

Abridgment

Public Transportation's Future in the New York Metropolitan Area

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Public transportation plays a significant role in the New York metropolitan region's mobility, and its relative importance as a mode of passenger transportation is unprecedented in comparison with the rest of the nation. In the year 2015 the region will be, as it is today, a multinucleic megalopolis with the Manhattan central business district (CBD) continuing to be the primary focus of economic activity, whereas the suburbs will maintain their healthy growth. The additional travel demand that will have to be satisfied by 2015 is approximately 1.8 million trips per day, which is larger than the total current ridership of some of the nation's largest transit systems. To meet the region's future mobility needs, substantial additions to existing capacity will be required, particularly since the new demand will materialize in corridors that are already operating at capacity. Three basic alternative scenarios for the future are presented. They differ in terms of the amount of investment they require and are labeled minimum, moderate, and significant. The required improvements, the costs associated with them, the possible financing strategies needed, and the impacts on the region under each scenario are presented. The approximately \$3 billion that has to be spent annually on the region's public transportation systems is a challenge that can be met if all levels of government continue their funding at current levels, the farebox recovery ratio remains constant, costs are contained, and new dedicated sources of funding are tapped.

Public transportation plays a crucial role in the New York metropolitan region's mobility. Although only 7.9 percent of the nation's population resided in this region in 1980, its public transportation system carried 26.7 percent of the nation's passengers, provided 30.7 percent of the vehicle-miles of service, expended 40 percent of the public transportation's budget and collected 60 percent of all operating revenues excluding subsidies (1,2). This extreme concentration and utilization of the nation's public transportation resources in the New York metropolitan region is a result of its demographics, land uses, and economic geography.

SUMMARY OF TRAVEL DEMAND IN 2015

In 2015 the region will be, as it is today, a multinucleic megalopolis with the Manhattan central business district (CBD) continuing to be the primary focus of economic activity, and the suburbs will maintain their healthy growth (3). As a result of the increases in population and economic activity, it was estimated that demand for travel to the Manhattan CBD will increase by about 286,000 daily trips. The city of New York

will generate 81 percent of these trips. New Jersey's contribution will be about 12 percent, and the remainder will come from the eastern and northern suburbs.

Although the additional trips to the CBD are substantial, the additional demand for travel among the region's suburbs will be over 1.4 million daily trips. About 750,000 of these trips will be added in northern New Jersey, about 400,000 in the New York counties north of the city of New York, and about 250,000 on Long Island.

If all new trips are added together, the total new travel demand that has to be satisfied will be approximately 1.8 million trips per day—a staggering number that is close to or exceeds the total ridership of some of the nation's largest transit systems.

ALTERNATIVE INVESTMENT STRATEGIES

To meet the region's future mobility needs, substantial additions to existing capacity will be required, particularly since the new demand will materialize in corridors that are already operating at capacity (3). In addition, public transportation's modal share should increase in the future to alleviate congestion and reduce environmental pollution. Three basic alternative future scenarios are presented. They differ in terms of the amount of investment they require and they are labeled minimum, moderate, and significant.

Because of the region's size, diversity, and the complex and multimodal existing transportation system, any solution that attempts to solve the region's future mobility needs will have to be multimodal.

IMPROVEMENTS REQUIRED

The required improvements to meet future mobility needs that are mentioned here are not detailed. This lack of detail arises in part from the very long time horizon of this study; the study's scope, which was to assess the region's basic transportation needs; and the study's nature and political significance, which can make local agencies and interest groups feel uncomfortable by including specific projects.

Minimum Investment

With minimal investment, no additional capacity is going to be added, but all systems will have to be kept in a state of

good repair (i.e., no system components will have exceeded their useful life and all backlog needs will have been eliminated) (4). Currently, the region's public transportation systems are not in a state of good repair, but they are rapidly getting there. Naturally, the operating effort will also have to be maintained at current levels. Namely, existing routes and schedules and the equipment and personnel needed to support them will have to continue to be provided. This investment alternative is effectively a no-growth scenario. The only benefit achieved from investing at this level is that at least the region's infrastructure will not deteriorate.

