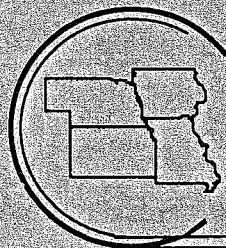


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**COORDINATED PARATRANSIT
IN THE ERA OF THE ADA:**
An Assessment of the Needs and Opportunities
for a Paratransit System
in the Rock Island County Metropolitan Mass Transit District

November, 1991

Prepared by the
College of Design
Iowa State University
in conjunction with the



MIDWEST
TRANSPORTATION CENTER

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Midwest Transportation Center
2521 Elwood Drive Suite 125
Iowa State University
Ames IA 50010-8263
Telephone: (515) 294-8103
Fax: (515) 294-0467

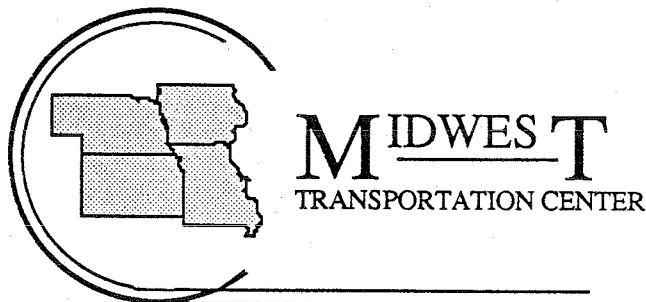
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Submitted by

Mary Kihl
Arvid Osterberg
Stephen Baumhover
Thomas Collins
Frances Evans
Jeffrey Harper
Sandra Nay
Soma Sen

Prepared by the
College of Design, Iowa State University,
in conjunction with the



This project is being funded jointly by
the Midwest Transportation Center at
Iowa State University
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**COORDINATED PARATRANSIT IN THE ERA OF THE ADA:
An Assessment of the Needs and Opportunities
for a Paratransit System in the
Rock Island County Metropolitan Mass Transit District**

A team of researchers from Iowa State University, under contract with the Rock Island County Metropolitan Mass Transit District (Metro Link) and the Midwest Transportation Center, has been considering the challenges and opportunities involved in implementing a paratransit service in the Metro Link service area for persons eligible under the Americans With Disabilities Act (ADA) of 1990.

While mainstreaming is clearly the objective of the ADA and all fixed route buses now purchased must be fully accessible, the law recognizes that for even when bus routes are fully accessible there will still be a small number of individuals whose disabilities will make it impossible for them to travel on fixed route service. For those individuals, communities are required under the protection extended by the ADA (Sections 37.111 and 37.113-37.127), to provide a comparable paratransit, demand-responsive system that will complement the fixed route system.

This service is to be made available to a specific set of individuals defined as "ADA Paratransit Eligible." The expectation is that other elderly and disabled individuals will be able to be accommodated on the regular fixed route bus. Paratransit eligibility is defined in functional rather than in medical terms. In general, eligibility is to be based upon whether the accessible fixed route system can provide for the particular trip of the individual. The specific categories of "paratransit eligible" are defined as follows:

- Category 1: An individual who is unable as a result of a mental or physical impairment to use an accessible vehicle without the assistance of another individual other than the person operating the lift.

- Category 2: An individual who normally could use accessible transit supplied with a wheelchair lift. However, the system is not operating an accessible vehicle over the route or within the time when the trip is desired. This class will eventually disappear as fixed route systems become 100 percent accessible.

Category 3: An individual who has a specific impairment-related condition which prevents him or her from traveling to or from a regular bus stop (e.g. people with chronic fatigue, severe hearing or lung problems or visual or mental disabilities which cause them to become disoriented on the way to or from a bus).

These categories are intentionally very restrictive. Particularly noteworthy is that age or use of a wheel chair or other mobility aid does not, in itself, make one paratransit eligible in the sense of the ADA. Paratransit service is costly to operate; the intention is to require that it be provided only to a small group who cannot use accessible fixed route transit.

Since a paratransit demand-responsive system differs fundamentally from a fixed route system, "comparable" service is understood not to mean "identical" service. Paratransit is required to operate in an area included within three-fourths of a mile of all regular service fixed routes, on the same hours, and for the same purposes; the response time will necessarily differ. Paratransit eligible riders are to be charged no more than twice the cost of a ride on the fixed route bus. The regulation also establishes operating requirements including requirements for employee training, maintenance of equipment, accommodation of mobility aids, and provision of appropriate systems to communicate with users.

SYSTEM DESIGN FOR METRO LINK SERVICE AREA

The study involved analysis of the regulations, an assessment of the experience of other cities, telephone and mail back surveys conducted of residents and social service agency clients in the Metro Link service area, and interviews with service providers. Several key observations emerged. These should be underscored in designing a paratransit service for the ADA Eligible Individuals in the Metro Link service area.

KEY OBSERVATIONS

- First, all indications are that the numbers of individuals who would be served by the complementary paratransit system are relatively low. When the eligibility requirements for Category 1 disabled, "those who cannot navigate a fixed route system" and Category 3 "those who cannot travel to a bus stop" are strictly applied, the number of potentially eligible persons is estimated to be only 1,179. The fact that Metro Link will be fully accessible early in the 1992 calendar year will mean that there will not likely be any

Category 2 eligible residents (i.e., those who could travel on an accessible bus if one were available).

- Second, among those who would be technically eligible, the expectations based on national averages is that only 20 percent will actually travel. Surveys conducted in the Metro Link service area as well as in other places in the country indicate that these individuals will travel about 12 to 15 times a month. Hence the system will not initially be providing a large number of trips--only about 3,500 a month to Category 1 and Category 3 individuals. About four to five small vehicles could easily carry out this number of trips, even if only two eligible individuals (along with escorts) were transported at a time.
- Third, there are accessible social service agency vehicles in the service area which could be involved in the operation if adequate funding were available to hire additional drivers and provide for operating costs. The taxi cab companies would potentially be able to assist with evening trips for ambulatory eligible riders and wheel chair users who can and wish to transfer to a car seat.
- Fourth, the expectation would be that the social service operators in the area would continue to operate their own services. All figures discussed above relate only the specific paratransit service which would complement the fixed route.
- Fifth, the potential destinations for most trips are clustered in a few key areas of the city and the areas which are most likely to have eligible riders are similarly clustered. Hence, a zonal operation of vehicles would work efficiently.
- Sixth, although Metro Link operates an efficient and well received assessable fixed route system, it has never operated a paratransit system. It has invested in an advanced computer scheduling program. Social service agencies in the area have operated small demand responsive operations, but most have only carried their clients to specific "project" destinations. One system, Project NOW, has operated as a demand responsive service, primarily for seniors.
- Seventh, there is some experience with contracting among the public agencies in the area, but no other extensive experience in coordination of services. There is no extensive experience involving public-private cooperation.

- Eighth, there are no additional federal funds available to assist in implementing the ADA complementary paratransit system. The expectation is that funds will need to be derived from local sources. The potential for involving townships in the funding process has been explored. Townships are playing a major role in paratransit operations in the Chicago area.

SYSTEM DESIGN CONSIDERATIONS

Strict Eligibility Requirements. Since the Metro Link service area has not had very much experience with a demand-responsive paratransit operation, it is unclear how many residents would be interested in trying the service. The telephone survey indicated considerable interest. It would, therefore, be essential to begin with very clear, but strict guidelines for eligibility. If the eligibility screening process is clear and the review panel has credibility within the area, the eligibility requirements can be strictly applied, at least initially. Consistent, strict application would minimize challenges while an impartial appeal process would be well announced. Eligibility requirements could always be relaxed later based on the number of individuals who actually choose to ride.

Small Initial Operation. Given funding limitations as well as the anticipated small number of paratransit eligible individuals it is recommended that a small rather simple system be instituted at first. The system would begin operating with minimal number of vehicles in two large overlapping zones. Since the shopping mall and many other attractors are centrally located, it would be possible to travel to most destinations in either zone within 15 minutes.

Fare Requirements and Scheduling. The ADA permits a fare which is double that charged on the regular fixed route bus. That would mean a fare of \$1.20 would be charged for all trips on the system. Advanced call-ins requesting service would be essential for scheduling this operation. Therefore, the system would need to adopt the ADA policy of calling in by 5:00 P.M. on the day before the trip is needed. Any deviation from that would have to be on an emergency basis at the discretion of the scheduler. Use of a computer program to keep track of eligibility and origin and destination would be most important. That would be essential if trips are to be charged to cooperating agencies.

Maintenance. Consistent regular maintenance is essential to the operation of the small vehicles proposed for the paratransit system, especially since vehicles will need to be in constant operation for the full day of the Metro Link schedule. With proper regular maintenance modified vans,

mini vans and body on chassis vehicles will all go 150,000 miles.

ASSESSMENT

Several alternative models for providing the service were explored including: (1) coordination with other social service operations in the area; (2) contracting out; and (3) instituting a new independent Metro Link paratransit system.

After considering costs, vehicle availability and experience, the appropriate alternative for the short run appears to be contracting out. This is what the majority of transit operations across the county have discovered. It will get the system up and running more quickly and at less expense than other options. To contract out the whole operation would be the simplest solution, although, as indicated above, bids could be let for various aspects of the program.

- Contracting out vehicle operations would have the most positives and the least negatives associated with it. Such a contract or set of contracts would be for one year, renewable upon mutual agreement. Certainly the concept of contracting with a taxi cab company to run evening or ambulatory service should be explored.
- Contracting out scheduling might increase efficiency if the same agency managed operations and schedules. However, by contracting out scheduling, Metro Link would not be taking advantage of its existing computer scheduling program. More seriously, this would result in Metro Link's losing control over the important connection between eligibility determination and trip provision.
- Contracting out maintenance for substantial repairs would potentially allow for cost savings. However, Metro Link would be able to perform routine maintenance on the small fleet required for the operation. It would be possible to further coordination and potentially to reduce costs by organizing a maintenance pool in common with other providers.

Setting up a separate operating entity to manage the system might take some time, but would be worth pursuing. This entity could handle the system administration, handle and account for all funding, and be responsible for billing procedures as well as for contract bidding. This type of entity is working very effectively in association with the fixed route operations in Chicago, Kansas City and the Twin Cities, among others.

In the interim, a broad based advisory board representing social service agencies, private operators, and the disabled community could play a coordinating role and help to establish the eligibility review board. The quality of that eligibility review board and the respect that it engenders in the community for fair and impartial judgement holds the key to the successful operation of a complementary paratransit system.

CHAPTER ONE: INTRODUCTION

A team of researchers from Iowa State University, under contract with the Rock Island County Metropolitan Mass Transit District (Metro Link) and the Midwest Transportation Center, has been considering the challenges and opportunities involved in implementing a paratransit service in the Metro Link service area for persons eligible under the Americans With Disabilities Act (ADA) of 1990. The ADA requires access for and prohibits discrimination against the 43 million Americans reported by the Census Bureau to have some sort of physical or mental disability. The law, which is broadly based, guarantees the civil rights of these individuals with respect to employment and transportation. As such it demonstrates significant progress in moving the country forward toward non-discrimination and equal access.

Under Title V of the Rehabilitative Act of 1973, only companies with Federal contracts or groups receiving Federal funds were required to provide access and forbidden to discriminate. The 1990 ADA is more specific and comprehensive by extending protection for the disabled to both the public and private sectors nationwide. Most areas of the public and private sectors are targeted for accessibility under the ADA--from building codes and retail businesses to transportation and telecommunications. The clear intention is to allow persons with disabilities to mainstream into community life in ways not before possible.

THE ADA AND PUBLIC TRANSPORTATION

Specifically, as applied to transit service, the civil right to travel on accessible fixed route transit is to be guaranteed to persons with disabilities. The major change for fixed route transportation service under the 1990 ADA is that after October, 1990 all new fixed route buses purchased and all remanufactured vehicles, extending the life of a vehicle more than five-years, must be made accessible to wheelchair users.

While mainstreaming is clearly the objective, the law recognizes that for some communities it will take a number of years to establish a fully accessible fixed route service. Even when these routes are established there will still be a small number of individuals whose disabilities will make it impossible for them to travel on fixed route service. For those individuals communities are required under the protection extended by the ADA (Sections 37.111 and 37.113-37.127) to provide a paratransit, demand responsive system that will complement the fixed route system.

While the goal of the ADA as it applies to public transportation is clear, it is left to each public entity to determine its own response to the need for a "comparable" paratransit service for those unable to use an accessible fixed route system. All public entities which operate a fixed route system are, however, required to file a plan for such a system on January 26, 1992, although the system may be gradually phased in until 1993. Local plans will be subject to approval by the Urban Mass Transportation Administration (UMTA).

The process is far from prescriptive, yet "comparable" paratransit service is defined as including the following six characteristics:

- (1) Operate in the same service area as the fixed route system
- (2) Comparable response time
- (3) Comparable fares
- (4) Comparable days and hours of service
- (5) Meet requests for any trip purpose
- (6) Not limit service because of capacity constraints

Since a paratransit service, which is door-to-door and demand responsive differs fundamentally from a fixed route system, "comparable" service is understood to not mean "identical" service. Although paratransit can and should operate in the area served by fixed route, on the same hours, and for the same purposes, the response time will necessarily differ.

The regulation also establishes operating requirements including those requirements for employee training, maintenance of equipment, accommodation of mobility aids, and provision of appropriate systems to communicate with users.

The ADA does not limit the paratransit service which many communities already provide to a broad spectrum of the public, including the elderly and persons with a wide variety of disabilities. The expectation is, however, that most of these individuals could be accommodated on accessible fixed route service. What the new regulations require is that all public entities which operate fixed route services also provide comparable paratransit service to "ADA Paratransit Eligible" individuals. This eligibility is defined in functional rather than in medical terms. In general, eligibility is to be based upon whether the accessible fixed route system can provide for the particular trip of the individual.

The specific categories of "paratransit eligible" are defined as follows:

- Category 1: An individual who is unable as a result of a mental or physical impairment to use an accessible vehicle without the assistance of another individual other than the person operating the lift.
- Category 2: An individual, who normally could use accessible transit supplied with a wheelchair lift. However, the system is not operating an accessible vehicle over the route or within the time when the trip is desired. (This class will eventually disappear as fixed route systems become 100 percent accessible.)
- Category 3: An individual who has a specific impairment-related condition which prevents him or her from traveling to or from a regular bus stop (e.g., people with chronic fatigue, severe hearing or lung problems or visual or mental disabilities which cause them to become disoriented on the way to or from a bus stop.)

These categories are intentionally very restrictive. Particularly noteworthy is that age or use of a wheel chair or other mobility aid does not, in itself, make one paratransit eligible in the sense of the ADA. Paratransit service is costly to operate; the intention is to require that it be provided only to a small group who cannot use accessible fixed route transit. Communities are then free to expand the service to others on a space available basis. Other riders could also be charged higher fares to help defray the cost of the paratransit system.

Purpose of the Study. The purpose of this study is to review the implications of the ADA for specialized transportation in the current Metro Link service area in the Illinois Quad Cities. In particular it will consider alternative forms for a paratransit system which would complement Metro Link's existing fixed route bus system. Various options will be explored in light of existing services, expressed needs of residents and the ADA requirements. Potential eligibility numbers will be derived and a series of operating alternatives will be explored.

DEMOGRAPHIC PROFILE OF METRO LINK SERVICE AREA

The primary study area consists of the cities of Rock Island, Moline, East Moline, Milan, and Silvis, the existing service area of Metro Link in northwestern Illinois. The city of Rock Island covers 17.1 square miles and Moline covers 14.8 square miles while the other cities are considerably smaller. Rock Island County's population in 1990 was 148,723 with over 85

percent living in urban areas. The total rural population of Rock Island County was 23,212 with 3,585 persons living in places of 1,000 to 2,500 population.

As is apparent in Table 1-1, the negative growth rate is reflected in the population of all urban areas in Rock Island County except Colona, which enjoyed a three percent gain. The age pyramids point out the substantial proportion of the population over age 55 in 1980 and the subsequent increase in the upper age brackets in 1990. While all the city of Rock Island experienced a decline in youth age 15-24 in the period 1980 to 1990, the county has a healthy proportion of the population in the 30 to 34 and 35 to 39 age groups (See Table 1-3). These are the groups most likely to contribute to the economic future of the county. Within Rock Island County urbanized areas the population is distributed as shown in Table 1-1.

Table 1-1. Changes in Population of Urban Places in Rock Island County

CITY	1980 POP.	1990 POP.	PERCENT CHANGE
Carbon Cliff	1,578	1,492	(5.4)
Coal Valley	3,800	2,683	(29.4)
Colona	2,172	2,237	3.0
East Moline	20,907	20,147	(3.6)
Green Rock	3,324	2,615	(21.3)
Hampton	1,873	1,601	(14.5)
Milan	6,264	5,831	(6.9)
Moline	45,709	43,202	(5.4)
Rock Island	47,036	40,552	(13.8)
Silvis	7,130	6,926	(2.9)

Rock Island County had a civilian labor force of 87,336 in 1990. Among the residents 58.7 percent participated in the labor force, with an unemployment level of 6.3 percent in 1990. Women made up 44 percent of the labor force and 48.7 percent of all workers were considered white collar workers. Income levels in the county are declining. The per capita income in 1990 was \$16,247. This ranked the county twenty-fifth in the state, with 86 percent of the state

average per capita income of \$18,870 and 92 percent of the national average of \$17,592. The median household income in Rock Island County in 1990 was \$31,235 which is higher than the household income in neighboring Scott County, Iowa that includes Davenport at \$30,570. Distribution of household income levels for Rock Island County in 1985 is shown in Table 1-2. The expectation is that the relative distribution of household income levels did not change dramatically between 1985 and 1990.

Table 1-2. Distribution of Rock Island County Household by Income Level

Less than \$10,000	13.0%
\$10,000 to 14,999	7.4%
\$15,000 to 24,999	15.1%
\$25,000 to 34,999	18.2%
\$35,000 to 49,999	22.4%
\$50,000 to 74,999	16.3%
\$75,000 or More	7.6%

(Source: CACI's Sourcebook of County Demographics)

Despite the relatively high household income level, the average annual growth rate in terms of total personal income for Rock Island County over the past 10 years was only 4.4 percent; the average annual growth rate for personal income for the state of Illinois was 6.7 percent. This slower rate of increase in personal income was in part a reflection of an increasing proportion of the total personal income being derived from transfer payments, with 17.2 percent in 1990 compared to only 11.7 percent in 1979. While earnings increased on average 2.5 percent each year from 1979 to 1980, transfer payments increased on average 8.5 percent. This situation is reflective of an increasing elderly population who derive their income from social security (Illinois Bureau of Economic Analysis).

The proportion of one person households living in Rock Island was 23.9 percent in 1985, again reflective of a rather large senior population. About one-fourth of those residents over age 60 live alone, and among those living alone 47 per cent are over age 75. This indicates a potentially high transit dependent segment of the population. The 1990 age profile for the county is contained in Table 1-3.

Table 1-3. Age Profile for Rock Island County

AGE COHORT	NO. IN 1990	% OF TOTAL POP. IN 1990	% OF TOTAL POP. IN 1980
0 to 4	10,292	6.9	7.8
5 to 14	21,583	14.5	14.6
15 to 24	20,399	13.7	14.5
25 to 34	22,573	15.2	17.0
35 to 44	21,700	14.6	14.3
45 to 54	15,789	10.6	9.8
55 to 65	14,213	9.6	8.7
65 to 74	12,594	8.5	7.6
75 to 84	7,370	5.0	5.3
Over 85	2,240	1.5	1.4

As is apparent, the population is aging. The proportion of the population in the younger age cohorts (0-34) is declining rather consistently while the proportion of residents in the upper age cohorts is generally increasing.

As expected, the percentage of females in the upper age brackets well surpass that of male residents. Whereas 66.6 percent of those 80-84 years old are female, 73.2 percent of those over age 85 are female. Of those 75 to 79, the proportion of females is a more evenly matched 58.9 percent.

Proportion of Population with Disabilities. In planning a paratransit system which will complement an accessible fixed route system it is essential to estimate the number of individuals who might be eligible to use the system. This is a difficult task especially since eligibility is to be determined in functional rather than physical terms. The ability to navigate the fixed route system or to get to the bus stop are the key issues rather than whether an individual has a specific disability. There is no census question specifically addressing that issue. Hence, all figures generated must be regarded as estimates.

There have been a number of attempts to determine the total proportion of disabled in the population with a view to then derive the possible number of paratransit eligible from that figure. Each attempt generates a somewhat different result. One attempt is to apply national averages derived from a number of surveys conducted in different parts of the country. These studies generally indicate that the proportion of all disabled residents is between 9 and 10 percent of the total population. In the Metro Link service area this would mean that there are about 14,872 disabled residents.

The Illinois Iowa Independent Living Center (IILC) in the Quad Cities area generated its own estimates for numbers of individuals with specific disabilities. For purposes of this study, these figures were divided in half so as to reflect only the Illinois portion, which is roughly half of the Quad Cities area population. They estimate that about 13.9 percent of the population have a disability. The same source indicates that 3,500 of those over age 65 (18 percent) have a physical disability. They also estimated that 4,564 persons of all ages in the Illinois Quad Cities use assistive devices for mobility.

Table 1-4. 1980 Census Estimate of Disabilities

Estimates of Disabilities in the Illinois Quad Cities

Persons of all ages with mild to severe mental retardation	4,075
Persons of all ages with chronic mental illness	1,190
Persons over age 15 with severe physical impairments	9,286
Legally blind persons all ages	331
Profoundly deaf persons all ages	1,630
Persons of all ages severely hard of hearing	2,600
Persons of all ages with severe speech impairments	1,658

The estimates of disabled in Table 1-4 are derived from the 1980 census and do not reflect the population declines evident in the 1990 census. The categories are also not mutually exclusive since a person may have more than one disability. These categories are also grouped by disability rather than associated with functional capacity. For example, the IILC places individuals with mild and severe retardation in one category. In terms of functional ability to travel, however, those individuals with mild retardation are very different from those with severe retardation. The mildly retarded would generally experience no difficulty in using the fixed route

bus, whereas those with severe retardation might well be paratransit eligible. Those with "chronic mental illness" would probably not be living or traveling independently. In addition, individuals with speech impairments and hardness of hearing alone would not typically have difficulty in using fixed route transit. When these groups are removed from the totals, the proportions of transportation handicapped come closer to the national average.

The 1978 Survey of Transportation Handicapped indicated that a national average of 5 percent of the total population had trouble using the fixed route bus system. It also estimated that half of these individuals could not use transit at all or only with difficulty. That would suggest that about 2.5 percent of the total population would need demand responsive paratransit transportation even if the city had accessible fixed route buses.

A more precise transportation related estimate comes from the 1980 census which specifically asked individuals whether they had a disability which made it difficult to use public transportation. Unfortunately, the 1990 census did not ask this question. The relevant 1980 figures for the cities in the study area are contained in Table 1-5.

Table 1-5. Public Transportation Disability as Presented in the 1990 Census

CITY	AGES 16-24	OVER AGE 65	TOTAL
East Moline	222	195	417
Moline	261	601	862
Rock Island	506	686	1,192
Silvis and Carbon Cliff*	N/A	N/A	245
Milan**	N/A	N/A	198
Illinois SMSA Area	1,399	1,957	3,356
Rock Island County	1,526	2,174	3,700

*Silvis and Carbon Cliff are in the same census tract.

**Milan crosses two census tracts, but only part of each tract is in Milan. The rest of both tracts is included in Rock Island. Hence the number of transportation disabled is an overestimate for Milan.

By using the specific population figures for each census tract and adjusting for the change in population base between 1980 and 1990, it is possible to derive estimates of the number of those public transportation disabled in each census tract in 1990, as Table 1-6 indicates.

Table 1-6 also includes an estimate of the public transportation disabled by census tract for the year 2000. That estimate was derived by taking a linear projection of the total population for each census tract from 1990 and then applying to that new population figure the same proportions of transportation disabled reported in 1980.

There is always some skepticism associated with linear projections since it uses current trends to project into the future and changes in the overall economy or changes in housing patterns could seriously affect those trends. As is obvious, the population declines in most census tracts in 1990 are assumed to continue until 2000. There are only a few tracts where a positive growth in population was recorded between 1980 and 1990. That positive change is assumed to continue until 2000, according to this population projection technique. Nevertheless, estimates for 2000, as shown in Table 1-6, do continue to suggest that a relatively small proportion of the population can be regarded as transportation disabled. Any system designed to meet the needs of the estimated number of transportation disabled in 1990, therefore, should also be able to serve the area in the year 2000.

Table 1-6. Estimated Number of Transportation Disabled

City	Tract Number	Tract Population 1990	% Public Transpt. Disabled	1990 Est. Public Transpt. Disabled	Year 2000 Est. Public Transpt. Disabled
Silvis*	202	3,370	0.014	46	43
Silvis	203	6,326	0.031	199	177
East Moline**	204	5,823	0.026	151	151
East Moline	206	2,438	0.025	60	45
East Moline	207	1,737	0.031	53	44
East Moline	208	5,193	0.012	62	52
East Moline	209	5,790	0.018	104	100
East Moline	210	3,178	0.007	22	27
Moline	211	3,494	0.007	23	21
Moline	212	4,489	0.015	67	67
Moline	213	4,598	0.043	196	168

Table 1-6. Estimated Number of Transportation Disabled (Continued)

City	Tract Number	Tract Population 1990	% Public Transpt. Disabled	1990 Est. Public Transpt. Disabled	Year 2000 Est. Public Transpt. Disabled
Moline	214	1,243	0.005	6	5
Moline	215	4,439	0.016	69	63
Moline	216	2,941	0.016	46	45
Moline	217	4,131	0.020	82	73
Moline	218	5,157	0.017	89	88
Moline	219	1,887	0.033	63	44
Moline	220	3,929	0.022	87	77
Moline	221	2,646	0.033	87	93
Moline	222	3,999	0.022	87	76
Moline	223	188	0.026	5	1
Moline	224	1,678	0.003	4	3
Arsenal	225	212	0.000	0	0
Rock Island	226	361	0.021	8	3
Rock Island	227	2,188	0.031	69	17
Rock Island	228	5,671	0.024	136	154
Rock Island	229	2,966	0.028	84	78
Rock Island	230	4,185	0.014	58	54
Rock Island	231	2,755	0.016	44	41
Rock Island	232	5,303	0.026	138	132
Rock Island	233	3,815	0.025	94	62
Rock Island	234	1,539	0.050	77	18
Rock Island	235	2,393	0.038	90	70
Rock Island	236	2,117	0.021	44	25
Rock Island	237	2,625	0.031	83	71
Milan***	242	4,316	0.016	68	64
Milan	243	3,627	0.025	90	64
Rock Island	244	<u>2,096</u>	<u>0.028</u>	<u>59</u>	<u>60</u>
TOTAL		124,843	0.023	2,750	2,375

* Silvis is in one tract with Carbon Cliff.

** Tract includes Hampton with East Moline.

*** Tract includes part of Rock Island along with Milan.

The ADA Paratransit Handbook prepared for the U.S. Department of Transportation suggests using these figures to derive the proportion of the population which would be paratransit eligible (Paratransit Handbook, draft, 1991, p. 10). Based on a variety of studies conducted in the United States and Canada, the handbook suggests that 1.5 percent of the total population would have a type 1 or a type 3 eligibility for paratransit, (i.e. those that cannot navigate the system and those who cannot travel to the bus stop). Applied to the Metro Link service area, this would mean that 1,873 individuals would be in this eligible group in 1990.

This figure, however, assumes that the proportion of disabled in the Metro Link service area is at the national average. Since the proportions of such individuals differ across the country, the handbook also suggests discounting this figure by a weighting scheme which compares the percentage of public transportation disabled in any particular city with the national average of 3.5 percent. Actually, the proportion of public transportation disabled in Rock Island County was only 2.3 percent in 1980. This is considerably lower than the national average of 3.5 percent. Hence, the figure derived for Category 1 and Category 3 eligible would need to be weighted by a factor of $.023/.035$ or $.66$.

Since Metro Link is expecting to be fully accessible early in the next calendar year, the expectation is that the system would not experience Category 2 type eligibility. Category 2, as noted above, would be those individuals who would be able to use accessible fixed route if it served a particular area. It is to be viewed as a temporary category until all systems are fully accessible. For purposes of this study, Category 2 is shown in Table 1-7 to indicate what the impact might be if all accessible fixed route vehicles were not delivered on schedule. As is apparent, the weighted number of 786 is relatively small.

In the Metro Link service area, it is unlikely that these numbers would increase substantially by the year 2000 given the continued population decline. General estimates of the totals for Category 1 and Category 3 for the year 1990 are found in Table 1-7.

Table 1-7. Estimates of Paratransit Eligible

Tract No.	1990 Total Pop.	Category 1 & 3 Unwgted.	Category 2 Unwgted.	Percent Trans. Handcpd. 1980	Weight Factor	Category 1 & 3	Category 2	Total Category 1, 2, & 3 Weighted
202	3,370	51	34	1.37	0.39	20	13	33
203	6,326	95	63	3.14	0.90	85	57	142
204	5,823	87	58	2.60	0.74	65	43	108
206	2,438	37	24	2.48	0.71	26	17	43
207	1,737	26	17	3.07	0.88	23	15	38
208	5,193	78	52	1.19	0.34	26	18	44
209	5,790	87	58	1.79	0.51	44	30	74
210	3,178	48	32	0.70	0.20	9	6	16
211	3,494	52	35	0.66	0.19	10	7	17
212	4,489	67	45	1.50	0.43	29	19	48
213	4,598	69	46	4.27	1.22	84	56	140
214	1,243	19	12	0.49	0.14	3	2	4
215	4,439	67	44	1.55	0.44	30	20	49
216	2,941	44	29	1.57	0.45	20	13	33
217	4,131	62	41	1.98	0.57	35	23	59
218	5,157	77	52	1.73	0.49	38	26	64
219	1,887	28	19	3.34	0.95	27	18	45
220	3,929	59	39	2.22	0.63	37	25	62
221	2,646	40	26	3.27	0.93	37	25	62
222	3,999	60	40	2.17	0.62	37	25	62
223	188	3	2	2.56	0.73	2	1	3
225	1,678	25	17	0.27	0.08	2	1	3
225	212	3	2	0.00	0.00	0	0	0
226	361	5	4	2.13	0.61	3	2	5
227	2,188	33	22	3.14	0.90	29	20	49
228	5,671	85	57	2.39	0.68	58	39	97
229	2,966	44	30	2.82	0.81	36	24	60
230	4,185	63	42	1.40	0.40	25	17	42
231	2,755	41	28	1.60	0.46	19	13	32
232	5,303	80	53	2.60	0.74	59	39	99
233	3,815	57	38	2.47	0.71	40	27	67
234	1,539	23	15	4.99	1.43	33	22	55
235	2,393	36	24	3.77	1.08	39	26	65
236	2,117	32	21	2.06	0.59	19	12	31
237	2,625	39	26	3.14	0.90	35	24	59
242	4,316	65	43	1.57	0.45	29	19	48
243	3,627	54	36	2.49	0.71	39	26	64
TOTAL						1,179	786	1,964

CHAPTER TWO: EXISTING SERVICES

The cities of Rock Island, Moline, East Moline, Milan and Silvis, all in Rock Island County, enjoy the fixed route service provided by Metro Link. In addition, contracted service is provided by social service agencies and private charters. Personalized service is available through private taxi cab companies.

METRO LINK

Equipment. Metro Link has a mixed fleet including, 35' and 40' buses, street cars, and four vans. Of the 69 buses and trolleys, 56 are lift equipped. One of the vans is also lift equipped. The Metro Link fleet is listed in Table 2-1.

Table 2-1. Vehicles Comprising Metro Link's Fleet

YEAR	NO. OF VEHICLES	MAKE	NO. WITH LIFTS	VEHICLE LENGTH
1976	5	GMC	0	34'
1978	7	GMC	0	35'
1981	20	GMC	20	40'
1987	3	Bluebird	3	30'8"
1988	2	Chance Alamo Street Car	1	25'29"
1990	12	National Transmark	12	28'10"
1990	3	Ford Passenger Van	0	N/A
1990	1	Dodge Mini-Van	1	N/A
1991	12	Orion Buses	12	40'

Currently the fleet is approximately 81 percent lift equipped. In fact, vehicles currently operating in fixed route mode are 86 percent lift equipped with orders placed which will make the fixed route operating fleet 100 percent lift equipped by calendar year 1992.

Service. Metro Link introduced a new routing system in June, 1991 in response to an extensive study by Weslin Consultants. With the new routing, the system is operating seven major routes, four on half-hour headways and three on hour headways. A map of the bus routes and the area covered by the system is included as Figure 1. The map also indicates the area within three quarters of a mile of the current fixed route system. The ADA requires that comparable service be provided within three quarters of a mile of the fixed route system. Any subsequent revisions in the fixed route system would obviously affect the ADA service area as well.

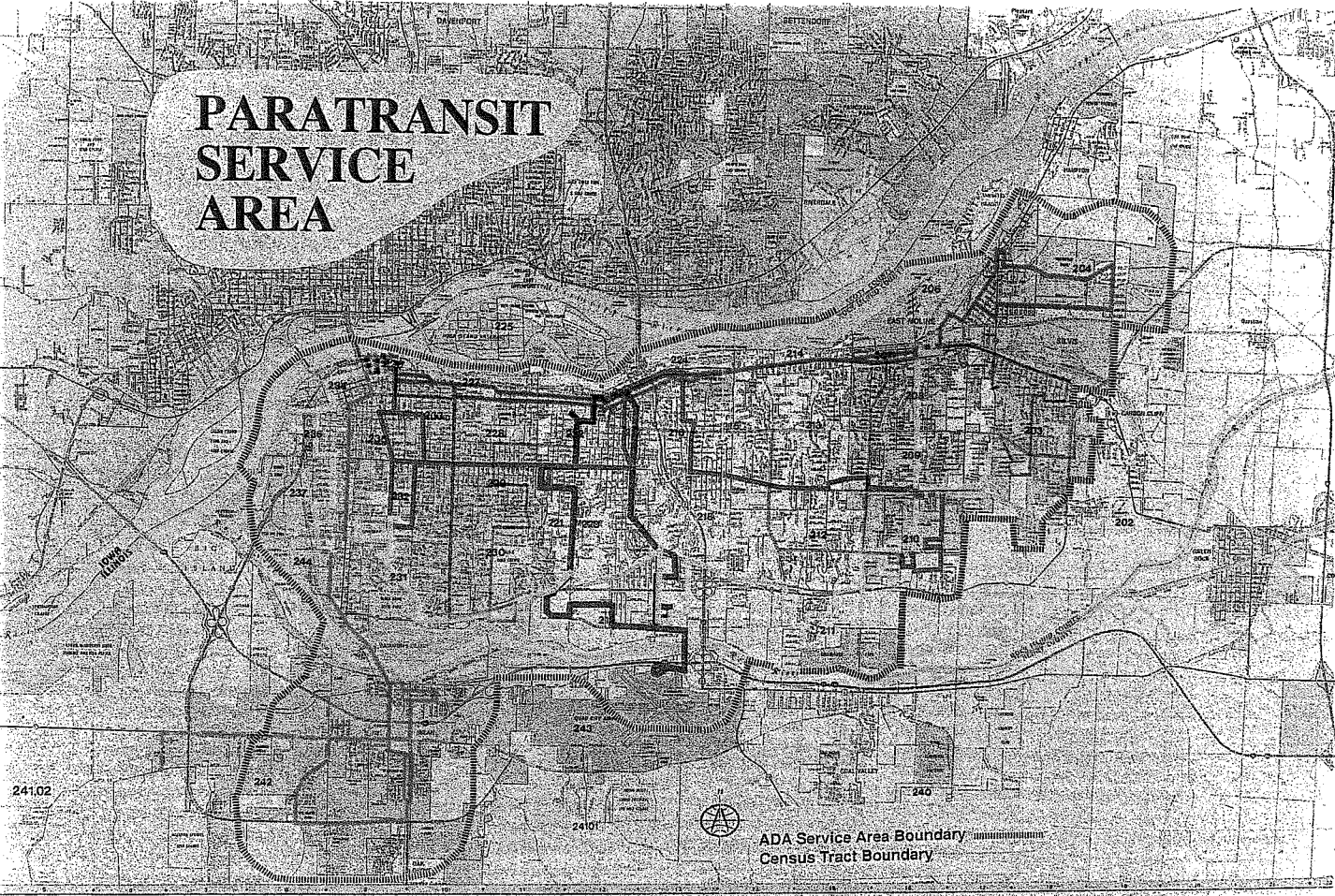
Service is operated Monday through Friday on half-hour headways on the red, green, orange, and yellow routes during the day and on reduced one hour headways after 5:30 P.M. or 6:00 P.M., depending on the route. Both blue routes operate on one hour headways all day and the brown route uses half-hour headways during peak hours and one hour headways in off peak hours. There are limited commuter extensions into the industrial area in Milan and into the Rock Island Arsenal. However, these only carry workers in peak hours and do not operate during the day. Hence, ADA regulations would not require comparable paratransit service for these route extensions.

