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Advantages and Disadvantages of Fare-Free Transit Policy

ADVANTAGES AND DISADVANTAGES OF FARE-FREE TRANSIT POLICY

by

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16. Abstract

This synthesis of fare-free demonstrations offers information as to the impact, cost, advantages, and disadvantages of fare-free implementation in various transit systems. The main thrust of this synthesis is that while fare-free policy can be recommended for smaller transit systems, it is questionable as to whether fare-free implementation would be appropriate for larger systems. There are consequences to any operational transit policy, and those who make decisions about whether to offer fare-free service should be aware of the range of possible consequences. There are many factors which influences whether fare-free transit would be a negative or positive experience in any given transit system environment. This report presents both the advantages and disadvantages of fare-free service in differing transit system environments within the framework of several policy questions and is meant to serve as a guide for those considering whether to implement fare-free policy within a specific transit system.

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EXECUTIVE SUMMARY

The following synthesis offers information as to the impact, cost, advantages, and disadvantages of implementing system wide fare-free policies in various transit systems. Information was gathered through the documented results of research done on case studies of fare-free experiments, and from active transit professionals with first-hand knowledge of the results of other fare-free demonstrations implemented by a variety of transit systems around the United States.

The suggestion to offer transit on a fare-free basis is almost always well intended. However, while fare-free policy might be successful for small transit systems in fairly homogenous communities, it is nearly certain that fare-free implementation *would not* be appropriate for larger transit systems. Two well-documented fare-free demonstrations in larger systems in Denver, Colorado and Trenton, New Jersey, conducted during the late 1970s, were limited to off-peak hours and were both discontinued after approximately one year in spite of increased ridership. Since that time there has been only one other fare-free system-wide experiment in a large transit system, conducted in Austin, Texas from October 1989 until December 1990. While several large transit agencies (*i.e., Seattle Metro; Denver, Colorado; Houston, Texas; Baltimore, Maryland; Pittsburgh, Pennsylvania; St. Louis, Missouri; and Tri-Met in Portland, Oregon*) offer fare-free service on a small portion of their systems, there has not been a full fare-free policy instituted on a system-wide basis since the experiment in Austin, Texas. The negative consequences of that experiment in particular, as well as the negative experiences in Denver and Trenton, have left lasting impressions on transit operators throughout the country. No large transit system in the United States offers free fares on a system-wide basis at the present time.

A fare-free policy will increase ridership; however, the type of ridership demographic generated is another issue. In the fare-free demonstrations in larger systems reviewed in this paper, most of the new riders generated were not the choice riders they were seeking to lure out of automobiles in order to decrease traffic congestion and air pollution. The larger transit systems that offered free fares suffered dramatic rates of vandalism, graffiti, and rowdiness due to younger passengers who could ride the system for free, causing numerous negative consequences. Vehicle

maintenance and security costs escalated due to the need for repairs associated with abuse from passengers. The greater presence of vagrants on board buses also discouraged choice riders and caused increased complaints from long-time passengers. Furthermore, due to inadequate planning and scheduling for the additional ridership, the transit systems became overcrowded and uncomfortable for riders. Additional buses needed to be placed in service to carry the heavier loads that occurred on a number of routes, adding to the agencies' operating costs. However, the crowded and rowdy conditions on too many of the buses discouraged many long-time riders from using the system as frequently as they did prior to the implementation of free-fares.

Based upon the findings of this synthesis, it is concluded that a fare-free policy might be appropriate for smaller transit systems in certain communities, but is ill advised for larger transit systems in major urban areas. Additionally, the results of this research demonstrate that a more effective way to increase choice ridership in larger systems would be to offer incentives such as reduced fares to students and the elderly, all-day passes, or pre-paid employer-provided passes to workers in areas served by transit. All well-informed transit professionals that were contacted for their opinions spoke strongly against the concept of free fares for large systems, suggesting some minimal fare needs to be in place to discourage vagrancy, rowdiness, and a degradation of service. It is also concluded that people are more concerned about issues such as safety, travel time, frequency and reliability of service, availability and ease of schedule and route information, infrastructure at stops, and driver courtesy, than they are about the cost of fares. When fares are eliminated, substantial revenues that help pay for such service characteristics are lost.