Moderate Investment

With moderate investment, system capacity additions are considered that are capable of accommodating future demand at the current level of service. This investment alternative should be the minimum acceptable. The critical corridors/areas in the year 2015 will be

- The Queens- and Brooklyn-to-Manhattan corridors;
- The New Jersey-to-Manhattan corridors; and
- Suburb-to-suburb travel in northern New Jersey, northern New York, and Long Island.

By the year 2015, approximately 160,000 new daily trips will have to be made to Manhattan from Brooklyn and Queens. The majority of these trips will have to be made by public transportation. To serve this demand, the Queens Boulevard Connection is the minimum capital improvement required. This linkage will connect the New York City Transit Authority's E and F subway lines in Queens with the 63rd Street tunnel under the East River. The tunnel's construction is completed and was scheduled to open by the end of 1989. The Queens Boulevard Connection can be completed by the late 1990s.

To serve the additional 35,000 trips in the New Jersey-to-Manhattan corridor, a new Hudson crossing will be required. None of the existing systems (commuter rail, buses, PATH, and ferries) are capable of meeting this new demand.

The 1.4 million new suburb-to-suburb trips pose a special problem. It is not only their magnitude, but also their geographical dispersion, that makes their service infeasible through conventional public transportation. Naturally, not all of these trips will have to be satisfied by public transportation. If public transportation maintains its modal share, satisfying demand in the Connecticut sector will not be critical, but substantial new services will have to be provided in the remaining sectors. All improvements planned in the New Jersey sector (e.g., Kearny Connection, Secaucus Transfer, etc.) will have to be implemented.

Significant Investment

If the region is to grow, investments in the public transportation system should take place at the significant investment level of this scenario. New services will have to be provided that will not only serve the future demand but will also im-

prove the existing level of service from the E to F range to about the middle of level of service D in the peak period. That goal may be impossible to achieve in parts of the system, because it would imply the doubling of current New York City Transit Authority (NYCTA) subway service along portions of the system. However, the addition of capacity to at least corridors that are already seriously congested and will have to be burdened with most of the new demand, will make significant contributions toward service improvements.

For this scenario, the completion of the entire length (from the lower tip of Manhattan to the Bronx) of the Second Avenue subway line is a must, as well as two additional tunnels under the East River. Both of these tunnels will connect Brooklyn with Manhattan, one of them at the lower end to relieve congestion on the Manhattan bridge and in existing tunnels, and the other farther north (approximately where the Williamsburg bridge is) to relieve congestion on that bridge and in existing tunnels. The Long Island railroad should become fully electrified, connected with the second level of the 63rd Street tunnel, and a new terminal should be constructed on the East Side of Manhattan to relieve Grand Central and Penn stations. An additional transit-dedicated Trans-Hudson facility will also be needed to carry rail or bus traffic from New Jersey into Manhattan.

The remaining commuter railroads (except for the Connecticut-to-Manhattan corridor) should at least triple the service they provide currently and extend further into the suburbs. Additional terminal and exclusive movement facilities for buses will also be required.

Multimodal Alternatives

The region's infrastructure still has an enormous potential to move additional people if public transportation services are used. The four East River bridges collectively now serve about 1 million daily trips; this is half the trip service they used to provide in their peak year (50 to 85 years ago) when they were used more intensively by public transportation services.

Although public transportation can unquestionably better serve large masses of travelers than can the road system, it is impossible to provide an all-transit solution for all future needs. The region's size, however, allows the assumption that the public transportation system can expand continuously and in direct proportion to its modal share of all trips made in the region. For every 1 percent increase in public transportation's modal share over the current 28 percent of all regional trips, 3.5 percent more service will have to be provided, and expenditures for this mode will have to be increased by the same amount.

COST OF IMPROVEMENTS

The cost of providing public transportation services in the future could be called staggering, if any other than the nation's most public transportation intensive region were concerned. But, the price to be paid to ensure mobility is relatively modest, if one considers the benefits that this mobility is going to produce.

