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## Should We Scuttle the Shuttle?

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# SHOULD WE SCUTTLE THE SHUTTLE?

The case of the Franklin Avenue Shuttle points to the need for systemwide standards with which to judge both capital and operating costs. As one of few discrete lines in the system, this one is uniquely suited to be a showcase for cost-trimming measures and productivity initiatives.

by  
STEVEN M. JUROW and ROSS SANDLER

In January 1982, the Transit Authority found that the Franklin Avenue Shuttle—a 1.4 mile-long rapid transit line linking the Brooklyn IND “A” and “CC” trains with the Brighton “D” and “M” lines—was unable to support transit operations safely. Walls supporting tracks on a high embankment were cracked, beams had corroded, and wooden platforms were badly in need of replacement. The Transit Authority estimated the cost of complete reconstruction would be \$40 to \$60 million and questioned the wisdom of going forward with a planned overhaul of the line considering its low ridership.

The public clamor was substantial; neighborhood and business representatives joined with the administrators of Prospect Park, the Brooklyn Jewish Hospital, and the Brooklyn Museum to demand a review of the Transit Authority’s position. Community leaders loudly argued that the Shuttle served critical transportation functions and a substantial ridership and that closing it would undermine public and private efforts to stabilize the surrounding neighborhood.

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The dispute dissipated in February 1982 when TA engineers found that the Shuttle structure could be shored up safely, though temporarily, at the low cost of about \$200,000. Completed in early 1982, the shoring is expected to provide adequate structural support for three to five years. The first year is almost over.

Because the repairs were only temporary, one might assume that transit planners and elected officials are now evaluating the Shuttle's longer term fate. They are not. The MTA Board, which will eventually have to face the Franklin Avenue Shuttle decision again, gave the Transit Authority general instructions to reevaluate its position and check the supporting data for accuracy. Since then little has been heard on either side of the issue.

This article is a call to order on the Shuttle and on the broader question of system standards for service. The Shuttle provides the only connection in Brooklyn between two major subway lines. It plainly has value in and of itself and as a link to two main trunk lines. Its misfortune began when its retaining walls cracked and it was placed at the head of the list of dispensable lines in the context of fiscal limits. Evaluations of the Shuttle's future uncovered alternatives that may save the line. But the Shuttle question further revealed the absence of a systemwide analytical tool to judge the merits of capital projects. The TA cannot act like just another player in the municipal fiscal game; it must be the wise steward of the transit system whose legitimacy is enhanced by analytical impartiality and adherence to standards that rise above the opportunity presented by cracked walls on vulnerable lines.

### **Once Part of a Major Line**

The Franklin Avenue Shuttle runs through the neighborhoods of Crown Heights and Bedford-Stuyvesant and provides a direct rail link and transfer in Central Brooklyn between the "A" and "CC" lines of the IND and the "D," "M," and "QB" lines of the Brighton BMT. The connection is important because the next available transfer point between these lines is in Lower Manhattan, at least twenty minutes further in each direction. The Shuttle thus enables intra-Brooklyn transit travel otherwise possible only by transferring mid-trip to a parallel bus route.

The Shuttle was once part of a major subway line through Brooklyn. Trains ran from Manhattan over the Brooklyn Bridge and along a Fulton Street elevated (since replaced by a subway) to Franklin Avenue, where they turned south and continued on towards the Brighton line to Coney Island. When the Fulton elevated was torn down in 1940 (Brighton trains had been rerouted under Flatbush Avenue and Prospect Park in 1920), the truncated portion of the old elevated between Fulton Street and Prospect Park was relegated to shuttle operation because it still performed a necessary transfer function between two major lines and reached three stations not otherwise served by rapid transit.

The Franklin Avenue Shuttle operates 24 hours a day, at frequencies ranging from every eight minutes at peak hours to every twenty minutes during late night hours. Unlike the rest of the subway system, a maximum of three cars are used on each train. Each train has a motorman and conductor, and the Shuttle's four



stations—Franklin Avenue, Dean Street, Eastern Parkway, and Botanic Gardens—are open with token clerks 24 hours a day.

