

MTA's Pricing Methodology – special services

Pricing transit services has evolved over the past several decades. Early on fares were set at a level to provide a net operating income and return on capital, or at least a positive cash flow for the owners of the private systems. These systems are the predecessors to today's public transit systems. Today's modern, public transit management's attempt to set fares at a level that will maintain the highest level of ridership, while living within the anticipated levels of operating subsidies from local, state, and federal funding agencies. These systems do not operate to make economic profits, or even break even on an operating basis overall.

Fare decisions are often made in an atmosphere of financial or political uncertainty, and frequently in haste. Few transit systems have a fare policy that will endure under all circumstances. The recurring effort in most systems is to find, and then try to maintain equilibrium among fares, ridership, and service coverage.

The setting of fares consists of three fundamental policy and management activities:

- Setting well-considered operating ratio objectives for each service segment, in an atmosphere of systematic and objective analysis so that they are well understood by the policy and political leaders and can be followed at fare setting time with mutual confidence
- Determining accurate costs for use in costing services to achieve a given system and market operating ratio.
- Understanding and building on the elasticity of the market place in a manner that will yield the needed revenue while minimizing ridership loss.

Different prices are increasingly being set at transit systems by such market segments as express and local service levels, frequent riders, school children, handicapped and elderly riders, special event service riders, weekend and late night riders. These different pricing scenarios may in some cases reflect public policy decisions regarding cost recovery, i.e., riders should bear some or all the costs of a particular service. In other cases, such as handicapped riders, fares are regulated. While others are market driven in an attempt to balance the factors described above.

The MTA, like most transit systems, provides tailored transit services for a number of special activities in addition to the basic daily service that it operates. Special service for major public events is provided by many transit systems throughout the country. Such service often is provided to handle large crowds that otherwise would strain the supporting highway system and overload event parking. Pricing this type of service then may represent an attempt to balance a number of public policy issues.

This year, the MTA operated special services for public events such as the Billy Graham Crusade, the Titans football games, a Vanderbilt game, and a number of public concerts such as NSYNC. In addition, the MTA provides incidental charter service for private events such as weddings and company outings. Often, the MTA is contracted because it can provide special equipment like the replica trolley buses that are unavailable from private providers in the area.

The downtown parking shuttle and magnet school services are a third type of service that might be considered ancillary to the basic daily service that MTA operates. They are different from the special event services because they operate regularly throughout the year. However, they have certain characteristics — special state funding for the parking shuttles, special fares and reporting for the magnet services — that make them very similar to the public and private event services.

We reviewed MTA's methods for establishing rates for all three of these service types. (Note that much of the discussion related to cost estimation and cost models is also discussed in the *Scheduling and Service Planning* section.)

Setting Prices for Special Event Services

The policy of the MTA Board is that the rates for special activity service should at least cover the costs of providing the service. For the Titans service, the 2000 goal is to recover 20 percent more than incurred costs estimated by MTA management. The Board's cost-based approach for setting rates places heavy emphasis on the accuracy and type of cost model used.

The MTA uses a hybrid approach for estimating the costs for special activity services. Marginal costs (sometimes called avoidable or variable costs) cover the operating costs that are incurred to provide the special service. Examples include drivers' wages and fuel. The MTA estimates the marginal costs of providing basic bus service using a flat rate per vehicle hour — currently \$42.94 for bus service. (We tested and confirmed this number using two months actual costs and were within 10% - \$44.94 - of this estimate.) MTA estimates the marginal unit costs for the Trolley service (marginal cost = \$34.97 per vehicle hour) and ACCESSRIDE services (marginal costs = \$30.08) using the same approach. The MTA's unit cost estimate, using the hours and vehicles by type of vehicle for the November 5, 2000 Titans game, is illustrated on Exhibit 8-1.

The other direct expenses that are incurred in providing special services beyond the basic bus service are estimated separately by the MTA. For example, the costs for crowd management at Titans games - erecting fences, managing boarding and alighting passengers - are estimated separately and then added to the estimated marginal costs of operating the bus service as shown in the exhibit. We reviewed how MTA's approach was applied to the service provided to the Titan's game on November 5, 2000.

We noted several areas related to the cost presentation of the basic bus service, which represents over 90% of the cost, which we believe should be factored into future pricing discussions regarding this service. These included:

- Deduction of the capitalized maintenance expenses
- Use of average costs for labor working at overtime
- The lack of charges for fixed costs
- Capital replacement policy considerations

Capitalization of Maintenance Expenses

The FTA has in recent years allowed the use of Federal assistance for the capitalization of maintenance expenses (“contra expenses”), which the MTA has done for the past two years. One step in the MTA’s estimation of the marginal unit cost of bus service is the deduction of expenses for capitalized maintenance. The MTA deducts these expenses apparently on the grounds that they are funded using Federal transit capital funding and therefore need not be included in the charges for the Titan services (or other services).

