	Cooper & Woodruff	6
	Dallas, Texas	Texas Instruments	13
	Phoenix, Arizona	Sperry Flight Systems	11
	Erving, Massachusetts	Erving Paper Mills	6
	Pasadena, California	Ralph M. Parsons Company	31
	Knoxville and other Locations in Tennessee and Alabama	Tennessee Valley Authority	95
	Nutley, New Jersey	Hoffman LaRoche Pharmaceuticals	23
	Greenwich, Connecticut	American Can Company	1
	Philadelphia, Pennsylvania	Scott Paper Company	2
	Pittsburgh, Pennsylvania	Gulf Research & Development	3
	Chicago, Illinois	Montgomery Ward	6
	Sacramento, California	CALTRANS	8
	Portland Oregon	Oregon DOT FHWA DEMO	-
	Los Angeles, California	Commuter Computer	86
	Detroit, Michigan	Chrysler Corporation	25
	Minneapolis, Minnesota	Honeywell	4

*Source: Adapted from FEA, Vanpool: Executive Summary and Britton, Frances E.K., PT: A Survey of International Developments and Prospects

UNITED STATES VANPOOL PROGRAMS (CONTINUED)

YEAR	LOCATION	SPONSOR/OPERATOR	FLEET SIZE
1974	Redwood City, California	Ampex	3
	Forest City, Iowa	Winnebago Industries	19
	Provo, Utah	"Utah County Van Pooling"	2
	Houston, Texas, and locations in 5 Other States	Continental Oil Company (CONOCO)	66
1975	Bloomington, Minnesota	Control Data	4
	Somerset, New Jersey	AT&T Long Lines	8
	Minneapolis, Minnesota	Farmers Union Grain Terminal Association	3
	East Hanover, New Jersey	Nabisco	13
	Boston, Massachusetts	New England Mutual Life Insurance	1
	Cambridge, Massachusetts	Polaroid	4
	Dresher, Pennsylvania	Prudential Insurance	1
	Minneapolis, Minnesota	Richfield Bank and Trust	1
	Mt. Laurel, New Jersey	Taylor, Wiseman, Taylor	3
	El Segundo, California	Aerospace Corporation	18
	Newark, New Jersey	Prudential Insurance	8
	Pittsburgh, Pennsylvania	United States Steel	-
	Birmingham, Alabama	United States Steel	-
	New Jersey	New Jersey DOT	250
	South Plainfield, New Jersey	Prudential Insurance Company	56
	Los Angeles, California	3-M Company	1
	Los Angeles, California	Chrysler	-
	Los Angeles, California	Honeywell	-
	Los Angeles, California	Nabisco	-
	Los Angeles, California	Polaroid	-
	Norfolk, Virginia	Private Commuter Van Pool for Industrial Complex Employees	-

UNITED STATES VANPOOL PROGRAMS (CONTINUED)

YEAR	LOCATION	SPONSOR/OPERATOR	FLEET SIZE
1976	Houston, Texas	Aramco Services	5
	Murray Hill, New Jersery	Bell Labs	3
	Houston, Texas	Brown and Root	12
	Baltimore, Maryland	Commercial Credit	6
	Princeton, New Jersey	Educational Testing Service	1
	Palo Alto, California	Hewlett Packard	3
	Houston, Texas	Hughes Tool	5
	Denver, Colorado	Johns-Manville	3
	Newton, Massachusetts	Massachusetts General Life Insurance	1
	St. Paul, Minnesota	Minnesota Mutual Life	1
	Bloomington, Minnesota	National Car Rental	1
	Baltimore, Maryland	Peterson, Howell and Heather	1
	Minneapolis, Minnesota	Prudential Insurance	3
	Houston, Texas	Prudential Insurance	3
	Ayer, Massachusetts	Rubbair Door Division of Eckel Industries	1
	East Hanover, New Jersey	Sandor	3
	Philadelphia, Pennsylvania	Smith Kline	6
	Lakewood, Colorado	Statitrol	2
	Beaverton, Oregon	Tektronix	2
	Chicago, Illinois	Zenith Radio	8
	Nassau and Suffolk Counties (Long Island), New York	FEA Demonstration	-
	Hartford, New Haven, and Bridgeport, Connecticut	Phoenix Mutual Life Insurance and Southern New England and Telephone	-
	New Orleans-Baton Rouge, Louisiana	FEA Demonstration Program	-
	San Mateo and Santa Clara Counties, California	FEA Demonstration Program	-

Subscription Bus/Buspools

Prearranged shared ride service, generally using paid drivers contracted on a regular basis with origins, destinations and schedules determined by the users (typically A.M. and P.M. work or school trips).

o Features

- Large capacity vehicles;
- Usually initiated by employer (similar to vanpooling) or private group;
- Usually operated by private charter companies;
- Can be initiated and operated by public transit agency or non-profit organization;
- Not as flexible as car and vanpooling;
- Requires sufficient line haul distance to compete with auto convenience and costs;
- Fewer collection and distribution points; may focus on specified high-volume sites (e.g., park and ride lots,apartment complexes);
- Transit equipment and drivers frequently already available;
- Prices reflect full compensation for costs; may include profit.

o Institutional

- Regulations normally imposed, but vary considerably by state;
- Depends on classification as common or contract carrier;
- If public operation, high union labor costs;
- If private operation, public transit opposition.