INTRODUCTION

From time to time, either transit policy board members or transit managers seriously consider the question of providing transit services free of charge to passengers. There are a number of factors behind the motivation to offer fare-free transit, among them: a desire to increase the use of public transportation and possibly decrease traffic congestion; a recognition that farebox revenue is sometimes relatively minimal and possibly not worth the effort and expense to collect; a political desire to "fill empty buses;" a strategic effort to introduce younger people to transit services in order to encourage future ridership; a desire to accommodate certain niche passenger markets in resort areas where transit operating revenue can be gained through other sources; a strategic decision to help redevelopment of a particular area; or some other public policy goal.

There are consequences to any operational transit policy, and those who make decisions about whether to offer fare-free service should be aware of the range of possible consequences. There are many factors, which influence whether fare-free transit would be a negative or positive experience in any given environment. Among these factors are the size of the community and transit system, the degree of commitment to fare-free service by both the community and the transit system management and employees, and the age and establishment of the transit service (Hodge, Orrell, & Strauss, 1994).

This report will present both the advantages and disadvantages of fare-free service in differing transit system environments within the framework of several fundamental policy questions:

- How much would it cost to implement a fare-free policy in the system;
- What would be the impact of fare-free policy on existing transit services; and
- How will fare-free policy affect the attainment of the transit system's goals? (Hodge et al, 1994)

ADVANTAGES OF FARE-FREE TRANSIT IMPLEMENTATION

The impact of changes in transit fares on ridership is typically assessed by fare elasticity measures (Cervero, 1990; Baum, 1973; Lago, Mayworm & McEnroe, 1981; Doxsey, 1980). Put most simply, fare elasticity is the change in ridership created by a certain percent change in fares. The industry standard for larger systems is the Simpson-Curtain rule, which sets elasticity at approximately -0.3 (Hodge et al., 1994). For example, this means that a 10 percent decrease in fares will cause a 3 percent increase in ridership levels. Theoretically, a 100 percent decrease in fares implemented in a transit system, when it becomes fare-free, should at least generate a 30 percent increase in ridership (Yaden, 1998). However, most systems experience an increase in ridership closer to 50 percent (Hodge et al., 1994). Additionally, fare-free service should theoretically lead to:

- Faster transit vehicle loading and unloading, due to the ability to use both front and rear doors
- Less confusion over transfers and different types of fares
- Lower administrative costs due to less need for paper transfers and less need for administrative boards to set fares (Olsen, 2000).

COST OF FARE-FREE SERVICE

The implementation of a fare-free policy may eliminate revenues collected, but it also eliminates costs associated with setting and collecting fares, such as for equipment, personnel, and insurance (Scheiner, 1976; Scheiner & Munder, 1978). In smaller systems, fare collection costs are generally a higher percentage of the total operating costs than for larger systems (Hodge et al., 1994). Additionally, a certain amount of overhead is associated with fare policy research and planning within transit organizations, including the solicitation of public input for every fare

policy change. The elimination of fares would remove these costs and may free staff to focus on the quality and effectiveness of service, which is important in keeping and attracting choice ridership (Sims, 2001).

IMPACT OF FARE-FREE POLICY ON TRANSIT SERVICE

Two important dimensions of transit service are total ridership and quality of service. How much will total ridership change if a fare-free policy is adopted? Additionally, and most importantly, what type of ridership will a fare-free policy attract? In general, as described above, fare-free policy generally results in a significant increase in ridership. The standard for measuring increase in ridership is fare elasticity and is set at -0.3, as previously discussed. However, elasticity levels can vary by type of passenger, time of day, type of route, and length of time since the fare change was instituted (Cervero, 1990; Lago, Mayworm, & McEnroe, 1981).

The farebox may be seen as a potential source of confusion and, subsequently, embarrassment to the uninitiated transit user (Hodge et al., 1994). Imagine the effect if personal vehicles had fareboxes installed and every time one wanted to take a trip or use the car, he or she would be forced to find an exact amount of change. Psychologically, this is the same effect caused by the uncertainty and complexity of fare collection to some existing and potential transit customers. And, although automobile users recognize that there is a cost over and above the cost of gasoline whenever they make a trip (such as insurance, car payment, and wear and tear on the vehicle), they are not inconvenienced by having to search for change and remembering routes and different fare prices when using their cars (Yaden, 1998).