Deducting these expenses suggests that they should not be included in the expenses to be covered by the revenues of the service. There are two reasons why these expenses should be included in the costing of special activity services:

- These are operating expenses, no matter how they are funded. Excluding these expenses serves to understate the cost of providing the special activity services, and, thereby, “under-price” them.
- FTA capital funding used to cover operating expenses reduces the funding available for the MTA capital program. It is proper that this transfer be assigned a cost value.

If the contra expenses are not deducted, the resulting marginal cost per vehicle hour for this service is \$51.96, or 25% higher than the MTA’s marginal rate of \$42.94. We have added a similar factor to the costs of the trolley and ACCESSRIDE services for purposes of our analysis. Under these assumptions the estimated cost of the service provided to the Titan’s game on November 5, 2000 would increase from \$32,700 to almost \$39,000, as illustrated on Exhibit 8-2.

Labor Cost Considerations - The MTA uses a one-variable formula that estimates costs based on the number of vehicle hours operated. The same unit cost per hour is used for all service no matter the time of day (e.g., morning rush period, midday, evening rush period) or day of week (e.g., weekdays, Saturdays, Sundays).

The MTA costing approach is most accurate when the drivers operating the special event services receive the same pay provisions as the average driver in the system. It is less accurate when there are significant differences in pay provisions, such as more or less overtime pay.

The drivers of the Titan service work on their days off and receive overtime pay (time-and-one-half) for all hours worked on game days. We reviewed the service provided to the Titan's game on November 5, 2000. According to MTA estimates, 710 vehicle hours of service were operated. If the service were operated as part of regular daily operations, a total of 730.67 hours of pay would have been paid. However, since the drivers all receive overtime, we estimate that the equivalent a total of 1,096 (1.5 * 730.67) pay hours were paid.

The ratio of scheduled pay hours to platform (vehicle) hours for MTA's 2000 fall schedule is 1.10. The ratio of scheduled pay hours to platform (vehicle) hours for the Titan's game on November 5, 2000 is 1.54. Therefore, the Titan's drivers were paid 40% (1.54/1.10) more than the average driver in the MTA system.

The consideration of overtime costs has a large impact on the estimated costs of the Titan special event service. We assumed that the MTA marginal cost rates *with contra expenses included* for regular bus, trolley and ACCESSRIDE services would increase by 14%. Under these assumptions, the estimated cost of the service provided to the Titan's game on November 5, 2000 would increase from almost \$39,000 to over \$44,000 with contra expenses included (Exhibit 8-3 column C). A marginal cost rate of \$59.23 for the regular buses.

Variable and Fixed Cost Policy Considerations – In pricing discussions where cost recovery is the subject, it is common among transit systems to use an allocation of fixed (overhead) expenses in the cost model. Marginal costs (sometimes called avoidable costs) cover the operating costs that would be incurred only if a special service were provided. Fully allocated costs include both variable costs and fixed (overhead) costs — the costs that would not be saved or avoided if a special event service were eliminated. Management wages and benefits are examples of fixed costs.

Using fully allocated – or some reasonable factor of overhead charges - provides policy makers and the public with a better understanding of the true operating costs covered by revenues from special event services. It allows for a more accurate "break even" analysis in the pricing discussion. After all, operating costs in total must be funded from all the various sources available.

The use of marginal costs in the fare revenue/operating cost indicator implicitly supports a policy that special event passengers should not be required to cover any portion of fixed costs. This contrasts with the practices of many transit systems that do not distinguish between fixed and marginal costs in such

costing exercises. They simply have a policy that all passengers should pay a reasonable portion of all operating costs — fixed and marginal.

Time allocation of fixed resources is another reason for using fully allocated costs. While it is true that fixed cost do not change, it also is true that use of these resources would change when special event services are added or eliminated. For example, the salaries for marketing employees are a fixed expense. When special event services are added, these employees must spend less time on existing services to free time to spend on the new services. Therefore, it is reasonable to “charge” special event services for the use of these fixed resources since they could be used elsewhere.

