

ISSUES AND POLICY QUESTIONS CONFRONTING PUBLIC TRANSPORTATION

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Mr. Mackey was the speaker at the conference banquet. Although his remarks are not specifically oriented toward demand-responsive transportation, they are included as part of the conference proceedings.

The Michigan Bureau of Transportation was created in 1970 and was given the authority to finance projects in 4 general phases of a public transportation improvement program: Economic and Technical Feasibility; Research and Technology Development; Engineering and Design for New Systems; and Demonstration of Improved or Expanded Public Transportation Services, Facilities, and Equipment.

In general, the purpose of the bureau's programs is to enable the demonstration and the feasibility of expanded and improved public transportation service. Some of the specific projects that are funded by the state and directly related to this objective are as follows:

1. Purchase and operation of electric and propane-powered buses;
2. Study and evaluation of new technology systems;
3. Operation of special buses for the aged and for intercity residents to employment opportunities;
4. Site-specific feasibility study of new technology systems for urban core mobility, large university campus access and mobility, and activity center circulation and connections;
5. Feasibility and planning studies of rapid transit in southeast Michigan; and
6. Study and evaluation of dial-a-ride in Ann Arbor.

With passage of pending legislation, our role will be considerably more involved with the operational aspects of

local transit operations. This legislation basically involves creation of a new department of transportation and highways and a 2-cent increase in the state gasoline tax. Of that, 0.5 cent is to be used for an urban transportation discretionary fund, which would receive about \$22 million per year for public transportation and related purposes. Half of this amount is to be distributed to local governments or authorities for operational assistance on a population and vehicle-mile of service basis. The remaining funds are to be allocated to specific projects; primary emphasis will be on capital assistance.

I would now like to present what I feel are some of the major issues and policy questions that now face not only the public transportation industry but society as well.

Public transportation has not been responsive to the mobility needs of most urban residents. We have not had innovation in operating practices and in the development of transportation concepts. Departure from existing means of serving mobility needs has been and still is often viewed as a threat and not as a means of offering more competitive transportation service.

I do not wish to dwell at length on the history of urban transportation. However, my point on the issue of conservatism or lack of innovation in public transportation can be brought into focus by a brief examination of the situation that prevailed in the railway and streetcar operations and that also exists in the systems now being proposed for many metropolitan areas.

Prior to the early 1900's, companies operating streetcar and rapid transit systems were prosperous and frequently represented monopolies that served almost all urban passenger travel. In many instances, ridership increased at a faster rate than population until about the

end of World War I.

Most operators were not aware of the impending competition. Some even anticipated that ridership would continue to increase as long as population increased. Technological obsolescence was simply not anticipated until it was too late. One must appreciate not only that the competition was keen but also that the industry was not subsidized as its rapidly developing competition was. The situation was a difficult one to respond to.

A significant factor contributing to this situation was that the industry failed to put aside research and development funds. We need only look at the investment private industry makes each year for research and development to know how important this element is to survival. Of the total invested by private industry last year, excluding residential construction, 15 percent, or \$15 billion, was for research and development. The Urban Mass Transportation Administration's research and development fund in 1972 was only about \$53 million, and that was probably the total for this multibillion-dollar industry.

Many of the conditions that existed in the early 1900's exist today. The ability to respond and serve transportation needs in an ever-changing competitive market has not developed. I maintain that the development of this ability is one of the important issues confronting the public transportation industry today.

A great deal of attention is now being given to the development of high-capacity line-haul systems to solve the transportation problems in large metropolitan areas. In my opinion, these systems fail in many respects to respond to the real travel demand. A brief look at the distribution of population, the characteristics of travel patterns, and the characteristics of these line-haul systems raises some serious questions about their

applicability.