BUSPOOL, SUBSCRIPTION, AND CHARTER BUS SERVICE

YEAR	LOCATION	SPONSOR/USER	SERVICE NAME	FLEET SIZE
1950	Pittsburgh, Pennsylvania (Allegheny County)	Port Authority of Allegheny County	-	3
1958	St. Louis, Missouri	McDonnell Douglas Plant Employees	Specialty Transit	24
1961	Bremerton-Charleston, Washington	BC Transit Operation	Commuter Express Port Employees	28
1962	San Francisco, California		Wayward Bus	2
1964	Peoria, Illinois (Demonstration Discontinued, 1970)	Caterpillar Tractor	Premium Special Service	21
1965	Decatur, Illinois (Demonstration Discontinued)			
	Rochester, New York	Eastman-Kodak Employees	STATAR	3
1966	Washington, D.C.		Colonial Transit	16
1967	Los Angeles, California	COMBUS (Private Company)	COMBUS	47
1968	Flint, Michigan	Flint Transportation Authority	Maxi Cab Commuter Club	26
	Washington, D.C.	National Geographic Society Employees	Atwoods Goldline Service	8
	Reston, Virginia	Gulf Reston/Reston Company Association	Commuter Bus	35
1969	Menlo Park, California	Little House Senior Citizens		1
1970	Columbia, Maryland	Eyre's Bus Service, Columbia Association		4
1971	San Francisco, California	Golden Gate Bridge and Highway Transportation District	Club Able	11
1972	El Segundo, California	Aerospace Corporation, SAMSO Installation Employees		
1973	Los Angeles, California	Atlantic Richfield Company		
	Omaha, Nebraska	Omaha Transit		3
	Chevy Chase, Maryland	GEICO Employees		8
	Germantown, Maryland	Atomic Energy Commission Employees	Atwoods Goldline Service	3
	Tuxedo, Maryland	Environmental Protection Agency Employees	Atwoods Goldline Service	1

BUSPOOL, SUBSCRIPTION, AND CHARTER BUS SERVICE (CONTINUED)

YEAR	LOCATION	SPONSOR/USER	SERVICE NAME	FLEET SIZE
	Tuxedo, Maryland	Congressional Secretaries Club	Atwood Goldline Service	2
	Fort Meade, Maryland	Washington Bus Riders	Atwoods Goldline Service	1
	Mantua, Virginia			
	Meriden, Connecticut			
	South Glenn, Colorado			
	Detroit, Michigan			
1974	Pittsburgh, Pennsylvania (Allegheny County)	Port Authority Employees		
	Columbia, Maryland	Columbia Association of National Institute of Health		1
	Washington, D.C.	Metropolitan Council of Government		8
	Los Angeles, California	City of Los Angeles Vanpool		
	Knoxville, Tennessee	Levi Strauss & Company and TVA Employees		12
	Hartford, Connecticut	Insurance Company Employees		1
	Dallas, Texas	Texas Instruments		7
	Bremerton, Washington	Bremerton Charleston Transit (BCT)	BCT Commuter Express	28
1975	Southport, Connecticut	Proposed Service Only		1
	New Haven, Connecticut	Southern New England Telephone Company		8
1976	Napa Valley, California	Nonprofit Club (Private Individuals and Golden Gate 50% Bridge Subsidy)	Napa Valley Commute Club	1
1977	Canton, Ohio	Canton Regal Transit Authority		3

Jitneys

Paratransit service characterized by frequent, but unscheduled, operation of small-capacity vehicles over generally fixed routes with access by hail.

- Features:

  - Similar to taxis;
  - Usually recognized, rather than mandated fixed routes; can deviate;
  - Generally 8-12 passenger vehicles (e.g., auto, vans);
  - Generally individually owned and operated;
  - Relatively low capital and operating costs;
  - Short lead-in time required;
  - Usually flat fare/passenger; sometimes zonal rate structure;
  - Improves mobility on well-traveled corridors.

- Institutional:

  - Jitney service practically killed through restrictive injunctions and prohibitive legislation; severely limit number of vehicles and type of service;
  - Municipal and state regulations control implementation; scheduling and organizational issues usually settled by owners/drivers themselves;
  - Operate illegal service in many cities;
  - Non-unionized labor.

JITNEYS AND OTHER SHARED TAXIS IN NORTH AMERICA

YEAR	LOCATION	TYPE OF SERVICE	SPONSOR	SERVICE NAME	FLEET SIZE
1915	Atlantic City, New Jersey	Jitney	Jitney Owners Association		35
1916	San Francisco, California	Jitney	Mission Street Jitney Owners Association		120
1935	Miami (Liberty City), Florida	Jitney/Shared Taxi	Taxi Company		
1957	St. Louis, Missouri (Discontinued)	Jitney	Illegal	Service Cars	85
1965	Anaheim, California	Jitney/Shared Taxi	Taxi Company		
1971	Chicago, Illinois (Kings Drive)	Jitney	Illegal Service		
1972	Pittsburgh, Pennsylvania (Hill District)	Jitney	Illegal Service		
	Baton Rouge, Louisana (Scotlandville)	Jitney/Shared Taxi	Taxi Company		
	Houston, Texas	Shared Ride/Taxi Pool	Taxi Company		
	Cleveland, Ohio	Jitney	Illegal Service		
1973	New York, New York (Harlem)	Jitney	Illegal Service		
	Chattanooga, Tennessee	Jitney	Taxi Company		
	Baltimore, Maryland	Jitney/Shared Taxi	Taxi Company		
	Eureka, California	Jitney/Shared Taxi	Taxi Company		
1974	Willingboro, North Carolina	Jitney			
	Sepastopol, California	Jitney			
1975-1976	Vienna, Maryland (Discontinued)	Jitney	Taxi Company		2
1977	District of Columbia, Washington	Jitney	Mayor's Office	Proposed Service Only	4

Loop/Shuttle Service

Paratransit service characterized by point-to-point operation, usually operated over a short circular or oblong route, permitting transfers to other modes at connecting points.

