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Taxis, The Public and Paratransit: A Coordination Primer

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TAXIS, THE PUBLIC AND PARATRANSIT:

A COORDINATION PRIMER

FINAL REPORT

PREPARED FOR

THE INTERNATIONAL TAXICAB ASSOCIATION

BY

MULTISYSTEMS, INC.
CAMBRIDGE, MASSACHUSETTS

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EXECUTIVE SUMMARY

Public Transportation in most major urban areas historically has been dominated by two types of service: mass transit (i.e., fixed route bus service) and taxicabs. Until the mid 1960's, both modes were generally operated on a for-profit basis by the private sector.

In the mid 1960's, declining profits of urban transit systems led to a widespread public takeover and accompanying subsidy program. This of course necessitated an upsurge of legislation to handle the changing character of the mass transit market. Most significant was the (federal) Urban Mass Transportation Act of 1964, since amended. The taxi industry, however, did not undergo any such upheaval, and remained largely ignored by the public sector.

Rising costs and declining revenues are now putting similar pressures on the taxicab industry as were experienced by private bus companies just over a decade ago. Today, however, public takeover of the taxicab industry is not seen as a satisfactory solution. Instead, a variety of responses are sought to rejuvenate the operations of the private sector. These include:

- Service and Equipment Responses: The exclusive ride taxi operation does not appear to be adequately responsive or cost efficient to meet changing market needs on a profitable basis. Taxicab owners are seeking new types of services which can be more effective. These services are diverse in nature and are generally designed to fill a perceived gap between high-priced, high quality exclusive ride taxi services on the one hand and low priced, no-frill mass transit on the other hand. The general term applied to these intermediate

services is paratransit. The delivery of new services is coupled with updated operational approaches. These may include new types of vehicles, such as van and lift-equipped minibuses, and other equipment, including automatic telephone machines and computer-aided dispatching, and computerized record keeping.

- Organizational Responses: Traditionally, taxicab companies in major cities operated on a completely self-contained basis. The company owned, insured, maintained, and dispatched its own fleet of vehicles (typically, four-door sedans). Drivers were generally paid on a commission basis. Today, taxicab owners are experimenting with leasing arrangements, where the drivers are contractors rather than employees; or owner-operator associations, which provide central dispatching and/or maintenance services to individual owner-drivers. Also, taxicab companies are offering to sell individual services (such as maintenance or dispatching) to other groups, such as human service agencies with vehicle fleets. This marketing of centralized services for a variety of external purchasers is often termed "brokerage."

- System Integration Responses: Through coordinated interaction with public planning and operating agencies, aggressive taxicab owners are helping to create new markets by designing paratransit services that can effectively and positively interact with an existing mass transit system. Principal concepts being tested at the time of this writing include feeder services, alternate offpeak services, augmenting low density area services, and special market (e.g., elderly and handicapped persons for whom mass transit is physically inaccessible) services.

- Subsidy Responses: Through contract or agreement with the public sector, taxicab companies are able to provide service to the general public or select groups thereof, at fares which do not cover costs. The difference between revenue and cost is made up by the public sector either through payment of general "supply-side subsidy" to the private operator or through a "user-side subsidy" to individual passengers. The channeling of public subsidies through the private sector provides an interesting contrast with the public takeover response used in the public transit industry fifteen years ago.

- Legal/Regulatory Responses: To permit many of the innovations described above, old rules need to be updated and new laws need to be considered. The old style of carrier and vehicle type regulation needs to be replaced with service and equipment standards regulation. This permits existing or new carriers to operate multiple services and use flexible fleets (i.e., subject to equipment safety standards, use the most suitable vehicles available for any given service). New services must receive formal legal recognition, so that carriers and potential carriers can know to what, if any, regulations they must adhere.

It should be recognized that pricing is a powerful tool for targeting paratransit services. Through the use of public subsidy, the costs of providing a particular service can be offset somewhat; the price to the public (or specific user subgroups) can be chosen to reflect social policy rather than the real cost of service. That is, the fare can be set to attract (or discourage) a specific number and type of riders, with the deficit covered by public subsidy. This practice is currently employed in mass transit but the same principle can be applied to privately operated paratransit to attract separate classes of riders and trips. Pricing policy should be viewed as an integral part of any service integration strategy, since it is an essential input to the process of deciding which markets should be served and with which services.

Numerous additional examples of integration strategies which interface different paratransit service concepts are possible:

- The same vehicle fleet can be used for different services over the span of a single day. For example, subscription services could be provided in the peak and dial-a-ride or shared-ride taxi services can be provided in the off-peak. Similarly, vehicles could alternate between fixed route and demand responsive service by time of day.

- Route deviation service can be narrowly targeted to restrict the demand responsive option to specific market segments, such as the elderly and/or handicapped. Such rationing can be accomplished either through pricing policies or through direct operating policies.

- Demand responsive and conventional service can be provided by the same vehicle providing "through service" between different spatially defined service areas. For example, a vehicle could provide line haul fixed route service between the CBD and a suburban terminal and then continue into a (many-to-one) demand responsive collector/distributor cycle in a lower density neighborhood.

- Multiple demand responsive services can be provided simultaneously to different target market segments. For example, differential service policies (spatial and temporal responsiveness) and differential pricing can be used to offer services that do not compete for the same riders.

- Non-passenger travel demands, such as small package goods movement, can be integrated with demand responsive passenger service. Differential pricing can be used to correspond to different levels of time-responsiveness for goods movement as well as passenger movement.

The future of the taxi industry rests heavily upon its ability to develop the new markets embodied by the term "paratransit". It is ironic, but not coincidental, that new paratransit services are being implemented even as conventional modes are facing economic crises. The large deficits often incurred by public mass transit properties and the increasing incidence of private taxicab company failures is testimony to the increasing sophistication which public transportation must achieve in order to compete with the private auto.

By implementing a hybrid service that is tailored specifically to meet its particular needs, a community may use paratransit to lure more people out of their private automobiles. The tailoring process implies that the service should not attempt to be "all things for all people". Any given service concept will be the optimum design within a limited range of demand characteristics only; outside of this range the service may be less effective and may also conflict with existing services.

There are a number of techniques to ensure that each transportation service in a community will be provided only to that segment of the market for which it is most appropriate. The overall market can be broken down as follows:

- Service Area: Different service concepts can be tailored for different parts of the service area. For example, conventional modes could serve high density core areas and radial central business district (CBD)-bound travel needs, while paratransit could be provided in lower density suburbs.

- Time of Day: Different services can be provided at different times of day. For example, conventional services can be provided at peak hours of maximum service demand, while paratransit could be provided at off-peak, evenings, or weekends.

- User Groups: Different services can be provided simultaneously in the same area, each targeted and tailored to distinct markets. For example, conventional services could provide "basic" service, with a "special" paratransit service for elderly and handicapped markets "overlayed" on the "basic" service. Careful attention to pricing as well as service characteristics can help to minimize conflicts among different services.

The concept of integration of services does not necessarily imply consolidation of operations or operators; rather, it implies that each system component has a rational, definable, and identifiable role to play in meeting travel needs. Multiple services, may, in many cases, be provided by multiple operators delivering different services which are coordinated through a consistent and rational comprehensive planning, funding, and regulatory process. In addition, a transportation "broker" has been tested in a limited number of places to act as a central guiding influence in maintaining cooperative efforts among carriers.

The Human Services Market

In dealing with the human services market, a third "sector" becomes involved: the private non-profit transportation providers. Private non-profit organizations share characteristics of both the public and private sectors. Like the public sector, non-profit agencies can be direct recipients of federal funds. In most other respects, however, non-profit agencies resemble the private sector. Both private for-profit and private non-profit carriers compete to receive money from state or local public agencies that is to be used for the provision of transportation to the elderly, the handicapped, or the indigent. Frequently the two private sectors compete head-to-head for these contracts, and a number of court cases have developed as a result.

Non-profit human service agencies do not exist to provide transportation. Generally they do so only as a means to the end of providing access to agency-sponsored programs for clients. In some cases, however, this objective is interpreted loosely and the agency's service may border on free public transportation. This is of concern to private for-profit operators for two reasons. First, public money may be channeled through the non-profit agency to subsidize a service that takes away taxi ridership and profits. Second, since the subsidy frequently allows the service to be provided free to the user, the non-profit agency may escape responsibility to the regulatory powers that control the for-profit carrier. This truly may seem an ironical twist to a financially desperate taxicab operator.

Fortunately, the problems surrounding this situation gradually are being resolved. As human service agencies have expanded their provision of transportation, many agencies have become increasingly concerned with the diversion of their staff and other resources to those operations. In many cases, taxicab companies can offer a service or range of services to human service agencies which will reduce the strain on agency resources and will provide a reasonably priced alterative.

Possible roles for private operators include involvement in the provision of any or all of the following:

- contract dispatching
- contract fleet management and maintenance
- contract operations
- carrier for recipients of user side subsidies

Both the nature of local private operators and the needs of human service agencies will determine the most satisfactory range of these services that private operators can provide.

As relationships between private operators and public agencies or non-profit agencies have evolved, a number of issues have emerged out of differences between public expectations of service quality and the structure of the taxicab labor market. These issues are particularly relevant in the delivery of specialized services for handicapped and elderly persons. Failure to recognize and understand these issues as the relationship is being contractually structured inevitably leads to a later conflict or "crisis of expectations" on the part of the public sector.

Both the form of compensation and the institutional status of drivers may be important to human service agencies from a service quality perspective. Although leasing is increasingly being viewed as an appropriate system for exclusive-ride taxi operations, it may be less satisfactory for contract operations. This is due in part to the fact that the lease driver, as a contractor (rather than an employee) is relatively more independent of the taxicab company. The company therefore has less control over the driver's hours of operation or choice of customers to be served. Also, lease drivers

must receive income directly from passengers rather than from the taxicab company (in order to preserve their non-employee status); this is not practical on any subsidized system in which the passenger does not pay the full cash value (including a "normal" tip) of the trip.

Commission drivers are better suited for contract operations, since they work under a traditional "employer-employee" relationship (which would appear necessary to exercise desirable managerial control over the provision of service). However, even this relationship may prove unsuitable for any of the following reasons:

- If service is contracted on a vehicle-hour basis, there is no reason to run the meter other than to create an artificial basis for computing driver commissions.
- The loss of tips would have to be compensated by a higher commission rate. There is no appropriate way to formally adjust for the "loss" of unreported tips.
- Tips normally serve to "buy" driver amenities such as assistance with packages or aid to the inform, courtesy, etc. The quality of these unmetered services may deteriorate if a commission driver has little expectation of an adequate tip.

Thus, it is logical to conclude that a traditional, hourly wage employer-employee relationship may be most appropriate for contract services. This is particularly true where the contract services are targeted towards special market segments which require personal attention and/or special handling by the driver of the vehicle. Other forms of compensation - particularly lease and commission forms - do not provide any driver incentives to provide personalized services, particularly if tipping is not a normal part of the operation. In fact, commission and lease remuneration arrangements provide incentives for drivers to carry the maximum number of passengers possible; while this may have economic advantages (for both the driver and contracting agency), those advantages are achieved at a cost of lowered quality of service.

In moving from unsubsidized private taxi operations to subsidized (contract) paratransit services, hourly driver compensation may have to rise to reflect:

- The inclusion of average hourly tips (at their largely tax-exempt value of roughly 120% face value)
- The additional financial incentive necessary to compensate for increased reliability and performance expectations on the part of the contracting agency.

The net result will be higher costs to the contracting agency than might be possible if "lower quality" service was viewed as acceptable. This trade-off must be carefully considered by both the private contractor and public agency as formal terms for service delivery are negotiated. Failure to recognize this trade-off may lead to later conflicts or dissatisfaction over service cost or quality. The contractual negotiations and resulting legal documents are the appropriate framework for addressing these issues.

Contractual Relations

The process of establishing formal contractual relationships between private operators and public agencies is often complex and time consuming. However, the nature of the contract is exceptionally important to both the operator and the contracting agency. It is important to the operator because it specifies both his potential risks and the potential returns for participation in the project. For the public agency, the contract is a mechanism through which the public seeks to achieve both economic and service quality objectives, as well as a means of reflecting necessary concerns regarding public safety. Foremost of the issues to be resolved in negotiating a contract is the basis of reimbursement to the carrier. This issue represents the bottom line to the risks and returns faced by the carrier as well as the costs and expectations for quality control faced by the public agency.

Historically, taxicabs have been regulated by local government at the municipality or county levels, although in a few places such as Pennsylvania and Connecticut they are regulated at the state level. Regulation typically imposes certain responsibilities for guaranteed service availability and may offer certain exclusivity rights in return.

A contractual relationship is both easier to establish and easier to terminate than a regulatory relationship. This is desirable from both the

public and the private point of view, given the experimental nature of most paratransit services. Thus, despite a certain amount of flexibility possible in a contractual relationship, the element of guaranteed service may be preserved through the contracts.

The public body (which may be a municipality or a human service agency, for example) may choose to subsidize some or all of the anticipated patrons of the system if it is felt that users either could not or would not pay the full cost of the service. If the subsidy is to be applied indiscriminately for all users, it is usually easiest to subsidize the carrier directly (on a per passenger or other unit of service delivery basis), so that all users perceive a lower cost in the fare structure.

If specific users are to be targeted for subsidy while others pay fares that reflect the full cost of service, it may be more appropriate to establish a user-side subsidy program. This may be done through a voucher or scrip system. A user-side subsidy is relatively easy to implement and has no substantial impact on the structure of the taxi industry. Of course, a user-side subsidy may be an "add-on" feature to a general supply-side service contract.

The presence of subsidy implies that the service could not be initiated successfully in the private sector without a catalyst in the public sector. Whether an ongoing operating subsidy or a startup "risk" subsidy is required, the involvement of the private sector in the planning process may help to motivate and structure the needed public sector support.

The most crucial aspect of any private operator-public agency transportation contract which incorporates subsidies is the section that specifies the form of compensation. There are several basic forms of compensation which are characteristic of contracts in general, and beyond that there are a plethora of specific possibilities which can be considered. General types of reimbursement agreements include:

- Fixed price contracts
- Cost plus fixed fee contracts
- Fixed unit cost contracts
- Direct user subsidy contracts
- Incentive - based contracts

Fixed price contracts offer high risks to all involved, and particularly to carriers, since no recourse is offered for incorrect estimates of costs, demand, or a variety of other occurrences beyond the carrier's control. A fixed price contract should never be executed without specified minimums and maximums of service that is to be provided, to protect both parties.

Since carriers' costs rise proportionately to service rendered, profit under a fixed price contract will be diminished by increases in service quality. Although there is an incentive for efficiency, the agency does not share financially in the benefits. The primary advantages of fixed price contracts are simplified agency budgeting and bookkeeping. The price paid for this is a large profit added to carriers' bids in order to allow for contingencies, and agencies may have to work very hard to enforce standards of service quality. Because of the problems associated with fixed price contracts, their use for paratransit services cannot be recommended from either the private operator's point of view or that of the public agency in most circumstances.

In direct contrast to the fixed price contract, a cost plus fixed fee contract offers no risk to carriers regardless of uncertainty about costs, productivity, or demand, since all costs will be covered by the agency. While these risks are transferred to the agency, the agency benefits by paying a lower rate of return to the operator.

Since service quality tends to be directly related to cost and inversely related to productivity, a cost plus fixed fee contract offers agencies the chance to trade off cost and service quality as desired. The carrier will be happy to provide high quality service if requested, but if the costs become prohibitive the agency can sacrifice some service standards in favor of lower costs.

A cost plus fixed fee contract offers little incentive for operator efficiency. Thus, it is incumbent upon the agency to build safeguards into the contract to allow it to identify unjustified costs. This requires considerably more bookkeeping effort than with a fixed price contract, since the latter requires monitoring of service quality only, as opposed to monitoring of service costs and productivity.

Many private operators submit bids based on standard unit costs, by dividing total carrier cost by the number of units (miles, passengers,

hours, etc.) delivered. This is typically computed based on experience with regular taxi service. Resulting unit cost bids may not reflect actual costs for a variety of reasons. Contract-related costs may be higher than taxi costs due to lower demand or higher driver, vehicle, and service standards. On the other hand, costs may be lower because of ride-sharing productivity or economies of scale in coordinated fleet maintenance.

The choice of the unit used as the basis of bidding clearly influences the types of incentives which are presented to the private operator. Two general types of units can be identified. Cost units are based on standard measures of costs to the operator. The most common examples are per vehicle mile and per vehicle hour. Cost units are the easiest for taxicab operators to estimate because they usually form the basis of metered exclusive ride taxi rates. Service units (per passenger, per trip), on the other hand, are dependent upon demand density, operator efficiency, service standards (as reflected in routing policies and load/unload policies), etc. Service units are of primary concern to agencies, since they measure the "product" that is being purchased. In general, service units encourage productivity and discourage quality, while cost units (per mile, per hour) encourage quality and discourage productivity.

Since fixed unit cost contracts tend to provide incentive for either productivity or quality, but rarely both, it may be in the interest of agency and carrier alike to consider more complex incentive-based contracts. Incentive contracts have not been extensively tried, but there are a few examples which may be mentioned. In Chapel Hill, a taxi company provides off peak service as a substitute for bus service. The taxi company is paid a fixed price for this service, but in addition is entitled to keep the fares it collects. The fixed price encourages productivity on the part of the operator to maximize profit, while the fares act as an incentive to provide a high enough quality service to maintain and increase demand. In Westport, a taxi company operates as a complement to conventional bus service and as a substitute at certain evening periods. The taxi company is paid its costs plus a variable, rather than fixed, fee. The fee is determined by the taxicab company's productivity. Here the cost portion of the contract reimburses for extra effort ("quality") while the variable incentive fee is a sliding scale of greater profit achieved as vehicle productivity per hour increases.

The basis on which private operators are to be paid for their services is an important, but not the only, significant element of contracts. There are a variety of issues which must be addressed in contracts to ensure that services will be provided in a manner which is mutually acceptable to the public agency, the private operator, the government funding source if any, and last but not least, the patrons. These issues may be generally covered in five broad areas of concern:

- Assurances of business practices required for contracts with public agencies or using public monies
- General compatibility with applicable state and local laws and regulations
- Description of services to be provided
- Service standards and control
- General protection clauses

A variety of standard contractual arrangements may be applied to transportation service agreements. The principal concern is to include safeguards that protect each party from financially ruinous consequences. These usually involve a combination of dollar and service resonsibility limits. In addition, each party should consider the secondary costs in terms of money and effort that may be required to account for or monitor the services provided. Paperwork associated with a project can quickly get to be a major burden on carriers and sponsors alike if this problem is not anticipated.

State and Local Regulation

Regulatory and legal authority over paratransit operations (as well as conventional transit operations) falls within the range of powers reserved to state government under the U.S. Constitution. State government, acting directly through its own executive agencies (e.g., a State Department of Transportation or State Public Utilities Commission) or by delegating authority to a "lower" level of government created by state law (e.g., a municipality or public transportation authority), has the legal right to exercise "police powers" (protection of the public safety and welfare) over public transportation services as well as to regulate intra-state commerce.

The fact that regulation of intra-state public transportation services is largely a state and local - as contrasted to federal - function necessarily implies that no two locations may have exactly the same legal and regulatory structure or environment. Most areas do share a somewhat common pattern of regulatory control, however.

Ideally, regulation should encourage market responsiveness rather than tolerate (or discourage) it. This requires a turn-about of several common regulatory practices. First, new services should not be constrained by being interpreted within the scope of conventional services, nor should they be permitted to exist undefined. New services do not necessarily need to be closely regulated (carpooling, for example), but they do need to be at least explicitly recognized within the overall regulatory framework. That is, an explicit policy must be put forward regarding potential para-transit services. Whether that policy is a complete set of regulations, a disclaimer of regulatory responsibility, or something in between, the effect at least will be to assure potential providers of what they will or will not have to deal with.

Second, regulations for existing services need to be updated. Many current regulations are twenty or more years old. Many improvements can be made to make conventional modes more responsive to present-day needs, which may help solve some of the economic crises currently found in many public transportation operations. As one example, many taxicab ordinances specify vehicle requirements which are inappropriate today. Vans are often difficult to authorize under taxicab ordinance, yet they fullfill a useful role in providing transportation. Innovations in vehicle design are highly likely as a result of UMTA's paratransit vehicle project and other related efforts. Thus, regulations should begin to focus more on vehicle equipment and safety criteria instead of on specific vehicle types. This will help promote hardware innovation that may prove beneficial to meeting old and new transportation needs.

Third, regulations should recognize a more realistic approach to pricing policies. This implies two things. First, new services may demand new pricing strategies. For example, shared ride services may be publicly unacceptable with meter fares that fail to take into consideration the disutility of deviation to serve other passengers. Introduction of shared ride service in

some areas may require approval of a new fare basis in addition to permission to provide service. Route deviation systems are another good example of the need to develop innovative fare structures in order to make new services viable.

The other aspect of pricing policy is perhaps more profound. Innovation in any industry carries with it an associated risk. This risk will not be accepted by providers unless there is a potential for added profit that outweighs the added risks. Regulatory policy, however, typically evaluates fare schedules on a very straightforward basis determined by the operating ratio or rate of return on invested equity capital. This practice tends not to make allowances for additional profit on innovative services, and hence discourages carriers from taking any risk or initiative by offering a new service. This in turn tends to stagnate the market.

One of the problems facing potential innovators is that regulatory agencies are traditionally slow in responding to requests and conservative in their ultimate decisions. Admittedly, the regulatory agency is usually faced with mediocre information on which to base its decisions and is responsible to a broad constituency of the public. One device which is useful in stimulating innovation despite these problems is the concept of temporary approval. Surprisingly, many regulatory agencies do not appear to have explicit authority or guidelines on which to grant temporary approval for experimental concepts. At the same time, there is not likely to be any prohibition of this practice, and it can provide a useful tool for the authority, carriers, and the public to participate in testing of new ideas without a threat of being locked into a system which may prove unacceptable. In effect, it provides a guaranteed review of pricing and other aspects of the service for carriers and leaves an "out" for the authority if the service is not well received.

The Federal Planning and Funding Process

It is useful to divide federal planning and funding activities into two categories - those administered by agencies of the U.S. Department of Transportation, and those of other executive agencies in the U.S. Government. The philosophies behind these two sources are inherently different; U.S. DOT's primary responsibility is for transportation, while other departments see transportation only as a necessary adjunct to achieving their primary purpose

(e.g., promotion of health and welfare).

The most important source of U.S. DOT funding is the Urban Mass Transportation Act of 1964 (as amended). Funds provided through this act are administered by the Urban Mass Transportation Administration, and include monies to support:

- Capital equipment and facilities purchase (Sections 3, 5, and 6)
- Operation of public mass transportation systems (Section 5)
- Research, development and demonstration projects (Section 6)
- Technical studies (Section 9)
- Managerial training programs (Section 10)

The allocation of funds is nearly always to a state or local public agency - a municipal government, a transit authority, or a regional agency. With only one exception (section 16(b)2), UMTA funds must be distributed to a public body. Private operators can, for all practical purposes, participate only through contractual or other relationships with public bodies.

It is important to note that all federal funds dispersed under the section 3, 5, 6 programs are subject to clauses (3e, 4a, and 13c) designed to afford certain protections to private enterprises and existing labor forces.

Section 16 of the UMT Act, first enacted in 1970, establishes as a national policy that elderly and handicapped persons must be afforded the same rights as other persons to use mass transportation services and that special efforts to accommodate their needs must be made in planning and programming of funds. In 1973, special funds were earmarked for this purpose under a new amendment, subsequently known as "Section 16(b) 2."

The 16(b)2 program is unique in many respects. First, the eligible recipients are limited to private, non-profit organizations and exclude for-profit and public operators. Second, the programming of projects is primarily carried out on the state, (rather than regional) level. Third, the program has, in the past year, adopted significant administrative guidelines which are designed to protect private for-profit paratransit providers from UMTA-subsidized competition by non-profit corporations. Fourth, the projects

funded under this program have been administratively ruled as exempt from the protective provisions of Section 13(c).

In general, programs utilizing money dispersed under the UMT Act must be developed through a specific planning process. For Section 3 and 5 funds, the program must be documented in a Transportation Improvement Program (TIP) which is developed by the Metropolitan Planning Organization (MPO) for the area. The MPO may be a state, local, or regional organization. 16(b)2 funds, in contrast, must be approved by the state department of transportation. Finally, demonstration programs require approval only by UMTA itself. The regional UMTA office is a good place to go to find out what is being planned in a particular city or to identify the responsible MPO for further information. The UMTA Office of Services and Methods Demonstrations in Washington, D. C. should be consulted for the status of demonstration programs.

The most important source of non-DOT federal funding is the Department of Health, Education, and Welfare. HEW agencies directly or indirectly spend hundreds of millions of dollars annually for paratransit. Unfortunately, even within the HEW empire, the multiplicity of legislative funding sources, as well as the intricate process by which funds filter down to the local level, creates a number of problems from the standpoint of achieving a coordinated transportation program in an area and adequately utilizing the private sector. As a start, the private operator should contact the local Agency on Aging, Department of Public Welfare, Community Action Program, Mental Health/Mental Retardation (MH/MR) Agency, Bureau of Vocational Rehabilitation, etc., to find out what cooperative programs could be developed with non-DOT assistance.

The Federal Legal and Regulatory Environment

Prior to 1974, UMTA interest in paratransit was largely confined to research and demonstration projects, mostly focused on the dial-a-ride concept. However, since 1974 UMTA interest in paratransit has grown significantly. Through a series of policy memoranda and speeches by the Administrator and Associate Administrator for Policy and Programming over the past two years, a new UMTA policy with respect to paratransit has been evolving.

This evolution in policy has resulted in the "opening of doors" to UMTA assistance funds for those paratransit services which satisfy the test of

meeting the definition of "mass transportation" as defined by the 1964 UMT Act. This has been accompanied by concern that protective provisions with respect to labor and private enterprise (Sections 13(e) and 3(e) of the Act, respectively) are observed in the program.

In summarizing the rights and protections afforded private taxicab operators under Sections 3(d) and 3(e) of the UMT Act, a recent U.S. DOT study concluded:

> ...recent litigation has resulted in a ruling that...the procedural requirements of Section 3(e) are required when the result of the (demonstration) assistance could potentially be competition with a "mass transportation company," To date, conventional, exclusive-ride taxi services have not qualified as "mass transportation" and, therefore, have been denied these added safeguards. It should be noted that this recent case is legally binding only in a few states and, although it is clearly persuasive authority, other jurisdictions are free to distinguish the application of capital grant and demonstration grant requirements.
>
> The more difficult question which may have to be addressed in the near future is how to handle an existing transportation company offering both shared-ride and exclusive-ride service. Since shared-ride services are recognized as mass transportation, the issue then becomes what protections would such a company qualify for under this new status. Presently, UMTA's proposed policy requires a finding that the shared ride portion be more than an "incidental adjunct to its main business" before such provisions apply. How the courts will interpret this administrative direction remains an open question.[1]

(This latter problem may become <u>particularly</u> complex if the shared ride service is operated under an assistance <u>contract</u> to a public agency, which may later decide to withdraw that contract in favor of another contract operator or direct operation by the public agency.)

The U.S. DOT report further concluded:

> Private paratransit companies have been unsuccessful in claiming constitutional violations resulting from paratransit implementation. To substantiate the constitutional claim of deprivation of property (business franchise) without just compensation it is necessary to show that there

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[1]Gundersen, Richard, <u>Analysis of Litigation to Prevent Paratransit Implementation</u>, (draft), Transportation Systems Center, U.S. DOT, Cambridge, MA., May 1978, pp. 53-4.

> was a taking of property by the government. The cases have held that there is no taking unless the existing company had a legally protected right (such as an express agreement by government not to compete) to be free from such competition. Another constitutional claim which has been unsuccessful is denial of equal protection of the laws. The one case which analyzed this claim held that transit service was not similar to exclusive ride taxi service and, therefore, the taxi licensing laws did not pertain.[1]

Although UMTA has administratively interpreted exclusive ride taxi operations as being ineligible for compensation under Section 3(e), due to the fact that exclusive ride taxi is not viewed as "mass transportation," there clearly exists a strong overlap between the markets served by paratransit services and taxi services. Exclusive ride taxi operations are clearly affected by implementation of subsidized demand-responsive paratransit, based on all available evidence to date. This is the strong underlying recognition behind UMTA's gradual policy shift with respect to the taxi sector's future role in providing paratransit services. As Altershuler states:

> The emergence of paratransit poses the issue of taxi- transit competition in a direct manner; it brings into question the legal and policy definitions of the term "transit" that have guided federal policy over the past dozen years; and it raises a host of extremely difficult questions about how to integrate taxicabs into transit planning, transit subsidy, policy, and publicly subsidized competition.[2]

The 13(c) clause was written with the intent of protecting employees of private conventional mass transit (e.g., bus) companies during the process of conversion to public operation. It was written with only that one context in mind, and the present problems of interpreting the clause stem from the natural difficulties of applying a law to a set of circumstances for which it was never intended. In particular, 13(c) is hopelessly inadequate to respond to a competitive bid process. Conservatively interpreted, it could lead one to believe that a carrier could never relinquish its contract to a lower bidder without having its employees eligible for 13(c) compensation. This is clearly an untenable situation, but it shows how the expanding range of services possibly qualifying as "mass transportation" is creating a quagmire of regulatory difficulties and ambiguities.

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[1] Ibid., pp. 54-55.

[2] Altshuler, Alan, "The Federal Government and Paratransit", Transportation Research Board Special Report 164, p. 95 (1976).

It is possible that as taxi operators move into provision of paratransit services clearly falling within UMTA's definition of "mass transportation," basic protections reflected in Section 13(c) may be extended to the taxi labor force. This would create a whole set of important issues which would impact the feasibility of implementation of new paratransit services.

As taxi labor and taxi operators have moved into areas which fall under the definition of "mass transit" an important confrontation with transit labor has been building. The battleground for this confrontation, where federal (UMTA) funds are involved, has been the negotiation of 13(c) agreements. Transit labor is highly unionized and well compensated (relative to other public sector employees). Taxi employees are significantly less well organized and compensated, on the average. The prospect of paratransit developing largely outside the domain of traditional transit operations, provided by the private taxi sector, is (understandably) frightening to transit union leadership, since it implies using labor at significantly lower wage rates and less generous working conditions, and therefore serves to undermine existing labor standards.

Equally or more important, both conventional transit operators and transit labor view paratransit provided by the private sector as potential competition for (scarce) public subsidy resources and, therefore, a threat to their long run growth and survival.

Transit labor has generally enthusiastically supported paratransit - particularly dial-a-ride - where it was to be provided by union personnel under existing, prevailing working conditions. However, the 13(c) sign-off privilege process has been forcefully used by organized labor to try either to insure that service is union-provided and existing terms of employment are maintained, or to insure that protective "barriers" are placed between conventional transit and paratransit services to limit direct competition and/or assure the protection of the existing bargaining unit size.

There is a clear need for development of a national policy regarding paratransit. That policy must address how paratransit is to be developed and how existing transportation interests (both public, and private; both management and labor) are to participate in the process. UMTA indicated an awareness of this need by its issuance of a proposed paratransit services policy statement;[1] it has also tacitly recognized the complexity of the

[1] Federal Register, Wednesday, October 20, 1976, pp. 46412-3.

issues by its failure to resolve a final set of regulations in the almost two years since then.

The policy statements issued in October, 1976 suggest that several future directions in UMTA policy with respect to paratransit should be anticipated. First, urban areas will be encouraged to more explicitly consider paratransit services where they appear to represent cost-effective alternatives. This is particularly true for services to special market segments and services in areas (or time periods) of low potential demand density. Consideration of paratransit alternatives may be required as part of the formulation of plans in response to elderly and handicapped planning requirements and in the formulation of the TSME.

Second, UMTA will likely continue to press for the participation of private transportation carriers to the maximum extent possible in the provision of paratransit services. UMTA will likely develop an administrative test relating to whether private enterprise has been given timely, good faith opportunities to participate (through a competitive bid process) in the delivery of paratransit services. Similarly, UMTA will likely require the opportunity for private enterprise to participate in the formulation of area wide transportation plans.

Third, Section 3(e) will be closely and carefully applied. Private paratransit operations which meet the definition of "mass transportation" will be protected under Section 3(e), including shared ride taxi, but excluding exclusive ride taxi.

Finally, federal assistance funds under Sections 3 and 5 will be made more generally available for capital and operating assistance to paratransit systems regardless of whether they are publicly or privately owned, so long as the services fall within the definition of "mass transportation" and the projects are recommended through the metropolitan planning organization planning process and included in the TIP.

Federal Funding: Past and Future Impacts

Federally sponsored transportation projects and private taxicab companies often serve similar or overlapping market segments. As a result, subsidized projects can influence taxi operations by effecting shifts in ridership patterns, thereby impacting taxi costs, revenues, profits and employment. Such

changes, which will vary depending on site characteristics, transportation options available and the relationship of service providers, could significantly affect the on-going economic viability of the taxicab companies involved. It is therefore important to understand the interaction between federally subsidized paratransit projects and existing exclusive-ride taxi services.

Access to federal subsidies is almost always easiest for public agencies. Federal funding is usually directed at "designated recipients" authorized to utilize the funds. The transit authority is the normally designated recipient at the local level for UMTA money. HEW money is usually directed to county or regional human service agencies. From the transit authority or the human service agency, funds may flow downward to private for-profit or non-profit transportation operators or service agencies. Federal capital or operating assistance can not go directly to private operators but must be funnelled through public or private, non-profit organizations.

The established flow of funding has tended to cause private operators to be neglected in the course of planning the implementation of paratransit projects. Combined with the tendency of paratransit services to compete with taxicab services for a similar rider market, this has meant that the impact of federal funding has often been detrimental to the taxicab company's operations. Competing paratransit services, publicly provided, have unquestionably eroded some of the normal exclusive ride taxi market. On the other hand, new services provided in the private sector can generate an improved economic climate for the private operator.

The obvious measures of the impacts of an assistance program on the private operator are: ridership, costs, and revenues. Implicit in these figures of course, are employment and profits. The carrier may also be concerned about qualitative changes in the character of the service that the company offers.

The actual dollars and cents impact of a federally funded project on a private operator is a product of many specific details, including:

- Relative service and pricing characteristics of the new service and existing modes
- Identity of the service providers
- Site-specific demographic characteristics

The evidence suggests that there is great variability in the impact on taxi usage depending on local circumstances. Between 0 and 34 percent of demand responsive transportation (DRT) users indicated that their former mode was a taxi, with an average of about 15 percent. This is slightly less than the average of about 17 percent of users who had not taken their trip before the start of the new service. It is about half the diversion rate from the private auto and is substantially less than the rate of diversion from walking trips. However, it is much greater than the loss to bus ridership. Altogether, though, the conventional public transportation modes - bus and taxi - provided only about 20 percent of the "new" mode's riders. This dramatizes the value to the private operator of gaining the new market. Specifically, it suggests that by providing the DRT service, the taxicab operator can potentially increase ridership by five or six times the number of riders which the company would otherwise lose.

Getting Involved

If private operators are to share in a significant portion of the paratransit service market, they must demonstrate to the community in general and to agencies and planners in particular that the private sector is capable and willing to provide quality transportation at a reasonable cost. Part of this marketing effort should include demonstration of the various forms of coordination which are possible and which are described throughout this report.

The taxicab operator should become involved with both the Metropolitan Planning Organization (MPO) and local human service agencies in order to demonstrate when and where the private sector can offer a worthwhile alternative. This planning process involves not only development of well-organized and coordinated services, but also establishing the private sector's credibility as a competent source of reliable, high quality transportation. Finally, a coordinated planning effort can help to address and alleviate specific problems (such as taxicab driver turnover) that are of mutual concern.

Both the initial marketing effort and subsequent contractual obligations with the public and non-profit sectors will require a significant commitment of additional administrative overhead costs on the part of the private operator.

While the initial cost may have to be absorbed as a loss, the ultimate rewards of seeking to tap this new market should justify the investment. Publicly supported paratransit services may become part of the backbone of tomorrow's taxicab industry.

1.0 Introduction and Background

Public Transportation in most major urban areas historically has been dominated by two types of service: mass transit (i.e., fixed route bus service) and taxicabs. Until the mid 1960's, both modes were generally operated on a for-profit basis by the private sector. Regulations governing these services often had not been updated since the post-war period.

In the mid 1960's, declining profits of urban transit systems led to a widespread public takeover and accompanying subsidy program. This of course necessitated an upsurge of legislation to handle the changing character of the mass transit market. Most significant was the (federal) Urban Mass Transportation Act of 1964, since amended. The taxi industry, however, did not undergo any such upheaval, and remained largely ignored by the public sector. Taxicab regulatory policy experienced only sporadic and minor attention, primarily in the form of occasional tariff adjustments.

In recent years, the picture has been changing rapidly for both taxicab companies and mass transit. Rising costs and declining revenues are putting similar pressures on the taxicab industry as were experienced by private bus companies just over a decade ago. Today, however, the social climate has changed - perhaps history teaches a lesson - so that public takeover of the taxicab industry is not seen as a satisfactory solution. Instead, a variety of responses are sought to rejuvenate the operations of the private sector.

The responses that are being proposed fall along several broad lines of effort. These include, but are not limited to:

- Service and Equipment Responses: The exclusive ride taxi operation does not appear to be adequately responsive or cost efficient to meet changing market needs on a profitable basis. Taxicab owners are seeking new types of services which can be more effective. These services are diverse in nature and are generally designed to fill a perceived gap between high-priced, high quality exclusive ride taxi services on the one hand and low priced (for the user, at least), no-frill mass transit on the other hand. The general term applied to these services is paratransit. The delivery of new services is coupled with updated operational approaches. These may include new types of vehicles, such as vans and lift equipped minibuses, and other equipment, incuding automatic telephone machines and computer-aided dispatching, and computerized record keeping.

- Organizational Responses: Traditionally, taxicab companies in major cities operated on a completely self-contained basis. The company owned, maintained, and dispatched its own fleet of vehicles (typically, four-door sedans). Drivers were generally paid on a commission basis. Today, taxicab owners are experimenting with leasing arrangements, where the drivers are contractors rather than employees; or owner-operator associations, which provide central dispatching and/or maintenance services to individual owner-drivers. Also, taxicab companies are offering to sell individual services (such as maintenance or dispatching) to other groups, such as human service agencies with vehicle fleets. This marketing of centralized services for a variety of external purchasers is often termed "brokerage."

- System Integration Responses: Through coordinated interaction with public planning and operating agencies, aggressive taxicab owners are helping to create new markets by designing paratransit services that can effectively and positively interact with an existing mass transit system. Principal concepts being tested at the time of this writing include feeder services, alternate offpeak services, augmenting low density area services, and special market (e.g., elderly and handicapped persons for whom mass transit is physically inaccessible) services.

- Subsidy Responses: Through contract or agreement with the public sector, taxicab companies are able to provide service to the general public or select groups thereof, at fares which do not cover costs. The difference between revenue and cost is made up by the public sector either through payment of a general "supply-side subsidy" to the private operator or through a "user-side subsidy" to individual passengers. The channeling of public subsidies through the private sector provides an interesting contrast with the public takeover response used in the public transit industry fifteen years ago.

- Legal/Regulatory Responses: To permit many of the innovations described above, old rules need to be updated and new laws need to be considered. The old style of carrier and vehicle type regulation needs to be replaced with service and equipment standards regulation. This permits existing or new carriers to operate multiple services and use flexible fleets (i.e., subject to equipment safety standards, use the most suitable vehicles available for any given service). New services must receive formal legal recognition, so that carriers and potential carriers can know to what, if any, regulations they must adhere.