The types of ridership increases are also important. That is, who will the transit service be attracting by offering fare-free service? Hodge et al. (1994) propose that there are two positive sources of ridership change that can be accomplished by fare-free implementation:

- Transit riders who generally use their personal vehicles, attracted by the goal of decreasing auto use and fulfilling environmental objectives
- Transit riders who would not have otherwise been able to make a trip to a job or social activity, who are provided with additional mobility

It has been found that smaller transit systems, such as Island County in Washington State, Logan, Utah, and Wenatchee, Washington do not experience problem riders like those described in larger systems. Many in those organizations attribute these positive results to educational efforts and an aggressive, zero-tolerance policy for unacceptable behavior while on board transit. It could also be that smaller communities are less likely to confront the types of problem riders found in larger, more metropolitan areas. Additionally, a smaller system makes it easier to keep track of problem riders (Hodge et al., 1994).

IMPACT ON QUALITY OF SERVICE

There are three parts to assessing the impact of fare-free policies on the quality of service:

- To what extent will the increase in ridership affect the internal transit environment?
- How will the change in ridership change goals of mobility, environmental quality, and land use patterns? And, to what extent will adopting a fare free policy increase the public transit system's ability to meet its goals?
- How will the community's relationship and regard of public transit change as a result of fare-free policy (Hodge et al., 1994)?

Effect on Internal Transit Environment

The removal of the farebox will change the vehicle environment. Proponents of fare-free service believe that removing the farebox will eliminate the problem of fare disputes and will also eliminate the abuse born by drivers from passengers who equate fare payment with ownership of the vehicle. Much of the transit vehicle driver's job satisfaction is tied to

interactions with passengers. Therefore, if the farebox is removed and transit riders experience a more welcoming environment due to the removal of this potential psychological barrier, then the drivers will also benefit (Hodge et al., 1994).

Further, Hodge et al. (1994) contend that the negative aspects of a fare-free policy have been over emphasized by critics. They believe that:

- problem riders are not always an issue
- policy adjustments and educational programs may resolve these problems
- the severity of the problem riders may vary as a function of whether the system started fare-free or if the system converted to fare-free after being well established
- management attitudes toward the fare-free policy and the communication of these attitudes to other transit employees may influence the agency's fare-free experience.

How will the change in ridership affect quality of performance in areas such as vehicle crowding and schedule adherence? Scheiner and Starling (1974) estimate that while aggregate boarding times may increase due to a larger volume of riders, average boarding time should decrease an average of 18 percent when the farebox is removed, because both doors may be used for boarding purposes and passengers will spend no time searching for the exact change.

System Effectiveness

Traditionally, one measure of system effectiveness is the farebox recovery rate. In support of fare-free service, Hodge et al. (1994) state that an overemphasis on farebox recovery is counterproductive with respect to the goal of increasing ridership. They suggest that, instead, system effectiveness could be measured by cost per rider, rather than farebox recovery. In the case of Austin, Texas, in the 12 months prior to the fare-free experiment, the average cost per rider was $2.51. During the 15 months of the fare-free experiment, the average cost per rider was $1.51 and rose back up to an average cost per rider of $2.18 in the year following the fare-

free experiment (Hodge et al., 1994). Hodge et al. (1994) purport that the system also gained some efficiencies because there were no labor and capital expenses associated with collecting fares.

Community Image

What is the perception of a transit system within a community? In current U.S. culture, public transit is most often viewed as the option of last resort. Existing users may view transit differently from non-users of transit. In many cases, automobile users view any increase in taxes that fund transit as being unfair to them. However, many automobile users do not realize that society subsidizes auto travel (Yaden, 1998). In a fare-free transit system, people who usually drive may be encouraged to use public transit simply because it does not cost them anything more to use public transit. Improving the community image of transit requires the breakdown of barriers that separate the transit-dependent rider from the choice rider and proponents of free fares believe that removing the farebox might accomplish this goal (Hodge et al., 1994).

DISADVANTAGES OF FARE-FREE TRANSIT IMPLEMENTATION

COST OF FARE-FREE SERVICE

In larger transit systems, fareboxes generate much more of an agency's operating revenue than smaller systems. For example, at Miami-Dade Transit, fareboxes generate $70 million per year (or 33.33 percent) of the approximately $210 million in operating costs (MDT, 2002). Comparatively, in many smaller systems the farebox recovers less than ten percent of the yearly operating cost. Removing the farebox might make fiscal sense in smaller systems. In fact, the costs associated with farebox collection and farebox maintenance might equal the revenue collected in some smaller systems, making fare collection an exercise in fiscal futility. However, in larger transit systems, the actual cost of removing the fareboxes will leave the system with a very large revenue shortfall, which will need to be filled by some type of public funding.