- o Features:
  - Fixed circuitous or line-haul route configuration;
  - Semi-scheduled headways;
  - Usually over a short path;
  - Common on university campuses;
  - May provide service to rural area;
  - Also used for airport limousine service;
  - May reverse direction of travel;
  - Operated by public or private organizations;
  - Frequently plays supplemental or feeder role to conventional system.

SAMPLE USERS/SITES - LOOP/SHUTTLE SERVICES

YEAR	LOCATION	SPONSOR/OPERATOR	SERVICE NAME	FLEET SIZE
1972	College Park, Maryland	University of Maryland	University of Maryland Shuttle	14 Bus
	Reston, Virginia	Reston Community Bus System	Common Ground	2
1973	Arlington, Virginia Washington, D.C.	Georgetown University	Georgetown University Transportation Society Shuttle	9
	Berkeley, California	University of California	Humphrey Go-Bart	4-5
	Seattle, Washington			3 Routes
1977	Syracuse area, New York	FHWA Rural Demonstration Grant	County Shuttle	7

Rental Cars

Daily Rentals: Paratransit service characterized by the hiring of automobiles by rental agreement usually for periods of less than one year (Reference 1).

- Special Features:
  - Daily lease arrangements;
  - Industry dominated by small number of suppliers (e.g., Hertz, Avis, National);
  - High cost/mile offering maximum convenience;
  - Fairly affluent users (business or tourist related);
  - New automobiles used to minimize maintenance problems;
  - Large, intermediate, and small American and foreign models now available;
  - Majority of business from airports;
  - Competition with taxi and limousine services.

- Institutional Issues:
  - Regulated as business;
  - Renter of vehicle responsible for penalties incurred during operation.

Short-term rentals: Paratransit service which offers automobiles for rental to qualified users for short intraurban trips, usually for periods shorter than one day; multi-user vehicle system (MUVS) not currently available in the United States.

Hitchhike

Form of free shared-ride travel, accessed by soliciting rides along a road.

o Features:

- Generally younger, poorer users;
- Frequently rural areas, college communities.

o Institutional Issues:

- Illegal in many states;
- Potentially very dangerous.

GENERAL POOLING

Highway Users Federation, How to Pool It, Washington, D.C., May, 1975.

As employers have been shown to be the key to successful ride-sharing programs, this manual is designed to give employers an overview of ride sharing, and to show how to start similar pooling programs. Basic steps common to most programs are suggested, and eight incentives that have been successfully used in getting employees to participate in ride sharing are also included.

McCoomb, Lloyd, Transportation Pooling - A Review of Eastern Canadian Pooling Systems, A Working Paper, Urban Transportation Research Branch, Canadian Transportation Development Agency, Quebec, Canada, April, 1977.

The Urban Transportation Research Branch studied and compiled information on three successful pooling programs in Valcartier, Quebec, Sarnia, Ontario, and Bathurst, New Brunswick. Their efforts reflect the varied organizational services, incentives, costs and operational possibilities available, ranging from the very structured company sponsored subscription bus service in Valcartier to a completely unstructured unsponsored car/vanpool system in Bathurst. This review may be useful as a comparative guide for other pooling endeavors.

Miesse, C.C., "Potential Reductions in Vehicle Travel from Carpools and Vanpools in Major Metropolitan Areas," Presented at Transportation Research Board Meeting, Session 109, Environmental Protection Agency, Philadelphia, Pennsylvania, January, 1978.

This paper presents techniques for determining the potential for major private and government employer carpool/vanpool programs, as functions of employee residential distribution and income level. Techniques are applied to the Washington, D.C., Metropolitan region, and are based on a car occupancy model previously developed for the National Capital area, and an empirical vanpool model derived from the highly successful vanpool program by the 3M Corporation in St. Paul.

Suen, Ling and Lehuen, Agnes, An Overview of Para-Transit Activities in Canada, Urban Transportation Research Branch, Canadian Transportation Development Agency, Quebec, Canada, December, 1977.

This paper highlights Canadian paratransit (DAB, privately operated systems, pooling, handicapped services) developments to date and evaluates their contribution toward solving urban transportation problems. Existing institutional structures affecting implementation and future paratransit potential contributions are also included.

Voorhees, Alan M. and Associates, Inc., Transportation Pooling, National Technical Information Service, No. PB-236-157, Springfield, Virginia, January, 1974.

This is a collection of ten individual reports: Review of Carpool Activities, Organization for Carpooling, Approaches to Matching, Legal and Institutional Issues, Incentives to Carpooling, Transit/Taxi Coordination, Vanpools, Buspools, Pooling for the Disadvantaged, and Carpool Backup Systems. The information and techniques presented in this series may be used to guide the implementation and coordination of alternative pooling programs within a metropolitan area.

CARPOOLS

Cambridge Systematics, and Voorhees and Associates, Carpool Incentives: Evaluation of Operational Experience, Federal Energy Administration, Cambridge, Massachusetts, March, 1976.

Literature review of various carpooling incentives, including their descriptive and operational characteristics, applicability, institutional and legal barriers, public acceptability and their effects on travel behavior and energy use.

Johnson, Chris, and Ashish K. Sen, Carpool Planning Manual, (Report No. 2), School of Urban Sciences, University of Illinois, Chicago, Illinois, 1977.

This informative and helpful manual is part of a planning package for the highway oriented paratransit modes of carpooling, vanpooling and park and ride services. Each manual contains a description of the type of trips, markets, and potential services the mode can provide; guidelines and estimating procedures for the demand, costs, and benefits of each mode; and implementation aids, such as available funding sources, staffing requirements, specifications and marketing schemes.