The future of the taxi industry rests heavily upon its ability to develop the new markets embodied by the term "paratransit". It is ironic, but not coincidental, that new paratransit services are being implemented even as conventional modes are facing economic crises. The large deficits often incurred by public mass transit properties and the increasing incidence of private taxicab company failures is testimony to the increasing sophistication which public transportation must achieve in order to compete with the private auto.

Paratransit services are designed to respond to the range of travel demands that have failed to materialize on conventional modes. A paratransit service may be a carpool or vanpool, to reduce congestion, pollution, and parking problems caused by individual commuters. It may be an "accessible" door-to-door service, to allow handicapped persons to get out of the house to needed services or for recreation. It may be feeder service, to broaden the market for transit without having to extend the latter into low density, high deficit suburbs. It may be offpeak service to make public transportation available during periods when fixed-route bus service is prohibitively expensive. It may be shared-ride taxi service, to offer a compromise for those who need door-to-door service, but who cannot afford an exclusive ride service. It may be some other form of hybrid service designed to serve the specific needs of a community -- to "give the customer what he wants". In any case, paratransit is here to stay. It represents an evolution of conventional modes, and if conventional carriers are to survive they must be prepared to evolve with it.

A Coordination Primer is written to help explain to taxicab owners and other interested groups what the evolution of paratransit is all about. Specifically, it is written to show what the impact of paratransit on conventional

taxicab operators will be either if they do or if they do not capitalize on the opportunities which paratransit presents. The Primer takes the position that the private sector can and should move into this arena, and that it might be fatal for some carriers if they do not.

More than that, the Primer is intended to offer constructive information that will help both the public sector and the private sector to mutually utilize each other in simultaneously pursuing their own objectives and the public good. To that end, the Primer contains the following information:

- A description of several basic paratransit concepts that may be appropriate for a community; a discussion of how paratransit and conventional modes may be integrated to form a "family of services"; and a review of the broker concept for overall management of a transportation program with multiple carriers and services. (Chapter 2.)

- A discussion of the elderly/handicapped transportation market, including an overview on the variety of ways in which professional transportation companies can interact with human services agencies that may (or may not) own their own fleets; and a brief commentary on certain historical conditions that the taxicab industry might appropriately restructure to facilitate serving this particular market. (Chapter 3.)

- An introduction to the types of relationships which may be developed between the public and private sectors in order to allow public sponsorship of a service operated by private carriers. Although the public sector has traditionally been limited to a regulatory position, it is increasingly looking to take a more active role in making service available by negotiating contracts with the private sector and/or offering subsidies to encourage the provision and use of public transportation. The Primer describes some of the alternative approaches to establishing contracts between private operators and public (or non-profit) agencies. It reviews and identifies key areas of concern from each perspective (public and private). (Chapter 4.)

- An analysis of the general nature and potential impacts of various common state and local regulations on transportation providers as they seek to provide services that were not even conceived of when most of the regulations were written. Although there are many basic similarities among states, the outcome of an issue may hinge upon very specific language in a particular statute; even within the same state (California), two landmark cases have had conflicting outcomes. The discussion in the Primer identifies underlying legal philosophy, but strongly cautions the reader to check local regulations very carefully. (Chapter 5.)

- An overview on the federal public sector process by which paratransit may be planned, authorized, and funded. It is well recognized at this point that the private sector too often has been ignored in the public planning process. The private sector can speed the process of correcting this situation if it understands the bureaucratic process and learns how to introduce itself into "the system". (Chapter 6.)

- A review of the federal legal/regulatory background. Much of the public money used to sponsor paratransit systems from federal legislation. Particularly if this money comes from the Urban Mass Transportation Administration (UMTA), it will carry with it a number of stipulations that must be observed. These include protections to private enterprise and to (public and private) labor. Whether or not a taxicab operator wishes to provide paratranist service, s/he should be aware of the conditions attached to UMTA funds as they relate to existing carriers. (Chapter 7.)

- A framework for identifying and measuring the impact of a new paratransit service, including documentation of experience in a number of operational case studies and presentation of some projections using (hypothetical) examples. (Chapter 8 and Appendix B)

- A list of steps which a private operator may take in order to get involved in the public planning process and ultimately to develop public and non profit sector business (Chapter 9.)

The Primer is written primarily for the private for-profit transportation operator. It has been written with the intent to provide a perspective on the changes that have been taking place in the urban transportation marketplace, the responses to date, and other responses that are possible or desirable. The report analyzes problems within and without the taxicab industry that have often made quick market adaptation difficult.

In some sense the Primer is a "how to" manual. While generally stopping short of step-by-step procedures, considerable space is devoted to providing enough insight into what makes both the public sector and the private sector "tick" so that both sectors might be in a better position to understand how to go about establishing cooperative and productive planning efforts as well as contractual operating relationships. For this reason, the report should also be of value to certain segments of the public or non-profit sectors that may find they can usefully purchase services from the private for-profit operator. This report has been prepared with the hope that all sectors can benefit from better understanding of the issues.

2.0 Developing a Family of Services

2.1 Introduction

At one time, there were generally only three ways that people could get around a city or town: the fixed route bus, the exclusive ride taxi, and the private automobile. The increasing interest in paratransit services which has developed over the past decade reflects, in part, an increased sensitivity to the diversity of travel behavior. In the post-war decades, planners focused their attention on very broadly defined travel markets (e.g., peak/off-peak trips and work/non-work trips). More recent studies of travel behavior recognize the profound importance of a wider range of individual characteristics which influence travel behavior.

The trend towards more narrowly defined "market segments" has been accompanied by the realization that the range of transportation services may be much broader than the conventional fixed route bus, taxicab, and automobile options. By implementing a hybrid service that responds specifically to the needs of a particular community, public paratransit may lure more people out of their private automobiles. Concepts such as carpooling and vanpooling are also considered paratransit; they reflect the same objective of efficient, convenient service but recognize that it is often either impossible or inappropriate to abandon private forms of transportation.

This chapter provides an overview on some of the issues involved in developing an integrated "family of services" for a community. Section 2.2 describes five examples of paratransit service concepts that have been tried to date in the United States and Canada. Section 2.3 discusses how paratransit services such as these can be targeted at specific travel markets. Section 2.4 then

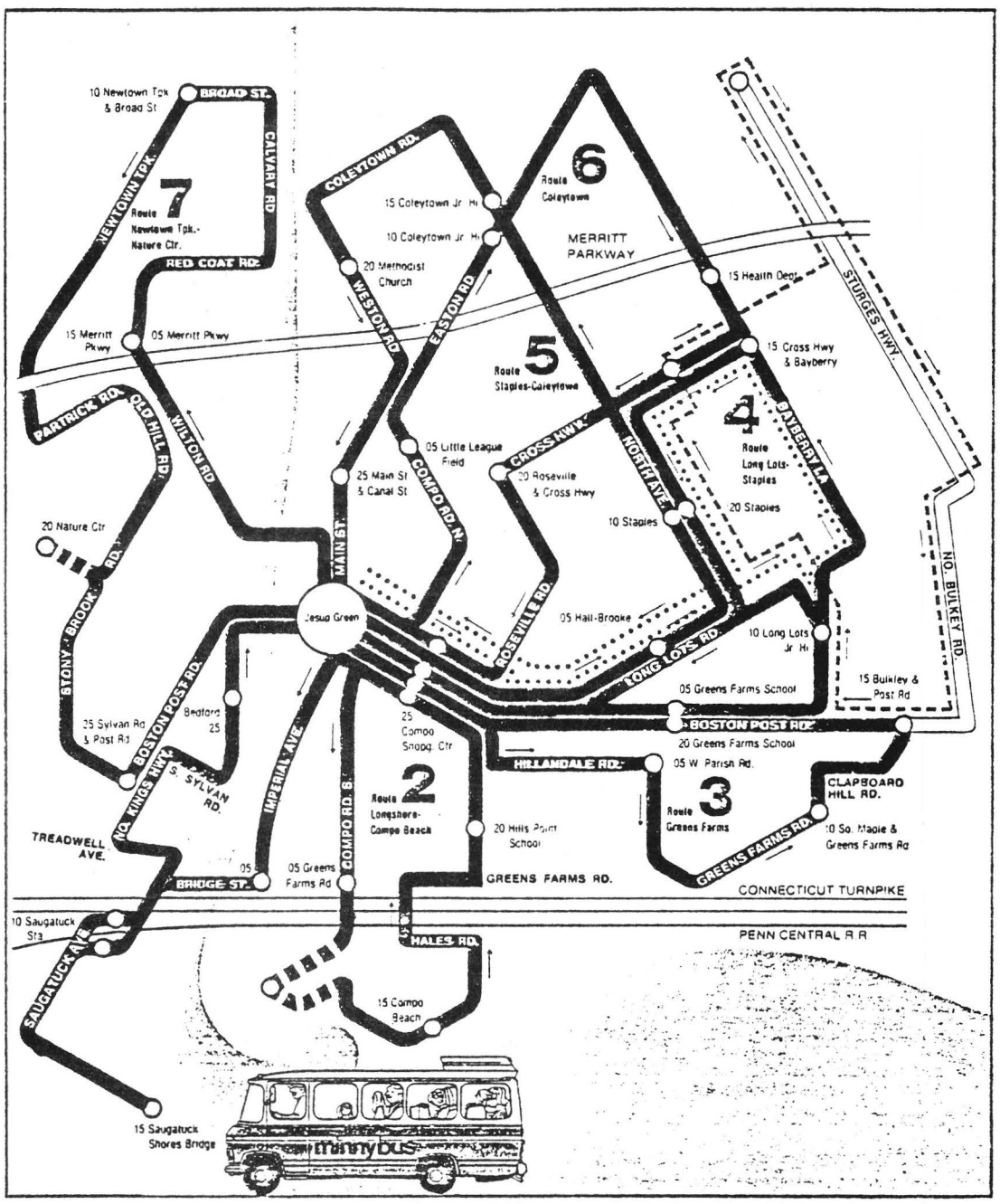
talks about how to facilitate transfers among services that are offered. Lastly, Section 2.5 describes the brokerage concept, which is a management technique for making the coordination of transportation and related (e.g., information) services possible.

2.2 Examples of Paratransit Service Concepts

A paratransit service must be designed carefully so that it is tailored to serve the market for which it is intended. This section describes five basic service concepts that have been tried to date. Subsequent chapters will address issues surrounding who provides and pays for paratransit. The intent here is simply to describe some of the kinds of paratransit services that might be implemented and the relationships among different services. The five service concepts described in this section are intra-community fixed route systems, route deviation systems, point deviation systems, area-wide dial-a-ride systems, and zonal dial-a-ride systems.

Intra-Community Fixed-Route Systems (Figure 2-1) typically provide loop service within a suburban community. This accomplishes two things. First, it serves intra-community needs in contrast to mass transit fixed routes that provide radial line-haul service into a nearby central city. Second, it offers feeder service to the mass transit system. The fixed route paratransit system offers a scheduled service within a community parallel to what mass transit offers to points outside the community; smaller vehicles are used to reflect the lower levels of demand. Places that have tested this type of service include: Amherst, Massachusetts; Evansville, Indiana; Gaithersburg, Maryland; Silver Spring, Maryland; and Westport, Connecticut.

Route Deviation Systems act much as fixed route systems do, but offer a limited amount of demand-responsive service. Vehicles travel a basic fixed route and stop at major points according to a pre-arranged schedule. Vehicles will deviate from their route to provide door-to-door service upon request; however, they must return to the route at the point at which they left it. This means that additional slack must be built into the schedule and the time a vehicle passes various interim mileposts of its route is less predictable. Nonetheless, patrons can still walk to any point on the route and hail the vehicle much as they would with a fixed route system. Route deviation systems do not have extensive application at present; they have been tried in places such as Mansfield, Ohio; Rochester, New York; and Medford, Oregon.



Here's where and when to find the Minny

The numbers indicated at each point represent minutes from Jesup Green. Buses on the Daytime Route depart from the Minny Terminal at *7:45 8:20 8:55 9:30 10:05 10:40 11:15 11:50 12:25 1:00 1:35 2:10 2:45 3:20 3:55 4:30 5:05 *5:15 *5:50 *6:25

*not on Saturdays

Figure 2-1
Westport, Connecticut Intra-Community
Fixed Route Service (Daytime)

Point Deviation Systems (Figure 2-2) utilize a series of checkpoints, typically spaced about one-half mile apart. The vehicle will deviate upon request between these checkpoints; unlike a route deviation system, the vehicle has no guaranteed basic route between checkpoints. Thus, the two means of accessing a point deviation system are through phone request or walking to a checkpoint; street hails are infeasible. The most notable example of a point deviation system to date is Merrill, Wisconsin.

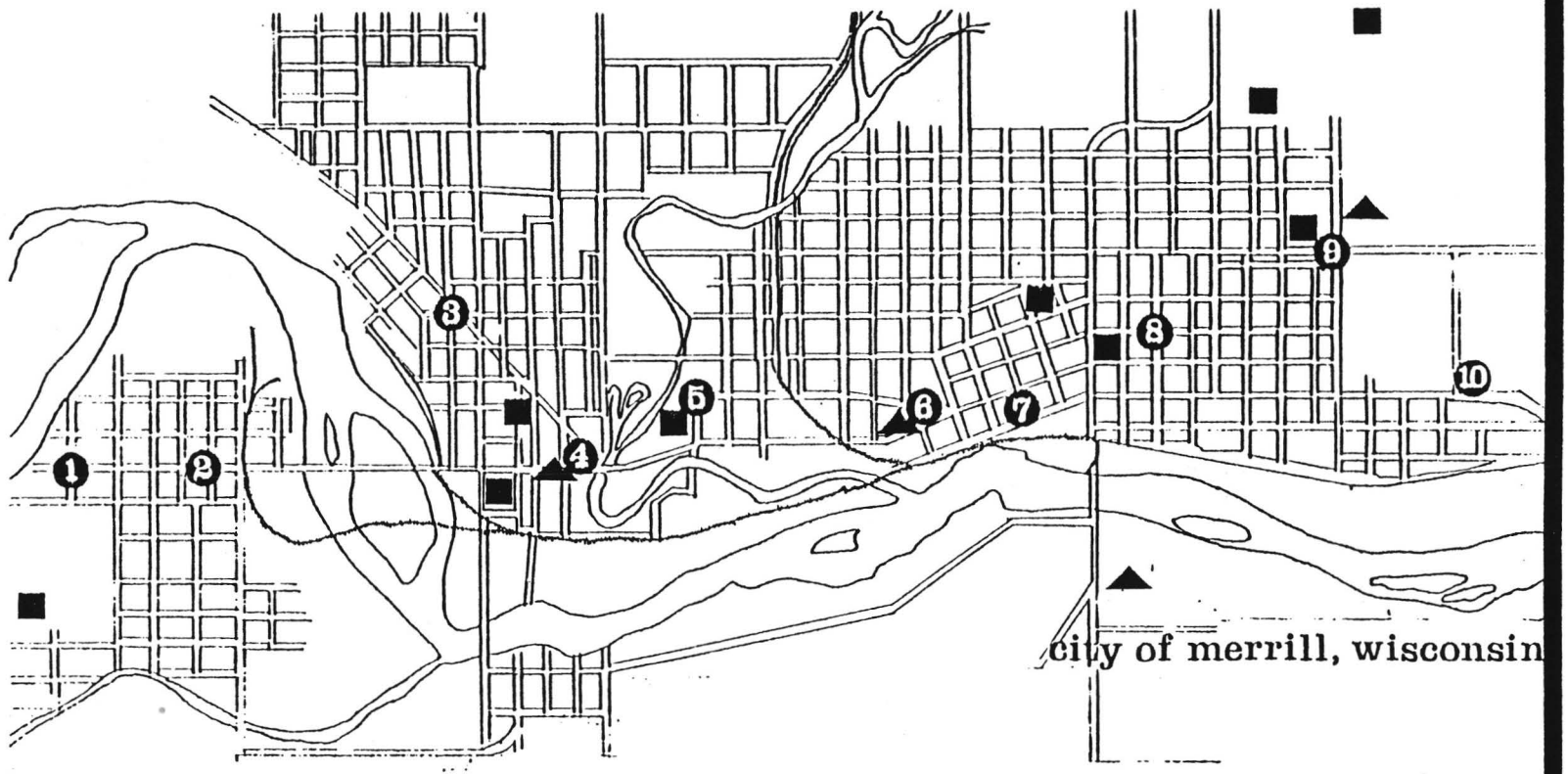
Areawide Dial-a-Ride Systems (Figure 2-3) offer completely demand-responsive service with no scheduled stops. Stops at major locations are upon request only. This "many-to-many" type of service is useful where most trips are between random locations rather than focusing on specific activity centers. Shared ride taxi service is often used to provide dial-a-ride service. The Miami STS service described in the next section is an example of this type of service.

Zonal Dial-a-Ride Systems (Figure 2-4) may be better than areawide dial-a-ride systems if the service area is large enough to be broken into smaller areas each of which has a majority of local trips. With a zonal system, vehicles should be coordinated to meet at pre-arranged times on zone boundaries for transferring people who want to go from one zone to another. Vehicles can meet at transfer points either on a scheduled basis or at the control of a central dispatcher. Current examples of zonal dial-a-ride systems include Ann Arbor, Michigan; Rochester, New York; and an elderly/handicapped service in Cleveland, Ohio.

2.3 Serving Multiple Markets

The objective of a paratransit service should be to serve the market for which it is intended in as efficient and effective a manner as possible. This requires tailoring the service appropriately for the identified needs. The tailoring process implies that the service should not attempt to be "all things for all people". Any given service concept will be the optimum design within a limited range of demand characteristics only; outside of this range the service may be less effective and may also conflict with existing services.

There are a number of techniques to ensure that each transportation service in a community will be provided only to that segment of the market for



legend

- checkpoints
- schools
- major demand generators

Figure 2-2
Merrill, Wisconsin Point Deviation System

Zones:*

(1) assigned carrier for nonambulatory

(2) assigned carrier for semi-ambulatory

(3) tory

*for dispatching purposes only, no passenger transfers necessary

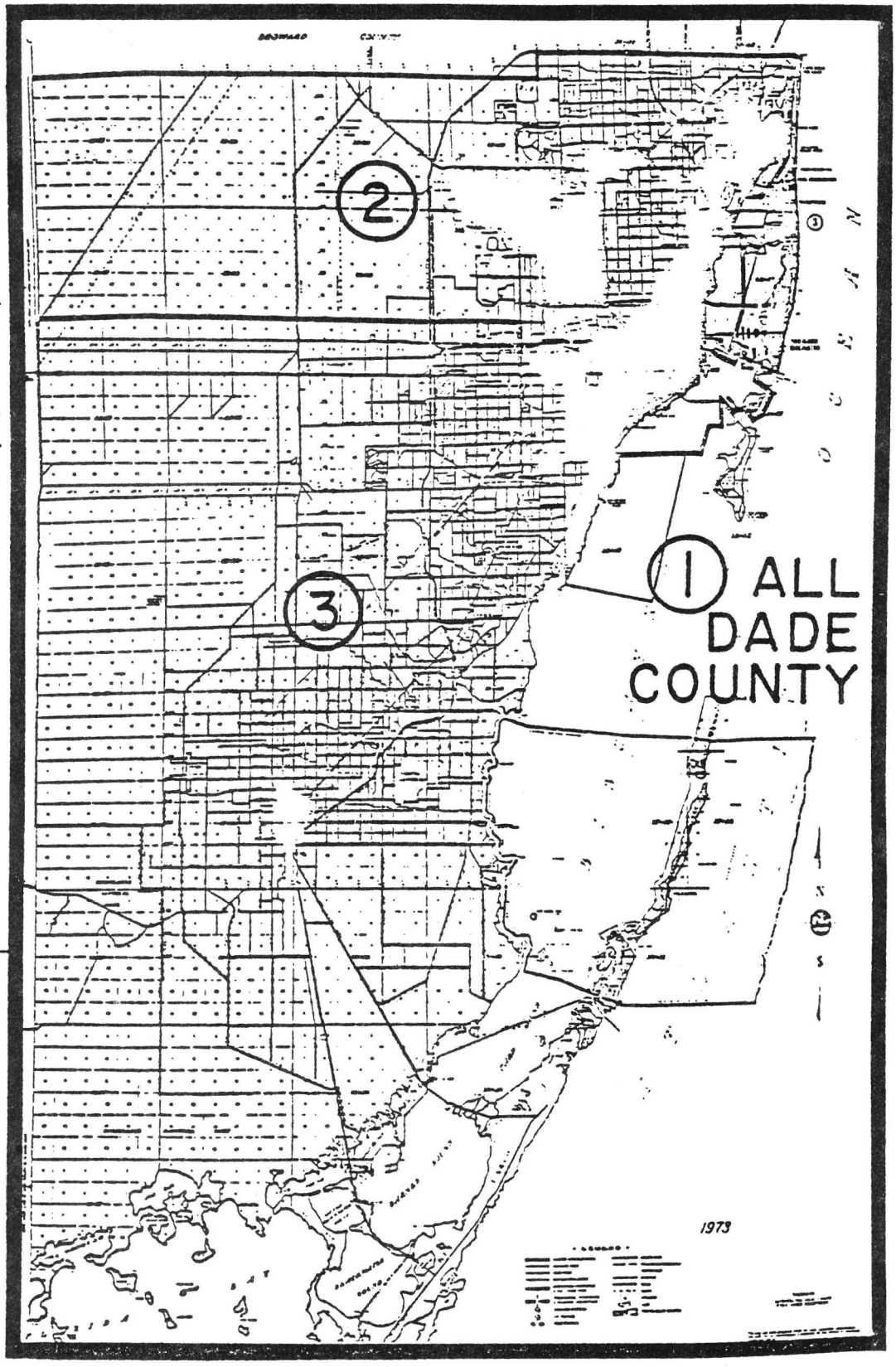


Figure 2-3
Miami, Florida Area-wide Dial-a-Ride Service

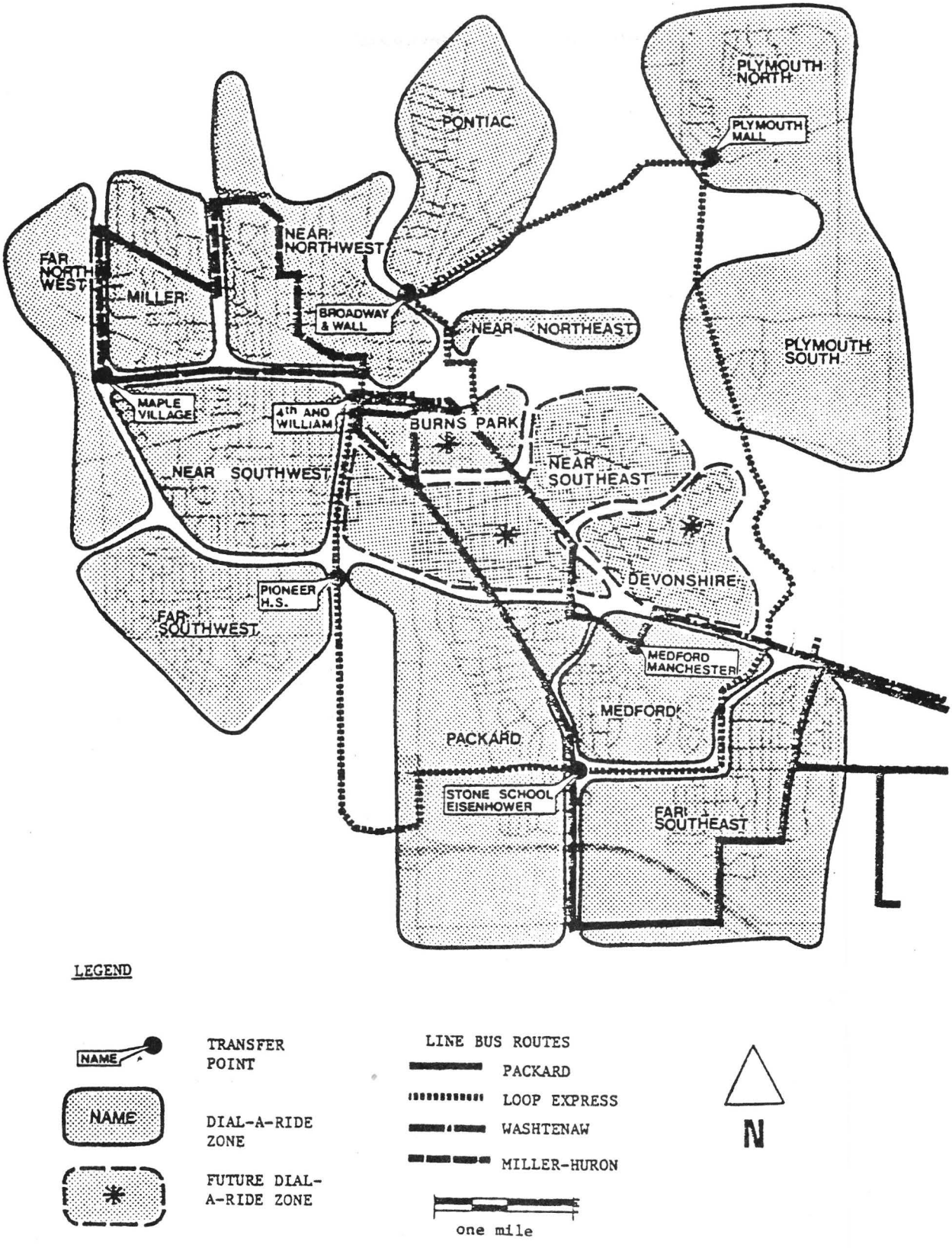


Figure 2-4
Ann Arbor, Michigan Zonal Dial-a-Ride System

which it is most appropriate. The overall market can be broken down as follows:

- Service Area: Different service concepts can be tailored for different parts of the service area. For example, conventional modes could serve high density core areas and radial central business district (CBD) bound travel needs, while paratransit could be provided in lower density suburbs.

- Time of Day: Different services can be provided at different times of day. For example, conventional services can be provided at peak hours of maximum service demand, while paratransit could be provided at off-peak, evenings, or weekends.

- User Groups: Different services can be provided simultaneously in the same area, each targeted and tailored to distinct markets. For example, conventional services could provide "basic" service, with a "special" paratransit service for elderly and handicapped markets "overlayed" on the "basic" service. Careful attention to pricing as well as service characteristics can help to minimize conflicts among different services.

Successful service integration concepts simultaneously employ all three of these concepts, recognizing the diverse character of travel demand as characterized by variations in spatial location, time of day, and user characteristics (i.e., demographic characteristics and trip purposes).

Spatial integration between public and private operators has been demonstrated in a number of different locations over the past five years. In Peterborough, Ontario, a shared ride taxi feeder service to the termini of a conventional transit route is provided by a local cab company operating under contract to the city.[1] In January, 1974, the city implemented a new set of radial fixed bus routes and simultaneously eliminated the major "perimeter" route to an outlying suburban area, replacing that suburban service with "Trans-Cab" service (Figure 2-5). The Trans-Cab uses regular taxi vehicles to pick up people within the service area and drop them off at predetermined bus stop transfer points; passengers must call for (inbound) service at least one hour prior to the scheduled departure time of the bus from the

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[1] For more information see: Peterborough Trans-Cab Demonstration Project Monitoring Report. Ontario Ministry of Transportation and Communications, (June, 1975). Also, "Trans-Cab: An Integration of Transportation Services within Urban Centers", paper presented to North Carolina Transit and Taxi Conference, April 1978 by John Stevenson, Manager, Border Transit Limited.

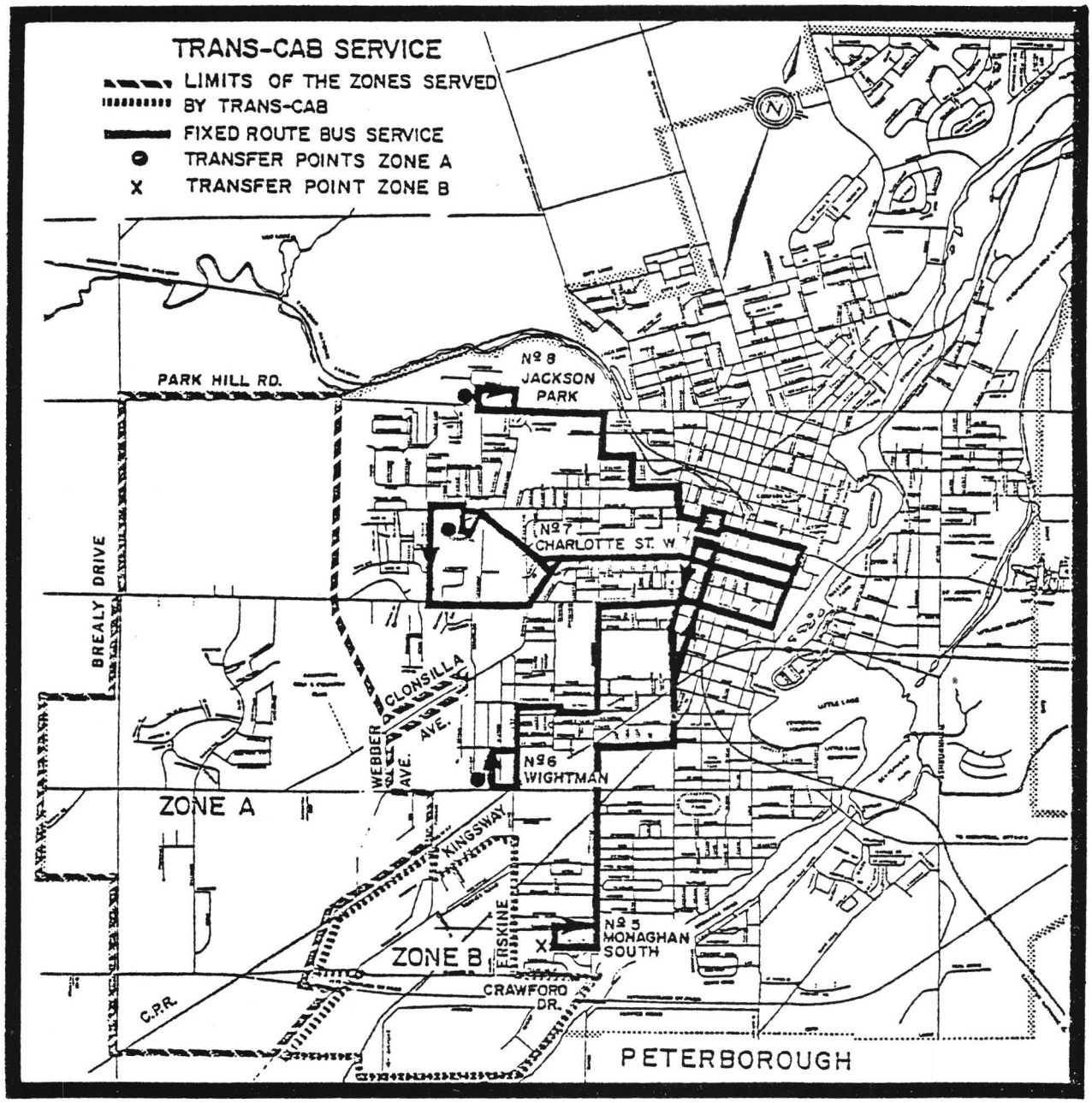

Figure 2-5
Peterborough, Ontario Transit Feeder Service

transfer point. On the return trip, the bus driver notifies the Trans-Cab dispatcher (by radio) of the need for service and a Trans-Cab meets those passengers at the transfer point. Trans-cab feeder service is operated at a 10¢ fare premium over the regular fixed route fares (except for senior citizens, who receive the feeder service at no additional charge).

The cab company receives payment from the city for "live" passenger miles at a pre-specified rate (including a dispatching charge for each passenger and a mileage charge). The cab company (and rate schedule) was selected through a competitive bid process. Average ridership approximately tripled that of the previously existing fixed routes during the first year of the demonstration; deficit per passenger was reduced from $2.34 to $0.60, and recovery of costs rose from 8% to 32%.

Recent innovations in Chapel Hill, North Carolina exemplify "temporal integration" options and suggest important roles for the private provider in these strategies. In August, 1977, evening fixed route bus service in Chapel Hill (population 40,000) was discontinued and replaced by a "route deviation" service operated by a private taxicab company (under contract to the transit operator). Taxicabs operate over the daytime transit routes and carry passengers between points on those routes for a $.25 fare; prepaid transit pass holders may use their passes in lieu of this base fare; an additional $.35 is charged for each deviation from the "normal" route for either a pick-up or drop-off. The preliminary results of the demonstration program have been mixed; although costs per passenger have risen, total operating deficits have been reduced, due to the ability to more closely "tailor" the level of supply to the level of demand. A similar program is in the planning stage in Madison, Wisconsin.

Examples of "user group integration" are more numerous. Specialized demand responsive transportation systems oriented exclusively to elderly and handicapped individuals are operated by a variety of public and private providers. Specialized systems of varying sizes and design operate in nearly every metropolitan area. A major issue which has arisen as these services have proliferated is the coordination of multiple providers and the appropriate role of private operators. In some jurisdictions -- most

notably Cleveland and Miami -- major areawide specialized services have been implemented under the auspices of the public transportation agencies. The two systems employ very different approaches to involving the private sector in the provision of services. The Cleveland system is operated by both public and private operators; a private carrier selected through a competitive bid process is responsible for providing demand responsive service in approximately 40% of (suburban) Cuyahoga County; the conventional public operator provides demand responsive service in the core area, as well as operating the centralized control center. In Dade County (Miami), Florida, the entire areawide specialized service is operated under contract to private providers. Separate contracts were competitively awarded for areawide control room services, areawide chair carrier (handicapped) services, and geographically sectorized elderly (non-handicapped) services.

The Dade County (Miami), Florida "Specialized Transportation System" (STS) was inaugurated in June, 1976. The program was carrying approximately three hundred trips per day by mid 1977, using advanced request and subscription vehicle dispatching techniques. A total operating budget for the county-financed program was approximately $540,000 for the first ten months of operation.[1]

2.4 Service Integration Techniques

Several different types of service integration are possible for areawide systems which seek to coordinate either separate paratransit components or paratransit and conventional fixed route transit. These operational strategies are designed to facilitate transfer of patrons between modes whenever necessary. Two basic techniques may be employed:

- Cycled Transfers (see Figures 2-6 and 2-7). Demand responsive (DRT) services operate on a timed cycle which brings each vehicle to a specific transfer point on a regular, predetermined basis. The transfer point, usually located at a major trip generator, joins different DRT zones and/or a DRT zone with a fixed route service. The DRT vehicle's "tour" is selected before the vehicle

[1] For more information on the Miami STS system see: Special Transportation Service Operations Report, Office of Transportation Administration of Metropolitan Dade County, (August, 1977).

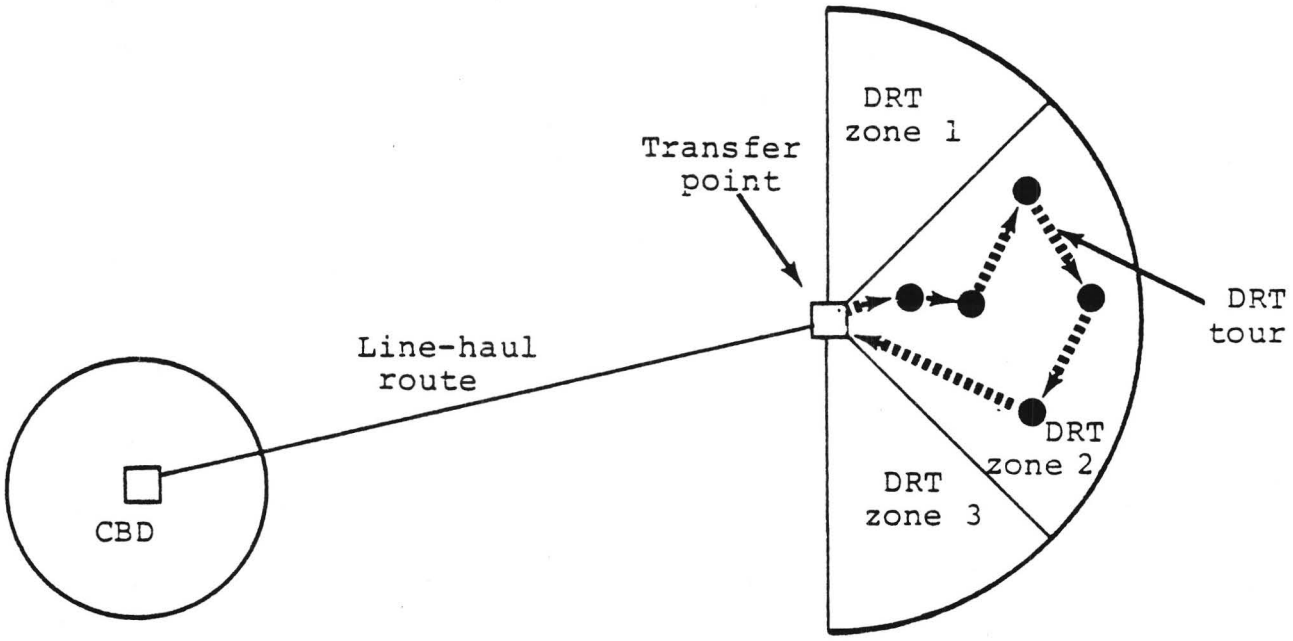

Figure 2-6. Regina DRT Configuration with Cycled Transfer

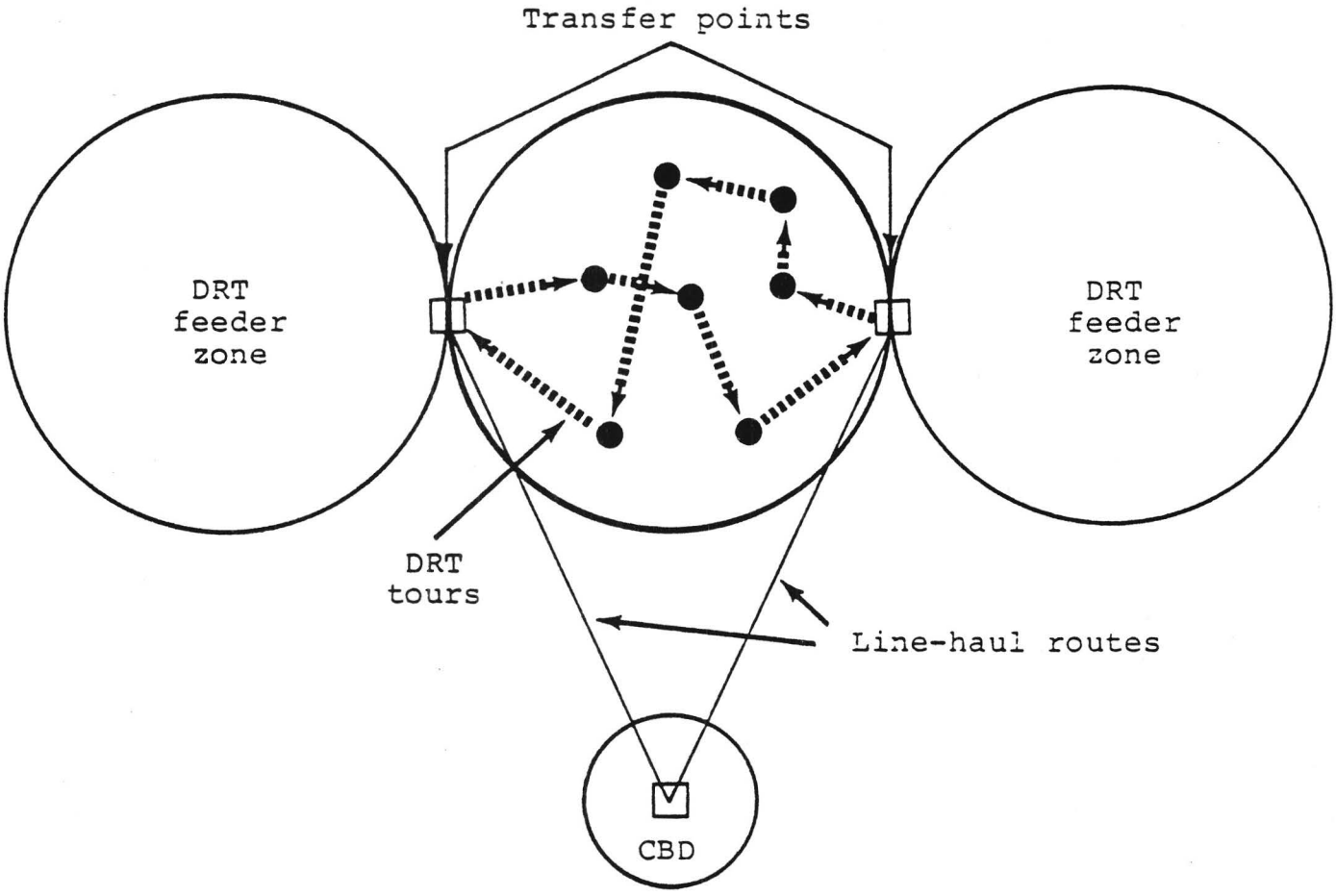

Figure 2-7. Ann Arbor DRT Configuration with Cycled Transfer

leaves the transfer point. This requires a reasonable amount of advance notice for scheduling. Service within the DRT zone may be limited to many-to-one service (generally depending on zone size, demand density, and the distribution of trip generations within the zones). Alternatively, DRT vehicle cycles (and tours) may be defined to bring vehicles to several different transfer points at different ends of the DRT zones. The former strategy is used in many Canadian "integrated areawide systems" (notably in Calgary, Regina, and Bay Ridges), while the latter strategy is employed by the Ann Arbor, Michigan system.