Although the Mercer County (Trenton, NJ) fare-free demonstration was conducted only during non-peak hours, their system sustained a loss in peak hour fares as well. One-fourth (24.7 percent) of their revenue was lost from the fare-free experiment, with 4.3 percent of that loss coming from fare revenue lost during peak transit hours (for reasons explained in the next section). Additionally, Mercer Metro had to provide additional bus service to meet excessively high passenger demands during the fare-free hours, causing operation costs to skyrocket (Connor, 1979).

The Capital Metro fare-free experience in Austin, Texas mirrors the Mercer Metro results. Just like in Mercer County, the system quickly became overburdened with requirements for capacity expansion and a subsequent increase of operating costs. With the cost of maintenance and property damage to the Austin system, and the subsequent necessity of hiring off-duty police officers for security on the buses, the skyrocketing operating costs became a substantial drain on the system. Officials at Capital Metro described the cost of operation in a fare-free system as "staggering" (People for Modern Transit Technical Committee, 2001).

IMPACT OF FARE-FREE POLICY ON TRANSIT SERVICE

How will the total ridership and quality of service change if a fare-free policy is adopted? What type of rider will a fare-free policy attract to the system? As mentioned previously, the transit industry standard for measuring increase in ridership is fare elasticity (Hodge et al., 1994). However, elasticity estimates do not take into account the impact that system-wide fare-free implementation can have on encouraging problem riders and what ramifications that might have on long-term riders. A farebox may be seen as a psychological barrier to the new transit user, but it may also be a barrier in keeping out a less desirable type of transit rider which fare-free systems may encourage. According to Hodge et al. (1994), there are two negative sources of

ridership change, which can possibly overwhelm a system and drive away choice ridership:

- Transit riders who would have otherwise walked, carpooled, or ridden bicycles, but choose transit because it is free
- Transit riders who enter the system for the purpose of joy riding, vandalism, and harassment of transit riders and employees.

In the Austin, Texas fare-free demonstration, both anecdotal and official data suggest that problem riders increased substantially and drove away other riders. Joy-riding youth and inebriated adults, as well as vagrants, increased. In addition, in both the Mercer Metro and the Austin, Texas experiences, problem riders actually drove away many of the regular bus commuters. In none of the experiments did the increase in transit ridership include automobile commuters enticed by the fare-free service (Connor, 1979; Kounes, 1993; People for Modern Transit Technical Committee, 2001).

The relationship of fare reduction and attracting ridership is much more complex than what is represented by fare elasticity. Other interrelated factors are also important in assessing the impact of fare reduction. Based upon studies of ridership and stated preferences of both riders and non-riders, the cost of riding public transit (fares) ranks lower than other factors which influence ridership, such as:

- Safety
- Cost of driving (gas and parking)
- Service frequency and reliability
- Availability and ease of use of schedule and route information
- Amenities (e.g., shelters) and driver courtesy
- Fares/cost of service (Yaden, 1998).

In fact, a study by Cervero (1990) concludes that service frequency is at least twice as important

as the price of fares in determining customer satisfaction and ridership. Research conducted by the Center for Urban Transportation Research reinforces those conclusions through customer satisfaction surveys at transit systems in Florida. In one transit system, "system design" (frequency, routing, and on-time performance) made up 24 percent of overall passenger satisfaction and value (price) comprised only 10 percent. In another transit system, "Timeliness" (frequency, on-time performance, and time to make trip) comprised 28 percent of overall passenger satisfaction while value comprised only six percent. (Cleland and Thompson, 2000)

IMPACT ON QUALITY OF SERVICE

As noted previously, there are three parts to assessing the impact on quality of service:

- How does the increase in ridership affect the internal transit environment?
- How will the change in ridership change the transit system's goals of mobility, environmental quality, and land use patterns?
- How will the community's perception of public transit change as a result of the fare-free policy (Hodge et al., 1994)?