Peterson, Douglas M., An Evaluation of Carpool Matching Systems, Urban Transportation Research Branch, Canadian Surface Transportation Administration, Montreal, Canada, October, 1975.

This report evaluates eleven United States and Canadian computerized carpool matching systems by identifying data and system requirements, and then comparing their existing matching software and procedures. While conclusions and recommendations focus primarily on potential Canadian applications, the basic carpooling matching requirements and discussion can be a helpful guide to identifying appropriate matching system for carpooling needs.

VANPOOLS

Deshler, Kay, Vanpool Activities Newsletter, National Association of Vanpool Operators,(NAVPO) Knoxville, Tennessee.

Quarterly publication of NAVPO providing information on various vanpooling concepts, programs, legislative, and institutional issues as well as physical and operational management.

Federal Energy Administration, Vanpool: Executive Summary and Vanpool: Implementation Handbook, prepared for Vanpool Implementation Workshops, Washington, D.C., February, 1977.

Developed as part of the 1977 Federal Energy Administrations (FEA) management workshop series on vanpooling, this package introduces the vanpool concept and outlines the steps for putting together a pooling program. Discussions include organization, selecting routes, drivers/coordinators, and vans, estimating costs, revenues, and fares, assembling pools, and dealing with legal issues.

Johnson, Chris and Ashish K. Sen, Vanpool Planning Manual (Report No. 3) School of Urban Sciences, University of Illinois, Chicago, Illinois, 1977.

(See carpool reference.)

Miller, Gerald K. and Melinda A. Green , An Analysis of Commuter Van Experience, The Urban Institute, National Technical Information Service No. PB-252-304, Springfield, Virginia, 1976.

An analysis of the planning, organization, and operation of vanpool programs in the United States and Canada, more than 30 existing operations have been examined and classified according to the type of organization, such as employer or local government, that provides the service. Benefits to users, employers, and the community are discussed, and service characteristics that are likely to attract riders are indicated. Public regulation, competition with other transit, liability and insurance, implications of driver compensation, and the potential for large-scale, areawide van service are also analyzed.

Miller, Gerald K. and Melinda A. Green , Guidelines for the Organization of Commuter Van Programs, The Urban Institute, National Technical Information Service No. PB-252-305, Springfield, Virginia, 1976.

This paper describes the major stages in the development of a company-sponsored commuter van program, outlining feasibility investigation, promotion and organization, and actual operation and administration. These guidelines presented for potential sponsors, contain seven detailed commuter van service case studies, and are based on the experience of these successful programs.

SYSTEM-SPECIFIC REFERENCES

Continental Oil Company, (CONOCO) Vanpooling: A Commuting Alternative That Works, Houston, Texas, 1976.

Continental Oil Company, and "A Marketing Concept for Vanpooling," Houston, Texas, 1976.

An overview of the 10-van pilot program CONOCO developed for its Houston employees, highlighting the advantages and disadvantages for the users and the employers. Estimates of fares, equipment needs, capital and operating expenses and revenues as well as sample agreements, questionnaires and log sheets are included.

Owens, Robert D., and Helen L. Sever , The 3M Commute-A-Van Program, St. Paul, Minnesota, May, 1974.

An overview of one of the first and probably best known employer-based vanpooling programs. Summaries of their questionnaires and rider surveys and comments are included.

Timman, Karen, Commuter Van Program, General Mills, Inc., Minneapolis, Minnesota, July, 1977.

Based on General Mills' experience, this manual clearly describes the advantages and disadvantages of commuter vanpooling. Procedures for establishing a basic vanpooling programs, as well as several possible variations are included. Employee surveys and questionnaires, van and equipment specifications, sample pool coordinator's agreement, billing forms and itemized fare and cost estimates may be used as guides for outlining a similar program.

Chrysler Corporation, Commuter Vanpooling Operations Guide for Employers, Public Responsibility and Consumer Affairs Division, Detroit, Michigan, October, 1977.

Based on Chrysler Corporation's employee vanpooling experience, this manual outlines suggested planning, implementation, and operating procedures for other potential employers-based vanpooling programs. Helpful sample supporting materials include: marketing information, operating agreement for driver/coordinator, passenger agreement, revenue and expense reports, and driver logs.

Commuter Transportation Services, Inc., Vanpool, Commuter Computer Vanpool, Inc., Los Angeles, California 1976.

An introduction to the unique Commuter Computer nonprofit ride-sharing program which currently serves several employers within the Los Angeles region dministrative requirements, sample applications and leases, as well as financial and operational requirements of the various parties are included.

Bush, Leon R. and George J. Todd , Vanpool Implementation in Los Angeles, (Commute-A-Van) The Aerospace Corporation Los Angeles, California, November, 1975.

SUBSCRIPTION BUS/BUSPOOLS

Kirby, Ronald F. and Kiran U. Bhatt, Guidelines on the Operation of Subscription Bus Services, The Urban Institute, Washington, D.C., July, 1975.

This study deals with the planning, organization, and operation of specialized subscription bus services, which are tailored to serve urban travelers who agree to patronize them on a regular basis. Based on ten detailed case studies of such services, the authors develop guidelines for identifying and informing potential riders; obtaining vehicles and drivers; meeting regulatory requirements; setting routes, schedules, and fares; and obtaining special privileges such as the use of express lanes and close-in parking. Consideration is also given to the potential impacts of these services on congestion, pollution, and fuel consumption, and to their influence on residential location decisions.

Truby, James T., Door-to-Door Buspools: Recommendations for Public Policy, Consortium of Universities, National Technical Information Service, No. UMTA-DC-11-0003-73-11, Springfield, Virginia, November, 1973.