Saturday service is provided on a reduced schedule with demand responsive service operating before the start of the regular fixed route. There is currently no Sunday service. The following charts indicate the operating schedules for each of the bus routes.

<u>ROUTE NUMBER</u>	<u>WEEKDAY SCHED</u>	<u>SATURDAY SCHED</u>
ROUTE 10 (red line)	5:30 am - 10:00 pm	12:00 noon - 6:15 pm
ROUTE 20 (blue; clockwise)	6:00 am - 9:45 pm	12:15 pm - 6:45 pm
ROUTE 25 (blue; counter-clockwise)	6:15 am - 7:15 pm	12:15 pm - 5:15 pm
ROUTE 30 (green) (alternates between 17th and 25th street hills)	5:30 am - 10:30 pm	5:45 am - 6:20 pm
ROUTE 40 (orange)	5:30 am - 10:00 pm	8:00 am - 6:00 pm
ROUTE 50 (brown)	5:30 am - 9:30 pm	12:00 noon - 6:30 pm
ROUTE 60 (yellow)	6:00 am - 10:00 pm	12:00 noon - 5:30 pm

Ridership on Metro Link for the period Dec. 1, 1989 through Nov. 30, 1990 was 1,824,036 according to the Annual Revenue and Ridership Report generated on May 22, 1991. The fare schedule provides for a full fare of 60 cents and half-fare for handicapped, elderly, students and children. In addition, discounted pass books are available for all ridership classes.

Figure 1. Map of Bus Routes and Area Covered by the System



The following figures indicate the ridership distribution for fiscal year (FY) 1990.

<u>Metro Link Ridership for FY 1990</u>		
Full Fare	309,019	
Adult Pass Fare	152,599	
Senior Cash Fare	75,551	
Senior Pass Card	101,635	
Handicapped Cash Fare	55,089	
Handicapped Pass Card	121,366	
Student Cash Fare	289,915	
Student Pass Card	169,048	
Child Cash Fare	50,172	
Child Pass Card	<u>10,393</u>	
Total Riders		1,334,787
Transfers		<u>+ 489,249</u>
TOTAL RIDERSHIP		<u>1,824,036</u>

Excluding the transfers which are undifferentiated by ridership group, it is possible to determine the relative proportion of each class of rider among the number of total riders. When the pass card riders are added to the number of cash riders in each group, the following totals are derived:

Adults (Full Fare and Pass Card)	461,618	34.6%
All Seniors	177,186	13.3%
All Handicapped	176,455	13.2%
All Students	458,963	34.4%
All Children	<u>60,565</u>	<u>04.5%</u>
TOTAL RIDERS	1,334,787	100.0%

As is apparent, ridership on Metro Link includes a heavy proportion of students, since many Rock Island, Moline, and East Moline youth take the public bus rather than a school bus. An additional 34 percent of the riders in 1990 were adults paying full fare. A major effort at route changes, instituted in June, 1991, was directed at increasing this proportion of the ridership by better accommodating stops at major places of employment. Any changes generated by these route changes are not reflected in these figures. Thirteen percent of the riders were seniors.

The proportion of the riders qualifying for the "disabled" fare was 13.2 in 1990. Half-fare is granted to handicapped residents who are defined as individuals who "have difficulty in traveling because of a physical or mental impairment." A physician or counselor signs off on an eligibility form which automatically entitles the individual to the reduced fare. A senior with a disability can select which discount to apply for, although it is assumed that most would opt

for the senior discount which requires no medical certification. A 1989 state program made possible subsidies for both seniors and handicapped riders.

The proportion of riders qualifying for the handicapped fare is substantial. In fact, they represent a larger proportion of the total ridership than they do of the total population of the cities served by Metro Link. Apparently accessible fixed route transportation is meeting their needs. The number of these rides by people traveling in wheel chairs is currently 27 per day. If we assume that this number of wheel chair trips is consistent even on Saturday, that would indicate about 8,451 wheel chair trips a year, or that about 4.8 percent of all the all the rides performed by those qualifying for handicapped fares were made in wheel chairs.

SOCIAL SERVICE PROVIDED TRANSPORTATION

The county is also provided with a number of social service agency transportation systems. Almost all, however, serve specific client groups for established purposes. Only Project NOW serves general purpose trips. With budgetary stringencies, it serves primarily group trips. For example, it focuses on grocery trips where ten people are to be picked up at one location. This provides for travel needs at elderly high rise apartments, but not as much for individuals living alone. The same budgetary constraints limit the number of trips to individual doctors. A group trip to a clinic is more common. Several nursing homes do provide individual trips but only for their own residents and do not employ full time drivers. The Illini Hospital operates a door-to-door service with advanced reservation for out patients; Franciscan Hospital and United Medical Center contract with the Great River Bend Transit System for parallel service.

In summary, the services based in Rock Island County are not currently operating as complementary paratransit systems in the context of the ADA. They are small and most are either fully utilized or underfunded. They are unable to serve additional needs without additional funding.

The following review of existing services was generated from information compiled through a survey instrument included as Appendix A, personal interviews, and the telephone interviews with service operators.

American Cancer Society

- Equipment: 21 cars owned by volunteers.
- Service: Medical and doctor appointments in Rock Island and surrounding counties demand responsive for cancer patients only.
- Donation: No charge.

Association for Retarded Citizens of Rock Island County

- Equipment: Seven vans, one wagon, no lifts.
Service: Serves adults with mental retardation and other developmental disabilities, ARC clients.
Service 8 A.M. to 4:30 P.M., residential and 24-hours for others.
Travel to day programs and recreational outings for those unable to take Metro Link.
Donation: \$25 a month for subscription or 30 cents a ride.

Catholic Social Services

- Equipment: Seven vehicles, one van, six passenger cars, no lifts.
Service: 9 A.M. to 6 P.M. by appointment.
Service to clients only on demand response basis.
Travel to counseling services, health appointments and outings. Only five percent of clients elderly and five percent handicapped.
Donation: None requested.

East Moline Garden Plaza

- Equipment: One 11-passenger van, no lift.
Service: Quad Cities area, 100-mile radius medical trips and recreational trips for 118 residents only. (85 percent geriatric.)
Donation: No charge.

Franciscan Medical Center

- Equipment: One 11-passenger van, lift equipped.
Service: Contract with Great River Bend to transport clients within 25-mile radius to and from the hospital for medical trips only.
Donation: Either \$1.00 each way or purchase gold card from Franciscan Medical Center.

Friendship Manor

- Equipment: One 12-passenger van, lift equipped.
Service: For nursing home residents only, approximately 80 trips per week. Request service for doctor, groceries, personal shopping and recreation from 8:30 A.M. to 4 P.M. weekdays, evenings and Saturdays by special request.
Donation: No charge.

Illini Hospital

- Equipment: One 12-passenger van, no lift.
- Service: For ambulatory patients, out patient service, shuttle service, door-to-door for those in communities within 25-mile radius of hospital. 24-hour advanced notice needed.
- Donation: Accepted, not required.

Lutheran Social Services of Illinois, Intouch Day Center for Older Adults

- Equipment: Eight vehicles, lift equipped; also use Metro Link buses on contract additional contract with Great River Bend.
- Service: Serves frail, elderly, and Alzheimer's disease afflicted clients. Serves 75-80 people a day. Service is before 10:30 A.M. and after 3:00 P.M. Vehicles idle between 10:30 A.M. and 3:00 P.M., and drivers double as program aides. Only serves clients.
- Donation: Sliding scale.

Moline Nursing and Rehabilitation Center

- Equipment: One 8-9 passenger van with lift and tie downs for two chairs.
- Service: Limited to residents for doctor and medical appointments. Outings Monday through Friday. Scheduled for appointments.
- Donation: None requested.

Project NOW

- Equipment: Six small buses, with lifts; currently operating three. Operating costs too high to run other vehicles without additional funding.
- Service: Serves over 1,000 clients for meal sites, doctor and grocery. Reservations required. Monday through Friday, 8 A.M. to 4:30 P.M. Sunday service for churches - 10 A.M. to 1 P.M.
- Donations: \$.50 a ride medical, \$.50 per quarter-hour for shoppers or wheel chair trip.

Retired Senior Volunteer Program

- Equipment: Contracts with other providers, Project NOW, Friendly House, Great River Bend.
- Service: Serves 20 people a month. RSVP members, age 60 and over. Takes them to RSVP assignment.
- Donations: No charge.

Skills, Incorporated

- Equipment: One van, lift equipped.
Service: Only for program participants--disabled or disadvantaged. Now used only to transport between sites. No longer picks up clients.
Donation: No charge.

United Cerebral Palsy

- Equipment: Three vans, lift equipped. Carries four passengers per van.
Service: For cerebral palsy residential program clients only. Operates with volunteer drivers 8:30 A.M. - 4:30 P.M.
Donation: No charge.

United Medical Center

- Equipment: One 11-passenger van, lift equipped.
Service: Contract with Great River Bend to transport clients within 25-mile radius to and from the hospital for medical trips only.
Donation: None.

TAXI CABS

Taxi cabs do provide individualized request service for all trip purposes in the Quad Cities area. A number of companies serve both sides of the river. Several carry wheelchair and other disabled passengers by having passengers transfer to the auto seat. Although none of the companies currently use lift equipped vans, at least one company is actively pursuing that idea. Cabs offer door-to-door service and assist patrons with grocery sacks and other luggage. Several companies would consider contractual service to provide paratransit type operations for patrons who could not use the fixed route bus.

Bestway Taxi and Milan Cab

- Equipment: Four to five taxis.
Service: Serves daily about 185 in Quad Cities Area, 24-hour service. One-half patrons are seniors. Carries wheel chairs as needed.
Fare: By zone.

Buddy Boy Cab and Silvis Cab

- Equipment: Six taxis.
Service: Carries 100 persons a day. Serves East Moline, Silvis and Moline; 24-hour service.
Fare: Zone system (about \$1.00 per mile).

Lucky Cab Serves Both Iowa and Illinois

Equipment: 11 taxis.
Service: 60-90 people daily, 25 percent seniors; 24-hour service. Runs special request routes to Iowa City medical center. Carries wheel chair customers now by having them transfer to seat. Has contracts with employers for special need transporting of people after hours, even to Chicago.
Fare: \$1.20 for pick up and \$1.00 per mile after that. Special long distance arrangements for half-price on return.

Metro Cab Company (Davenport)

Equipment: Three taxis.
Service: 45-55 people daily in Quad Cities; 24-hour service.
Fare: \$1.20 for pick up and \$1.00 per mile after that.

A-1 Taxi

Equipment: Three taxis.
Service: Quad Cities area; 24-hour service.
Fare: Zone system.

Airport Transportation and Delivery

Equipment: Seven cabs.
Service: Travel to and from Quad Cities Airport. 150 people a day; one-third elderly.
Fare: By trip.

NEEDS FOR PARATRANSIT

In assessing the needs for paratransit in an area currently served by accessible fixed route transportation, several key factors must be taken into consideration:

- First: The level of service provided to the target population on the existing systems and the proportion of needs unmet.
- Second: The expressed needs of residents in the target populations and others associated with the disabled community.
- Third: The type of equipment currently provided and needed to meet the spirit as well as the letter of the ADA legislation.

Following these reviews, a capacity demand model will be introduced to help in determining the parameters of the type of system proposed.

CURRENT USAGE OF FIXED ROUTE SERVICE

In May, 1990, the Weslin Consulting firm conducted an extensive survey of the ridership of Metro Link. Since that study was only completed less than one year ago, it seemed logical to review its findings for the target group rather than to conduct another ridership survey. The focus of the Weslin study was on attracting more of the working population to the fixed route bus. Therefore, data collected on senior populations and their attitude toward the current bus service was not fully analyzed. Weslin supplied the raw data upon which this analysis is based. No data specifically related to disabled riders was collected. However, since a substantial proportion of the disabled population is elderly, the expectation was that this review could provide useful information on service needs.

Among the 1,345 riders surveyed, 203 or 15.1 percent were seniors, aged 60 or above. It should be noted, however, that throughout the rest of this study "seniors" are defined as "age 65 and older." The definitional difference might impact trip purpose or travel frequency reports. Among the seniors riders, 73 percent were female. This is a considerably higher proportion than for the riders in general. Overall, the proportion of female riders was 56 percent. The overwhelming proportion of the senior riders (83 percent) had no vehicle available for the trip. This is a somewhat higher proportion than that of riders in general; 76 percent of all riders had no vehicle available. Among the senior riders a very high proportion, 67 percent, did not even have a vehicle. This was true of only 28 percent of the other bus riders.

The senior riders were overwhelmingly low income. Fifty-two percent of them had an annual income of less than \$10,000 and an additional 21 percent of them had an annual income of less than \$15,000. The other riders were also predominantly low income (41 percent in the lowest bracket and 17 percent in the next bracket), although the trend was more pronounced among seniors. Clearly these riders were in the group usually classed as "captives." They were generally riding out of necessity rather than by choice and they were overwhelmingly enthusiastic about the bus service. Most senior riders were, as expected, retired (67 percent). Eight percent were employed full time and 9 percent were employed part-time.

These seniors were loyal bus riders. Seventy percent had ridden the bus for more than five years. Only nine percent could be classed as new riders with less than one year of experience in riding Metro Link.

Like other riders, the seniors were frequent travelers. Fifty-one percent of the respondents traveled on the bus 3-5 days a week. Only four percent traveled less than one day a week on average. This travel pattern is similar to that for all riders. Among all riders, 64 percent travel three to five times a week. The proportion of seniors traveling six or more times a week (25 percent) is, in fact, higher than for other riders. These frequent riders found the bus stops to be very convenient; 37 percent said that they had walked less than one block to the place where they had boarded and an additional 30 percent had walked only one block.

The most common trip purpose among seniors was shopping (20 percent). The next most common purposes were work and personal business (13 percent). Recreational trips accounted for about eight percent of the trips and medical appointments for seven percent. Assorted other purposes were also reported. Twenty-seven percent of the seniors questioned were on their way back home.

The seniors riding the bus were overwhelmingly positive in rating the service. Ninety-four percent of the seniors answering the question found the service, overall, to be good to excellent. This compares with 79 percent of other riders. The senior enthusiasm for Metro Link service is also apparent in their rating of specific characteristics of the service. Ninety percent of seniors responding to the question rated bus appearance as between good and excellent. Eighty percent of the seniors rated bus cleanliness as good to excellent. An even higher proportion, 87 percent found bus comfort to be good to excellent. This compares with only 66 percent of other riders. Convenience was rated as good to excellent by 82 percent of the seniors. Driver courtesy was considered good to excellent by 84 percent of the seniors, slightly more than the 79 percent of other riders. Ninety percent of senior riders rated the service promptness as good to excellent. In terms of safety, 84 percent of the senior riders considered Metro Link to be between good and excellent, as did somewhat more than the 79 percent of younger riders.

Although, as will be indicated below, non-riders suggest that Metro Link might improve its routing and scheduling, senior riders were very complimentary. Ninety-four percent rated both service frequency and area served as between good and excellent. Ninety-six percent were similarly positive about transfers.

The only sign of some dissatisfaction was in the area of weekend and evening travel. While 60 percent of the seniors found the evening service to be between good and excellent, 29 percent of the seniors rated that poor. Weekend service (the bus only runs on Saturdays) was considered good to excellent by 67 percent of senior riders and 60 percent of other riders. Twenty percent of the seniors, however, said that weekend service was poor compared to 11 percent of other riders.

In summary, the senior riders, much like other bus riders, tend to be in the lower income group and are captive riders. They have no automobile available for travel. Most have close access to bus stops and are well satisfied with service. In short, those seniors who use the accessible fixed route service find it does serve their transportation needs. In the light of the ADA, it is appropriate to consider, however, whether there are residents whose transportation needs cannot be met with a fixed route bus.

Telephone Survey of Area Residents. To this end a telephone survey was conducted in June, 1991, in which disabled and elderly Rock Island County residents were questioned about their transportation needs.

The survey was intended to evaluate existing transportation services for the disabled and elderly and to obtain information about the respondents' disabilities, travel patterns, transportation problems and needs. The survey also questioned respondents as to their interest in a demand responsive, door-to-door paratransit service.

The questionnaire was prepared in two parts. The first part screened for subjects who had a disability making travel difficult and/or were 65 years. The second part of the survey consisted of more detailed questions about trip making intended for those who were identified by the screen.

For the area-wide telephone survey, 360 names were randomly selected from the Illinois Quad City phone book. Approximately two names were taken from each page. The names selected were those that typically would be associated with elderly persons, e.g., names such as Harold, Merle, Helen, Mabel were used and less common, more recent names such as Kevin, Shawn, Cindy or Sandra were not. This approach efficiently generated a pool of residents who were broadly representative of the seniors in the Rock Island County area although not as representative of the younger disabled. The survey technique was not intended to develop a probability sample of the entire population of the area but rather to reflect the interest of the intended subjects for the survey.

The incidence of subgroups (wheelchair users and other disabled individuals) was too small to yield statistically significant information. Separate surveys were conducted to generate information on their interests and travel patterns.

Among the 360 households contacted in the screening questionnaire, 120 were in the target group and responded to the second part of the questionnaire. A few respondents were unwilling to answer all the questions on the questionnaire and terminated the telephone call. Their answers are included only for the portion of the survey that they completed. A copy of the survey instrument is included as Appendix B. The survey technique represents a simple,

reliable, and efficient procedure for evaluating present transportation needs/problems particularly for the elderly population which represents a significant portion of the Rock Island County population. Given the proportion of the elderly who are also considered disabled, the responses should also help to gauge the potential need for paratransit.

SURVEY FINDINGS

Demographics. Table 2-2 indicates that the respondent sample was fairly representative of Rock Island County's population centers. Over 73 percent of the respondents were from the major cities of Moline and Rock Island. East Moline residents represented 15.5 percent of the respondents.

Table 2-2. Distribution of Respondents in Rock Island County

CITY	FREQUENCY	PERCENT
Rock Island	41	35.3
East Moline	18	15.5
Milan	6	5.2
Moline	44	37.9
Other	7	6.1
TOTAL	116	100.0

The percentage of female respondents outnumbered the male respondents by 64.5 percent. There are a couple of reasons which could provide an explanation for this. First, according to the 1980 U.S. Census Bureau, 60.3 percent of the population of Rock Island County over the age of 65 were female. Second, men tended not to be as responsive to the telephone survey when they were told that it was about transportation needs. They typically commented that they had no needs that they could not meet themselves since they were driving. They then terminated the survey by hanging up the receiver.

Ninety-five percent of those responding to the survey were 65 years old or older. The largest group representing 48.6 percent of the respondents were between the ages of 65 and 75. Thirty-six percent were 76 to 85 years of age, and 10 percent were over 85. Table 2-3 shows the distribution of respondents by age.

Table 2-3. Age Range of Survey Respondents

YEARS	FREQUENCY	PERCENT
Under 20	1	0.9
21 - 64	4	3.6
65 - 75	54	48.6
76 - 85	40	36.0
Over 85	12	10.8
TOTAL	111	100.0

As shown in Table 2-4, 52 percent of those participating in the survey stated that they were widowed. This relates to Table 2-5 which reveals that 57.3 percent of those surveyed live alone. Thirty-three percent of the households have two residents, and according to Table 2.4 below, 26.2 percent of them are married.

Table 2-4. Marital Status of Respondents

MARITAL STATUS	FREQUENCY	PERCENT
Married	27	26.2
Single or Divorced	22	21.4
Widowed	54	52.4
TOTAL	103	100.0

Table 2-5. Respondent's Household Size

NO. IN HOUSEHOLD	FREQUENCY	PERCENT
One	63	57.3
Two	37	33.6
Three	8	7.3
Four	2	1.8
TOTAL	110	100.0

Table 2-6 illustrates that over all the respondents were fairly mobile. Thirty-eight percent of those responding to the question make three to five trips in the Quad Cities area per week. Twenty-nine percent make one to two trips per week and 21 percent travel more frequently taking at least five to 10 trips per week for various reasons. Only three percent reported making less than three trips per week and seven percent made more than ten trips per week.

Table 2-6. Number of Trips Per Week by Respondents

NO. OF TRIPS	FREQUENCY	PERCENT
No Trips	3	3.1
1 or 2 Trips	29	29.9
3 to 5 Trips	37	38.1
5 to 10 Trips	21	21.6
More Than 10 Trips	7	7.3
TOTAL	97	100.0

To gain an overview of how this group of residents now travel, they were asked how they usually travel--whether they drive or whether they use public transportation. Table 2-7 summarizes the answers.

Table 2-7. Characteristics of Travel

	PERCENT YES	PERCENT NO	TOTAL
Drive Car	56.3	43.7	100.0
Ride With a Friend	77.3	22.7	100.0
Ride the Bus	26.0	74.0	100.0
Take a Taxi Cab	10.3	89.7	100.0
Take a Specially Equipped Van	8.0	92.0	100.0

Less than half of these respondents have a currently valid driver's license, which is lower than the national average for senior populations. One study by Sandra Rosenbloom indicated that nationally 94 percent of the senior population aged 60-69 have current drivers' licenses (Transportation Research Board Special Report No. 218, 1988). Among these respondents (56.3%) do travel in their own cars and 53 percent usually have access to a car for travel. Those who do not have a license themselves obviously rely on another household member for automobile transportation. Seventy-seven percent depend on a friend or relative outside the household for travel purposes.

Riding the Metro Link bus was used at some time as a means of travel by 26 percent of the persons surveyed. The least used methods of travel were taxi cabs and specially equipped vans. The cost of the taxi cab was most often given as a reason for not taking that mode. Very few respondents were involved in a program for which a specialized van was used. Those who did travel in special purpose vans most commonly mentioned those provided by the hospitals. Some expressed concern about the termination of the Franciscan Hospital van. The Franciscan Hospital is now contracting with Great River Bend Transit for that hospital run.

Of particular interest in light of the focus of this study was the proportion of respondents who indicated that they had disabilities which affected their travel. Table 2-8 displays their responses.

Table 2-8. Respondents with Disabilities that Affect Travel

DISABILITIES	FREQUENCY	PERCENT
Problems	46	44.7
No Problems	49	47.5
Only Minor Problems	8	7.8
TOTAL	103	100.0

Of the 103 respondents answering the question concerning levels of disabilities which may affect their ability to travel a substantial portion, 45 percent answered in the affirmative. An additional eight percent indicated minor problems.

Of those indicating significant disabilities, seven percent were aged 21-64; 28 percent aged 65-74; 43 percent aged 75-84; and 22 percent aged 85 or older. These disabled individuals generally traveled less frequently than other respondents. The largest proportion of them (43 percent) traveled one to two trips a week as compared to 16 percent of those without a disability. In contrast, 36 percent of the disabled made three to five trips a week and only 16 percent traveled more trips than that. Among the other respondents, 44 percent made three to five trips a week and 36 percent made more than five trips a week.

When asked how they usually travel, respondents with disabilities underscored all modes that applied. While 31 percent of them indicated that they currently drive a car, only 26 percent noted that a car was usually available for them to drive. Far more common were trips with friends and relatives (86 percent said that they traveled this way); 13 percent take a social service van; 12 percent take the bus; and 10 percent take taxis.

To get some indication of their overall awareness of public transportation all respondents were asked how far their home was from the nearest bus stop. The results are reported in Table 2-9. Fifty-two percent reported that they lived within two blocks of a bus stop. The large number living within one block of a bus stop is reassuring to those who have developed the bus routes. Only 15.9 percent indicated that they lived three or more blocks from a bus stop. Thirty percent were not aware of the location of the nearest bus stop.

Table 2-9. Distance to Nearest Bus Stop

DISTANCE	FREQUENCY	PERCENT
One Block	31	33.0
Two Blocks	18	19.1
Three or more blocks	15	15.9
Do Not Know	30	32.0
TOTAL	94	100.0

All the respondents who indicated that they either currently traveled on Metro Link or had used the bus in the past were asked how often they traveled on the bus. The results are reported in Table 2-10. The majority of the riders (59 percent) only traveled "several times a month." Only three percent ride the bus more than that while almost 38 percent use it several times a year or less. This was in part explained by individuals who said that they no longer needed the bus for regular work-related trips.

Table 2-10. Respondents' Use of Metro Link

USE OF METRO LINK	FREQUENCY	PERCENT
Several Times a Week	1	3.1
Several Times a Month	19	59.4
Several Times a Year	7	21.9
Less Than That	5	15.6
TOTAL	32	100.0

Given this infrequent use respondents were asked whether they had any difficulty in using the fixed route bus. More than half of those respondents who did use the bus said that they had some problems in using the bus, either with the convenience of the schedules or with some other aspect. The frequency of each challenge to using the fixed route bus is reported in Table 2-11.

Table 2-11. Challenge in Using the Fixed Route Bus

CHALLENGE	PERCENT
Scheduling	27.3
Routes	18.2
Transfers	12.1
Boarding	15.5
Getting to Bus Stop	12.1
Other Problems	24.2

Most of their problems related to issues of scheduling--the service wasn't as convenient as they would like and there was too long of a wait between buses. Specific comments included reference to the lack of Sunday service and the fact that the bus did not travel to outlying areas. About 18 percent said the bus did not go where they wanted to go. These are general comments that represent concerns with a fixed route service. They do not, however, reflect the types of concerns that the ADA requires to be addressed with paratransit.

Others mentioned concerns which are closer to those addressed in the ADA. About 15 percent indicated problems with boarding and disembarking even though the buses are accessible. The other ADA related concern was getting to the bus stop. Of the respondents, 12.1 percent noted that this was a problem, citing both distance to the stops and disabilities as reasons. Whether the respondents' inability to get to the bus stop is associated directly with an impairment would need to be further explored.

Of those who indicated a disability and who currently travel on Metro Link, 33 percent indicated that they had difficulty getting to the bus stop which for 42 percent of the disabled respondents was only one block from their homes. Getting on and off the bus proved difficult for 33 percent of the respondents. Only eight percent of these physically disabled, largely elderly respondents, had difficulty with transfers. These are the concerns which might potentially make them eligible for paratransit. In terms of trip purpose, two-thirds of the disabled respondents using the bus made trips to shopping and to the doctor. Recreational trips were made by 33 percent and 27 percent used the bus to go visiting.

Other problems were noted that might also relate to disabilities. When asked if they had any other difficulties in using the bus, several mentioned that they could not see the destination label on the bus. Others said that they could not see well enough to know where to get off. Larger signs and a public address system announcing stops might address these needs on the

fixed route buses themselves. In keeping with directives in the ADA this would make the fixed route more assessable to the visually impaired. Larger signs and public address systems are now specifically mentioned in the regulations.

Paratransit Interest. Having been asked about their current travel patterns, the respondents were then asked about interest in a shared ride mini-bus which would provide door-to-door service with 24-hour advanced reservations. The response was very positive and is found in Table 2-12.

Table 2-12. Potential for Using Shared-Ride Mini-Bus

RESPONSE	FREQUENCY	PERCENT
Yes	45	40.9
Maybe	26	23.6
No	39	35.5
TOTAL	110	100.0

Sixty-four percent of the respondents expressed either an interest in using such a service immediately, or saw the potential for their using such a service in the future. Specifically, 41 percent of the respondents indicated that they would be interested in using a "shared-ride, demand responsive, door-to-door paratransit service" if it were implemented. (Many asked when the service would be started and how they could access it.) An additional 24 percent indicated they might be interested in such a service in the future. Thirty-six percent were uninterested themselves, but many of these volunteered that they knew of others who would be benefitted by such a system.

The greatest interest shown for using a shared-ride mini-bus, 44.4 percent, was among the 76-85 year old respondents. Thirty-eight percent of those showing interest were in the 65-75 year old group. Of those indicating a travel related disability, 47.8 percent were interested while another 26 percent said that they would consider using it. The preferred trip purposes were shopping (79 percent), trips to the doctor (76 percent), and visiting (27 percent). Of the disabled respondents interested in a shared ride minibus, 68 percent would be willing to pay more than one dollar for a ride.

Given the strict eligibility requirements set by the ADA there is no way of determining whether those interested would be certified for paratransit service. Age is certainly not an automatic qualifier for this service as it has been for some service in social service vans. Even those who maintain that they have a transportation related disability would need to pass a functional test. Nevertheless, Table 2-13 illustrates that there is considerable interest among

residents who potentially would be eligible.

Table 2-13. Individuals That Would Ride the Mini-Bus

AGE	NO.	PERCENTAGE
Less Than 20	0	0.0
21 - 64	3	6.7
65 - 75	17	37.8
76 - 85	20	44.4
85+	5	11.1
TOTAL	45	100.0

If the paratransit service would be expanded to include those other than the ADA eligible, perhaps by having them pay a higher fare, there is a potential for using the service to lure elderly drivers out of their automobiles.

Given concerns about high accident rates among the frail elderly and indications that some elderly continue to drive long after they can no longer respond to driving cues, the opportunity for encouraging these individuals to take a mini-bus rather than drive might well be underscored. To provide insight into this issue, Table 2-14 divides the responses regarding the desire to ride by drivers and non-drivers. Of those people who drive cars, 19.1 percent said that they would also be interested in using a shared-ride mini-bus system at certain times. A little over 15 percent who drive mentioned that they might use the mini-bus if they could not drive because of weather, car problems or because of temporary health problems. This is a potential ridership of about 34 percent of those who drive a car presently. Almost 23 percent of those who do not drive would be interested in the mini-bus system. This is a substantial potential ridership. However, it should be noted that interest does not necessarily translate into demand. Some suggest that only about 35 percent of those indicating interest would actually travel if a system were established.

If the paratransit service is restricted to the ADA eligible, a considerable number of these respondents might not be certified to use the service. Unfortunately, budgetary constraints might well dictate a very restrictive approach at the outset.

Table 2-14. People Who Drive and Would Like to Use the Mini-Bus

	NO. YES	% YES	NO. MAYBE	% MAYBE	NO. NO	% NO	NO. TOTAL	% TOTAL
Do Drive Cars	20	19.1	16	15.2	22	21.0	58	55.2
Do Not Drive Cars	24	22.7	7	6.7	16	15.2	47	44.8
TOTAL	44	41.9	23	21.9	38	36.2	105	100.0

Table 2-15 identifies the trip purpose of those who were interested in paratransit service. Almost 69 percent would use it for getting to medical appointments. The second largest use, with 66.2 percent, would be for shopping trips. Visiting friends and relatives and recreational purposes came in third and fourth. Smaller percentages of respondents would use it to go to senior centers and to work.

Table 2-15. Trip Purpose of Paratransit Service

USE	PERCENT
Ride To Work	18.9%
Doctor	68.9%
Shopping	66.2%
Visiting	31.1%
Recreation	29.7%
To Senior Center	16.2%
Other Purposes	17.6%

This presentation of potential trip purposes is broadly representative of the types of individual general trips which are not currently being fully served by the existing social service agencies in the area. The many-to-one service to senior meal sites is generally being provided by Project NOW and trips to the adult day care are being served by Intouch.

Of those interested in using a paratransit service, Table 2-16 indicates that 62.3 percent would be willing to pay at least a dollar each way for the service. Many commented that they would expect to pay far more. According to ADA regulations, an operation may charge double the full fare on the fixed route system for paratransit. In the Metro Link service area this would be \$1.20. Apparently this fare would be acceptable to potential riders.

Only 11.7 percent of the respondents felt that one dollar a trip would be too expensive for those on fixed incomes. Twenty-six percent said that their willingness to pay a dollar or more for a ride would depend on distance and the importance of the trip purpose. These figures cannot be translated directly into demand, but they do show substantial interest in paratransit in the Metro Link service area.

Table 2-16. Paratransit Usage if Fare Was \$1.00 Each Way

	FREQUENCY	PERCENT
Yes	48	62.3
Depends	20	26.0
No	9	11.7
TOTAL	77	100.0

Additional Surveys Reflecting the Needs of the Disabled. As indicated above, the telephone survey did not represent the interests of the younger disabled residents in the target area. Additional opportunities were, therefore, sought to invite their participation in the study. Surveys were conducted of mentally impaired residents and of clients of physical therapists in the area.

ARC SURVEY

During one week in July, 1991 staff members of Association of Retarded Citizens (ARC) filled in questionnaires on behalf of their mentally impaired clients. The form which they used was a modified version of that used in the telephone survey is included in Appendix C. Staff members were requested to alphabetize their client group and to fill in a questionnaire for every other person. The objective was to have a representative sample of all clients, not just those who might be transportation dependent. Questionnaires were completed for 40 ARC clients. The following summarizes the findings for this target group.

The respondents fell into three age groups of 21-40; 41-60; and over 60 years of age. Twenty-five (62.5 percent) of the 40 clients were in the 21-40 year old group. Thirteen (32.5 percent) were in the 41-60 year old group, and two clients (five percent) were over the age of 60.

Twenty-three (57.5 percent) of the respondents were males and 17 (42.5 percent) were females. Two of the clients were married and 31 were not. Seven of the clients did not answer this question.

The respondents were also asked to describe their living arrangements in order to gain some idea of their level of independence. Seven lived alone in houses while seven others lived with their families. Eleven persons lived in nursing homes and 11 resided alone in apartments. The others did not answer the question.

The questionnaire then asked how these individuals usually traveled in the Rock Island area. Respondents were encouraged to indicate all modes that they used for travel. (The percentages given are in proportion to the number answering each question.) As Table 2-17 indicates, the most commonly used mode is a fixed route Metro Link bus. Over 90 percent of the respondents use the Metro Link bus. Over half of the respondents also travel with friends and relatives, while about one-third travel in specialized social service vans. These trips were primarily to the sheltered workshop.