- Dynamically controlled Transfers: In contrast to the "cycled" systems which act largely as feeder elements to fixed route systems, areawide integrated service can be provided with dynamic dispatching (i.e., vehicle assignment is made at time of request, rather than allocated to a future tour) and full many-to-many service within the DRT zones. The Rochester system has utilized both human and automated control systems to attempt coordinated transfers at DRT/fixed route transfer points. Full, many-to-many DRT service is provided within the DRT Zone. (See Figure 2-8).

The cycled (fixed route, route deviation, and point deviation) systems are generally more reliable in terms of being able to predict pickup time and coordinating transfers between vehicles; however, average wait-times may be longer than for dynamically dispatched (areawide and zonal dial-a-rides) services. Also the spatial responsiveness (travel opportunities) are more limited for cyclical services than for many-to-many services. This means that the user-perceived reliability of cycled, many-to-one or many-to-few services is superior to more dynamic service, but this must be balanced against inferior responsiveness to going where people want to go and in some cases, average wait time. The relative value of reliability versus spatial responsiveness and wait time can only be determined in the context of local travel needs. Also, although service time and space responsiveness are limited through cycling and adoption of many-to-one (or many-to-few) scheduling procedures, potential productivity may be increased. Thus, potential reduced costs (user and/or operator) may also enter into the tradeoff between many-to-one operations and many-to-many systems.

The need to coordinate schedules among different services decreases as service frequency increases. Given the natural schedule problems which occur in all forms of transit operations, perfectly coordinated transfers between vehicles -- although very desirable for users -- are generally very expensive

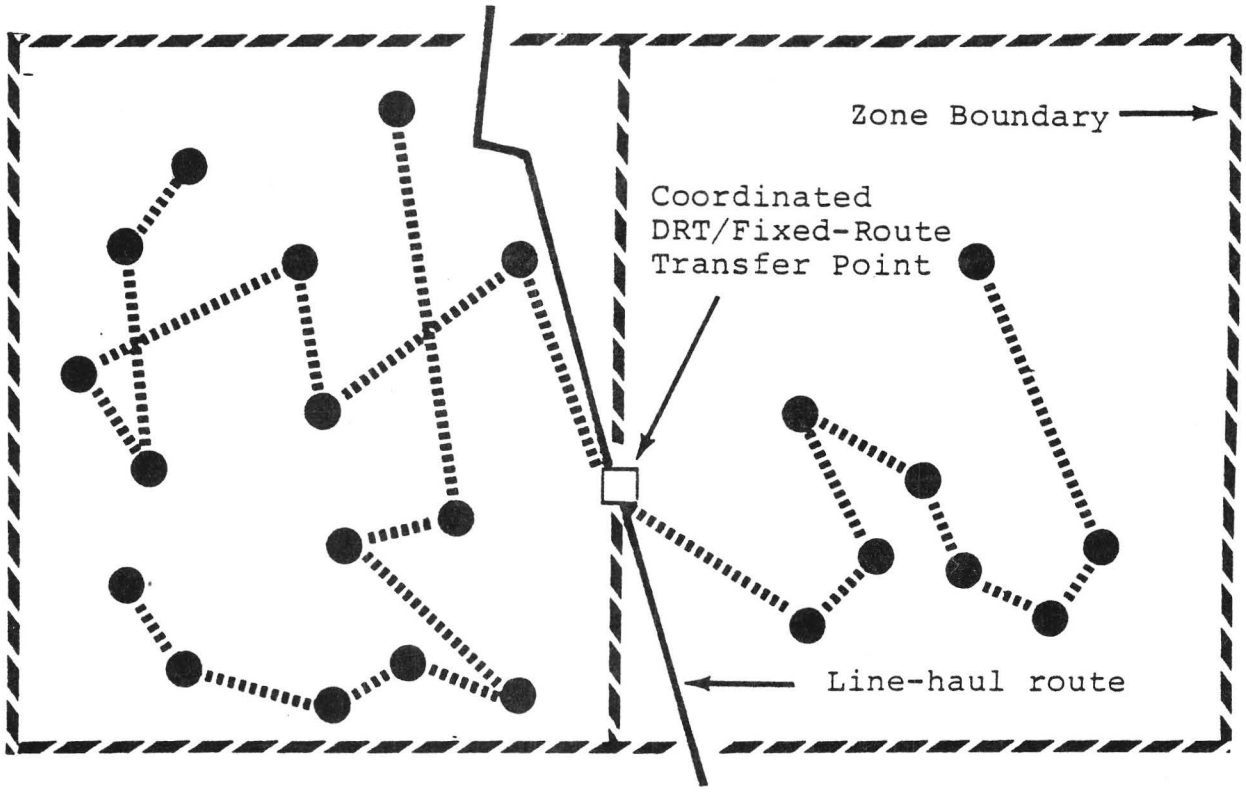

Figure 2-8. Dynamically-Routed DRT with Coordinated Transfer

to provide, since the schedule variance of two (or more) vehicles must be considered in scheduling the transfer.[1] As service frequency at a transfer point increases, average wait times decrease. The user-perceived penalty for missing a particular vehicle will decline. Therefore, it may make more economic sense to build comfortable transfer facilities than to perfectly coordinate vehicle-to-vehicle transfers. (This is not to say that schedules should not be coordinated -- only that dead "recovery" time should be minimized, since it is inherently non-productive and quite labor-intensive as well.)

Fare policy coordination and consistency is an obvious, although frequently overlooked, element of making intermodal travel easier for the public. Fare policies on different system components should, as much as possible, embody the following attributes:

- Consistently reflect the (relative) value and cost of different services provided
- Reflect prevailing social equity norms implicit in public policy objectives
- Be easily understood by the general public; and
- Be easily implemented from both operational (supply) and user (demand) perspectives

These attributes are easily recognized by most decision makers as desirable, but a complex system with many different operators and services often makes good fare transfer arrangements impossible.

2.5 Coordination Management Techniques

A coordinated range of conventional and paratransit services cannot be sustained in a complex urban environment without a central guiding influence. The input of all potential sources of supply is needed in the planning stages to develop a coordinated program, but the central force presumably

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[1] If one assumes that there is an average variance of five minutes in an hourly scheduled tour of a vehicle, nearly ten to fifteen percent of vehicle operating time may have to be scheduled as "recovery time" or slack/dead time at the transfer point in order to meet a service standard that 65% of all transfers occurring between vehicles will not require outside exposure to passengers.

typified in the planning process by the MPO needs a counterpart in the operational phase.

Recently the concept of a transportation "broker" has been proposed and tested in a limited number of places to meet this need.[1] A broker can fulfill a number of useful roles in coordinating the ongoing operation of transportation services. Depending on the local situation, the broker may be useful to perform any of the following:

- Identify "gaps" in the transportation supply system, i.e., discrete market segments of demand that are unfulfilled
- Design services to respond to supply "gaps"
- Identify (through a bid process or other means) appropriate carriers to provide services
- Facilitate inter-carrier and inter-service cooperation so that where the public must use several services on any given trip, the transfer process will be as painless and convenient as possible
- Assist the riding public in matching its needs to available resources. This involves some form of information clearinghouse service. For example, the broker might maintain a carpool rider matching service. It might also direct elderly and handicapped persons or the general public to sources of public or non-public (e.g., volunteer) transportation resources available to meet special travel needs
- Improve the operational efficiency of similar services provided by independent carriers, through a centralized marketplace concept. This might involve assigning different geographic areas to different carriers (e.g., by central contracting), assigning trip requests more effectively among carriers and vehicles (e.g., by central dispatching), or other techniques as appropriate
- Improve the cost effectiveness of independent carriers through sale of other central services. For example, a broker might assist in standardized purchasing, centralized maintenance, uniform accounting, or other procedures designed to help identify and lower or eliminate wasteful sources of carrier costs.
- Provide a forum for improving the short-run responsiveness of existing supply to the needs of the community by documenting consumer dissatisfaction and following up as necessary

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[1] Two early examples of this which have received widespread notice are Westport, Connecticut (described in this section) and Knoxville, Tennessee. For more information on Knoxville, see The Knoxville Transportation Brokerage Project, Volumes I-III, U. S. Department of Transportation, Washington, D.C., 1977-8. Also of interest is a forthcoming USDOT evaluation report on the Knoxville project prepared by Multisystems, Inc.

- Provide input to areawide planning efforts to respond to long-run changes in travel needs.

Depending on local conditions and the services which the broker is to provide, it could be located in one of several institutional settings. Some of the services which embody significant attributes of a "public good," such as the information clearinghouse and the short and long range planning efforts, could be appropriately located within a public organization (e.g., a regional transportation authority). Other services, such as central purchasing and maintenance, might be better provided by a private organization, perhaps selling its services for a profit. In either event, the broker can fulfill a crucial role in initiating and maintaining cooperative efforts among carriers to facilitate the coordinated delivery of transportation.

Perhaps the most complete example of the "integrated system concept" is reflected by the service development program recently implemented by the Westport Transit District (Westport, Connecticut).[1] In 1974, the Westport Transit District began operations with two types of fixed route services provided throughout the suburban community of 28,000: daytime services were provided on seven loop routes which simultaneously "pulsed" on the central business district at thirty-five minute intervals; peak hour services "pulsed" on the railroad station at time intervals scheduled to meet commuter trains to (and from) New York City. In 1977, after two years of planning, the Transit District initiated an ambitious demonstration program designed to provide a comprehensive integrated delivery system.

The demonstration design is based on the conceptual image of the WTD as an "umbrella" agency filling a role of "broker" or "integrator" for a wide range of services provided by both the public and private sectors; providing

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[1] For more complete information on the planning of this demonstration see: Pre-Demonstration Activities of the Westport Integrated Transit System, Interim Report (July, 1977), U.S. Department of Transportation Report No. UMTA-MA-06-0049-77-7 on A Plan for an Integrated Paratransit and, Conventional Transit System for Westport, Connecticut. Multisystems, Inc., Cambridge, Massachusetts (December, 1975).

coordination, operations support, and information dissemination functions for all forms of public transport - ranging from commuter rail to auto rental - in the town.

The services offered directly under the auspices of the District have been significantly expanded. New services offered as part of the "Demonstration Program" include:

- Shared Ride Taxi: shared ride services are offered for the general public and for small package delivery by a contract operator using WTD equipment (raised-roof vans). The service is priced to recover full cost of service delivery

- "Special Markets" Services: shared ride vehicles include two lift-equipped vans; doorstep shared ride service for elderly and handicapped individuals is offered at a fare equal to one-half the base fare on the fixed route system

- "Supplementary" Fixed Route Service: the vans utilized for shared ride service are operated in fixed route service to provide commuter service to additional trains in the AM peak and extended service to the "daytime" routes in the evening peak

- Transportation Information Center: The WTD provides comprehensive information on schedules, costs, and availability of all forms of public transportation available in Westport. This information is readily available through an information center (which is operated by the contract operator providing the shared ride service) 19 hours a day, seven days a week. Information is available for rail, intercity bus, private taxi, and car rental services as well as for services operated by the WTD or its contractors.

In addition, pricing policy is utilized as a mechanism for allowing service substitutions to be effected. The planning study suggested significant "latent" demand for weekend and weeknight evening services to both the railroad stations and CBD. However, the magnitude of this market was not believed to be significant enough to support additional fixed route service. As a less costly alternative, the WTD offers shared ride taxi services at discount fares for prepaid pass holders in the weekend evening hours and (outbound) from the railroad station on weeknights. Thus weekend evening travel desires can be served, and a reliable late evening "back-up service" is available for commuters who miss the express trains home.

The services are coordinated through a complete set of clearly defined relationships between the "participants" in the delivery system. These participants include:

- The Westport Transit District: The WTD performs "brokerage" coordination functions, directly provides fixed route services, and monitors and coordinates the actions of its contractors
- Private Transportation Company: A private transportation company selected through a competitive bid process provides shared ride services and operates the comprehensive information center
- Marketing Contractor: A private marketing firm is responsible for the development and implementation of a comprehensive marketing program covering all transportation services in the town, including fixed route
- Maintenance Contractor: A private school bus operator provides contract maintenance services for all WTD owned vehicles

2.6 Summary

As it approaches the planning process the public sector has several mechanisms at its control which allow it the ability to match services to identified market needs. The first is the ability to define and provide service with both the spatial and temporal responsiveness to meet market needs. Second is the ability to target services to specific markets through two mechanisms within the joint control of the (private) operator and public sector: pricing (or subsidy) and operating policy.

Service integration implies flexibility in response on the part of the public sector. It implies more than just the identification of the relative roles of different modes (e.g., conventional transit and paratransit). Numerous additional examples of integration strategies which interface different paratransit service concepts are possible:

- The same vehicle fleet can be used for different services over the span of a single day. For example, subscription services could be provided in the peak and dial-a-ride or shared-ride taxi services can be provided in the off-peak. Similarly, vehicles could alternate between fixed route and demand responsive service by time of day.

- Route deviation service can be narrowly targeted to restrict the demand responsive option to specific market segments, such as the elderly and/or handicapped. Such rationing can be accomplished either through pricing policies or through direct operating policies

- Demand responsive and conventional service can be provided by the same vehicle providing "through service" between different spatially defined service areas. For example, a vehicle could provide line haul fixed route service between the CBD and a suburban terminal and then continue into a (many-to-one) demand responsive collector/distributor cycle in a lower density neighborhood

- Multiple demand responsive services can be provided simultaneously to different target market segments. For example, differential service policies (spatial and temporal responsiveness) and differential pricing can be used to offer services that do not compete for the same riders

- Non-passenger travel demands, such as small package goods movement, can be integrated with demand responsive passenger service. Differential pricing can be used to correspond to different levels of time-responsiveness for goods movement as well as passenger movement

It should be recognized that pricing is an exceptionally powerful tool for targeting paratransit services. Through the use of public subsidy, the costs of providing a particular service can be offset somewhat; the price to the public (or specific user subgroups) can be chosen to reflect social policy rather than the real cost of service. That is, the fare can be set to attract (or discourage) a specific number and type of rider, with the deficit covered by public subsidy. This practice is currently employed in mass transit, but the same principle can be applied to privately operated paratransit to attract other classes of riders and trips. Pricing policy should be viewed as an integral part of any service integration strategy, since it is an essential input to the process of deciding which markets should be served and with which services.

It should also be noted that the concept of integration of services does not necessarily imply consolidation of operations or operators; rather, it implies that each system component has a rational, definable, and

identifiable role to play in meeting travel needs. Multiple services, may, in many cases, be provided by multiple operators delivering different services which are coordinated through a consistent and rational comprehensive planning, funding, and regulatory process.

3.0 The Human Services Market

3.1 Introduction

Chapter 2 introduced the general concepts of integration and coordination, and pointed out that efforts in this direction must cross public sector/private sector boundaries if a true transportation "system" is to result.

In dealing with the human services market, a third "sector" becomes involved: the private non-profit transportation providers. Private non-profit organizations share characteristics of both the public and private sectors. Like the public sector, non-profit agencies can be direct recipients of federal funds (see Chapter 6). In most other respects, however, non-profit agencies resemble the private sector. Both private for-profit and private non-profit carriers compete to receive money from state or local public agencies that is to be used for the provision of transportation to the elderly, the handicapped, or the indigent. Frequently the two private sectors compete head-to-head for these contracts, and a number of court cases have developed as a result.

Non-profit human service agencies do not exist to provide transportation. Generally they do so only as a means to the end of providing access to agency-sponsored programs for clients. In some cases, however, this objective is interpreted loosely and the agency's service may border on free public transportation. This is of concern to private for-profit operators for two reasons. First, public money may be channeled through the non-profit agency to subsidize a service that takes away taxi ridership and profits. Second, since the subsidy frequently allows the service to be provided free to the user, the non-profit agency may escape responsibility to the regulatory powers

that control the for-profit carrier (See Chapter 5). This truly may seem an ironical twist to a financially desperate taxicab operator.

Fortunately, the problems surrounding this situation gradually are being resolved. As human service agencies have expanded their provision of transportation, many agencies have become increasingly concerned with the diversion of their staff and other resources to those operations. In many cases, taxicab companies can offer a service or range of services to human service agencies which will reduce the strain on agency resources and will provide a reasonably priced alternative. This chapter addresses the range of opportunities which are available to the private for-profit operator to tap the human services market and at the same time improve the overall delivery of services through the effective coordination of a number of agencies which may currently operate in a fragmented fashion.

Just as it is possible to identify techniques for integration of private paratransit operations with other public transportation services on a spatial coverage, time-of-day, or market segment basis, it is likewise possible to discuss integration of private paratransit services within a market segment such as human service agency transportation programs. Although a private operator may contract for the complete provision of transportation, s/he may also provide a particular component of an agency's transportation needs.

Possible roles for private operators include the provision of any or all of the following:

- contract dispatching
- contract fleet management and maintenance
- contract operations
- carrier for recipients of user side subsidies

Both the nature of local private operators and the needs of human service agencies will determine the most satisfactory range of these services that private operators can provide. A brief elaboration of these services is useful.

3.2 Contract Dispatching

Contract dispatching may include three functions, including:

- call intake and eligibility screening

- vehicle scheduling and routing
- base-vehicle communications

While telephone intake of individual trip requests is an integral part of demand-responsive trip requests, the same is not true for advance reservation trips. Human service agencies which deal with clients who have mental or emotional problems or insecurities often feel the need to deal directly with their clients when scheduling trips. An example frequently cited is the need of some patrons to deal with a familiar telephone operator rather than face a lottery of unknown operators. While this problem can be dealt with very simply by the expedient of establishing a special phone number in the private operator's dispatch center, many agencies may choose to retain direct contact with their clients. In these instances, agencies may choose to compile lists of client trip requests and transmit these lists to the private operator, leaving the latter to schedule and route vehicles accordingly.

Routing and scheduling is a vital aspect of system efficiency and productivity. Experienced private operators are almost certain to be able to perform this service more efficiently than public service agencies, particularly if one of the following conditions exist:

- The private operator has also been contracted to operate the vehicles
- Service is typically many-to-many trips, non-regular in nature
- There are more than one or two vehicles being used to provide service
- Service is demand-responsive rather than advanced reservation

The last three of the above conditions increase the importance of base-vehicle communications. Particularly when service is demand-responsive rather than advanced-reservation, the private operator with a radio system in place (including central office and assigned frequency channel) has an extremely valuable "scarce resource" which may have "excess capacity."

Even when service is offered on an advanced reservation basis, human service agencies often rely on private operators for handling many return trips, due to the inevitable difficulties in maintaining the advance reservation schedule on these trips. The demand-responsive capabilities of taxicabs make them ideal for serving many such return trips.

3.3 Contract Fleet Management and Maintenance

Fleet management and maintenance contracts offer opportunities for cost

savings to both the private operator and the human service agency. In many cases where agencies have been providing their own transportation, they own one or several vehicles which they are reluctant to sell while there is useful life in the vehicles, even if the agency would ultimately prefer to contract out for transportation services. In the short run, these agencies could benefit from a maintenance contract with a private operator, relieving the agency of the responsibility for maintenance and offering the possibility of maintenance savings through bulk purchasing. The private operator benefits from additional maintenance work to cover the fixed costs inherent in his own maintenance operation. Ultimately, as agency vehicles wear out, these contracts may be replaced by operation contracts using the private operator's own vehicles and reducing the service penalties to each agency of downtime on its vehicle(s).

In some cases agencies may choose to continue the support of their own vehicles, perhaps because they would need the vehicles for staff purposes in any case. The private operator can continue to offer maintenance services, and, as vehicles are replaced, both the operator and the agency can benefit from efforts towards standardization of vehicles with the consequent reductions in cost of parts and labor. An Office of Human Development Services demonstration project in Grand Rapids, Michigan expects cost saving on the order of 10 to 15 per cent through vehicle standardization and centralized parts purchasing in addition to a 20 to 25 per cent effective vehicle life increase due to centralized maintenance.

Where agencies choose to retain ownership of vehicles in either the short or the long run, they may nevertheless not wish to be responsible for operation of that vehicle. The private operator can offer fleet management in addition to maintenance services to meet this market need. The private operator benefits from not having to make a capital investment in vehicles which may be a burden if their usefulness is dependent on the life of an agency program. The agency, in turn, may prefer to retain possession of their own vehicle. Thus, fleet management offers a broader service opportunity to the private operator than simple maintenance contracts.

3.4 Contract Operations

Contract operation, as distinguished from fleet management contracts, implies that the private operator provides transportation with his own fleet. This may be preferable for many operators who feel it will allow them greater

utilization of existing vehicles. This can be particularly attractive for carriers who are facing declining demand for a large fleet.

Private operators may also provide contract operations with vehicles leased from the contracting agency. While this is not permissible with 16b(2) vehicles, most other agency-owned vehicles can be utilized in this way.

The operation of transportation services may take on one of several characteristic forms depending on the nature of the sponsoring human service agency and the programs it supports. Services may be characterized into a number of travel patterns as follows:

Spatial Patterns

- many-to-many
- many-to-one
- one-to-one

Temporal Patterns

- regular periodic trips
- irregular individual requests

The travel patterns associated with a particular agency may help determine whether a private operator is well suited to provide contract operations service. In general, the more random the nature of tripmaking is, the greater the benefit that the private operator can offer. On random trip requests the complexity of developing an efficient vehicle tour that maximizes ridesharing is increased. In general, an experienced taxicab dispatcher is more capable of dealing with this problem than the staff of a human service agency. At the same time, the larger fleet which is typically at the disposal of the taxicab operator allows him to assign vehicles more efficiently (independent of special dispatching skills), since there is more likelihood of a vehicle being located near the site of a random trip request.

Therefore, many-to-many services, and especially irregular individual trip requests, are particularly well suited to the services of a private operator. On the other hand, one-to-one trips (such as residential human service agency group trips where residents are taken to a specific location) usually can be handled easily by the agencies themselves if they have their own vehicles, due to the triviality of the vehicle dispatching and routing process and the lack of opportunity for additional ridesharing on such trips.

Many-to-one trips are a predominant form of service needed by human service agencies. Examples include collecting a group of clients to deliver to a nutrition site or a major medical facility. If these trips are of a periodic nature with a regular clientele, the dispatching and routing is again simplified and the opportunities for additional ridesharing are minimal. In fact, this type of service approaches fixed route service with a guaranteed ridership. If these trips are irregular or have frequently changing clientele, however, the private operator may offer a much better alternative because of dispatching capabilities and fleet flexibility.

There are other ways in which a private operator may acquire some of the market even when an agency intends to continue providing service internally. The taxicab operator can provide service when the agency's limited capacity is exceeded, when altered schedules cause return trips of clients to be missed, or when vehicle maintenance requirements (downtime) make agency vehicles unavailable.

Another example of taxicab-agency coordination can include private operator services during offpeak hours. For example, if special trips to shows, church affairs, or other social/recreational/religious trips are desired other than during normal hours or days when the human service agency operates, the private operator can fill the need.

Finally, where there is an area-wide human service agency responsible for providing transportation, private operators and community-based agencies can share in the provision of service on a community by community basis. For example, in Pittsburgh, the Area Agency on Aging serves Allegheny County through a combination of contracts with taxicab operators and community agencies. Contracts are awarded in each community on the basis of the willingness and ability of taxicab operators or local agencies to provide reliable low cost transportation. In addition, the private operators typically provide extra service throughout most of the county when those agencies that do provide service are unable to handle demand for any of the reasons cited above.

Private operators may seek contracts not only with human service agencies but also with regional transit authorities (RTA's). RTA's are now looking to paratransit as part of the response to their obligation to improve transportation for handicapped and elderly persons under the "special efforts" requirements of UMTA's regulations for mass transit capital and operating assistance.[1]

[1]Federal Register, April 30, 1976

Dallas and Ft. Worth, for example, have documented an approach that includes recommendations to use taxi companies to provide transportation for non-ambulatory persons, to implement a shared ride taxi service for elderly and handicapped persons, to provide special training for bus and taxi drivers, and to coordinate public and private transportation services generally.[1]

Suggested examples of satisfactory paratransit "special efforts" for semi- and non-ambulatory persons include:

- Provision of service comparable to that which would be available if one-half the bus fleet were wheelchair accessible;
- Allocation of 5% of Section 5 funds for services specifically for semi- and non-ambulatory persons. Some or all of this could be spent for paratransit services;
- Availability, if requested, of ten round trips per person per week.

While the transbus mandate issued by DOT Secretary Brock Adams[2] may change the long run priorities of RTA's in this regard, paratransit will probably continue to figure as an integral part of public transit accessibility for the nonambulatory. There are many reasons to suspect that regardless of the accessibility features added to fixed route systems, these systems will never be able to adequately serve many handicapped persons without supplementary paratransit services.

3.5 User-side Subsidies

An increasingly popular technique for integrating taxicab operators into the human services transportation market is through the use of "user-side subsidies." In many areas where standard taxi service is available, public or non-profit agencies may decide not to make a new paratransit service available, but rather to provide financial assistance to specific individuals in order to make the cost of existing transportation less prohibitive. If this is provided on a cash or reimbursement basis to the user, the carrier need not be formally involved at all. However, it is often preferable to arrange for a special method of payment which requires the cooperation of the operator. Two techniques predominate:

(1) The user buys books of scrip tickets from the responsible public body at less than face value. When the transportation company

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[1] North Central Texas Council of Governments, "Transportation Options for the Elderly and Handicapped", September 1976.

[2] Federal Register, September 23, 1977

receives the tickets, it turns them in to the public agency and is paid full face value or a specified trip price. Examples of this type of program include West Virginia's "TRIP" and special programs in Lawrence, Mass; Kinston, N.C.; and Oklahoma City).

(2) The user is given an identification card. When a trip is taken, the user shows his ID card, pays a reduced fare, and makes out a charge slip, or voucher, to the city for the balance. (Examples include programs in: Danville, Illinois; Montgomery, Alabama; and Miami, Florida).

These arrangements typically provide specific budget limits on the amount of service which will be sponsored, to prevent cost overruns.

Benefits of direct user subsidy systems include:

- Users receiving subsidies can be specifically targeted
- The level of subsidy to each user can be defined individually

3.6 Impact of Taxicab Organizational Structure on Service Quality

As relationships between public agencies or non-profit agencies and private operators have evolved, a number of issues have emerged out of differences between public expectations of service quality and the structure of the taxicab labor market. These issues are particularly relevant in the delivery of specialized services for handicapped and elderly persons. Failure to recognize and understand these issues as the relationship is being contractually structured inevitably leads to a later conflict or "crisis of expectations" on the part of the public sector. This section attempts to focus on characteristics of the taxi industry which are self-evident within the industry, but which lead to difficulties when taxi operators try to restructure their operations in order to meet the needs of public and non-profit agencies. Both agencies and private operators need to understand that conventional taxi operations simply cannot be transferred to contract services without some explicit adaptations to the demands of the new market.

3.6.1 Labor/Management Relationships and the Nature of Driver Compensation

Both the form of compensation and the institutional status of drivers may be important to human service agencies from a service quality perspective. The three major types of driver/management relationships present in the taxi sector are:

(1) An entrepreneurial owner-operator

(2) A commission or hourly employee

(3) A leasing contractor

The first category, the "owner-operator," encompasses those individuals who own a single (occasionally several) vehicle(s) which they operate by themselves. Independent owner-operators in major urban areas generally band together to form "associations" which provide radio dispatching, maintenance services, bulk purchasing and insurance acquisition support services. However each operator acts as his own independent agent, and legally holds title to his own vehicle and any necessary operating certificate. As an independent owner-operator, he may choose to allow other individuals to drive his vehicle (on a commission or lease basis, as described below) at those times when he is not driving. An independent owner-operator's income is determined as a function of the difference between revenues and cost per hour, both of which s/he has the power to influence.

The "commission driver" is historically the predominant form of employee-employer relationship in large fleet operations. The commission driver is an employee of the taxicab company. As an employee he is generally guaranteed the greater of (1) a base (or minimum) hourly salary (usually the minimum wage) or (2) a specified percentage (generally 40-50%) of the meter-recorded revenues. As an employee of the fleet owner, the driver also receives certain "fringe benefits" which generally include (state and federally mandated) unemployment workmen's compensation insurance benefits as well as FICA (social security) contributions and a minimal (usually one week per year) vacation benefit. Fringe benefit to salary ratios for commission drivers in large fleets generally average approximately 10-15% of driver labor costs.[1] The prevailing benefit packages in the taxi sector must therefore be considered minimal by comparison to benefit packages available in other labor sectors.

Commission drivers, of course, also receive a significant income in the form of cash tips. While, legally, these tips are taxable income to the driver under federal and (most) state laws, tips are a form of driver compensation which do <u>not</u> appear as a cost factor in the cost accounting records of the

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[1]Wells, <u>op. cit</u>. Fringe benefits vary markedly from place to place; they are substantially higher in a number of major metropolitan areas.

operator. Therefore, certain "costs" of providing service are not reflected by any operator records, but are, instead, borne (directly) by the user. This fact becomes important when use of "commission" drivers is considered for contract operations.

Equally important is the fact that although tip income is legally taxable, there are no mechanisms which accurately record this cash flow. There can be little doubt that a significant percentage of tip income is under-reported by drivers, thereby simultaneously understating their "true income" and enhancing the value of unreported tip income because of its "tax free" status.

The concept of driver leasing is relatively new in the taxi sector, first having been introduced in the late 1960's. However, the concept has received widespread adoption in major fleets in recent years. While most large fleets retain some mixture of "lease" and "commission" drivers, leasing is becoming the predominant relationship in the larger fleet operations. Simply stated, under a driver leasing arrangement the relationship between the fleet owner and the vehicle operator is altered from that of "employer-employee" to that of "leasing company-independent contractor." The fleet owner operates as a vehicle leasing company (providing a maintained vehicle, certain legal operating rights, and insurance coverage to a private individual) in return for a fee which includes a fixed charge (usually covering an eight-hour rental period) and a variable per mile charge. The private individual "leases" and then has the right to operate that vehicle (under legal terms of the operating certificate) "for hire" and retain all the revenues. Driver compensation can be calculated by estimating the difference between meter plus tip revenues and the costs of the lease and fuel.

Although leasing is increasingly being reviewed as an appropriate system for exclusive-ride taxi operations, it may be less satisfactory for contract operations. This is due in part to the fact that the lease driver, as a contractor (rather than an employee) is relatively more independent of the taxicab company. The company therefore has less control over the driver's hours of operation or choice of customers to be served. Also, lease drivers must receive income directly from passengers rather than from the taxicab company (in order to preserve their non-employee status); this is not practical on any subsidized system in which the passenger does not pay the full cash value (including a "normal" tip) of the trip.

Commission drivers are better suited for contract operations, since they work under a traditional "employer-employee" relationship (which would appear necessary to exercise desirable managerial control over the provision of service). However, even this relationship may prove unsuitable for any of the following reasons:

- If service is contracted on a vehicle-hour basis, there is no reason to run the meter other than to create an artifical basis for computing driver commissions.
- The loss of tips would have to be compensated by a higher commission rate. There is no appropriate way to formally adjust for the "loss" of unreported tips.
- Tips normally serve to "buy" driver amenities such as assistance with packages or aid to the infirm, courtesy, etc. The quality of these unmetered services may deteriorate if a commission driver has little expectation of an adequate tip.

Thus, it is logical to conclude that a traditional, hourly wage employer-employee relationship may be most appropriate for contract services. This is particularly true where the contract services are targeted towards special market segments which require personal attention and/or special handling by the driver of the vehicle. Other forms of compensation - particularly lease and commission forms - do not provide any driver incentives to provide personalized services, particularly if tipping is not a normal part of the operation. In fact, commission and lease remuneration arrangements provide incentives for drivers to carry the maximum number of passengers possible; while this may have economic advantages (for both the driver and contracting agency), those advantages are achieved at a cost of lowered quality of service.

In moving from unsubsidized private taxi operations to subsidized (contract) paratransit services, hourly driver compensation may have to rise to reflect

- The inclusion of average hourly tips (at their largely tax-exempt value of roughly 120% face value)
- The additional financial incentive necessary to compensate for increased reliability and performance expectations on the part of the contracting agency.

3.6.2 Public Expectations and the Character of the Taxicab Labor Force

The nature of the cab driver's employment conditions - the generally unsupervised and unstructured role which he can fill - attracts a special type of individual. The nature of the cab driver's relationship with his

employer is much more flexible than most. The employee can frequently name his own hours of employment, work as many hours a week as he chooses, and with very minimal supervision from the fleet owner or city regulators. It is a logical part-time or temporary job for individuals who are moonlighting, in school, or temporarily out of work. The "independence" also serves to attract individuals who may accept lower wages in return for a basic "freedom" which they enjoy.

Recent surveys undertaken for the International Taxicab Association indicate that drivers working on a "commission" basis (i.e., a percentage of the meter fare) generally earn $3.24 per hour, plus an additional $.49 per hour in tips. This relatively low level of direct employer compensation of drivers (as well as other employees) is the primary cause of the tremendous differential which is frequently observed between the unit costs of publicly operated demand responsive services and unit costs observed in private taxicab services.

It is not surprising, given these conditions and characteristics, to discover that the turnover rate of the taxi driver labor force in major fleet operations is an exceptionally high one - frequently in the range of 200-300% per year.[1] While taxicab management has learned to successfully manage their operations with this high labor force turnover, the rate of turnover implies a barrier to the maintenance of a stable labor force which possesses the specialized skill and training necessary in handling passengers who may have a variety of handicaps. Thus the nature of the existing taxicab labor force is, in many ways, poorly suited to meet public sector expectations and desires for provision of service with a well trained, "quality-sensitive" labor force. As public agencies place expectations of (improved) quality on the labor forces of private taxicab companies, they must simultaneously realize that this expectation is ultimately translated into financial costs. Thus, the average hourly operating cost of taxi operator's exclusive ride taxi fleet may be a lower bound to the cost of providing contract operations to the public sector, since one can expect driver costs to rise significantly from existing levels.

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[1] Wells, op. cit. and ITA survey data.

3.7 Summary

Contract paratransit operations by private operators which are undertaken for public agencies are frequently similar to existing taxi services in terms of outward service characteristics. However, contract operations may provide an environment of considerably different user and public agency expectations with respect to service quality and service reliability.

The contract operations environment frequently embodies the expectation that operations will be very reliable and that the labor force will be both courteous and responsive to the needs of the user clientele. These are attributes which are not generally characteristic of a significant percentage of the taxi sector labor force, due to the nature of the individuals and the high rate of turnover of the driver labor force. In order to provide high quality contract services, the fleet operator must take positive steps to stabilize the turnover in labor for the contract operations portions of his business. This may require payment of higher wages (especially to compensate for any loss of tips), and allocation of additional management staff to handle driver supervision.

The net result will be higher costs to the contracting agency than might be possible if "lower quality" service was viewed as acceptable. This trade-off must be carefully considered by both the private contractor and public agency as formal terms for service delivery are negotiated. Failure to recognize this trade-off may lead to later conflicts or dissatisfaction over service cost or quality. The contractual negotiations and resulting legal documents are the appropriate framework for addressing these issues. Approaches to contracting are discussed in greater detail in Chapter 4 of this report.

4.0 Contractual Relations

4.1 Introduction

The process of establishing formal contractual relationships between private operators and public agencies is often complex and time consuming. However, the nature of the contract is exceptionally important to both the operator and the contracting agency. It is important to the operator because it specifies both his potential risks and the potential returns for participation in the project. For the public agency, the contract is a mechanism through which the public seeks to achieve both economic and service quality objectives, as well as a means of reflecting necessary concerns regarding public safety. This chapter discusses various aspects of contracts and how they affect the concerns described above. Foremost of the issues to be resolved in negotiating a contract is the basis of reimbursement to the carrier. This issue represents the bottom line to the risks and returns faced by the carrier as well as the costs and expectations for quality control faced by the public agency. Therefore, emphasis will be placed on the implications to both carriers and agencies of various terms of reimbursement.

Existing contracts between private operators and agencies have not always proved satisfactory. Moreover, many groups have never written a contract before. Therefore, a review of some of the standard and not-so-standard clauses which appear in contracts is also presented in this chapter to assist carriers and/or agencies in developing workable contracts. These clauses include statutory requirements such as non-discrimination and equal employment assurances; provisions that are requisite conditions of federal funding where appropriate; and terms which serve to protect both carriers and agencies by clarifying potential areas of conflict. Special provisions

concerning service quality and safe provision of service is discussed in terms of their likely impacts on both the public and private sectors.

4.2 Regulations, Contracts, and Subsidies

Before delving into the nature of contracts in general and reimbursement clauses in particular, a few words should be said about private operator-public agency contractual relationships vis-a-vis regulatory relationships and subsidy relationships. A private operator may find itself dealing with the local municipality on any one or a combination of these levels simultaneously, and so it is useful to briefly enumerate distinctions among the relationships.

4.2.1 Regulatory Relationships

Historically, taxicabs have been regulated by local government at the municipality or county levels, although in a few places such as Pennsylvania and Connecticut they are regulated at the state level. Regulation typically imposes certain responsibilities for guaranteed service availability and may offer certain exclusivity rights in return.