This report details the planning, implementation, expansion, refinement and problems of Columbia and Baltimore, Maryland's buspools. Buspools in Reston, Virginia, Flint, Michigan, and Peoria and Decatur, Illinois are also compared to identify and recommend ways that public policy can encourage the creation of buspools.

JITNEYS/TAXIS

Rosenbloom, Sandra, Taxi and Jitney Service in the United States and Recent Transportation Trends in the Inner City, General Research Corporation, Santa Barbara, California, February, 1971.

This paper analyzes the history of different taxi and jitney operations, their patronage and market appeal, and their effect on other transportation systems, demand especially within downtown and particularly inner city areas. Restrictions and regulations on the taxi and jitney industry are discussed and partially blamed for the federal and local governments'inability to meet inner city transportation needs.

Rosenbloom, Sandra, "Taxis, Jitneys, and Poverty," Trans-action: Social Science and Modern Society, Volume 7, Number 4, February, 1970.

Transportation services from ghettos to outlying areas and especially places of employment are inadequate at best and often non-existent. This article describes how jitneys and taxis can play a triple role in filling these unmet urban ghetto needs, by (1) providing transportation to employment sites (2) jobs for low-skilled ghetto residents as drivers and mechanics, and (3) mobility and social services for the poor.

SYSTEM DOCUMENTATION
(FOR OPERATING OR DISCONTINUED SYSTEMS)

System Name: ______________________ Location: ______________

Service Objective(s): ______________________________

What is good/bad about your system? ______________________

____

____

____

____

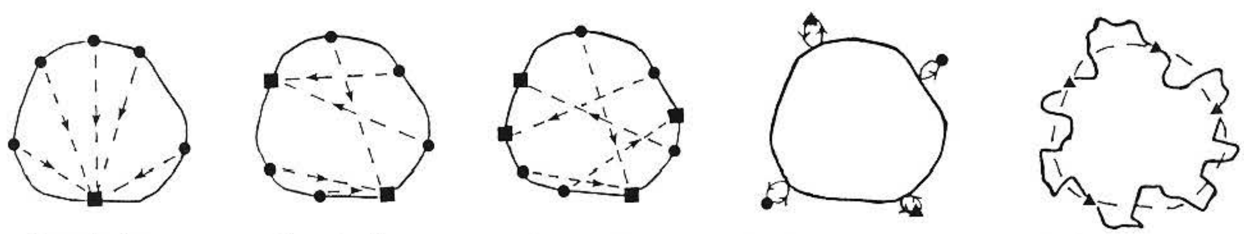
ORGANIZATION (Send Organization Chart if Available)

Sponsor: ______________________ Operator: ______________

Authority: ______________________ Consultants: ______________

Planner: ______________________

SERVICE TYPE (Check any types which approximate yours):

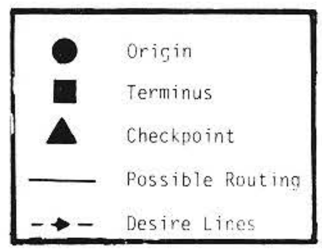


Many-to-One	Many-to-Few	Many-to-Many	Deviation from Route	Deviation from Checkpoint
Peak ☐	Peak ☐	Peak ☐	Peak ☐	Peak ☐
Off-Peak ☐	Off-Peak ☐	Off-Peak ☐	Off-Peak ☐	Off-Peak ☐

Other, Describe or Draw

Peak ☐

Off-Peak ☐



ELIGIBLE RIDERSHIP

☐ All Public ☐ Elderly ☐ Handicapped ☐ Low Income ☐ Agency Clients Only ☐ Parcels

☐ Other specific groups (commuter, day care, etc.): ______________________

Integrated With

☐ Local Fixed-Route Bus ☐ Demand-Responsive System in Other Zones ☐ Rail

☐ Intercity Fixed-Route Bus ☐ No Other Service ☐ Other ______________

Annual Ridership _____ Year: From ____ To ____ Average Number of Weekday Riders: Total ____ Peak: ____ Off-Peak: ____

Average Group Size Traveling Together: __________ Mean Passenger Trip Length (if taken by auto): __________ miles

SYSTEM DOCUMENTATION FORM A6

A6

FARES

Regular Fare: $_____

Average Revenues per One-Way Person-Trip: $_____

Special Fares: $_____ for: _________

$_____ for: _________

ACCESS

User Access to System:

☐ Phone ☐ Hail ☐ Fixed Stops

☐ Other ____________________

Pick-Up Points:

☐ House ☐ Designated Points ☐ Hail

Assess Timing:

☐ Immediate Service ☐ Advance Reservation: ____ hrs.

☐ Subscription (standing reservation)

HOURS

	from/a.m.	to/p.m.
Mon-Thurs	____	____
Fri	____	____
Sat	____	____
Sun	____	____

STAFF

(If you use part-time employees, give answers in equivalent full-time levels.)

Total Employees: ____ No. in Control Room: ____

No. of Drivers: ____ No. in Maintenance: ____

DRIVERS

____ ATU Member ____ TWU Member ____ Independent Union

____ Non-Union ____ Volunteer ____ Part-Time

____ Other ____________________

VEHICLES

Use Code for Type: 1=auto; 2=van; 3=small bus; 4=large bus; 5=shared-ride taxi

No. in Fleet: ____ No. Operating: ____ Peak: ____ Off-Peak: ____

Type	Capacity	Seats	Standees	Manufacturer
☐	____	____	____	____
☐	____	____	____	____
☐	____	____	____	____

Vehicles: ☐ Owned ☐ Leased

No. of Vehicles with Wheelchair Lifts: ____ Ramps: ____

Annual Vehicle In-Service Hours: ____________

Annual Vehicle In-Service Miles: ____________
(Use same year as annual ridership reported)