A Transit Authority survey on a typical school day in October 1981 found that daily ridership was approximately 14,300. Of this total, 2 percent travelled only among the Shuttle's five stations, 68 percent had either an origin or destination along the Shuttle route, and 30 percent used the Shuttle as a link between the Fulton IND and Brighton BMT lines.

In April 1981 the Transit Authority recommended that the shuttle be abandoned. It argued that the Shuttle costs more than it is worth in both capital and operating funds and that substitute bus service could meet Shuttle riders' travel needs at an operating savings of \$1 million a year. Before the issue could be resolved, however, engineers recommended that Shuttle service be halted because of safety considerations. It was, therefore, closed for repairs in January 1982 and reopened that February when the temporary shoring was in place.

### Capital Costs

The Transit Authority first estimated that rehabilitating the line would cost \$60 million. When the MTA Board decided that service could be halted during the repairs, the price dropped one-third, to \$40 million. Further refinement shaved off \$4 million more, and the TA now accepts a "final" cost of \$36 million for complete modernization and overhaul. Costs could be reduced even further by doing only that which is necessary to ensure the line's safety. The TA has estimated that the work needed to make the Shuttle safe and to ensure a reasonable life-span could be completed for between \$7 and \$15 million, depending on whether service is suspended during the construction.

With that in mind, it is useful to examine the capital costs of refurbishing the Shuttle from the perspective of what comparable construction projects cost elsewhere. Such a comparison shows that the costs of refurbishing the Shuttle are not out of line. Whether the Shuttle is worth keeping in the context of the city's larger transportation needs is, of course, a separate question.

In its 1982 report *Urban Rail in America*, the Regional Plan Association (RPA) found that the median capital investment per passenger mile for new North American rail transit construction was \$1,725 (in 1982 prices). According to the RPA, a figure that more accurately represents choices among public transit alternatives is \$2,500 per passenger-mile. Seventy-five percent of the twenty projects under review by the RPA when the report was written would cost less than this threshold amount.

At \$38 million, and with a daily ridership of 14,000, the Franklin Avenue Shuttle would represent an investment of about \$2,500 per passenger. If the Shuttle can be restored for less, this figure would drop accordingly; at \$25 million, the cost works out to \$1,800 per passenger. Assuming that the average Shuttle rider travels one mile along the 1.4 mile-long line, the cost per passenger mile would range from \$1,800 to \$2,500, close to RPA's documented threshold.



*Urban Rail in America* also provides some perspectives on levels of ridership that justify rail operation. According to RPA, a daily minimum ridership of 14,400 justifies construction of a rail line of the Franklin Avenue Shuttle type: partly elevated, partly at grade, and partly below grade in an open cut. RPA suggests that, at this level of ridership, the benefits to users in time and fuel saved and in reduced parking charges are sufficient to amortize the capital investment. Transit Authority planners estimate current Shuttle ridership ranges from 12,000 to 14,400 a day, just about at the RPA threshold.

A side issue regarding capital costs that was not initially evaluated by the TA was the substantial cost of abandonment. The Shuttle right-of-way, a 1.4 mile swath approximately 50 feet wide, runs through mostly residential sections of Brooklyn. The cost of demolishing the Shuttle has been estimated at around \$4 million, not including the open portion that runs below street level. The city, not the Transit Authority, would bear these capital costs. In addition, the right-of-way would have to be secured against crime and vandalism. Experience suggests that this may be difficult, and the community reasonably anticipates that the area would become a hangout. Since the Shuttle route runs between houses that face other streets, security of private residences also becomes an issue. While this is not a reason for keeping the Shuttle open, it is a real factor in balancing the costs of continued operation against the cost of abandonment.

### Operating Costs

The Transit Authority estimates that the Shuttle's annual operating costs are \$1.8 million, one-half for train crews and the remainder for token clerks (\$400,000), station maintenance (\$200,000), and car and track maintenance and power (\$300,000). This works out to a per-passenger cost of about \$1.28 a ride. The 75¢ fare covers 58 percent of the cost, close to the systemwide average of 55 percent. However, actual turnstile registrations and fares paid on the Shuttle are far lower than the figure of 14,300 daily riders would suggest: a great proportion of users start their trips on other lines, and many are students with transit passes.