Effect on Internal Transit Environment

Fare-free systems can attract problem riders, resulting in vandalism and problems for other riders. The Miami Beach Transportation Management Association sponsors electric shuttle bus service in Miami Beach.. For the first year of operations, the service was offered for free. This new service attracted over a million riders in its first year, with only seven buses in operation. However, the free fares also attracted undesirable passengers. According to Judy Evans, the Miami Beach TMA Director, "The institution of a $.25 fare eliminated the unwanted passengers and resulted in a 90 percent reduction in vandalism." These types of problems may increase personal security and psychological costs of transit use much more than a farebox. In addition, the absence of fares can make riders feel a lack of responsibility for the well being of the transit system, resulting in a negative impact on driver satisfaction. In the Trenton, New Jersey fare-free experiment, 92 percent of transit drivers found their jobs to be less enjoyable as a result of

the fare-free program (Connor, 1979). And, in the Austin, Texas experiment, officials claim that transit operators came close to "insurrection" as their transit system became flooded with truant school children, vagrants, and other "dubious categories" of passengers (People for Modern Transit Technical Committee, 2001). It is important to note that these findings contradict the findings by Hodge et al. (1994) that eliminating the fare would result in a more positive environment for transit vehicle operators due to the fact that they wouldn't have to argue with passengers over fares. However, the psychological barrier of the farebox and hunting for change and dealing with paper transfers could be minimized with new fare structures (e.g., an all-day pass) or new farebox technology, which would eliminate transfers and accept stored-value cards or even credit cards. This technology should drastically reduce fare-related arguments between passengers and operators.

Psychological costs in personal security and physical crowding seen in these fare-free demonstrations may actually cause more problems than the psychological cost of the farebox. Problem riders increase personal security costs of transit use and cause a decrease in ridership of both new and existing choice riders (Hodge et al., 1994). This view is supported by Peter Foote, member of the Transportation Research Board Bus Transit Systems Committee, who notes that, "I share others' concern with the impact of free fares on things like graffiti and other acts of vandalism. There might also be an impact on passenger safety if one presumes that transit fares can act as a barrier to access for those intent on thievery." Further, as evidenced in the Austin experiment, choice riders do not immediately return to the system once they've been driven out, and the system must prove itself over time to disenfranchised riders (PMT Technical Committee, 2001).

Will the addition of new riders also cause increases in boarding time and problems with schedule adherence? Steiner and Starling (1974) claim that eliminating the farebox may cause a decrease in average boarding times, but it will cause an increase in aggregate boarding times. The reality is that increased ridership will result in more crowding, which will negatively impact boarding times. Additionally, schedule adherence will be negatively impacted by a larger number of

people riding the bus short distances who might have otherwise walked. In the Trenton, New Jersey fare-free experiment, the schedule adherence was so poor that drivers were not able to take allotted breaks or leave their buses at the end of the line (Studenmund, Swan, & Connor, 1979).

System Effectiveness

As previously mentioned, system effectiveness can be measured by the farebox recovery rate. Fare-free advocates suggest that system effectiveness could instead be measured by per rider cost. In another example, consider a fairly large transit system that moved approximately 270,000 riders per day. If that system experienced a 30 percent increase in ridership due to fare-free program implementation, it would have an increase of approximately 81,000 riders per day, based on fare elasticity analysis. Based upon the information from both Mercer Metro and Capital Metro (Austin, Texas), most transit systems could not recover from such a loss of revenue, even if the system might be regarded as more efficient on a cost-per-passenger basis. Imagine that the system becomes overwhelmed with passengers, and must provide expansion of service. Also imagine that the system must now pay for maintaining the system in the face of vandalism and property damage from problem passengers, as well as hiring off-duty police officers to control security incidents. Without passenger-generated revenues, most transit systems would be unable to pay for additional services. Even if a transit system finds a replacement source of funds to pay for the revenues lost due to the fare-free policy, expenses will increase due to the many reasons noted above. The replacement source of revenue will not be as effective as it might otherwise be to help pay for service improvements choice riders seek.

Community Image

If fare-free transit is implemented and the system becomes inundated with problem riders, vandalism, and personal crimes, the system will be viewed negatively and choice riders will not

be attracted to it. In trying to remove barriers that separate the transit-dependent rider from the choice rider, such as removing the farebox, the transit system may instead have unwittingly erected other barriers which are far more damaging to the image of the system. The types of problem riders which may be encouraged into the system by a fare-free policy may damage the system's public image, as well as damage the system physically and financially for a very long time after the fare-free demonstration has been discontinued. Jeff Arndt, Vice President and Chief Operating Officer of Metro in Houston noted, "We stopped doing system-wide free fares several years ago. A large group of high school students cut classes and rode around for free and started trouble in the Central Business District. We got a lot of negative press on 'encouraging' truancy." Given these very serious repercussions, care must be taken in assessing if fare-free policies would be beneficial or detrimental to a particular system and community.

