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The utility of demand-responsive transportation requires no further proof. More than 50 DRT systems in some 22 states testify to the popularity of this concept. Thanks to it, many communities are enjoying for the first time the benefits of public transportation service. In many other towns, demand-responsive transportation has placed personalized, door-to-door service within the reach of many persons who earlier were totally dependent on others for automobile transportation or had to rely on infrequent and inconvenient bus service.

But my purpose is not to extoll the virtues of demand-responsive transportation. Those already active in the field do not need to be convinced of its value. Those who want to learn about this concept stand a better chance of becoming converted by reading the experts and by examining the lessons of past experience.

My purpose is to focus on the future—to offer some thoughts about how we in UMTA view the potential of demand-responsive transportation and to discuss some of the policy implications. In talking about the subject I shall drop the phrase "demand-responsive transportation" and adopt the shorter, more generic term "paratransit." I realize that in so doing I will be trespassing into a wider arena, but I do so deliberately, for I believe that we must focus on the generic form—the small-vehicle transit system concept—in order to understand the full potential of this form of transportation.

What, then, does the future hold for paratransit? It is safe to assume that further growth of this concept in its best known form is virtually assured. By "best known form" I mean community paratransit service, characterized by the flexible routing and scheduling of small vehicles to provide shared-occupancy, door-to-door, personalized transportation service within smaller communities and suburban neighborhoods. This concept lends itself well to the diffuse travel patterns prevailing in low-density areas. With the help of more sophisticated techniques of dispatching, better route algorithms, and more sensitive pricing policies, demand-responsive paratransit service is in an excellent position to become the dominant form of local public transportation in many small communities across the nation.

But, important as this function may be, the main opportunities for paratransit do not lie in the provision of local neighborhood service. The biggest scope for the future expansion of paratransit lies in its becoming an element of integrated metropolitan transportation systems. My view is based on the now generally accepted notion that no single transportation mode or technology can be expected to satisfy the many different transportation needs of a metropolitan area. The land uses, ridership densities, and travel patterns of a present-day urban area are simply too diverse to be served efficiently by a single form of transportation. Thus, although private automobiles are good at low densities, their performance and utility drop drastically in high-density conditions. The bus or rapid transit, although efficient in high-density situations, is poor at the low-density end of the trips. Good service with fixed-route vehicles is based on both dense coverage and short headways. But, as ridership density decreases, more and more transit vehicles run empty or nearly so to maintain an acceptable level of service. At some point, the use of small vehicles that can be flexibly routed and can respond to individual calls becomes both cheaper and more efficient than the use of large vehicles on fixed routes and schedules.

The conclusion thus seems clear that an effective urban transportation system—one that will provide a high level of service at the least cost—requires a mix of vehicles, service levels, and operating regimens, tailored to the different demand conditions, ridership densities, and travel patterns prevailing in particular corridors and subareas of the metropolitan region.

The above concept—long accepted as a precept of sound metropolitan transportation planning—is finding its way into UMTA's thinking in many ways. For example, we will be expecting future applicants for capital assistance to give greater emphasis to multimodal strategies. In the past, too many transportation improvement programs have been focused on the construction of regionwide, single-mode transportation systems. In the future the accent will be on tailoring transit service more closely to a particular

market. Thus, an urbanwide strategy may call for a rail rapid transit line in a corridor of heavy demand, a network of light rail cars or buses operating on exclusive rights-of-way in lower density areas and corridors, and fleets of paratransit vehicles acting as suburban feeders to these systems, all working cooperatively as components of an integrated, interconnected, regional transportation system. Underlying this philosophy is the recognition that no single transportation mode could possibly combine all the attributes desired by urban travelers. Each form of transportation has certain unique features enabling it to serve particularly well certain transportation needs. The goal of an urban transportation plan should be to exploit each mode and each technology for the purpose for which it is best suited—in other words, to assure that the right kind of transportation is available in the right place for the right purpose at the right price.