There is also a record of fare abuse at the Franklin Avenue station. Because passengers must leave the paid area to make the transfer between the shuttle and the IND Fulton Street Line, the TA issues paper transfers as passes. This unsatisfactory arrangement has led to substantial farebeating as riders walk through gates pretending to hold paper transfers from the subway or using stolen ones. The Transit Authority estimates these losses at \$200,000 annually. As a result, the Shuttle's direct revenue was only about \$5 million in 1979, which covered only 28 percent of the line's operating cost.

On this basis the Transit Authority argues that Shuttle riders cannot support the line's operation, and claims that it could save as much as \$1 million a year by substituting augmented bus services parallel to the Shuttle route. Two bus routes now serve the Franklin Avenue corridor. One, the B-48, parallels the Shuttle along Franklin and Classon avenues. The second, the B-49, runs two blocks further east, along Bedford and Rogers avenues. A TA survey taken when the Shuttle was closed







for repair showed that Shuttle travellers *would* use buses if the Shuttle were abandoned. The TA found that ridership decreased by 10 percent on this route, and, of the 90 percent who continued to make their trips, 60 percent used the B-48 and 30 percent the B-49.

Nonetheless there was no community support for the notion that the bus is an equivalent of the Shuttle. First, though the B-48 bus route is scheduled to run about as frequently as the Shuttle during the day, it runs only half as frequently at night. Second, the Shuttle completes a run in about six minutes, but buses take between ten and 30 minutes. It is difficult to determine the cost of extra time spent travelling, or of the greater inconvenience of walking to the bus a block away, but these factors clearly contributed to the 10 percent reduction in trips that occurred when the Shuttle closed for repairs.

Most importantly, the Shuttle provides a unique link between the IND and the Brighton line that is unavailable anywhere else in Brooklyn. Direct rail links are generally thought to provide a better quality of service than subway-to-bus transfers, and the Shuttle is no exception. That the Shuttle ties these two lines together is the major reason it was kept in operation when the Fulton Street elevated was torn down in 1940. And, without clear proof that the connection is no longer needed, the communities served by the Shuttle and others who believe the line should be retained will continue to oppose its abandonment.

### A Suitable Showcase

While ridership on the Shuttle probably cannot be expected to increase much, given neighborhood densities and local economic conditions, operating expenses could be reduced to improve the ratio of revenues to costs. The Shuttle is uniquely suited for implementation of several cost-trimming measures and could serve as a showcase for productivity initiatives designed to reduce the system's operating expenses while preserving basic services.

*One Person Train Operation:* At \$900,000, subway train crews constitute 50 percent of total costs, the largest component of Shuttle operating expenses. However, since shuttle trains are never more than three cars long and since subway platforms on the route are generally straight and less crowded, the Shuttle is an ideal place to replace two-person train operation with an experimental one-person system. Shuttle trains could be equipped to permit the motorman to have door control from both sides of the train. Though this would involve some minor capital investment to retrofit the older cars used on the Shuttle with the necessary equipment, the savings achieved in reducing crew size should more than offset the investment.

*Fare Collection:* According to Transit Authority figures, the Shuttle's Dean Street station ranks last among the system's 454 stations in terms of daily turnstile registrations: an average of 143 people use this station everyday. Since the Dean Street station is located only about 1,000 feet from the Franklin Avenue station, it could easily be closed entirely. This would reduce station operating costs for the Shuttle by about 25 percent.

Additional savings should be possible through changes in the fare



collection system at the Franklin Avenue station. The current transfer system is beset by slamgate abuse and pilferage. The slamgates could be eliminated, however, if turnstiles were equipped with electronic pass readers and passengers issued magnetic farecards coded for a single use within fifteen minutes of their issue in place of paper transfers. This system has potential for wider use elsewhere on the system.