CASE STUDIES

TEMPORARY FARE-FREE EXPERIMENTS

Two of the largest fare-free demonstrations were conducted in the late 1970s in Trenton, New Jersey and Denver, Colorado. Both projects lasted slightly more than one year between 1978 and 1979, and were implemented on an off-peak basis. In Trenton, the primary motivation for the experiment was social and economic redevelopment of the area. In Denver, the primary motivation for the experiment was reducing pollution and automobile use (Hodge et al., 1994). The Denver experiment resulted in a 36 percent increase in ridership and the Trenton experiment resulted in a 16 percent increase in ridership (Doxsey and Spear, 1981).

Many fare-free advocates express concern with the methodology of these two experiments, the first being that both experiments were run during off-peak hours only. If the motivation was to promote transit use and reduce congestion, then perhaps the experiments should have been run during peak periods (Hodge et al., 1994).

A medium-sized transit system that experimented with total fare-free service was Austin, Texas. The experiment ran from October 1989 to December 1990. Ridership increased 75 percent during the experiment, but expanded service likely accounts for some of this percentage (Capital Metro, 1991), and the PMT Technical Committee (2001) claims that once the ridership increase is adjusted for normal growth and addition of University of Texas student passengers, the initial jump really only amounted to a 10 percent increase. This trial was regarded on the one hand by Capital Metro Board members and management as a successful marketing experiment to increase ridership. However, it was also regarded as disastrous in terms of attracting problem riders who drive away choice ridership and raise agency expenses due to damage to vehicles and property and the requirement for substantial security expenses (PMT Technical Committee, 2001). Additionally, 215 (75 percent of) transit operators petitioned to have the fare-free program discontinued immediately, due to the abuse they were experiencing at the hands of problem riders (Kounes, 1993).

A similar result occurred in the late 1980s when Broward County Transit allowed all passengers under the age of 18 to ride for free. System managers described conditions on many routes to be chaotic. Within six months, at the urging of bus operators, the free fare program for youth was discontinued in favor of allowing them to ride for half-fare.

When summing up the experience of these fare-free demonstrations:

- All systems showed a substantial ridership increase
- There is little evidence that these projects made a significant dent in Single Occupant Vehicle travel during peak hours
- Public reaction to fareless demonstrations were positive, but riders complained about deterioration of safety and service quality
- Bus operators voiced concerns over increased rowdiness, problem passengers, and the effect on schedules (Kounes, 1993; Yaden, 1998).

PERMANENT FARE-FREE TRANSIT SYSTEMS

The oldest fare-free system is located in Commerce, California, just outside of Los Angeles. This system has operated fare-free since 1962. According to the manager of this system, they do not experience problems with riders other than occasional graffiti (Hodge et al., 1994). However, this is a very small system, serving approximately 970,000 riders annually with 11 buses. Although this system is located only six miles outside of Los Angeles, transit officials tell us that since they have such a limited travel area, they do not attract problem riders (City of Commerce Transit, 2002).

The next oldest system is located in Amherst, Massachusetts and has been providing fare-free service since 1976. The Amherst, Massachusetts system is free to all, but is partially funded by a yearly student fees. This system serves five colleges in the area and also the surrounding communities. It serves approximately 6 million passengers every year and operates approximately 40 buses (UMass, 2002). This type of service is in place at many universities throughout the country, and seems to be relatively problem-free.

Island County Transit, located in Washington State, has operated a fare-free system since its inception in 1987. According to Director Martha Rose, Island County Transit has a low occurrence of problem passengers. It has 16 fixed-route buses and 2 paratransit buses. They serve 675,775 passengers per year on their fixed-route service and 19,664 passengers annually on their paratransit routes (Island County Transit, 2002). Rose attributes their success with a three-strikes policy and to educational programs in the schools. The only complaints noted for this system were the need for more park and ride lots and buses to deal with increasing ridership demands.

It is important to note that all of the permanent fare-free systems listed above started out as fare-free systems and are either small systems, or serve limited populations (e.g., UMass serves a community with five colleges). In addition, all of the successful fare-free systems shown in this synthesis serve small cities or rural areas.