Table 2-17. Method of Travel

METHOD	FREQUENCY	PERCENT
Ride with Friend or Relative	22	56.4
Metro Link Bus	36	92.3
Taxi Cab	2	5.0
Specialized Van	13	33.3

Another question asked if the clients who use Metro Link experienced any difficulty in using the buses. Of the bus users, 18.4 percent indicated that the schedules and routes were not very convenient. This is, of course, a problem that can be associated with any form of fixed route service. In terms of ADA requirements, a more serious concern was associated with transferring. Seven out of 36 respondents found transferring to be difficult. Four respondents found it physically difficult to get on and off the buses. Of the respondents, 56.4 percent needed to travel with an escort. Only two respondents used wheel chairs and only one used a cane as a mobility aid.

Table 2-18 shows the number of round trips each client takes, using all modes, in a typical week. As is apparent, most of the clients are very mobile.

Table 2-18. Round Trips Per Week

	FREQUENCY	PERCENT
3 to 5 Round Trips	14	35.0
6 to 10 Round Trips	16	40.0
More than 10 Round Trips	10	25.0
TOTAL	40	100.0

All respondents made at least three round trips a week with 25 percent making more than 10 round trips a week. The largest number of respondents made six to 10 round trips a week.

The staff was asked to express their opinion as to the potential use of paratransit by their clients. They felt that 17 of the 40 clients would use a paratransit system if it were available. As for the clients who would potentially would use the system, an estimated 10 clients would use the system at least several times a week and two at least several times a month.

The survey participants were asked to distinguish the purposes for which they may use paratransit services. Table 2-19 presents the frequencies and percents among the 40 respondents.

Table 2-19. Purpose of Paratransit System

PURPOSE	FREQUENCY	PERCENT
Getting to Work	15	37.5
Visiting Doctor	11	27.5
Shopping or Banking	21	52.5
Visiting Friends	13	32.5
Recreation	24	60.0
Getting to ARC	7	17.5
Other Destinations	1	2.5
TOTAL	40	100.0

Sixty percent of the respondents would use the paratransit system to travel to recreation spots and/or eating out. Fifty-two and one-half percent would use it for shopping or business trips. Getting to work was also high on the list for usage with 37.5 percent of the respondents reporting that they would use it for this purpose. In terms of ADA requirements, these would all be viable purposes. In fact, it might be possible for these clients to learn to use the fixed route bus for a regular purpose like going to work, but not be able to make a recreational trip independently. That would make them eligible for paratransit certification for that purpose.

The participants were asked if the paratransit system would be used if it cost \$1.00 each way. Among 39 responses, 10 (25.6 percent) said that they would use it and 13 (33.3 percent) said that they might use it at some time. This represents a potential use for the system of 58.9 percent of those surveyed.

NEEDS OF THE PHYSICALLY HANDICAPPED

Given that the physically disabled represent a relatively small population that is difficult to separate out for survey purposes, it was challenging to generate a representative sample. The objective was to reflect the opinions of community residents who were not necessarily connected with a specific governmental program. The hope was to thereby reflect the more general travel patterns and interests of the disabled residents of the Metro Link service area.

Consequently, questionnaires were distributed through the offices of physical therapists and through hospital physical therapy clinics in the area. Patients were encouraged to fill in the surveys and leave them at the offices for later retrieval by the research team. Such an approach is far from ideal in that the researchers have little control over the selection of respondents or the return rate. Nevertheless, it was one attempt to reflect the physically disabled persons' attitudes regarding transportation needs.

Unfortunately, the approach generated a small return rate. Of the 75 forms left in the various offices only 28 were returned. The results, therefore, can only be considered to be an indication of the interests of the disabled community and not representative of it. Nevertheless, there are some interesting results.

Of the respondents, 38 percent were male, and 57 percent female. One person did not indicate a gender. They were fairly well distributed across the age groups with seven percent under 20 years old; 25 percent in the 21 to 40 age bracket; 36 percent in the 41 to 60 age group; and 29 percent over age 60. The others did not indicate an age bracket.

Of all of the respondents 82 percent indicated that they usually traveled with a friend or

relative and 21 percent drove their own cars. A number of respondents who indicated that they usually rode with friends also traveled on Metro Link (18 percent of all respondents) or in taxis (seven percent of all respondents) or traveled in a special purpose van (10 percent of all respondents). When asked which van service they used, they all filled in "Illini Hospital van." Of the five respondents who had traveled on Metro Link, three respondents had not had any difficulty in using the system; one had some difficulty in reading the schedule, and one had trouble getting on and off the bus. Two individuals who travel using crutches had no difficulty in using the service. A respondent using bottled oxygen indicated using a taxi as well as the van provided by the hospital.

In terms of travel frequency, 58 percent of all of these respondents made three to five round trips a week. Of the remainder, 15 percent made one to two trips a week, 12 percent made six to 10 trips a week and 15 percent made more than 10 trips a week. This pattern did not differ significantly from the drivers and those traveling with friends.

Of the respondents, 39 percent used mobility aids for travel; 33 percent of those used wheel chairs as well as other mobility aids. One of the respondents used bottled oxygen. Of those using mobility aids, 27 percent needed to be accompanied by an escort when traveling. All but two of these individuals made the typical three to five round trips a week.

All of these respondents were asked whether they would be interested in using a demand responsive paratransit van. The concept was appealing to 39 percent of the respondents of whom 44 percent were males and the rest female. Over half of those who use mobility aids expressed interest. This included those with wheel chairs and those who traveled with escorts. Trip purposes for which they would use the paratransit included, trips to the doctor, shopping, work, or recreation, in that order of priority. Planned frequency of use ranged from several times a week (60 percent of those indicating interest in paratransit) to several times a year (20 percent of those interested). The remaining 20 percent indicated potential use of paratransit several times a month.

A fare of \$1.00 each way would be satisfactory to 46 percent of all those interested in paratransit and 68 percent of those indicating a disability. Another 34 percent of all respondents thought that if the fare were \$1.00 each way they might use the system, and another 20 percent felt that they would not be interested in riding if the fare were \$1.00 a trip.

In general, this survey indicates a potential group of paratransit riders among the physically disabled population. It was not possible in a survey of this type to determine whether they would be determined to be among the paratransit eligible. Some do use the fixed route bus and presumably could continue to do so. The majority of the respondents currently rely on others for help with transportation needs. If they chose to travel independently, they might well be

downtown Moline and East Moline. This includes not only established older neighborhoods, but also the locations of several of the larger homes for the elderly.

Among the elderly, those with lower incomes are also be more highly represented among transit users. The ADA does not reference income level and that would have no bearing on eligibility requirements. Nevertheless, the expectation is that those individuals who would depend on paratransit would probably mirror the income level of those individuals now riding the Metro Link bus. As indicated above, low income residents are disproportionately represented among Metro Link riders. This is consistent with the pattern in other similar cities. Figure 5 notes the percent of the population in each census track which are low income elderly.

Table 1-7 (page 12) indicates distribution of potential paratransit eligible as derived above. It should be stressed that these figures are derived from estimators and do not reflect accurate counts. Actual requirements for paratransit eligibility in the Metro Link service area must be developed by a specially designated review board. Nevertheless, these figures provide an indication of geographic distribution of disabled in all age groups. Seen in association with elderly and low income maps, these probably reflect a fairly good estimate of potential paratransit trip origins.

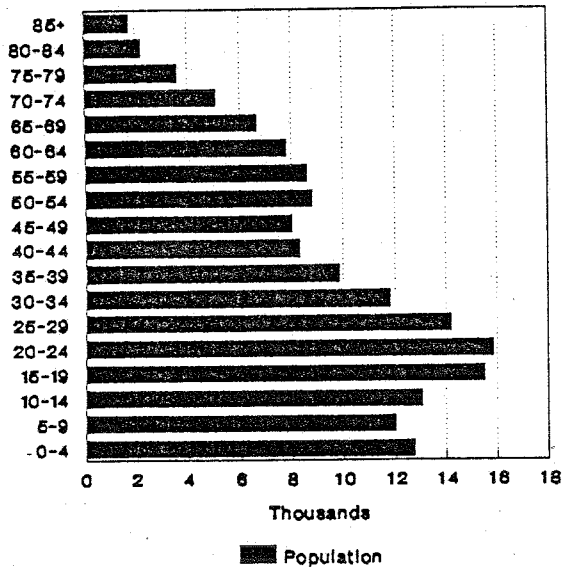
Attractors or Potential Destinations. Taking the trip purposes in the various surveys as a guide the potential concentrations of trip destinations were mapped by census tracks. These included medically related facilities such as physicians, dentists, pharmacies, hospitals, and mental health services. Shopping centers, banks, and beauty shops were also located along with churches, senior centers, recreational centers, social security offices, and government centers. The ARC survey had also indicated interest in bowling, Goodwill Industries and the YMCA.

Other figures include: (1) Figure 7. Density of Shopping Centers, Banks, Bowling Alleys, Recreation Centers, Beauty Shops and Churches; (2) Figure 8. Density of Doctors, Dentists, Hospitals, Mental Health Services, and Pharmacies; (3) Figure 9. Density of Courts, Goodwill, Social Security, and YMCA.

The pattern of distribution of these attractors is being mapped according to census tracks to indicate possible trip destinations for a paratransit vehicle. Reviewing these in relation to Figure 10 and Figure 11 in comparison to the maps showing concentrations of potential users can given a fairly good idea of trip patterns using the paratransit system. However, it is important to remember that with a demand-responsive system, it is not possible to predict trips with complete accuracy.

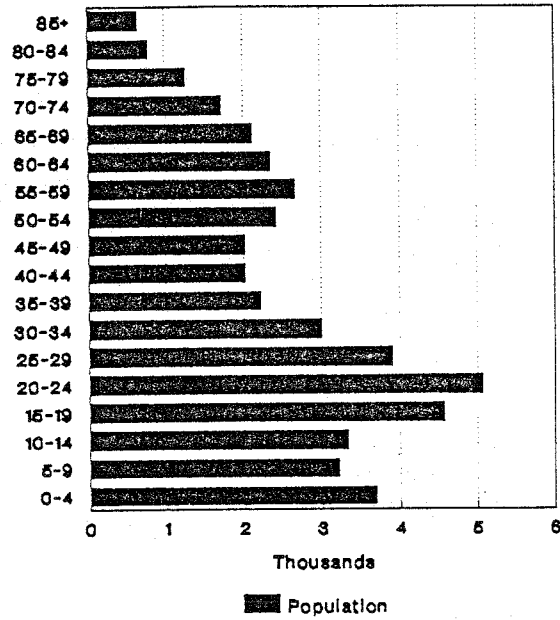
Figure 2. City Population Pyramids for 1980

Rock Island County
Population Pyramid



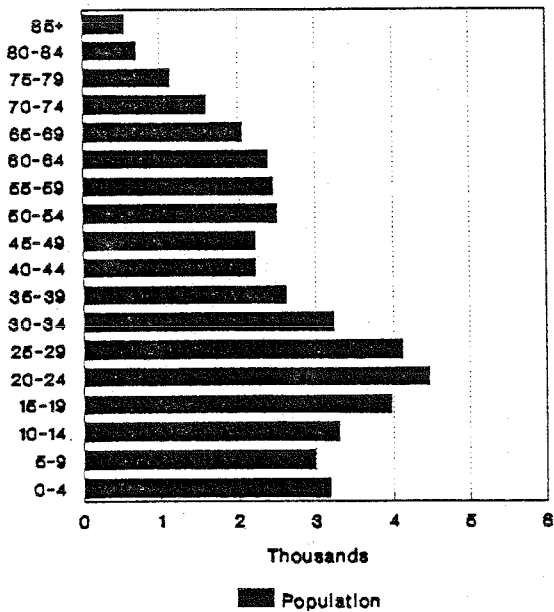
Source: 1980 Census

Rock Island Population Pyramid



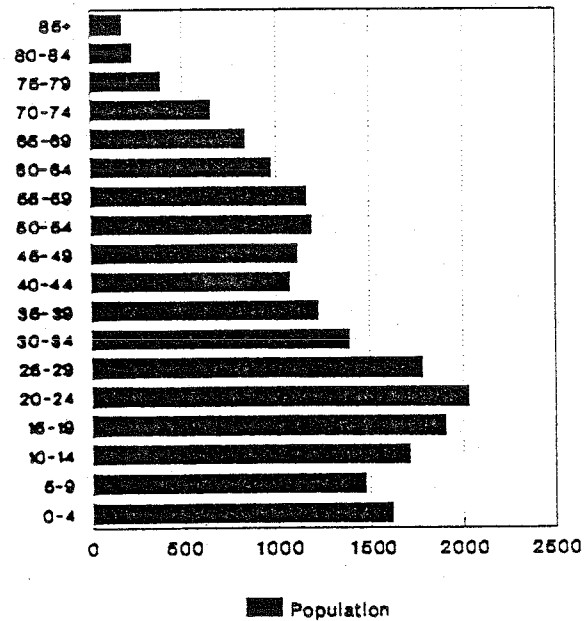
Source: 1980 Census

Moline Population Pyramid



Source: 1980 Census

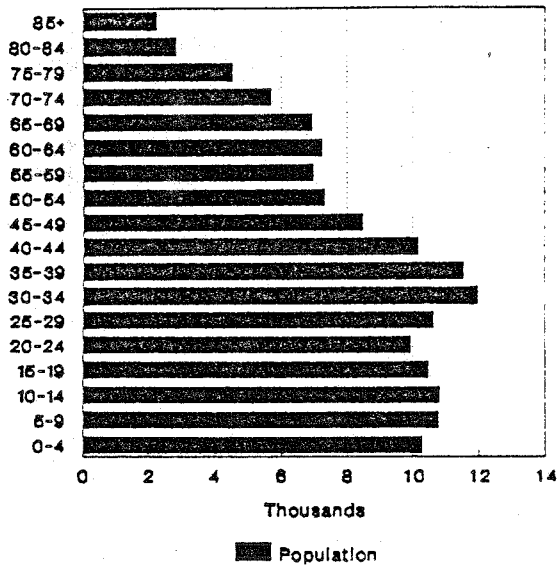
East Moline Population Pyramid



Source: 1980 Census

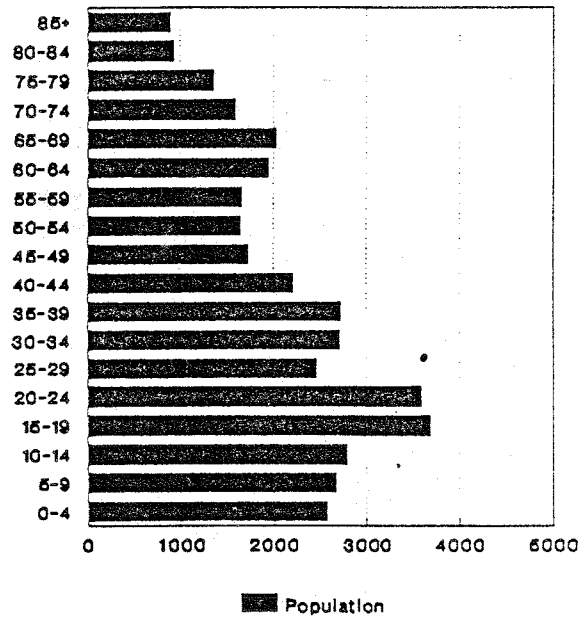
Figure 3. City Population Pyramids for 1990

Rock Island County
Population Pyramid



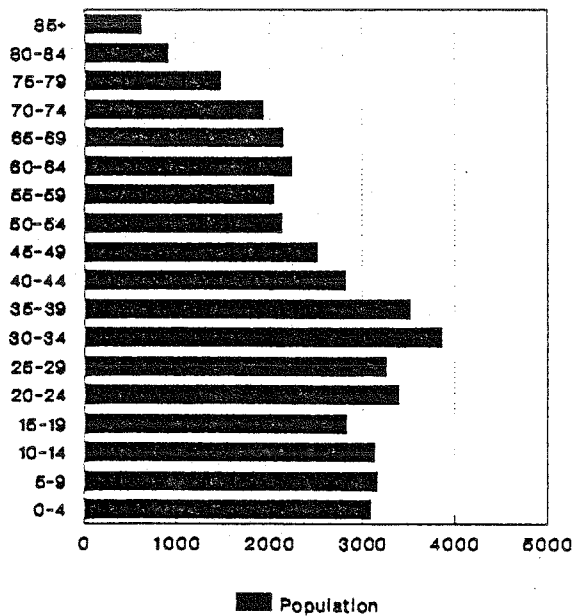
Source: 1990 Census

Rock Island Population Pyramid



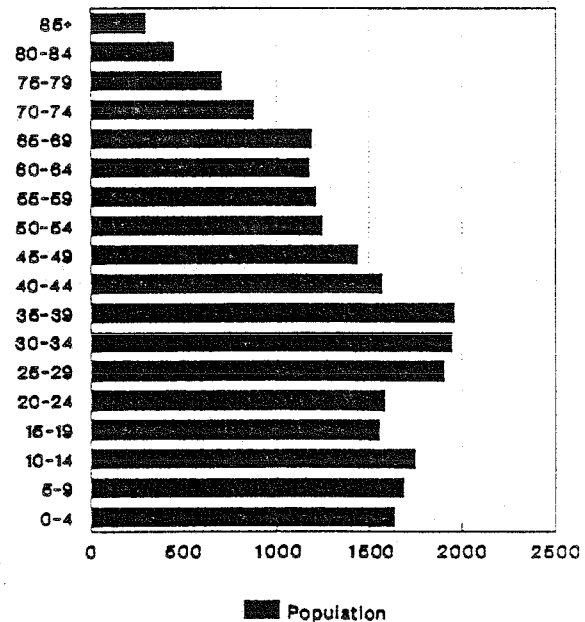
Source: 1990 Census

Moline Population Pyramid



Source: 1990 Census

East Moline Population Pyramid



Source: 1990 Census

Figure 4. Rock Island County Metro Area
Concentrations of the Elderly Persons

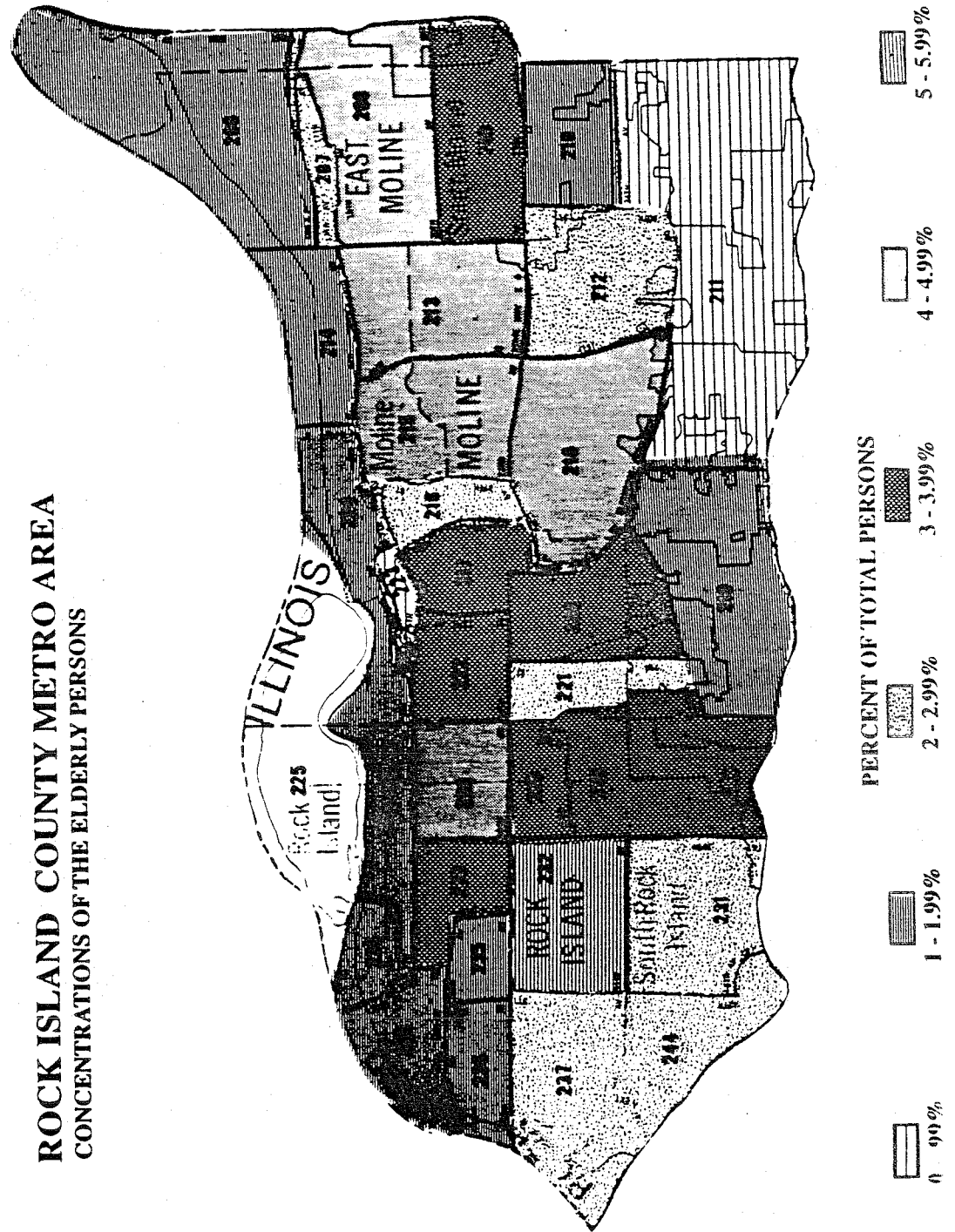


Figure 5. Rock Island County Metro Area Percent of the Population Below the Poverty Level Over the Age of 65

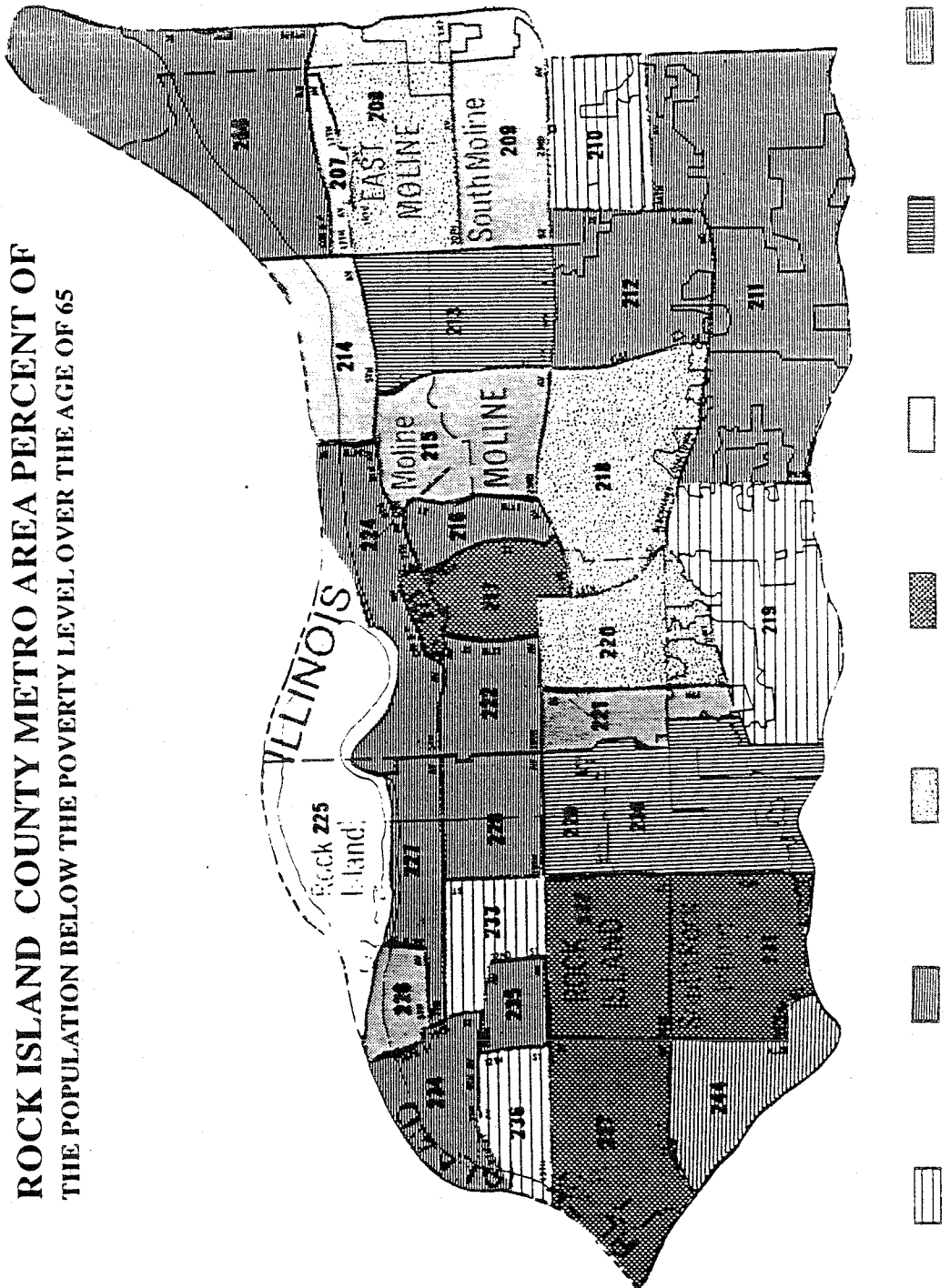


Figure 6. Percent of the Population with Transportation Disability

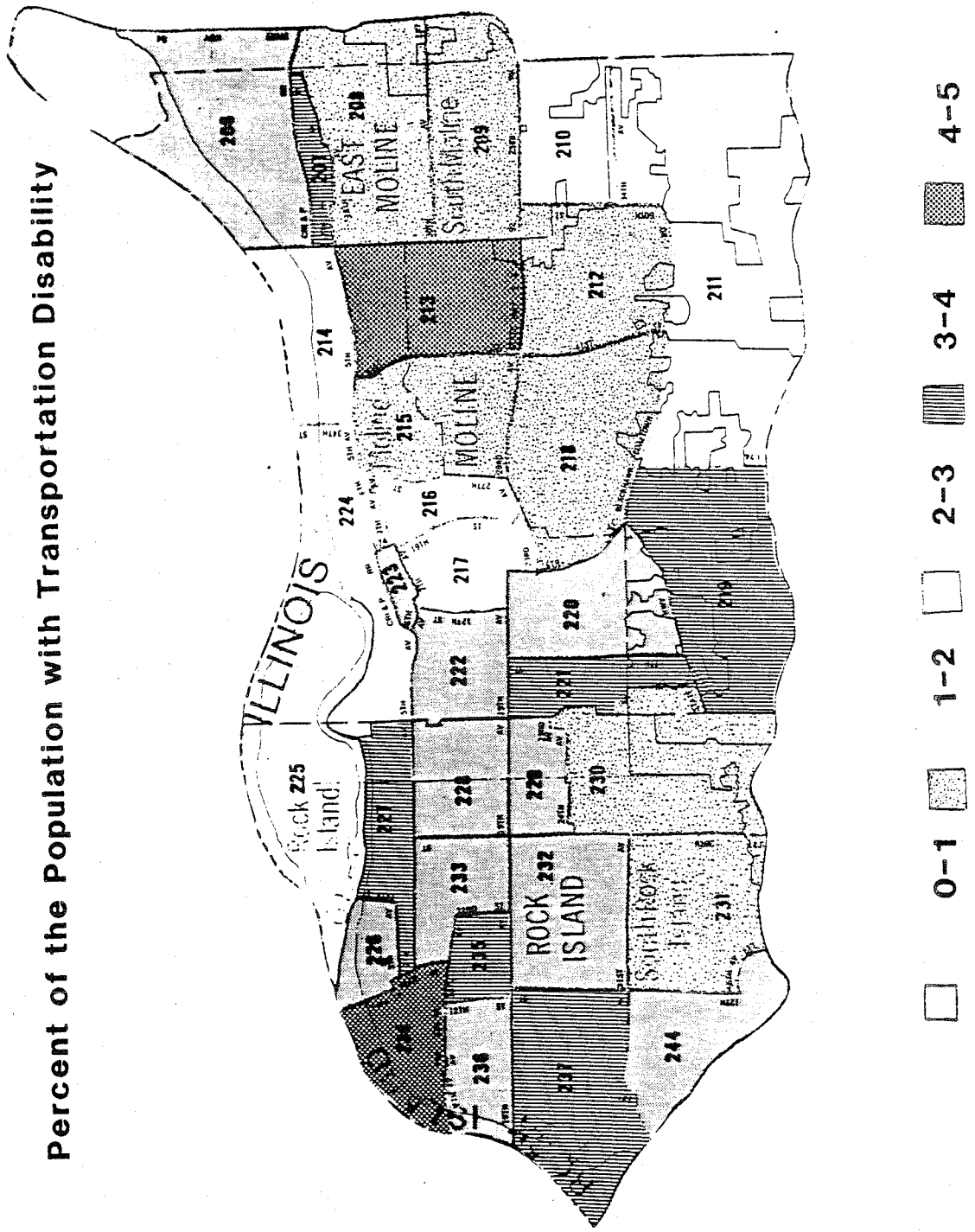


Figure 7. Density of Doctors, Dentists, Hospitals, Mental Health Services, and Pharmacies

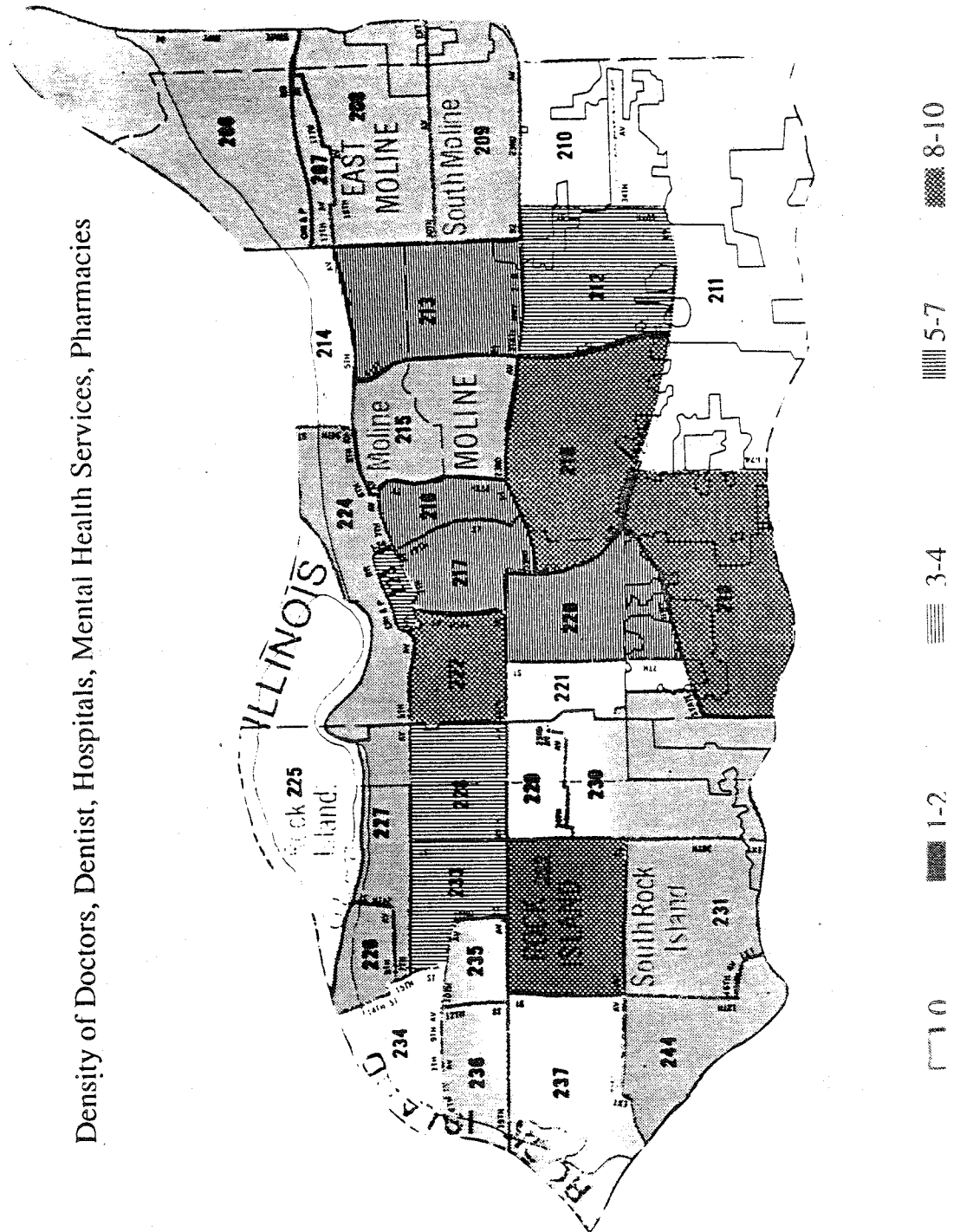


Figure 8. Density of Shopping Centers, Banks, Bowling Alleys, Recreation Centers, Beauty Shops and Churches

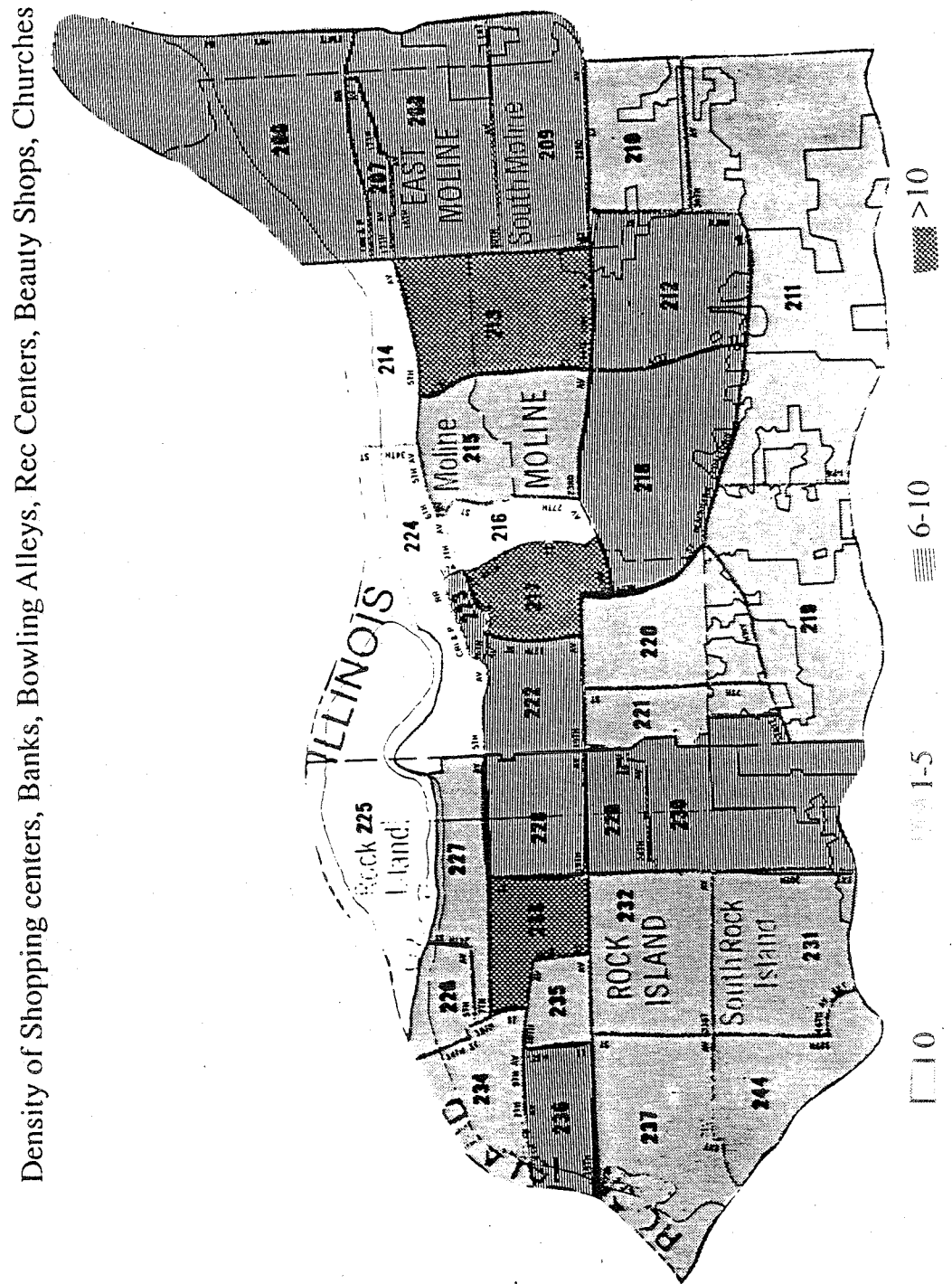
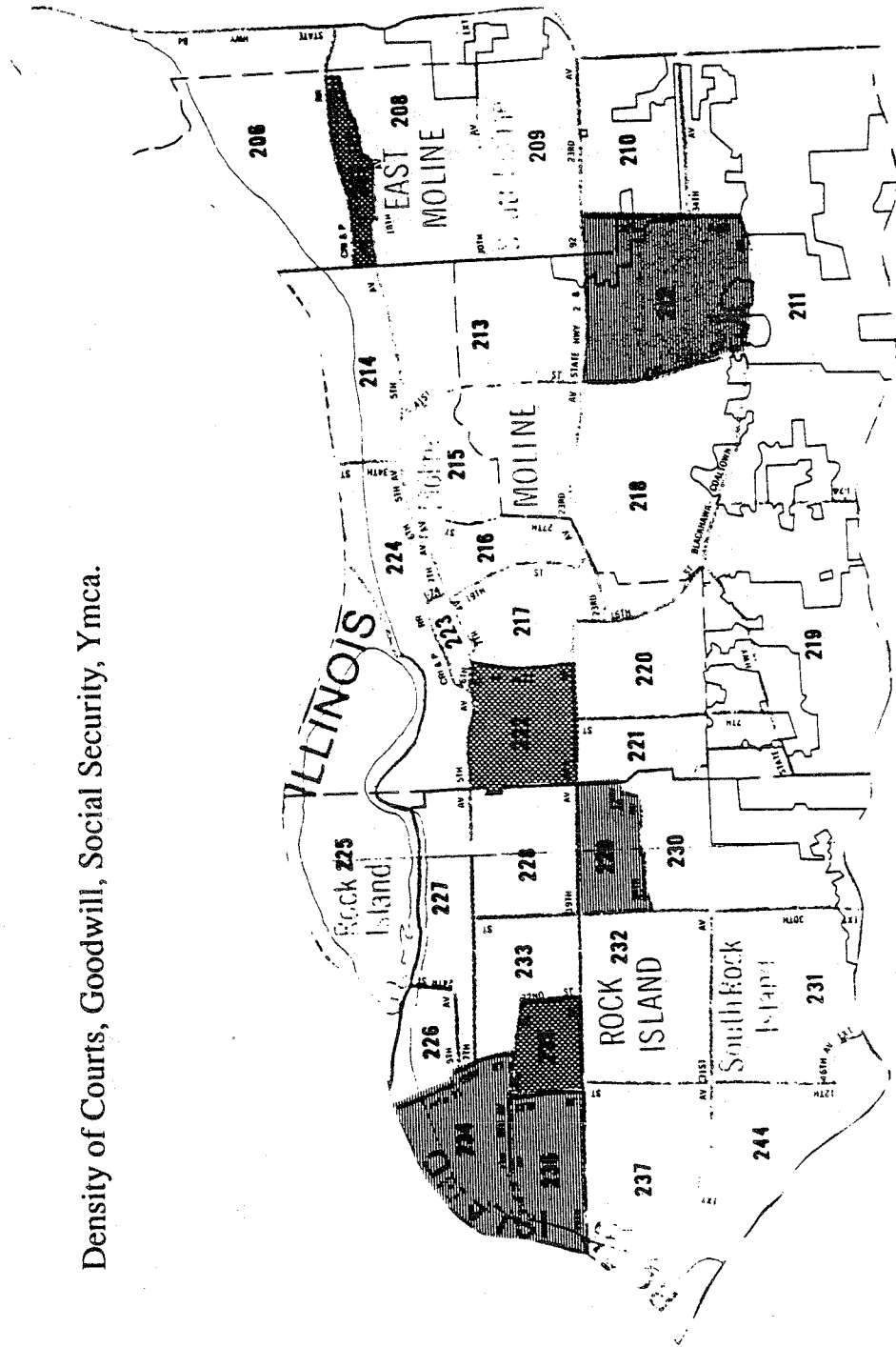


Figure 9. Density of Courts, Goodwill, Social Security, and YMCA



Density of Courts, Goodwill, Social Security, Ymca.