LEVELS OF SERVICE

Ride Time:
Avg. (mean) ____
Range ____

Promised Wait Time:
Avg. (mean) ____
Range ____

Actual Wait Time (Immediate Request) Avg____ Range ____

Pick-Up Deviation (Advance Request) Avg____ Range ____

Vehicle Wait Time for Customers at Pick-Up:

Maximum Time Vehicle Will Wait: ____

Average (mean) Vehicle Waiting Time: ____

Transfer Wait Time Avg ____ Range ____

Arrival Time:

How estimated: ☐ Constant ☐ Function of State of System

Form provided in: ☐ Point estimate ☐ Range of times

When provided: ☐ During request call ☐ By call-back

☐ Confirmed by call-back

HARDWARE AND SOFTWARE

Mobile Communications: ☐ One-Way Paging Device ☐ Telephone ☐ Digital-Printer ☐ Two-Way Radio ☐ Digital-Video

Control Center: ☐ Magnetic Map ☐ Computer: ☐ Dedicated ☐ Time-Shared with Other Functions ☐ No Computer

☐ Other ____________________

Computer Does: ☐ Address Location ☐ Vehicle Assignment ☐ Route Determination ☐ Management Information

☐ Other ____________________

SERVICE AREA DESCRIPTION

Population (197__): _____ people; If Target Group Service, Population: _____ people; Service Area Size: _____ square miles.

Description of Service Area (Check as many as apply):

☐ Entire City ☐ Section of City ☐ Urban Area ☐ Suburban Area ☐ Entire County ☐ Rural

If service area is divided into zones, number of zones: ____

Political Units or Census Tract (give tract numbers) in Service Area: ____

RIDER CHARACTERISTICS

If any ridership surveys have been taken, please send results.

TRANSPORTATION SYSTEM CHARACTERISTICS

Other Transport Available in Service Area:

☐ Taxi ☐ Fixed-Route Bus: No. of Routes ____ Route-Miles ____ Headway: Peak ____ Midday ____

☐ Commuter Rail: No. of Stations ____ ☐ Intercity Rail, Bus ☐ Air Terminal ☐ Sea Terminal

☐ Other ____________________

SYSTEM DEVELOPMENT

Date of Start of Planning:____ Date of Decision to Implement:____ Date of Service Initiation:____ Discontinued Date:____

Start-Up Strategy (Check as many as apply):

☐ Small Fleet ☐ Small Service Area ☐ Minimum Advertising ☐ High Fare (to constrain demand)

☐ Service Initiated All At Once ☐ Incremental Growth of Service ☐ Other ____________________

Previous System:

☐ None ☐ Fixed Route: ☐ Replaced All Fixed Routes ☐ Other ____________________

☐ Replaced Some Fixed Routes

Service Changes:

Date	Type of Change	Impact

How did you estimate potential demand before inaugurating the system:

☐ Rules of thumb, based on ____________________ ☐ Looked at other systems

☐ Didn't; started system incrementally ☐ Estimated modal split based on existing transit users

☐ Used more formal models based on characteristics of existing users ☐ Other ____________________

How did you estimate fleet size and staff requirements:

☐ Based on demand estimates using: ☐ Rule of thumb, based on ____________ ☐ Model, based on ____________

☐ Determined by funding constraints ☐ Other ____________________

Did you estimate levels of service (wait time, ride time, etc.)? ☐ Yes ☐ No

How? ☐ Level of service given as basic requirement ☐ Used model based on vehicle supply and demand ☐ Other ________

FUTURE PLANS

	Describe	Date
☐ New Services Anticipated		
☐ Expanded Service Area		
☐ New Equipment		
☐ New Operating Strategy		
☐ New Service Area		
☐ Experimental Project		

FINANCE

Total Capital Costs: $______

Operating Costs/Year:

Vehicle Operating Cost/Year $______
Maintenance Cost/Year $______
Control Room Cost/Year $______
Administration and Marketing Cost/Year $______
Capital Cost/Year $______
Other Cost/Year Not Listed Above $______

Total Cost/Year $______

Revenue Per Year $______

Average Wage Rate: Drivers: $____ (___% fringe benefits);

Maintenance: $____ (___% fringe benefits)

Funding Sources:

Federal ____% UMTA Section 5 ___; Other ____________

State ____% Tax Source: ____________

County ____% Tax Source: ____________

City ____% Tax Source: ____________

Special District ____% Tax Source: ____________

Local Organization ____% Name: ____________

Source: ____________

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INSTITUTIONAL ISSUES

Were problems experienced in any of the following areas?

	Severe	Minor Problem	No Problem
Regulations, Legal	☐	☐	☐
Permits or Licensing	☐	☐	☐
Insurance	☐	☐	☐
Labor: Contract	☐	☐	☐
Work Rules	☐	☐	☐
Funding	☐	☐	☐
Community Response	☐	☐	☐
Political Response	☐	☐	☐

If severe problems were experienced, please explain:

____

____

____

____

COMMENTS

Please use this section to elaborate on any institutional problems encountered or to comment on any of the following items:

- o Information you needed for system development and didn't have;
- o Information you found to be useful;
- o Pitfalls to avoid;
- o Why the system succeeds/does not succeed;
- o Problem areas needing attention.

____

____

____

____

____

Name of person filling in data: ____________________ Organization/Telephone No. ____________________

- -

____

____

____

TO: ROY E. LAVE
SYSTAN, INC.
P.O. BOX U
LOS ALTOS, CA 94022

FUTURE PARATRANSIT PLANS A7

The following charts list proposed:

(1) New demand-responsive transit services,

(2) Expansion of existing demand-responsive transit services, and

(3) Planning and/or feasibility studies.