Increasingly, urban land use and travel patterns reflect the dominance of the automobile. This trend is so obvious that I would not mention it except that it has special significance. The travel desires related to work, shopping, personal business, recreation, and so forth are becoming increasingly decentralized. Residential sprawl is widespread. As a consequence, radial travel desires (the kind best served by line-haul operations) are becoming significantly less important. Of the demand that does exist, a large portion is peak-hour oriented. Consequently, it is difficult to find travel demand that can be efficiently and effectively served by high-capacity line-haul systems. As a result of lower densities, trip lengths have also increased. As a consequence, those without access to automobiles have and will continue to have difficulty getting to their destinations either by walking or by public transportation. With these trends so readily apparent, it seems rather strange that most methods proposed to solve the urban transportation problem are all too often improvements to, or replication of, existing bus, subway, and commuter rail facilities.

Most public transportation proposals in major metropolitan areas focus the majority of funds on rail facilities linking high-income suburbs or airports with downtown centers and on new equipment. Wohl (1) points out that the subway or rail rapid transit systems now being built and proposed are more related to the late nineteenth and early twentieth century suburban commuter railroads than to intercity subway systems of the same period.

Wohl points out that the lines for these systems usually range far into the suburbs and concentrate most of the stations within the suburbs. Stations are spaced

far apart and thus provide poor linkages between the station and the traveler's origin or destination. Travelers must, therefore, use a feeder bus or private automobile to get to and from the station. To illustrate the inconsistency between the technology applied or proposed and the demands of the travel market, he made the following observations on station spacing:

<u>City</u>	<u>Miles Apart</u>
Los Angeles	1 $\frac{1}{3}$
Washington, D. C.	1 $\frac{1}{5}$
San Francisco	2
Chicago	$\frac{2}{3}$
Boston	$\frac{1}{3}$
New York	$\frac{1}{3}$

Wohl also observed that the newly built or proposed system lines are long. San Francisco's lines will all exceed 20 miles. Those for Washington, D. C., will average about 12 miles but some will approach 20 miles. By contrast, Boston's longest line is about 15 miles, Chicago's is 16 miles, and New York City's is 15 miles. The rigidity of these systems (the requirement of high densities) also appears contrary to or inconsistent with today's life styles.

In light of Wohl's comments, I would like to review the proposed Woodward corridor rapid rail line in Detroit, which has been developed under planning studies funded by federal, state, and local agencies.

The specific proposal is to build a 27-mile, \$600 million rail rapid transit line from downtown Detroit to the city of Pontiac. The line is to have 23 stations with a 1.2-mile average spacing. Of the line's 27 miles, 18 are located in suburban communities and 9 are in the city of De-

troit. There are 11 stations in the suburbs, and 12 within the central city, 4 of which are in the CBD. Clearly, an attempt has been made to respond to the need for balance between commuter and local service needs.

The ridership projections for the line are of particular significance, especially when they are related to the incremental construction cost (Table 1). The percentage of riders on the suburban portion of the line (beyond the Detroit city limits to Pontiac) and on the central city portion of the line (from the city limits to downtown), by access mode is given in Table 2. These data were compared in a detailed analysis that the Bureau of Transportation made of the rapid transit proposal for Detroit. It seems apparent from this analysis and recent state-of-the-art developments that a second look may be appropriate at the type of transit technology proposed for the Woodward corridor.

This limited functional capability of a rail rapid system to serve suburban ac-

Table 1. Ridership and costs.

9-Mile Increment	Ridership (percent)	Cost	
		Million Dollars	Percent
First	83	315	52.5
Next	15	185	30.8
Last	2	100	16.7
Total	100	600	100.0

Table 2. Access mode.

Mode	Suburb	Central City
Automobile	55	9
Feeder bus	27	54
Walking	18	37

cess as well as central city mobility was dramatically questioned during recent consideration of the Governor's transportation bill. Members of the black caucus were opposed to the steel rail system because it did not meet the needs of their constituents.

I think an appropriate question regarding the application of this technology is, Where are these facilities located in relation to workers or others having the greatest potential need? Clearly, the nature of the travel market and the need have not been examined closely in the development of these systems. It is readily apparent that, if we are to overcome the shortcomings of the steel rail systems, innovative efforts must be made to develop systems that satisfy both suburban and central city transit needs. I do not mean to imply that we are against rapid transit systems. Our concern is with the appropriate application of technology to the problems that exist.

The question of the applicability of the rail rapid transit systems raises a general question of what the public transportation market consists of and how we can respond to that market with a competitive service at an acceptable cost.