**Figure 10. Project NOW Congregate
Meal Site Locations**

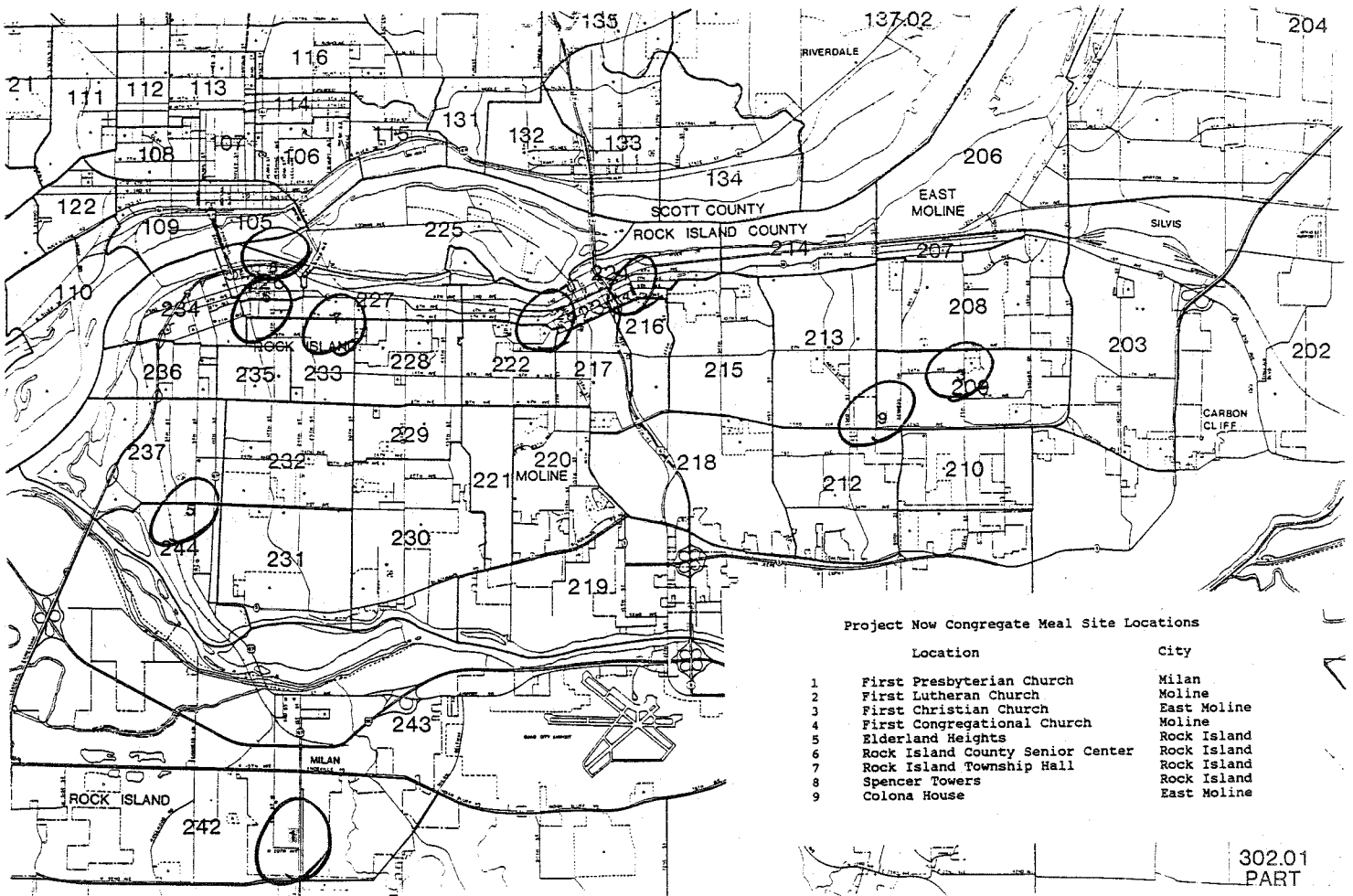
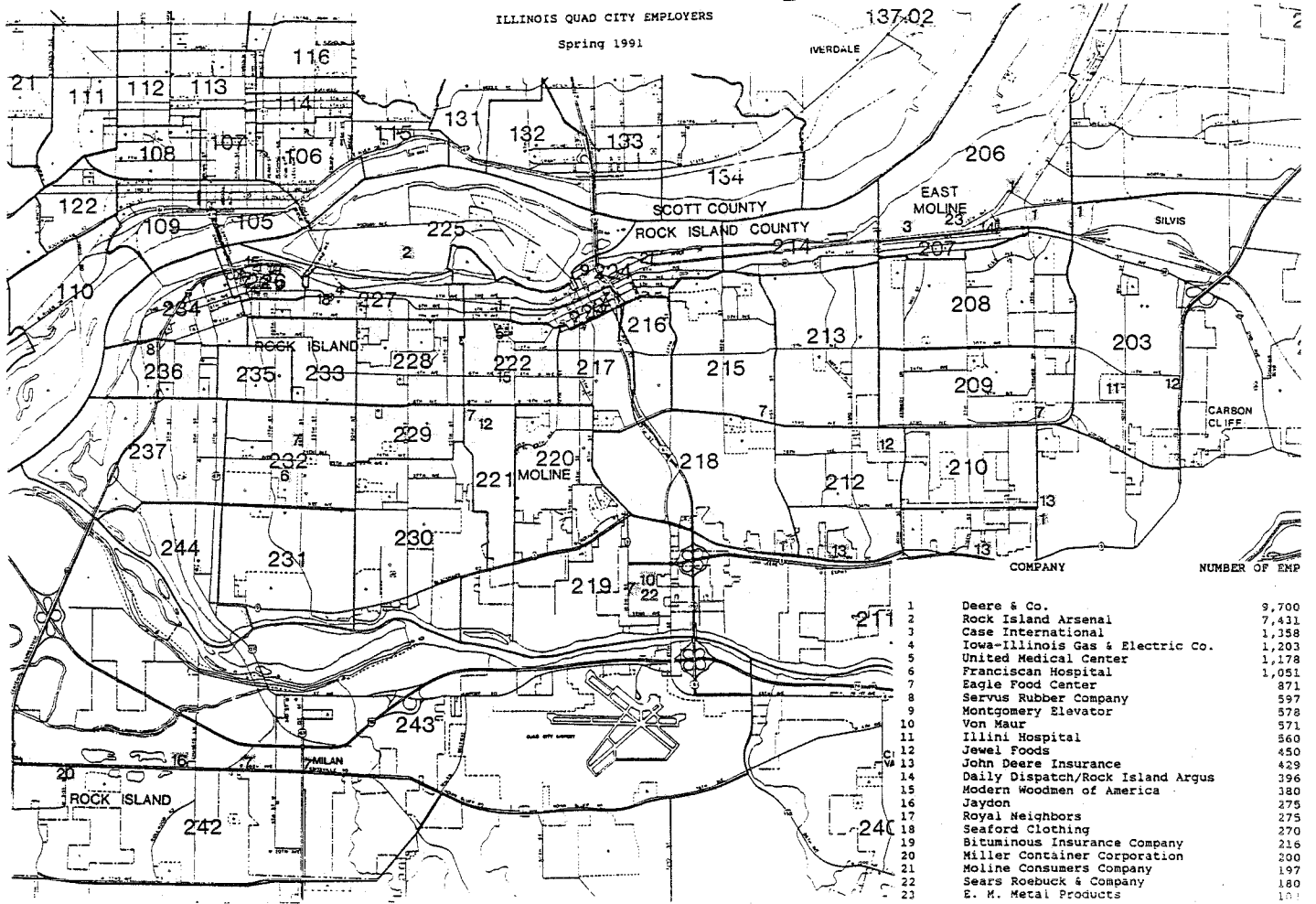


Figure 11. Major Illinois Quad City Employers



SYSTEM DEFINED

Proposing a new paratransit system which would operate as a complementary service to the accessible fixed route bus requires a process distinctly different from the use of standard demand models. The number of individuals who would potentially be declared paratransit eligible is small and can be very narrowly defined. By using various types of estimators it is possible to come up with a range of number for eligible riders. Nevertheless, all numbers are relatively small. If the system is to be restricted to these individuals and not include other elderly residents or individuals who travel in wheel chairs, it would be possible to operate a very limited system and still meet the basic requirements of the ADA.

The following model uses these numbers to determine approximately how many vehicles would be needed to provide the complementary paratransit service. National studies used in developing the Paratransit Handbook indicate that typically only 20 percent of those individuals who would meet functional eligibility tests would actually ride the system regularly. The surveys cited above showed an average of about three trips a week taken by the various groups of potentially eligible individuals. The ARC study noted about 10 trips a week, but many of those trips are work trips and would continue to be taken on the fixed route bus. The physically disabled survey noted an average of three to five trips a week while the telephone survey of disabled elderly identified an average of one to two trips a week. This average of three trips a week or 12 to 15 trips a month is very similar to the number of trips currently made on the Des Moines paratransit service. It is substantially higher than the figure included in the recently completed San Francisco Bay Area Paratransit Plan, which was using one to four trips a month. For planning purposes, a range of potential trip numbers for eligible riders is presented.

The following model was derived from the Syster Macro-Analytic Regional Transportation Model (1983) SMART. The model helps to access the optimum number of passengers to be carried, given distance between stops and the average speed of the vehicle. Among the various models included in the SMART program, that which calibrates time and distance for car pools was deemed to be most applicable to a demand responsive service. The model calculates car pool distances as a function of the number of stops per tour and assumes that passengers may get off at any attractor. An equation with parameters derived from numerous runs of a computer optimization model using a poisson distribution of locations of passenger origin and destinations within a defined zone estimate the average tour distance. Use of the equation allows experimentation in determining the time involved in retrieving differing numbers of passengers from zones of varying sizes.

The number of trips is associated with the number of passengers with the assumption that passengers are retrieved at different locations and go to different locations. Distribution of origin and destination points follows a poisson distribution. It is possible to adjust the number of trips,

however, if two or three passengers get off at the same place. Distance of the tour is easily associated with time by factoring in the average speed of the car. With distance associated with time it is possible to set a time constraint beyond which it would be infeasible to expect passengers to take the trip (such as one hour). It is then possible to determine the optimum number of passengers which could be carried on a given tour.

The base model is as follows:

$$De = 1.67 + .74 * N * S/4$$

where: De = estimated distance
 N = number of stops per tour
 S = length of side of zone

The equation is used in SMART's Dumper car pool routines and gives a close estimate for tour distances as long as the distance is between 0.0 and 1.5 times the length of the side of the zone. The maximum error of a two person car pool is 10 percent and the maximum error is significantly less than that for larger car pools. Once the distance is calculated it is possible to determine the amount of time used in each car pool by associating distance with the appropriate figure for speed in minutes per mile.

For a system focusing on the disabled it is essential to make an important modification in the basic model. A factor for dwell time at each stop needs to be added in. This allows the driver to get out of the vehicle and escort the rider to or from the point of origin or destination and/or to secure a wheel chair. The figure of an average of three minutes per stop was derived from the average wait time experienced by several demand responsive systems for the elderly. Some systems have experienced a four minute average boarding time with a two minute unloading time for wheel chairs. This fits within the three minute average.

The modified formula for a service for the disabled follows:

$$De = 1.67 + .74 * N * S/4$$

$$T = 2 (Dw * N) + (De/MPM)$$

where: T = time of tour
 Dw = dwell time per stop per passenger
 MPM = speed of vehicle in miles per minute

When applied given the appropriate data for the Metro Link service area, it indicates the need for two vehicles operating full time for the 15 hours a day and 24 days a month that Metro Link runs. This is factoring in an average trip length of five miles, run at 25 miles an hour. In the Metro Link service area a five-mile trip would allow most riders to access the primary trip

attractors--shopping, doctors, etc. The optimum number of passengers transported at any one time would be three with three different points of origin and destination. With more than three boarding and exiting stops the trip becomes too long. It is possible to pick up replacement passengers, however, on the way to destinations. The following chart indicates the total number of hours of vehicle service that would be needed if two, three, or four eligible passengers traveled together.

Number of Eligible Passengers Traveling Together	Total Hours Needed Per Month	Vehicles Needed If Rides Evenly Distributed
4	551	1.47
3	584	1.95
2	604	2.01

One additional vehicle would be needed to accommodate 364 additional hours of service if Category 2 eligible individuals needed to be accommodated until the fleet were fully accessible. Escorts and permitted accompanying passengers would not require significant additional boarding time, but they would require seats. Hence, it is probable that only two eligible passengers can be accommodated at any one time.

Peaking is not a significant problem when dealing with shopping, medical, and recreational trips, the purposes highlighted in all the surveys. It still would be a potential factor in meeting the needs for work trips. With only a few vehicles operating, the peaking problem would be exaggerated. Hence, additional vehicles would be needed in early morning and at the end of the work day. If existing services continue to operate their specialized trips to adult day care, the disabilities center and the senior nutrition sites, the problems of other peaks would be avoided. Although the hours of complementary service would need to be parallel that of the fixed route Metro Link schedule, it is anticipated that most requests for paratransit service would come during the day and that evening service would be much lighter.

Downtime for vehicle maintenance and driver breaks would need to be factored in given the long day of operation. Doubling the fleet available to four with drivers would take care of these important contingencies. A fifth vehicle would be needed if Category 2 people needed to be accommodated. Planning, therefore, is based on regular operation of a four-vehicle fleet with a fifth vehicle available to serve longer trips or to fill in where needed.

CHAPTER THREE: EQUIPMENT NEEDS

The equipment needed for an effective paratransit service which will complement the Metro Link fixed route bus is in part determined by the regulations which relate the provisions of the ADA specifically to paratransit. In larger part, however, the equipment needs are determined by the riders who will use the system.

EQUIPMENT ASSESSMENT

Small transit vehicles have several advantages over larger, standard sized transit buses for use as paratransit vehicles. They are more economical to purchase and to operate, they are easier to drive and park, when equipped with gasoline engines they are quieter, and they would provide the capacity needed to operate the system described above. There are a wide variety of small transit vehicles on the market and vehicle companies are continuously updating their products to be more competitive. As a result, new vehicles become out-of-date very quickly. With the passage of the new ADA, equipment is improving rapidly as companies scramble to get the edge on the huge potential market for paratransit vehicles. This means that vehicle manufacturers are constantly improving their lift equipment.

There are four types of small transit vehicles in use today for paratransit. Vehicles increase in both size and cost from Category 1 (standard sized vans), to Category 2 (modified standard size vans with bubble tops), to Category 3 (body on chassis vehicles), and finally to Category 4 (small buses). In keeping with the ADA regulations, however, no additional standard vans will be acquired for paratransit service.

Standard Vans. Standard vans have been readily available since they are low cost, are inexpensive to operate, and have the greatest maneuverability of all types of paratransit vehicles. A company can acquire a standard van with lift for about \$22,000, depending on the choice of options and accessories. The problems are that standard vans have low roofs which make it difficult for passengers and wheelchair users to get in and out of them. Recent ADA requirements for raised roofs, however, will limit the usefulness of these vehicles for paratransit service.

Modified Standard Vans. Modified standard sized vans with bubble tops provide greater headroom for entering and exiting, and for easier movement of passengers inside the vans. In addition, some of the types of vehicles have lower floors in order to provide additional height. Wider bodies are also common, resulting in greater interior space. Entrances on modified standard sized vans are usually made accessible through the addition of hydraulic wheelchair lifts

which are provided by other manufacturers. Modified standard vans usually seat from nine to 16 passengers, have a typical life span of five to seven years, and generally cost \$26,500 to \$29,000.

While modified standard vans have greater interior height and more room than standard vans, they have several disadvantages. They are more expensive to purchase and operate than are standard vans; they are noisier; they have a tendency to blow around in the wind; and their engines do not have a long life span because of the increased weight of the vehicles and the heavier loads they carry. Climate control systems have also been known to be problematic because the increased size of the vehicles places a greater demand on heating and cooling system.

Body-On-Chassis Vehicles. The next jump in size and cost is to the "body-on-chassis" vehicles, which typically cost \$33,000 to \$43,000. These types of vehicles generally range in size from 12 to 30 passengers. The vehicles often have bodies that are supplied by different manufacturers than the chassis. Body-on-chassis vehicles tend to be more durable and long lasting than both vans and modified vans. They have greater interior space, larger engines, and larger heating and cooling systems with greater capacity. The engines are either gasoline or diesel fueled, with diesel being the more economical alternative. Body-on-chassis vehicles with diesel engines typically average about nine to 10 miles per gallon on short trips verses about six to seven miles per gallon for gasoline engines.

The disadvantages are that body-on-chassis vehicles usually have stiff, bumpy rides that have been compared to old school buses due to stiffer suspension systems and shorter wheel bases than small buses. When wheelchair passengers ride behind the rear axle, the ride can be especially bumpy and uncomfortable. They are also noisier than vans and modified vans, particularly if they have diesel engines. The life span on body on chassis vehicles is typically five to seven years. However, 150,000 to 200,000 miles per vehicle is not uncommon when good maintenance programs are employed.

Small Buses. Small buses, which currently cost between \$115,000 and \$130,000, or more, have several advantages over other types of paratransit vehicles. Small buses seat from 18 to 35 passengers, and have considerably more interior space than the other types of paratransit vehicles. Small buses are made with many of the same components and parts as the larger buses which are intended for fixed routes, and therefore, are much more durable than vans modified vans, or body-on-chassis vehicles. The life span for small buses is typically 10 to 15 years and 500,000 miles on a vehicle is not uncommon. This represents two to two-and-one-half times the life span of smaller paratransit vehicles.

In addition to carrying more passengers, small buses also have greater interior floor space for easy maneuverability. They come equipped with diesel engines that generally get nine to 10

miles per gallon.

The primary disadvantages of the small buses are the higher purchase price, and the fact that they are less maneuverable.

Kneel Down Feature. Several major bus companies now offer what is known as a kneel down feature on their small buses. The feature allows the driver to hydraulically lower the front right corner of the bus in order to reduce or eliminate the otherwise steep first step. Where curb heights are high, drivers can often align the first step on the bus to be level with the sidewalk, thus eliminating a step. In other situations where they cannot kneel the corner of the bus down to that extent, drivers can at least lower the first step so that it is no higher than subsequent steps.

EQUIPMENT CURRENTLY AVAILABLE IN SERVICE AREA

As was indicated above, the type of equipment in use by social service agencies in the Metro Link service area varies considerably, both in quality and in level of accessibility. Some social service agencies are using regular Dodge vans, some with lifts. Others are using larger body-on-chassis vehicles. As the equipment list given above indicates, not all agencies are currently using lift equipped vehicles. Taxi cab companies are using sedans as are some of the dedicated purpose agencies. Many of the vehicles now in use do not fully address the needs of elderly and disabled travelers.

Problems lie particularly with: (1) the entrance to and exit from vehicles, both for ambulatory disabled and for wheelchair bound riders; (2) movement through the vehicles to seats; (3) getting in and out of seats; and, (4) wheel chair placement.

This study considered these complex issues through interviews with service providers, through personal observation, through literature review and through a review of current ADA regulations as supplied by the Department of Transportation and preliminary drafts provided by the Architectural and Transportation Compliance Board.

Entry and Exit. During the months of June and July, 1991 elderly and handicapped passengers were observed getting on and off a variety of vehicles in the cities of Des Moines and Ames as well as in the Metro Link service district. Passengers were observed getting on and off standard vans, body-on-chassis vehicles that were operated by social service agencies as well as accessible buses.

A number of the vehicles currently in operation in the area reflect the overall problems with most vehicles currently being manufactured. The vans, and body-on-chassis vehicles

observed had very steep steps, much higher than that which people are accustomed to encountering in buildings. These steps are especially difficult for persons with arthritis and/or other sensory and mobility limitations to negotiate. They would also be difficult for individuals with some heart and lung disorders to negotiate. Adding to the problem is the fact that the grab bars adjacent to the steps on the vehicles are frequently inadequate. Since grab bars do not extend to or beyond the doors of the vans or the body-on-chassis vehicles when the doors are in the open position, there is inadequate support for these individuals. This often results in people grabbing hold of door closing devices or even the doors themselves in order to gain support while entering and exiting vehicles. This generates safety concerns. The expectation is that manufacturers, stimulated by the ADA, will redouble their efforts to make vehicles more accessible to the ambulatory disabled.

The kneeling feature on small buses removes the difficult step from the curb, but usually the interior steps remain. The grab bar on these vehicles can extend beyond the door, making them more accessible to those riders needing support on the steps.

Manufacturers are beginning to respond to these needs. A new specially equipped Dodge Caravan has the kneeling feature, as well as a side ramp entrance with no steps and a grab bar.

Seating Arrangements. Moving through a van is difficult for individuals with a mobility problem or a visual problem and those traveling with a mobility aid or an assisting dog. This process is easier in the body on Chassis vehicle or the small bus, as long as the vehicles do not proceed until all are seated. It is also more difficult to get in and out of the seats of a van. Once the passenger is seated in the van, however, the more padded seats make the ride less jarring. The new ADA rules do not specify any specific seating arrangement for ambulatory passengers, except to require that animals assisting passengers must be included.

The ADA rules require a minimum of one wheel chair position on all paratransit vehicles serving as a complement to accessible fixed route bus. Taxi cab companies that do not operate vans are, however, explicitly exempted. Two wheel chair positions are generally preferred. Each location needs to have adequate floor space around it to allow for drivers to adequately secure wheelchairs. The new ADA regulations also provide that scooters be accommodated, even though they take more room than a standard wheelchair. Hence, planning for these larger mobility aids will require more tie-town space.

Although several vehicles in use in the Rock Island area as well as in other cities position the wheel chair facing sideways, the new ADA regulations require a forward or backward position for safety reasons.

Lift Assessment. Companies which manufacture hydraulic lifts are in the process of upgrading both the size and mechanism of lifts currently available. Some brands of hydraulic lifts on paratransit vehicles have had a record of frequent breakdowns. When a hydraulic lift does not have a manual operation override, it may be extremely difficult to get wheelchair passengers out of paratransit vehicles. The necessary manual override or the back-up hydraulic is, unfortunately, not available on a number of vehicles in use in the Rock Island area. Although operators differ in their opinion of various lift devices, all are primarily concerned about level of reliability and performance. According to the new ADA regulations, a passenger traveling in a wheel chair can expect a paratransit ride within 30 minutes of the appointed time. If there is mechanical difficulty with a lift, a replacement vehicle must arrive within that time. In a winter climate, like that in the Illinois Quad City area, lifts need very regular maintenance to assure reliability.

The new ADA regulations incorporate the U.S. Architectural Barriers and Access Board's definition of a common wheel chair as one that will fit on a 30" by 48" lift platform and does not weigh more than 600 pounds when occupied. The regulations also expressly mention that three-wheel (scooters) "and other non-traditional mobility devices", as well as four-wheel chairs, will be accommodated and that it is the responsibility of the transportation provider to insure adequate securement devices.

The size of the lift platforms on the vehicles currently in use in the Illinois Quad Cities area will adequately provide for the common wheel chair as defined above. They will, however, prove to be difficult to use with the new wider wheel chairs now on the market. The 30" base is not wide enough for the mechanized chairs, nor is it strong enough to hold the heavier chairs. In addition, the older lift equipped vans in use by social service agencies and nursing homes in the area, do not currently have adequate securement devices for the three-wheel chairs. Although safety requirements insist that a driver not accompany the wheel chair passenger down the lift because of the excess weight involved, some drivers of paratransit vehicles are concerned about the safety of the barriers on the existing lifts and do ride down with the passengers. The ADA also provides that if passengers have difficulty negotiating the bus steps, they can be accommodated on the lift. This will require two hand rails as well as an adequate barrier. The nature of the barriers is also currently being improved by lift manufacturers.

In general, although there are a number of lift equipped paratransit vehicles in the Metro Link service area that do comply with current legislative requirements, many will not be able to provide for the type of mobility envisioned by proponents of the ADA. These problems are not unique to the Illinois Quad Cities area; equipment manufacturers have been lagging behind both in the quantity and quality of accessible equipment produced. Now with the ADA as impetus, new equipment is being developed more rapidly, but still not quickly enough to meet the increased national demand.

DISCUSSION AND RECOMMENDATIONS CONCERNING THE CHOICE OF PARATRANSIT VEHICLES

Opinions vary greatly with regard to the type of vehicle which is best suited for paratransit. Authorities in Des Moines express preference for small buses equipped with electrohydraulic lifts and kneel downs. They cite greater seating capacity, ample interior space, durability of vehicles, and ease of maintenance, as the primary advantages of small buses over other types of vehicles.

Personnel who administer Ames' "Dial A Ride" paratransit system, on the other hand, prefer the body-on-chassis type of vehicle because of the increased maneuverability of the vehicles through parking lots and around corners, the more compact size and the lower initial cost of the vehicles.

Officials from both communities expressed agreement that, since equipment is improving rapidly, it is best not to buy too much in the way of new equipment at one time. Buying several of the same types of vehicles at one time can restrict the flexibility of a paratransit system in providing the best possible service to its passengers. Additionally, it takes a period of time to realize both the advantages and shortcomings of a particular type and style of vehicle given the demand and scheduling requirements in individual cities.

Wheelchair Ramps. Wheelchair ramps can be used instead of more expensive mechanical lifts on vans and modified vans. Ramps typically cost between \$600 and \$800. The ADA specifically indicates ramps as a means of achieving accessibility. The ADA rules call for ramps slopes to be no more than one in 12 when there is more with solid platforms rather than having wheel tracks, and the minimum platform width is proposed to be 30". They must also have a capacity of at least 600 pounds. When ramps are used on vans and modified vans, paratransit drivers need to be thoroughly trained to properly fold the ramps in and out, and to assist wheelchair users in the use of ramps.

Wheelchair Lifts For Paratransit Vehicles. Wheelchair lifts can either be ordered together with new vehicles, or they can be installed on vehicles at a later date. Prices vary from one model to another, but the typical costs per lift ranges from \$3,000 to \$15,000, installed. Currently the life span of a wheelchair lift is about 12 years.

At the present time there is a wide variety of lifts to choose from. However, wheelchair lift manufacturers are currently redefining their products in response to the ADA and it is anticipated that this will bring about the development of better designed and engineered lifts in the near future. Response to the ADA is expected to also create more generally accepted standards in terms of platform size, type and location of handrails and controls, and other

specifications. The latest proposed rules call for a minimum platform size of 30" by 48", a minimum load capacity of 600 lbs., at least one handrail, and a minimum headroom of 56" for entry doors. The 600 pound capacity is considered by many drivers to be too low for electric wheelchairs and passengers, who prefer that the capacity be increased to 700 or 800 pounds. Drivers also expressed a preference for lifts with hydraulic cylinders on both sides, as opposed to one side only.

Lifts can be installed on either the side or rear of a vehicle, however, the side position is usually preferred for curb side use. Platform lifts are preferred over step lifts for use in paratransit vehicles. The electric hydraulic lift is considered to be the best type of lift available.

The standard size of a platform lift is currently being increased to accommodate different kinds of wheelchairs and other wheeled vehicles, including the popular three-wheeled "Amigo" brand. A number of lift companies now offer lifts from 32" to 34" wide instead of 30" wide, the dimension that had been the industry standard until recently.

All wheelchair lifts come equipped with front barrier plates. However, there is considerable variation in the size and operation of these plates from one type and brand of lift to another. There have been reports of injuries resulting from wheel chairs rolling off of raised lift platforms due to inadequate front barrier height. As a result, some manufacturers are increasing the standard size of front barriers.

It is recommended that all lifts be equipped with manual overrides to allow drivers to lower lifts, following a breakdown.

Paratransit vehicles should also be equipped with one standard sized, fold-up wheelchair. The wheelchair can be used to aid elderly and disabled passengers who have difficulty getting up or down the steep steps on paratransit vehicles. Drivers need to be trained to use the wheel chairs on the lifts and to help transfer passengers to the seats on the vehicles. Although according the ADA rules, no operator may require that a wheelchair passenger transfer to a seat, this may still be recommended, especially in the interim period when a company is concerned about the securement devices and the particular wheel chair involved.

As was the case with choice of vehicle, there is, at the present time, a difference of opinion among paratransit officials concerning the type, brand, and the ideal size of lifts. Therefore it would be prudent for a paratransit system to equip a couple of vehicles at a time in a phased approach in order to discover the desirable features that should be standard on all lifts. A phased approach would also allow the paratransit system to take advantage of the rapidly improving lift equipment that is currently evolving in the industry in response to the ADA.

Wheelchair Securement Devices. The current version of the proposed ADA rules for paratransit vehicles call for a minimum of one wheelchair securement per vehicle. It also calls for the securement to be forward-facing, or forward and rear-facing. A variety of wheelchair securement devices are available for installation in paratransit vehicles. The two most common types of devices are known as "tie downs" and "wheel locks." The four point type of tie down system is highly regarded because it is considered to be safer. With this system, four tie down points on the floor of the vehicle are attached to the frame of the wheelchair with an adjustable locking belt. For tie downs to be effective, however, they must always be properly fastened by paratransit drivers.

Wheel locks have the advantage of being quicker and more convenient than tie downs. However, securement requirements vary from one type of wheelchair and wheeled vehicle to another. As a result, wheel locks on many existing paratransit vehicles are in fixed positions and will only work on one of the two rear wheels of a wheelchair or "Amigo" type of vehicle. Tie downs, on the other hand, can be adjusted to secure a variety of sizes and types of wheeled vehicles to meet individual requirement. They also offer four point securement, which is safer than either one or two point securement.

Tie downs are generally considered to be safer and more versatile than wheel locks. However, for tie downs to be totally effective, drivers need to be well trained in their use and also need to be very diligent when actually using them. Lock downs offer the advantage of being reliable and easy to use.

One other alternative has been to design what is known as a "low body" vehicle, which has its floors dropped down a foot or so to be lower to the ground. However, there have been other problems with these type of vehicles. They are subjected to scraping bottom on roads and parking lot entrances with difficult grading situations. There are also clearance problems with low bodied vehicles in the winter when there is snow coverage on paved surfaces. Some manufacturers have responded to this challenge by introducing a kneeling device in association with a low flat floor. Metro Link currently has one of these vehicles.