These future plans and services were identified from the Transportation Improvement Program (TIP) analyses, and are arranged alphabetically by states. Type of service and market orientation information is included, and may be helpful for those users wishing to identify particular types of future demand-responsive transit services.

NEW SERVICES

SITE	MARKET/ SERVICE TYPE
Montgomery, AL New user-side subsidy demonstration.	TM/SRT
Carson, CA	TM/DAB
Ceres, CA	TM/DAB
Culver City, CA	TM/DAB
Palm Springs, CA	TM/DAB
Roseville, CA	DAB
San Jacinto, CA	GM/DAB
Simi Valley, CA	TM/DAB
Torrance, CA	DAB
Victor Valley, CA	TM/DAB
East, New and West Haven, CT	TM/DAB
Springfield, CT	TM/DAB
Stamford, CT	DAB
Waterbury, CT	TM/DAB
Ft. Lauderdale, FL Hope to eventually expand and integrate service with route deviation, express and other fixed-route services.	GM/DAB
Lafayette, IN Primarily subscription service.	GM/DAB
Sioux City, IA FHWA Section 147 demonstration.	TM/DAB
Howard County, MD	TM/DAB

(New Services, Continued)

SITE	MARKET/ SERVICE TYPE
Westfield, Hampden and Hampshire Co., MA Coordinated paratransit services-state demonstration project.	GM/SRT
Saginaw County, MI TM/DAB Service operates in Saginaw urban area.	GM/DAB
Saline, MI SEMTA Region	GM/DAB
Livingston, MI	TM/DAB
Wayne, MI	TM/DAB
Oakland, MI	TM/DAB
St. Clair, MI 3 additional GM/DAB services	TM/DAB
Washtenaw, MI Integrate with existing Ann Arbor service	TM/DAB
Duluth, MN	TM/DAB
Rochester, MN Hope to integrate with fixed-route service	TM/DAB
Springfield, MO	TM/DAB
St. Louis, MO	TM/DAB
Bergen Co., NJ	TM/DAB
Middlesex Co., NJ	TM/DAB
Albany, NY Hope to coordinate services with social service agencies.	TM/DAB
Brooklyn, NY	DAB
Rockland Co., NY	TM/DAB
Westchester Co., NY	TM/DAB

A7

(New Services, Continued)

SITE	MARKET/ SERVICE TYPE
Winston-Salem, NC In planning stage now.	TM/DAB
AKRON, OH DAB with portions sub-contracted to local taxi operators.	TM/DAB SRT
Toledo, OH	TM/DAB
Springfield, OH Initially advanced reservation and subscription service; after established study feasibility of immediate request service	TM/DAB
Lawton, OK	GM/SRT
Altoona, PA	TM/DAB
Erie, PA	TM/DAB
Johnstown, PA	TM/DAB
Lehigh Valley, PA	TM/DAB
Pittsburgh, PA Hope to coordinate services with broker-demonstration.	TM/DAB
Scranton, PA	TM/DAB
Sioux Falls, SD New subsidy program.	TM/DAB SRT
Brownsville, TX Also studying eligibility and marketing possibilities.	TM/DAB
Dallas/Ft. Worth-Suburban communities, TX (Irving, Garland, Richardson, Grapevine, Grand Prairie, Mesquite, Ricbland Hills) Hope to initiate geeder, subscription and immediate DRT services	TM GM/DAB
Fort Worth, TX Initiate flexible route neighborhood collection transit service and coor-dinate with other services.	TM/DAB GM/DAB

(New Services, Continued)

SITE	MARKET/ SERVICE TYPE	SITE	MARKET/ SERVICE TYPE
Bountiful, VT Initially only subscription service; hope to later expand to allow immediate request DRT service.	TM/DAB		
Arlington, VA	GM/SRT		
Richmond, VA Plan to coordinate taxi, 16(b)(2) providers and other transportation services	TM/DAB SRT		
Tacoma, WA	TM/DAB		
Dane Co., WI	TM/DAB		

EXPANSION OF EXISTING SERVICES

SITE	MARKET/ SERVICE TYPE
Phoenix Region, AZ	
Glendale, AZ Expand service area to include Phoenix	GM/DAB
Mesa, AZ Expand shared ride taxi service	GM/SRT
Scottsdale, AZ Initiate new services-hope to integrate with fixed route service	TM/SRT GM/SRT
Little Rock, AR Expand capital to include handicapped vehicles; receives no public funding	GM/SRT
Arcadia, CA	GM/DAB GM/SRT
Corona, CA	GM/DAB
El Cajon, CA New reimbursement strategy	GM/SRT
Fresno, CA Plans to expand existing target market service. Initiate new shared-ride taxi service and cut back low demand fixed-route evening service.	TM/DAB GM/SRT
Fullerton, CA	GM/SRT DAB
Hollywood/Westlake/Wilshire, CA	GM/DAB
La Habra, CA	GM/DAB
La Mirada, CA	GM/DAB
Lompoc/Santa Barbara, CA Also studying for future expansion to entire Lompoc Urban Area and Santa Barbara County	GM/DAB

(Expansion of Existing Services, Continued)

SITE	MARKET/ SERVICE TYPE
Manhatten Beach, CA	TM/DAB
Merced, CA	GM/DAB
Montebello, CA	GM/DAB
Norwalk, CA	TM/DAB
Orange Co., CA	GM/DAB SRT
Palo Alto, CA Plans to coordinate with existing bus service.	TM/SRT
Placer Co., CA	GM/DAB
San Bernadino, CA	GM/SRT TM/DAB
San Diego, CA (City and County) Expand hours and coordinate service with fixed route bus schedules.	TM/DAB