In contrast, there are seldom any specific paratransit regulations or franchises. If a community wants paratransit, the private operator may choose among:attempting to provide the service himself; coexisting with the services provided by another carrier (public, private, or non-profit);or attempting to show just cause why the paratransit service conflicts illegally with his own taxi operations. Court cases in Ann Arbor, Michigan; Orange County, California; and Merced, California have indicated that little relief can be expected in the courts, regardless of the apparent degree of damage to taxi ridership.[1] One conclusion is that private operators are better served participating in the planning process, in order to have paratransit service designed so that they can provide it themselves.

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[1] Some of these cases are discussed in Chapters 5 and 6.

The regulation of paratransit services usually is dealt with in one of the following ways:

- Paratransit operators with taxicab certificates are regulated under conventional taxicab regulations. This often has the effect of limiting or completely preventing some of the more innovative opportunities offered by paratransit.

- Paratransit operators with contract operator certificates are regulated under contract operator regulations. This may be more or less restricting than (1) above, depending on the local situation. (Often a carrier may have both taxi and contract certificates.)

- When the private operator is providing service under contract to the RTA, operation of the paratransit service may be under rights normally held by conventional mass transit and extended to the private operator by virtue of the contract. If the RTA is self-regulated, this may impart a useful measure of flexibility to the paratransit service.

- If the service is sufficiently small, it may escape regulation entirely. Charging a fare or capturing any significant share of the market is likely to end this status.

- If the service is sufficiently large, it may generate a set of specific paratransit regulations. To date, this is the exception rather than the rule.

The variety of frameworks within which paratransit may be regulated is both a blessing and a bane. On the one hand, it allows a local area to design a service which will fall under the most benevolent regulations; but ultimately, the lack of regulations specifically tailored to paratransit inhibits realization of the mode's full potential.

4.2.2 Contractual Relationships

Paratransit services are usually viewed as a supplement to basic public transportation rather than as an integral part of it. Because of this and because of the ambiguity surrounding paratransit regulations, paratransit services typically are not required to meet the same availability requirements as conventional bus and taxi services. If a local municipality wishes to ensure the provision of paratransit in certain areas or during certain times of day, it may seek to establish a contract with one or more operators.

A contractual relationship is both easier to establish and easier to terminate than a regulatory relationship. This is desirable from both the public and the private point of view, given the experimental nature of most paratransit services. Thus, despite a certain amount of flexibility possible in a contractual relationship, the element of guaranteed service may be preserved through the contracts.

4.2.3 Subsidy Relationships

The public body (which may be a municipality or a human service agency, for example) may choose to subsidize some or all of the anticipated patrons of the system if it is felt that users either could not or would not pay the full cost of the service. If the subsidy is to be applied indiscriminately for all users, it is usually easiest to subsidize the carrier directly (on a per passenger or other unit of service delivery basis), so that all users perceive a lower cost in the fare structure. A contract is necessary in order to establish the fact and the form of subsidy transfer to the operator.

If specific users are to be targeted for subsidy while others pay fares that reflect the full cost of service, it may be more appropriate to establish a user-side subsidy program. This may be done through a voucher or scrip system (see Chapter 3). While a contract is useful to guarantee reimbursement to the carrier and service availability to the funding source, it is not always necessary. A user-side subsidy is relatively easy to implement and has no substantial impact on the structure of the taxi industry. Of course, a user-side subsidy may be an "add-on" feature to a general supply-side service contract.

The subsidy may also be a risk subsidy offered to guarantee the operator a minimum return. Risks to the operator may stem from uncertainty as to whether there will be sufficient demand, uncertainty as to whether an untested rate structure will generate revenues at least equal to costs, or a combination of the two. The role of the public agency is then to offer a contingency subsidy to minimize the private operator's risk against these eventualities. This subsidy may only be necessary to supplement revenues during the start up period until ridership is sufficient to make the service self-sustaining. Subsidies used in this manner are preferable to high

initial fares that could discourage the growth of ridership and kill the service prematurely.

The presence of subsidy implies that the service could not be initiated successfully in the private sector without a catalyst in the public sector. Whether an ongoing operating subsidy or a startup "risk" subsidy is required, the involvement of the private sector in the planning process may help to motivate and structure the needed public sector support.

Because of the added complexities of contractual relationships involving subsidies for some or all of the projected ridership, the following section will deal primarily with these examples.

4.3 Impacts of Reimbursement Alternatives

The most crucial aspect of any private operator-public agency transportation contract which incorporates subsidies is the section that specifies the form of compensation. There are several basic forms of compensation which are characteristic of contracts in general, and beyond that there are a plethora of specific possibilities which can be considered. General types of reimbursement agreements include:

- Fixed price contracts
- Cost plus fixed fee contracts
- Fixed unit cost contracts
- Direct user subsidy contracts

These alternative contractual forms,as well as a number of variations, are discussed below. Consideration is given not only to the impacts on carrier risk, but also the impacts on service quality and cost and the ease of monitoring and bookkeeping.

4.3.1 Fixed Price Contracts

Fixed price contracts offer high risks to all involved, and particularly to carriers, since no recourse is offered for incorrect estimates of costs,

demand, or a variety of other occurrences beyond the carrier's control. The agency risks for a fixed price contract include having demand fall short of expectations, but the probability is greater that agencies will generate demand to the maximum extent that the contract will tolerate. A fixed price contract should never be executed without specified minimums and maximums of service that is to be provided, to protect both parties. For example, specifying a service (e.g., trips) minimum and a cost (e.g., hours) maximum, the agency is assured of adequate service and the carrier is guaranteed a cost limit. If productivity is too low to permit both limits from being met simultaneously, the contract may be re-negotiated.

Since carriers' costs rise proportionately to service rendered, profit will be diminished by increases in service. This provides a strong disincentive to deliver high quality service. Although it does encourage efficiency, the agency and its clients do not share financially in the benefits of added efficiency (although they may benefit from the additional service capacity available).

The advantages offered by fixed price contracts are simplified agency budgeting and bookkeeping. The price paid for this is a large profit added to carriers' bids in order to allow for contingencies, and agencies may have to work very hard to enforce standards of service quality. The former problem may be alleviated somewhat in the ongoing provision of established services, but bids for innovative services will tend to have large cushions added to guard against the attendent uncertainties.

The problem of monitoring service quality is a complicated one which may be eased somewhat by developing a thorough understanding between the agency and the carrier before the start of service (and preferably in the contract) as to what is expected and deliverable. A discussion on monitoring and contract provisions is contained in Section 4.4.

Because of the problems associated with fixed price contracts, their use for paratransit services cannot be recommended from either the private operator's point of view or that of the public agency in most circumstances.

4.3.2 Cost Plus Fixed Fee Contracts

In direct contrast to the fixed price contract, a cost plus fixed fee contract offers no risk to carriers regardless of uncertainty about costs, productivity, or demand, since all costs will be covered by the agency. While these risks are transferred to the agency, the agency benefits by paying a lower rate of return to the operator. With constraints on total budget, the agency may still be a victim of high costs and low productivity, but exponential growth of demand will not cause cost overruns.

Since service quality tends to be directly related to cost and inversely related to productivity, a cost plus fixed fee contract offers agencies the chance to trade off cost and service quality as desired. The carrier will be happy to provide high quality service if requested, but if the costs become prohibitive the agency can sacrifice some service standards in favor of lower costs.

Because agencies bear the risk of high costs, they may be wary of this form of contract for particularly innovative services or with novice operators. Appropriate monitoring will determine whether costs are justifiable or not. If they are unavoidable consequences of the service standards which have been set, the agency may request changes in service standards. On the other hand, monitoring may determine that costs are the result of avoidable management inefficiency by the carrier, since a cost plus fixed fee contract offers little incentive for operator efficiency. Thus, it is incumbent upon the agency to build safeguards into the contract to allow them to identify unjustified costs. This requires considerably more bookkeeping effort than with a fixed price contract, since the latter requires monitoring of service quality only, as opposed to monitoring of service costs and productivity.

4.3.3 Fixed Unit Cost Contracts

Cost plus fixed fee contracts are virtually nonexistent.[1] Instead, many private operators estimate standard costs on a unit basis such as miles or passengers, by dividing total carrier cost by the number of units delivered. This is typically computed based on experience with regular taxi service. Resulting unit cost bids may not reflect actual costs for a variety of reasons. Contract-related costs may be higher than taxi costs due to lower demand or higher driver, vehicle, and service standards. On the other hand, costs may be lower because of ride-sharing productivity or economies of scale in coordinated fleet maintenance. Despite these possible cross-effects, or the possibility of bad estimates in general, experienced private operators should usually be able to tender unit cost bids close to true costs. Therefore, they will probably perceive less risk in bidding fixed unit costs than agencies would perceive in accepting cost plus fixed fee bids.

The choice of the unit used as the basis of bidding clearly influences the types of incentives which are presented to the private operator. Two general types of units can be identified: cost units and service units.

Cost units are based on standard measures of costs to the operator. The most common examples are per vehicle mile and per vehicle hour. Cost units are the easiest for taxicab operators to estimate because they usually form the basis of metered exclusive ride taxi rates. Also, since they are measures of carrier service input, they are independent of the productivity of the service provided. If an innovative paratransit system is put "out for bid," associated new service inputs (added driver qualifications, for example) will imply higher costs (which can be estimated); but changes in productivity will not affect per mile or per hour costs to the operator. Units of service (per passenger, per trip), on the other hand, are outputs of the carriers' service rather than inputs, and so they are related to

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[1] Westport, Connecticut has a cost plus variable fee system which is discussed briefly in Section 4.3.4.

operators' costs through the output/input productivity relationship (or "production function" in economic parlance). This, in turn, is dependent upon demand density, operator efficiency, service standards (as reflected in routing policies and load/unload policies), etc.

Service units are of primary concern to agencies, since they measure the "product" that is being purchased. Cost units are of more concern to operators, since they determine whether the operation is running at a profit or a loss. The relationship between the two is determined by the productivity (passengers per vehicle mile and/or passengers per hour) of the system. If a contract is written on the basis of service units, the operator assumes the burden of achieving sufficient productivity to meet costs. If cost units are the basis of the contract, the agency assumes the burden of imposing productivity criteria that will ensure a reasonable amount of service for the miles or hours logged by the operator. An agency may be interested in contracting on a service unit basis in order to avoid the need for monitoring productivity and possibly attempting to impose penalties or corrective action for unsatisfactory performance. The private operator, on the other hand, may be unwilling to contract on a service unit basis if there is a large degree of uncertainty about the productivity that he will be able to achieve.

The burden of risk associated with productivity is not the only consideration in determining the basis for unit cost contracts, however. The other major concern of agencies is that of service quality. If the private operator is paid on a service unit basis, there is no incentive for him to provide a particularly high quality of service since s/he is paid based only on the quantity of service units rather than the quality. When cost units are the basis of payment, however, the carrier may be paid appropriately for the quality of service he delivers.

For elderly and handicapped services this is particularly significant if payment is on a per hour basis. Providing high quality service in the form of personalized attention to patrons, and particularly to their individual needs in entering and departing the vehicle, has time-related costs which must be explicitly remunerated. A frequent cause of misunder-

standing between many agencies and private operators under existing per mile contracts stems from agencies' expectation of personalized driver escort services without any direct form of compensation being provided for these services. From the operator's point of view, unit costs are usually predicted on certain assumptions about maximum time per stop - typically a maximum of three minutes - which are inadequate for the kind of patrons being served in this type of contracted service.

To summarize fixed unit cost contracts, they represent a compromise between fixed price contracts and cost plus fixed fee contracts. The risk of cost overruns is neither all with the carrier, as in fixed price contracts, nor all with the agency, as with cost plus fixed fee contracts. There is not the total productivity incentive to carriers that is provided by fixed price contracts, nor the total lack of productivity incentives associated with cost plus fixed fee contracts. There are neither the complete cost penalties of providing high quality service associated with fixed price contracts, nor the total remuneration available in cost plus fixed fee contracts. The exact amount of incentive for productivity and quality is variable depending upon the units used as the basis of the contract; but in general, service units (per passenger, per trip) encourage productivity and discourage quality, while cost units (per mile, per hour) encourage quality and discourage productivity. Agency monitoring is necessary for fixed unit cost contracts but need not be as comprehensive as for cost plus fixed fee contracts.

4.3.4 Incentive-Based Contracts

Many operators and agencies can undoubtedly arrive at a fixed unit cost agreement which is mutually satisfactory and responsive to the particular priorities associated with the desired service. Fixed unit cost contracts are fairly standard and the basis of payment is well defined. A variety of conditions may be included to require, if not provide incentive for, adequate standards of service.

However, public agencies can expect much better service from a private operator if the contract provides for the operator to be paid commensurate with the service which he delivers. An operator will only deliver the

minimum standard of service required by the contract unless he is given an incentive to do more. Since fixed unit cost contracts tend to provide incentive for either productivity or quality, but rarely both, it may be in the interest of agency and carrier alike to consider more complex incentive-based contracts.

Incentive contracts have not been extensively tried, but there are a few examples which may be mentioned. In Chapel Hill, a taxi company provides off peak service as a substitute for bus service. The taxi company is paid a fixed price for this service, but in addition is entitled to keep the fares it collects. The fixed price encourages productivity on the part of the operator to maximize profit, while the fares act as an incentive to provide a high enough quality service to maintain and increase demand.

In Westport, a taxi company operates as a complement to conventional bus service and as a substitute at certain evening periods. The taxi company is paid its costs plus a variable, rather than fixed, fee. The fee is determined by the taxicab company's productivity. Here the cost portion of the contract reimburses for extra effort ("quality") while the variable incentive fee is a sliding scale of greater profit achieved as vehicle productivity per hour increases.

In San Bernadino, California, taxis provide contractual service for which they are paid what can be considered a fixed unit cost plus an incentive fee: they retain the fares they collect plus they are given a flat percentage of fares on top of this by the city. The fares are computed on the basis of fixed unit costs measured by the meter. The fixed unit cost and the incentive fee each contribute to both productivity and quality by allowing added profit for efficient service provision as well as for high ridership response.

4.4 Other Typical Contract Provisions

The basis on which private operators are to be paid for their services is an important, but not the only, significant element of contracts. There are a variety of issues which must be addressed in contracts to ensure that

services will be provided in a manner which is mutually acceptable to the public agency, the private operator, the govenment funding source if any, and last but not least, the patrons. These issues may be generally covered in five broad areas of concern:

- Assurances of business practices required for contracts with public agencies or using public monies
- General compatibility with applicable state and local laws and regulations
- Description of services to be provided
- Service standards and control
- General protection clauses

Some general comments follow on each of the above.

4.4.1 Business Practices

Work involving contracts with public agencies will usually require the provision of assurances that business practices are in conformity with those prescribed by Federal or State law. Four general requirements must typically be met:

- The operator must be an equal opportunity employer
- The contract must include a representative utilization of minority-owned business
- The operator must not have any conflict of interest in providing the service
- The operator must not have used anyone other than a bonafide employee to obtain the contract

Other assurances which may apply include provisions stating that bid prices were arrived at independently and, if federal financial assistance is being provided, that no persons in Congress will benefit from the contract and that the government may audit the service.

Exact conditions under which any of the above provisions may apply or be exempted varies from place to place depending on state legislation and

local practice.

4.4.2 Compliance with Applicable Commercial Vehicle Laws

Contracts usually include specific reference to the need for carriers to comply with applicable state or local commercial vehicle laws and regulations.[1] These requirements typically include:

- vehicles in conformance with the motor vehicle code and additional commerical vehicle requirements
- drivers duly licensed to provide service
- adequate carrier liability insurance
- adequate Workmen's Compensation insurance

Again, the impacts of these requirements will vary extremely from place to place and it is impossible to generalize in this regard. Each of these elements may be individually specified in the contract over and above the private operator's usual obligations.

4.4.3 Description of Services

This section is the core of the contract. It must enumerate every facet of the service to be provided, including the following:

- hours and area of service
- user eligibility verification
- trip request procedure
- routing, scheduling, and dispatch services
- rider assistance services, if any
- information services
- complaint handling
- payment mechanisms

[1] Taxicabs are often classified as "vehicles for hire" as distinguished from "common carriers". Nevertheless, they are subject to many commercial vehicle regulations.

Suffice it to say that the impacts of the terms of these provisions upon carriers is profound. It is correspondingly important that the private operator involve himself as much as possible in the service planning process to assist public planners in appreciating practical day-to-day operational problems. This will enable the final contract to reflect the best service features possible within constraints imposed by the realities of service delivery and budgetary constraints.

In particular regard to payment mechanisms, it should be noted that provision must be made for both user fare payments and agency charge payments. Fare structures should include consideration of no-show charges and trip cancellation privileges. For elderly and handicapped services, escort/aide fares, if any, must be determined. For all services, second-passenger fares and fare transaction procedures must be identified. Where the public agency is to provide supply-side or user-side subsidies directly to the carrier, the private operator must make sure that the period for settling bills receivable is satisfactory and will not cause undue cash flow problems that could affect not only the contract work but the rest of his services as well.

4.4.4 Service Standards and Control

Nowhere is the ability to write a good contract more difficult than in the matter of setting out standards for service delivery that are realistic and identifiable. Throughout the section on types of contracts (Section 4.3), the subject of service quality and productivity emerged as a predominant issue. The matter is crucial not only because of the importance to agencies' budgets, carriers' costs, and users' satisfaction, but also because of the inherent difficulties of fairly defining standards and monitoring them. In fact, it is precisely because service standards are difficult to define or enforce that use of appropriate incentives is more desirable.

Service standards issues may be broadly characterized as quality assurance concerns and productivity assurance concerns. These issues may be further broken down into a number of areas that are addressed in most contracts:

- wait and ride time limits - including maximum permitted deviation for a passenger in shared ride service
- fleet characteristics - including fleet size, dedicated and undedicated vehicles, and special equipment requirements
- driver standards - general driver qualifications including special training if required for handicapped and elderly services
- productivity assurances - including responsibilities of carriers to maximize ridesharing, provide vehicles appropriate for instant demand, and provide efficient scheduling and routing
- monitoring provisions - including records to be provided and additional inspection or audit privileges of agencies [1]

4.4.5 General Protections

A good contract should include several final protections for both carriers and agencies. Carriers should have subcontract privileges identified, and should be protected by a standard "Act of God" responsibility waiver. In return, they can expect to be required to provide indentification of responsibility from the public agency. Finally, the terms under which either party may alter or terminate the contract should be identified.

4.5 Summary

A variety of standard contractual arrangements may be applied to transportation service agreements. The principal concern is to include safeguards that protect each party from financially ruinous consequences. These usually involve a combination of dollar and service responsibility limits. In addition, each party should consider the secondary costs in terms of money and effort that may be required to account for or monitor the services provided. Paperwork associated with a project can quickly get to be a major burden on carriers and sponsors alike if this problem is not anticipated.

If private operators are to share in a significant portion of the paratransit service market, they must demonstrate to the community (in general) and to agencies and planners (in particular) that the private sector is capable and willing to provide quality transportation at a reasonable cost. Part of this marketing effort should include demonstration of the various

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[1] In particular, the use of UMTA Section 5 funds may require UMTA Section 15 reporting standards.

forms of coordination which are possible and which are described throughout this report.

The taxicab operator should become involved with both the Metropolitan Planning Organization (MPO) and local human service agencies in order to demonstrate when and where the private sector can offer a worthwhile alternative. This planning process involves not only development of well-organized and coordinated services, but also establishing the private sector's credibility as a competent source of reliable, high quality transportation. Finally, a coordinated planning effort can help to address and alleviate specific problems (such as taxicab driver turnover) that are of mutual concern.

The ultimate role of the private operator in any particular project will be determined through a combined technical/financial/political process. Particularly in an area-wide project, paratransit service may end up being provided by a variety of public, private, and non-profit carriers. This may reflect any or all of the following considerations:

- Certain carriers may exhibit area-specific benefits - e.g., low dead-heading costs, significant local knowledge, and economies of scale within the service area of other parts of their operations. This "turf" consideration also carries political impact in many instances.

- In general, certain types of carriers are better suited for certain areas than others. For example, operators of demand responsive taxi carriers can more easily tailor their services to meet low or medium density service areas than can bus operators.

- Historical provision of related services often forms the basis for claims to the "right" to provide a new service. This claim may be substantiated by references to enabling legislation (mass transit), franchise rights (taxis) or, in the case of federally assisted projects, to private enterprise or labor protections (see Chapters 5 and 7). Whether or not these claims are valid is usually unclear, and it may be more politically expedient to observe them than to run the risk of extensive litigation and possible loss of service.

The right to provide service in any area will be assigned with the above considerations in mind. The carrier selection process will either be a single carrier assignment (unlikely in a major project) or more strategic "cutting up the pie" process designed to be as cost-effective, service-responsive, and politically acceptable as possible. This is often

accomplished with the assistance of a competitive bidding process. Frequently the service area will be partitioned and competition among the public, private, and non-profit sectors either explicitly or implicitly limited to ensure adequate or appropriate representation across the region.

5.0 State and Local Regulation

5.1 Sources of Regulation

Although federal policy and law is exceptionally important in shaping the character of urban public transportation systems (including paratransit), regulatory and legal authority over paratransit operations (as well as conventional transit operations) falls within the range of powers reserved to state government under the U.S. Constitution. State government, acting directly through its own executive agencies (e.g., a State Department of Transportation or State Public Utilities Commission) or by delegating authority to a "lower" level of government created by state law (e.g., a municipality or public transportation authority), has the legal right to exercise "police powers" (protection of the public safety and welfare) over public transportation services as well as to regulate intra-state commerce. The fact that regulation of intra-state public transportation services is largely a state and local - as contrasted to federal - function necessarily implies that no two locations may have exactly the same legal and regulatory structure or environment. Most areas do share a somewhat common pattern of regulatory control, however. This chapter addresses the impacts of the basic regulatory framework that may be shared by most areas, as well as some of the sources of variation that sometimes give the issue such a diverse flavor.[1]

Paratransit operations usually are subject to regulation from three basic types of laws. First, as users of the public highways, operators are subject to the Motor Vehicle Code of the state(s) in which they operate.

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[1] The ITA Model Ordinance Compendium, which serves as a reference document for the section, contains a synthesis of most of the standard regulatory provisions used by municipalities around the United States.

Second, as common carriers or operators of vehicles for hire[1] they fall under the reserved powers of the state to regulate intrastate commerce. Finally, taxi and paratransit services are frequently considered as a "public utility" and fall under ordinances designed to guarantee availability, safety, and pricing equity for the riding public.

Taxicab ordinances may be administered by either a state or local authority. The former case is the exception rather than the rule.[2] Taxicab regulation is a city or regional responsibility in most locales.

In general it seems more desirable to place responsibility for paratransit regulation at the local level than at the state level. The chances for a single regulatory authority or cooperative authority are much better where all powers are entrusted at the local level rather than when some responsibility remains at the state level. Benefits which accrue from placing regulatory authority for all modes of local transportation in a single local body include:

- Avoiding problems caused by separate regulation of different modes by different authorities which occasionally may be at cross purposes.
- Avoiding conflicts arising from questions of overlapping responsibility by different authorities when new services are initiated.
- Facilitating the development of coordinated planning for public transportation in the region.
- Improving the responsiveness of the regulating authority in expediting requests by operators or the public to amend tariffs, operating procedures, etc.
- Facilitating the integration of new services into the regulatory framework.

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[1] In some places, taxicabs are defined as "vehicles for hire" and are specifically distinguished from "common carriers". That distinction is not generally observed in this paper.

[2] In Pennsylvania, taxicabs are regulated by the state Public Utilities Commission, and in Connecticut they are regulated by the State Public Utilities Control Authority, or alternatively by local Transit Districts if the local authorities so choose.

Note that, even with local control, in some cases different authorities (frequently with non-continguous geographic boundaries) may be responsible for public transportation regulation. For example, a city may promulgate the local taxi ordinances while a regional transportation authority is responsible for mass transit. The measure of problems which this can create is determined by the degree of interdependency and cooperativeness which exists between the two parties.[1] It should also be noted that there may be a real or perceived conflict of interests that causes problems for taxicab operators if the local regulatory body is the fixed route operator.

5.2 Regulation and Service Definition

Historically, regulation has often focused on the carrier and the service indiscriminately. In a simpler world, this caused little difficulty since there tended to be a one-to-one correspondence between carriers and services. However, as the number of types of services grows and individual carriers begin providing a variety of services, the regulatory environment becomes increasingly ambiguous.

New paratransit services must find a niche in the family of transportation modes that falls within the overall state/local regulatory purview. They must be identified in a manner that is independent of the identity of the carrier providing the service. The process of determining the responsible regulatory authority for a new service may be as difficult and as important as any other state of development, since it may determine the

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[1]In Seattle, for example, The City of Seattle and King County jointly set fares but have separate licensing. Since January 1, 1977, geographic restrictions have been freed, allowing certificate holders in either jurisdiction to operate in the other as well.

guidelines to which the service must adhere and the flexibility for innovation which will be possible.

Questions that arise within the regulatory context when a new paratransit service is proposed include:

- Which regulatory authority(s) have jurisdictional control over the new service?
- How shall the new service be conceptually defined to distinguish it from other modes that are already available?
- How will the operating rules of the new service be tailored to allow it to complement existing modes without adversely affecting them?

The following sections will place these questions in a framework of typical dilemmas posed by the confrontation between conventional and innovative transportation services.

5.2.1 Historically Recognized Services

Typical transportation service (for hire) categories that have been recognized historically by state or local regulation, either implicitly or explicitly, may include:

- Unregulated services
- School bus services
- Airport limousines
- Ambulance services
- Contract services
- Charter (group or party) services
- Taxicab services
- Mass transit

Specific terms may vary from place to place, of course. A brief generic description of each service is provided below to help clarify the general service concepts embodied in the list above.

- Unregulated Services: Unregulated services are normally excluded from regulation for one of two reasons. First, they may be specifically excluded by virtue of not charging compensation from the passenger. Second, some services may avoid regulation simply because they are not easily recognized as a conventional type of service, and potential regulatory authorities choose not to bother trying to bring the new service under their umbrella. Free Social service agency transportation and carpooling arrangements may be typical examples of unregulated services.

- School Bus Services: School bus services are for the transportation of school children to or from school or school-sponsored activities. In all states any common carrier transporting school children is subject to special vehicle equipment and marking requirements and operator licensing requirements.

- Airport Limousine: Airport limousine services are frequently identified to permit the one form of demand-responsive shared-ride service which has received wide historical acceptance. These services may range from regularly scheduled shuttles to major hotels, to shared-ride vehicles operating out of various suburban localities upon telephone request.

- Ambulance: The scope of ambulance services may be broad enough to include services provided when special vehicle equipment or design is needed, or when an escort/aide is required to accomodate passenger disabilities. Special equipment may include such diverse facilities as oxygen or wheelchair lifts. Problems may arise in distinguishing non-emergency service for the disabled from genuine ambulance service.[1] Many ambulance services are now private non-profit to escape some regulations.

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[1] In Connecticut, for example, ambulance services are regulated by the Ambulance Commission of the State Department of Health. Ambiguity in the jurisdictions of the Ambulance Commission and the Public Utilities Control Authority was clarified as follows: Where applicant sought livery permit only to operate specially designed medicars for transportation of wheelchair patients, convalescents, infirm and handicapped people and elderly in non-emergency service, applicant did not render ambulance service and, therefore, jurisdiction to issue permit lay in Public Utilities Commission rather than in Ambulance Commission.

If one wishes to provide medical assistance and transportation to persons in need thereof, a permit must be obtained from the Ambulance Commission. (Section 19-732, Notes of Decisions, Flanagan Ambulance Service, Inc. v. Public Utilities Commission (1971) 286 A. 2d 315, 161 Conn. 215.)

- Contract Services: Contract services are services provided on a regular or continuing basis under contract to some individual or organization.[1] Many paratransit services, or in fact even ordinary taxi service, can fall within this definition if a city or human service agency contracts with a supplier to deliver service. Contracts may be written simply to ensure the availability of service or to provide a mechanism for public subsidy (see discussion in Chapter 5).

- Charter Services: Charter (group or party) services are services provided for specific trips, for which payment is determined at a flat rate independent of the number of persons traveling. Vehicles are reserved for the exclusive use of the group which arranges the charter. Sightseeing trips for clubs or organizations are a common example. When standard-sized vehicles are used instead of buses this may be known as livery service.[2]

- Taxicab Service: There is no formal definition of taxicab service at the federal level. Therefore, all interpretations of the scope of taxicab services must be determined by state or local definitions. In most places, taxicab services are defined to incorporate two fundamental service concepts. First, they are vehicles for hire that are for the private and exclusive use of individual passengers. Additional passengers may be accepted only at the discretion of the first party. Second, the vehicle route may be determined by the passenger. These concepts may be informally contrasted with the concepts of mass transit or shared ride paratransit services, which accept passengers and choose routes at the discretion of the operator.

  In some locations, taxicabs may be further limited in scope (or, in some instances, defined entirely) by restrictions on vehicle type[3] or fare basis. These types of definitions may further impede the ability of taxicab operators to qualify as mass transit operators for the purpose of operating shared ride paratransit services or receiving subsidy.

- Mass Transit: Historically, definitions of mass transit contained in state legislation have had components which reflected both the regular, public availability of the service and, quite frequently, a component defining specific service attributes (most often operation between fixed termini, over a regular route, on a regular schedule). The broader definitions of the first sort generally would seem to be inclusive of paratransit services, while inclusion of the second component is much more restrictive.

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[1] In New York state, this definition is expanded to include taxicab service outside the local municipality as contract carriage. The terms used in this section are only intended to represent general service concepts and may be at variance with local usage.

[2] Typical livery services may include chauffeured limousine services for weddings, funerals, etc.

[3] Pennsylvania, for example, requires four-door passenger automobiles.

The core of paratransit regulatory disputes has almost invariably been related to the relative definitions of taxicab service and mass transit service. As the two established poles in a newly identified range or spectrum of public transportation services, these modes represent powerful vested interests with immediate concerns over the future direction and control of paratransit. In the context of paratransit services which reflect a hybrid merger of the extremes of conventional mass transit and private taxicabs, the definitions and applicable regulatory framework tend to be ambiguous and overlapping.

In several cases, taxicab operators have attempted to exploit these ambiguities by claiming to be mass transit operators under state definitions, thereby hoping to lay a stronger claim to the right to be bought out as a condition of the introduction of paratransit services, or to collect damages in lieu thereof. For example, taxicabs in Santa Clara County, California, were able to collect damages and prevent the implementation of a dial-a-ride service because they were judged to fall within the definition of transit as defined within the Santa Clara Transit District enabling legislation.[1] In a more positive vein, the ambiguity creates opportunity for aggressive private paratransit operators to move into the delivery of new services. This would allow them to expand their business with the assistance of UMTA or state DOT funding. (Implications of federal laws and policy are dealt with in greater detail in Chapters 6 and 7).

The legal definition of the term "mass transit" under state laws may have dramatic impacts upon both public and private operators. It may also determine the course of paratransit policy development and implementation. Specifically, the definition can have three repercussions at the local level:

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[1] In a similar case in Orange County, Ca., the taxicabs lost their suit because they were judged not to be transit operators. The different outcome of the two cases can be directly attributable to the more specific definition of transit contained in state transit district enabling legislation applicable in the latter instance.

- UMTA and state assistance is generally contingent upon the service being considered mass transportation as defined by the applicable statutes.

- The ability of private taxicab operators to move to exploit new paratransit markets may be seriously constrained by codified legal definitions of operating characteristics (which must be amended by act of legislature to permit new types of service by the private operator).

- In general, in those (limited) instances where private mass transportation operators are offered certain protections under state law, taxicab operators will receive these protections only if they qualify under the definition of mass transportation.

State/local definitions of mass transit vary. These definitions may cause some interesting and not always desirable results. In New York, for example, mass transit is defined to include only services provided in vehicles with seating capacity of eight or more passengers. Thus, shared ride services are not eligible for state assistance when provided in taxicabs, but are eligible if provided by larger (often less efficient) vehicles (e.g., vans).

Similarly, private operator claims to recovery for damages from the introduction of publicly operated paratransit services may hinge on the ability of the operator's service to be included within the definition of mass transit. The parallel cases of Santa Clara and Orange counties, mentioned earlier, had different outcomes for precisely this reason.

5.2.2 New Paratransit Services

Within the preceding framework of conventionally recognized services, it is easy to visualize the types of regulatory dilemmas which can be raised by various forms of new paratransit services. Consider the following examples, which are summarized in Table 5-1.

- Subscription Bus: A subscription bus service for the work trip may be considered a contract service, and contracts may be sought with a variety of transportation operators who may have vehicles available. Because of the regular route and schedule characteristics of the service, however, mass transit authorities may claim control, particularly if their revenues are affected. This happened when the community of Reston, Virginia contracted for its own subscription bus service to Washington D.C. and the Washington Metropolitan Area

Table 5-1

Interaction of New and Conventionally Regulated Services

	Unregulated	School Bus	Airport Limousine	Ambulances	Contract	Charter	Taxicab	Mass Transit
Subcription Bus					X			X
Medicab				X			X	X
Human Service Agency (HSA) Providers	X			X			X	
Taxicab HSA Contracts				X	X		X	X
Special School Services		X			X		X	
Offpeak/Feeder Services					X		X	X
Shared-Ride Taxi			X				X	X
Van/Car Pooling	X				X			X
Dial-a-Ride							X	X
Hotel Courtesy Cars	X		X					

Transit Authority protested the legality of this action. Although the case was decided in favor of Reston, the same potential problems remain for other groups less well organized.

- Medicabs: The nonambulatory, most particularly those who use wheelchairs, are unable to use most mass transit services at the present time. If taxicab companies have special lift-equipped vehicles, this form of transportation can be utilized. Of course, when this service is the only mode available, it must fulfill a wider range of needs than it does for other citizens. Thus, special paratransit for the non-ambulatory has become available in many cities. Sometimes the service is provided by a private taxicab operator, while in other cases the service may be provided by other public, for-profit, or non-profit carriers (e.g., Denver, Milwaukee, Pittsburgh). Because of the wide-ranging needs of a clientele which lacks other public transportation options, the services provided may (at times) take on characteristics of fixed route service, conventional taxicab service, or anything in between. This has created a number of conflicts with the gamut of conventional public and private operators, frequently invoking separate regulatory authorities. Furthermore, as noted earlier, even, State Health departments may be called into question to the extent that the service is viewed as overlapping with ambulance services.

- Human Service Agency Providers: Human service agencies receive money from a variety of their funding sources to provide for transportation as an accessory to social service work. Services provided under these programs have grown enormously in recent years, creating conflicts with conventional providers of transportation. Since these services are usually provided without charge to the passenger, human service agencies have attempted to justify that their service does not fall within any regulatory jurisdiction. However, as their services grow and expand, the impacts upon ridership of conventional modes becomes more likely, and this has provided a basis for litigation in a number of cities. Ambulance, taxicab, or mass transit interests may be involved depending on local circumstances. Again, each carrier will claim that agency service is competitive and hence illegal becuase it is not in conformity with a carrier's own regulations.

- Taxicab Contracts with Human Service Agencies: In many recent instances (occasionally as a result of alleged injury by direct operations) private carriers are given contracts to provide services for human service agencies. This may raise a number of regulatory issues due to statutory ambiguities. For example, if a taxicab company provides service in this manner, it remains unclear whether the service should be regulated as a taxicab service, an ambulance service, a contract service, or even (in some cases) as a mass transit service. Suppose, for example, that the service includes what is essentially a regularly scheduled fixed-route service that takes a group of handicapped persons to work. Provision of this service would probably be illegal under a taxicab certificate, but could possibly be legal under a contract service certificate so long as it is not contested by a local regional transit authority. Additionally, ambulance services might protest if lift-equipped vehicles are used.

- Special School Services: School transportation is provided by taxicab companies in a number of cities; in other cities, school children are transported on the mass transit system through specific arrangement when that is more cost effective than providing a separate school bus service. However, both of these arrangements may be illegal in some states because of laws designed to protect the safety of school children.

- Offpeak/Feeder Service: Offpeak substitute and feeder services provided by taxicabs are being tried in several cities to augment mass transit and to make it more cost effective. The intent of these services is to bridge a gap between mass transit and taxicab service. In so doing, the services take on characteristics of both modes and may be subject to claims of responsibility to either mass transit regulations, taxicab ordinances, or both. Resolving the problem of establishing a service that may, in some sense, have to serve two masters can certainly delay, if not completely prevent, successful implementation.

- Share-a-Ride: Shared ride taxicab services often face regulatory resistance from taxicab regulatory authorities. This resistance may be supported by certain segments of the taxicab industry itself. Shared ride and other innovative concepts may be resisted because of a fear of adverse impacts upon the industry or the riding public. To some extent this may be justified, because if an appropriate fare structure does not accompany approval for shared ride service, serious problems may arise. Unfortunately, uncertainties about how an equitable fare structure can be assured is often a deterrent to shared ride experimentation. Past experience with a regulatory process that is slow to respond to needed fare structure adjustments often discourages taxicab operators from being willing to take a risk with a new idea whose rewards are uncertain. A sole exception appears to be the airport ground access market where the nature of demand is easier to project and the added revenues from extra riders can clearly help to offset deadheading costs.

  The introduction of shared ride service can potentially change a taxicab operator's status to that of an operator of "mass transit." For example, in New York shared ride services are eligible for mass transit assistance. This can include service provided by taxicab companies (if provided in vehicles with more than seven passenger capacity) under contract to a transportation authority or other eligible recipient of the state funds.

- Van/Car Pools: Van pooling and car pooling experiments have experienced a number of institutional obstacles. In general, they have attempted to remain unregulated by claiming no compensation is provided by the passengers. There is some vagueness with pooling projects, however, in regard to what constitutes compensation. Since most pooling efforts involve a sharing of costs among riders and sometimes employers, it may be argued that compensation is or is not involved. Localities originally handled this question using a variety of criteria, and pooling

efforts responded accordingly. For example, in some places compensation was only permitted "in kind", meaning that a rotating driver arrangement had to be used. In other cases the cost of the pooling had to be incorporated as an "employee benefit" by the employer. More liberal arrangements allowed specific cash transfers from passengers to regular volunteer drivers as long as the payment only offset incurred costs but did not include a profit. Still other areas allowed additional benefits to the driver in the form of limited privileges for personal use of the company van. In part, the nature of the limits imposed is a function of the scale and formality of the arrangements and the perceived adverse impacts on mass transit ridership. Many, if not most, areas have now specifically deregulated vanpooling that does not involve "carriage for hire or profit", by legislation or administrative ruling.

- Dial-a-Ride: Dial-a-ride services, like offpeak and feeder taxi services, represent a hybrid of two well defined existing services. This may cause opposition from either mass transit or taxicab interests, depending upon whom may feel threatened by a particular project. Even without direct industry opposition, legal entanglements may arise from questions of who should regulate the new service and what rules should be imposed. In fact, who should regulate the service - mass transit or taxicab regulatory authorities - is a point of contention precisely because that choice may determine the nature of the operating rules which are established. The operating rules, in turn, will influence how the new dial-a-ride service complements or competes with various existing modes. Thus, for example, the taxicab industry may be interested in seeing a new dial-a-ride service controlled by their own regulatory authority in order to protect their own service from undue competition. If they are in the position of being the service providers, they will be even more concerned that the service not be regulated by a separate mass transit authority, lest they find themselves simultaneously regulated by two authorities with conflicting objectives.