Bus Stops, Shelters, and Transit Points. In many cases, transit facilities do not need to be renovated in order to comply with the ADA. In other cases, the path of travel, including bathrooms, telephone, and drinking fountains must all be accessible. These issues, however, become more critical with fixed route buses than the door-to-door service available with paratransit. If however, a transfer between the demand responsive vehicle and the fixed route bus is required, any facilities at the transfer point would need to be accessible.

Summary Review of Paratransit Equipment. There is no clear agreement as to which type of paratransit vehicle is best and many communities have chosen to purchase at least two different types of vehicles. The following summarizes a review of paratransit equipment.

- Standard vans can provide good service, for limited use, for a few passengers. They offer the greatest maneuverability, the lowest purchasing and operating cost, and can be easily modified to accommodate one wheelchair.
- Modified standard vans seat more individuals than standard vans, but also cost more to purchase and operate, and have fairly short life spans.
- Body-on-chassis vehicles have greater interior room than standard vans or modified vans, and can be equipped with either gasoline or diesel engines. However, they have stiff rides, can be noisy, are more expensive to purchase, and also have short life spans.
- Small buses offer the most interior space, the greatest seating capacity, and two to two-and-one-half times the life span of vans and body-on-chassis vehicles. However, they are also much more expensive to purchase and are more difficult to maneuver.
- The type of Dodge Caravan vehicle recently acquired by Metro Link appears to be an appropriate response to the needs for a paratransit service. It has considerable maneuverability and can easily accommodate one or two wheelchairs as well as three to four other passengers. Although more costly than a standard van, it is equipped with a ramp that can reach a curb with minimum slope. Therefore, no lift is needed. Although it has limited capacity, five places is probably all that is needed for individualized demand responsive trips. Another type of vehicle would be needed for group trips. One other major advantage is the kneeling feature which would assist the ambulatory disabled.

TRAINING

Training of Drivers. A key ingredient in the success of paratransit is the training of the drivers. In fact, this is recognized as a mandate with the ADA regulations. The familiarity of the drivers with lift and ramp operations can help guarantee the safety of the passengers and efficiency of operation. Familiarity with appropriate evacuation procedures is also critical for passenger safety. Training programs for drivers responding to the needs of the disabled also need to include sensitivity training for individuals who are not experienced in interacting with the disabled. Quality training programs can more often be mounted if they are offered cooperatively by several agencies, or if they are to serve a coordinated system.

The Chicago Transit Authority recently completed a survey of 370 transit agency members of the American Public Transit Association. The survey was designed to learn about specific policies and procedures developed by transit agencies in using lift equipped buses. Since 83.5 percent of the responding agencies indicated that the drivers have full responsibility for securing riders on the vehicles, all underscored the importance of training in passenger assistance techniques as well as on-the-job training. The respondents also underscored the need for driver training in responding to the needs of transit users with speech, visual and hearing impairments. Emergency procedures and safety training were also cited (*Project Action Update*, Summer, 1991).

A variety of training programs have been developed, ranging from a short half-day session to several days. A summary of training programs offered by other paratransit systems is included in Addendum G. The information included in this addendum was acquired during telephone interviews with operators of systems in peer cities and other cities in the Midwest. The most effective programs not only provide hands on experience in deploying lifts and ramps, but also include sensitivity training including the opportunity for drivers to interact and share ideas with members of the disabled community. An opportunity for the drivers to try riding in wheel chairs also increases sensitivity. The procedure for assisting the ambulatory disabled in getting in and out of the vehicle is also stressed as is first aid and emergency procedures.

There are several excellent training tapes that can be incorporated into the training classes to help sensitize paratransit drivers to the needs of elderly and disabled passengers. One such video tape produced by the Rural Transportation Assistance Program of the U.S. Department of Transportation is entitled "Understanding the Capabilities and Needs of Special Passengers." The video tape covers the spectrum of disabilities and conditions associated with aging that affect passenger's needs. In the case of each type of disability or condition discussed, at least one individual with that particular condition is interviewed. The interviews are very effective in communicating the needs of a variety of people with different physical and/or mental conditions.

Additional training tapes are available through the Transportation Management Associates, including one that is particularly appropriate entitled "Passenger Assistance Techniques/Practicum." The video tape demonstrates the proper, step-by-step, procedures for operating lift equipment and recommended techniques for paratransit drivers to use in assisting wheelchair users. These techniques include assisting wheelchair users in getting up and down curbs and steps, up and down ramps, and travelling along sidewalks. These are all part of the door-to-door service that is required by the ADA. Also illustrated are the appropriate methods for assisting visually impaired passengers. Ultimately, on the job training will be essential. Some training programs space out the classes with an on-the-job training in the interval. This is highly effective in having the classes respond to the real-world questions of the new drivers.

CHAPTER FOUR: PROPOSED MODELS OF COORDINATION

This review of existing equipment and the relative advantages to different types on the market must factor considerably into any decision regarding coordination of services. Four different models of system coordination are explored.

- (1) Metro Link could contract with one or more social service agencies to provide paratransit services.
- (2) Metro Link could serve as coordinator for paratransit services by coordinating schedules and maintenance. It would, however, contract with social service agencies for use of under-utilized vehicles and with taxi cab companies for low volume service for ambulatory riders.
- (3) Metro Link could assume responsibility for paratransit directly, offering a unified set of operation standards and unified equipment purchase.
- (4) A separate entity could be established specifically to coordinate paratransit demand-responsive services for the Metro Link service area. Social services could continue to run many-to-one services for their own clients or could contract to this entity for services needed.

MODEL ONE: CONTRACTING FOR SERVICES

Model One, contracting for services, would have some obvious benefits for Metro Link.

First: Insuring that paratransit, demand responsive service would be performed by firms or agencies familiar with operating in that mode, leaving Metro Link to operate in the mode where it is well established (i.e., fixed route).

Second: There is considerable evidence that contracting out demand-responsive services results in financial savings. A survey of 864 public transportation providers conducted by the University of California-Irvine in 1985 determined that at that time 35 percent of all public agencies had a service contract for at least a portion of their transit service. The most likely services to be contracted for were demand-responsive. In fact, nationwide, 33 percent of all demand-responsive services were contracted. The survey identified Illinois as one of the 12 states most actively engaged in

contracting for services. The typical contract (59 percent of all reported) was for a short period, usually one year. Cost savings were up to 44 percent for large companies. For smaller companies with 50 or less vehicles the savings were less dramatic, (five to 33 percent) but nevertheless evident.

Third: A system can be functional much more quickly if it uses available equipment. Of course, there is the counter argument that the equipment currently available may be older and require higher maintenance costs. In the specific case of the Metro Link service area, there are social service providers with excess capacity in terms of vehicles. One agency has three vehicles which are not operating currently because of funding shortages making it impossible to pay additional drivers. Another agency has six vehicles parked and generally not used between 10:30 A.M. and 3:00 P.M. because the drivers serve other functions with the agency. Both sets of vehicles are lift equipped. Private taxi cab companies operating in the area have the potential to serve ambulatory paratransit eligible individuals. One taxi company has announced an interest in acquiring a lift equipped van.

Contracting for Operations. Although contracting for services within the public sector has been occurring for a number of years, contracting with the private sector has only recently been encouraged. The 1988 UMTA manual on private sector contracting highlights the benefits to both the public and the private sector in joint contracting arrangements. Benefits to the public sector in contracting with private operators, for example taxi cab operations, would typically include cost savings, equipment savings and human resource savings. More specifically:

- Lower costs are possible because the private sector typically has lower wage scales and lower fringe benefits which leads to lower operating expenses. As a profit-oriented concern, the private operator's overhead is less than the fully allocated overhead cost of a public agency. In addition, the private operator is not a direct recipient of federal assistance and is not required to respond to the grant compliance issues which are associated with federal funds.
- Since acquisition of vehicles could take up to two years through state and federal funding channels, contracting for existing fleets would be a major benefit. Also the private sector can acquire additional vehicles in a shorter period of time.
- The private sector also has greater flexibility in hiring and greater latitude in using part-time employees.

- Insurance liability could be transferred to the contract provider who might have lower rates in fleet insurance.
- Improved utilization of federal assistance is possible since UMTA allows its grantees to charge the capital component of a service contract off as a capital expense rather than as an operating expense. This is particularly helpful for public agencies which can use Section 18 reimbursements.

Benefits to the private sector of such contracts include:

- Increased revenues and profits, based on greater utilization of vehicles.
- Opportunities for greater diversification of services, allowing for more business growth.
- Wider distribution of fixed costs which can be incorporated in with the per trip charge.
- Good public relations and effectively "free" advertising.

In considering contracting, there are a number of options. Bids could be requested from services in the Rock Island area or elsewhere to operate the entire paratransit service. The contract could require that the operator supply its own vehicles or permit that it subcontract to operate available vehicles in the area. Since the complementary service must operate at the same hours as the fixed route, it is possible to contract the day time service to a social service provider and the evening complementary service on the RED, GREEN, BROWN, ORANGE, and YELLOW routes to a taxi cab company.

A key factor would be to arrange for charges on a per trip basis rather than a flat rate per mile since flat charges for services rendered leave the door open to extra padded charges. Contracting may be for operations alone or may include contracts for scheduling and/or maintenance services. Relative advantages of contracting for scheduling are: (1) having the operator also perform scheduling thereby having full knowledge of the location and routing of each trip; (2) enabling more efficient use of all available vehicles; and (3) enabling use of more sophisticated computer scheduling programs.

Contracting for Scheduling. Currently each social service operation in the Metro Link service area has its own scheduling system. Typically schedules are constructed by hand in response to calls received at least 24 hours in advance. The expected large number of calls coming in from the whole fixed route system might require more sophisticated computer equipment than is currently available to social service providers in the area. A program of the caliber of that is currently available to Metro Link would be needed.

Paratransit Management and Scheduling (PtMS), version 4.3, developed by Automated Business Solutions, Inc. was the package selected by Metro Link to manage the operations of a paratransit system. It is designed to improve the operation of paratransit systems by: (1) increasing efficiency through better scheduling and routing of vehicles; (2) improving cash control by streamlining billing operations and tracking receivables; and (3) providing systems managers with utilization data to better market services, reach under-served areas, and plan for future operations. The standardized menu systems make it easier to move from operation to operation while carefully documenting these operations. Operator errors are "trapped" by the system and instructions for the proper operating procedure are displayed.

From the main menu the operator can access all of the features of the system. The major topic areas are client records, scheduling, and dispatching, vehicle service summary, accounts receivable, management reports, setup and file maintenance. A more complete review of the capabilities of this scheduling program is included as Appendix E.

Larger cities like Philadelphia, Pennsylvania, and Portland, Oregon, have successfully developed coordinated centralized scheduling. In southwest Pennsylvania, the task is handled by a contract, while the Portland operation is the product of administrative coordination. In either case a computer scheduling center takes all calls and then builds schedules for drivers. Radio contact with the vehicles enables inserting in short notice emergency calls if a driver is in the location of the caller.

There are a wide variety of computer software programs available which will list eligible paratransit riders in association with an address and any recurring transportation needs. Billing arrangements are also associated with the name of each rider. When an individual calls in, eligibility can be quickly checked, rides arranged efficiently, and appropriate subsidies indicated. This allows clients of a variety of social service agencies as well as ADA paratransit eligible individuals to ride.

For most systems the list of riders is used in association with a map of the city and routes are constructed. Each stop can be hand plotted on a clear plastic over lay of a detailed city map, or displayed using GIS software on a computer map of the city. Costs of computer mapping programs vary considerably (usually in the \$25,000-\$30,000 range) in addition to the cost for data entry. In the long run, however, the system will pay for itself with increased efficiency. Either way the locational information is used in relationship with the request of the caller in building schedules for drivers.

Contracted Maintenance. Since the vans and body-on-chassis vehicles as well as sedans in the area are gasoline powered and Metro Link's facilities are currently diesel, contracted maintenance might be a logical choice, at least initially. Several options are available:

- First: Part of the contract for operations could be taking on responsibility for maintenance of vehicles involved. The contract would clearly indicate that if the vehicles were not adequately maintained, the contract would be terminated. The responsibility of developing a maintenance sub-contract would then rest with the operator or operators. Currently most social service operators in the area have contracts with private garages, while one has a contract with the city garage.
- Second: A separate contract could be bid for maintenance of vehicles serving the paratransit service. This would potentially generate a lower cost and assurance of consistent service quality for the vehicles involved.
- Third: Regular maintenance of vehicles could all be performed at the Metro Link garage to assure even quality of service. Major repairs could be contracted out until Metro Link's garage was fully equipped to handle gasoline engines. This option would assure confidence in service, but would put extra pressure on the Metro Link garage to handle an additional fleet of vehicles.

Given variation in labor charges in the Metro Link service area, there would be considerable difference in charges for maintenance. The key aspect would be insuring quality, efficient service.

MODEL TWO: COORDINATION OF SERVICES

An alternative to contracting would be developing an administrative procedure for coordinating services, as suggested in Model Two above. There are, in fact a variety of models of coordination.

Clearing House. The simplest concept is the clearing house, in which all agencies retain their own identity and run their own services. The clearing house is a centralized information center which acts as a type of broker. It receives all calls and then contacts a cooperating provider and makes all arrangements for the trip which could be ride shared. Specific reimbursements would be prearranged. The vehicles would remain under the control of the individual providers, which would carry ADA paratransit trips on a space and time available basis. This type of system

might work well for several social service providers and would be fairly easy to set up administratively, but it would be more complex to manage for ADA paratransit. The time response requirements of the ADA complementary service would be difficult to assure through a clearing house. Fare payment permitted under the ADA would also be complex under an informal association of transit operators.

The clearing house operation was demonstrated in Fayetteville, Arkansas, where 16 agencies representing a broad range of clients were involved. Agencies needing transportation called the clearing house one day in advance and the trip was arranged and confirmed by the clearing house. A first choice was to place the trip on a vehicle already scheduled to carry passengers (ride sharing). A second choice was to place the trip on a vehicle that would be idle at the time (time sharing). There was an established charge to purchasing agencies on a per trip basis for use of the vehicle with or without a driver. The purchasing agencies were billed at the end of the month. A portion of the payment for transportation services was retained by the clearing house to help cover its expenses.

Coordinated Dispatching. Coordinated, centralized dispatching would resemble the centralized scheduling function discussed above except that all demand-responsive trips would be scheduled, not just ADA paratransit eligible. The dispatcher would have control over all vehicles and be able to arrange and insert new trips or substitute vehicles. Here the dispatching would be with a common operator in which all providers would "buy in." It would take a considerable amount of planning and cooperation on the part of agencies involved, but once in operation, this would assure greater efficiency in use of vehicles, better back up service and the ability to serve more trips. Billing arrangements would be the responsibility of the dispatcher as well.

Howard County, Maryland, demonstrated this approach by having all cooperating agencies submit client trip requests to a common "alliance" dispatcher. They reported in the time of the appointment and the client's address. The dispatcher then integrated these requests and planned schedules for available vehicles and drivers. The dispatcher then sends a copy of the relevant schedule to the agency requesting the trip. The agency in turn informed the client.

In the case of the ADA paratransit operation this model would be much more effective than the more informal clearing house. However, at least initially, Metro Link would not be an equal partner since it would not be contributing many vehicles to the pool and the ADA service would be a major demand on the system.

Because Metro Link currently has a computer scheduling program and the other providers do not, it might take on responsibility for service scheduling while the partners would provide vehicles. Since drivers are needed to operate the under-utilized vehicles of the social service agencies, this might be another area where Metro Link might contribute, although mixing union

and non-union drivers might prove to be difficult.

Coordinated Insurance Purchase. Vehicle insurance may vary greatly from agency to agency. While some of this variation can be related to vehicle seating capacities and the terms of the policy, liability limits, collision coverage, etc., much of variation is due to the terms offered by different insurance companies. Significant savings are possible when agencies jointly purchase insurance.

Volume purchasing seems to offer potential for reduced rates. A number of rural transit districts in Iowa, for example, experienced considerable reduction in premiums when they negotiated for a common policy. More favorable rates are also available to those which use good driver hiring procedures and driver training programs. Since such programs are essential according to the requirements of the ADA, the opportunity for more favorable rates would be greatly enhanced.

Coordinated Maintenance. This would also involve a policy decision on the part of the various social service providers. All those participating in paratransit service would need to agree on a common maintenance procedure. This would insure common quality in service and uniform maintenance costs. Yet, this would have farther reaching impacts since it would involve full agreement among all cooperating providers. Unlike the contracting system where only those vehicles involved in the ADA paratransit service would be involved, this would involve all vehicles.

Grand Rapids, Michigan, demonstrated a successful coordinated vehicle maintenance service that charged agencies a basic hourly rate for preventive and repair maintenance, plus the cost of parts. Parts were discounted at 40 percent off the regular retail price. This provided considerable savings to the agencies involved and was made possible because of bulk purchases.

As indicated above, maintenance costs currently vary considerably across the city; to agree on one set of costs and procedures would be difficult. Uniform maintenance would be assured, however, if Metro Link would be able to provide at least regular maintenance for a fleet assembled from cooperating partners.

MODEL THREE: INDEPENDENT METRO LINK SYSTEM

Model Three would have Metro Link assume full responsibility for all aspects of the complementary ADA paratransit service. Coordination with other services would be much more informal, in that clients of social service agencies could be served only on a space available basis if they were not declared ADA paratransit eligible. Billing and transfer payments would be

negotiated. In time, this would potentially have Metro Link provide transportation service to social service agencies on a contracted basis. It would allow Metro Link to benefit from using state operating subsidies.

This model has the appeal of close coordination between fixed route and paratransit systems. In cities like Portland, Oregon, the move is to incorporate as many forms of transportation as possible in one scheduling operation. This allows for scheduling paratransit trips as feeders into the accessible fixed route bus. Assurance of quality of service and consistency of service could be guaranteed.

This model would also involve Metro Link's acquisition of its own fleet of small paratransit vehicles. As indicated above, it currently only has one small fully accessible vehicle and it is currently being used to supplement the fixed route bus system. If funding sources were available, this would be an attractive solution since several new vehicles with the latest equipment would present a distinct positive image of the service to the community. It would also assure Metro Link of confidence in the quality of the equipment, and enable it to take advantage of the most up-to-date designs in accessible vehicles. Of course, initially it would be possible for Metro Link to contract to use available vehicles until others could be purchased.

Disadvantages would be with heavy start up costs, and the potential difficulty in acquiring sufficient vehicles to start the operation. Another disadvantage would be involving the small Metro Link administrative staff in managing a totally different operation from the standard fixed route.

MODEL FOUR: FORMATION OF SEPARATE OPERATING ENTITY

Model Four differs from several of the others primarily in terms of its administrative function. Here the actual operation of the paratransit service would be lodged with a separate body, presumably a non-profit agency. The new body could be constituted as a legal body with an advisory board representing all signatory local governments and cooperating social service agencies. Since the agency would have full responsibility for the ADA service, it could institute its own centralized scheduling process, develop its own maintenance contracts and have full control over all vehicles allocated to the service. It could be eligible for Section 18 funds as well as any other funding sources currently available to signatory agencies. This body itself could contract out for operations, but would retain responsibility for the service.

Property tax money generated by the townships for transportation services could also flow to such a body. This funding source would not only assist with operating costs, but would be essential to gradually replace vehicles acquired by social service agencies with federal funds.

Since the Office of Management and Budgeting prohibits a federal grantee from charging vehicle replacement costs back to the federal grant under which it was acquired, replacement vehicles need to be funded through another federal grant or through state or local funding sources. This problem would be magnified given the increased utilization of vehicles involved in the complementary paratransit service. Another complexity is that the various social service agencies and Metro Link currently are not eligible for capital expenditures for vehicles from the same funding source. Whereas, the non-profit agencies are eligible for Federal 16(b)2 funds, Metro Link is not as it relies on city and state funding for such expenditures.

Without such a centralized source of replacement funds, the coordinated agency would need to impose vehicle use charges on all participating agencies. These charges are difficult to calculate when estimates of increased depreciation due to accelerated usage are to be accounted for. A regularized vehicle replacement fund is not only easier to manage, but also encourages other agencies to cooperate more fully since they presumably would not be as concerned about deterioration of their vehicles. In addition, this would permit the coordinated body to take advantage of the latest improvements in manufacture of small accessible vehicles in purchasing replacements.

FUNDING POTENTIAL

Given the need for demand-responsive service under the 1990 ADA, funding will be an important and increased responsibility for public entities. The ADA did not identify any additional funding source to provide for paratransit service. Financing paratransit operations varies according to the level of complementary service required and local, state, and federal funding priorities.

According to the *Compendium of National Urban Mass Transportation Statistics for 1988* (UMTA Compendium, 1991) for small transit operations with fleets of 25-49 vehicles, passenger fares typically contribute 22.1 percent of the operating budget.

Other sources are as follows.

<u>SOURCE</u>	<u>PERCENT</u>
Systems Generated	1.7
Local General Assistance	23.3
Local Dedicated Assistance	14.2
State General Assistance	9.2
State Dedicated Assistance	8.2
Federal Assistance	17.2
Direct Taxes	2.7
Miscellaneous	0.1

While federal operating assistance has declined by an average of two percent a year since 1984, state assistance has increased an average of 10.4 percent a year for the last four years, and local funding has increased an average of 7.4 percent per year. In fact, local (general and dedicated) assistance together were the largest sources of operating assistance for public transit during the period 1984-1988. They accounted for 51.9 percent of the operating funds of all transit operations in 1988.

In terms of expenditure category, the demand-responsive mode was the only mode in which labor and fringe did not constitute a majority of its expenses. In fact, among the 237 systems reporting to the national survey conducted by UMTA in 1988, labor and fringe accounted for only 25 percent of the operating expenses of demand-responsive transit in 1988. This contracting for services was also reflected in the operating expense trends for demand-responsive operations. Expenditures for general administration of demand-responsive operations declined 21.6 percent from the amount used for administration in 1984. Vehicle operations costs increased 54.5 percent in the same period. Maintenance costs, on the other hand increased only 6.6 percent. The demand-response maintenance expense per vehicle hour increased at an average of only 1.4 percent per year as compared to the average annual rate of increase for motor buses of 3.8 percent. The vehicle revenue hours generated by demand-responsive transportation in cities of 100,000 to 199,999 was typically 3,247,000 hours while the fixed route revenue hours for the same sized city was 60,037,000 hours.

Comparatively, demand-responsive systems are small but efficient and perform a major function in cities in this size class. The challenge presented by the ADA is to increase the level of these operations and retain the efficiency with no identified additional sources of revenue.

In an attempt to discover potential local sources of funds to augment a paratransit system, a number of representatives of paratransit operations in the Chicago, Illinois, area were interviewed over the telephone in June and July, 1991. Most of these systems relied heavily on

township funding, a source not widely available in other states. The opportunity to rely on township funding was established through a referendum and is provided through sales and property taxes.

A state-authorized public transit service board, PACE, serves the Chicago area suburbs in five collar counties. A representative of PACE indicated that funding paratransit systems will have to be done gradually over the next five years in view of current budget constraints and caps on Section 18 money in the Illinois. An UMTA representative stated that the Federal government certainly is aware of the funding problems faced by the states in implementing ADA requirements, and that increased Federal funding to meet the requirements of the ADA will be a goal of Congress.

The Assistant General Counsel for Regulation and Enforcement commented that increased funding would be authorized for the next four years. However, no money has yet been authorized and if additional funds are authorized, they will not be enough to cover the costs of implementing the ADA in all parts of the country.

Peer Group Funding. Given these rising costs of operation and decline of federal funding, local transit agencies have identified a variety of state and local funding mechanisms. Milton Township in suburban Chicago, Illinois, relies on local tax monies to fund its paratransit service. The township also receives a reimbursement from PACE, and subsidies from the cities of Wheaton and Glen Ellyn for contract services provided. York Township operates its own paratransit service funded through an ad valorem property tax. However with rising costs associated with such an independent system, York Township is now seeking assistance from PACE. The ad valorem property tax has been the predominant source of local public transportation funding in the State of Illinois.

The Illinois cities of Springfield and Peoria rely on Section 9 funds and operate as independent transportation districts. Through state enabling legislation (The Down State Mass Transit Act), they became two (of four in the state) transportation systems that are funded out of their own tax base. According to the Director of the Springfield system, property taxes and retail occupational sales taxes help fund fixed route and paratransit services.

Currently, Springfield contracts with the Red Cross to provide demand-responsive paratransit service. The Red Cross system is funded under Section 16(b)2 and subsidized by the Springfield tax base in the amount of \$250,000. Springfield is considering terminating its contract with the Red Cross in view of the ADA requirements and for cost reasons. By providing demand-responsive services only to "ADA Paratransit Eligible" persons instead of the wide spectrum of ridership provided by the Red Cross, which includes able-bodied persons as well as those mentioned earlier under the three categories for eligibility in the ADA, the

expectation is that Springfield can reduce costs.

An example of local funding is provided in the March/April issue of *Metro Magazine*. It reported that voters in the San Francisco area approved a local sales tax increase for transportation, with eight percent of it set aside for transit (p. 33). Half the proceeds from a bus fare increase in the same area were earmarked for paratransit.

RIDES, a Transportation Project in Rosiclaire, Illinois, utilizes a variety of funding sources and innovative marketing strategies to operate RIDES' five-county paratransit system. Section 18 funds along with county and township subsidies, contracts and fund raising are used to meet operating and capital costs. Here the concept is that with one entity responsible for all paratransit services they can contract with all other agencies to provide transportation. Vehicles used by the various agencies could be employed under the new authority to provide the service. Marketing strategies such as frequent rider clubs, selling memberships, newsletters, and fact sheets were important to the success of the RIDES operation in southern Illinois. Bold marketing strategies and risk-taking seem to be important factors for increasing local sources of funding.

In general, the more personable, professional, well-known and available the service, the more revenue will be generated. Standards of excellence must be high for personnel and equipment.

The current funding sources for the services in the Metro Link Service District include for Metro Link primarily Section 9, state and local funds, and for social service agencies Sections 16(b)2 and Section 3 as well as state and local funds for the social service agencies. Additional funding sources will be needed to operate an ADA paratransit system in the Metro Link Service Area. Potentially, funding assistance might be available from townships, in much the same way as in the Chicago area.

ELIGIBILITY PROCEDURES AND SYSTEM PLANNING

The ADA has raised the expectations of numerous disabled Americans that at long last they will be able to travel freely. For many the act is symbolic of the changes which they want to see in society itself. When related to a specific transportation system or mode, however, the diverse needs of the disabled are quickly apparent. As indicated above, this diverse group encompasses a sizable proportion of the elderly, but it also includes younger individuals with a variety of temporary and permanent physical impairments and a substantial proportion of individuals with mental disabilities. Some use wheelchairs, some are ambulatory but cannot board conventional transit, and still others cannot get to and from the bus stops. A substantial number of these individuals already use conventional transit, albeit with difficulty. The question

remains as to how many others will be accommodated with increased physical accessibility on the fixed route transit buses.

In some ways there is an apparent mismatch between the role of the conventional transit system and the travel habits of disabled persons. The fixed route bus is most effective when serving large groups of people who can share a vehicle to travel to and from a concentration of common origins and destinations. In contrast, the disabled population is, as demonstrated above, diverse and their trip making is more scattered. Nevertheless, a substantial proportion of disabled Americans argued that mainstreaming or integration into society is important and that accessible fixed route buses is a crucial means of breaking down attitudinal barriers that face disabled persons. To these individuals, accessible transportation has intangible benefits to both disabled persons and society as a whole. (Toronto Transit Commission, 1989).

Nevertheless, contrary to public perceptions, the problems experienced by disabled persons in moving from place to place are not just related to physical accessibility; there are, as the Toronto Transit Commission reported in an insightful report in 1989, safety, security, passenger information, financial and attitudinal barriers that must be addressed if any transportation mode is to meet the needs of disabled persons. In the Metro Link service area the majority of those individuals surveyed lived with one or two blocks of a bus stop; there were, however, a sizable number who did not and, therefore, could not take advantage of an accessible bus. For others the fear of crowding and not being able to find a seat are obstacles to use of conventional transit.

For these reasons many disabled persons like other individuals, prefer door-to-door modes over fixed route transit. The heavy positive response to that suggestion on the telephone survey confirms that point. In fact, in the Quad Cities area, where paratransit service has not been widely supplied, the negative images associated with a separate "handi-van" in other cities have not taken hold.

This will mean that disabled and especially elderly individuals who do not currently have automobile transportation available will potentially look to a new paratransit service as a preferred means of transportation. Most of these individuals have not been transit users and because of cost will not be regular taxi cab users.

It is essential, therefore, that the public is well aware that the new system is to be initially limited to the set of individuals who are defined as paratransit eligible. Addendum H contains a suggested set of procedures for determining eligibility. The possibility of later expansion to larger segments of the senior population can be suggested, but it is critical to launch the system as a small targeted operation. To do this effectively will require a careful, transparent planning process, involving as many different representatives of the disabled and elderly public as possible. Other communities have placed considerable emphasis on public workshop sessions in which the

eligibility requirements are highlighted and the rationale for limitations explained. Representatives of the appropriate social service agencies would necessarily need to be involved in strategy sessions along with interested private sector providers.

The ADA regulations provide that each community develop its own approach to determining eligibility and provide temporary courtesy travel privileges to those certified in another community. Although Metro Link currently offers discounted fares to individuals whose doctors certify a handicap, a much more organized and consistent procedure will be needed to identify the relatively small group of individuals who fit into previously defined Category 1 and Category 3 of eligibility. Several configurations of review panels have been proposed to look over the eligibility applications of residents in the Quad Cities. It is important to the credibility of such a body that it include representatives who have expertise in identifying the specific functional disabilities related to eligibility--the ability to navigate the fixed route bus system and the ability to travel to the bus stop. The work of this body will be greatly facilitated if medical specialists and counsellors who would typically see potentially eligible individuals were fully aware of the requirements and were encouraged to be very specific in filling in an application form relating to the functional requirements specified.

The procedure for achieving certification should be widely shared with the public through civic organizations, religious organizations and major employers. In response to a concern that the paratransit system could be overtaxed, it is possible that individuals who really would benefit from the system might be overlooked. Once the system is operative, regular reviews of ridership should be scheduled as part of an evaluation process to determine whether the eligibility requirements are too restrictive and can be eased somewhat. It will also be possible to determine actual travel rates of those who are declared eligible since the travel record of all such eligible riders will be stored on a computer scheduling program.

CHAPTER FIVE: ALTERNATIVE SYSTEM DESIGNS

In designing a paratransit system to meet the needs of the public transportation disabled in the Metro Link service area, several key observations generated through this study should be underscored.

KEY OBSERVATIONS

- First, all indications are that the numbers of individuals who would be served by the complementary paratransit system are relatively low. When the eligibility requirements for Category 1 disabled, "those who cannot navigate a fixed route system," and Category 3, "those who cannot travel to a bus stop," are strictly applied, the number of potentially eligible persons is estimated to be only 1,179. The fact that Metro Link will be fully accessible early in the 1992 calendar year will mean that there will not likely be any Category 2 eligible residents, "those who could travel on an accessible bus if one were available."
- Second, among those who would be technically eligible, the expectations based on national averages is that only 20 percent will actually travel. Surveys conducted in the Metro Link service area as well as in other places in the country indicate that these individuals will travel about 12 to 15 times a month. Hence the system will not initially be providing a large number of trips--only about 3,500 a month to Category 1 and Category 3 individuals. About four to five small vehicles could easily carry out this number of trips, even if only two eligible individuals (along with escorts) were transported at a time.
- Third, there are accessible social service agency vehicles in the service area which could be involved in the operation if adequate funding were available to hire additional drivers and provide for operating costs. The taxi cab companies would potentially be able to assist with evening trips for ambulatory eligible riders and wheel chair users who can and wish to transfer to a car seat. One taxi cab company has plans to purchase an accessible vehicle. Plans for replacement vehicles would be needed, however, since existing vehicles are already well used.
- Fourth, the potential destinations for most trips are clustered in a few key areas of the city and the areas which are most likely to have eligible riders are similarly clustered. Hence, a zonal operation of vehicles would work efficiently.

- Fifth, although Metro Link operates an efficient and well-received assessable fixed route system, it has never operated a paratransit system. Social service agencies in the area have operated small demand-responsive operations, but most have only carried their clients to specific "project" destinations. One system, Project NOW, has operated as a demand-responsive service, primarily for seniors.
- Sixth, Metro Link has invested in quality scheduling software for a paratransit system, although it has not yet had reason to use it.
- Seventh, there is some experience with contracting among the public agencies in the area, but no other extensive experience in coordination of services. There is no extensive experience involving public-private cooperation.
- Eighth, there are no additional federal funds available to assist in implementing the ADA complementary paratransit system. The expectation is that funds will need to be derived from local sources. The potential for involving townships in the funding process has been explored. Townships are playing a major role in paratransit operations in the Chicago area.
- Ninth, the expectation would be that at least initially the social service operators in the area would continue to operate their own services. All figures discussed above relate only the specific paratransit service which would complement the fixed route.

SYSTEM DESIGN CONSIDERATIONS

Strict Eligibility Requirements. Since the Metro Link service area has not had very much experience with a demand-responsive paratransit operation, it is unclear how many residents would be interested in trying the service. The telephone survey indicated considerable interest. It would, therefore, be essential to begin with very clear but strict guidelines for eligibility. If the eligibility screening process is clear and the review panel has credibility within the area, the eligibility requirements can be strictly applied, at least initially. Consistent, strict application would minimize challenges. An impartial appeal process would also have to be well announced. It would be particularly important to underscore that age alone and use of mobility aids alone would not be sufficient for certification. Seizing opportunities to share these requirements with a variety of potentially interested persons would be most important. The eligibility requirements can always be relaxed later based on the number of individuals who actually choose to ride.

Small Initial Operation. Given funding limitations as well as the anticipated small number of paratransit eligible individuals, it is recommended that a small, simple system be instituted at first. The system would begin operating with only about five vehicles in two large overlapping zones, as shown in Figure 12. If other vehicles were available, they would be able to fill in during vehicle down time for maintenance and repairs.

A suggested deployment of vehicles is as follows:

- Two of the vehicles would be based at City Line Plaza at First Street and 19th Avenue, Moline;
- Two others would be based at the YMCA at 2040 53rd Street, Moline, or alternatively at the shopping center including the Jewel Grocery and Osco Drugs at 4143 3rd Street, East Moline.
- A fifth vehicle would be based at Metro Link's garage in Rock Island and would be available to supplement the vehicles in either of the zones as needed.

From City Line Plaza, a current informal transfer point for Metro Link, the small vehicles could travel to all points in Rock Island and Milan within fifteen minutes. The base itself is located in an area which is anticipated to have a rather large number of eligible riders. Preferred destinations in the shopping center and medical facilities are also within easy driving time of this base. The suggested bases in the eastern part of the service area are similarly within 15 minutes of all points within the eastern boarder of the service district.

Again, all anticipated preferred destinations are within easy paratransit driving distance. Transfers to fixed route stops in the area would be easily performed. Trips that would cross the zones by a long distance would need to be carefully scheduled and would involve the use of the fifth vehicle.

Given the indication that most trips would be requested during the daylight hours, it may be possible to arrange for a scaled down operation in the evening hours. It would probably only be essential that one vehicle operating during this period be lift equipped.