In addition, consideration might be given to machine sales of tokens to eliminate the need for token clerks for some portion of the day in some of the Shuttle stations. While this is a difficult issue because of the possibility of pilferage from the coinboxes, it warrants a study and demonstration to test the concept for savings and safety.

### **Needed: Systemwide Standards**

The April 1981 Transit Authority report that urged closing the Franklin Avenue Shuttle concluded that low usage and the feasibility of providing "comparable" bus service justified abandonment rather than investment of new capital. Since then, the capital costs have been whittled down; much more could be done to reduce operating costs. Nonetheless many millions of capital dollars must ultimately be spent if the Shuttle is to remain. Only the emergence of the \$200,000 temporary fix diffused that issue's urgency.

These facts show that the Franklin Avenue Shuttle was subjected to a selective analysis by the Transit Authority. The Shuttle is one of the system's few discrete, separate lines for which it is possible to pinpoint both use and cost. There are stations elsewhere on main lines in the South Bronx, Manhattan, and Brooklyn with similar low usage but their removal from the system is not so easily accomplished. As a result, they are not subjected to the same intense scrutiny that has led the TA to recommend abandoning the Shuttle.

On the other hand, in justifying its five-year capital program, the TA takes a broader, systemwide viewpoint. The MTA responded to the Capital Review Board on November 11, 1981, in the context of system mechanical integrity, that "the system must be viewed in its total context as an integrated system and not as a series of unrelated subelements." To aid in capital decisionmaking, the Transit Authority adopted an eight-element evaluation matrix. These elements, differentially weighted, are safety, reliability, security, maintainability, passenger services/environment, economic/cost control, political/public interest, and employee interest. The TA has never applied this matrix to the Franklin Avenue Shuttle because its repair was not considered part of the five-year MTA capital plan for system renewal. Moreover, there is not yet general agreement that the matrix is appropriate for capital decisions about the return of the Shuttle.

In the Franklin Avenue Shuttle situation, the matrix leaves out what is perhaps the single most important factor: linkage to the system. While any individual segment may not draw a great deal of ridership, small collectors feed riders to main lines that do better than the systemwide average in covering their cost. As a rule, transit is an operation where riders at peak hours subsidize those at off hours, and those who crowd into heavily used routes subsidize those using more sparsely travelled lines.



The Transit Authority points to alternatives to the Shuttle that could provide similar linkages. The opponents dispute the availability and convenience of those linkages. What is missing is a standard based upon the system as a whole against which to measure accepted facts. That is why the RPA analysis is important: while it does not distinguish between new construction in other cities and rehabilitation in New York, it does show that, compared to other rail construction in North America, the Franklin Avenue Shuttle stacks up as average in terms of cost and usefulness. The RPA threshold analysis exemplifies the kind of tool needed to evaluate routes on New York's vast system.

Politics and community opposition proved decisive in the current Franklin Avenue Shuttle dispute, especially with the emergence of a low-cost solution. The potency of political opposition cannot be underestimated. The community repeatedly raised the image of school children deprived of the convenient Shuttle transfer and of accelerated blight in a minority neighborhood brought on by abandonment of the line. The Transit Authority's written analysis was rigid and technical by contrast.

The process as a whole conveyed a sense that if a station or line rose to prominence as this one did by virtue of a crack or some other serious structural failure, a standard would be applied that had not or would not be applied elsewhere. The community complained, with good reason, that fairness and evenhandedness was lacking. They knew that there was no systemwide standard for decision making and, as a result, defended their position by straightforward political pressure and a pervasive skepticism—fueled by the vast range of TA cost estimates to salvage the line—of the Transit Authority's motives and methods.

Therein lies the challenge of the Franklin Avenue Shuttle. The question is not what to do with one small line, but how to develop a standard for the entire system on which to judge capital and operating costs in terms of connectivity, people's travel needs, and system growth and maintenance. This is not an academic exercise. The embankment walls on the Franklin Avenue Shuttle really are cracked and the shoring is now one year old.