- Hotel Courtesy Cars: As a final example of the regulatory dilemma posed by paratransit services, consider the growing fleet of hotel courtesy cars and vans which service airport terminals. These vehicles have generally remained unregulated because no direct form of compensation by the passenger is involved. However the question of compensation is clouded by the reality that the passenger ultimately does pay for the service in an indirect fashion through lodging costs. As with pooling arrangements and human service agency carriers, the status of these services will be more frequently called into question in the future as their scale increases to the point of affecting ridership of pre-existing modes.

5.2.3 Summary of the Issues

The above examples have served to demonstrate a potential morass of regulatory confusion surrounding the introduction of new paratransit services. The issues raised can be summarized by recognition of several basic realities of the transportation market and the regulatory framework that shapes it.

First, most regulations were promulgated at least two decades ago in an era when transportation needs were very different. A generally less mobile society, coupled with a heavy dependence on the private automobile and a relative lack of social concern for the transportation needs of the poor and the disabled, led to a transportation supply that consisted of a very few, clearly distinguished alternatives. These included fixed route "mass" transit, exclusive-ride taxi, school bus services, charter services, contract services, and some of the other services described in Section 3.1.

As the transportation needs of an increasingly mobile society have grown, so have the problems of pollution, congestion, energy consumption, and the awareness of the isolation of the disadvantaged. Increasingly flexible responses are needed, and so conventional modes suffer from inadequacy at the same time that there is a push for new services. Thus, the second point is that conventional providers of service are struggling to protect an increasingly unprofitable existance at the same time that a range of new competitive services is being introduced. Their response takes the form of either trying to prevent the new service or trying to assume the right to provide it.

This struggle is complicated by the hybrid nature of most new services. In most cases, at least two different conventional sectors have some basis for an active interest in the new service. This interest may be based on either of two claims:

- The new service shares characteristics of an existing mode which render it subject to regulation by the same authority that controls the existing carrier.
- The new service will be or is sufficiently competitive with the existing mode to cause an adverse impact on ridership and revenue, and should therefore be subject to regulations designed to protect existing carriers.

Carriers affected by a new service are interested in having that new service regulated, and in particular they are interested in seeing it regulated by their "own" regulatory authority rather than by a different authority. This is because the identity of the regulatory authority will predetermine, to some extent, the point of view that is taken with respect to regulation. For example, if a regional transportation authority assumes

regulatory control over dial-a-ride services, those services will be defined and controlled in such a way that they are less likely to compete with mass transit service. Problems of interference with taxicab operations may take a lower priority than would be the case if the new service fell under the aegis of the taxicab regulatory authority. Therefore, all existing operations - public or private - will have a vested interest not only in seeing how a new service is regulated, but also by whom it is regulated.

Finally, an existing carrier may want the right to provide the new service. Again, prospects for this can be enhanced by an appropriate regulatory authority. However the hybrid nature of many new services may continue to generate confusion in an environment where no specific regulations have been designed to respond to the nature of the new service. When responsibility for a new service is assigned to a regulatory authority, that authority frequently attempts to define the new service within the context of conventional services or certificates. This has the effect of tying the new service to many of the strictures that constrain existing services. If the new service is not actively defined, on the other hand, then confusion will remain as to the basis for regulation of the new service. Thus, for example, a shared ride contract with a human service agency may be argued to be authorized under taxi certification, under contract carrier authorization, or not covered by any regulations at all.

The only way to end this confusion is to begin to define new services in their own right. This must be accompanied by specific rules applicable to the new service as appropriate. Details which must be included for each type of service are: driver and equipment requirements, the method of operation, the basis of fares or charges, and reporting and other general requirements.[1]

5.3 Legal Protections Afforded Private Paratransit Operators Under State and Local Law

As may be inferred from the previous discussion, the potential for injury (in the form of declining business) to existing private paratransit operators

[1] See, for example, pp. 55-73 of the ITA Model Ordinance Compendium.

has been a primary concern as localities have moved to develop new types of paratransit services.[1] A key question which has arisen in many locales is the nature and extent of legal protections which may (or may not) be afforded private operators. While there may be basis for claims for protection or compensation under federal law (as reviewed in Chapter 7 of this report), this discussion will be confined to potential areas of protections under state and local laws. There have been two basic types of claims for protections by private operators which have been litigated on the state and local level over the past decade:

- Claims for protection or compensation based on rights and privileges contained in operating certificates
- Claims for protection or compensation based on state enabling legislation creating public transportation authorities

Claims for protection or compensation based on the belief that the issuance of an operating certificate (also known as a "franchise," "license," or "certificate of public convenience and necessity") created a protected franchise with a (compensable) property right have been adjudicated in several locations. The "landmark" decision appears to have been rendered in the context of the implementation of the Ann Arbor Michigan dial-a-ride system.[2,3] In that instance, an aggrieved taxi operator filed suit to halt the Ann Arbor Transportation Authority (AATA) from implementing and directly operating a dial-a-ride system. The suit claimed that the existing certificate of public convenience and necessity held by the private taxi operator constituted a franchise right which implied exclusive operating rights. The court ruled[2] that the issuance of such a certificate by the city represented the granting of a privilege to operate, rather than an exclusive right (to directly operate services).[2,3] The court noted that operating certificates

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[1] A useful review of relevant cases and their impacts is being released in a report entitled, Analysis of Litigation Initiated to Prevent Paratransit Implementation, by R. Gundersen, Transportation Systems Center, U.S. DOT.

[2] Kon et al, v. City of Ann Arbor, Civil No. 5967, Washington County Circuit Court, September 7, 1971, and

[3] Kon v. City of Ann Arbor, Ford Motor Company and Ann Arbor Transportation Authority, Michigan Court of Appeals, File No. 12748, June 2, 1972.

are privileges granted by the body public unless these rights contain explicit assurances, protections or guarantees against competition. Thus the nature of the actual operating certificate - its explicit guarantee - forms the basis for any protection which potentially may be afforded existing private operators.

In reviewing state or locally issued operating certificates, three basic groups emerge:

- The certificate may carry a guarantee to the holder that s/he will be free from competition
- The certificate may carry a guarantee that no competitive certificates will be awarded
- The certificate may constitute a right to provide service only, with no guarantee against competition

The overwhelming majority of existing certificates falls into the last category, and thus embodies no inherent protection for the certificate holder against competition.

The second general area of state and local law under which private operators have pressed claims for special protection or compensation is enabling statutes creating public transportation authorities. These statutes typically include a clause that requires a transit authority to buy out (or compensate for damages) all existing transit systems if it intends to establish a system itself. In California, two suits brought by private operators summarize the impacts which this kind of "buy-out" clause can have. In Orange County, the private operator lost his suit, while the Santa Clara County operator won. The difference in outcomes was directly attributable to different legal definitions of the term "transit" in the two counties.[1] Therefore, a private operator who is considering the possibility of trying to block a competitive paratransit system under a similar claim (or force the transit district to give the private sector full opportunity to provide the service) should carefully consider whether the service that s/he currently provides can legally be construed as an "existing transit system".

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[1] In California, each locality has a unique enabling statute for a transit authority. These statutes vary somewhat from authority to authority.

In Westport, Connecticut, the possibility has been raised that the compensation clauses of eminent domain statutes could be invoked when a publicly provided service deprives a private operator of profits. To date, however, this issue has not been litigated and the outcome there or in other locations remains uncertain. However, the federal court noted that profits generated from a franchise do not constitute "property" per se under federal law; it suggested that profits generated by operating privileges probably could not be considered "property" unless specifically enumerated protections were associated with that privilege.

5.4 Promoting Innovation

Many of the issues raised in this chapter point to the need for comprehensive long range development of regulatory policy. It is ironic that while the concept of the metropolitan planning organization (MPO) has facilitated the development of comprehensive long range transportation service planning, frequently the implementation of these efforts is frustrated by confusion or resistance at the regulatory level.

Ideally, regulation should encourage market responsiveness rather than tolerate (or discourage) it. This requires a turn-about of several common regulatory practices. One of these has already been cited in the preceeding section. New services should not be constrained by being interpreted within the scope of conventional services, nor should they be permitted to exist undefined. New services do not necessarily need to be closely regulated (carpooling, for example), but they do need to be at least explicitly recognized within the overall regulatory framework. That is, an explicit policy must be put forward regarding potential paratransit services. Whether that policy is a complete set of regulations, a disclaimer of regulatory responsibility, or something in-between, the effect at least will be to assure potential providers of what they will or will not have to deal with.

Second, regulations for existing services need to be updated. As indicated earlier, many current regulations are twenty or more years old. Many improvements can be made to make conventional modes more responsive to present-day needs, which may help solve some of the economic crises currently found in many public transportation operations. As one example, many taxicab ordinances specify vehicle requirements which are inappropriate today. Vans

are often difficult to authorize under taxicab ordinances, yet they fullfill a useful role in providing transportation. Innovations in vehicle design are highly likely as a result of UMTA's paratransit vehicle project and other related efforts. Thus, regulations should begin to focus more on vehicle equipment and safety criteria instead of on specific vehicle types. This will help promote hardware innovation that may prove beneficial to meeting old and new transportation needs.

Third, regulations should recognize a more realistic approach to pricing policies. This implies two things. First, new services may demand new pricing strategies. For example, shared ride services may be publicly unacceptable with meter fares that fail to take into consideration the disutility of deviation to serve other passengers. Introduction of shared ride service in some areas may require approval of a new fare basis in addition to permission to provide service. Route deviation systems are another good example of the need to develop innovative fare structure in order to make new services viable.

The other aspect of pricing policy is perhaps more profound. Innovation in any industry carries with it an associated risk. This risk will not be accepted by providers unless there is a potential for added profit that outweighs the added risks. Regulatory policy, however, typically evaluates fare schedules on a very straightforward basis determined by the operating ratio or rate of return on invested equity capital. This practice tends <u>not</u> to make allowances for additional profit on innovative services, and hence discourages carriers from taking any risk or initiative by offering a new service. This in turn tends to stagnate the market.

One of the problems facing potential innovators is that regulatory agencies are traditionally slow in responding to requests and conservative in their ultimate decisions. Admittedly, the regulatory agency is usually faced with mediocre information on which to base its decisions and is responsible to a broad constituency of the public. One device which is useful in stimulating innovation despite these problems is the concept of temporary approval. Surprisingly, many regulatory agencies do not appear to have explicit authority or guidelines on which to grant temporary approval for experimental concepts. At the same time, there is not likely to be any prohibition of this practice,

and it can provide a useful tool for the authority, carriers, and the public to participate in testing of new ideas without a threat of being locked into a system which may prove unacceptable. In effect, it provides a guaranteed review of pricing and other aspects of the service for carriers and leaves an "out" for the authority if the service is not well received.

6.0 The Federal Planning and Funding Process

6.1 Introduction

Urban transportation planning in the United States is a highly complex process which tries to coordinate an enormous number of factors with diverse and often conflicting goals and objectives. It is the intent of this chapter to provide an overview of the principal sources of federal transportation funds, as well as the (mandated) planning process, that in general must precede use of these funds. With the material in this chapter for reference, the reader should consult Chapter 9 for a brief list of steps that can be taken to gain access to the public planning and programming process in his/her own local area.

While planning is essentially a locally organized and operated undertaking, it is strongly influenced by federal regulations which are largely process-oriented in nature and which serve as necessary conditions to access federal assistance programs for transportation planning, facility construction, and operation. State assistance programs and other legislation, to varying degrees, also alter the process and its products. Yet, in spite of what might superficially appear to be an overwhelming federal/state involvement, the localities really hold the key to the outcome of the process itself. It is the locality which actually determines specific goals and objectives, identifies needs, generates and evaluates the proposed solution alternatives, and decides not only which projects to choose but also how to choose them. Federal regulations define process-oriented criteria to ensure that necessary steps are taken and alternatives considered; the actual decisions are locally made, based on local criteria.

It is useful to divide federal planning and funding activities into two categories - those administered by agencies of the U.S. Department of Transportation, and those of other executive agencies in the U.S. Government. In each case there are fairly well defined procedures for determining planning requirements, basic eligibility requirements, and regulations associated with actual application of federal monies. This chapter will concentrate on DOT-related activities but will also give consideration to other sources of federal funds.

6.2 U.S. Department of Transportation Planning and Programming Process

For U.S. DOT programs, each urban metropolitan area (50,000 or more people) is required to maintain a continuous transportation planning process in order to be eligible for most categories of funding. This process is designed to provide coordination of transportation activities and to ensure that all interested parties have a voice in how the DOT-supported programs proceed.

U.S. DOT funds can be used by state and local government agencies for a wide variety of transportation activities. Among those of interest here are planning of innovative or conventional services, acquisition of vehicles, construction of facilities such as maintenance garages and shelters at transfer points, subsidizing operating deficits, and purchase of transportation services from private operators on a per mile or other basis. In the case of demonstration projects, federal funds can be used for nearly any expenditure associated with a new service, including various start-up costs.

U.S. DOT spends billions of dollars a year with expenditures for urban public transportation operations in the range of $1 billion per year. U.S. DOT funds are made available in several ways. First there are formula matching grants in which the amount is predetermined for each state and metropolitan area and must be matched by local funds. Second are discretionary matching grants which are allocated based on UMTA review of individual applications and require matching funds. Third are discretionary demonstration project grants which are fewer in number but have the advantage of requiring little or no local matching funds.

An overview of the urban transportation planning process is presented in Figure 6-1. In the flow chart, squares indicate organizations or groups, ovals indicate actions or tasks, and rectangles indicate products of the process (i.e., documents).

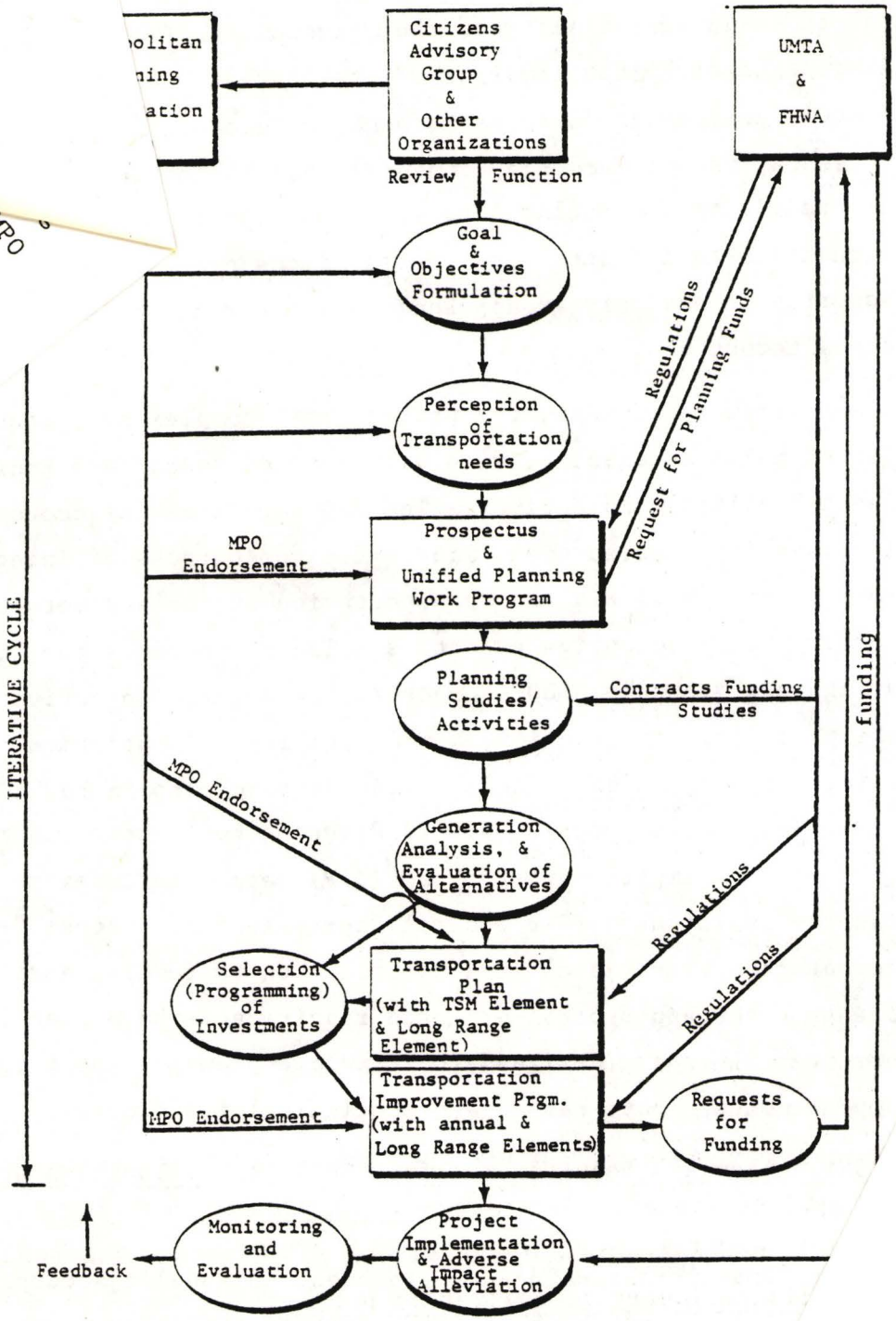

Figure 6-1. Overview of the Urban Planning

The local response to federal requirements involving the trans
planning process is the responsibility of the Metropolitan Planning
(MPO), which is designated by the governor of the state to carry out t
function. The MPO's role is to serve as a forum for cooperative decisi
by elected representatives of local government; thus, the membership of t
is directly responsible to the public. However, the public has other and
effective opportunities to influence the course of the process directly, th
citizens' transportation advisory groups and public hearings called to discus
specific project alternatives.

As can be seen from the figure, the process is a complex one, requiring the coordination of multiple agencies with a variety of functional and/or modal responsibilities and multiple objectives. The MPO serves as the coordinating mechanism, a legal entity created specifically for the purpose of integration and coordination activities within the transportation sector and between transportation and other public and private sectors. The MPO becomes the "transportation clearinghouse" for the USDOT-supported transportation activities in coordinating the planning, construction, administration and operation of transportation facilities and services. The MPO must develop certain basic informational materials (e.g., Prospectus, Unified Planning Work Program, Transportation Plan, Transportation Improvement Program (TIP), etc.) in order to be eligible for federal assistance. The federal "certification process," in which this documentation is reviewed as a precondition to federal assistance, serves to ensure that certain process-oriented requirements have been fulfilled; the requirements themselves are designed to stimulate planning and programming in a "3-C" (comprehensive, coordinated, and continuing) framework.

Federal Guidelines and Requirements for USDOT Fund Allocation and Dispersement

While the urban transportation planning process is locally accomplished planned, the driving forces which structure it are the federal regulations which govern the dispensing of federal technical study, capital, and operating assistance funds. As provided in the Urban Mass Transportation (UMT) Act of 1964, as amended, each urbanized area must have a continuing, cooperative, and comprehensive transportation planning process that results in plans and programs

consistent with the comprehensively planned development of the area to be eligible for such assistance. The federal regulations and requirements are aimed at directing the process by which localities arrive at their decisions on transportation improvements rather than at prescribing specific standards of efficiency or investment policies.

As tangible evidence of compliance with these requirements, federal policy requires the development of several products of the planning process.

Basically, three major products are required:

1. the Prospectus and the Unified Planning Work Program,
2. the Transportation Plan, and
3. the Transportation Improvement Program.

6.2.1.1 The Prospectus and Unified Planning Work Program

The federally required Prospectus presents a description of the issues and procedures controlling the local planning process, and details the functional relationships among the participating agencies. It is a multi-year, rather than annual, document which establishes a framework for accomplishing the Unified Planning Work Program.

The Unified Planning Work Program (UWP) specifies all planning activities within the metropolitan region related to transportation which are expected to occur within the coming one to two years. This includes both federally and non-federally sponsored work.

The Unified Planning Work Program (UWP) is a programming document which details all planning and technical study activities and "programs" (allocates to individual projects) available state and local funding to support these study activities. (Federal funding programs to support these activities are described in Section 6.2.3.)

6.2.1.2 The Transportation Plan

The purpose of the Transportation Plan is to set forth a complete itinerary of both long and short range improvements planned to meet the transportation needs of the area. It is the transportation component of the area's comprehensive development plans, and as such it must be integrated and consistent with long range land use and development objectives.

A new component of the Transportation Plan, required by establishment of joint UMTA/FHWA regulations in September, 1975, is the Transportation Systems Management (TSM) element. Its specific focus is those projects which can serve the short-term needs of the area by the improved use of existing facilities and resources rather than the construction of new facilities or major capital investments in existing facilities. It should be recognized that Transportation Systems Management includes not only public transit and automobiles, but other components of the overall transportation system such as bicycles, taxis, and pedestrian facilities. Improvements specified in the TSM element may include traffic engineering, regulatory, pricing, operational and other improvements aimed at making more efficient use of existing transportation resources. This element is aimed at the coordination of such operational improvements to all modes of transportation.

In addition to the TSM element, the Transportation Plan is required to contain a long range element which deals with such items as new transportation facilities, major changes to existing facilities, and the introduction of new transportation policies. While the operational issues dealt with in the TSM element are clearly distinguishable from the types of improvements which make up the long range component of the transportation plan, there exists an important interrelationship between them. The implementation of TSM improvements can alter the demand for the capital intensive improvements of the long range element and may provide valuable input to the estimation of potential demand for the planning phases of these projects.

6.2.1.3 The Transportation Improvement Program (TIP)

The Transportation Improvement Program (TIP) is the multi-year implementation plan for the projects developed in the Transportation Plan (including those not federally aided). Thus, the TIP is the programming document which identifies capital and operations transportation projects to be undertaken in the coming three to five year period and identifies anticipated sources of federal, state, and local funding to support these projects. The incorporation into the TIP of projects developed in the TSM element has been made a condition of UMTA program approval. Since March 30, 1977, UMTA program approval, in urbanized areas with populations of 200,000 or more, hinges on the demonstration of reasonable success in implementing previously programmed projects.

The TIP covers the programming of multi-modal investments over a three to six year period (the precise length being determined by the locality). Those projects proposed for implementation during the first year make up the "Annual Element," which further describes the individual projects, their estimated costs, and proposed sources of funding. Clearly there should be consistency between expected costs and funding, since the inclusion of projects in the Annual Element constitutes a commitment by the locality to implement these projects.

The TIP serves to demonstrate the priorities of the urbanized area by virtue of the decisions made concerning which projects to implement immediately and which to postpone. Of course, provisions are available for updating the plan whenever necessary, and endorsement of the current Annual Element by the MPO is required each year. At any point in time, however, the TIP constitutes the culmination of the planning process by expressing how and when the area intends to meet its perceived transportation needs.

6.2.1.4. Handicapped and Elderly "Special Efforts" Requirements

In order to qualify for UMTA funding, metropolitan areas are required to give consideration to the transportation needs of the handicapped and elderly. Specifically, they must observe three requirements as follows:

1. They must display "special efforts" in planning public mass transportation facilities and services that can be utilized by elderly and handicapped persons;

2. They must include projects or project elements designed to benefit elderly and handicapped persons (particularly semi- and non-ambulatory persons) in the Annual Element of their TIP; and

3. They must demonstrate reasonable progress after September 30, 1977, in implementing previously programmed projects.

These regulations are found at 49CFR § 613.204.

Although no specific "special efforts" projects are necessarily mandatory, suggested levels of effort have been described that UMTA would deem satisfactory. Projects are specifically defined to include payment of current operating costs of previously purchased wheelchair-accessible equipment, and expenses associated with indirect methods of providing service, such as subsidies to reduce taxi fares for wheelchair users or trip coupons provided directly to wheelchair users. Under specific conditions, UMTA 16(b) 2 projects may also qualify.

In the advisory information on planning requirements under joint UMTA/FHWA (Federal Highway Administration) regulations, the private operators' role is recognized as follows:

> Maximum feasible opportunity should be given to private carriers, whether or not they are presently providing mass transportation services, to provide some or all of the services selected.[1]

6.2.2 Interaction Between the Public and Private Sectors in the U.S. DOT Transportation Planning Process

As described earlier, the Metropolitan Planning Organization (MPO) is the key public agency which drives the planning and programming process, thus directly controlling the flow of U.S. DOT funding into an urban area. This control is ultimately achieved by the MPO's legal responsibility to adopt the

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[1] Both the regulations and advisory information are published in The Federal Register, Vol. 41, No. 85, April 30, 1976, pp. 18234-18241.

regional (long and short range) plan and the programs of projects (TIP) to be studied and implemented over the coming years. While the actual (local) allocation of federal funds is a legal responsibility of the MPO, an organization which legally must be constituted by elected public officials, the planning and process guidelines promulgated by U.S. DOT are designed to afford private citizens and potentially impacted private businessmen a reasonable opportunity to actively participate in the decision-making process. This opportunity is afforded through two mechanisms:

1. Legal guidelines inherent in individual funding programs which require public hearings and citizen input in the project planning stages. This is particularly true for major capital investment projects, such as highways and major transit capital investments.

2. Legal protections which are contained in funding programs for private individuals and corporations preventing taking of property through federally supported projects without just compensation.

Private taxicab operators and concerned public officials should be aware of each of these "access points" to the planning and programming process. Continuing participation by private operators in the deliberations of the MPO is extremely important because it gives the private and public sectors the opportunity to address their appropriate concerns in a timely fashion and in a forum which has the authority to respond to those concerns. No projects can be funded by U.S. DOT sources unless they appear in the programming documents (the TIP and UWP) issued by the MPO. The long- and short-range plans for a region should be developed with a basic understanding and objective concerning the future role of both public and private providers within the region; this understanding should be reflected by the programming documents (the Unified Planning Work Program and the Transportation Improvement Program), since consistency between plans and programs is a requirement to remain eligible for U.S. DOT funds.

In addition, U.S. DOT funding programs contain specific language which affords private operators certain basic protections concerning their equity interests. While the extent to which these protections apply to private paratransit operators is still somewhat unclear, federal administrative policy in this area has been rapidly evolving to expand these protections to ensure adequate protection for private paratransit operators. This is discussed in some detail in Section 7.2 of this report.

6.2.3 U.S. DOT Funding Programs for Urban Transportation

Federal funding for the support or urban public transportation is available from a number of sources, but the most important source is the funding made available through the Urban Mass Transportation Act of 1964 (as amended). Funds provided through this act are administered by the Urban Mass Transportation Administration, and include monies to support:

- Capital equipment and facilities purchase (Sections 3, 5, and 6)
- Operation of public mass transportation systems (Section 5)
- Research, development and demonstration projects (Section 6)
- Technical studies (Section 9)
- Managerial training programs (Section 10)

The allocation of funds is nearly always to a state or local public agency - a municipal government, a transit authority, or a regional agency such as an MPO. With only one exception (section 16(b)2), UMTA funds must be distributed to a public body. Private operators can, for all practical purposes, participate only through contractual or other relationships with public bodies.

It is important to note that all federal funds dispersed under the section 3, 5, 6 programs are subject to the clauses (3e, 4a, and 13c) designed to afford certain protections to private enterprises and existing labor forces, as discussed in Chapter 7 of this report.

6.2.3.1 Capital Assistance Programs: Sections 3 and 5

Sections 3 and 5 of the 1964 UMTA act provide 80% federal matching funds or loans for purchase of capital equipment and support facilities. Section 3 funds are "discretionary" in nature, and are awarded to local agencies after receipt of applications. Section 5 funds are allocated on a "formula" basis[1] and may be used either for capital purchases or operations assistance (i.e.,

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[1] Currently, this formula is based on an urban area's total population and population density at the time of the last census.

funding of operating deficits). The federal matching ratios under Section 5 are different depending on the use of the funds; capital assistance projects require a 20% local matching share, while operating assistance projects require a 50% matching share. While the federal government encourages use of Section 5 formula grants for "routine" capital projects (such as replacement of vehicle fleets), the actual experience to date with the program (which was initiated in 1975) has been that an overwhelming preponderance of these funds has been applied to the operating deficits of conventional, fixed route transit properties.

Private operators whose operations are part of the "comprehensive" public transportation system, can participate only indirectly in the UMTA capital grants program. Since only public agencies are eligible to apply for and receive these funds, private operators are not eligible applicants. However, it is conceivable that private operators, serving as operations contractors to public bodies, could indirectly benefit from these programs when a public body chooses to lease vehicles (purchased through these programs) to the private operator. Such arrangements may be advantageous to both the public agency and private operator in certain circumstances, particularly where paratransit services are contemplated and public sector skills in this service delivery arrangement sector are limited. Contracting mechanisms were discussed in Chapter 4 of this report.

All capital projects which are funded under Section 3 or 5 must be contained in the Transportation Improvement Program produced by the MPO.

6.2.3.2 Operating Assistance Grants (Section 5)

Section 5 funds, as noted above, are distributed to urban areas on a formula basis. Local areas have the discretionary authority to select individual projects to which these funds will be applied. The selection of projects and programming of these funds is officially carried out by the MPO and reflected in the Transportation Improvement Program. Disbursement of funds is virtually automatic once the programming process requirements have been met.

In many urban areas, the local public transit agency is designated by UMTA as the local recipient for Section 5 funds. Since private operators are not eligible recipients of these funds, the participation in projects supported by

Section 5 must be through contractual mechanisms with public bodies - in most cases, the local public transit operator. Because of the substantial increase in recent years in the operating deficits of conventional transit properties, the level of funding for operating assistance is frequently minimal in comparison to identified "needs." Thus, competition for these "scarce resources" is often intense, and newly proposed paratransit services must "compete" with established services for limited support resources. Because these established services have existing user and labor constituencies, and because federal funds must generally flow through the agencies which operate these existing services to get any new service provision, paratransit operators proposing new services or provision of existing services, through an alternative delivery framework often find the political environment more favorable to maintaining the "status quo" and must work hard to bring about changes to the "status quo."

6.2.3.3 Research, Development and Demonstration Programs (Section 6)

Section 6 provides federal money for research, development, and demonstration projects. The funds are discretionary in nature. Approximately 60% is allocated to development of new hardware, particularly new advanced design vehicles and fixed guideway systems. Section 6 funds two specific programs of direct concern to the private paratransit operator. The first is the "Paratransit Vehicle Program," which has expended $2M over the past two years to develop new prototype vehicles for paratransit services. The second program is the Service and Methods Demonstration (SMD) Program, which is designed to test innovative service plans and delivery systems and perform an information dissemination function for state-of-the-art operating techniques.

SMD funding is a promising source for individual projects designed either to prove out a novel approach to providing transportation services or to replicate a novel approach used previously in a limited way. A major advantage is that UMTA can fund up to 100% of the cost of a Section 6 project. Chief disadvantages are that long lead times and great uncertainty are typical, that only a few demonstrations are funded each year, and that the funding support is short term in duration. For example, a frequent course of events is (1) get local agreement on a plan, (2) apply for UMTA technical study grant, (3) perform

technical study, (4) get necessary labor and other agreements, (5) apply for demonstration grant. This process may take two years or longer. Funds are allocated based on UMTA judgement that the proposed project is worthwhile, is consistent with UMTA requirements and objectives, and is competitive with other projects for which funding is being made available. SMD projects do not need to be documented in the TIP.

In FY 1977-78, approximately 25% of the Service and Methods Demonstration Program budget was allocated to paratransit demonstrations.

6.2.3.4 Technical Study Funds (Section 9)

Section 9 funds are used to support technical studies. Section 9 funds cover up to two thirds of the cost of a study. Ordinarily a proposed study must be included in the Unified Planning Work Program (UWP) in order to be funded under Section 9. The studies may include planning, engineering, management, operations, capital requirements, economic feasibility, preparation of specifications, and other work related to improving urban transportation. Urban areas are apportioned technical study funds on a formula basis.

6.2.3.5 Capital Assistance for Non-Profit Agencies (Section 16)

Section 16 of the UMT Act, first enacted in 1970, establishes as a national policy that elderly and handicapped persons must be afforded the same rights as other persons to use mass transportation services and that special efforts to accommodate their needs must be made in planning and programming of funds. In 1973, special funds were earmarked for thsi purpose under a new amendment, subsequently known as "Section 16(b) 2." This program provides 80% of the capital costs for transportation equipment purchased by private, non-profit organizations. Approximately $22 million was programmed in FY 1977 for this purpose.

The 16(b)2 program is unique in many respects. First, the eligible recipients are limited to private, non-profit organizations and exclude for-profit and public operators. Second, the programming of projects is primarily carried out on the state (rather than regional) level, although inclusion of the project

in the regional TIP is required. Third, the program has, in the past year, adopted significant administrative guidelines which are designed to protect private for-profit paratransit providers from UMTA-subsidized competition by non-profit corporations. Fourth, the projects funded under this program have been administratively ruled as exempt from the protective provisions of Section 13(c), which was discussed in Section 7.3 of this report.

6.3 Federal Funding From Non-DOT Agencies

A number of federal agencies outside the Department of Transportation have programs which do or may include paratransit activities. In nearly all cases, transportation is a supporting service necessary to accomplish primary missions such as delivery of health care. Private paratransit operators may attempt to participate by transporting the clients of local social service agencies. The operators can be reimbursed by the social service agencies who in turn receive substantial assistance from federal programs. The social service agencies become very much like (or identical to) other institutional customers of the transportation firm. The main differences (sometimes) include documentation and contractual relationships.

Specific agencies with programs involving present or potential funding for paratransit include:

- U.S. Department of Health, Education and Welfare (HEW)
  - Office of Education
  - Bureau of Education for the Handicapped
  - Bureau of School Systems
  - Bureau of Occupational and Adult Education
  - Public Health Service
  - Social and Rehabilitation Service
  - Office of Human Development
  - Rehabilitation Services Administration

- U.S. Department of Housing and Urban Development
- U.S. Department of Justice
- U.S. Department of Labor
- Veterans Administration
- Community Services Administration (sponsors local community action agencies)
- ACTION
- U.S. Department of Agriculture (Farmers Home Administration)
- Appalachian Regional Commission

The various HEW agencies are most important, spending directly or indirectly hundreds of millions of dollars per year for paratransit. HEW-funded transportation is, therefore, a substantial market for private firms - perhaps 5 to 10% of the annual volume of taxi business in the country.

HEW programs have planning procedures not unlike those described below for programs supported by DOT. There is typically an overall plan for a state or metropolitan area within which individual activities must be coordinated. As with DOT, significant advance planning must be done to get a proposed project into the appropriate plan for the appropriate year.

An example of a major HEW funding source is Title XIX (Medicaid). A typical method of implementation is for the local social service agency to determine that a person is eligible for a trip, call a taxi company to request service, and provide the taxi company with a partially filled out Bill for Medical Transportation (Form W-538). This form includes necessary information about the passenger and the trip. The taxi company is required to fill in the fare (which of course may not be known until the trip is completed), verify that the trip was taken, and return the form to the social service agency. Payment is then authorized and disbursed. The service involved may be exclusive ride taxi service[1], shared ride, or some other form of paratransit.

[1] It is important to note that exclusive ride service, while not eligible for UMTA assistance, often is eligible for support by HEW programs.

Other HEW programs support transportation services in a similar manner. Table 6-2 is a summary of some of the more important HEW programs that have associated transportation activities.

Planning and funding programs are similar to those for DOT but are generally of less importance to the private operator because of the fact that transportation is uaually a small part of HEW-funded activities. What is important is an awareness of the general nature of the process. For example, it is important with certain Public Health Service grants to make sure that transportation is included in the State Plan as one of the activities to be supported by the grant. Otherwise, transportation costs can be disallowed.

6.4 Summary

Transportation assistance is provided from several branches of the federal government (DOT, DHEW, etc.). The multiplicity of funding sources themselves, as well as the intricate process by which funds filter down to the local level, creates a number of problems from the standpoint of achieving a coordinated transportation program in an area and adequately utilizing the private sector. Other reports have addressed the magnitude and diversity of funding, as well as the obstacles posed to coordination as a result.[1] A complete review here would be beyond the scope of this report; however, a brief summary of the basic difficulties is useful.

First, federal funding comes from U.S. DOT and non-U.S. DOT sources. The philosophies behind these two sources are inherently different; U.S. DOT's primary responsibility is for transportation, while other departments see transportation only as a necessary adjunct to achieving their primary purpose (e.g., promotion of health and welfare). As U.S. DOT becomes more legally bound to accept the burden of providing (high cost) transportation for elderly and handicapped persons, no mechanism is readily available to transfer tax

[1] See, for example, Hindrances to Coordinating Transportation of People Participating in Federally Funded Grant Programs, Volume 1, Government Accounting Office, Washington, D.C., October 1977; and Transportation for Older Americans, a State-of-The-Art Report, The Institute of Public Administration, Washington, D.C., April, 1975.

Table 6-1

Major Federal Funding Sources Providing Transportation

Federal Statute	Description	Administering Department (Samples for Connecticut)	Eligibility	Provisions
1a. Older American Act of 1965(HEW) Title III	State & Community programs on Aging	Regional	Elderly	Federal-state formula grant program designed to provide comprehensive services to older people. State plan determines Programs and distribution of resources. Transportation is one service which may be specified. Capital purchase is prohibited; purchase of services is allowed.
1b. Older American Act of 1965(HEW) Title VII	Elderly Nutrition	State Dept. of Aging	Elderly over 60	Transportation is one service that must be provided to support the nutrition programs, if needed. Capital purchase is possible; purchase of service is allowed. Regulations limit amount spent on support services.
2a. Social Security Act of 1935(HEW) Title XIX	Medicaid	Conn. Dept. of Social Services	Income Eligibility required(SSI)	State plan must specify methods for assuring necessary transportation for recipients to and from medical services. Purchase of vehicles prohibited; purchase of service allowed.
2b. Social Security Act of 1935(HEW) Title XX	Public Services	Conn. Dept. of Social Services	Elderly, Blind, Disabled; income eligibility required (SSI)[1]	Transportation is one of many public services which may be included in State Plan. Purchases of service allowed.

*Note: In this table the state agencies listed are those for Connecticut. The particular agencies will of course vary from state to state and among urban areas within a state.

Table 6-1

(continued)

Major Federal Funding Sources Providing Transportation for Elderly and Handicapped Persons

Federal Statute	Description	Administering Department (Regional, State of Local)	Eligibility	Provisions
3. Public Health Service Act of 1944(HEW) Title III	Comprehensive Health Services	Regional HEW Office	None-open to general public	Formula grants. Transportation is an allowed cost if written into State Plan
4. Vocational Rehabilitation Act of 1973 (HEW)	Vocational Rehabilitation	Conn. Dept. of Education-Division of Vocational Rehabilitation	Handicapped, currently unemployed but employable	Purchase of service or purchase of special equipment allowed.
5. Veteran Health Care and Expansion Act of 1973 Title I	Expanded Medical Care		Veteran	Provides stipends for transportation to nearest appropriate VA medical facility.

[1]Supplemental Security Income

Sources

1. Transportaton for Older Americans-A State of the Art Report, prepared for Administration on Aging by the Institute of Public Administration, April 1975, PB-243-441.

2. Transportation Authorities in Federal Human Services Programs, Office of the Regional Director, U. S. Department of Health, Education and Welfare (Atlanta), March 1976.

dollars from the non-U.S. DOT agencies that will seek to re-allocate money for more direct welfare-related efforts. In the short tun, this U.S. DOT/non-U.S. DOT division of responsibility and funding inhibits cooperative efforts. At the same time, recipients of non-U.S. DOT funds (e.g., human service agencies) may be equally discouraged by the prospect of incurring UMTA 13(c) responsibilities as a result of coordination.