The consideration of fixed costs has another large incremental impact on the costs of the Titan special event service. We assumed that the MTA marginal cost rates, modified to include the contra and overtime expenses, for regular bus, trolley and ACCESSRIDE services would increase by an additional 19% — the ratio of fixed to variable expenses reported by MTA to the 1999 National Transit Database. Under these assumptions, the estimated cost of the service provided to the Titan’s game on November 5, 2000 would increase from the MTA rates of \$42.94 to \$70.48 and hour. The combined impact of including the contra and overtime expenses and the fixed costs would increase the cost of the November 5, 2000 Titan service from \$32,700 to almost \$51,900, as shown on Exhibit 8-3 Column D.

Capital Replacement Policy Considerations - The costs of providing transit service include not only the operating costs such as labor, fuel, and other consumables but also the capital replacement costs of operating assets such as buses and garages. The MTA costing approach focuses on operating and does not address the issue of capital replacement costs. It is important to recognize that the MTA approach does address the costs for the *repair* and *maintenance* of capital assets, but does not address the costs of their *replacement*.

In the private sector, depreciation is used to cost or recapture capital replacement costs. Costs are not normally separated into operating and capital costs.

Transit systems typically do not use depreciation as a way to cost or recapture capital replacement costs. Depreciation often is not shown in operating budgets. If it is shown at all, it is “below the line” as a reconciling item as is done in the National Transit Database reports. Therefore, it is not surprising, or unusual, that the MTA does not include depreciation or capital replacement costs in its costing approach.

It is, however, a policy issue that the MTA Board has not explicitly addressed.

Our estimate, based on NTD data, of full bus replacement cost per vehicle hour would be \$13.05. This is consistent with a rough rule-of-thumb in the industry that transit bus costs are often 20 to 30 percent of

operating costs. If a cost model is built with a factor for capital costs it could be argued that only the local component of costs should be captured. Since the local funding share of capital costs is 10%, the net increase in costs in the model would be approximately \$1.30. This is a subject that should be settled by Board policy.

Downtown Parking Shuttle and Magnet School Services

The downtown parking shuttle and magnet school services are other types of special event services that might be considered ancillary to the basic daily service that MTA operates. They are different than the other special event services because they operate regularly throughout the year. They do, however, have certain characteristics such as special state funding for the parking shuttles, increased security, special fares and additional reporting, that make them very similar to the public and private event services. It was not clear during our review that there was consensus regarding the evaluation of these services. In addition to the cost estimation methods discussed above, discussions with MTA staff suggested that the routes are considered internally as conventional bus routes with no special targets for revenue return. In our view these services should be subject to the same sort of analysis and policy discussion as the Titan Service.

Conclusions

- The discussion above is not meant as a recommendation regarding proper pricing for the Titan's Service. As mentioned earlier, there may be many, perhaps conflicting, public policy considerations factored into pricing decisions. Nor should this presentation be construed to represent the perfect cost model for the service. We have identified labor as an unusual factor that should be modeled in the cost presentation. There may be others. Similarly, it may be appropriate to apply some factor to fixed charges in order to arrive at a more accurate overhead allocation. (We do feel, however, that capitalized maintenance should be included in any cost model presentation.) Our point is that since cost models are going to be used in policy discussions and as a basis for pricing decisions then more sophisticated approaches need to be developed.
- Our estimate (with assumptions outlined above) of the cost of the Titan's service is approximately \$52,000 versus the MTA estimate of approximately \$33,000.
- The MTA estimates the marginal costs of providing basic bus service using a flat rate per vehicle hour. This estimate (excluding the contra expenses discussed above) was accurate.
- The MTA costing approach for special services does not incorporate significant unusual factors such as driver overtime pay.

- The MTA Board has not set a clear policy regarding recovering capital replacement costs.

- The downtown parking shuttle and magnet school services are different from the other special event services because they operate regularly throughout the year. However, they have certain characteristics — special state funding for the parking shuttles, special fares and reporting for the magnet services — that make them very similar to the public and private event services. There is no clear consensus regarding the evaluation of these services.

Recommendations

- More sophisticated cost models need to be developed to aid in pricing decisions and assist public policy decisions regarding cost recovery.

- The MTA should revise its costing approach to include contra expenses in all costing models.

- Allocation of fixed charges should also be included in costing and pricing decisions when the context is cost recovery.

- Unusual cost factors, e.g., driver overtime, should also be incorporated into models when applicable.

- The board should establish a policy regarding capital cost replacement.

- The Board and management should establish clear consensus regarding the approach to all special service activity.

Cost Estimate

A detailed market study would be required to determine impact of re-pricing any of the special services. Pricing analysis is normally a function incorporated with an integrated Marketing program which is described in other sections of this report.