Public Transportation: Advantages and Challenges

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The viability of urban communities depends to a great extent on effective and affordable mass transit. Equally important, mass transit depends on a federal and municipal urban infrastructure that supports its upkeep, safety, and growth, thus highlighting the interdependence between mass transit and the urban environment. The US mass transit network, the largest in the world, is composed of a wide range of different modes of transportation, including buses, subways, light rail, commuter rail, monorail, passenger ferry boats, trolleys, and tramways. Taken together, this infrastructure provides for the transportation of 33 million riders on an average weekday, translating into roughly 9.0 billion mass transit trips in the United States per year.¹

Mass transit helps to make cities more livable in a number of ways. For example, as an alternative to automobiles, mass transit limits the adverse effects of urban sprawl, automobile congestion, energy use, and associated environmental emissions and the potential adverse health effects of all of these factors.² Because of its affordability and accessibility, mass transit also provides a wide range of other, less obvious, benefits as well. For instance, at the labor level, mass transit provides employees with a means to get to work, at the employer level, it provides for workforce accessibility, and at the state level, it reduces the reliance on unemployment assistance, as workers are more likely to stay employed if they have easy and affordable means of getting to work.³ There is spillover directly to the community itself as well, because mass transit results in the need for fewer cars for transport, which results in less property earmarked for parking. This in turn provides for higher economic returns per square mile, higher property values, and more taxes paid.⁴ Although federal support has been important for creating this infrastructure, mass transit also reduces federal expenditures related to the regulation of environmental remediation of auto emissions.⁴

Perhaps the greatest impact of mass transit, however, is on the community members that depend on it as their sole source of transportation, such as the elderly, disabled, low income, young adults, and others. Mass transit therefore not only provides for transport resources for those potentially disadvantaged, but also supports the inclusion and community participation of all urban dwellers in the life of the city, thus enhancing its vitality. Mass transit further supports the economic viability of a city by supporting visitors and tourists, which further encourages and supports cultural and social activities within a city.

Not surprisingly, all of these benefits are optimized by high utilization rates. In spite of the large number of communities and individuals served, there is a concern that mass transit ridership rates are sub-optimal, because it has the capacity to serve far more riders than it does. For example, in the United States, although ridership

rates have continued to increase nationwide, only 11% of central city dwellers, 6% of metropolitan area commuters, and 2% of suburban dwellers use mass transit, although certain cities, such as New York City (NYC) and Chicago, have a much higher proportion of central residents using mass transit.⁵ In NYC, for example, nearly 50% of the residents regularly use mass transit.⁵ Several reasons are given to explain low ridership, with the most common being the lack of convenience, that is, does not reach destinations close enough to where people need to go, does not operate during the times needed, does not operate frequently enough, or is not easily accessible—this latter is an important barrier to individuals with disabilities.⁶ Ridership rates are affected also by cost, with declines in ridership documented because of increased fares; in NYC, subway ridership in 1975 declined 5.2% after fare increases were put into effect.⁷ Ridership is also affected by perceptions of safety. In the mid-1980s, ridership on NYC subways was low and attributed to a fear of crime in the subways, which was relatively high at that time.⁸

Subway safety issues are important to subway ridership levels, and the overall safety record of mass transit in the United States, which includes equipment, passengers, and over 350,000 mass transit workers, indicates that it is a relatively safe means of transportation, especially in comparison with private automobile use.⁹ However, many safety concerns remain. These include criminal and terrorist attacks, physical hazards, including noise, and possible transmission of infectious diseases in tightly packed spaces (especially during rush hours).

Because mass transit is dependent on a number of other infrastructures, such as energy grids and information technology system networks, disruption in the normal functioning of these systems (such as the August 14, 2003 Northeast Blackout) can severely impact mass transit systems as well. These disruptions could be the result of either natural hazards (e.g., severe weather) or man-made (e.g., terrorist attack) and can directly or indirectly affect mass transit.

As already noted, crime was a major deterrent to the use of subways in NYC in the 1970s and 1980s, but with an increase in policing activities (e.g., arresting those who were turnstile jumpers), crime declined and ridership rose.¹⁰ Wartime images of subways as protective were generated from the experience during the London Blitz in World War II, but the World Trade Center Disaster on September 11, 2001, which resulted in the destruction of substantial portions of the subway system around the World Trade Center, raised concerns regarding the vulnerability of mass transit to terrorist attacks, especially with respect to subways located within dense urban centers.¹¹ In fact, over 1,000 incidents of terrorist events in transit during the 20th century alone, mostly outside the United States, have been reported.¹² Even before the 1995 incident involving the release of sarin gas in Tokyo subway cars, there were growing concerns related to the vulnerability of subways to terrorist attacks and an increasing awareness and appreciation for emergency preparedness of the mass transit system.^{13,14}

Another dimension beyond safety and security of mass transit is the issue of health risks. Although research in this area is lacking, a number of potential occupational health hazards associated with mass transit have been identified, mainly relating to noise and injuries.¹⁵ Furthermore, it is not hard to imagine that airborne and contact transmission of infectious diseases in mass transit could represent a public health concern; however, data on this are curiously sparse.

To help increase the dialog and interest in this area, four articles in this issue of the *Journal of Urban Health* explore various aspects related to health and safety and mass transit, as well as the vulnerabilities of the mass transit system itself.^{16–19}

As urban growth continues in the United States and especially in the developing world, where the highest rates of urbanization continue to occur, the role of mass transit in addressing movement within that growth will become even more important. Therefore, the identification and resolution of health and safety issues related to urban mass transit are urgently needed.

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