Even among recipients of miscellaneous non-DOT funds, there are a number of obstacles to coordination. Insurance costs may escalate significantly if non-affiliated persons (e.g., clients of another agency) ride an agency service. Other problems, such as maintaining independent records for different sources of funds used in a coordinated program, may pose a more difficult accounting challenge than an agency is willing to accept.

In part, the need for independent records is caused by the prevalence of categorical grants that may have associated user and/or trip purpose eligibility restrictions. This problem is so serious that it constitutes a coordination dilemma for programs within a single agency that receives funds from more than one (non-DOT) source. Thus, for example, a county agency may find it impractical or impossible to use all its vehicles interchangeably among programs.

Funding programs frequently have a number of problems inherently built in that specifically prevent adequate utilization of the private for-profit sector. For example, the 16(b)2 program does not permit leasing of vehicles to a private operator. In many other cases, such a practice is permissible but is not economically justifiable because agencies can implicitly "match" funds internally, using their other resources to offset costs of self-run services. Barriers to use of the private sector may also arise from state/local regulation in places where shared ride taxi services are legally proscribed (prohibited).

As a final comment, it should be noted that the uncertain future of demonstration projects inhibits both implementation and growth. Communities are often unwilling to commit to consolidated transportation services funded by discretionary funds, since there is no assurance that the program will continue beyond the current fiscal year.

There are a number of efforts to improve the climate for coordination (including the A-95 review process and the TIP process) but these have had limited effect. It will take considerable pressure from the local level (through individual MPO's, municipalities, human service agencies, carriers, and brokerage "ombudsmen") to change some of the basic funding (and regulatory) conditions that preclude coordination and adequate utilization of the private sector.

7.0 The Federal Legal and Regulatory Environment

7.1 Introduction

Paratransit services have been integral parts of federal programs being carried out by four federal cabinet-level agencies over the past decade. The diffusion of interest in paratransit concepts reflects the fact that the term "paratransit" is still only vaguely defined and does not fit neatly into any of the modally-oriented niches which have traditionally served as the organizational framework for federal policy and programs. Paratransit is, in fact, a family of services, with numerous attributes of interest in numerous contexts.

The Urban Mass Transportation Administration's interest in paratransit has grown dramatically over the past three years. Prior to 1974, UMTA interest in paratransit was largely confined to research and demonstration projects, mostly focused on the dial-a-ride concept. However, since 1974 UMTA interest in paratransit has grown significantly. Through a series of policy memoranda and speeches by the Administrator and Associate Administrator for Policy and Programming over the past two years, a new UMTA policy with respect to paratransit has been evolving.

This evolution in policy has resulted in the "opening of doors" to UMTA assistance funds for those paratransit services which satisfy the test of meeting the definition of "mass transportation" as defined by the 1964 UMT Act. The definition states that:

> The term "mass transportation" means transportation by bus, or rail, or other conveyance, publicly or privately owned, which provides to the public general or special service (not including school buses or charter or sightseeing service) on a regular and continuing basis.[1]

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[1] Section 12(c)5 of the 1964 Urban Mass Transportation Act, as amended by Section 702 of P.L. 90-448 (The Housing and Urban Development Act of 1968).

Services meeting this definition are eligible for UMTA assistance under Sections 3 and 5, regardless of whether they are publicly or privately operated. (More discussion on this definition, and its implications, will follow in the next section.) UMTA has, in the past year, received and funded Section 5 grant requests to support private paratransit services; the principal stipulations for such grants are that:

1. They are included in the normal Section 5 grant application process and reflected in the TSM, TIP, and Long Range Plan for the metropolitan area.

2. The services meet the definitional test of "mass transportation" under the 1964 UMT Act, as amended.

3. Protective provisions with respect to labor and private enterprise rights are observed in the program.

More discussion on the last point, which refers to Sections 13(c) and 3(e) of the UMT Act, is contained later in this Chapter. In addition, Section 3 and 5 grant programs contain administrative regulatory requirements pertaining to satisfying the conditions of making a funding of minimal environmental degradation and (for Section 5) provision of half fares for elderly and handicapped in off-peak periods.

In addition to Section 3 and 5 programs, UMTA has two additional programs which are directly involved in provision of paratransit services. The so-called "16(b)2 Program" provides capital assistance to non-profit agencies for provision of service to handicapped and elderly populations. Paratransit services represent the core of these agency programs. Section 6 Research and Development funds have been used by the "Service and Methods Demonstration Program" to fund a number of exemplary and experimental paratransit projects.

7.2 Definitions and Definitional Issues

Paratransit has been defined by Kirby[1] as "the range of services falling between conventional fixed route bus service and the private, individually occupied automobile." The definition is a broad one, and includes such diverse service concepts as:

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[1] Kirby, Ron, et al., Paratransit: Neglected Options for Urban Mobility, Urban Institute (Washington, D.C., 1974).

Dial-a-ride
Shared Ride Taxi
Route Deviation
Point Deviation
Jitney
Vanpooling
Carpooling
Exclusive Ride Taxi
Auto Rental
Livery and Limousine Service
Multi User Auto Service

A key issue of concern is: Which paratransit services constitute "mass transportation" under the UMTA definition? It is of particular concern because of important underlying issues of basic equity and property rights (fundamental to American legal tradition) and protective concerns with respect to labor. These issues are legally manifest in Sections 3(e) and 13(c) of the UMT Act, respectively.

In reviewing the UMTA definition of "mass transportation" and its interpretation by UMTA policy makers over the past years, several points emerge:

- To fall within the definition, service must be available to the general public on a continuing basis. Potential riders must be guaranteed service.

- To qualify as "mass transportation" the service must be operated so as to allow ridesharing and effect a ridesharing policy without consent of the passenger.

Private and public operators are not distinguished under the definition. However, certain "for hire" services in which the vehicle remains exclusively under the direction and control of one passenger (exclusive ride taxi, limousine, car rental, etc.) are excluded under the present interpretations of the definition. Group loading of taxis does not qualify under the definition since the first passenger has exclusive control over vehicle loading and routing. However, shared ride taxi, in which ridesharing is accomplished as a matter of operating policy without the passenger's consent, does fall within the definition of "mass transportation" as UMTA is currently interpreting it.

The most recent interpretation of the definition, contained in a letter from UMTA Administrator Robert Patricelli to B.R. Stokes (12 July, 1976):

Executive Director of the American Public Transit Association, stated:

> In determining what constitutes "mass transportation", the Urban Mass Transportation Administration (UMTA) is guided by Section 12(c) (5) of the UMT Act of 1964, as amended. That section defines mass transportation as "transportation by bus, rail or other conveyance, either publicly or privately-owned, which provides to the public general or special service on a regular and continuing basis". Within this definition UMTA includes any form of collective transportation service available to the public, i.e., any service which cannot be reserved for the private and exclusive use of individual passengers. Services which qualify as "mass transportation" include dial-a-ride, jitney, shared-ride taxi, community minibus and certain forms of vanpooling. Services which are not eligible for mass transportation assistance are normal and historic taxi services, individual car rental services and for-hire limousine and private ambulance services.

This definition creates potentially explosive areas of federal concern as a result of the existence of Sections 3(e) and 13(c) of the UMT Act. As the taxi sector has awakened to the potentially competitive nature of certain paratransit services, its willingness and eagerness to provide an expanded range of services (beyond traditional "exclusive ride" taxi) has grown significantly. As private taxi companies move into these services, they will clearly fall under the protections offered by the UMT Act.

7.3 Paratransit and Conventional Transit Inter-Relations

Paratransit service concepts do not, in general, pose significant problems with respect to conventional public transportation services. In general, paratransit services can and should be configured to provide complementary spatial, temporal, or market segment coverage, and should, therefore, not compete significantly for the same markets; in fact, quite the opposite is true; as well integrated comprehensive system should enjoy complementary interactions between system components. However, several important conflicts between paratransit and conventional transit are possible. These conflicts - competition for similar markets and labor impacts - will be briefly discussed (the former problem in this section, the latter in the next section). As will be seen from the discussion, the presence of Section 13(c) and the procedures developed for its administration make the issue of competition between conventional and paratransit modes - particularly ride-sharing modes - an important issue with respect to federal policy.

The potential for conflict between paratransit and conventional transit is greatest for two concepts: vanpooling and special market demand-responsive services. Vanpooling clearly has the potential to compete directly with con-

ventional transit, although the potential for competition can be minimized by the organization and administration of the program; clearly vanpools can be restricted to trip patterns not served by conventional transit. Still, the concept could be implemented in direct competition with public conventional transit. This is particularly true in states which have deregulated vanpools from common carrier status and cannot, therefore, legally prevent such competition from taking place.

While the direct competition of vanpools and conventional transit can be rationally viewed as quite harmful from the viewpoint of the transit operator and transit labor, it may have certain virtues from a public perspective. For example, in systems which have severe peaking characteristics, the marginal costs of peak hour services may be significantly higher than the average cost of service. Self-amortizing vanpooling programs could, potentially, help alleviate the peaking problems faced by many conventional transit systems. While this is clearly not a desirous scenario for transit labor, it may be a cost-effective public strategy. The opposition of transit labor (through the use of 13(c) and any other mechanisms or powers available) should be anticipated, as should the opposition of public transit operators whose standards of public evaluation are generally measures of ridership and system coverage, rather than cost-effectiveness measures.

The second problem of competition lies in the area of service to special markets. It has arisen because UMTA legislation earmarks a large amount of funding to the 16(b)2 program, which offers support to a set of public, non-profit agencies for whom transportation is a support service rather than a primary service. Elderly and handicapped have always been viewed as a major conventional transit market, although their importance to the industry is sometimes overestimated. (Although the elderly and handicapped are more significantly dependent on public modes than other population segments, their overall level of tripmaking is significantly lower; trips by persons over 60 account for only 10% of all person trips in the U.S.). The proliferation of specialized services (assisted by Section 16(b)2 funds) clearly offers a large potential for competition with conventional transit and private paratransit, that is unless such service is carefully tailored and targeted to markets and populations who cannot/do not utilize conventional transit. During the initial

phases of the 16(b)2 program, UMTA received significant pressure to apply the Section 3(e) "test" requiring "maximum feasible participation" of private operators in the provision of service. In the more recent history of the 16(b)2 program, the administrative planning requirements surrounding the 16(b)2 program have been tightened considerably, requiring that all potentially impacted providers be provided with the opportunity to comment on proposed grants and requiring full consideration of Section 3(e) in programming decisions. Responsibility for carrying out these procedural requirements rests with UMTA and the state transportation agencies responsible for 16(b)2 program administration within their jurisdictions.

7.4 Protection of Private Enterprise and Equity

Section 3(e) of the Urban Mass Transportation Act of 1964 states that federal aid may not be used to acquire or compete with a private mass transportation service, with certain qualifying exceptions (which will be discussed later). The provision reflects a concern for protection of property rights embodied in the Fifth Amendment (that government shall not deprive individuals of property without "due process" of the law and just compensation); Section 3(e) reflects the concern that subsidies to certain operators may compete with unsubsidized private operators and create competition, drawing away business (passengers and revenues) from a private operator and undermining basic equity rights he may have vested in his operations; thus the use of federal funds for subsidies without "just compensation" to competing private operators could be construed as a "taking of property without due process. However the administrative conditions (outlined below) for Section 3(e) make clear that this protection of property rights is anything but absolute.

Section 3(e) provides three exceptions or conditions to the protective conditions for private operators:

1. The Secretary (of U.S. DOT) finds that such assistance is essential to a program ... for a unified or officially coordinated urban transportation system which is a part of a comprehensively planned development of the urban area.

2. The Secretary finds that such a program, to the maximum extent feasible, provides for the participation of private mass transportation companies.

3. Just and adequate compensation will be paid to such companies for the acquisition of their franchises or property to the extent required by applicable state or local law.

UMTA has administratively interpreted these conditions to imply that the Section does not require taking, utilization, or compensation; rather it requires the Secretary to make findings concerning the adequacy of local planning and the feasibility of making greater use of private operators. Section 7.4.2 discusses the opportunity which a private operator may have to submit these administrative findings to judicial review.

7.4.1 Administrative Precedents Under Section 3(e)

The UMTA interpretation of Section 3(e) has held that only "mass transportation" companies are entitled to protections of the clause. Private, "exclusive ride" taxi services and companies have, thus, not fallen within the protective domain of 3(e). However, recent policy statements and actions by the Administrator indicate an evolution of UMTA policy with respect to requiring inclusion of private operators in the planning process and in affording qualified existing private operators the opportunity to provide services. This is particularly true with respect to the planning and provision of paratransit services. Again, quoting from the Patricelli letter to B.R. Stokes of July 12, 1976:

> "Pursuant to the policy expressed in Section 4(a) of the UMT Act of 1964, as amended, UMTA encourages maximum feasible participation of existing private transportation carriers in the development and implementation of local paratransit programs and projects assisted with UMTA funds. Specifically, local taxi operators and other private carriers (whether or not they are currently providing mass transportation services) must be afforded a fair and timely opportunity to participate in the planning of community-level paratransit services and special services for elderly and handicapped persons developed pursuant to DOT Regulations for Transportation for Elderly and Handicapped Persons (49 CFR 613.204). Local private carriers must also be given an opportunity to recommend the inclusion of private paratransit services in the annual element of the Transportation Improvement Program.
>
> It is against UMTA's policy to subsidize publicly-owned mass transportation systems and private non-profit organizations in wasteful competition with existing private operators when such operators are willing and able to provide paratransit services in an economic manner. Local taxi operators and other private carriers (whether or not they are

currently providing mass transportation services) must be afforded full opportunity to bid for the provision of any general or special paratransit services proposed for implementation with the assistance of Federal funds. If a private operator can demonstrate that he is able to provide the required service in a cost effective manner, he should be given the right of first refusal on any such new services. An honest effort must be made to contract paratransit services out to private operators and to enable them to qualify as providers of such services.

Compliance with the above policy will be ensured by UMTA through a review of the annual element of the Transportation Improvement Program, and of individual paratransit project applications for Section 3, 5 and 16(b) grants. Full review will be instituted upon complaint by a private operator that he has not been given a fair opportunity to participate in an UMTA-assisted paratransit program.

Pursuant to Section 3(e) of the UMT Act of 1964, as amended, UMTA will not provide financial assistance to any publicly-owned mass transportation company for the purpose of operating paratransit services in competition with or supplementary to the paratransit services already provided by an existing local taxi operator or other private transportation carrier, unless it finds that the officially-developed transportation program provides to the maximum extent feasible for the participation of such private carriers. Additionally, compensation as required by State and local law must be made to private paratransit operators for acquisition of their franchises or property associated with the provision of shared (but not exclusive) ride services.

Shortly after the release of this letter, the fact that UMTA shifted its policy to more directly incorporate existing paratransit operators (previously excluded from protections by administrative findings) under the umbrella of 3(e) was confirmed by the announcement of the release of Section 5 funds to the Delaware Authority for Specialized Transportation (DAST). DAST, a public non-profit organization established by state law in 1974 to serve Delaware's handicapped and elderly who cannot use regular mass transit, operates by contracting with various non-profit health and social service agencies to provide transportation services. Agencies refer clients to DAST for transportation, which is provided to them free of charge. DAST had sought, through the Section 5 grant request, to directly provide service to eligible passengers where non-profit agency service was unavailable.

The DAST grant had been held up for many months because of the vociferous objections of Wilmington taxi operators, who claimed they were not being afforded the opportunity to provide contract service to DAST, even where such service might be cost effective.

The terms and conditions for the UMTA grant included use of private contractors - potentially including existing taxi companies - where cost effective. DAST issued RFP's to 56 private firms, and has just executed contracts for approximately 20% of its service with Wilmington Diamond/ Yellow Cab Company.

In announcing the grant to DAST, UMTA Administrator Patricelli expanded still further on the theme presented in his letter to B.R. Stokes:

> The agreement, "reflects UMTA's desire to encourage to the maximum extent feasible the participation of private enterprise in the development and implementation of Federally-assisted urban transportation programs."
>
> "It is against UMTA's policy to subsidize publicly-owned mass transportation systems or non-profit organizations in competition with existing private operators when such operators are willing and able to provide the required transportation services in an economic manner," Administrator Patricelli said. "Local taxi operators must be offered full opportunity to bid for the provision of local paratransit services. If they can offer such services on a cost-effective basis, they should be given the right to provide them under contract with the public or non-profit body."

The withholding of DAST funds until evidence of such good faith efforts to utilize private sector resources lends new muscle to the policy pronouncements.

7.4.2 Judicial Precedents Under Section 3(e)

More recently, a taxi operator in Westport, Connecticut filed suit in Federal District Court to halt implementation of a (subsidized) shared ride taxi service to be operated under contract to the Westport Transit District as a part of a federally sponsored demonstration project, the only litigation to date which directly addresses the applicability of Section 3(e) in a paratransit context. The plaintiff's request for an injunction was based, in part, on the argument that the proposed program violated Section 3(e) of the 1964 Act and constituted an unlawful taking of property without just compensation under the Fifth Amendment. Plaintiff also argued that the project, despite its status as a demonstration project under Section 6, should be subject to the procedural requirements for public hearings and environmental impact findings required under USC § 1602 (d) of other projects funded by the UMTA Act of 1964. At issue in the suit were fundamental

questions of (1) the standing of the plaintiff to sue under Section 3(e); (2) the implications of the Fifth Amendment or UMTA Section 3(e) on compensation due the operator; and (3) the immunity of Section 6 projects from public hearing hearing and environmental impact statements (EIS).

The federal government and transit district argued that the taxi operator was not entitled to "standing" as a "mass transportation operator" since its type of service[1] did not fall within the bounds of the definitional test for mass transportation, which was being applied by UMTA. Additionally, they argued that Section 6 (Research, Development and Demonstration) projects were exempt from the requirements of Section 3(e), as well as from the process requirements (public hearings and environmental impact statements) of Section 3(d) which the plaintiffs claimed had been violated.

The initial ruling[2] favored the defendents (the federal government and Westport Transit District) and established certain important precedents. On the question of "standing to sue," the lower court ruled that the plaintiffs did not have standing, noting that the interest invoked was "arguably within the zone of interest protected by the statute (the 1964 UMT Act) in question." In making this determination, the court invoked a two-tiered test concerning standing which invoked findings of (1) alleged injury and (2) inclusion of the plaintiffs in a class of interests arguably within the zone which Congress sought to protect. This is a "standard" test of standing used by federal courts. The appellate court, however, upheld UMTA's position that the plaintiff was not a "mass transportation company" since it provided exclusive-ride service only.[3]

The lower court rejected the plaintiff's arguments which contended that the project violated certain procedural (public hearing and EIS) requirements, determining that demonstration projects were clearly exempted from these requirements based on the statements of Congressional intent. This was reversed upon

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[1]Exclusive ride service with ridesharing and group loading permitted only with the consent of the first passenger.

[2]U.S. District Court of Connecticut (New Haven), Civil No. B-76-369, April 13, 1977.

[3]Westport Taxi Service, Inc. v. Westport Transit District, United States Court of Appeals 2nd Circuit, Docket 77-6074, January 24, 1978.

appeal based on the determination that, although the project was funded through Section 6, both the intent and the result of the project would be substantial in nature.

On the issue of "unlawful taking or property," the lower court ruled that the action of a public body to undertake subsidized competition with a franchised operator would not constitute a (Fifth Amendment) taking of property. The court stated that:

> "The plaintiff's freedom to exercise their franchise has been in no way impaired even though the profitability of their operation may decline. They have no constitutional right to compensation unless they have a legally protected, compensable interest in operating their franchise free from new competition."

Having determined that the plaintiffs had no federal statutory right to protection from government competition based on the Fifth Amendment, the court then reviewed protections which might be afforded the operator under Section 3(e). The court determined that Section 3(e) only required that participation of private companies be encouraged "to the maximum extent feasible" and that compensation was required only where there was an actual acquisition of franchises or property. Based on the facts presented in the case, the court determined that the defendents had,

> . . . made every effort to invite and encourage the plaintiffs to bid on the participation in the project and negotiated at length on possible roles for them to play under the demonstration grant. Ultimately the plaintiffs declined to bid on the project. The fact that negotiations were unsuccessful does not mean that there has been a statutory violation . . . Further since no franchise or property interest has been acquired to trigger a duty to compensate (Section 3(e)) has not been violated.

The Westport decision establishes an important precedent that implies that the protections afforded private operators against (federally) subsidized competing services are <u>limited</u>; that those protections consist of ensuring only that private operators be afforded opportunities to participate in projects "to the maximum extent feasible."

In reviewing the facts of the Westport case, the lower court determined that the open competitive bid process utilized by the transit district to select an operator met this "test" and that the statute did not protect remaining operators from competition or require compensation. Thus it would

appear that public agencies wishing to implement demand responsive services can most certainly meet their statutory requirements by selecting a contract operator through an open, competitive bid process. "Losing" bidders may have no apparent protections requiring compensation under federal law, even if they are franchised to operate similar services.

As a final note, the judge cautioned that the plaintiffs could possibly have standing to sue under state statutes which could protect their franchise rights. Such protections would necessarily vary from state to state based on both state statutes and legal precedents. (This is discussed in Section 5.4 of this report.)

7.4.3 Summary of Protections Afforded Private Operators Under Federal Law

In summarizing the rights and protections afforded private taxicab operators under the Constitution, Sections 3(d), 3(e) and a recent U.S. DOT study concluded:

> ... recent litigation has resulted in a ruling that ... the procedural requirements of Section 3(e) are required when the result of the (demonstration) assistance could potentially be competition with a "mass transportation company." To date, conventional, exclusive-ride taxi services have not qualified as "mass transportation" and, therefore, have been denied these added safeguards. It should be noted that this recent case is legally binding only in a few states and, although it is clearly persuasive authority, other jurisdictions are free to distinguish the application of capital grant and demonstration grant requirements.
>
> The more difficult question which may have to be addressed in the near future is how to handle an existing transportation company offering both shared-ride and exclusive-ride service. Since shared-ride services are recognized as mass transportation, the issue then becomes what protections would such a company qualify for under this new status. Presently, UMTA's proposed policy requires a finding that the shared-ride portion be more than an "incidental adjunct to its main business" before such provisions apply. How the courts will interpret this administrative direction remains an open question.[1]

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[1] Gundersen, Richard, Analysis of Litigation to Prevent Paratransit Implementation (draft), Transportation Systems Center, U.S. DOT, Cambridge, Massachusetts, May 1978, p. 53-54.

(This latter problem may become particularly complex if the shared-ride service is operated under an assistance contract to a public agency, which may later decide to withdraw that contract in favor of another contract operator or direct operation by the public agency.)

The U.S. DOT report further concluded:

> Private paratransit companies have been unsuccessful in claiming constitutional violations resulting from paratransit implementation. To substantiate the constitutional claim of deprivation of property (business franchise) without just compensation, it is necessary to show that there was a taking of property by the government. The cases have held that there is no taking unless the existing company had a legally protected right (such as an express agreement by government not to compete) to be free from such competition. Another constitutional claim which has been unsuccessful is denial of equal protection of the laws. The one case which analyzed this claim held that transit service was not similar to exclusive-ride taxi service and, therefore, the taxi licensing laws did not pertain.[1]

Although UMTA has administratively interpreted exclusive ride taxi operations as being ineligible for compensation under Section 3(e), due to the fact that exclusive ride taxi is not viewed as "mass transportation," there clearly exists a strong overlap between the markets served by paratransit services and taxi services. Exclusive ride taxi operations are clearly affected by implementation of subsidized demand-responsive paratransit, based on all available evidence to date. This is discussed in Chapter 8. This is the strong underlying recognition behind UMTA's gradual policy shift with respect to the taxi sector's future role in providing paratransit services. As Altshuler states:

> The emergence of paratransit poses the issue of taxi- transit competition in a direct manner; it brings into question the legal and policy definitions of the term "transit" that have guided federal policy over the past dozen years; and it raises a host of extremely difficult questions about how to integrate taxicabs into transit planning, transit subsidy, policy, and publicly subsidized competition.[2]

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[1] Ibid., p. 54-55.

[2] Altshuler, Alan, "The Federal Government and Paratransit," Transportation Research Board Special Report 164, p. 95 (1976).

7.5 Labor Protection in Federal Law, and Its Importance to Paratransit Implementation

The evolution of paratransit services has brought to the forefront a number of issues relating to labor which must be faced as paratransit plays an increasing role in the urban public transportation delivery system. From a federal perspective, and in the context of existing federal legislation and programs, protection of labor rights has been a principal concern. Section 13(c) of the UMT Act of 1964 (as amended) embodies this concern and creates a number of conditions which must be met in order to access federal (UMTA) assistance funds for either (eligible) paratransit services or conventional transit services.

In brief, Section 13(c) states that no employee shall have his (her) conditions of employment worsened as a result of federal assistance under the UMT Act. If such "worsening of conditions" occurs, then the affected employees are eligible for compensation under exceptionally generous terms.

Inclusion of Section 13(c) was the price paid by the Johnson Administration to secure the labor support necessary to pass the 1964 UMT Act. The provision reflected organized labor's concern over these facts:

1. As private companies were being taken over by public authorities in the early 60's, many labor rights (work rules, vested pensions, etc.) were not carried over to the public operation, nor were the private company's employees guaranteed employment.

2. As publicly subsidized operations proliferated, continuing private operators found the competition with subsidized operators severe, which combined with the generally changing travel behavior and preferences nationwide, caused further deterioration of their financial base, curtailment of operations, and resulting labor layoffs.

Thus, the 13(c) clause was written with the intent of protecting employees of private conventional mass transit (e.g., bus) companies during the process of conversion to public operation. It was written with only that one context in mind, and the present problems of interpreting the clause stem from the natural difficulties of applying a law to a set of circumstances for which it was never intended. In particular, 13(c) is hopelessly inadequate to respond to a competitive bid process. Conservatively interpreted, it could lead one to believe

that a carrier could never relinquish its contract to a lower bidder without having its employees eligible for 13(c) compensation. This is clearly an untenable situation, but it shows how the expanding range of services possibly qualifying as "mass transportation" is creating a quagmire of regulatory difficulties and ambiguities.

The responsibility for administering Section 13(c) lies with the Secretary of the Department of Labor, not with U.S. DOT. The actual administrative process through which the Section is administered has involved the development of "mutually satisfactory arrangements" which are "fair and equitable" to both parties in the process-management (i.e., the grant recipient) and labor. The Department of Labor has sought to base 13(c) determinations on the existence of actual documents (i.e., 13(c) agreements) which set down the terms of the protective arrangements - identification of affected employees, compensation levels for adverse impacts, and appeal or arbitration procedures for disputes - between the affected parties. In practice, this has meant that unions representing "potentially affected employees" have to "sign off" on every federal grant using UMT (Section 3, 5, 6 or 9) funds. (Section 16(b)2 funding has been excluded by administrative decision). Where no organized union exists (for example, where service is being initiated for the first time in a city without existing unionized mass transportation) the grant recipient is generally still required by the Department of Labor to execute an "open" 13(c) agreement which lays out terms similar to those just discussed. There has been only one exception to the above (the DAST 13(c) finding) which will be discussed later.

The protections of Section 13(c) are applicable to "employees affected" and not merely "mass transportation employees." The Department of Labor has <u>administratively</u> interpreted this provision to apply only to employees falling within UMTA's definition of "mass transportation." However, this decision has never been adjudicated, and is potentially subject to legal challenge.

The most difficult issue to be resolved in paratransit development is whether, and under what conditions, taxi employees can be considered as "affected employees" under Section 13(c). As noted by Altshuler:[1]

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[1] Altshuler, <u>op. cit.</u>, p. 98.

> In order for Section 13(c) to apply, it is necessary only that employees be potentially affected. It is not necessary to show that they will be affected. Indeed, the normal objective of Section 13(c) bargaining is to ensure that they are not affected in practice. Thus, any determination that a new group of employees may potentially be affected by specific types of projects - e.g., taxi employees by paratransit projects - would tend to require their involvement in Section 13(c) bargaining prior to the award of all such project grants.
>
> The determination of whether an employee has been adversely affected by a project is a finding of fact, to be made by an arbitrator. The question of whether a given change was caused by the project or by other factors - e.g., changes in general travel patterns, fiscal austerity - frequently admits of no definitive answer. The guiding principles under Section 13(c) however, are (a) that the burden of proof is on the grant recipient and (b) that the recipient is liable if the project is found to bear any part of the blame. In short, where ambiguity is present, Section 13(c) applied.

However, it is possible that as taxi operators move into provision of paratransit services clearly falling within UMTA's definition of "mass transportation," basic protections reflected in Section 13(c) may be extended to the taxi labor force. This would create a whole set of important issues which would impact the feasibility of complementation of new paratransit services.

As taxi labor and taxi operators have moved into areas which fall under the definition of "mass transit" an important confrontation with transit labor has been building. The battleground for this confrontation, where federal (UMTA) funds are involved, has been the negotiation of 13(c) agreements. Transit labor is highly unionized and well compensated (relative to other public sector employees). Taxi employees are significantly less well organized and compensated, on the average. The prospect of paratransit developing largely outside the domain of traditional transit operations, provided by the private taxi sector, is (understandably) frightening to transit union leadership, since it implies using labor at significantly lower wage rates and less generous working conditions, and therefore serves to undermine existing labor standards.

Equally or more important, both conventional transit operators and transit labor view paratransit provided by the private sector as potential competition for (scarce) public subsidy resources and, therefore, a threat to their long run growth and survival.

Transit labor has generally enthusiastically supported paratransit - particularly dial-a-ride - where it was to be provided by union personnel under existing, prevailing working conditions. However, the 13(c) sign-off privilege process has been forcefully used by organized labor to try either to insure that service is union-provided and existing terms of employment are maintained, or to insure that protective "barriers" are placed between conventional transit and paratransit services to limit direct competition and/or assure the protection of the existing bargaining unit size.

Several recent 13(c) agreements are of importance because they create important precedents for dealing with 13(c) type issues. The arrangements have been developed in conjunction with a variety of new paratransit programs and will be briefly reviewed here:

1) Rochester Service and Methods Demonstration: The Rochester SMD demonstration called for implementation of three suburban dial-a-ride (DAR) zones to be integrated and coordinated with CBD oriented line haul bus services. The DAR services are operated by the conventional transit operator at the prevailing wage rates and work rules; minor work rules modifications have been negotiated to accommodate DAR service requirements. The 13(c) agreement was negotiated with little difficulty, and the union support for the demonstration has been strong and cooperative.

   In September, 1977 the RGRTA sought to renegotiate the 13(c) agreement with the ATU covering an extended SMD demonstration. The Authority sought the ability to award contracts to operate new service areas based on a competitive bid between public and private providers. RGRTA initially offered an agreement which would have guaranteed that service in the existing service areas be provided by union labor through the conventional property and requested that a set of wage and work rules similar to those adopted in Cleveland be applicable; it was the Authority's intention to compare the costs of providing (unionized-shop) services in all four sectors under revised (wage and work) rules with the cost of two sectors operated with existing (union) wages and work rules and two (new) sectors operated by private contractors.

   In reviewing the situation in the fall of 1977, the Department of Labor indicated that, from its perspective, a valid and binding 13(c) agreement for the demonstration project already existed, and that any desire on the part of RGRTA to modify that agreement (as a result of changes in the intended scope of the demonstration) could be undertaken only with the consent of the ATU. The ATU did prove itself a willing partner to renegotiation, and a 13(c) agreement permiting the "competitive bid" was reached in late 1977; but the new 13(c) agreement did not allow for a relaxation of work rules (which had been sought by the authority) and also protected the (union) jobs in the original paratransit service areas.

The Amalgomated Transit Union proved, in both the original and later 13(c) regulations in Rochester, that it is willing to negotiate in good faith concerning protective arrangements under a variety of service scenarios. In fact, the national leadership of the ATU has appeared generally supportive of paratransit projects - albeit with strong protections for their membership - occasionally in contrast to local inflexibility in these negotiations.

2) Knoxville Service and Methods Demonstration: The Knoxville "Transportation Brokerage Demonstration" includes the provision of federal seed money to implement a city-administered vanpool program. The 13(c) agreement was reached after achievement of two other agreements involving the city, the transit operator, and the union. The first agreement was a contract between the city and the transit operator for performance of major maintenance (by union employees). The second component was a verbal understanding between the grant recipient (the city) and the union that vanpools would be targeted for areas which did not have conventional transit systems, and that subscription buspools, if formed, would be served by the present public operator. Based on these two agreements, a reasonably "standard" 13(c) agreement was executed by the grant recipient, the union, and the public transit operator, which had the additional condition of guaranteeing the size of the existing bargaining unit for a period of four years after implementation of the demonstration project.

3) Norfolk (Tidewater Transit Commission) Service and Methods Demonstration: The Norfolk SMD demonstration, which is essentially a vanpooling demonstration oriented towards government employees, incorporates a 13(c) agreement which formalizes all the agreements reached outside the context of the 13(c) agreement in Knoxville. The vans are to be maintained by the transit property; van contracts are to be executed only to provide service to ridership "for routes and distances not in competition with transit service presently rendered by . . . Tidewater Transit . . ." The existing bargaining unit sizes are to be guaranteed, but only for the life of the project. In addition, it is recognized that van lessees are "independent contractors" and not employees of the Transit Commission. (This latter fact is an important precedent in the context of any transit authority which wishes to sponsor vanpooling, since such sponsorship could potentially bring 13(c) protections to bear on vanpool drivers.)

Both the Knoxville and the Norfolk 13(c) agreements represent the strategy of creating an artificial "fence" to prevent paratransit (vanpool) and conventional transit competition.

4) Cleveland Regional Transit Authority Community Responsive Transit Demonstration: The RTA/CRT demonstration, which is funded, in part, using UMTA Section 5 funding, provides demand responsive services in several suburban communities. Under a Memorandum of Understanding between ATU and the RTA, several important agreements were reached: (1) approximately 33% of the services are to be provided under private contract by private (taxi) operators; the remaining 67% of services are to be provided by the RTA using unionized labor; (2) the union drivers operating CRT services are to receive a wage 31% lower than the normal prevailing wage for conventional fixed route operators; (3) the prevailing terms and work conditions of the fixed route operators are generally extended to the CCT operators; (4) CRT operators are given rights of first opportunity to fill any job openings in the existing fixed route system; (5) the 40 hour work week requirement was relaxed to 30 hours/week.

The Cleveland agreement sets an interesting precedent for future negotiations with unionized labor over provision of paratransit services, since it implicitly recognizes a differential in the performance requirements for labor providing demand-responsive and conventional transit services.

5) Westport, Connecticut Service and Methods Demonstration: The Westport SMD Demonstration involves a public transportation authority directly providing fixed route services as well as contracting for (privately operated) demand responsive (shared and exclusive ride taxi) and fixed route services, maintenance services, and management services. There is no existing transportation union in Westport; the transit authority has executed an "open" 13(c) agreement with standard protective 13(c) clauses.

6) Delaware Authority for Specialized Transportation (DAST): The DAST 13(c) agreement is unique in UMTA history because the Department of Labor made a finding of compliance with 13(c) without the agreement of the local ATU bargaining unit in the Delaware Authority for Regional Transportation (DART). DAST and DART management were willing to agree to basic and fundamental protective arrangements for DART employees, but the local union unilaterally refused to agree to the arrangements. The reason for union intransigence was apparently pure and simple fear of the long run competitive implications of DAST on the viability of DART and the bargaining position of DART labor. (DAST utilizes a variety of professional, part-time, and volunteer labor.) After a year of negotiation, the Secretary of Labor made a finding of 13(c) compliance without local union concurrance to the protective arrangements. It was the first such finding in the administrative history of Section 13(c).

The Westport and DAST agreements represent precedents for contexts where there is no organized labor with whom protective arrangements can be negotiated. The DAST experience sets a further precedent for administrative procedures

where conflicts between paratransit and conventional transit are irreconcilable from the perspective of existing organized transit labor. The Secretary of Labor has the right and responsibility of making a determination of compliance with Section 13(c). The involvement of transit unions and transit management in direct negotiations is, as previously mentioned, merely an administrative mechanism through which the U.S. DOL has sought to discharge its responsibilities.

7) Akron, Ohio Section 5 Grant: In June, 1977 a private taxicab company operating in Akron, Ohio sought to block the Section 5 operating assistance grant sought by the Metropolitan (Akron) Regional Transportation Authority. The basis for the objection was that taxicab company employees were not afforded adequate protection as provided by Section 13(c). The applicant companies and their employees were, in addition to providing exclusive ride taxi services, also providing contract (shared ride) services for the Transit Authority. The U.S. Department of Labor ruled that the claim for protection under 13(c) was not within the intended scope of that law and certification of compliance was issued by DOL.

The Akron decision by U.S. Department of Labor (DOL) may mark an exceptionally important point in the administrative history of Section 13(c). In reaching its findings, DOL concluded that the statute was created to protect individuals in the employ of urban mass transportation carriers. DOL stated that it looked to UMTA to furnish (DOL) with guidance as to the application of that term and that UMTA interprets the term "mass transportation" as excluding traditional and historic taxi operations. Thus DOL found that employees of firms which have historically operated as taxicab services are not within the (intended) scope of 13(c) protections.

Equally important, DOL reviewed the issue of whether the employees of the taxicab company involved in shared ride contract services should be afforded 13(c) protections and concluded "employees of those companies are only tangentially involved in project-related services. Therefore, we do not believe that such employees should be brought under the scope of Section 13(c) at this time."[1]

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[1]Letter from Francis X. Burkhardt (Undersecretary, U.S. DOL) to Charles Bingham (Acting Administrator, UMTA), dated June 22, 1977.

Two subsequent projects in Pittsburgh and New Haven have indicated that the exclusion of taxicab company employees from 13(c) coverage is not absolute.

8) Pittsburgh Section 6 Brokerage Grant for 1978: In late 1977, the Port Authority of Allegheny County (PAT) sought to receive demonstration funds to support a paratransit broker for Allegheny County. The broker's function is intended to be the coordinated management of human service agency funds for handicapped and elderly transportation assistance. Certification was granted to PAT by DOL on the condition that PAT's 13(c) agreement with the ATU extended by inference to certain taxi company drivers engaged in "elderly and handicapped services of the type sought to be coordinated in the instant project."[1]

9) New Haven Section 5 Operating Assistance Grant, 1978: The Greater New Haven Transit District sought operating assistance to purchase shared-ride operating taxi service for handicapped and elderly citizens during 1978-79. The DOL certified the grant under 13(c) subject to the same implicit requirement that the GNHTD-ATU agreement extended "substantially the same levels of protection as afforded to those employees for whom (the) protective agreement is negotiated" to "all affected employees," specifically including certain taxicab company drivers.[2]

The certification of the Pittsburgh and New Haven projects seems to establish two criteria for UMTA determination that taxicab company drivers are entitled to 13(c) coverage. First, if a minimum of 15% of the company's revenue is derived from shared-ride services similar in nature to the services that are to be provided under the grant, the company is considered to be an "urban mass transportation carrier." Employees of such companies who can be specifically identified as providing primarily those services considered to be "mass transportation" are to be afforded similar levels of protection as employees explicitly represented by any 13(c) agreement negotiated with transit labor's representatives. This is the essence of the finding in the Pittsburgh case.

Second, even if a taxicab company does not meet the 15% minimum revenue-from-related-services criterion, certain of its employees (those who do spend a minimum of 50% of their time providing shared-ride service of the sort to be

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[1]Letter from Francis X. Burkhardt to Richard S. Page (Administrator, UMTA), April 5, 1978.