Identifying potential markets and defining benefits and costs of an applicable public transportation technology are not easy tasks. Many people are prone to say that there is little need for public transportation services based on patronage trends and public transportation's share of the market. I do not believe that the demand for this service has ever been adequately assessed. A tremendous need exists for low-cost transportation throughout this country.

Our automotive evolution during the past few decades has given many Americans unprecedented mobility. However, for those who lack access to the automobile, a severe mobility handicap exists.

Of equal significance is the fact that many individuals are unable to use the automobile because it is at the wage earner's place of work or because they are not licensed to drive.

The issue, however, is how to define this market in terms precise enough for an evaluation to be made of the costs of accessibility restrictions. This issue is a complex one because market demand and cost are also related to transportation system design. We are now well along in the development of new systems that have the potential of improving mobility at a lower cost. However, we have not yet really examined the mobility disparities and need differences among various classes of society, let alone placed a cost figure on them. We know very little about the effect alternative transportation strategies might have, for example, on the opportunity and cost of housing or public services such as water and sewerage distribution systems and land for recreation. We do know, however, from our various tax bills that the present policies being pursued at the local level are expensive. We need to be more concerned about optimizing our capital investments. It does little good to pour money into one area if, at the same time, policies or programs exist that will defeat our objective.

In many instances, I doubt whether present cost figures are representative of true costs. We frequently assume that because we have special funds for certain purposes total project costs are covered. This is not always the case. An example in point is the Lodge Expressway in Detroit. Our analysis of anticipated revenues raised by this facility indicates that it will only pay for about a fourth of its cost.

There are indications that the cost of governmental services will increase in the face of tremendous competition for

resources. Therefore, the need is crucial to define more precisely the mobility disparities among segments of society, the cost of these disparities, and the benefits and costs of alternative transportation strategies.

This issue is also directly related to another important issue, and that is, What kind of an urban environment do we really want? At the present time, we do not have local, regional, or state growth policies that reflect strategies that have been carefully thought out and analyzed as to benefits and costs. We appear to be content with an increment of haphazard sprawl each year. I think we need to examine these policies and explore what role public transportation has in developing the kind of urban environment we want.

I would like to say something about the demand-responsive transportation project in Ann Arbor. We feel strongly about the need for supporting the Ann Arbor project. It has potential for solving a problem in one area as well as for providing needed research regarding people's attitudes and travel needs that cannot be gained from traditional research methods that lack the operational element. Certainly, developing, managing, and operating a demand-responsive project require a substantial degree of innovation.

The people in Ann Arbor deserve considerable credit for undertaking this project. Inevitably, there are higher risks involved in the introduction of new service concepts. This type of service entails a whole new set of operating circumstances, and it may have the potential to go a considerable way toward achieving the desirable service characteristics provided by the automobile.

Speed, flexibility, and accessibility attributes of the automobile are the most difficult to duplicate in new system operations. The extensive street network

and the design of the automobile provide the basis for both flexibility and accessibility. One must also be aware of the comfort and convenience of the automobile. Many homes do not have the comfortable seats, air conditioning, stereo, and privacy that the automobile has. Yet, the amount of time spent in the home—at least for most areas and for most age groups—is incomparable to that spent in the automobile.

A question frequently asked about demand-responsive service is, Does it cost more or less than line-haul service? Although I believe the question of cost is an important one, it needs to be considered in proper context. Certainly, concern for the market served is an important consideration. In Ann Arbor, we are serving a substantially different market by the demand-responsive system than by the line-haul system, and we want to broaden that market. A valid comparison of costs must also consider alternative objectives. If, for example, reductions in air pollution, in downtown traffic congestion, and in parking costs are objectives, then these must also be evaluated in terms of the system's ability to achieve them.

We can learn much more from demand-responsive service projects than what the operating limitations are. These projects provide the means of obtaining valuable data concerning user attitudes, travel preferences, and trip generation rates. Such research information is essential to the development of competitive transportation systems.

REFERENCE

1. Wohl, M. Urban Transport We Could Really Use. *Technology Review*.