Fare Requirements and Scheduling. The ADA permits a fare which is double that charged on the regular fixed route bus. That would mean a fare of \$1.20 to be charged for all trips on the system. Advanced call-ins requesting service would be essential for scheduling this operation. Therefore, the system would need to adopt the ADA policy of calling in by 5:00 P.M. on the day before the trip is needed. Any deviation from that would have to be on an emergency basis at the discretion of the scheduler. Use of a computer program to keep track of eligibility and origin and destination would be essential if trips are to be charged to cooperating agencies.

Maintenance. Consistent regular maintenance is essential to the operation of the small vehicles proposed for the paratransit system, especially since vehicles will need to be in constant operation for the full day of the Metro Link schedule. With proper regular maintenance modified vans, mini vans and body-on-chassis vehicles will all go 150,000 miles. However, that life is greatly reduced without regular 3000 mile checkups and oil changes etc. The replacement vehicles noted above would allow for this regular maintenance program. It is essential that maintenance be performed consistently at one garage and that regular inspections be performed by individual drivers upon taking over shifts. Consistent reports must be filed with the service operator.

One way of extending the life of these vehicles would be to have them brought in to change the transmission and adjust the drive train at approximately 90,000 miles. It is reassuring to learn from discussions with vehicle maintenance specialists that vehicles which are run constantly, up to 40,000 a year, will actually last longer than vehicles used sparingly and left to stand in cold weather and exposed to salt sprays.

ALTERNATIVE APPROACHES OF PROVIDING THE SYSTEM

Model One: Contracting. One viable way of providing a system that meets these specifications is to contract out for services. This would best be done by a bid process, enabling local and other potential operators to bid to run the system. Given the distinct subsets of the operation, the bids could be let for operations and/or scheduling and/or maintenance. Another possibility would be to bid the day service separately from the evening service given the current operating hours of local providers who might bid on the system. Any contract with taxi cab companies for evening service would need to include a means of forwarding a user-side subsidy. When bids are returned, the decision would be made on how much of the operation to contract out and to whom. The national average for length of such contracts is one year. That would be wise, especially for the start up of a new system. As indicated above, this contracting procedure would greatly simplify the operation of the system for Metro Link and would potentially prove to be less costly than running the system itself. A review of relevant costs is included below.

Model Two: Coordinated System. As indicated above, this would be viable given current capacity of the social service agencies in the area. For efficiency, however it would be critical to move beyond the informal clearing house mode to at least coordinated scheduling. It would be most important that the dispatcher have complete control over the scheduling of the vehicles, at least during specified hours. With the full involvement of Project NOW vehicles, one Metro Link vehicle and the mid-day involvement of Intouch vehicles, it would be possible to operate the system as described above. Taxi cabs could effectively be brought in to operate the evening service. This would also help win taxi cab support for a system which might appear to be cutting into their regular market.

To operate such a coordinated system would require using the scheduling program which Metro Link has available and a full time dispatcher who knows how to run the system. A part-time assistant to help with setting the schedules for the drivers would also be critical. This would enable the paratransit system to begin as early as Spring, 1992. When vehicles wear out from heavy use, they would be replaced with state-of-the-art accessible vehicles. Maintenance would need to be contracted out or possibly routine maintenance would be performed at Metro Link's garage.

Model Three: A New Metro Link Operated System. Metro Link could operate the small systems as described above. It would, however, need to acquire more small vehicles. At least four more vehicles would be needed with at least one which meets full ADA headroom specifications. In acquiring new vehicles, Metro Link would be able to provide for the two-wheel chair placements as suggested in the ADA. To accommodate the longer scooter style mobility aids, two tie down locations are required.

Perhaps Metro Link could contract with a local service provider, such as Project NOW, to temporarily use its vehicles until new vehicles would be acquired. Metro Link could also use its scheduling program in hiring the dispatchers indicated above. It could also provide regular maintenance for the small number of vehicles involved. More serious maintenance work would need to be contracted out since the Metro Link garage is not currently set up to maintain gasoline powered vehicles.

Model Four: Establishing a Separate Operating Entity. Precedent for establishing a separate operating entity to manage paratransit operations has been established in the Chicago area. PACE works effectively to coordinate paratransit operations for the various jurisdictions in the counties surrounding Chicago.

Parallel broker agencies operate in other cities as well. For example, Share-a-Ride serves as the broker operating agency for paratransit in Kansas City. It receives contracts for services from a variety of social service agencies in the Kansas City Metropolitan area, fields all

telephone requests for service, schedules trips and bills appropriate agencies. It in turn contracts with a van company to carry non-ambulatory riders and a taxi company to handle ambulatory riders. Share-a-Ride began as a broker for the social service agencies alone, but it is now the official paratransit arm of the Kansas City MTA and therefore receives support from the city.

A similar broker operation, Metro Mobility, operates in the Twin Cities. The second largest paratransit operation in the country, it handles trips for 13 different social service agencies and then bills them for rides taken. As the paratransit arm of the Metro Transit System, it also is funded by the Metropolitan Council and will handle ADA paratransit complementary service for the metro bus service.

If instituted in the Metro Link Service area such a body would broker the system by contracting out for operations and maintenance. It would also coordinate funding of paratransit for the various jurisdictions. This body would assume responsibility for managing the coordinated operation, including schedule and dispatch as well as verification of eligibility. Initially it would not receive contracts from other social service agencies; that might be an option after the ADA paratransit system is fully operational.

Applying a model like this to Rock Island County would facilitate tracking funding for the complementary paratransit system. Funding contributed by the townships for the express purpose of insuring transportation for residents could be retained by such an entity and then applied toward needed operating costs or replacement costs for vehicles. By keeping the addresses of all eligible individuals recorded in the scheduling program, it would be possible for townships to learn how the funds they contributed were assisting their residents.

Advisory boards and eligibility review boards associated with such a broker agency would also be distinct from those associated with any social service agency or Metro Link.

CHAPTER SIX: COST CONSIDERATIONS

Paratransit service under ADA has three essential parts: (1) eligibility determination; (2) scheduling and request taking; and (3) vehicle operation. Each of these elements involves its own set of costs and can be addressed separately through contracting, coordination, or a separate new Metro Link service, following the models described above. The following discussion indicates a range of costs to be expected with each of these three elements of the paratransit service.

COSTS FOR DETERMINING ELIGIBILITY

The first important part of ADA paratransit service is to determine who is eligible for paratransit. Because of the subjective nature of determining eligibility and the potential for confusion with different interpretations, the best option would be to have one full-time staff person review incoming applications for service. This person could use the method described in Addendum H. It would be expected that this staff person would be paid between \$6.00 and \$10.00 per hour or a total of \$12,000 - \$20,000 a year. Additional costs would include supplies and applications. Assuming 1,500 people apply, the cost at about \$.11 per pass and \$.25 per application for printing costs would amount to a total of \$12,540 - \$20,540 for this category.

When an applicant appeals a rejection of eligibility, the review should be handled by a committee of about three individuals. The regulations state that the paratransit service is a property right and thus a person cannot be denied service without due process of law. This means that the applicant must be afforded an opportunity to be heard before a review committee. Presumably, however, service on the appeals committee would not be a full time position of anyone. Expenses only would be charged to the program.

COSTS FOR ADMINISTRATION

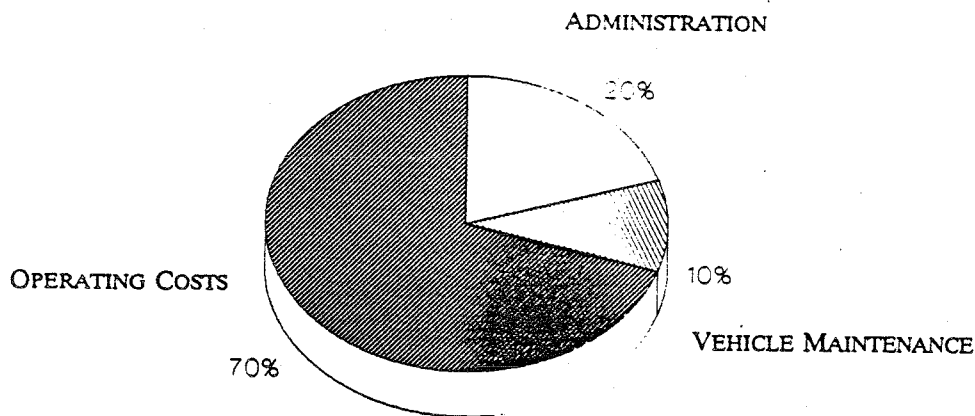
The second part of the ADA paratransit service is the administrative operation of the service. To administer the system would require a paratransit director, call takers, schedulers/dispatchers, and record keepers. The cost for this operation would be approximately as follows: (1) \$10. per hour for the paratransit director or \$20,000 per year; and (2) \$6.00 per hour for call takers. There would probably need to be one to two full-time call takers, for a total of \$12,000-\$24,000 per year. A scheduler would also be required to put information from the call takers into the computer and to determine the routes that each paratransit bus is to take. This responsibility would be handled by someone for about \$10.00 and hour or \$20,000 a year. A

record keeper paid \$7.50 per hour or \$15,000 per year would also need to keep track of the billing of customers and paying the bus operators. The total cost for scheduling and administration would be about \$79,000 per year. One way to reduce costs, however, would be for the paratransit director to carry another position as well. This would certainly be possible if the system were run on a coordinated or contracted basis.

COSTS FOR VEHICLE OPERATION

Operation could be contracted out to sub-contractors who would operate the vehicles along the routes determined by the scheduler every day. These sub-contracts could include the cost of maintenance if that were part of the contract. Based on estimates from a number of cities, the cost per trip paid to these subcontractors should be about 80 percent of the total cost per trip. Of this amount, 70 percent would be for operating costs, 10 percent for vehicle maintenance. Twenty percent of the cost of each trip should be reserved for administration including determining of eligibility.

Figure 13. Typical Vehicle Operation Expense Distribution



If the system were to be run entirely by Metro Link, following Model Three, capital costs would need to be considered as well as operating costs. Included in these calculations would be costs of vehicles, general operations, and labor including scheduling as well as driving.

Vehicle Costs. To meet demand, several types of vehicles used are listed in Table 6-1.

Table 6-1. Estimated Vehicle Life, Operating Cost and Capital Cost

TYPE	COST	LIFE IN MILES	MILES PER YEAR	COST PER MILE
Dodge Caravan	\$27,000	150,000	50,000	\$.18
Modified Van	\$29,000	150,000	50,000	N/A
Body-on-Chassis	\$33,000	150,000	50,000	\$.22
Diesel Body-on-Chassis	\$43,000	150,000	50,000	\$.28

(Source: Iowa Department of Transportation)

The Dodge Caravan is the least expensive and also does not require a lift, since it uses a ramp. The ramp allows faster access to people in wheel chairs than does a lift. The disadvantage of this vehicle is its limited seating capacity and limited power to climb hills and to power its air conditioning system.

The modified van offers greater seating capacity and more power than the Dodge Caravan. Its limitations are the lack of necessary power in many cases to supply necessary power to run air conditioning and the length of time needed to operate the lift when loading people in wheel chairs.

The body-on-chassis offers even greater seating capacity and more power than the above two vehicles. The disadvantage is the increased cost. The diesel version of the body-on-chassis offers greater power to operate the air conditioning system and to climb hills. Its major disadvantage is the considerably greater operating cost.

All of the vehicle types could be expected to last three years with the costs per year for a vehicle amounting to \$9,000 to \$14,333. The cost for five vehicles per year would range from \$45,000 to \$71,666.

General Maintenance. To the above vehicles operating costs would be added lubrication and general maintenance, safety maintenance, and emission control maintenance every 3,000 miles. For every 12,000 miles the cost per vehicle for maintenance is approximately \$150, or \$0.0125 per mile (*Implementation Guidelines for Coordinated Agency Transportation Services*). The Ames area Dodge dealer estimated that the maintenance cost per mile for a Dodge Caravan would be around \$0.11. Using these figures, the total annual expenses for five Dodge vehicles would be approximately \$27,500.

General Operating Cost Per Revenue Hour. To obtain cost figures on cost per revenue hour the figures for Des Moines, Milwaukee, Davenport, Great River Bend, Clinton, and Bettendorf were reviewed. This analysis determined that the cost per revenue hour ranged from a low of \$14.77 to a high of \$16.46. The average number of passengers ranged from 2.3 to 4.3 per revenue hour, and the average range of revenue miles per passenger ranged from 3.6 to 4.5. Given the generated demand for revenue hours of service provided Rock Island could expect to spend between \$8,138 to \$9,941 per month on cost per revenue hour for operating the vehicles.

The numbers are calculated by taking estimated revenue hours times the cost per revenue hour based on the average number of persons in the vehicle per revenue hour. For example, with an average of two persons in the vehicle per revenue hour and a cost per revenue hour of \$16.46 we would get a total cost of \$11,406 per month. This is determined by multiplying the required 604 revenue hours times \$16.46 per hour. When four people are served per revenue hour the cost using the minimum cost, per revenue hour would be \$8,684 per month. This is determined by multiplying the 551 required revenue hours times \$14.77 per revenue hour. Thus the range for operation costs for the predicted number of revenue hours required per month is \$8,138 to \$9,941. The operating costs per year would be \$97,656 to \$119,302.

The revenue that can be expected is \$4,234.20 per month with a \$1.20 fare, given 3,536 passengers per month, as estimated from the demand model. This equals \$50,918 per year.

Labor Cost Per Revenue Hour. According to *Compendium of National Urban Mass Transportation Statistics from the 1988 Section 15 Report*, the cost for labor for demand-response vehicles per revenue hour is \$21.29. This factor includes dispatching and driver cost as well as the relevant fringe benefit costs. Using these figures as a base, the total labor costs for one month of operation would be between \$11,730 and \$12,859. The annual figures could then be expected to be between \$140,760 and \$154,308.

Total Costs. Cost estimates for Metro Link operation are shown in Table 6-2.

Table 6-2. Estimated Total Costs for One Year

ITEM	LOW ESTIMATE	HIGH ESTIMATE
Vehicle Costs	\$45,000	\$71,666
General Maintenance	\$27,500	\$27,500
Operating Expense	\$97,656	\$119,302
Labor	\$140,760	\$154,308
TOTAL	\$310,916	\$372,776

Costs for starting a paratransit system for the Metro Link service area are considerable, which is why the model of contracting out either parts of all the aspects of the service would appear to be advantageous. If a potential contractor already has extra vehicle capacity and has experience in operating a paratransit service, start up costs could be minimized. The options, as indicated above, however, rest with what aspects and how much of the service to contract out. Another option would be to try coordinating services, such as forming a maintenance pool, as a means of reducing costs.

CHAPTER SEVEN: CONCLUSION

As described above, each alternative approach to managing operations has its own merits. In the final assessment the decision on which approach to take will rest in part on the relative costs and in part on the relative levels of cooperation possible with demand-responsive service providers in the area.

In the long run, the coordinated system would have the greatest pay-off for cooperation and joint efforts. This would, however, prove most difficult to establish initially, given lack of experience with coordination in the Metro Link service area. Coordinating operations would certainly cut costs on dispatchers, schedulers and on the program administration. It would not be effective, however, unless the trips of cooperating the social service agencies were also included in the same scheduling effort. To coordinate only the ADA paratransit trips would require that specific vehicles would be dedicated to the ADA system and not used by the social service agency's own system, at least for a specific consistent period of time.

For Metro Link itself to set up a separate system, would not only be costly, but would appear to all other operators in the area to be new and unnecessary competition. It would be particularly poorly perceived by private operators in the area.

The appropriate alternative, at least for the short run, appears to be contracting out. This is what the majority of transit operations across the county have discovered. It will get the system up and running more quickly and at less expense. To contract out the whole operation would be the simplest solution, although, as indicated above, bids could be let for various aspects of the program.

- Contracting out vehicle operations would have the most positives and the least negatives associated with it. Such a contract or set of contracts would be for one year, renewable upon mutual agreement. Certainly the concept of contracting with a taxi cab company to run evening or ambulatory service should be explored.
- Contracting out scheduling would provide efficiency if the operating agency were also able to manage scheduling. However, by contracting out scheduling, Metro Link would not be taking advantage of its existing computer scheduling program and would also be losing control over the connection between eligibility determination and trip provision. Given the ADA regulation that has individuals qualified for the specific trip purposes for which they cannot use fixed route transit, this control over trip scheduling might prove to be significant. Since Metro Link would ultimately be responsible for interpretations of eligibility for specific rides, it would be best to be involved in those determinations.

- Contracting out maintenance to some type of lower cost maintenance pool would possibly help lower costs. However, Metro Link would be able to perform routine maintenance on the small fleet required for the operation. It would be most efficient and effective to use a maintenance contractor for more substantial repairs. In this area it would be possible to develop some coordination with other paratransit operators in the area.

Setting up a separate operating entity to manage the system might take some time, but it would be worth pursuing. This entity could handle the system's administration, its accounting and funding, its billing procedures, and be responsible for bidding contracts and select contractors. This type of entity is working very effectively in association with the fixed route operations in Chicago, Kansas City, and the Twin Cities, among others.

In the interim, a broad-based advisory board representing social service agencies, private operators, and the disabled community would play a coordinating role and help to establish the eligibility review board. The quality of that eligibility review board and the respect that it engenders in the community for fair and impartial judgement holds the key to the successful operation of a complementary paratransit system.

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**APPENDIX A:
SOCIAL SERVICE INVENTORY SURVEY**

Social Service Inventory Survey

Transportation Service Cooperation in Western Illinois

I. Background Information

- A. Name of agency.
- B. Sponsor of transportation service.

II. Evaluation of Service

- A. Describe the geographical area which is served.
- B. What is the nature of your service (fixed route, demand response, schedule, advance reservation, limited destinations)?
- C. How many vehicles are utilized by your agency?
- D. What type of vehicles are utilized?
Please describe each vehicle by type, make, model, year and number persons each transports.
- E. How are each of these vehicles equipped (handicapped accessible, wheelchair lifts, number of tie downs, side or back mounts, provisions for three wheelers)?
- F. What are the operating hours?
- G. To whom is your service available in terms of:
advance reservations?
demand response?
fixed route?
limited destinations?
- H. How do you prioritize the requests and destinations for transportation; according to destination, purpose or clientele?
- I. Are drivers volunteers or paid by the agency?
- J. Do you have drivers who volunteer and use their own vehicles?
- K. Do you feel that your vehicles are being fully utilized during operating hours?
- L. Do you have a layover time between pickups and deliveries?
- M. Would it be possible to provide additional service to other patrons during layover periods?

- N. Considering that coordination to share services with other agencies may be possible, are there any trips that you cannot provide?
- O. How do you operate the scheduling process? Do you
 - contract out?
 - use a centralized scheduling system?
 - employ a full or part time reservationist?
 - use a paid or volunteer reservationist?
 - use a computer system?
 - use a check mark system?
- P. Do you know of any agency who contracts for scheduling services?
- Q. Are there other agencies in the area that provide similar transportation services?

III. Client Profile

- A. Who are your principal clients?
- B. What is the client mix?
 - Percent general public_____
 - Percent elderly_____
 - Percent handicapped_____
- C. How many people do you serve a day?
- D. Are your clientele regular passengers with your service, members of your organization?
- E. Do your clients use other transportation services besides yours?
 - Other public transportation_____
 - Other agencies_____
 - Use own cars_____
- F. What are the trip purposes your agency provides for your patrons?
- G. Do you or your clients feel that there is an unmet need for transportation?

IV. Operating Evaluation

- A. How do your patrons pay for trips?
 - Set fee_____
 - Contributions_____
- B. What is the suggested contribution?

- C. Do you have contracts with other social service agencies to provide services?
- D. What are your funding sources (public, private, Section 18 or Section 16(b)(2))?
- E. What is the cost per mile to operate each vehicle?
- F. What is the cost per hour to operate each vehicle?
- G. What is the cost per passenger per mile for each vehicle?
- H. How many miles per year is performed on each vehicle?
- I. Outside of the main transportation service, what are the annual costs for:
 - A typical driver's salary_____
 - Dispatcher_____
 - Administration expense_____
 - Secretary expense_____
 - Insurance_____
 - Other_____
- J. How many drivers does your agency utilize?

V. Maintenance Evaluation

- A. How are your vehicles maintained?
 - Contract out for services?
 - Private maintenance company?
- B. What is the annual cost per vehicle to maintain?
 - General repairs_____
 - Routine maintenance_____
 - Gasoline_____
- C. If your vehicle or part of your fleet is out of service, how do you provide for substitutions or back up service?
- D. Do you know of any agency or organization that contracts for maintenance services?

**APPENDIX B:
GENERAL POPULATION DEMAND-RESPONSIVE
TELEPHONE SURVEY**

General Population Demand-Responsive Telephone Survey

TELEPHONE SURVEY

(to test interest in Demand-Responsive Transportation)

I am _____, calling on behalf of the Midwest Transportation Center. We are interested in the transportation needs of people living in the Rock Island area - particularly those people over age 65 and those who may have a disability making it difficult for them to travel.

1. Is there anyone in your household who is over age 65 or who finds it difficult to travel?

YES _____

NO _____

May I speak to him or her?
(Go to question #2.)

Thank you very much.

Hello (and repeat greeting)

2. How do you usually travel in the Rock Island area?

- a. Drive a car?

YES _____
(Go to question #5.)

NO _____
(Continue with question #2.)

- b. Drive with a friend or relative?

YES _____

NO _____

- c. Take Metrolink bus?

YES _____

NO _____

- d. Take a taxi?

YES _____

NO _____

- e. Take specialized van (like "now" or "intouch")?

YES _____

NO _____

3. Do you have a driver's license?

YES _____

NO _____

4. Is there usually a car available for you to drive?

YES _____

NO _____

5. Do you have any physical disability that makes it hard for you to travel?

YES _____

NO _____

only minor problems _____

6. About how many round trips do you make in one week?

- a. no trips _____
- b. 1 or 2 trips _____
- c. 3 to 5 trips _____
- d. 5 to 10 trips _____
- e. more than 10 trips _____

7. Have you used Metrolink buses?

YES _____

NO _____

How often?

(Go to question #10.)

- a. several times a week or more _____
- b. several times a month _____
- c. several times a year _____
- d. less than that _____

8. Have you experienced any difficulty in using Metrolink?

YES _____

NO _____

- a. scheduling
(Doesn't come when I need to travel.)
- b. routing
(Doesn't go where I want to go.)

- c. transferring _____
- d. getting on and off _____
- e. getting to bus stops _____
- f. other _____

9. For what purposes do you travel on Metrolink? (check all that apply)

- a. work or voluntary service _____
- b. doctor _____
- c. shopping, banking, etc. _____
- d. visiting friends and/or relatives _____
- e. recreation (including eating out) _____
- f. senior center (only if over 65) _____
- g. other _____

10. How many blocks from your home is the closest bus stop?

- a. 1 block _____
- b. 2 blocks _____
- c. 3 or more blocks _____
- d. don't know _____

11. Some people have suggested setting up a shared ride mini bus which would pick people up at their homes and take them where they want to go. People would telephone ahead to arrange for a ride. Would you be interested in using that type of service?

YES _____ MAYBE _____
(Go to question #12)

NO _____
(Go to question #14.)

12. Where would you like to travel on such a mini bus? (Check all applicable.)

- a. work or voluntary service site _____
- b. doctor _____
- c. shopping, banking, etc. _____
- d. visiting friends and/or relatives _____
- e. recreation (including eating out) _____
- f. senior center (only if over 65) _____
- g. other _____

13. Such a system would probably cost more than a trip on the regular Metrolink.

Would you use it if the fare were \$1.00 each way?

YES _____ DEPENDS _____ NO _____

14. Just a couple of questions about yourself.

What age range would you fit into?

- a. under 20 _____
- b. 21 - 64 _____
- c. 65 - 75 _____
- d. 76 - 85 _____
- e. over 85 _____

15.

16. Are you

- a. married? _____
- b. single or divorced? _____
- c. widowed? _____

17. How many live in your household?

(write down # _____)

18. What zipcode do you live in? _____

(CALLER NOTE)

19. Sex? Male _____ Female _____

THANK YOU FOR YOUR HELP

**APPENDIX C:
ARC SURVEY OF MENTALLY DISABLED RESIDENTS
FILLED IN BY SOCIAL WORKERS**

**Survey to test interest in
Demand Response Transportation**

June, 1991

On behalf of Midwest Transportation Center, we are interested in the transportation needs of people living the Rock Island area, particularly those people who are over 65 years of age and those people who have disabilities that make it difficult for them to travel.

Please fill out a separate questionnaire/survey form for each of your mentally and/or physically disabled clients. Thank you for your cooperation.

1) How does your client usually travel in the Rock Island area? (please check more than one YES if applicable)

a. A friend or relative drives the client.

YES _____ NO _____

b. The client takes a Metrolink bus.

YES _____ NO _____

c. The client takes a taxi.

YES _____ NO _____

d. The client takes a specialized van provided by an agency or service provider.

YES _____ NO _____

if yes, please specify the agency _____

6) About how many round trips does your client take in a typical week?

- a. no trips _____
- b. 1 or 2 trips _____
- c. 3 to 5 trips _____
- d. 6 to 10 trips _____
- e. more than 10 trips _____

7) In your opinion, would your client use a demand response or para-transit (door to door) system if it were available?

A para-transit system is one that uses lift equipped buses or mini buses to pick up qualified people at their homes and take them to where they want to go. Someone needs to telephone ahead to arrange for a ride.

YES _____ NO _____

8) In your best estimation, how often would your client use para-transit if it were available?

- a. several times a week _____
- b. several times a month _____
- c. several times a year _____
- d. not at all _____

**APPENDIX D:
SURVEY OF PHYSICALLY DISABLED DISTRIBUTED AT
OFFICES OF PHYSICAL THERAPISTS AND CLINICS**

Demand Response Transportation Survey

July, 1991

On behalf of Midwest Transportation Center, we are interested in the transportation needs of people living the Rock Island area, particularly those people who are over 65 years of age and those people who have disabilities that make it difficult for them to travel. We would appreciate your suggestions on this important subject.

Please fill out this questionnaire/survey and return it to us using the attached envelop. All answers will be regarded as confidential and will only be reported in groups. Thank you for your cooperation.

1) How do you usually travel in the Rock Island area?
(please check more than one YES if applicable)

a. A friend or relative drives me.

YES _____ NO _____

b. I take a Metrolink bus.

YES _____ NO _____

c. I take a taxi.

YES _____ NO _____

d. I take a specialized van provided
by an agency or service provider.

YES _____ NO _____

if yes, please specify the agency _____

7) In your best estimation, how often would you use para-transit if it were available?

- a. several times a week _____
- b. several times a month _____
- c. several times a year _____
- d. not at all _____

If you use the current Metrolink bus system, please answer question 8. Otherwise, please skip to question 9.

8) Have you experienced any difficulty in using Metrolink buses?

YES _____ NO _____
(please check all those that apply)

scheduling problems _____

routes are in the
wrong places _____

transferring difficulties _____

difficulty getting on
or off _____

difficulty getting to
the bus stops _____

other _____

**APPENDIX E:
A REVIEW OF THE PtMS SCHEDULING PROGRAM**

APPENDIX E: A REVIEW OF THE PtMS SCHEDULING PROGRAM

The software will provide for almost all aspects related to system scheduling and will certainly be adequate to perform the scheduling functions associated with a complementary paratransit system. The software features a main menu from which the operator can access all the features of the system. The major topic areas are client records, scheduling and dispatching, vehicle service, accounts receivable, management reports and file maintenance.

CLIENT RECORDS

The client records function provides a means to enter client data into the system. Five input screens are used to view and store the data. The first, new client records, can register clients into the system and can search for a client already in the system. Next, the service authorization screen is designed to authorize clients to receive specific transportation services including an agency code indicating the agency paying for or authorizing the service, a funding code used to track the source of revenue, and a trip purpose code used to track the reason for the trip. The third screen, demographics, is used to update the client's record concerning address, telephone number, date of birth, sex, marital status, family income, and income source. The fourth screen is used to update pickup information such as which zone the client is in and special needs of the client that the driver should be aware of before arriving at the residence. This is also imported to the service request screen and the vehicle manifest. The zone assignment function assists the user in assigning the client to a specific pickup zone for "take" trips. The final screen is the summary record. This record should be used to register new clients or to edit existing client data.

It should be noted that this system does not allow for a field specifically designed to record eligibility status as determined by the ADA eligibility committee. The researching team recommends that the operator consistently use a "Y" or an "N" somewhere in the person's client ID number when registering a new client. Examples of this would be Y000001, N002030, etc. So long as the identifying mechanism is agreed upon when the system is first implemented, it can be consistently applied for each and every client. Each of the other fields has a designated number of characters that it will accommodate, such as the social security number or date of birth. Thus the ID number is the logical place to identify eligibility because the user decides how to identify the clients.

SCHEDULING AND DISPATCHING

The scheduling submenu allows the user to access all scheduling functions as well as access the client information functions. Options under this submenu include client trip lookup, service request and vehicle assignment, vehicle manifest edit, vehicle manifest summary, vehicle reassignment, purge client trips, group trip summary, reports, and suspend trips. The scheduling and dispatching reports screen assists the scheduling personnel in evaluating and scheduling trips to the best possible vehicle. This could include vehicles owned and operated by the social service agencies.

The categories in this submenu assists the user in processing client service requests, scheduling vehicle assignment, and coordinating vehicle reassignments in the event of unforeseen circumstances. Group trip requests are also handled here.

VEHICLE SERVICE SUMMARY

The vehicle service summary screen allows the user to enter daily vehicle service records into the system for monitoring performance of vehicles and the amount of service for each carrier or social service agency.

ACCOUNTS RECEIVABLE

The accounts receivable submenu lists the accounts receivable function within the system, including trip verification, trip transaction edit, agency service summary edit, invoice file backup, payments/credits/write-offs, and the accounts receivable reports. This section takes care of recording the billings to the social service agencies as well as the individual clients not receiving funding.

MANAGEMENT REPORTS

Management reports provide valuable system management information, producing data to help key personnel increase operating efficiency, provide better cash control, and increase ridership. Reports are organized into the following sections: client master file, clients by pickup zone, service request client registration, self pay clients, funded clients, client service authorization expirations, vehicle service summary, trips by pickup zones, trips per agency by

day and month, trips per vehicle by day and month, report generator, and county/state/federal reports.

SETUP

The setup submenu allows the user to enter all lookup tables used throughout the system. It also allows the user to initialize data files and set global system parameters. The functions in this submenu include: file initialization, system parameters, password assignment, revenue codes, carrier codes, vehicle codes, driver codes, trip codes, zone codes, vehicle zone assignment, revenue code to general ledger link, agency master records, point of origin zone assignment, shared ride codes, reports, state report assignments, scheduling parameters, area to area access, street block zone assignments, route-carrier assignment, valid service authorizations, and area search patterns.

FILE MAINTENANCE

The file maintenance submenu should be used regularly to insure that optimum system performance is achieved. These operations allow the user to remove and store old data records, verify that data files are not damaged, and if damaged, perform repairs. The functions in this submenu include: file status, file index maintenance, file record check, archive/restore, event/error log, processing scheduler, restructure or merge files, research client trip history for current period, reset vehicle manifest default values, vehicle-area assignment, scheduled record changes and Q-maint-file maintenance utility.

SUMMARY

PtMS is an adequate program to handle any of the four types of paratransit services that are being considered. Provided that the client ID number can accommodate letters and numbers together, the system will be able to handle the categorization of the paratransit eligible persons. With the proper training, the operators would have no trouble with the use of the software. It should be noted, however, that the program does not have a geographic display dimension for laying out routes. It will, therefore, still be necessary to perform this function manually once the program displays the relationship between zone of origin and zone of destination and develops a draft schedule. Specific driver cues, such as, pick up passenger at rear door, will also need to be hand coded before the final schedule can be given to the drivers.

**APPENDIX F:
PHOTOGRAPHS INDICATING ACCESSIBLE EQUIPMENT AVAILABLE**

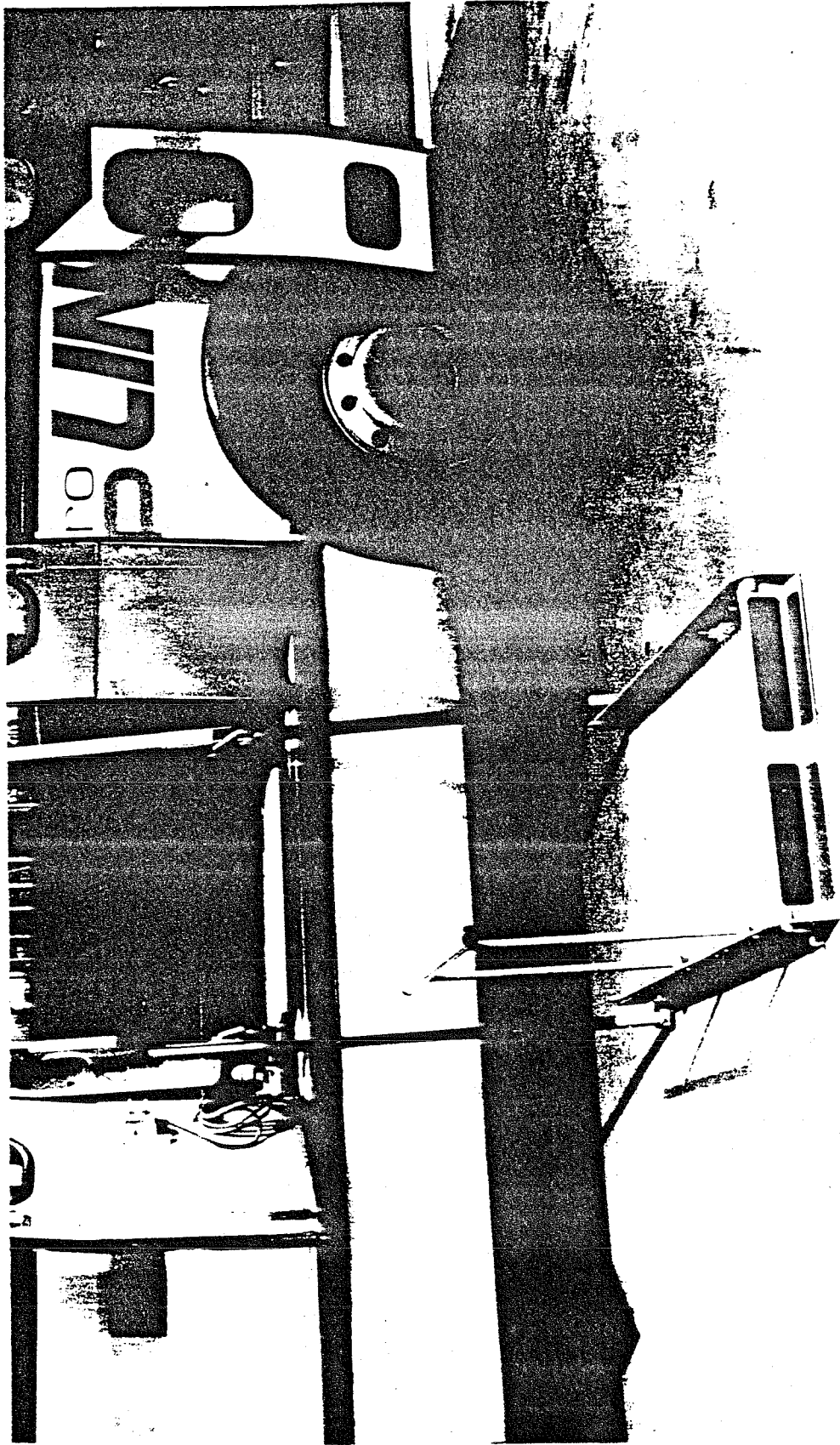


Photo #2: Platform Lift on Small, High-body Bus.