[2]Letter from Francis X. Burkhardt to Richard S. Page, May 16, 1978.

funded by the project) are to be afforded 13(c) protection. Again, the coverage is extended implicitly, according to the terms of the existing negotiated union 13(c) agreement. This condition was found to exist in New Haven.

A recent experience in Pittsburgh provides a last example of UMTA policy.

10) Pittsburgh Section 5 Grant for 1977: In early 1977, the Port Authority of Allegheny County (PAT) sought to utilize Section 5 funds for the purpose of providing contract services in a poorly serviced area of Pittsburgh. Service was to be provided by Yellow Cab of Pittsburgh under direct contract to PAT. PAT successfully negotiated a relatively "standard" 13(c) agreement with its union. However, the PAT local also requested that a similar 13(c) agreement be executed between the transit union and the contract operator (Yellow Cab). The Department of Labor refused to grant the certification of compliance without this (unprecedented) taxi management/transit union agreement. When Yellow Cab management refused to execute this agreement, the project was dropped from the program.

In the last six months of 1977, the Amalgamated Transit Union, the primary labor union in conventional transit properties, has successfully negotiated 13(c) agreements covering Section 5 funded programs in approximately 35 cities which contain the explicit provision (known as the "Lancaster Provision" since it first appeared in the Lancaster, Pennsylvania, Section 5 (13(c)) agreement) that all paratransit projects funded under the federal assistance grant shall be provided by the conventional operator using union labor at the prevailing wage rates and work rules. Although these provisions appear contradictory to the "spirit" of Section 3(e) of the UMT Act, the U.S. Department of Labor has continued to grant certifications of compliance with Section 13(c) for these grants. These provisions are modelled after Section 23 of the "Model 13(c) Agreement for Section 5 Grants" which was developed by officials of the American Public Transportation Association (APTA) and the Amalgamated Transit Union (ATU).

These recent actions on the part of DOL - the Pittsburgh, Akron, and Lancaster situations - do not appear to be entirely consistent. Thus, a clear definition of DOL and UMTA policies regarding the way in which 13(c) protections are and will be administratively executed with respect to taxicab labor in the future is difficult, if not impossible, at this time.

If there is a consistancy of any sort to U.S. DOL administrative actions with respect to 13(c); it lies in the continuing concern that employees of conventional mass transportation properties be protected from "worsening of conditions" as a result of any projects funded under the major assistance programs of UMTA.

In reviewing recent experiences in negotiating 13(c) agreements with conventional transit labor, several additional conclusions can be drawn. First, the successful negotiation of 13(c) protective arrangements for paratransit projects (involving federal funds) requires the support of conventional transit management; they are a key part to any agreement. Second, organized labor is willing to talk about any project, but is extremely suspicious and frequently intransigent towards projects which are presented to them as "faits accomplis." In all demonstration projects where the union leadership has been brought into project planning early in that process, satisfactory protective arrangements have been negotiated without delay to the project or major disagreement between the parties. Third, if paratransit projects are designed to serve complementary markets, exposure to 13(c) liabilities on the part of grant recipients is minimized, facilitating the negotiating process.

The position of organized labor with respect to the assurances they seek in paratransit project 13(c) agreements is becoming fairly clear and consistent:

1) First and foremost, they seek to retain all work within the "union shop" at prevailing wage rates and work rules.

2) Contract paratransit operations shall not compete with, nor substitute for, conventional transit services, becoming a substitute service for or displacing conventional transit routes and services, including suburban services and night-time ("owl") services.

3) All maintenance work on vehicles participating in the project (except warranty and "first echelon" maintenance service) shall be performed by the maintenance facilities of the conventional property by union employees.

4) Project services will be limited strictly to those persons described in the project application whose daily work trips are not served by transit routes and services being rendered by the conventional transit system.

Finally, if paratransit services are planned as cost-effective substitutes for existing services, 13(c) liabilities may materialize; however these liabilities can be minimized by incremental, staged paratransit implementation strategies which minimize the risk or liability potential due to natural turnover in the conventional labor force and the ability to reduce that force gradually through natural labor force attrition. This suggests that, in preparation for paratransit service implementation, a short-run strategy of non-replacement of employee attrition combined with short term use of liberalized overtime policies may be cost-effective in making a transition from transit to paratransit services. (For example, late evening fixed route services converted on an area by area, route by route, basis.) However, Section 5 related 13(c) agreements restricting work to the "union shop" clearly are a major impediment to such a strategy. Equally important, most operating agencies lack the public support to risk a major labor confrontation by adopting such a strategy. The short term threat of a strike and major friction acts as a powerful disincentive to management, which must wait months or years to realize the economic "pay off" potentially (but not certainly) available through such a strategy.

7.6 Future Directions for UMTA Policy

There is a clear need for development of a national policy regarding paratransit. That policy must address how paratransit is to be developed and how existing transportation interests (both public, and private; both management and labor) are to participate in the process. UMTA indicated an awareness of this need by its issuance of a proposed paratransit services policy statement;[1] it has also tacitly recognized the complexity of the issues by its failure to resolve a final set of regulations in the roughly one and a half years since then.

The policy statements issued in October, 1976 suggest that several future directions in UMTA policy with respect to paratransit should be anticipated. First, urban areas will be encouraged to more explicitly consider paratransit services where they appear to represent cost-effective

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[1] Federal Register, Wednesday, October 20, 1976, pp. 46412-3.

alternatives. This is particularly true for services to special market segments and services in areas (or time periods) of low potential demand density. More specifically, consideration of paratransit alternatives may be required as part of the formulation of plans in response to elderly and and handicapped planning requirements and in the formulation of the TSME. Local agencies will be encouraged to review existing ordinances and institutions which impact the provision of paratransit services and develop programs to update and streamline legal and regulatory frameworks. (The Twin Cities are moving in advance of UMTA in this area.)

Second, UMTA will likely continue to press for the participation of private transportation carriers to the maximum extent possible in the provision of paratransit services. UMTA will likely develop an administrative test relating to whether private enterprise has been given timely, good faith opportunities to participate (through a competitive bid process) in the delivery of paratransit services. Similarly, UMTA will likely require the opportunity for private enterprise to participate in the formulation of the TSME and TIP.

Third, Section 3(e) will be closely and carefully applied. Private paratransit operations which meet the definition of "mass transportation" will be protected under Section 3(e), including shared ride taxi, but excluding exclusive ride taxi.

Finally, federal assistance funds under Sections 3 and 5 will be made more generally available for capital and operating assistance to paratransit systems regardless of whether they are publicly or privately owned, so long as the services fall within the definition of "mass transportation" and the projects are recommended through the metropolitan planning organization planning process and included in the TIP.

8.0 Federal Funding: Past and Future Impacts

8.1 Introduction

Federally sponsored transportation projects and private taxicab companies often serve similar or overlapping market segments. As a result, subsidized projects can influence taxi operations by effecting shifts in ridership patterns, thereby impacting taxi costs, revenues, profits and employment. Such changes, which will vary depending on site characteristics, transportation options available and the relationship of service providers, could significantly affect the on-going economic viability of the taxicab companies involved. It is therefore important to understand the interaction between federally subsidized paratransit projects and existing premium taxi services. This chapter presents an analytical description of the types of urban transportation impacts resulting from governmental financial assistance, followed by case studies highlighting the costs and benefits (for both taxi companies and the government) associated with implementation of or assistance for paratransit services.

8.2 Institutional Considerations

Federal funding for urban transportation may be channeled in one of two ways. First, direct operator assistance may be provided to support existing services or to implement new services. This direct support may be provided either as capital assistance for the purchase of vehicles or other fixed plant facilities, or it may be provided as operating assistance to offset financial losses resulting from ongoing operations. The latter assistance is provided when it is considered undesirable to set fares high enough to pay the full cost of providing service. There are many social and economic considerations which are used to determine the appropriate combination of fares and operating subsidies. Suffice it to say that if the service cannot adequately accomplish its objectives (reduction of pollution and congestion, increased mobility for

the transit-dependent, etc.) on a self-paying basis, public subsidies may be justified.

This has been the case with mass transit since the mid - 60's. For example, if fares were increased to match rising costs, ridership would probably drop, creating a destructive spiral of lower revenues/higher fares/less ridership/lower revenues. Effectively, both capital and operating assistance is provided to avoid this deterioration.

Capital and/or operating assistance may be provided to facilitate new urban transportation services as well. Whether or not the new service can become self-sufficient, assistance may be necessary to provide initiative in the marketplace. Given the inherently high risks of any transportation service today, operators are generally unwilling to offer a new service without some safeguard against loss. Federal assistance can provide that protection.

If existing forms of public transportation are adequate from a service perspective, a more limited form of assistance may be appropriate. If the problem is identified as one of providing certain groups of citizens with financial assistance to improve their ability to utilize what is available, a second form of federal assistance, direct user subsidies (also known as "user-side subsidies") may be appropriate.

Access to federal subsidies is almost always easiest for public agencies. Federal funding is usually directed at "designated recipients" authorized to utilize the funds. The transit authority is the normally designated recipient at the local level for UMTA money. HEW money is usually directed to county or regional human service agencies. From the transit authority or the human service agency, funds may flow downward to private for-profit or non-profit transportation operators or service agencies.[1] Greater detail is provided in the preceding chapter. The point to be made here is that the most obvious impact of federal funding on taxicab operators is the institutional bias. Federal capital or operating assistance can not go directly to private operators but must be funnelled through public or private, non-profit organizations.

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[1]The UMTA 16(b)2 program targets money directly to non-profit organizations.

Private operators must enter contractual arrangements with these organizations for the funds to legally flow down.

Similarly, user subsidies are a form of assistance which does not go directly to the private operator. Rather, the operator is affected by the added ridership of the subsidized users. A contract (or less formal agreement) with the local organization(s) that is directly responsible for disbursing funds may be necessary or appropriate. The contract should outline any administrative or record-keeping responsibilities of the carrier regarding service delivered to subsidized users. The operator should clearly identify any additional costs associated with this burden and make sure that compensation is provided.

The established flow of funding has tended to cause private operators to be neglected in the course of planning the implementation of paratransit projects. Combined with the tendency of paratransit services to compete with taxicab services for a similar rider market, this has meant that the impact of federal funding has often been detrimental to the taxicab company's operations. Competing paratransit services, publicly provided, have unquestionably eroded some of the normal exclusive ride taxi market.

There can be two mitigating circumstances from the private operator's point of view. First, where the emphasis is on subsidy rather than service provision, paratransit patronage may be mostly an induced market. For example, if a free paratransit service for elderly and handicapped is offered, many of the users may be persons who did not travel before because of cost.

This is a neutral effect at best. Some riders undoubtedly will have switched from riding taxis. Moreover, the private operator in this instance has failed to capture a new market. Thus, his concerns are twofold. He may have lost some of his present ridership and he has failed to benefit from a new service. If the private operator wins the right to provide the service, however, the impacts of that service on him will be very different. Although the exclusive ride service may still suffer, the new service should offset any losses.

The actual dollars and cents impact of a federally funded project on a private operator is a product of many specific details, including:

- Relative service and pricing characteristics of the new service and existing modes
- Identity of the service providers
- Site-specific demographic charateristics

The first two items relate to the nature of supply while the last addresses the issue of demand. The remainder of this chapter will discuss the types of impacts that can be identified, and will then present some case studies to demonstrate the effects more graphically.

8.3 Yardsticks for Measuring Impacts

The obvious measures of the impacts of an assistance program on the private operator are: ridership, costs, and revenues. Implicit in these figures of course, are employment and profits. The carrier may also be concerned about qualitative changes in the character of the service that the company offers. A brief overview of each of these characteristics follows.

8.3.1 Ridership

The creation of new transportation services, comparable in level of service to exclusive ride taxi, will impact taxi ridership in two ways: (1) Passengers, attracted by lower fares on the demand-responsive transit (DRT) system will be diverted away from taxi.[1] (2) The introduction of any new service will induce tripmaking, creating new trips on all complementary modes. However, induced ridership will not significantly impact exclusive ride taxi services because "induced" riders are likely to select the less expensive DRT system. These riders would generate little, if any, residual benefit to the existing exclusive ride service. Neither, however, would they increase costs.

The extent to which exclusive ride taxi passengers are diverted away from taxis will depend on a variety of factors. While a difference in fare structure is apt to be the primary one, other level of service attributes may be important

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[1] In addition, some state welfare systems provide a transportation subsidy for necessary trips, with the constraint that the individual must use the least expensive mode on which he is capable of travelling. Thus, in cases where an elderly or handicapped person formerly rode taxi, they may have no choice but to shift to the new DRT system.

in choosing between DRT and exclusive ride taxi: ride and wait times; the need to transfer; reliability; convenience; and comfort. In addition, user characteristics such as age, sex, auto availability and income are likely to significantly impact mode choice.

The extent to which the premium taxi and the paratransit service are available to serve the same types of trips is an important factor. A paratransit system serving a work-trip market through feeder to a fixed route bus system will not significantly affect exclusive ride taxi operations, since a relatively small percentage of taxi trips are commuter trips.

The impact of such mode shifts on taxi companies will depend on the size of the operation. Obviously, a small company will be more affected by a decrease in ridership than would a large company experiencing the same decrease.

8.3.2 Revenue

Shifts in taxicab ridership effect changes in revenue for two reasons: (1) the number of taxi trips is likely to vary as new federally sponsored transportation options become available; (2) the trip length distribution could change if the competing service offers comparable coverage with a different fare structure. For example, many DRT systems operate in small zones with a passenger fare significantly lower than premium taxi fares. If this occurs, trips diverted from taxi are likely to be relatively short, causing the taxi trip length distribution to be weighted toward longer trips. This could cause a decrease in taxi profits since shorter trips tend to be more cost-effective because deadhead mileage is lower for short trips and the drop charge revenue/mile decreases as trip length increases.

8.3.3 Costs

The cost of operating a taxicab company (excluding depreciation and interest) falls into two categories. Fixed operating cost is independent of the vehicle-miles and driver-hours associated with service, and remains relatively constant in the short run. The variable cost is directly related to trip and ridership patterns and thus can be significantly impacted by shifts in ridership arising from implementation of new, federally sponsored paratransit service. This cost depends on the amount of labor and raw materials required for operation, and the unit costs associated with wage rates, fuel and maintenance. If ridership falls as a result of the introduction of a competing

paratransit system, the total fixed plus variable cost per trip will rise as fixed costs become more predominant.

The Wells Research Company compiled cost data from 80% of the fleet cabs in New York City and from 27 individual companies covering a wide geographical distribution (excluding New York) for the year ending June 30, 1970. Table 8-1 presents their results. The first four cost classifications represent variable costs, directly related to driver-hours, vehicle-hours and vehicle-miles. Public liability is a fixed cost because most taxi companies are restricted by regulations concerning the number of vehicles they must maintain. Thus, in the short run, all vehicles must be insured, regardless of the number being used.

General and administrative costs are both fixed and variable. Some personnel are required full time even if they work only a small portion of the day. Others may be dispensed with as taxi ridership decreases. The case studies presented in this report assume a split of 70% fixed and 30% variable cost of general administration, yielding a total breakdown of operating costs into 86% variable and 14% fixed.[1]

Table 8-2 shows more recent data on average operating cost per mile of taxicab operations around the country.

8.3.4 Profits

Taxi profits are defined as the difference between revenue receipts and total operating cost. The national average of 1975 was approximately 5%. This profit margin is subject to significant short term changes resulting from loss of ridership to another operator's DRT service, or increase in ridership resulting from the private operator delivering the service himself. In the longer run, the profit margin will probably stabilize in either case, but the net profit will be larger or smaller depending on the change in volume of business.

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[1] Multisystems, Inc., Applied Resource Integration, Ltd. and Cambridge Systematics Inc., Benefit-Cost Analysis of Integrated Paratransit Systems, Draft Interim Technical Report #1, December 1977.

Table 8-1: Selected Cost Items for Taxicab Fleet Operations, 1970

Cost Classification	Percent of Total Expenses		Percent of Operating Expenses	
	New York	Remainder of Country	New York	Remainder of Country*
Driver Cost	56.9	55.2	63.1	61.3
Vehicle Operator	8.4	8.8	9.3	9.8
Maintenance	6.2	7.0	6.9	7.8
Garage	3.2	3.7*	3.5	4.1
Public Liability (insurance)	7.2	5.7	7.9	6.3
General and Administrative	8.3	9.6*	9.3	10.7
Total Operating Expenses (fixed plus variable)	90.2	90.0*	100.0	100.0
Depreciation and Interest	9.8	10.0*	-	-
Total Expenses	100.0	100.0	-	-

*Estimated based on assumption that New York garage, general administration and interest costs are roughly proportioned to those of the remainder of the nation.

Source: J. D. Wells, et al, Economic Characteristics of the Urban Public Transportation Industry (Institute for Defense Analyses, February 1972), p. 8-29 and 30. The study was prepared for the U.S. Department of Transportation, Assistant Secretary for Policy and International Affairs, Office of Systems Analysis and Information.

Table 8-2: Estimated Operating Costs of Taxicab Operations, First Quarter 1978

	National Averages, Cents Per Mile
Driver	22
Tires	00.5
Gasoline	05
Labor	03
Parts	02
Insurance	03
Depreciation	02
Dispatching	06
Total Operating Cost	43.5 Cents

Source: International Taxicab Association

8.3.5 Employment

The introduction of a new paratransit service can generally be expected to increase overall patronage of public transportation somewhat. This in turn may cause additional employment opportunities. Several caveats should be included with this assumption, however:

1) If vehicle productivities and load factors increase substantially, the need for drivers may decrease.

2) Volunteer drivers may form the backbone of a non-profit paratransit service.

3) The need for drivers may shift from the taxicab operator to a public transportation authority (or other private or public provider).

Due to high driver turnover rates in the taxicab industry[1], shifting patterns of employment are a less critical problem than would otherwise be the case.

8.3.6 Character of Service

It was pointed out earlier that a private operator will almost certainly need to establish a contractual arrangement in order to provide federally supported paratransit services. The terms of the contract may have a significant bearing on the operator's style of service delivery. Fare collection, data collection, data reporting, dispatching and routing procedures, driver and vehicle standards, and numerous other details of service may be specified in the terms of a contract. The private operator must be prepared to deal with these changes from both an operational and a costing point of view. A review of contractual clauses is presented in Chapter 4 of this report.

8.4 Ridership Impacts of Existing DRT Services

Existing DRT services can be used to show specific examples of the impacts on conventional modes. To illustrate this, Table 8-3 shows actual observed data reflecting the previous mode of DRT patrons. Table 8-4 provides some background profiles on the services involved.

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[1] Normally between 100 and 300% annually.

Table 8-3. Former Mode of Demand-Responsive Transportation Patrons (%)

SITE/SERVICE	FORMER MODE: None (induced trip)	Auto	Taxi	Bus	Walk	Other[1]
General Market:						
Ann Arbor, MI	26	37	10	NA	23	4
Batavia, NY, DRT	17	21	30	6	15	11
Batavia, NY, Subscription	6	42	18	3	26	5
Benton Harbor - St. Joseph, MI	34	43	2	NA	15	6
Haddonfield, NJ	22	25	26	11	16	0
Ludington, MI	14	23	20	0	30	13
Merrill, WI	13	31	21	0	35	0
Midland, MI	18	39	10	0	25	8
Niles, MI	8	8	34	0	40	10
Rochester, NY[2]	24	33	9	16	16	2
Santa Clara, County, CA	14	62	5	NA	19	0
Xenia, OH	19	36	NA	0	34	11
Mean	17.9	33.3	15.4	3.0	24.5	5.8
Mode	17.5	34.5	14.0	0.0	24.0	5.5
Specialized Market:						
Miami[3]	NA	34.6	21.8	24.1	4.2	15.3[4]
Manhattan[5]	43.2	3.9	15.5	17.4	4.5	15.4
Minneapolis[5]	50	30	21	10	NA	29[6]

Source: One-day samples of on-board surveys conducted on each of these DRT systems, taken partially from R. Ewing and N. Wilson, Innovative Demand-Responsive Transportation, MIT Center for Transportation Studies, 1976. (except Miami)

Note: entries marked N.A. are probably included in "Other"

[1] Includes bicycle, hitchhike, no response

[2] Weighted average of Saturday and weekdays. Induced ridership was 50% higher on Saturday; weekday mode shifts from bus were more than twice those for weekdays; shifts from taxi to DRT were approximately equal on Saturdays and weekdays.

[3] Adapted from Special Transportation Service Monitoring Report (Draft), Office of Transportation Administration, Dade County, Fla., 1977. Note that only handicapped and elderly persons are eligible for the Miami Service.

[4] Includes 6.9% former human service agency trip mode

[5] Unpublished results of on-board surveys conducted by Applied Resource Integration, Inc.

[6] Includes 11% alternative human service agency trip

[7] Specialized service for elderly and handicapped only

Table 8-4. Selected Characteristics of Eleven Demand-Responsive Transportation Services

Site	Type of Service	Population Served	Service Area (sq. mi.)	Number of Vehicles	Average Weekday Ridership	Fare
Ann Arbor, Michigan	Many-to-many	100,000	21.8	45	5,000-6,000 (projected)	25¢
Batavia, New York	Many-to-many	18,000	5.5	7	455	60¢
Benton Harbor-St. Joseph, Michigan	Many-to-many	70,000	-	8	-	50¢ regular 25¢ senior citizens
Haddonfield, New Jersey	Transit feeder (peak) Many-to-many (off-peak)	44,000	11.0	19	1,200	30¢ regular 15¢ senior citizens
Luddington, Michigan	Many-to-many	9,021	3.2	3	200	50¢ regular 25¢ senior citizens
Merrill, Wisconsin	Point deviation	9,500	5.0	3	400	25¢ checkpoint-to-checkpoint 40¢ checkpoint-to-doorstep 50¢ door-to-door 15¢ checkpoint-to-school 30¢ doorstep-to-school ($2.50 for weekly pass)
Midland, Michigan	Many-to-many	35,176	24.9	6	-	50¢ regular 25¢ senior citizens
Niles, Michigan	Many-to-many	12,988	5.2	6	265	50¢ regular 25¢ senior citizens
Rochester New York	Subscription; Many-to-many	30,000	10.0	7	440	$1.00 regular 25¢ each additional person
Santa Clara County, California	Many-to-many	1,100,000	241	90	-	25¢ regular Free blind
Xenia, Ohio	Many-to-many; Subscription	20,000	-	9	-	$2.00 average

Sources: 1. Michigan Small Urban Area Public Transportation Conference, "Conference Working Papers," Houghton, Michigan, August 1977.

2. Multisystems, Inc., State of Wisconsin Urban Mass Transit Demonstration Program: Merrill Project, Final Report, prepared for the Wisconsin Department of Transportation and the City of Merrill, Cambridge, Massachusetts, January 1977.

3. U.S. Department of Transportation, Demand-Responsive Transportation: State-of-the-Art Overview, August 1974.

The evidence suggests that there is great variability in the impact on taxi usage depending on local circumstances. Between 0 and 34 percent of DRT users indicated that their former mode was a taxi, with an average of about 15 percent. This is slightly less than the average of about 17 percent of users who had not taken their trip before the start of the new service. It is about half the diversion rate from the private auto and is substantially less than the rate of diversion from walking trips. However, it is much greater than the loss to bus ridership. Altogether, though, the conventional public transportation modes - bus and taxi - provided only about 20 percent of the "new" mode's riders. This dramatizes the value to the private operator of gaining the new market. Specifically, it suggests that by providing the DRT service, the taxicab operator can potentially increase ridership by five or six times the number of riders which the company would otherwise lose. Unfortunately, data is not easily available to document the net impacts on overall taxi company costs, revenues, profits, and employment in each of these cases. Some estimations of these impacts can be made with the use of a simulation analysis, however. The next section presents the application of such an analysis in three U.S. cities to project overall impacts from various actual and hypothesized areawide paratransit programs.

8.5 Case Studies

The following case studies examine the impact of federally sponsored paratransit projects on private taxicab operators. The cases were selected to demonstrate this impact for a range of city types with different transportation alternatives. In addition, the case studies provide a basis for analyzing the merits of integrating taxi operators into a paratransit project.

The three case studies are analyzed for the projected impacts of a variety of paratransit alternatives. The analysis was performed with the aid of a simulation model.[1]

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[1] See Multisystems, Inc., Applied Resource Integration, Ltd., and Cambridge Systematics, Inc., Benefit-Cost Analysis of Integrated Paratransit Systems, Draft Interim Technical Report #1, Appendix B, prepared for the U.S. Department of Transportation, Transportation Systems Center, December 1977.

The cities and paratransit projects were selected to enable analysis of the following questions:

- How do site characteristics (e.g., area and population of urban area; existing transportation alternatives; socioeconomic characteristics) affect (1) the ridership levels achieved on a new paratransit project; and (2) the resulting impact on competing taxi operations?

- How does the design of a paratransit service (e.g., coverage; fare structure; coordination of transfers) affect the ridership levels of taxi companies serving the same geographical area?

- How are taxi revenues and profits impacted by the integration of taxi companies into a paratransit project? How is this impact influenced by the contractual method of reimbursement?

The case studies show how the introduction of a paratransit system may impact taxi operations under different conditions. The implementation of paratransit service results in a specific level of ridership on that service, which in turn affects the level of taxi and mass transit ridership (Figure 8-1). This change directly impacts costs, revenues and profits of these modes.

At the same time the paratransit ridership implies a revenue and cost to the DRT operator. If a taxi company operates the paratransit service (or some portion of it), that revenue and cost will also impact the economic situation of the taxi company, as shown by the two dashed lines of Figure 8-1. If the mass transit authority or another operator operates the DRT service, the direct impacts will be experienced by that organization instead. The magnitude of the effects on each carrier in any case will depend upon a number of local factors including relative service characteristics and fares. It is important to note that the new service may generate much of its ridership from newly induced (latent) public transportation ridership. Improved physical (e.g., lift-equipped vehicles) or financial (e.g., user subsidies) access can attract trips that are new or were formerly made by private auto, in addition to trips from conventional modes.

Table 8-5 provides a rough comparison of a number of indicators of size, "sprawl", transit dependency and cost for the three case study cities. The differences among the three (urbanized areas are used as a basis of comparison) serve to show how the environment (e.g., area, population, socioeconomic characteristics, existing transportation alternatives) can influence the ultimate impact of a new service.

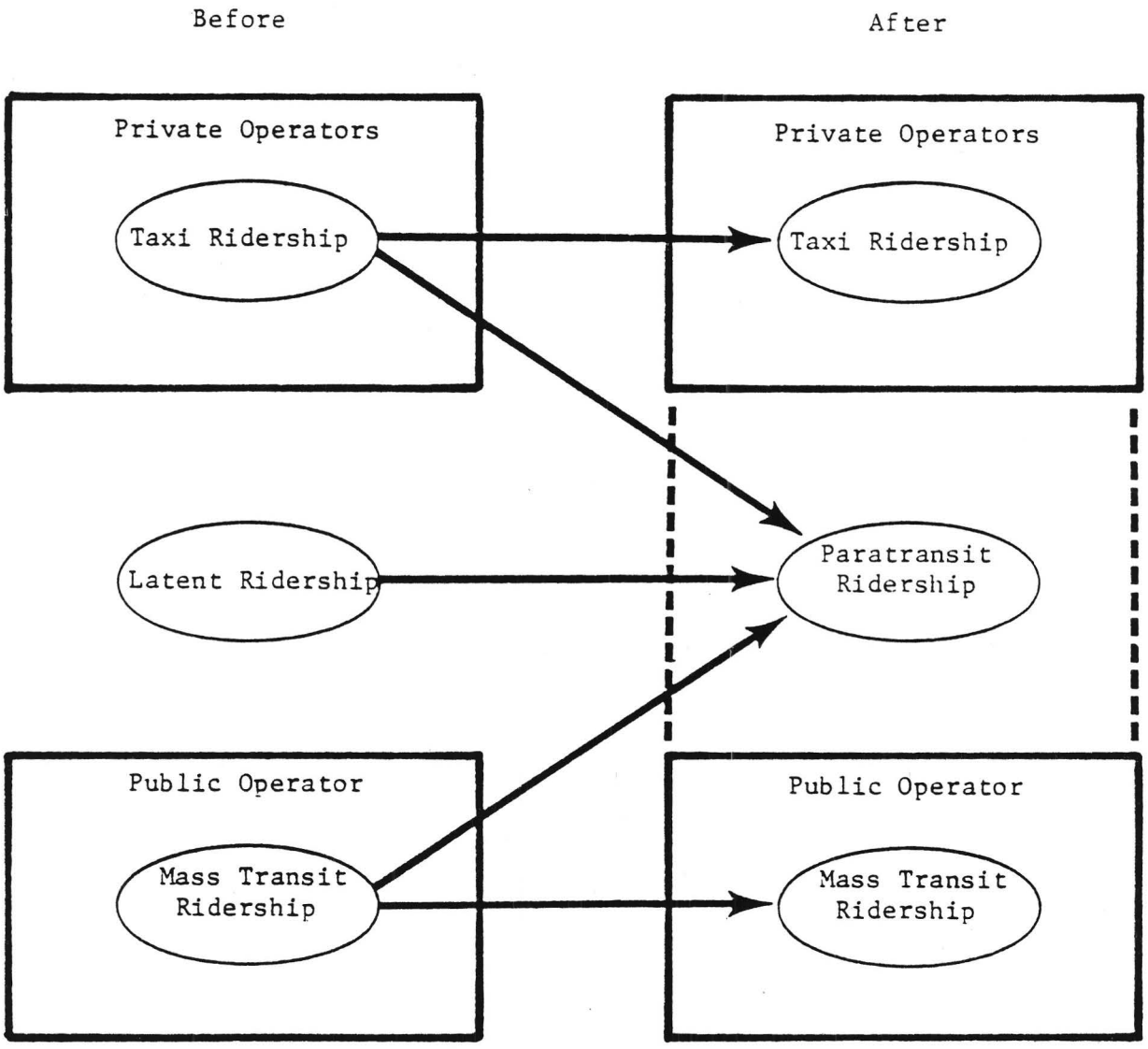

Figure 8-1. Impact of a New DRT System on Demand for Service

Table 8-5. Case Study Site Characteristics

Site	Demographic					
	Popul. (1980)	Size Area (m^2)	Popul. Density sq. mile	"Sprawl" Central City relative to Urban Area		
				employment %	residential %	density
Ann Arbor	142,000	43.5	3264	H		L
Albuquerque	460,805	133.2	3459	H	H	L
Cleveland	1,555,800	440	3535	L	L	H

Site	Transportation							
	Dependency			Supply				
	Auto Owner-ship	Tran-sit use	% Elderly	Conven-tional Modes	Mass Transit Base Fare	Taxi		
						Aug. Fare	First Mile	Add. Miles
Ann Arbor	H	L	L	9 fixed bus routes cover-ing 80% of Popul.; ER taxi	25¢	$2.48	$1.10	$.60
Albuquerque	H	L	L	extensive FR bus system but little or no coverage in some areas; ER taxi	35¢	$3.44	$1.40	$.70
Cleveland		H	H	FR bus lines; light and heavy rail line; ER taxi	25¢*	$3.00	$1.40	$.70

*higher to suburbs ER - exclusive-ride FR - fixed route L - low H - high

For example, different scenarios are suggested for different service configurations, different (e.g., public v. private) paratransit providers, different fare policies (e.g., trip pricing, mode transfer charges), and different carrier reimbursement schemes (e.g., per hour, per mile, incentive payments, etc.). Together, these hypothetical models are intended to help guide planners in choosing paratransit programs that will achieve the desired set of objectives.

Table 8-6 summarizes the (simulated or actual) paratransit systems for the three areas. Within two of the cities (Ann Arbor and Cleveland) different paratransit systems are specified, showing how details such as coverage, fare structure and coordination of transfers can affect DRT patronage and thus taxi ridership as well. Both Ann Arbor and Albuquerque scenarios present the same or similar paratransit service when operated by a private taxicab company in comparison with a public transit company. In addition, each of the two cities has a different type of payment process specified, showing the importance of the contractual agreement in determining the impact of having a taxi operator provide paratransit service.

Table 8-7 summarizes the revenue, profit and employment impacts projected for each of the simulation scenarios described in Table 8-6. The most important conclusion to be drawn from these results is that while a competing paratransit system has a significant negative impact on taxi profits, integration of the taxi company into the paratransit service can more than double profits. In each of the four scenarios in which a taxi company operated part or all of the paratransit service, its profits rise by more than 100%. Of the three cities, Cleveland's increased profits are the most significant. The main difference between Cleveland and the other two model cities is size. It is the largest urban area of the three, and it has a relatively high level of transit use before the paratransit project is implemented. Furthermore, densities are much higher, making paratransit (as well as mass transit) more feasible. These factors, combined with a relatively high quality paratransit system, yield high ridership levels. Since the contract with the taxi company is on a per vehicle-hour basis (including a 20% management fee), the more vehicle-hours required, the higher the taxi company's profit. (In addition, Cleveland's management fee (20%) is relatively high, yielding higher profit.)

Table 8-6: Summary of Case Study Scenarios

	New Paratransit System	Paratransit Base Fare	Transfer Fare (paratransit)	Operator	Terms of Contract
ANN ARBOR, MI. Scenario 1	10 DRT zones; Coordinated Transfers	25¢	25¢ (to fixed route or DRT)	Public	-
Scenario 2	1 Large DRT Zone; Coordinated Transfers	50¢	Free (to fixed Route or DRT)	Public	-
Scenario 3	1 Large DRT Zone; Coordinated Transfers	Average: 61¢ (based on distance)	Free (to fixed Route or DRT)	Private	cost and fixed fee including 10% management fee
ALBUQUERQUE, NM Scenario 1	Rationalize Fixed Routes; replace with 1) route deviation (east) 2) many-to-many (southwest)	1) 10¢	35¢ (to Fixed Route)	Public	-
Scenario 2		2) 35¢		1) Public 2) Private	$7/vehicle-hour & all revenue
CLEVELAND, OH Scenario 1	Expand Elderly & Handicapped (E&H) DRT to serve general public	75¢	25¢ (to Fixed Route)	Public & Private	$12.75/vehicle hour including 20% management fee
Scenario 2		75¢	5¢ (to Fixed Route)	Public & Private	

Table 8-7: Summary of Taxicab Industry Impacts

	Exclusive Ride (ER) Taxi				Privately Operated DRT				Private Impact Total	
	ΔRider-ship	ΔRevenue	ΔProfit	ΔEmploy-ment	ΔRider-ship*	ΔRevenue*	ΔPro-fit*	ΔEmploy-ment	ΔRider-ship	ΔProfit
ANN ARBOR										
Scenario 1	-12.7%	-9.6%	-36.5%	-8	-	-	-	-	-13%	-37%
Scenario 2	-15%	-11%	-43.5%	-10	-	-	-	-	-15%	-44%
Scenario 3	-13%	-10.4%	-38.7%	-9	+169%	+73.8%	+154%	+95	+156%	+115%
ALBUQUERQUE										
Scenario 1	12%	-7.4%	-26.7%	-6	-	-	-	-	-12%	-27%
Scenario 2	12%	-7.4%	-26.7%	-6	+91%	+32.2%	+131%	+27	+79%	+104%
CLEVELAND										
Scenario 1	-24%	-16.4%	-63.2%	-77	NA	+63%	+234%	+160	NA	+171%
Scenario 2	-23%	-15.8%	-57.0%	-75	NA	+63%	+234%	+160	NA	+177%

Within the city of Cleveland, the two scenarios are identical except for the fare structure. The second scenario presents lower transfer fares and thus a higher level of service for trips utilizing the fixed route bus or rail systems: predominantly work trips. While taxi profits from the DRT contract remain constant (since vehicle-hours do not change significantly), exclusive ride taxi profits are greater in the second scenario. This occurs because as the DRT system is used for more work trips, it becomes congested, making the non-work trip service more congested. Thus, individuals using the DRT system for short (non-transfer) trips in the first scenario shift to premium taxi service in the second scenario. This example demonstrates the importance of the paratransit structure in determining the impact on demand for exclusive ride taxi service.

A second example of this is found in a comparison of the first and second Ann Arbor scenarios. In both cases, the taxi industry is in direct competition with the paratransit system, so profits decrease. However, profits decrease more in the second scenario. This may be attributed to the elimination of the need to transfer within the DRT systems by the creation of one large service area, as opposed to ten small ones with coordinated transfers. This level of service improvement causes a higher number of taxi patrons to shift to paratransit service, causing a greater loss in profit for the taxi companies in the area.

The final issue to be considered is the importance of the institutional structure under which a taxi company is contracted to provide paratransit service. Of the four scenarios in which a private operator provides paratransit service, it is Albuquerque's second scenario which experiences the lowest net increase in profits, despite the fact that its decrease in premium taxi profits is also the lowest. Albuquerque is the only case in which the incentive is based on DRT revenue, rather than a fixed management fee. If DRT ridership is low, the taxi company receives only the $7.00/vehicle-hour specified to cover variable operating costs. In the two remaining cities, the contract is on a cost plus fixed fee basis, guaranteeing a specific level of profit. While the Albuquerque contract has the potential for the greatest profit (if DRT ridership is very high) the other two have a guaranteed profit.

These case study results suggest that, if the taxi companies are competing with the paratransit project, profits could decrease by almost 50% and a number

of taxi drivers could lose their jobs. However, the impact need not be negative. Integration of taxi companies into a paratransit system can result in large increases in profits for the taxicab company while, at the same time, fulfilling the needs of the paratransit project.

9.0 Getting Involved

If private operators are to share in a significant portion of the publicly subsidized paratransit service market, they must demonstrate to the community in general and to agencies and planners in particular that the private sector is capable and willing to provide quality transportation at a reasonable cost. Part of this marketing effort should include demonstration of the various forms of coordination which are possible and which are described throughout this report.

The taxicab operator should become involved with both the Metropolitan Planning Organization (MPO) and local human service agencies in order to demonstrate when and where the private sector can offer a worthwhile alternative. This planning process involves not only development of well organized and coordinated services but also establishing the private sector's credibility as a competent source of reliable, high quality transportation. Finally, a coordinated planning effort can help to address and alleviate specific problems (such as taxicab driver turnover) that are of mutual concern.

As a first step in developing an active and productive relationship with the public and non-profit sectors, the private operator is encouraged to take the following actions:

1. Call UMTA regional office (see Table 9-1) for the name of your local Metropolitan Planning Organization (MPO). Ask for a copy of the Urban Mass Transportation Act, the elderly and handicapped regulations of April 30, 1976 (Section 6.2.1.4), and a list of recipients of UMTA 16(b)2 money in your area (Section 6.2.3.5).

2. Call the MPO for a copy of the Transportation Improvement Program Annual Element (TIP/AE) (Section 6.2.1.3). Ask to be kept informed of public meetings and citizens' advisory meetings. Indicate an interest in participating. Ask for an inventory of non-profit transportation providers (the MPO may or may not have this).

3. If the MPO does not have a good inventory of non-profit organizations that provide transportation, call the state or regional Public Welfare office. Ask them how and to whom their transportation funds are allocated. Also ask about money that is

discretionary - that is, not allocated for transportation specifically but used for that purpose anyway. Specifically inquire about the Social Security Act and the Older Americans Act (Section 6.3, Table 6-2).