We will encourage applicants to be more mindful of the immediate and near-term transportation needs of the metropolitan areas. Much of the past transportation planning effort has been focused on the problems of the future and has ignored the current inadequacies of the transportation system. This has produced master plans for vast fixed-guideway regional networks whose completion date extends 20 to 30 years into the future, while current needs go begging. In the future we will expect urban areas applying for federal assistance to pay closer attention to short-term improvements. For example, although there may be ample justification for an urban area to embark on the construction of a regional rapid transit system, this does not absolve the city from undertaking transit improvements designed to benefit urban residents in the short term. These can take the form of less capital-intensive measures, notably the provision of better line-haul bus service and of flexibly routed suburban collection and distribution service. As patronage builds up, these systems may be progressively upgraded to higher capacity fixed-route systems.

We will be interested in knowing to what extent long-range transportation plans can be implemented in a more time-phased, incremental fashion. Typically, past tendency has been not only to plan extensive systems but also to bring into operation as much of them as possible from the day the systems first open. This is only natural, given the nature of the prevailing financing mechanism—the area referendum. The influence of the referendum on plan implementation can be seen from actual cases. San Francisco, Washington, Atlanta, and Los Angeles all required referenda and all proposed extensive regionwide systems to be completed as a package so that all areas would receive service more or less simultaneously. On the other hand, Toronto began its rapid transit system with some surplus funds so that no referendum was required, and the first section was only 4 miles (6.4 km) long. Similarly, Baltimore, which obtained financing for its system through state legislation and needed no referendum, is beginning with one line.

This is not to say that the referendum is the wrong approach to financing transit development. I am simply suggesting that good planning, prudent use of financial resources, and just plain common sense might dictate in many areas a more leisurely implementation schedule—one which began with the construction of segments or lines where they are most urgently needed and then continued to build on them slowly but steadily until a full regionwide rapid transit network was achieved.

I am intentionally dwelling in some detail on these planning concepts because they portend a much greater future role for paratransit. Even under the most optimistic assumptions as to the availability of federal and local funds, I see small-vehicle public transportation as a growing element in the overall strategy to maintain and improve metropolitanwide mobility. Areawide systems, such as we are beginning to see emerging in Orange and Santa Clara Counties, Rochester, Regina, and Ann Arbor, are the prototypes of this trend. More are likely to follow.

But much still remains to be done. Although paratransit has come a long way since the first conference on demand-responsive transportation, the concept is still in its infancy and is untested in many of its potential applications and more sophisticated forms and variations. Consider the following examples of potential new applications.

1. Late-hour and weekend jitney on bus routes. At low-demand times, such as in the early morning and late evening and during weekends when ridership is not sufficient to justify the use of conventional transit buses, paratransit could be used to provide

public services along the bus routes. The jitneys would run at fairly long but regular intervals, stopping only when hailed. The service would cater to those whose work schedules begin or end in the late evening or early morning and to all those who have no access to a car or cannot drive, especially the elderly and the young.

2. Jitneys at peak hours in major corridors. Jitney service could be provided at peak commuter hours in heavily used travel corridors as a premium transit service for those who are willing to pay an extra price for the comfort of riding in a small group and without frequent stops. Such service might actually benefit regular transit by reducing peak requirements for transit vehicles and drivers.

3. Package delivery. If rapid delivery is desired but the volume of deliveries is too small to warrant operation of a delivery van, a retailer will willingly contract for delivery service. In large cities demand is usually sufficient for such services to support a specialized delivery business, especially if it can be combined with other services, such as telegram delivery, "meals-on-wheels" programs, emergency delivery of medicines, and private mail service.

4. Transportation of handicapped in wheelchairs. Vehicles especially fitted with wheelchair lifts and other special features could provide demand-responsive service to wheelchair-confined persons in part fulfillment of the congressional requirement that public transportation systems be fully accessible to the elderly and handicapped.

These are just a few examples of the many possible ways in which paratransit could complement existing transportation services and fulfill latent transportation needs that go unmet today.

I stress the word "complement," for none of us wishes to see paratransit become engaged in a destructive competition for customers. We recognize that in many communities the local taxicab company has been providing people with personalized, on-demand, door-to-door service for many years and has been doing so quietly, efficiently, and without fanfare. Introducing a separate paratransit operation into such communities could be a wasteful, disruptive, and counterproductive step and result in ruinous competition between the 2 systems, from which neither enterprise would emerge victorious. It is not UMTA's intention to promote or encourage this type of situation.