Photo #3: Platform Lift on Small, Low-body Bus.

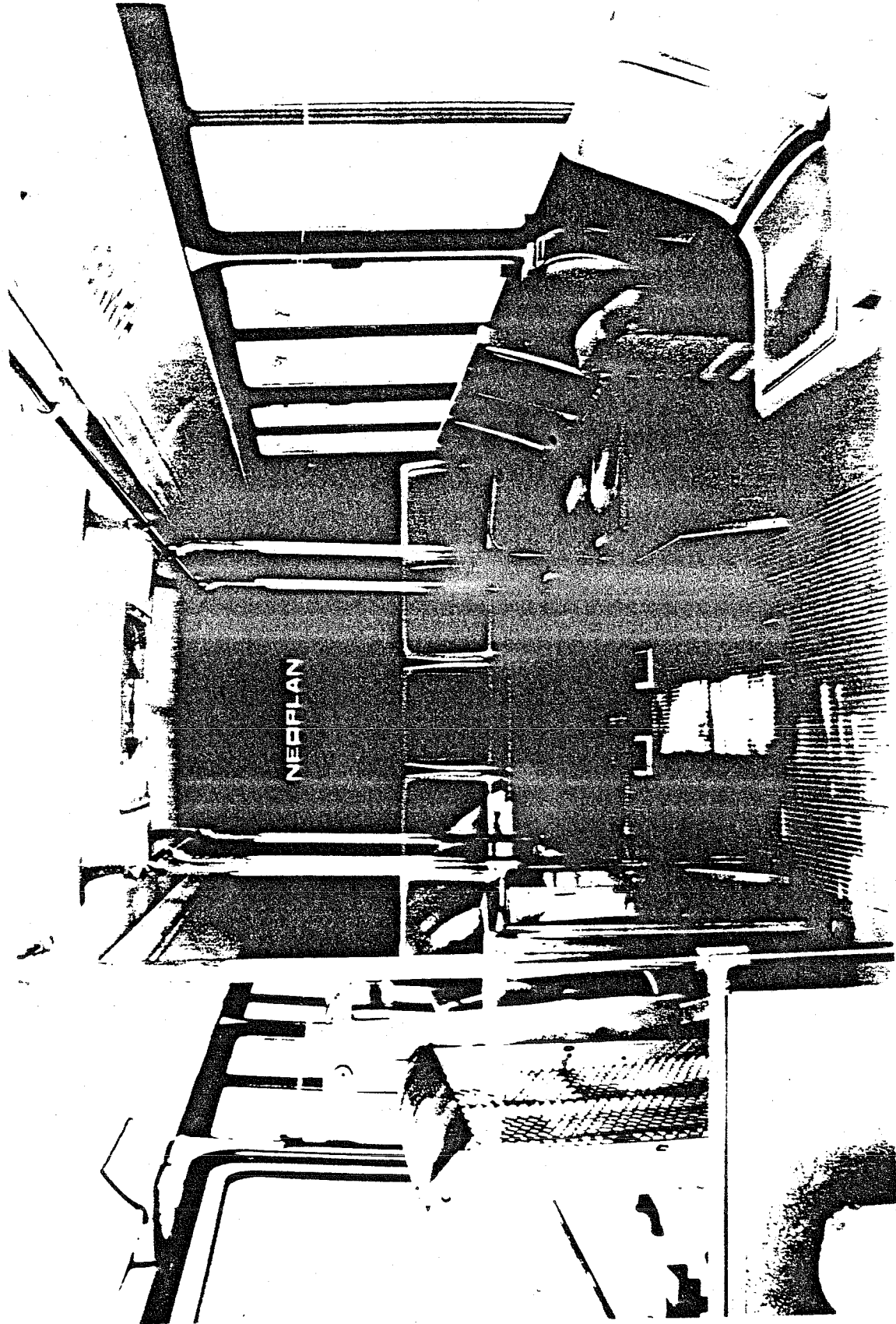


Photo #4: Small, Low-body Bus with Platform Lift (left), Four-point, Track/Belt Tie Down (center), and Rear Wheel Locks (right).

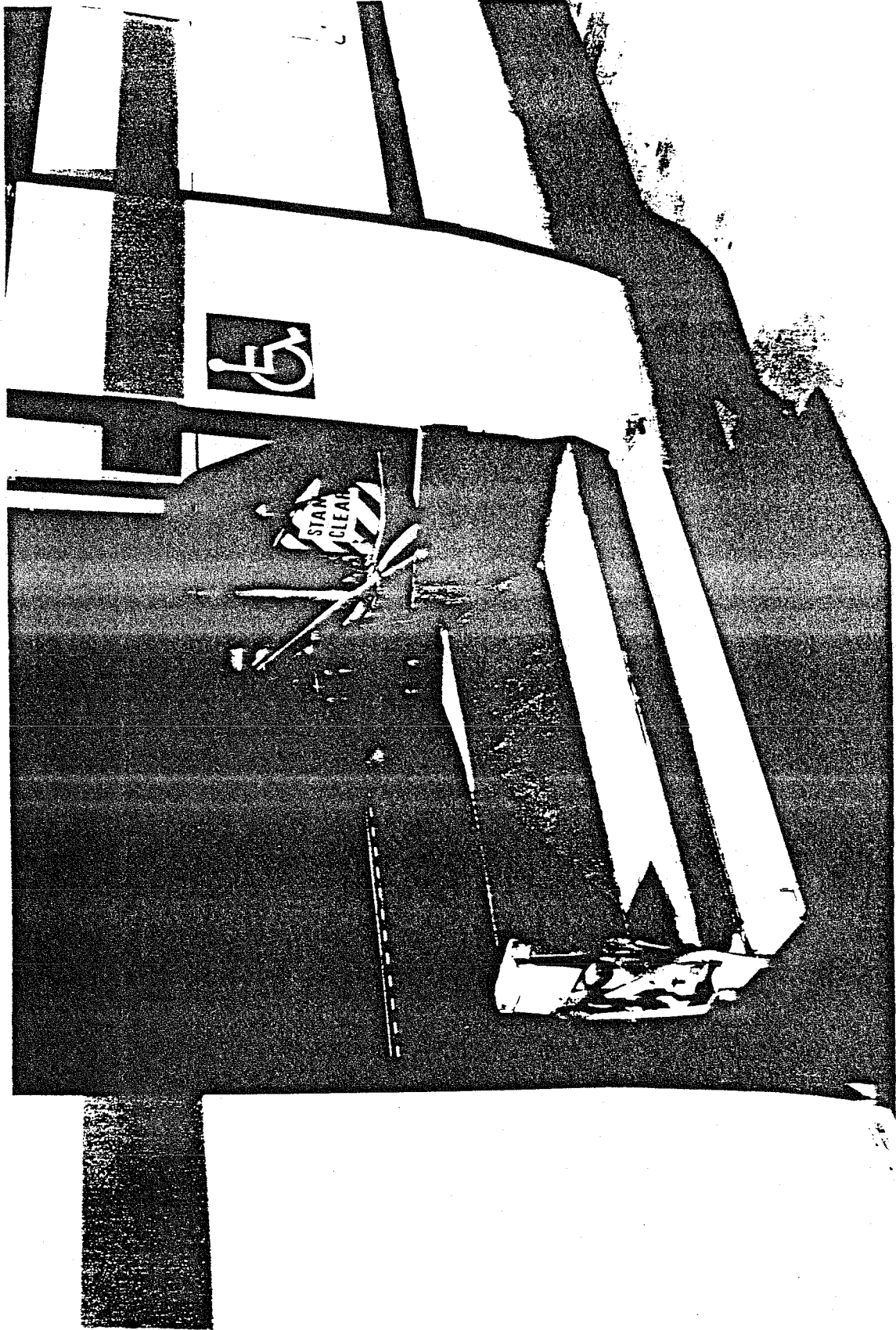


Photo #5: Step Lift on Large, Fixed-route Bus, During Operation.

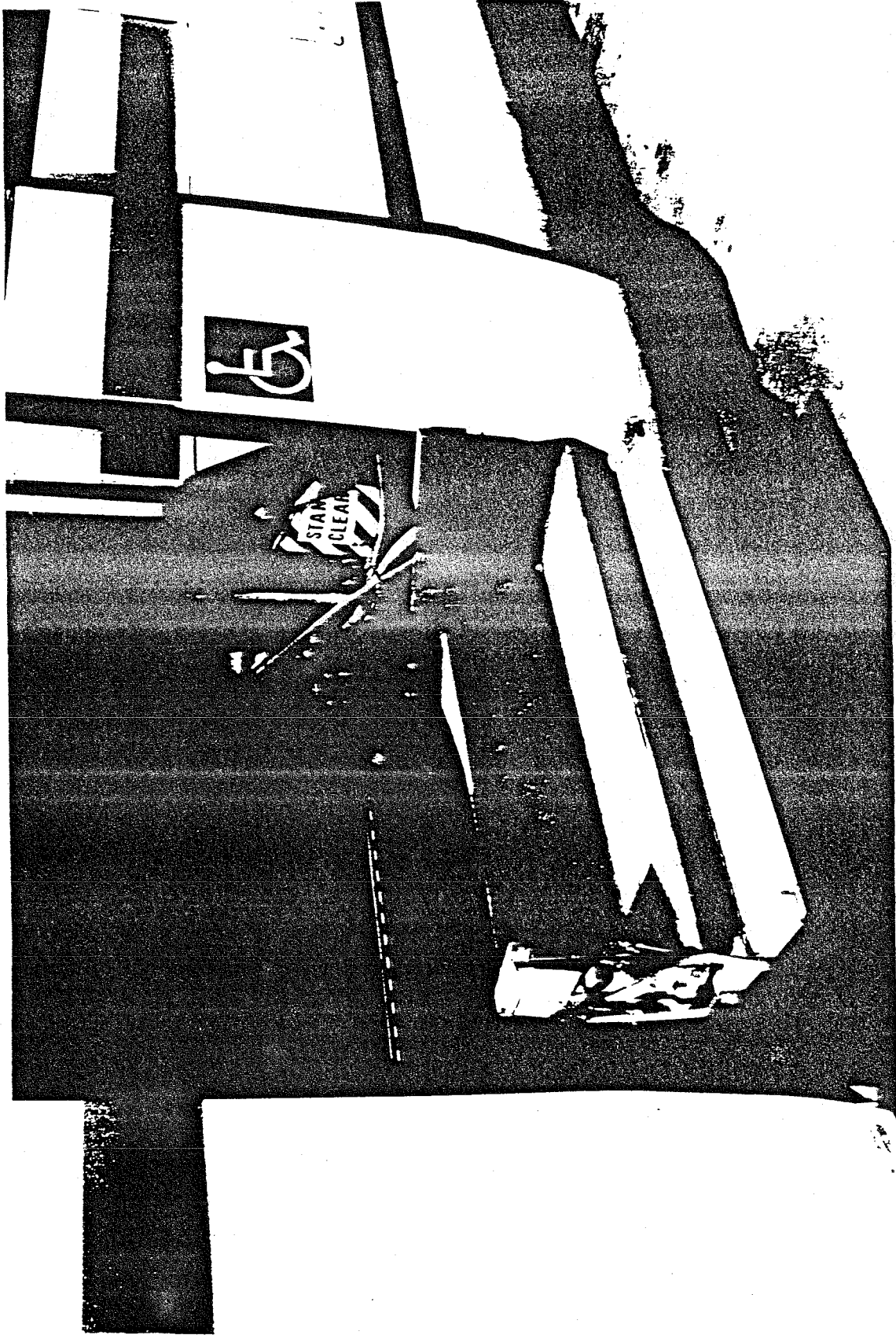


Photo #5: Step Lift on Large, Fixed-route Bus, During Operation.

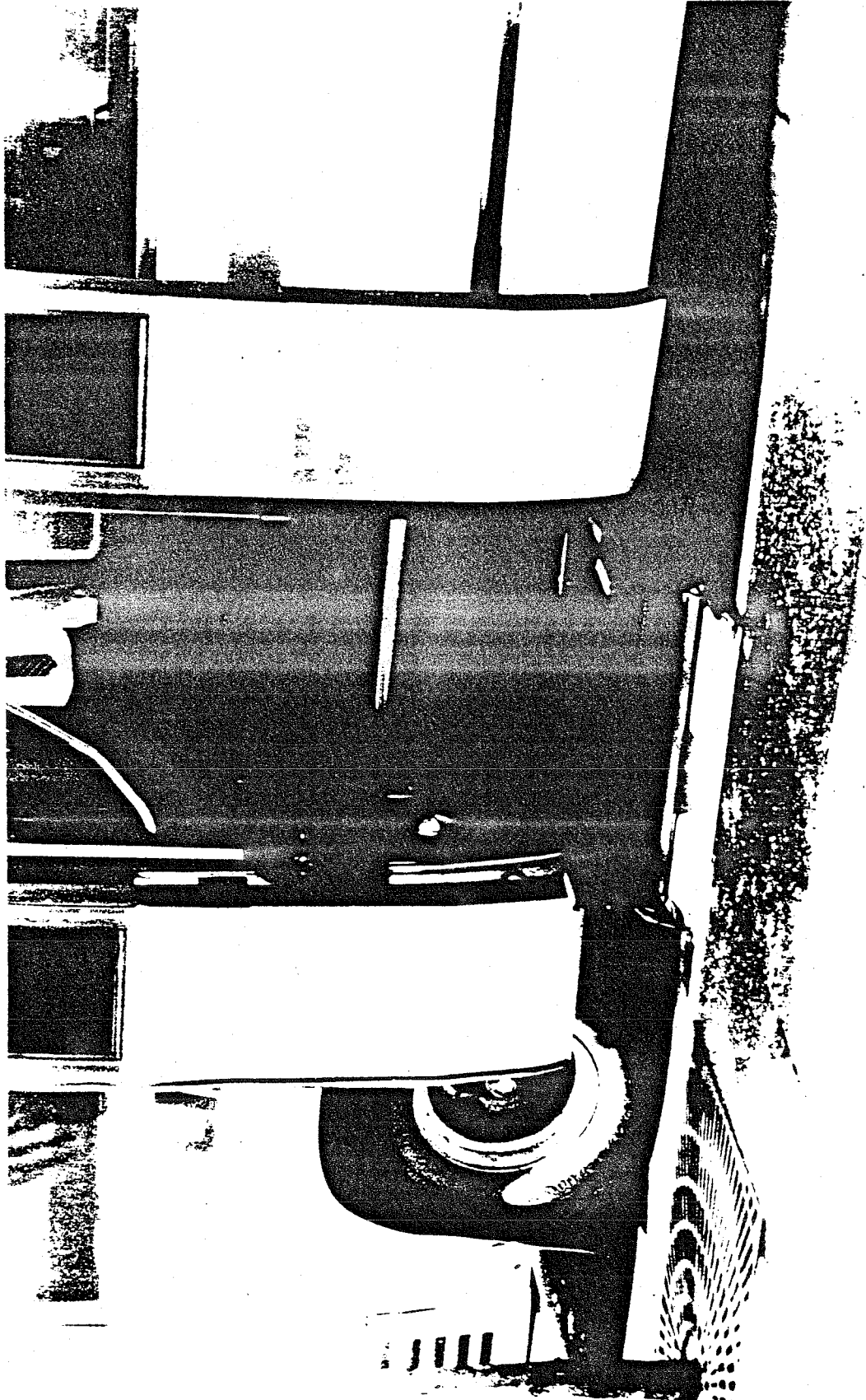


Photo #6: Step Lift on Large, Fixed-route Bus, in Lower Position.

**APPENDIX G:
A REVIEW OF PARALLEL SERVICES**

A REVIEW OF PARALLEL SERVICES

As part of the assessment of various potential models for coordination of paratransit services a series of telephone interviews were held with twelve different transit companies. Each of these fixed route operations was asked how they currently handled the administration of their paratransit services. Of specific interest was whether they handled these services in-house or whether they contracted out to another agency for this more specialized type of service. It should, of course, be noted that those interviewed were responding in terms of existing services with the assumption that they would continue to operate similarly under the ADA regulations. An additional set of questions related to the type of training program which these operations had in place for paratransit drivers and assistants. The Kent State System was contact specifically because they had a training manual available. Very few operations currently have their own training manuals. Those copies of manuals received are reviewed in a subsequent section of this supplemental report.

In selecting the operators to be interviewed the study team relied first on the list of peer properties included in the Weslin Report. Only those fixed route operations that currently also provide paratransit were interviewed fully. Since regional differences may play a role in setting up paratransit operations the list of transit peers was supplemented by adding in other midwestern operations. The following is a list of those contacted:

- Decatur Public Transit, Decatur, Ill.
- G.P. Transit, Peoria, Ill.
- Kansas City Area Transit, Kansas City, Mo.
- Lane Transit District, Eugene, Ore.
- Luzerne County Transit, Kingston, Pa.
- Public Transportation Corporation, Fort Wayne, In.
- Transpo, South Bend, In.
- The Metro, Des Moines, Ia.
- Western Reserve Transit, Youngstown, Ohio.
- Champaign-Urbana Mass Transit, Champaign-Urbana, Il.
- Topeka Metra Transit, Topeka, Ks.
- Campus Bus Service, Kent State Univ, Ohio.

The four models of paratransit service provision discussed in the full project report were:

- Model 1--contracting out for services
- Model 2--fixed route operation serving as coordinator of paratransit by coordinating schedules and/or maintenance. Other service providers would supply under-utilized vehicles and the drivers.
- Model 3--Fixed route operation assuming full responsibility for operation of paratransit directly. This would offer a unified set of operation standards and unified equipment purchase.
- Model 4--Setting up a separate entity specifically to coordinate paratransit. Service could be contracted by social service agencies.

As is apparent in the following figure, contrary to the published reports issued by UMTA, the majority of these operations manage their own paratransit services. Only G.P. Transit of Peoria and Lane Transit of Eugene Oregon contract out for service operation, the most common response nationally. G.P. Transit contracted on a bid basis to Door-To-Door, Inc. and Lane Transit also runs bids for service operation. Transpo of South Bend, runs paratransit with the more informal type of service coordination outlined in Model 2. Transpo, however, does contract out for drivers for the paratransit service. Luzerne County Transit set up a separate county wide agency to run paratransit operations.

Figure 1

Transit Authority City	OPERATIONS			TRAINING	
	Self-Contained	Contracted Out	Other Coordination	In-House	Contracted Out
Campus Bus Service Kent State	X			X	
Decatur Public Transit System Decatur, Illinois	X				
G.P. Transit Peoria, Illinois		X			
Kansas City Area Transit Kansas City, Missouri	X			X	
Lane Transit District Eugene, Oregon			X		
Luzerne County Transit Kingston, Pennsylvania			X		
Public Transportation Corp. Fort Wayne, Indiana	X				
Transpo South Bend, Indiana			X		X
The Metro Des Moines, Iowa	X			X	
Western Reserve Transit Youngstown, Pennsylvania	X				X
Champaign-Urbana Mass Transit Champaign-Urbana, Illinois	X			X	
Topeka Metro Transit Topeka, Kansas	X			X	

While most of these agencies run their own paratransit services, two did indicate contracting out for training programs for the drivers. For example, Western Reserve contracts to Easter Seals for a very extensive driver training program including sensitivity training as well as training in operating equipment efficiently and effectively. Kansas City operates its paratransit service through an associated Paratransit operation which in turn has contracted out to a consultant to develop its driver training program. The expectation is that in the mode of "each one, teach one" the training program will become an in-house operation in future years. The Kansas City training manual is reviewed in a subsequent section of this report.

Since Transpo of South Bend contracts for drivers for paratransit vehicles, the contractor also provides an appropriate training program. In contrast, Lane Transit of Eugene provides its own training program although it contracts out for service operation. The Campus Bus Service training manual provides a fairly extensive review of driver responsibilities for lift operation and tie downs. The course is, however, fairly short and does not include any sensitivity training. In contrast Des Moines Metro provides a full week of extensive driver training with a full section on communicating with people who have disabilities. Brief reviews of the Kent and Des Moines manuals are included with this report. Several of the systems contacted had no paratransit driver training program currently available.

Given the increased interest in eligibility requirements engendered by the ADA, the various systems were asked how they planned to proceed in this area. Most currently operate with referrals from doctors and agencies served. Champaign-Urbana, however, has engaged the University of Illinois Rehabilitation Service to make eligibility determinations. Their fixed route system has been fully accessible since 1984, so paratransit has been regarded as a supplemental service for people with special needs.

Eugene Oregon's Lane Transit District has a well developed procedure for determining eligibility. Doctors and agencies make recommendations, but the final decision is made by the transit executive. An appeals board is made up of representatives from the transit agency, the COG, the agencies served and a disabled person. By 1992 two additional disabled individuals will be added to the appeals board.

What was apparent overall was that most systems were operating small paratransit operations that were providing for the current demand and were not overly concerned about potential increased demand to be generated by the ADA. Only a couple of those contacted contracted out. Few changes were anticipated. Although training programs will be mandated, a number of the systems have not yet begun to address this issue. Several indicated that they were starting work on their paratransit plans. Clearly Metro Link is well ahead of many of these operations in terms of its planning for the impact of the ADA.

Review of Training Manuals

Review of the Des Moines Metro Paratransit

Operator's Manual and Training Guide

Des Moines' Paratransit system began operations in December, 1978. The *Operator's Manual and Training Guide* is to be used for training all newly employed drivers. During the three-day training period, the student drivers begin day one by examining the General Orientation policies. Later that day, they learn the Daily Operational Procedures and participate in vehicle familiarization and demonstration.

The first half of day two will be spent learning the handling capabilities of the vehicle and familiarizing the students with vehicle operational procedures. Both on property driving as well as driving to common Paratransit stops is done during this time. The second half of the day is used to take the students on an actual route to model the running of a route according to company policy and procedures.

Day three information deals with "Client-Passenger Relations" and "Emergency Operational Procedures." In the final phase, the instructor goes out one-on-one with the student as the student drives an actual route.

In Section 2, "Daily Operation Procedures," the manual goes through step-by-step the operation of a lift for both boarding and alighting. Also, four methods of maneuvering a wheelchair safely are discussed for boarding and alighting. Within this process, the manual describes how to secure both electric and manual wheelchairs.

While on the subject of "Client-Passenger Relations" in Section 5, the manual takes time to point out how to communicate with and react to a person with a disability. The manual gives suggestions for the physically disabled, the blind, the elderly, and the low income/economically disadvantaged. At the end of the section is a list of "Words with Dignity" that is intended to make the students more aware of phrases that may offend a disabled person.

The Appendix has a section explaining the different types of wheelchair belts/restraints. This section also has maps identifying addresses of the large elderly communities so that drivers can locate the boarding site and the access routes to that point.

Review of Campus Bus Service, Kent, Ohio

Disabled Student Transportation Service Training Manual

The Campus Bus Service at Kent State University in Kent, Ohio, runs a "Disabled Student Transportation Service" (DSTS) for its paratransit service. Prior to the DSTS training, the drivers are first trained and certified as full-size transit coach operators. This includes training in lift operation, wheelchair securement, etc. David Kotting, of Planning/Analysis, that some of the elements of this manual may be changed due to new ADA requirements (see enclosed letter).

The DSTS has on board each paratransit bus a driver and an attendant whose responsibilities are defined in the training manual. After a few standard operating procedures, the manual then explains the "Electronic Scheduling and Dispatching System" and the "Manual Back-Up System" for DSTS.

The procedures for operating the lift to board a passenger is described in a step-by-step list. IN the next section, the same detail is used to describe the procedure for deboarding. "Passenger and Wheelchair Securement with Tie-Down Instructions" follows the deboarding procedures.

The manual then illustrates how to maneuver a wheelchair up and down a curb. Some suggestions about how to approach a blind person are listed, however, no courtesy suggestions for the elderly or physically disabled are mentioned in this manual.

Review of *Share-A-Fare Training and Resource Guide*
As It Pertains To Paratransit
Kansas City Area Transportation Authority

The *Training and Resource Guide for Share-A-Fare* is an excellent manual that should be used as a model for other systems that need guidance in preparing for driver training. Because Share-A-Fare is committed to providing quality service to its clients, the management strives to choose the best drivers to represent the company. This manual spells out exactly what is expected of each new driver in a very positive tone.

Throughout the manual are sections that pertain to the paratransit service. Within the "Vehicle Orientation" section is a page covering the lift operating procedures. Although this page does not have a step-by-step lift operation sequence like the MTA or the Campus Bus Service, it does how sketches to aid in the visualization of the process.

After a courteous "Passenger Relations" section, the manual goes through a "Disability Awareness" section that is quite detailed. This section not only tells how to handle disabled persons to, in, and from the Share-A-Fare vehicle, but also gives a thorough discussion of how to relate to them. Also, this section identifies some possible physical crises that may occur and gives the appropriate response that the driver should take.

Following the next section, "Substance Abuse Awareness," the manual concludes with a section of "General Information." Part of this section covers the participant eligibility, enrollment, expectations, and attendants and companions.

**APPENDIX H:
PARATRANSIT ELIGIBILITY PROCEDURE**

Eligibility for Paratransit

Determining eligibility for paratransit service under the Americans With Disabilities Act is complex. Public entities must determine not only who is eligible, but, for what specific trips s/he is eligible. The nature of the individual's eligibility first must be established. Second each trip request must be reviewed for each eligible person to determine the appropriate mode of transportation, i.e., fixed route or paratransit.

Individual Eligibility

Determining paratransit eligibility involves two considerations: first, the nature of the disability and, second, the relation between the person's disability and the available bus service. This is difficult to determine because the regulations do not enumerate disabilities. Instead they present vague and general guidelines as to what symptoms are indicated in the eligible individual.

Determining if an individual is disabled is a further problem because the federal regulations do not allow sending applicants to a physician to be evaluated. The method for determining eligibility is summarized in the diagram on the following page. This framework will be used as the outline for the following description of the process of determining individual eligibility. To determine eligibility, questions must be asked in a manner that effectively screens out those who are not required to be served while retaining all those who are required to be served.

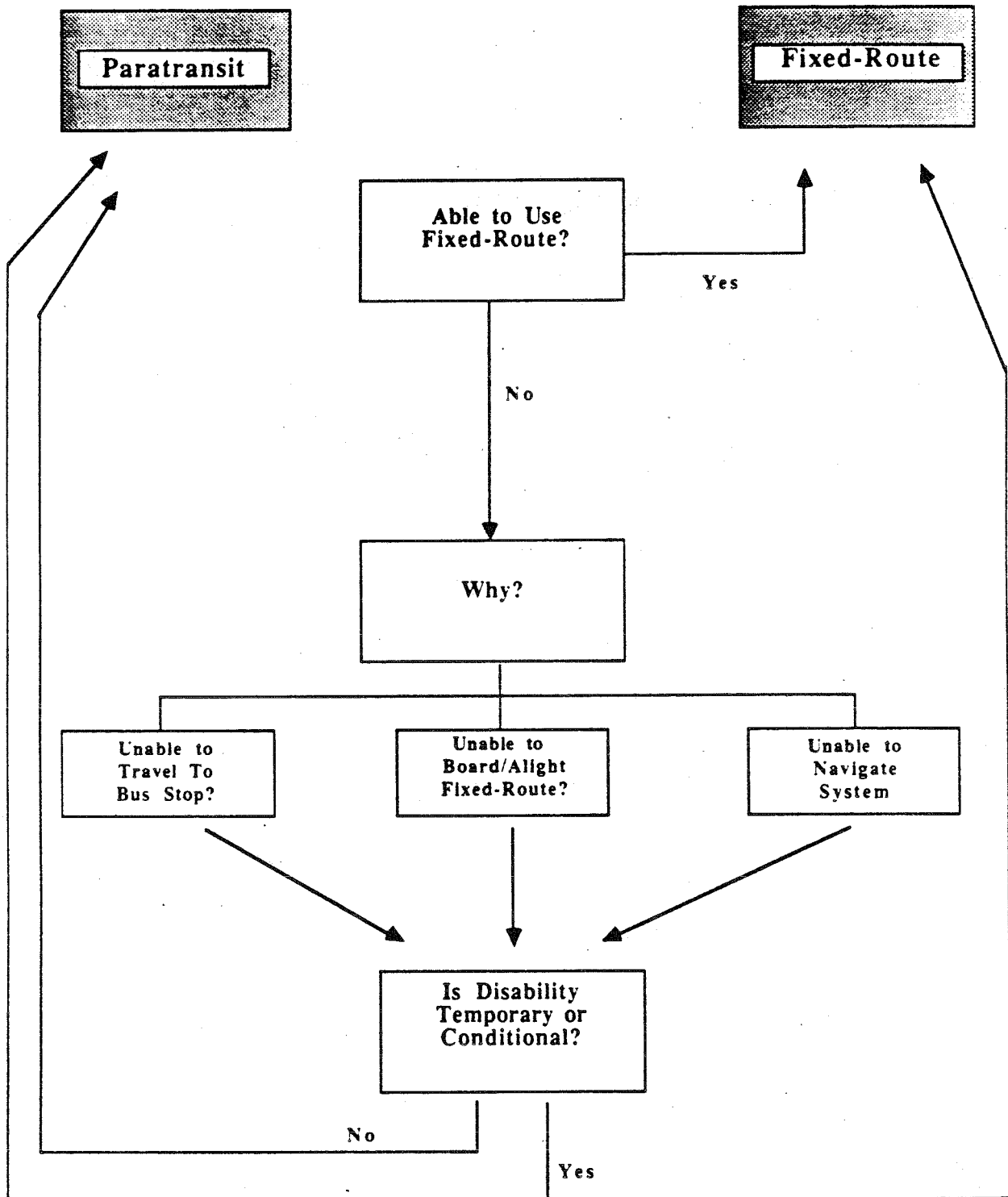
Able to use Fixed-Route?

The first question to be asked is whether the individual is capable of using the fixed route system. If the individual is currently using the fixed route bus, it is reasonable to infer that s/he does not have a condition that would require the use of paratransit vehicles. This is assessed by asking the following question.

1. What kinds of transportation do you currently use (check all that apply)?

Friends or relatives Taxi Fixed Route Bus Paratransit Social Service
 Drive Self Other (specify) _____

Individual Eligibility



If they answer the question by indicating that they ride the fixed route or drive themselves, it will be reasonable to infer that they are not in need of paratransit. However, the responses to the remaining questions will establish this more clearly. Whether the person is able to use the fixed route also requires a review of the following questions.

Determining Why Individuals Cannot use Fixed Route

The Department of Transportation has developed three categories of eligibility to determine who is eligible and when they are eligible. Each of these three criteria will be explained, with question designated to gather the necessary information.

Ability to Navigate the System - Category 1

The first category is an effort to determine if the person is incapable of boarding, riding, or disembarking from readily accessible vehicles. This category is defined in section 37.123 section (e) of the Department of Transportation 49 CFR 38:

"Any individual with a disability who is unable, as the result of a physical or mental impairment (including a vision impairment), and without the assistance of another individual, to board, ride or disembark from any vehicle on the system which is readily accessible to and usable by individuals with disabilities."

The appendix to this regulation clarifies this by stating:

"The first eligibility category includes, among others, persons with mental or visual impairments who, as a result, cannot "navigate the system." An individual does not, however, lose paratransit eligibility based on inability to navigate the system because the individual chooses to travel with a friend on the paratransit system. The DOT encourages entities to sponsor mobility training to teach this group to use the system".

To determine eligibility under this category the DOT simply recommends asking the following question. *What is the disability which prevents you from using our fixed route service?* This question may encourage a less than truthful answer and leave reviewers uncertain as to the specific nature of the the disability. Another problem with this question is it allows subjectivity on the part of the reviewer in assessing the answer. The possibility of a reviewer basing eligibility on subjective or less than accurate criteria must be eliminated as much as possible. As an alternative the following questions are recommended. The first question establishes whether the person understands that when s/he boards the bus,

15. Can you decide what bus to get on and tell where to get off? If no, explain why.

_____ Yes _____ No _____ Sometimes

The relationship between these questions can be seen in figure 2. A "no" response to any of the above questions requires the reviewer to check to see if the person has been trained to use fixed route. As indicated in figure 2, the person would not be eligible under category 1 to use paratransit to take a trip which is serviced by the fixed route system and that s/he has been trained for. If the applicant has not been trained, then a physician or his/her case worker should be consulted to determine if s/he could be trained, or to determine if the person is actually capable of using the fixed route system.

If the person answered "no" to questions 12, 13, 14, or 15, then the reviewer would check the category more information needed and leave the form filled in this way until information about previous training can be found, or a case worker or physician can be contacted. After this information is collected the reviewer should change the response to "yes" or "no" and if there are any conditions applicable to this, they should be indicated at the bottom of the form. The following question is from the office section: Question O3 is presented below. (the complete form is in the appendix)

O3. Is passenger able to navigate the fixed-route system? (Questions 12-15)

_____ Yes _____ No _____ More Info. Needed

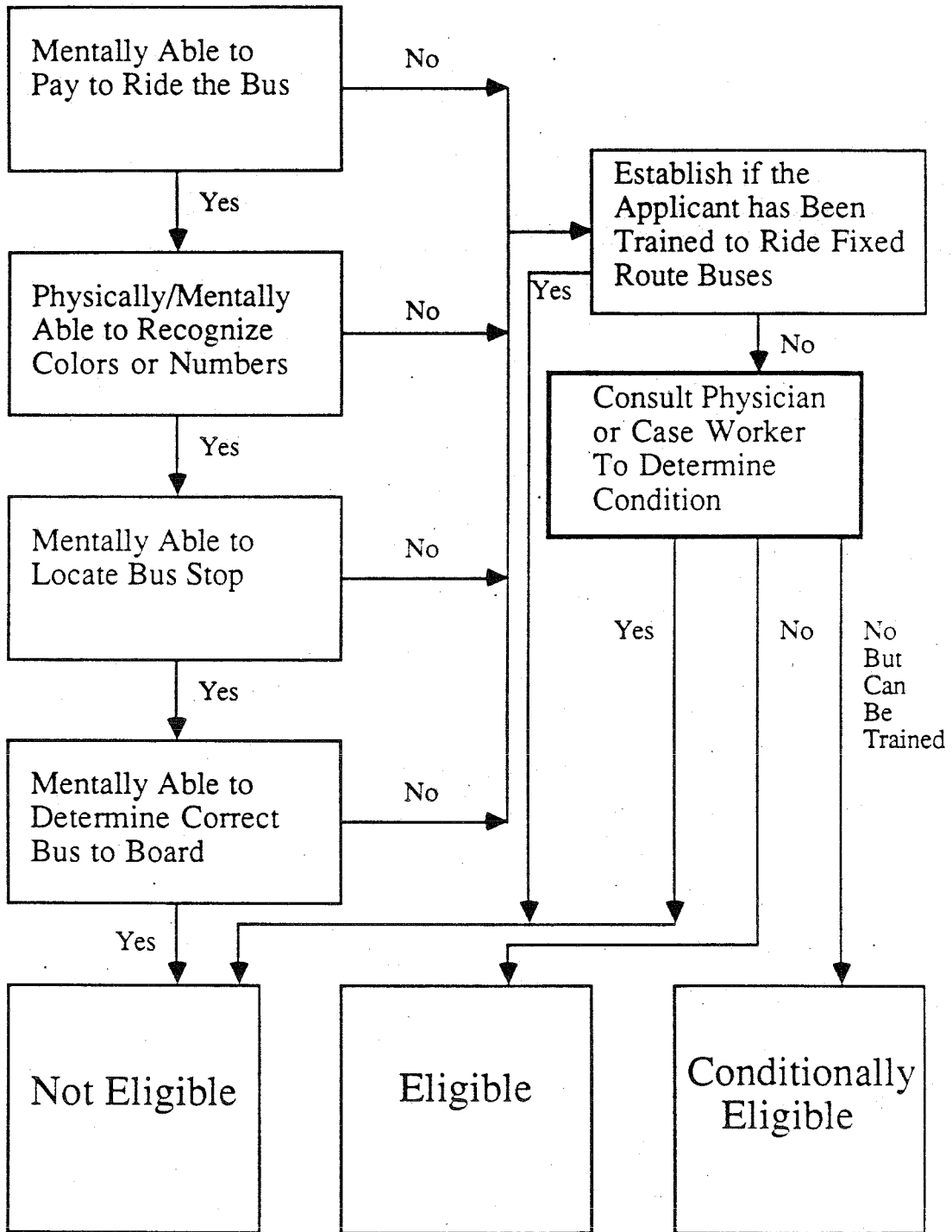
To get a better understanding of the above process the following examples are presented in the case of a person responding that s/he did not understand how to pay to ride the bus (question 12), but his/her case worker indicated otherwise. Then s/he would not be eligible. However, if the case worker indicated that the applicant was not capable of even remembering to hold onto a ticket to give it to the driver, then the applicant would be eligible for service under category 1.