SUMMARY AND RECOMMENDATIONS

In order to assess if a fare-free policy would benefit a transit system, there are several questions that must be addressed:

- *What is the net cost of a fare free policy?*

  In smaller systems (i.e., those with less than one million in annual ridership), the net farebox recovery is usually less than ten percent (Gregg, Joslin, Mistretta, and Morris, 2002). The cost of collection might cancel out any net proceeds of fare collection. Additionally, most systems operating in smaller communities do not experience the same types of problem riders experienced in larger, more metropolitan areas. Also, being that there are less riders, bus operators may be better able to monitor and remember problem riders, refusing them service before they are able to damage the system.

  In larger systems, the net farebox recovery is typically much greater than smaller systems, and the revenue is a substantial portion of the operating budget. As evidenced by the Capital Metro fare-free experiment in Austin, Texas, which only had a 15 percent farebox recovery, the ballooning costs of operations due to maintenance, labor, and security costs financially threatened the well being of the system. In addition, the cost of the deterioration of the internal bus environment, security, employee satisfaction, and public image was definitely not worth the benefits purported to be gained by removing the farebox (Kounes, 1993; People for Modern Transit Technical Committee, 2001). Frances Chung, Director of

Financial Services for GO Transit in Toronto, Canada strongly advises against a fare-free system, stating "Consider the implication that if there is no fare charged, vandalism might be unmanageable. I believe there must be some payment, no matter how low, so that there is respect for the service, the system, and our fellow passengers." Jeff Lange, TRB Bus Transit Systems member also warns of the philosophical danger of free fares, noting, "Be aware that when one moves the price of something to zero, in addition to challenging capacity, one is stating that the product or service is not an economic good—that is, that it has NO value. Pricing signals value. I would suggest you keep it non-zero".

- *What will be the impact of a fare-free policy on ridership and quality of service?*

  It is true that a fare-free policy will yield substantial gains in ridership. What is important is the type of ridership that is being gained. Will the types of people attracted to the system be positive or negative for the system? Will the implementation of fare-free service overwhelm the system with overcrowding and problem riders, driving away veteran and choice users? Transit consultant and Leadership APTA member Diane Kravif recalled the time BART, in the San Francisco Bay area, offered a couple of months of free fares as an apology to their customers after experiencing problems with their train control systems. Ms. Kravif notes that, "From the commuters' point of view it was awful! A lot of people who didn't normally ride BART spent all their time joy riding. It was very crowded and the regular commuters had problems even getting on the trains!" Joe Stitcher, Deputy Director of Santa Monica's Big Blue Bus (the local public transit agency) notes the experience his city had with a fare-free shuttle: "About seven years ago, the City of Santa Monica operated a downtown shuttle that also served the beach, some local hotels, and some local points of interest. It was fare-free and there was a problem with individuals who would board the bus and ride around continuously, sometimes for hours at a time. This happened a lot during inclement weather. It was apparent that these folks had nowhere else to go. As a

result, the general public didn't want to ride the shuttle, and complained frequently to the City Manager's office about the smell, the baggage these folks carried, etc. Some of the hotels that funded the service (in part) wanted to stop paying because their guests didn't want to ride the shuttle. Although policies (e.g., limiting an individual to one round trip, any carry-on item had to fit on their lap, etc.) were implemented, they were not very effective and led to conflicts with the drivers. The implementation of a $0.25 fare reduced the problem significantly."

- *How will a fare-free policy impact the attainment of the community's goals?*

  Will fare-free service increase mobility for transit-dependent riders in the community? Will fare-free service advance environmental and traffic congestion goals? Will fare-free service cause a positive perception of the transit system in the long term? Will fare-free service cause an increase or decrease in customer service and satisfaction?

It seems that fare-free service in certain communities with smaller transit systems can be a positive experience, as evidenced by long-running fare-free services in systems such as Commerce, California; Amherst, Massachusetts; and Island County Transit in Washington. However, the experience with fare-free service in large urban areas has not been successful in terms of overall service quality. Some researchers question the methodology within these fare-free demonstrations: two of the larger systems discussed in this report (Denver and Trenton) offered the fare-free service during peak transit hours only. It is not clear if a more choice ridership might have been attracted during peak hours. It could be that off-peak times actually attract more problem riders, while not assisting in the attainment goals such as promoting transit use, increasing mobility, and reducing traffic congestion and pollution.