4. Read the TIP/AE carefully. See how it addresses the following:

   a. planned "special efforts" to meet the needs of the elderly and handicapped

   b. plans to coordinate the transportation programs of various non-profit agencies

   c. plans to serve elderly and handicapped persons who are unable to use mass transit

   d. plans to implement any new paratransit services in the area.

   e. plans to offer an opportunity for the private sector to participate in the delivery of any such services.

   f. plans to defray the cost of transportation for any elderly or handicapped persons who use existing private sector transportation services (e.g., taxis).

5. Contact your regulatory agency or a lawyer to determine your legal position regarding new or existing paratransit services (Chapter 5 and Chapter 7).

6. Decide whether you are interested in competing to provide any paratransit services planned in the TIP/AE. This may include the following considerations:

   a. Will these services cut into your business if they are provided by someone else (Chapter 8)?

   b. Are you interested in providing the type of service proposed? For example, are you interested in becoming a chair carrier? Are you willing to abide by public sector contractual requirements (Chapter 4)?

   c. If you see no practical role for your company in the present plan, are you in a position to offer an alternative type of service which could be incorporated into the TIP/AE and implemented? This service could be suggested as a replacement or an addition to the current plans. It could consist of maintenance or dispatching services, a paratransit service supplementary to a mass transit accessibility plan, paratransit feeder service, intra-community paratransit services, etc. (Chapter 2 and Chapter 3).

Both the initial marketing effort and subsequent contractual obligations with the public and non-profit sectors will require a significant commitment of additional administrative overhead costs on the part of the private operator. While the initial cost may have to be absorbed as a loss, the ultimate rewards of seeking to tap this new market should justify the investment. Publicly supported paratransit services may become part of the backbone of tomorrow's taxicab industry.

Table 9-1: UMTA Regional Offices

Region	Regional Director	Address	Phone
1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont)	Peter N. Stowell	Transportation Systems Center Kendall Square 55 Broadway Cambridge, Massachusetts 02142	(617) 494-2055
2 (New York, New Jersey, Puerto Rico, Virgin Islands)	Hiram J. Walker	26 Federal Plaza, Suite 1811 New York, New York 10007	(212) 264-8162
3 (Delaware, D.C., Maryland, Pennsylvania, Virginia, West Virginia)	Franz K. Gimmler	434 Walnut Street, Suite 1010 Philadelphia, Pennsylvania 19106	(215) 597-8098
4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)	Douglas R. Campion	1720 Peachtree Road, N.W. Suite 400 Atlanta, Georgia 30309	(404) 881-3948
5 (Illinois, Indiana, Minnesota, Michigan, Ohio, Wisconsin)	Theodore G. Weigle	300 South Wacker Drive Suite 1740 Chicago, Illinois 60606	(312) 353-0100
6 (Arkansas, Louisiana, New Mexico, Oklahoma, Texas)	Glen E. Ford	819 Taylor Street, Suite 9A32 Fort Worth, Texas 76102	(817) 334-3787
7 (Iowa, Kansas, Missouri, Nebraska)	Lee O. Waddleton	6301 Rock Hill Road, Room 303 Kansas City, Missouri 64131	(816) 926-5053
8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)	Louis F. Mraz	Suite 1822, Prudential Plaza 1050 Seventeenth Street Denver, Colorado 80265	(303) 837-3242

- continued -

Table 9-1: UMTA Regional Offices

(continued)

Region	Regional Director	Address	Phone
9 (Arizona, California, Hawaii, Nevada, Guam)	Dee V. Jacobs	Two Embarcadero Center Suite 620 San Francisco, California 94111	(415) 556-2884
10 (Alaska, Idaho, Oregon, Washington)	Franklin W. Fort	Suite 3106, Federal Building 915 Second Avenue Seattle, Washington 98174	(206) 442-4210

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Appendix A

Glossary of Terms and Acronyms

Activity Center: A location which generates relatively large volumes of trips to it. Also known as a trip generator.

Advance reservation (or request) service: Transportation provided on a demand-responsive basis with a specified amount of advance notice required, permitting the scheduling of vehicle tours.

Brokerage: A central clearinghouse for a variety of related services. A broker attempts to match a diverse range of (transportation-related) needs with the various sources of supply of those (goods or) services.

Captive rider: A rider who uses a particular transportation service because there are no other (public or private) modes that are reasonably available and, independent of whether or not the service used, is the most preferable.

Chair Carrier: Transportation provider specializing in handling passengers who are confined to wheelchairs.

Certificate of Public Convenience and Necessity: A document granted (by a regulatory authority) to a transportation operator conferring the privilege of operating vehicles for hire and (occasionally) providing additional guarantees against competition from other (public or private) operators, (generally) subject to operating rules and public safety laws.

Choice rider: A rider who uses a transportation service because it is the most preferable of two or more viable alternatives.

Commission driver: A driver who is paid a fixed percentage of the revenues which s/he collects, plus basic fringe benefits.

Consolidation: organization of several different services into a single operation.

Coordination: use of techniques to allow separately provided services to function as efficiently as possible from both the operators' perspective and the users' perspective.

Cycled (DRT) service: Service which is constrained by a periodic return to one or more checkpoints, (usually major activity centers) or transfer points to other modes), on a receiving schedule.

Dedicated vehicle: A vehicle reserved exclusively for use in a particular component of an operator's services (e.g., shared ride service, Agency on Aging contract service, etc.)

Demand density: A measure of the number of trip requests within a given area and period of time, (usually expressed in terms of service requests/ square mile/hour).

Demand responsive transportation: A generic term applying to any transportation service that plans or alters vehicle scheduling or routing in response to individual trip requests.

Exclusive ride taxi: A door-to-door service in which the party hiring the vehicle has exclusive use of the vehicle and may direct the vehicle's route and destination (subject to the operator's certificated privileges).

Feeder service: A collection (or distribution) service transporting riders to (or from) a stop on a line-haul (e.g., bus or commuter rail) service.

Franchise: See "Certificate"

Hailing: Persons desiring transportation gain access to a service (e.g., exclusive ride or shared ride taxi) by "flagging" a vehicle on a street or at a (taxi) stand (as contrasted to requesting service from a central control via telephone).

Hardware: Physical equipment, such as vehicles, radios, office equipment, etc.

Hourly driver: Driver paid an hourly wage, including basic fringe benefits.

Human service agency: Public or non-profit agency engaged in the delivery of basic human services to clients in need of such services. Transportation assistance must often be made available by the agency to allow clients access to the services provided.

Jitney: Formerly, a service running on (major) arterial streets, picking up and discharging passengers on request for a low fare; now more commonly used to refer to any illegal for-profit paratransit service.

Lease driver: A driver who contracts for the right to use a paratransit operator's vehicle, certificate rights, and dispatching services for a specified flat rate price. The driver retains all revenues collected while operating the vehicle, and is not an employee of the operator.

Level of service: A measure of the quality of service as delivered to the public. This may include average wait time, ride time, convenience, reliability, etc.

License: See "Certificate"

Many-to-one: Service collecting passengers from a variety of origins for a common destination. (The reverse trip is one-to-many service).

Many-to-few: Service collecting passengers from a variety of origins for delivery to a few (proximate) activity centers. (The reverse trip is few-to-many service.)

Many-to-many: Service simultaneously serving passengers from a variety of origins and delivering them to a variety of destinations in a manner that routes the vehicle as efficiently as possible without diverting individual passengers any more than necessary.

Mode: Any form of transportation supply with unique, distinguishable characteristics (e.g., rail, conventional bus, light rail trolley; shared ride taxi; walking).

Owner-operator: A taxicab driver who owns his own vehicle and who earns all revenues in excess of his operating costs.

Paratransit: Any of a variety of transportation services spanning the range between conventional fixed route transit and the private automobile; generally sharing the common characteristic of tailoring service to individuals' travel requirements through some type of service flexibility.

Point Deviation: Service in which vehicle tours are designed to stop at specific locations on a regular basis, while providing demand responsive service in-between.

Premium taxi: Often used interchangeably with "exclusive ride taxi;" implies a relatively high quality, high cost public transportation mode.

Private operator: Used to connote the owner of a private, for-profit transportation company.

Ride time: Time from when the passenger embarks on the vehicle to when s/he gets off.

Route deviation: A type of service with a specified route which the vehicle must traverse; deviations to provide door-to-door service are permitted, but the vehicle must return to the route at the same point at which it left. As contrasted to point deviation service, route deviation service makes hailing possible.

Service: A distinguishable component of a transportation supply system. This may include a specific kind of transportation (e.g., shared ride); a specific contract (e.g., an Agency on Aging contract);or a transportation-related function(e.g., dispatching).

Shared ride taxi: Used to connote a taxi service wherein the consent of passengers is not needed to pick up or discharge additional passengers, nor to choose the route taken by the vehicle.

Subscription bus service: Bus service provided on a regular (e.g., commuter) basis to riders who subscribe in advance to use the service.

Supply side subsidy: Subsidy provided to a transportation operator to cover general operating losses, independent of the exact number of units of service provided.

Tour: An ordered list of vehicle stopping points for a specified period of time, typically from pick up of the first passenger to drop off of the last passenger.

Trip generator: see "activity center"

Undedicated vehicle: Vehicle not reserved for use by a specific component of an operator's transportation system.

User side subsidy: Subsidy made available to pay for transportation of specific users and paid in direct relation to the amount of service delivered to them.

Wait time: Time between when passengers make themselves available for the anticipated arrival of a vehicle and the time when that vehicle arrives.

Zone: A clearly defined portion of a large area. Zones are usually defined to permit a fare policy to be established regarding service between various portions of a service area.

ACRONYMS

ATU	Amalgomated Transit Union
CBD	Central Business District
CETA	Comprehensive Employment Training Act
DHUD	U.S. Department of Housing and Urban Development
DOL	U.S. Department of Labor
DOT	U.S. Department of Transportation
DRT	Demand Responsive Transportation
ERT	Exclusive Ride Taxi
MPO	Metropolitan Planning Organization
OMB	Office of Management and Budget
RTA	Regional Transportation Authority
TIP	
TSME	Transportation Systems Management Element of the Transportation Improvement Program
UMTA	Urban Mass Transportation Administration of U.S. DOT
UWP	Unified Work Program
3C Process	Comprehensive, Coordinated Continuing Planning Process
3(e)	Section 3(e) of the Urban Mass Transportation Act of 1964 (as amended)
13(c)	Section 13(c)

APPENDIX B

HYPOTHETICAL CASE STUDY DETAILS

This Appendix provides additional technical detail regarding the model simulation of paratransit impacts that is referred to in Chapter 8.

B.1 City Selection

In a recent paratransit study,[1] a statistical (cluster) analysis was used to select 10 Standard Metropolitan Statistical Areas (SMSAs) representative of city types throughout the nation. Nine variables were used to describe each SMSA in the United States. These variables were measures of the following factors, thought to be important to paratransit and transit use:

- City size (population and density)
- Extent of suburbanization of population and employment
- Socioeconomic characteristics of the population
- Transportation characteristics

A statistical analysis was used to group the SMSAs so as to minimize the differences within each group. The three cities chosen for this report were classified in the following groups:

> Ann Arbor: "Small cities, with a moderately low central city density but also a low percentage of single family dwellings, very low elderly population, high auto ownership, and low transit use. Many of the cities are college towns." Albuquerque: "Small to medium size cities, predominantly south and southwestern, low central city density, high percentage of single family dwellings, high central city population and employment, low elderly population, relatively low income, high auto ownership and low transit use." Cleveland: "Fairly large, primarily midwestern and northeastern older cities with high central city family density, low central city population (as percent of total), fairly large elderly population, fairly low central city employment, and relatively high transit use."

B.2 Using the Model

In excercising the model, site specific data is used whenever available. Otherwise, estimates are made based on national averages modified for the city and system being studied. In two of the cities (Ann Arbor and Cleveland) para-

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[1] See Multisystems, Inc., Applied Research Integration, Ltd. and Cambridge Systematics Inc., Benefit-Cost Analysis of Integrated Paratransit Systems, Draft Interim Technical Report #1, Appendix B, prepared for the U.S. Department of Transportation, Transportation Systems Center, December 1977.

transit services are currently in existence and the model inputs are derived directly from real-world data. The remainder of the case studies (Albuquerque and additional scenarios for Ann Arbor and Cleveland) use real-world data in describing the site, but the paratransit systems are invented to enable impact analyses of a wider-range of paratransit services not presently available in this country.

Although little data is currently available describing modal diversions from exclusive ride taxi to new paratransit systems, it is possible to estimate mode shifts based on the data which is available and a series of models designed to predict equilibrium levels of service and patronage.[1] (See Figure B-1.)

Briefly, the model system transforms input data (transportation alternatives, site characteristics and a detailed description of the DRT service) into a prediction of: (1) the number of work and non-work trips on the DRT system; and (2) the corresponding level of service.[2] (The accuracy of the DRT supply submodel has been tested in a number of settings and has proven to be the best model to date.)[3] The DRT patronage is combined with former (or alternate) mode data (collected in on-board surveys) to yield the mode shift from taxi to DRT. (See Tables B-1 and B-2.) The model was calibrated using data from a paratransit system in Rochester, New York and validated on systems in Davenport, Iowa; La Habra, California; and Ann Arbor, Michigan.

B.3 Site Descriptions

Ann Arbor, Michigan

The first case study considers Ann Arbor, representative of small to medium size SMSAs with a low percentage of single family dwellings in the central city

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[1] See Multisystems, Inc., Applied Research Integration, Ltd. and Cambridge Systematics Inc., Benefit-Cost Analysis of Integrated Paratransit Systems, Draft Interim Technical Report #1, Appendix B, prepared for the U.S. Department of Transportation, Transportation Systems Center, December 1977.

[2] The patronage and level of service results undergo an equilibration process to guarantee consistent supply and demand characteristics.

[3] Nigel H.M. Wilson and Chris Hendrickson, "Models of Flexibly Routed Transportation Service," presented at the International Symposium on Transportation Supply Models, Montreal, November 1977.

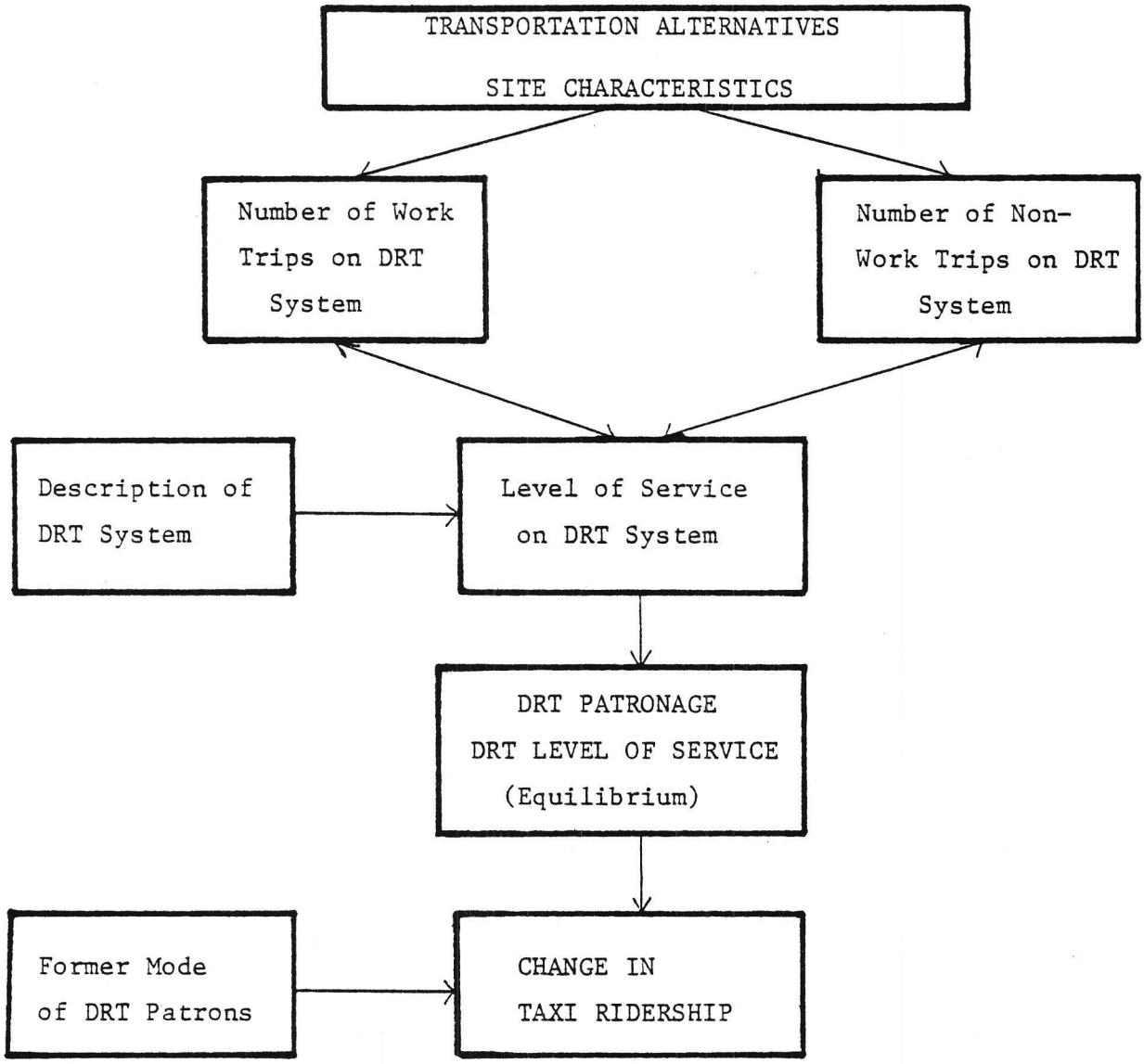

Figure B-1: Model System of Estimation of Shifts in Taxi Ridership

Table B-1. Former Mode of Demand-Responsive Transportation Patrons (%)

SITE/SERVICE	FORMER MODE: None (induced trip)	Auto	Taxi	Bus	Walk	Other[1]
General Market:						
Ann Arbor, MI	26	37	10	NA	23	4
Batavia, NY, DRT	17	21	30	6	15	11
Batavia, NY, Subscription	6	42	18	3	26	5
Benton Harbor - St. Joseph, MI	34	43	2	NA	15	6
Haddonfield, NJ	22	25	26	11	16	0
Ludington, MI	14	23	20	0	30	13
Merrill, WI	13	31	21	0	35	0
Midland, MI	18	39	10	0	25	8
Niles, MI	8	8	34	0	40	10
Rochester, NY[2]	24	33	9	16	16	2
Santa Clara, County, CA	14	62	5	NA	19	0
Xenia, OH	19	36	NA	0	34	11
Mean	17.9	33.3	15.4	3.0	24.5	5.8
Mode	17.5	34.5	14.0	0.0	24.0	5.5
Specialized Market:						
Miami[3]	NA	34.6	21.8	24.1	4.2	15.3[4]
Manhattan[5]	43.2	3.9	15.5	17.4	4.5	15.4
Minneapolis[5]	50	30	21	10	NA	29[6]

Source: One-day samples of on-board surveys conducted on each of these DRT systems, taken partially from R. Ewing and N. Wilson, Innovative Demand-Responsive Transportation, MIT Center for Transportation Studies, 1976. (except Miami)

Note: entries marked N.A. are probably included in "Other"

[1] Includes bicycle, hitchhike, no response

[2] Weighted average of Saturday and weekdays. Induced ridership was 50% higher on Saturday; weekday mode shifts from bus were more than twice those for weekdays; shifts from taxi to DRT were approximately equal on Saturdays and weekdays.

[3] Adapted from Special Transportation Service Monitoring Report (Draft), Office of Transportation Administration, Dade County, Fla., 1977. Note that only handicapped and elderly persons are eligible for the Miami Service.

[4] Includes 6.9% former human service agency trip mode

[5] Unpublished results of on-board surveys conducted by Applied Resource Integration, Inc.

[6] Includes 11% alternative human service agency trip

[7] Specialized service for elderly and handicapped only

Table B-2 . Selected Characteristics of Eleven Demand-Responsive Transportation Services

Site	Type of Service	Population Served	Service Area (sq. mi.)	Number of Vehicles	Average Weekday Ridership	Fare
Ann Arbor, Michigan	Many-to-many	100,000	21.8	45	5,000-6,000 (projected)	25¢
Batavia, New York	Many-to-many	18,000	5.5	7	455	60¢
Benton Harbor-St. Joseph, Michigan	Many-to-many	70,000	-	8	-	50¢ regular 25¢ senior citizens
Haddonfield, New Jersey	Transit feeder (peak) Many-to-many (off-peak)	44,000	11.0	19	1,200	30¢ regular 15¢ senior citizens
Luddington, Michigan	Many-to-many	9,021	3.2	3	200	50¢ regular 25¢ senior citizens
Merrill, Wisconsin	Point deviation	9,500	5.0	3	400	25¢ checkpoint-to-checkpoint 40¢ checkpoint-to-doorstep 50¢ door-to-door 15¢ checkpoint-to-school 30¢ doorstep-to-school ($2.50 for weekly pass)
Midland, Michigan	Many-to-many	35,176	24.9	6	-	50¢ regular 25¢ senior citizens
Niles, Michigan	Many-to-many	12,988	5.2	6	265	50¢ regular 25¢ senior citizens
Rochester New York	Subscription; Many-to-many	30,000	10.0	7	440	$1.00 regular 25¢ each additional person
Santa Clara County, California	Many-to-many	1,100,000	241	90	-	25¢ regular Free blind
Xenia, Ohio	Many-to-many; Subscription	28,000	-	9	-	$2.00 average

Sources: 1. Michigan Small Urban Area Public Transportation Conference, "Conference Working Papers," Houghton, Michigan, August 1977.

2. Multisystems, Inc., State of Wisconsin Urban Mass Transit Demonstration Program: Merrill Project, Final Report, prepared for the Wisconsin Department of Transportation and the City of Merrill, Cambridge, Massachusetts, January 1977.

3. U.S. Department of Transportation, Demand-Responsive Transportation: State-of-the-Art Overview, August 1974.

and a high average income. In addition, the city may be characterized by:

- high percentage of employment in the central city
- high percentage of population living in the central city
- high auto ownership
- low elderly population (5%)
- low central city family density
- projected 1980 population of 142,000
- area of 43.5 square miles
- density of 3264/square mile
- employment of 78,000

Ann Arbor is surrounded by agricultural land, with the nearest SMSA (considerably larger) being 50 miles away.

The transit system consists of 32 buses operating on nine fixed routes from 6:30 a.m. to 6:30 p.m.; no weekend or evening service is provided. Almost 80% of the population lives within a quarter-mile of a bus route; however, most trips require at least one (free) transfer in the CBD, making service somewhat inconvenient. Headways are 15-30 minutes during the peak, and 30 minutes - 1 hour during the off-peak; fares are 25¢.

Exclusive ride taxi service is provided by four taxi companies operating a total of 65 vehicles. The fare is $1.10 for the first mile plus 60¢ for each additional mile for all taxi trips.

Recently, a state and federally sponsored transportation program was implemented, providing demand-responsive paratransit service throughout the area. Ten zones offering local DRT services are used to supplement the fixed route system. (See Figure B-2). Regularly scheduled coordinated transfers between DRT and fixed route vehicles are utilized to provide efficient access between zones with a minimum amount of wait time.

The impact on the taxi providers of this service is significant. (See Table B-3.) The number of taxi passengers drops by approximately 65,000 annually leading to a loss of revenue of almost 10%, with an associated loss of profits of 37%. In addition, eight taxi drivers lose their jobs as a result of the new

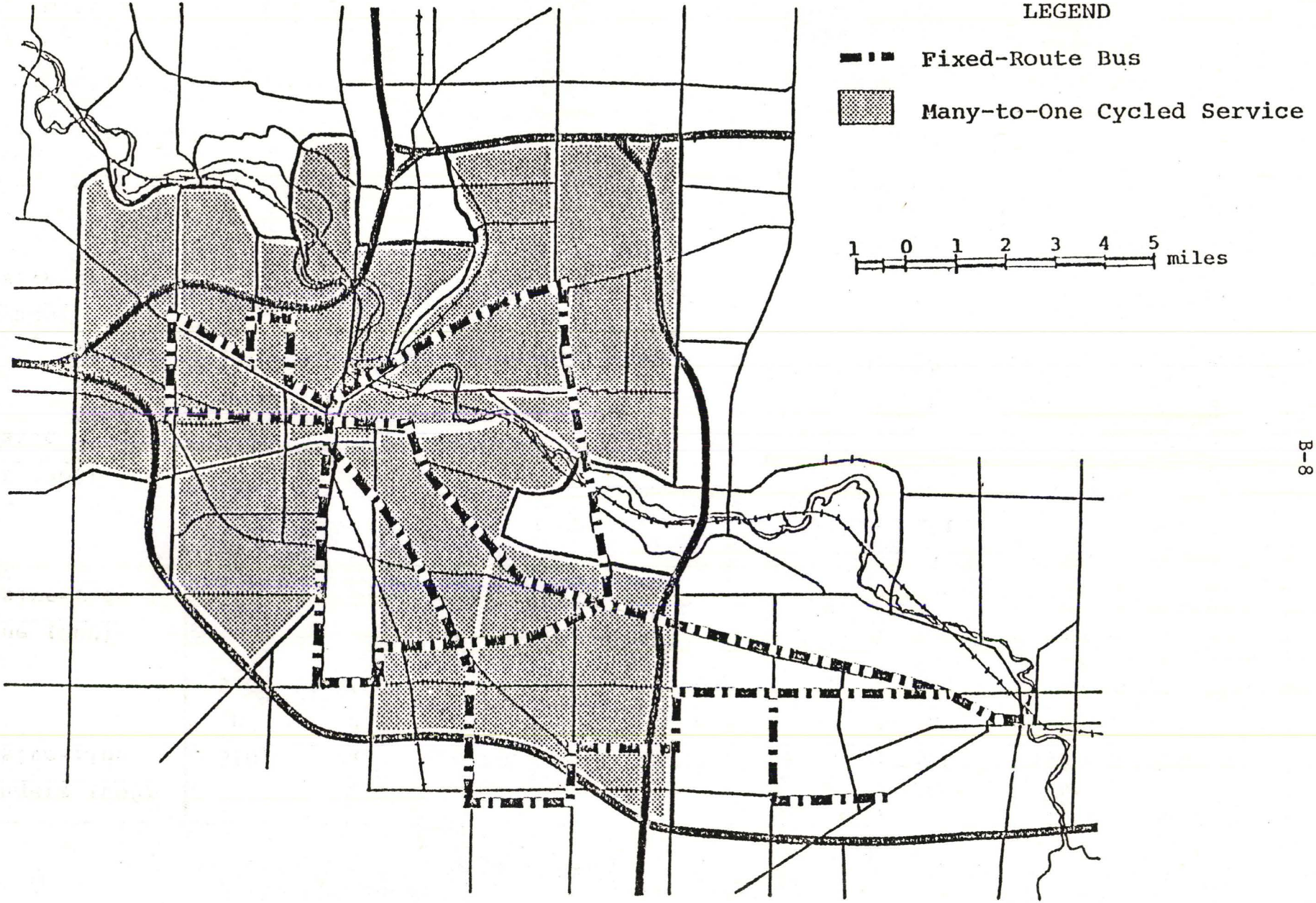

Figure B-2. Sample of DRT System Integrated with Fixed Route Buses

Table B-3. Impacts on Taxi Operators of Federally Sponsored Projects (Ann Arbor, Michigan)

Impact on Taxi	Scenario 1 (10 DRT zones) Before	After	Change (%)	Scenario 2 (1 large DRT zone) Before	After	Change (%)	Scenario 3 (1 DRT zone/private operator) Before	After	Change (%)
Passengers (000)									
exclusive-ride	510	445	-12.7	510	433	-15.0	510	442	-13.4
DRT[1]	0	0	-	0	0	-	0	860	-
total	510	445	-12.7	510	433	-15.0	510	1302	+155
Revenue (000)									
exclusive-ride	1081	977	-9.6	1081	962	-11.0	1081	969	-10.4
DRT	0	0	-	0	0	-	0	798	-
total	1081	977	-9.6	1081	962	-11.0	1081	1767	+63.9
Profit (000)									
exclusive-ride	52	33	-36.5	52	29	-43.5	52	32	-38.7
DRT	0	0	-	0	0	-	0	80[2]	-
total	52	33	-36.5	52	29	-43.5	52	112	+115
Employment			(abs.)			(abs.)			(abs.)
exclusive-ride	-	-	-8	-	-	-10	-	-	-9
DRT	-	-	-	-	-	-	-	-	+95
total	-	-	-8	-	-	-10	-	-	+86

Source: Model results

[1]All DRT data refers only to situations in which the taxicab company operates the DRT service.

[2]ΔProfit resulting from the DRT service is not .18Δ Revenue, the value assumed for exclusive-ride profits. It is dependent on the contractual method of compensation and in this case is equal to 10% of the DRT revenue.

paratransit service.[1]

In the second scenario a single large DRT zone is specified, offering many-to-many doorstep service on an immediate request basis for a fare of 50¢ (half-fare for the elderly and handicapped). This eliminates the need to transfer within the service area; however, coordinated transfers are still available for bus access to and from the zone. The model predicts that the impact of this project on exclusive ride taxi providers is somewhat greater than in the first case. (See Table B-3.) Ridership drops by an additional 10,000, yielding a total loss in revenue and profit of 11% and 44% respectively.

The third Ann Arbor scenario examined is similar to the second, but is operated by a private company under contract to the public transit authority. It is assumed that the authority is responsible for leasing the vehicles while the private operator handles all facets of operations. The contract is on a cost plus fixed fee basis, including a 10% management fee. All revenue goes to the transit authority. In addition, the fare is altered to be dependent on distance, resulting in a higher average paratransit fare (16¢).

The result is a significant loss of exclusive ride passengers (70,000) but an induced paratransit ridership of twice that size. The $80,000 management fee more than offsets the $20,000 loss in revenue, yielding a 115% increase in profits for the taxi operator. In addition, almost 90 new job opportunities occur as a result of the new service.

The essential difference between the second and third scenarios is that the former paratransit service is operated publicly and the latter is private. Table B-4 presents the total operating cost (of the paratransit system) in each case. In Ann Arbor, the cost is federally funded even when the service is privately operated, owing to the nature of the contract. The cost to the government is 38% lower in the third scenario (resulting primarily from the lower wage rates prevailing in the private sector), while also being more profitable for the taxi company. Of course, this number would be different with another set of initial assumptions, and thus should not be used as an

[1]Although the model results are simulated findings, in the case of Ann Arbor they have been validated and are very close to the empirical figures.

entirely accurate prediction. (Very little sensitivity analysis of the model or modal diversion statistics has been conducted at this time.) However, the results do demonstrate the importance of integrating taxi operators into new paratransit projects, especially in situations where the public operating costs are relatively high.[1]

Table B-4. Total Operating Cost of Paratransit Service (Public vs. Private Operator)

Site/Operating Cost	Public	Private	% Difference
Ann Arbor	$4,953,000	$3,053,000	-38%
Albuquerque	$2,412,000	$2,362,000	-2%

Albuquerque, New Mexico

Albuquerque is representative of medium size SMSAs, with a large percentage of the population living and working in the central city. Other characteristics include:

- high auto ownership
- low elderly population (6%)
- high percentage of families living in single family dwellings
- low income
- low central city residential density
- low transit use for work trip
- projected 1980 population of 460,805
- area of 133.2 square miles
- density of 3459/square mile
- employment of 186,342

The current transit system is an extensive fixed route network using almost 70 vehicles on 16 to 60 minute headways during both peak and off-peak at a flat fare of 35¢. However, many of the CBD routes utilize the same streets, thereby decreasing effective headways. Most travel which is not CBD-oriented

[1] In Albuquerque, where public operating costs are unusually low, the private sector is only 2% less costly, as will be discussed in the second case study.

requires a (free) transfer. Taxi service in the area is provided by two companies operating a total of 44 taxis. The fare is $1.40 for the first mile, 70¢ for each additional mile, and 25¢ for each additional passenger.

The situations analyzed in the benefit/cost study are both theoretical, since no paratransit service has been implemented in the city. The first case involves two paratransit areas: (1) The eastern portion of the city, housing half the population, has three (doorstep) route deviation services, continuing to the downtown as regular routes without transfer. A 10¢ additional fare is charged for the deviation. (2) The western portion of the city, with travel being more circulatory and less oriented to the CBD, has a many-to-many service, with (relatively uncoordinated) transfer to fixed-route buses. The charge for the paratransit service is 35¢ with an additional 10¢ transfer charge.

Approximately 35,000 passengers shift from taxi to the new paratransit service, resulting in a reduction in revenue of 7.5% and in profit of 26.7%. (See Table B-5.) In addition, 6 taxi drivers lose their jobs as a result of the fewer number of passengers.

The second Albuquerque scenario is identical to the first, except that the many-to-many paratransit service is contracted out to a private taxi operator at a flat rate of $7.00/hour. The operator provides regular taxi vehicles and retains all revenue collected. Patronage and level of service remain the same, yielding identical impacts on exclusive ride taxi. However, the taxi industry now has 21 additional jobs and $326,000 additional revenue (of which 20% is profit), which more than makes up for the $12,000 lost profit on the premium taxi service.

While the integration of the taxi company into the paratransit service results in a net positive impact on taxi profits and employment, the change in total operating costs is minimal.[1] (See Table B-4.) In contrast with Ann Arbor, Albuquerque has relatively low costs for publicly operated transportation, demonstrating that even when the public organizations are entirely capable of operating a paratransit service in a cost-effective manner, it may prove beneficial or necessary to incorporate private taxi companies into the paratransit project in order to preserve their viability.

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[1]The terms of the contract will be highly influential in deciding which of the operators (public vs. private) will be more cost-effective for the government.

Table B-5. Impacts on Taxi Operators of Federally Sponsored Projects (Albuquerque, New Mexico)

Impact on Taxi Company	Scenario 1 (route deviation/ many-to-many) Before	After	Change (%)	Scenario 2 (route deviation/many-to-many (privately operated) Before	After	Change (%)
Passengers (000)						
exclusive-ride	294	259	-11.8	294	259	-11.8
DRT[1]	0	0	-	0	267	-
total	294	259	-11.8	294	526	+78.9
Revenue (000)						
exclusive-ride	1014	939	-7.4	1014	939	-7.4
DRT	0	0	-	0	326	-
total	1014	939	-7.4	1014	1265	+24.8
Profit (000)						
exclusive-ride	48	35	-26.7	48	35	-26.7
DRT	0	0	-	0	63	-
total	48	35	-26.7	48	98	+104
Employment			(abs.)			(abs.)
exclusive-ride	-	-	-6	-	-	-6
DRT	-	-	-	-	-	+27
total	-	-	-6	-	-	+21

Source: Model Results

[1]All DRT data refers only to situations in which the taxicab company operates the DRT service.

Cleveland, Ohio

The final case study examines Cleveland, Ohio, representative of almost thirty urban areas located primarily in the northeast. These cities have the following general characteristics:

- high urban area population
- high central city family density
- high percent of urban area workers using transit to work
- low percent of urban area population and density located in central city

In addition, Cleveland itself is characterized by:

- projected 1980 population of 1,555,800
- area of 440 square miles
- density of 3535/square mile
- employment of 797,050

The central city population is approximately 550,000 and is surrounded by a number of suburbs. Over the past ten years there has been a notable reduction in the population of the central city, balanced by an increase in the surrounding communities. An important factor of this case study is a slow average auto speed, particularly within the central city.

The transit system consists of an expansive network of fixed route bus lines plus some heavy and light rail transit lines. About 70% of those living within the central city and adjacent suburbs live within a quarter mile of a bus route; the remaining suburbs have almost 25% of their population covered by transit.

The transit network is generally oriented toward the CBD with a few cross-town routes provided in the east and west portions of the SMSA. Service is provided seven days a week, 19 hours per day, at a fare of 25¢ plus a zonal fare of 5¢ when a passenger crosses from the central city and adjacent suburbs to the more distant suburbs. Headways are approximately 15 minutes during the peak and 30 minutes during the off-peak, although they vary significantly from route to route.

Exclusive ride taxi is provided by five taxi companies operating a total

of 312 vehicles. Typical rates are $1.40 for the first mile plus 70¢ for each additional mile.

Recently, a Service and Methods Demonstration was implemented, providing demand-responsive paratransit for elderly and handicapped persons. The region was originally divided into fourteen DRT zones within which passengers receive door-to-door service.[1] While no fare is charged, service is limited by the requirement to request service in advance and the relatively few vehicles (two) in each service area. The local Transit Authority provides the service within the central city and the city's largest taxi company provides the services in the outlying suburbs.

In the first model scenario, the system is expanded to serve the general public at a 75¢ fare. This involves increasing the vehicle fleet and supplying sufficient dispatching capabilities. Up to 20 vehicles are placed in operation in each zone, with service hours extended to cover morning and afternoon rush hours. In addition, transfers between zones, not allowed under the original SMD system, are permitted in this first scenario.

The expansion of service to the general public has a significant impact on taxicab companies, as shown by Table B-6. Although both private and public operators provide the paratransit service, the model does not present ridership results separately for each provider. However, it is possible to determine the increase in taxi revenue resulting from the increased service, since the taxi company receives $12.75 per vehicle hour regardless of fare-box revenues. (This includes a 20% management fee.) The increase in revenue yields a 171% increase in profits. In addition, 160 new job opportunities occur in the privately operated DRT service which more than compensates the 77 lost jobs in exclusive ride taxi service.

The only difference between the first and second scenario is the fare structure. In the first case, an individual using the DRT system to access a fixed route has to pay a full fare on each service. In the second scenario, a combined fare of 80¢ allows an individual to transfer between systems.

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[1] Originally, service was available in only 10 of the 14 areas due to budgeting constraints. In October 1977, the region was redivided into 17 zones and service was made available in all zones. The model simulations are based on the original 14 zone configuration, however.

Table B-6. Impacts on Taxi Operators of Federally Sponsored Projects (Cleveland, Ohio)

Impact on Taxi Company	Scenario 1 (14 DRT Zones) Before	After	Change (%)	Scenario 2 (14 DRT Zones/lower fare) Before	After	Change (%)
Passengers (000)						
exclusive-ride	2460	1877	-23.7	2460	1898	-22.9
DRT	-	-	-	-	-	-
total	-	-	-	-	-	-
Revenue ($1000s)						
exclusive-ride	7380	6173	-16.4	7380	6224	-15.8
DRT[1]	307	4953	+1513	307	4953	+1513
total	7687	11,126	+44.7	7687	11,177	+45.4
Profit ($1000s)						
exclusive-ride	351	129	-63.2	351	151	-57.0
DRT	62	991	+1498	62	991	+1498
total	413	1120	+171	413	1142	+177
Employment			(abs.)			
exclusive-ride	-	-	-77	-	-	-75
DRT	-	-	+160	-	-	+160
total	-	-	+83	-	-	+85

[1]All DRT data refers only to situation in which the taxicab company operates the DRT service.

Given the marginal difference between the two scenarios, only a slight difference in impacts can be expected. An interesting result is that taxi ridership is projected to decrease less in the second scenario, despite lower paratransit/fixed route fares. This counter-intuitive result occurs because work trips are more sensitive to the fare structure change than are non-work trips (since they are more likely to require a transfer). The increase in work trips on the paratransit/fixed route system causes an increase in congestion and travel time for non-work trips, making taxi a relatively more attractive alternative in comparison with the first scenario. While this appears to be plausible, it may actually be the result of the structure of the model system. The magnitude of the changes is so small that, in fact, it should probably be assumed that there is no difference at all.

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