SITE	MARKET/ SERVICE TYPE
South Gate, CA	TM/SRT
Tracy, CA	GM/DAB SRT
Turlock, CA	GM/DAB
Bridgeport, CT	TM/DAB
Hartford/West Hartford, CT Service area to include 20 towns	TM/DAB
Westport, CT	GM/DAB TM/SRT
Dolver, DE	TM/DAB
Dode County, FL	TM/DAB SRT
Albany, GA	TM/DAB

A7

(Expansion of Existing Services, Continued)

SITE	MARKET/ SERVICE TYPE
Chicago, IL	TM/DAB
Indianapolis, IN Recently applied for SRT user-side subsidy demonstration; also studying E & H transportation needs for future expansion possibilities. Also interested in commuter vanpool program for municipal employees.	TM/DAB
Bettendorf, IA Plan to expand and coordinate DAB with fixed route service	GM/DAB
Des Moines, IA	TM/DAB SRT
Topeka, KS	TM/DAB
Sanford, ME	TM/DAB
Boston, MA Expand area and service	TM/DAB
Brockton Area Towns, MA	TM/DAB SRT
West Springfield, MA	TM/DAB
Worcester, MA	TM/DAB SRT
Alma, MI	GM/DAB
Ann Arbor, MI Expand and integrate with fixed route service.	GM/DAB
Big Rapids, MI Expand vehicle fleet and service area	GM/DAB
Gladwin Co., MI Expand to county-wide service area.	GM/DAB
Grand Haven, MI Expand equipment and service area.	GM/DAB

(Expansion of Existing Services, Continued)

SITE	MARKET/ SERVICE TYPE
Grand Rapids, MI Expand service area and coordinate with social service providers.	TM/DAB
Houghton Co., MI Expand equipment and service to county-wide area.	GM/DAB
Iosco Co., MI Previous service limited to E & H.	GM/DAB
Isabella Co., MI	GM/DAB
Jackson, MI	TM/DAB
Lake County, MI Expand service to entire county.	GM/DAB
Marshall, MI	GM/DAB
Midland, MI	GM/DAB
Muskegon, MI	TM/DAB
Niles, MI Expand service area and hours of operation.	GM/SRT
Ypsilanti, MI	GM/DAB
Western Area, NB Purchase additional vehicles	TM/DAB
Clark Co., NV	TM/DAB
Washoe County, NV	TM/DAB
Batavia, NY	GM/DAB
Livingston County, NY	TM/DAB
Nassau County, NY	DAB

(Expansion of Existing Services, Continued)

SITE	MARKET/ SERVICE TYPE
Rochester-Greece-Irondequoit, NY Demonstration	GM/DAB TM
Syracuse, NY Expand capital and services. Also hope to initiate additional rural GM/SRT service; currently studying feasibility.	TM/DAB
Columbus, OH Plans to coordinate with fixed route service. Also hope to initiate new TM/DAB with peak subscription and off-peak DRT service.	GM/DAB
Cuyahoga Co., OH	TM/SRT DAB
Geauga County, OH Received FHWA Section 147 demonstration funds.	TM/DAB
Kent, OH Expand to city-wide service; also plan to initiate experimental broker agency.	TM/DAB
Lake County, OH	TM/DAB
Miami Valley, OH	TM/DAB
Oberlin, OH	TM/DAB
Youngstown, OH	TM/DAB
Xenia, OH	GM/SRT
Portland, OR	TM/DAB
Austin, TX	TM/DAB
Dallas, TX Hope to coordinate service with social service agencies.	TM/DAB
Houston, TX Expand TM service area to entire city. Interested in broker concept for demonstration-13(c) problems.	TM/DAB GM/DAB

(Expansion of Existing Services, Continued)

SITE	MARKET/ SERVICE TYPE	SITE	MARKET/ SERVICE TYPE
San Antonio, TX Also studying coordination of social service providers.	TM/DAB		
Spokane, WA	TM/DAB		
Madison, WI	TM/DAB		

STUDIES

SITE	SITE

Pueblo, CO
E&H Transportation Study

Colorado Springs, CO
Feasibility of E&H SRT versus DAB Service

District of Columbia
Restudying paratransit potential as feeder to Metro or for target market services.

St. Petersburg, FL
Trying to coordinate and integrate all transportation resources: private operators, transit authority, social service agencies. Public DAB system currently operating.

Savannah, GA
Study of E&H special transportation needs

Auburn, ME
Study of existing and alternative paratransit services

Baltimore, MD
feasibility study; have existing semi- and non-ambulatory DAB service

Fetchburg, MA
Studying potential latent demand and marketing of DAB services

Albuquerque, NM
Study interfaced with UMTA demonstration to "evaluate optimal combination of public and private E&H transportation providers"

Binghamton, NY
Feasibility of DRT service in surrounding non-urbanized area

Gastonia, NC
E&H transit needs

Montoursville, PA
DRT feasibility; anticipate future services

(Studies, Continued)

SITE	SITE
Reading, PA E&H transportation needs	King County, WA Multi-modal general market study which will consider paratransit potential on par with other transit services
Abilene, TX E&H transportation needs	Seattle, WA Studying brokerage concept for marketing existing transportation resources; hope to sponsor future coordinated services
Corpus Christi, TX City currently operates TM/DAB service; studying additional E&H needs for future services	Yakima, WA Existing TM/DAB service; studying feasibility of expanding services
Midland, TX Subscription, pooling, and demand-responsive service feasibility studies	Madison, WI Studying paratransit feasibility; anticipates future late-night GM/SRT service; also anticipates future GM/DAB subscription service
Fredericksburg, VA Feasibility of initiating new DAB service	
Lynchburg, VA Existing TM/DAB service; studying additional special community transportation needs	