In the case of Austin, Texas, fare-free service was provided all day, and there were no time limits set on the demonstration. Additionally, although significant efforts were made to increase

passenger safety and comfort through hiring off-duty police officers, Hodge et al. (1994) claim that many of the Austin demonstration's problems stemmed from lack of support for the policy from agency managers and lack of planning and scheduling for overload on specific routes. However, many others point to the fact that a fare-free policy simply overwhelms the system, significantly increasing operating costs. While the fare-free demonstration project resulted in increased ridership for the system, most of the increase came from expanded services and previous users using the service more frequently. The fare-free experiment did not serve to increase choice ridership or to improve the public image of the system. In fact, the opposite occurred; problem riders were attracted to the system, and vandalism and crime increased (PMT Technical Committee, 2001). Physical assaults tripled in the first three months of the fare-free implementation, increasing to 120 incidences from 44 in the three months prior to implementation (Brooks, 1990). Many faithful riders were driven from the system by fear for personal safety and the deterioration of the bus environment. And, these riders were not quick to return to the system once the fare-free demonstration was discontinued (Kounes, 1993; PMT Technical Committee, 2001).

Lawrence Hughes, Director of Service Development for Green Bus Lines and member of the TRB Bus Transit Systems Committee agrees that free fares in large urban areas might easily provide negative results. He notes, "For most people, urban transit fares are very low and decisions on use of transit for most journey-to-work trips are based on other factors, such as overall travel time, comfort, and convenience. To someone making $50,000 a year or more, paying $1 to go to work or not to go to work won't make a difference. Yet, by eliminating the $1 fare, other people who are not going to work and for whom $1 is a barrier (e.g., the homeless) will be further enticed to ride the system, not necessarily for any productive trip but as a respite from the elements and an opportunity for panhandling. The presence of these passengers could well tilt the system so that the choice passengers who value comfort and convenience over fare will tilt their decision to the privacy afforded by the automobile rather than having to share space that they consider undesirable. In the end, the additional trips made by the previously less-mobile population will not have been offset by reduction in their automobile trips, but previous

transit trips might then be made by automobile. Thus a free-fare system could well result in a poorer environment than a nominal fare system."

In the report by Hodge et al. (1994), which espouses the benefits of fare-free policy, the authors stop short of recommending fare-free implementation for larger systems. They instead advocate achieving better system efficiency and more choice ridership via marketing of prepaid fares. If a transit system is trying to attract a certain type of rider with the incentive of fare-free service, why not market the fare-free service directly to that population? For example, a transit system might market passes to surrounding businesses and universities on a prepaid basis. Prepaid fare marketing to choice rider populations would seem to be a more efficient way of increasing choice ridership, increasing mobility, and decreasing traffic congestion and pollution. Additionally, issues such as safety, travel time, frequency and reliability of service, availability and ease of schedule and route information, infrastructure at stops, and driver courtesy, were all found to be more important than the cost of fares in attracting choice ridership (Yaden, 1998). Perhaps transit organizations should also focus on maintaining and improving these amenities, in addition to offering more economic travel options to encourage choice ridership.

In a study performed in the Spring of 1990, during the fare-free demonstration period, Capital Metro asked both riders and the general public for the five most important factors in determining whether to ride the bus. The five most important factors were:

- On-board safety
- On-time performance
- Convenience of routes
- Cleanliness inside the buses
- Frequency of service

Surprisingly enough to fare-free advocates, the three least important factors in determining if both riders and the general public would ride the bus were:

- Cost of service;
- Outside appearance of the buses;
- Courtesy of the bus operators (Kounes, 1993).

These results coincide with those of Cervero (1990) and Yaden (1998), which state that service and safety are much more important to riders than the cost of riding. Transit systems desiring to increase choice ridership should instead focus on improving service quality and safety for customers, as opposed to offering free service. Even a minimum fare offers a barrier to problem riders causing a deterioration in the service, image, and comfort of a given transit system. It cannot be stressed strongly enough that system wide fare-free policy is not advised for larger systems and has the potential to irreparably harm the infrastructure, morale, and public image of a transit organization. Michael Kemp of Charles Rivers and Associates who performed a considerable amount of research on transit pricing for the Urban Mass Transit Administration summarizes such feelings by stating “Fare-free is a proposal that comes up periodically at the national and local levels, but happily common sense usually prevails. Widespread (as distinct from targeted) free fares are a bad idea whose time has long since passed.”

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