If the person responded that s/he was not able to recognize bus route colors or numbers (question 13) and this was confirmed by the case worker, then he/she would be eligible.

If the person answered "no" to question 14, and gave an explanation something to the effect that he/she easily became disoriented and lost when outside, or was not allowed outside alone, then s/he would be eligible for service if this statement were backed by a physician. If, however, the answer is questionable, it should be reviewed by the individual's case worker or by a physician.

If an individual answered "no" to question 15 and gave an explanation that s/he often forgot where s/he was or where s/he was supposed to go, e.g., a victim of alzheimers, then she would be eligibile. However, if they gave an answer such as, "it's difficult for me to find the right bus downtown," s/he would not be eligible. If they indicated that they fall asleep on the bus and miss their stop, they would not be eligible unless the reason they fall asleep is due to some type of medical problem. When in doubt about something of this nature, it is safest to contact a physician or a case worker.

Category 1 Able to Navigate the System



Ability to Board/Alight Fixed-Route Vehicles - Category 2

The group that fits into this category is essentially those individuals who must have a lift to board a fixed - route vehicle. Examples of people in this category include people in wheelchairs, people using walkers, obese people, or people with severe arthritis.

The Department of Transportation provides the following definition from the code of federal regulations. The definition of who fits into these categories is as follows,

"Any individual with a disability who needs the assistance of a wheelchair lift or other boarding assistance device and is unable, with such assistance, to board, ride and disembark from any vehicle which is readily accessible to and usable by individuals with disabilities if the individual wants to travel on a route on the system at a time, or within a reasonable period of time, when such a vehicle is not being used to provide designated public transportation on the route."

This is clarified in the appendix to the section in the federal register; it states,

"This category applies to persons who could use accessible fixed route transportation, but accessible transportation is not being used at the time, and on the route the person will travel. This concept is route based not system-based. For purpose of this standard, a route is viewed as accessible when all buses scheduled on the route are accessible".

The DOT gives more specific detail as to what makes a route accessible in the following provisions:

"An individual is eligible under this paragraph with respect to travel on an otherwise accessible route on which the boarding or disembarking location which the individual would use is one at which boarding or disembarking from the vehicle is precluded. When the bus stop is located in a place that is dangerous for some reason then the bus stop should probably be moved."

Because the vehicle has a lift does not necessarily mean that the vehicle is accessible. If the lift does not meet the prescribed standards, or if the individual's wheelchair does not fit on this lift, then the route is not accessible.

"An individual using a common wheelchair is eligible under this paragraph if the individual's wheelchair cannot be accommodated on an existing vehicle. (because the vehicle's lift does not meet the standards), even if that vehicle is accessible to other individuals with disabilities and their mobility wheelchairs".

Given this definition, the DOT established the following questions to determine if the individual was eligible under this category (UMTA Planning manual p D-2):

1. *Can you climb three 12-inch steps without assistance?*

2 *What is the disability which prevents you from using our fixed route service?*

The following questions attempt to develop a larger information base for determining the nature of the person's problem and the services s/he will require. The first question determines if the applicants can climb steps in their everyday lives. This question is preferred over the DOT's 3-12 inch steps because many people would simply respond "no," making them automatically eligible. The questions posed below try to indirectly determine the individual's capacity. For example, many people would be able to climb steps in their everyday activities, but might feel afraid that they would not be able to climb fast enough to get on a Fixed-Route Bus. The nature of the disability may also affect a person's ability to board. A person who suffers from arthritis may be able to board a fixed route bus on certain days when the affliction is not so severe, and unable on other days. These questions, then, attempt to determine more specifically what the applicant can and cannot do, while the DOT's questions seem to permit a greater chance to simply answer "no", making him/her eligible.

The questions recommended are as follows:

2. *Are you able to climb steps in your daily life? Yes ___ No ___*

3. *During daily activity do you use steps? Yes ___ No ___*

4. *If yes to question #3, what is the maximum number of steps? _____*

5. *If yes to question #3, how high is the tallest step? _____*

6. *If no to question 3, why not? _____*

7. *Would you require the use of a ramp or lift to access a transit vehicle? Yes ___ No ___*

8. *Please indicate the ease of lifting your feet 10 inches. Easy ___, with slight difficulty ___, with great difficulty ___, Only with assistance ___, Impossible ___,*

The office section of the eligibility form contains question 1, which asks if the passenger is able to board /alight the bus. To determine the answer to this question the questions must be examined together.

Figure 3 indicates how the answers to the above questions are to be processed. If the person indicates that s/he is able to use steps (question #3), then the answer to the

question "what is the maximum number?" (question #4) would be asked. If the person responded 3 or more, then s/he would not be category 2 eligible. If they answered 2 or less then they would be eligible, if this was supported by a physician or case worker.

If the individual indicated that s/he needed a ramp or lift to access a transit vehicle (Question 7) and indicated that s/he could climb ten steps (Question 4), s/he would not be eligible under this category.

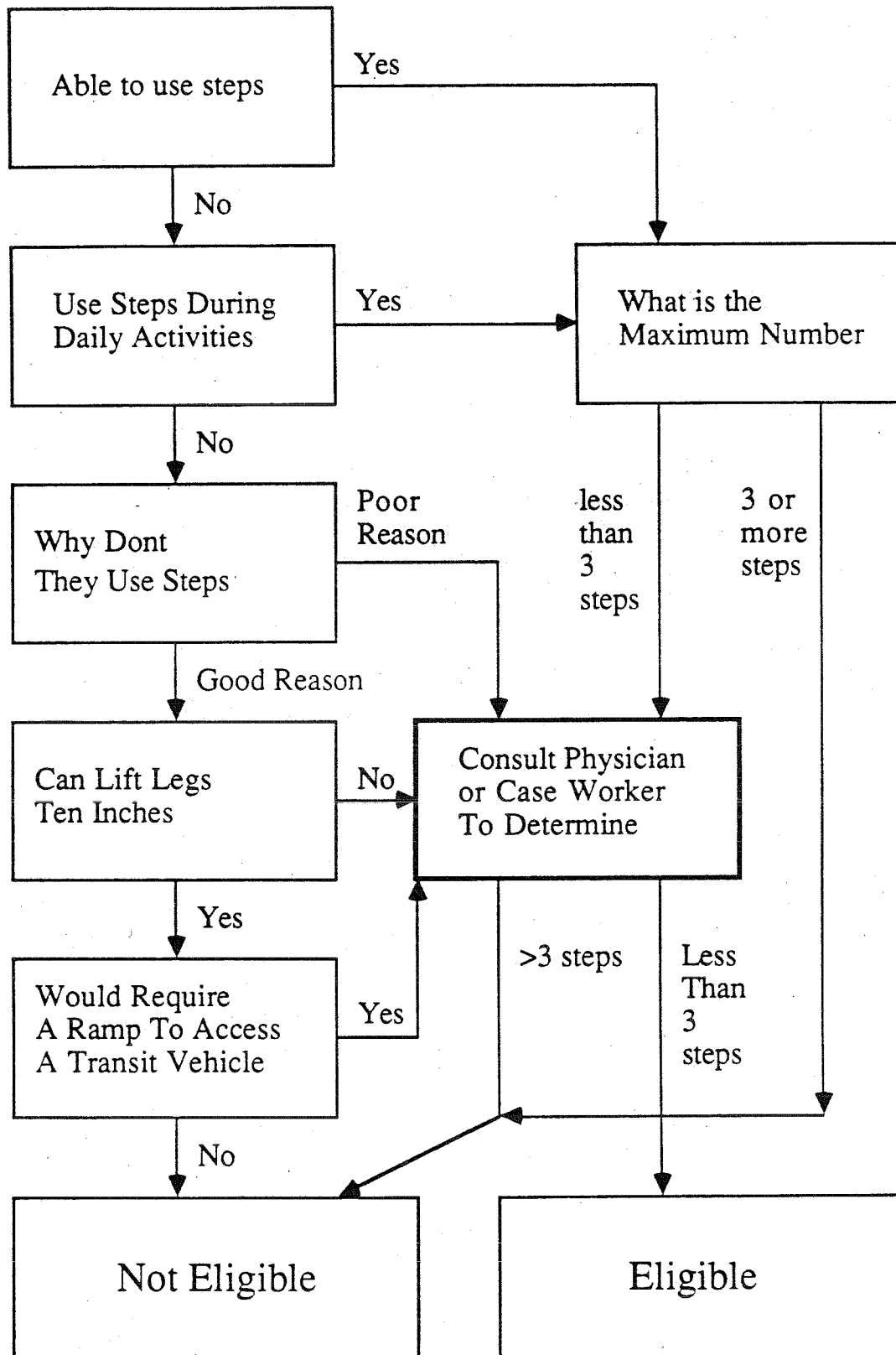
If the individual responded that s/he climbs steps in his/her daily life (Question 2) and the tallest step is 4 inches (Question 5) then you would need to look to question 8 to determine if s/he could lift their feet 10 inches. If it is impossible for him/her, then s/he would be eligible. .

If the individual indicated that s/he could raise his/her feet 10 inches with ease and indicated that s/he does not climb steps in his/her daily life, then s/he would not be eligible based on the fact that s/he can raise their feet ten inches.

If the person indicates that s/he can only climb a maximum of two steps, then s/he might be eligible. This would probably require consulting the person's physician to determine if they could actually climb three steps.

If the person's answers are close to meeting the physical requirements of getting to the bus, but don't exactly meet the standards, a physician should be consulted.

Category 2 Able to Board/Alight Fixed Route Bus



Unable to travel to Bus Stop - Category 3

This criteria presents the most difficult problem in determining who is eligible because many people would be able to walk one block while it would be impossible to walk ten blocks. It is also difficult to determine how far a person is capable of walking. Another factor to consider is, temperature. What if the temperature would subject the person to a risk of hypothermia? The criteria for this category explained by the DOT in the following excerpt from the Federal Register. Eligibility for paratransit includes:

"Any individual with a disability who has a specific impairment-related condition which prevents such individuals from traveling to a boarding location or from a disembarking location on such system.

The appendix states, the third eligibility criterion concerns individuals who have a specific impairment-related condition which prevents them from getting to or from a stop or station. As noted in the legislative history of the ADA, this is intended to be a "very narrow exception" to the general rule that difficulty in travelling to or from boarding or disembarking locations is not a base for eligibility. The specific impairment related conditions as given by the legislative history give:

Chronic Fatigue
Blindness
Lack of cognitive ability to remember and follow directions
Special sensitivity to temperature
Impaired mobility
severe communication disabilities
cardiopulmonary conditions
various other serious health problems.

To be a basis for eligibility, the condition must prevent the individual from travelling to a boarding location or from a disembarking location. The word prevent is very important. If an impairment related condition only makes the job of accessing transit more difficult than it might otherwise be, but does not prevent the travel, then the person is not eligible.

- (i) Only a specific impairment-related condition which prevents the individual from traveling to a boarding location or from a disembarking location is a basis for eligibility. Not just simply a condition that makes getting to boarding and from disembarking more difficult.
- (ii) Architectural barriers do not by themselves form a basis for eligibility. However, the interaction of barriers with an individual's specific impairment related condition may form a basis for eligibility under the paragraph.

The appendix cautions that the lack of curb cuts and other barrier problems should not be grounds alone, because many times the disabled person will be able to get

around these. However, if we have a foot of snow, then the same person taking the same route may be unable to get to the bus stop. If it is not the the snow alone that stops him; it is the interaction of the snow and the fact that the individual has a specific-impairment related condition that requires him to push a wheel chair through the snow that prevents the travel".

The regulation makes the interaction between an impairment related condition and the environmental barrier the key to eligibility determination. A barrier may include distance, curb cuts, and extremely busy streets with no crossings. The person's disability and the barriers must **prevent** travel, not just make it difficult.

The DOT proposed the following questions to establish the eligibility of people under this criteria.

1. *Can you wait outside without support for ten minutes?*
2. *Can you travel 3/4 of a mile without the assistance of another person?*
3. *Can you travel 1/4 of a mile without the assistance of another person?*
4. *Can you travel 200 feet without the assistance of another person?*
- 5 *Do you use any of the following aids to mobility?(Check all that apply) Manual Wheelchair_ Electric Wheel Chair_ Powered Scooter_ Cane Crutches_ Personal care attendant_ guide dog.*

The following questions which are slight modifications of the above questions are recommended as a way to assess how far the person can walk or maneuver. The first question is to determine generally how far a person can walk or maneuver.

9. *Under normal conditions, what is the maximum distance you can walk or roll your wheel chair? 2-3 blocks ___ 3-4 blocks ___ 4 or more blocks ___ Other ___*

The next question is to determine what conditions have an andverse impact on there ability to travel.

10. *What abnormal conditions prevent you from walking or rolling your wheelchair this distance.*

Weather(please explain your limitations and reason why) _____

Physical Condition (please explain your limitations and reason why) _____

Other(please explain your limitation and reason why) _____

The next question is to determine if the person has available devices which significantly improve his/her ability to get around. The object of the question is to determine, for example if s/he has available an electric wheelchair that will allow them to easily get to the bus stop, while without it they could not.

11. If you're assisted by using one of the following (please circle which one), please indicate how far you can walk or roll your wheelchair:

- Cane for visual impairments
- Walker
- Manual Wheelchair
- Electric Wheelchair
- 3-wheel vehicle (Lark, Amigo, etc.)
- Cane(s) For Support
- Crutches
- Another individual
- Guide Dog

- _____ 2-3 blocks
- _____ 3-4 blocks
- _____ 4 or more blocks
- _____ Other (please state how many blocks) _____

The object of the next question is to determine if the person has any of the problems indicated in the congressional intent that would preclude a person from getting to a bus stop in certain conditions.

16. Have you been diagnosed by a physician as having any of the following? (if so, please check which one)

- _____ Chronic fatigue
- _____ Blindness
- _____ Lack of cognitive ability to remember and follow directions
- _____ Special sensitivity to temperature
- _____ Impaired mobility
- _____ Severe communication disabilities
- _____ Cardiopulmonary conditions

17. If so, please explain how this affects your daily life (eating, breathing, getting around, etc.)

Figure 4 indicates how the above questions are to be processed. The primary consideration is if the person can walk or maneuver more than 4 blocks, or if they cannot. When the applicant falls between these two extremes, the conditions for which the applicant is eligible must be established. The applicant's responses to the above questions will establish at what point the person is eligible.

Question 9 addresses the same issue as the DOT's question. However, it does not use the word travel which to many people might mean "in a car". Also, the person might have no idea how far 1/4 mile or 3/4 of a mile is, while they would have an idea of how far 2-3 blocks is.

Question 10 is meant to determine if there are special conditions that would prevent the person from travelling. For example, due to the weather in a certain area, there would be times when a person who is easily subject to hypothermia would be at risk by going to the bus, stopping and waiting outside. The first part of the above question would determine this. Also, some people have severe arthritis that is triggered by cold weather. While, some people can easily walk during the summer months, they would not be able to do so in the winter months. Determining when the person would be eligible in this type of circumstance would be difficult and probably would require the assistance of a physician to determine at what point the person should not be required to go outside. The second part of the question asking about the person's physical condition will provide additional information to determine the nature of the persons disability and how it affects them given weather conditions. This question will also address the case where a person has a problem that only occurs periodically, such as periods when they cannot walk and need to use a wheel chair. An example is people with Muscular Dystrophy. People in this group will be able to use the fixed route buses most of the time, but at times will need to use paratransit.

The third part of the question asks if other abnormal conditions prevent them from walking or maneuvering their wheelchairs the maximum distance. This question is an attempt to gain information for those items that the form does not address directly. The individuals applying, thus, have the opportunity to indicate their special circumstances.

This question is particularly important for those people who would not be eligible given their condition, except under certain circumstances. In other words, less effort in reviewing this question is needed for those individuals who would always be eligible for paratransit as determined by other parts of their application.

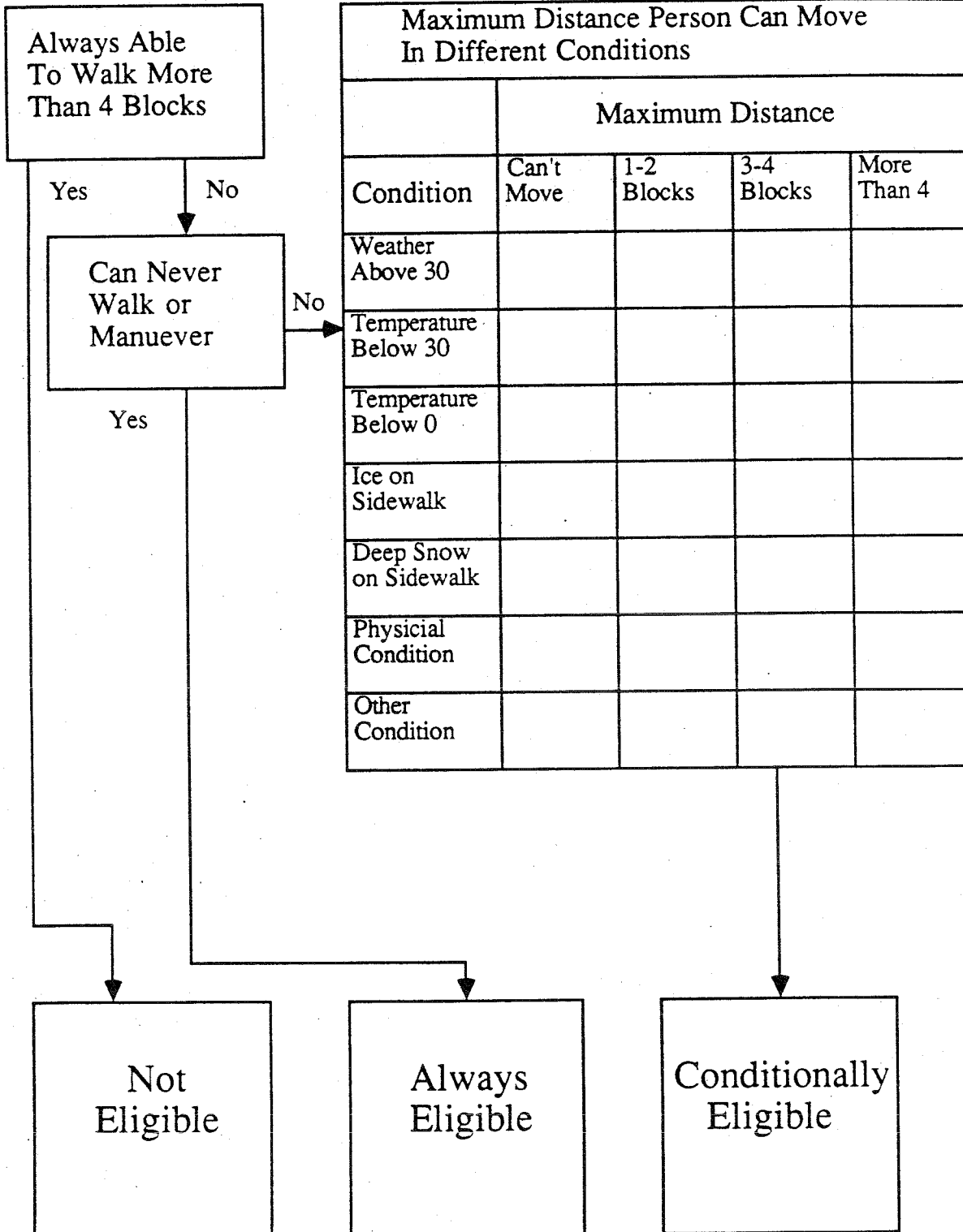
Question 11's purpose is to determine what types of aid the individual uses. This is important because certain weather conditions would prevent the person from getting to the bus stop. For example walking with crutches on ice is in most cases impossible. If the person is in a wheelchair and normally can get to the bus stop, and there is two feet of

snow on the ground on a particular day, s/he would be prevented from getting to the bus stop. Thus s/he would be eligible that particular day.

Of course, all possible conditions when these mobility aids will prevent the applicant from getting to a bus stop cannot be anticipated. Thus, the person reviewing the application should do his/her best to determine under what conditions this person will be eligible. The reviewer should also indicate on the office eligibility statement the general nature of the person, leaving the final discretion to the schedulers.

Question 16 asks the applicant if he/she has a specific condition and Question 17 asks how this condition affects his/her life. If the applicant can show that s/he has one of the following listed conditions and that it would keep him/her from travelling, then the reviewer must research further to determine if this condition would prevent the person from traveling on the fixed route. Note this will only need to be done when the person has not been established as always eligible under other conditions.

Category 3 Unable to get to Bus Stop



9. Under normal conditions, what's the maximum distance you can walk or roll your wheelchair?

- _____ 2-3 blocks
- _____ 3-4 blocks
- _____ 4 or more blocks
- _____ Other (please state how many blocks) _____

10. What abnormal conditions prevent you from walking or rolling your wheelchair this distance?

_____ **Weather** (please explain your limitation and reason why) _____

_____ **Physical Condition** (please explain your limitation and reason why) _____

_____ **Other** (please explain your limitation and reason why) _____

11. If you're assisted by using one of the following, please indicate how far you can walk or roll your wheelchair (please circle which one):

- Walker
- Manual Wheelchair
- Electric Wheelchair
- 3-wheel vehicle (Lark, Amigo, etc.)
- Cane(s) For Support
- Crutches
- Another individual
- Guide Dog
- Cane for visual impairments

- _____ 2-3 blocks
- _____ 3-4 blocks
- _____ 4 or more blocks
- _____ Other (please state how many blocks) _____

12. Are you mentally able to understand how to pay to ride the bus?

_____ Yes _____ No

13. Do you recognize numbers or colors?

_____ Yes _____ No

14. Can you find a bus stop with out the help of someone else? If not, explain why _____not.

_____ Yes

_____ No

15. Can you decide what bus to get on and tell where to get off? If no, explain _____ why.

_____ Yes

_____ No

16. Have you been diagnosed by a physician as having any of the following? (If so, please check which one)

- _____ Chronic Fatigue
- _____ Blindness
- _____ Lack of cognitive ability to remember and follow directions
- _____ Special sensitivity to temperature
- _____ Impaired mobility
- _____ Severe communication disabilities
- _____ Cardiopulmonary conditions

17. If you have one of the conditions in question 16 , please explain how this affects your daily life (eating, breathing, getting around, etc.)

18. Is your condition permanent or temporary?

_____ 1. Permanent

_____ 2. Temporary (please indicate when problem will be cured)_____

In order to determine the best transportation for you, we may need to contact a physician or other professional to obtain additional information. Please complete the following information.

The following physician _____ health care professional _____ rehabilitation professional _____ (check one) is familiar with my physical/mental abilities and is authorized to provide information to Metro Lnk.

Name: _____

Address: _____

State: _____

Zip Code: _____

Daytime Phone Number: _____

I, _____, state that information contained _____ (print your name) in this form is true and accurate*.

Check the most appropriate line:

- _____ I am physically able to sign my name
- _____ I'm not physically able to sign my name
- _____ I sign my name with an "X"
- _____ I Can sign my name only at times

(Your Signature) (or Witness if unable to sign) (Date)

* If information contained in this application is found to be untrue, applicant could be denied or removed from paratransit eligibility.

Bus Eligibility Form (Office Section)

Passenger Name: _____

1. Is passenger able to board/alight the bus? (Questions 2-8)

_____ Yes _____ No _____ More Info. Needed

2. Is passenger able to walk or maneuver his/her wheelchair to a bus stop or to their destination? (Questions 9-11)

_____ Yes _____ No _____ More Info. Needed

3. Is passenger able to navigate the fixed-route system? (Questions 12-15)

_____ Yes _____ No _____ More Info. Needed

4. Does passenger's diagnosed illness prevent passenger from using the fixed-route system?

_____ Yes _____ No _____ More Info. Needed

5. Additional Information/Comments: _____

CERTIFICATION

Based on above information, passenger is certified as follows:

- _____ Fixed-Route Service Only
- _____ Paratransit Service Always
- _____ Conditional Paratransit Service (state categories and conditions)

Application Results

Dear _____:

We have completed our review of your application for Metro bus service. Based on information contained in your application and from the person that you indicated was familiar with your transportation needs, Metro Link certifies you as follows for paratransit and/or fixed-route, city bus service.

_____ You are: Not "ADA Eligible" as defined by federal regulations and are therefore eligible for fixed-route, city bus service only. Reason(s) for this determination are:

_____ You are: "ADA Eligible" as defined by federal regulations and are eligible for/under the following services/conditions:

_____ Fixed-route, city bus service

_____ Paratransit service

_____ Conditional Paratransit service

Conditions that make you eligible for paratransit service are: ___

If you wish to appeal this certification, the attached sheet explains the Metro's appeal process.

.....

Date Application Received by Metro Link: _____

Date Passenger Notified: _____

Signature of Review Officer

Date

Eligibility Appeal Process

The following information details each step of the paratransit service eligibility appeal process. If you'd like to appeal your eligibility, you'll need to follow the steps described below.

Step One: Within 45 days from the notification date listed on your eligibility evaluation form, submit to Metro Link your desire to appeal your eligibility for paratransit service. This appeal request must be in writing and mailed.

Step Two: Within 5 working days of your written notice to appeal, Metro Link will notify you of the date, time and location of your appeals hearing. You, or a representative for you, may be present to state your case to the appeals committee. This committee is comprised of the Metro's General Manager, Assistant General Manager and Paratransit Advisory Committee Chairperson.

Step Three: Within 5 working days after the hearing, a written response stating the following will be mailed to you.

- * Committee's decision
- * Reason for the decision
- * If eligible for paratransit service, an explanation of service for which you're eligible.

Dear Passenger:

Attached is a certification card indicating your eligibility for paratransit bus service under the Americans With Disabilities Act. This card certifies you as eligible for fixed-route or paratransit service in another city or town. When boarding the paratransit bus, just show this identification to the driver. When in another city, you simply need to show this identification card to transit officials and you'll automatically be eligible for their service for up to 21 days. If you have any questions on how to use this card, please give us a call.

Sincerely,

**Certificate of Eligibility
for ADA Paratransit Service**

Name: _____

I. D. Card #: _____

Date Issued: _____

Expiration Date: _____

Signature: _____

This person can/cannot board, ride and disembark
from vehicles complying with U.S. Department of
Transportation accessibility standards.

The person identified on this card has been deter-
mined "ADA Paratransit Eligible" in accordance
with the provisions of 49 CFR Part 37 and may be
entitled to receive complementary paratransit
service subject to the provisions thereof.

Signature of Public Entity's Representative

Name of Issuing Public Entity

City/Town

State

Eligibility by Trip

After the above information has been provided, each applicant who is eligible under different categories will be eligible for different levels and types of service. In figure 5, the process for determining whether a given trip is eligible is presented. If a person is always eligible under category 1, or category 3, the dispatcher will have the easiest time in determining that, because these trips will always be eligible. Determining a person's eligibility under only category 2 and no other, will provide the next level of difficulty, because this eligibility is based on the availability of fixed route service for the person's particular trip. The hardest case for the dispatcher to determine is when the person is eligible under one of the three categories, only given specific conditions.

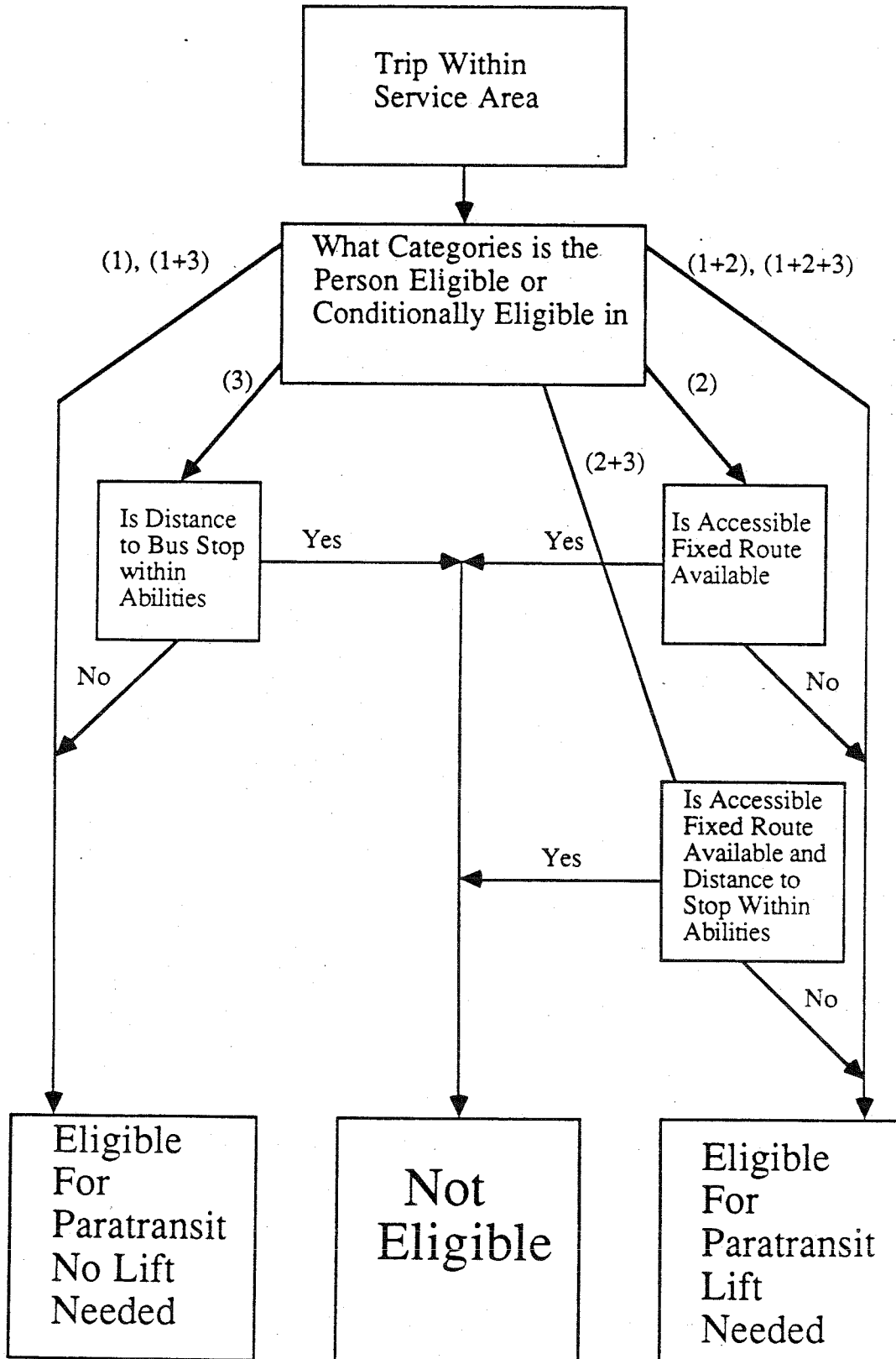
When the applicant is eligible under a number of categories the dispatcher will need to determine which of these will always place the applicant on paratransit and when the applicant will be required to take fixed route. The combinations of possible categories of eligibility is best summarized in figure 6. As presented in this figure a person feasibly could be eligible under only category 1, under categories 1 and 2, under categories 1,2, and 3, under categories 1 and 3, under category 2, under categories 2 and 3, or under category 3. The figure also indicates what type of service will be needed under each of these sets of categories. The nature of the person's eligibility will allow the applicant to use either fixed route service, lift equipped paratransit or paratranist with no lift.

Each applicant's records will also contain the times when the person is conditionally eligible under these categories. For example, a person may only be eligible under category 3 when the temperature is below 30. This person would not be eligible under any other category so the dispatcher must determine if the weather on the day the person is requesting the trip will be below this temperature, requiring the dispatcher to keep track of the expected outside temperature.

Figure 5 indicates how dispatchers can analyze a trip request. First, the dispatcher needs to rate whether the requested trip is within the service area. If so, s/he will next determine what type of service the person should be provided. To do this the dispatcher will have to first determine what categories the applicant is eligible for under the information which is in the person's file. The person will be either eligible or

Needs of People in each Category			
Requirement	Category		
	Category 1 Cannot Navigate	Category 2 Need Lift to Board	Category 3 Cannot Get to Bus Stop
Requires Paratransit but Does not Require A lift	X		
Paratransit with Lift	X	X	
Paratransit with Lift	X	X	X
Requires Paratransit but Does not Require a Lift	X		X
Paratransit with Lift Unless Fixed Route Is Accessible		X	
Requires Paratransit With Lift		X	X
Requires Paratransit but Does not Require a Lift			X

Trip Eligibility



conditionally eligible under categories 1, 2, and 3. The dispatcher will first have to decide if the conditions which would make the person eligible under a given category are met.

For example, if a person is eligible under category 2 and s/he lives 3 blocks from an accessible fixed route and the person wanted to take a trip from his/her home to the mall which is also on this accessible fixed route, then they would not be eligible for paratransit for this particular trip. However if, this same person then wants to go from the mall to the Zoo, which is not on a fixed route, s/he would be eligible for paratransit in this case. In another example, if the person who is in category 2 becomes ill, making the person easily susceptible to hypothermia or if the weather presents a danger to the person (below freezing) then they would be eligible. When the temperature is below freezing, the maximum distance s/he can travel outside is 1 block. Under such conditions the person is eligible under categories 2 and conditionally eligible under category 3. On a 70 degree day, however, this person would be able to go from his/her home to the mall on an accessible fixed route bus, if one were available.

The above example indicates the difficulty of the eligibility process and also indicates that if the person who processes the applications does not pay considerable attention to detail, the people who have to determine who is eligible will have a difficult time. The advantage of strictly adhering to the above eligibility procedures, is that people who do not need to use paratransit will not drain the resources that can be used to serve those who truly need them. By adhering to strict eligibility procedures for paratransit service, public entities will assure their long term existence and provide a more complete service to those who truly need and depend on that service.