But this is not to say that the existing private taxi services leave no room for innovation. Many communities need and are entitled to a greater variety of—and less costly—paratransit services. We believe that the local taxicab companies are the logical purveyors of such services and that they should be given a first option to demonstrate their capability in this field. We further believe, although this needs additional testing and experimentation, that paratransit services do not have to be money-losing propositions. Some local taxi operators have joined the ranks of innovators and have done so without the benefit of federal subsidies while maintaining, to my knowledge, a profitable operation.

We would like to see more such initiatives. In particular, we would like to know whether prearranged paratransit feeder service to line-haul commuter buses and trains could be provided by private operators at a cost that commuters could afford and would be willing to pay. If such feeder service can be so provided, we believe that all steps should be taken at the local level, including changing local ordinances, to permit the local taxi fleet operators to become active in the paratransit business. However, if this appears beyond the realm of economic feasibility, UMTA will be prepared to consider what type of federal assistance should be extended—to private as well as to public operators—to make paratransit service available to those communities that have a real need for it.

This brings me to my final point, and that is the impact of paratransit on conventional transit. As I said earlier, our aim is to promote paratransit services that complement rather than compete with or supplant other transportation modes. We believe, in other words, that paratransit can work in a productive partnership with conventional transit by serving as feeders to line-haul transit, by relieving some of the peak-hour pressure on transit vehicles and labor, and by building up new transit ridership through the provision of wider area service coverage. Thus, we think the present guarded attitude of the transit industry toward paratransit is unfounded and, we hope, will be dispelled

once the service attributes and the operating environment of paratransit become better known.

In a recent article, paratransit was called "the forgotten alternative." I wonder whether this description is still appropriate. Certainly, we in UMTA do not consider paratransit to have been ignored. Our capital grants and demonstration programs reflect our growing respect for this form of transportation. We are making sure that the full range of paratransit options is being explored. These include the so-called hail or phone alternatives, such as the dial-a-ride and the jitney; the prearranged ride-sharing alternatives, such as the car pool and the subscription bus; and the hire-and-drive alternatives, such as the short-term rental car. Each category has certain unique attributes, and each deserves serious consideration.

Of late there has been quite a bit of talk about how jitneys might prove to be the answer to all our transportation ills. Critiques have been written and studies have been commissioned purporting to demonstrate conclusively that jitney transportation can do the job and do it better and more efficiently than any other mode. This view, it seems to me, is but another manifestation of that old human reaction in the face of complexity—a yearning for easy answers, a harking back to simple solutions in a world that is anything but simple. I will be the first to admit that paratransit has a rightful role to play in the total urban transportation system—a role that has been until now probably considerably underestimated.

But to go on from there to imply—as some are doing—that jitneys are going to solve all our transportation problems is a giant step into the world of unreality. Single-mode transportation systems, except in small communities, are a mirage. An all-jitney system in a place like the San Francisco Bay Area or even in Oakland itself is no more realistic than an all-rail or an all-freeway or an all-PRT system.

I would urge all of us to exercise a bit more restraint in our rhetoric, lest paratransit, a form of transportation that shows genuine promise, become embroiled in a false controversy about the "ultimate transportation solution"—a debate that could do a disservice to all those who are genuinely committed to the cause of paratransit.

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We have been reconceptualizing the Service and Methods Demonstration Program since an UMTA reorganization in 1973. It may be useful to put the demonstration program in a somewhat broader perspective before a description of it is given.

UMTA now has legislative authority for a program to financially assist transit operating costs. The range of activities encompassed by our program authority includes research, development, and demonstrations; capital grants and loans; planning grants; university research and training; managerial training; and operations.

Sometimes exaggerated claims are made for federal programs. For example, at the hearings on the Urban Mass Transportation Assistance Act of 1970, which essentially provided a quantum increase in resources for capital grants, a prominent witness said that this piece of legislation alone would alleviate traffic congestion and air pollution, increase property values, promote business activity, stop community decay, and ensure access to jobs, schools, medical care, and recreation for millions who were too old, young, poor, or handicapped to drive cars. The political process happens to be quite tolerant of such statements. After all, there is the hope that they will turn out to be correct, and the problems will in fact be solved.

The truth is that the politician is willing to accept limited results. He recognizes instantly when the expert is being clear, and when he is babbling. Though he is not averse to putting a program on trial for its life, if it falls short of initial expectations he is more apt to want to know why, and what it will take to get results.

The program manager has the interesting job of balancing political relevance and technical credibility. Statements of purpose have to acknowledge the perceived prob-