Minimum Investment

The region's transit systems currently operate with a farebox recovery ratio of 55 percent. As of 1987, operating subsidies are about \$2 billion a year, and an additional \$2 billion is spent annually on capital needs. Under this minimum investment alternative, since no additional services will be initiated, the annual cost will remain the same (in current dollars) and the total needs up to the year 2015 will be \$100 billion. Two basic assumptions are implicit in this estimate: that public transportation operating and capital costs will keep pace with inflation and that the farebox recovery ratio will remain at 55 percent. There is no compelling reason that can violate these two assumptions.

Moderate Investment

Under the moderate investment scenario, additional costs will be needed for new capital initiatives, and operating costs will increase. It is assumed that operating costs will increase in direct proportion to increases in ridership. Under these assumptions, an additional \$100 million annually and \$250 million in capital costs will be required for operating expense subsidies, bringing the annual operating subsidy and capital needs to \$2.1 billion and \$2.25 billion, respectively. These figures bring the total operating subsidy and capital requirements for the period up to the year 2015 to \$52.5 billion and \$56.25 billion respectively, for a total of \$108.75 billion.

Significant Investment

The significant investment scenario is not only capital intensive, but it also provides for an expansion and intensification of operations. Operating subsidy and capital requirements will each be \$500 million over the current levels of \$2.5 billion each annually. For the entire period up to 2015 the total needs will be \$125 billion.

Multimodal Alternatives

All previous estimates were made under the assumption that public transportation will maintain its existing share in all sectors. However, if public transportation's modal share increases, additional expenditures will be required in the amounts of \$3.5 billion, \$3.8 billion, and \$4.4 billion for the minimum, moderate, and significant alternatives, respectively, for every 1 percent increase in the mode's share.

FINANCING STRATEGIES

No new public transportation funding source is expected to materialize in the future. Operating and capital needs that are not met by farebox revenues will have to be funded through other sources. Although no new source is expected to become available in the future, the relative share that each of the

existing sources contributes does not have to remain the same as it is now.

Minimum Investment

Since no additional expenditures over the current levels are expected under the minimum investment scenario, if the current funding sources maintain their support at current levels, no problems should arise. An implicit assumption made here is that funds from all current sources will be increasing at the rate of inflation.

Moderate Investment

The additional needs of the moderate investment scenario are indeed moderate in overall magnitude according to regional standards. The additional \$350 million per year for both capital and operating expenses can be raised in a variety of ways. The federal government should absorb at least half of the \$250 million in capital requirements, leaving a total of \$225 million to be raised locally. This figure is only five-hundredths of one percent of the region's average aggregate income over the next 25 years and could be raised if each worker paid about \$22 annually, if every vehicle paid about 0.5 cents per mi, or if every public transportation user paid a fare that is 3 cents higher than the current fare.

Although it is possible to raise the additional funds locally, the need exists to develop a local determination to establish dedicated funding sources. The region's agencies, political leadership, interest groups, and the general public should work cooperatively toward the development of an agenda that will accomplish relatively soon this source of funding.

Significant Investment

If the same assumption that was made for the previous scenario were made for the significant investment scenario, a total of \$750 million would have to be raised locally. Dedicating a source that can raise this amount will be problematic. For example, a regional gasoline tax of about 32 cents per gallon will be required, an amount that under normal circumstances is practically impossible to be accepted. However, the improvements do not have to be implemented immediately. If gasoline taxes were to be raised gradually at about 1 to 2 cents per gallon per year, the funds could be raised and opposition to the funding mechanism could be minimized. Although a gasoline tax was mentioned as an example, the same is true for any other dedicated funding mechanism.

CONCLUSIONS

Substantial expenditures will be required for the region's public transportation systems. Approximately \$3 billion per year or a total of \$125 billion has to be spent up to the year 2015 if the region is to grow as anticipated. Although it is definitely a challenge, this goal can be met. Transportation profession-

als, in whose hands planning for the region's future is entrusted, are aware of the problem's magnitude as well as public transportation's contribution to the region's economic vitality. It is hoped that public understanding and political will can supply the resources needed to provide solutions.

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