



Public Mass Transit System- A Overview

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KEYWORDS

Mass transit, also called mass transportation, or public transportation, the movement of people within urban areas using group travel technologies such as buses and trains. The essential feature of mass transportation is that many people are carried in the same vehicle (e.g., buses) or collection of attached vehicles (trains). This makes it possible to move people in the same travel corridor with greater efficiency, which can lead to lower costs to carry each person or—because the costs are shared by many people—the opportunity to spend more money to provide better service, or both.

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EVOLUTION OF URBAN MASS TRANSPORTATION Growth in the 19th century

The history of urban mass transportation is first a story of the evolution of technology, from walking, to riding animals, to riding in groups on vehicles pulled by animals, and eventually to cable cars, larger-capacity steam-powered trains, electric trains, and motor buses powered by internal-combustion engines. It is a story of gradually increasing speed, vehicle capacity, and range of travel that has shaped cities and structured the lives of those who live in them.

The horse-drawn omnibus, first used in France in 1828, allowed as many as 25 or 50 people to share a ride across muddy urban streets. These were operated by private entrepreneurs who intended to profit by serving the busiest corridors in town. Starting in New York City in 1832, operators installed rails in the streets to provide a smooth roadbed both for the benefit of passengers and to minimize the energy required to pull the vehicles. The cable, a rail vehicle dragged by a long cable pulled by steam power from a central station, was invented in 1873 to master the steep hills of San Francisco. This idea spread to Chicago and other cities in order to avoid the unpleasant side effects of horses in dense urban areas.

The omnibus-on-rails, the cable car, and eventually steam and electric trains were limited to operations on fixed guideways(rails), and extending the service required installing more rails, a large and semi-permanent investment. This inflexibility of a rail-based system was balanced by its low rolling resistance, which permitted the connection of several vehicles into

trains where the demand for travel in the corridor was sufficiently high. Trains were efficient for carrying large numbers of travellers because a single guideway (track) could carry many trains each day, and the number of workers did not have to increase in proportion to the number of vehicles: one motorman or engineer could operate a train with many cars, perhaps with the help of one or two conductors to collect fares.

Some cities, starting with New York in 1868, constructed transit lines to accomplish the same end. It was less costly and dangerous to build a rail line above the street on an iron and steel trestle at the second-story level, as compared with digging a tunnel. It soon became apparent, however, that the noise of trains rumbling by, the street obstructions of columns to support rail structures, and the dark areas created below these facilities were high prices to pay for rapid urban transit.

Cities and means of travel grew together, with the shape and extent of cities determined largely by the available transport technology. Urban transportation services defined the geographic area in which people functioned, limiting how far one could travel to work, acquire food, exchange services, and visit friends. When walking or riding a horse was the primary mode of urban travel, cities were necessarily small. When larger animal-drawn vehicles became common, cities grew in extent

As technology advanced, the speed of travel increased from an average (including station stops) of 2 to 3 miles per hour (mile/h) for walking to 4 to 6 mile/h for animal-drawn vehicles to 15 to 20 mile/h for steam trains, and cities grew along the corridors served by urban mass transportation. Small, circular towns reached out along steam rail lines, which became increasingly common in urban service among European and American cities in the latter half of the 19th century. Residences and businesses were located close to these lines, and particularly close to the stations, to make the best use of available transportation.

Just as transportation helped to define the geographic extent of the city by the arrangement of its lines and stations and its speed, the demand for travel by city residents determined which transportation technology could succeed in the marketplace. Higher-density developments, closely spaced houses and apartment buildings, multi-storeyed office buildings, and large factories could support major investments in exclusive-guideway rail transit with frequent service. Lower-density communities could sustain only infrequent service, with transit vehicles operating in mixed traffic on city streets. In the late 1800s it was not uncommon for the land developer and the transit operator to be one and the same, using a street railway system to promote the sale of new housing and attracting the residents of that housing to ride the railway.

The automobile and mass transportation

In the developed world and particularly the Western Hemisphere, the automobile entered the transportation market as a toy for the rich at the beginning of the 20th century. It became increasingly popular because it gave travellers important new freedoms: to visit many different places (while mass transportation served only fixed routes), to make trips at any convenient time (while mass transportation operated on a predetermined schedule), and to carry several people and their packages for one fixed price (while mass transportation charged fares for each person in a family or group). As a result, in Europe and North America the automobile became mass transportation's chief competitor.

The automobile is an individual technology that does not rely on group riding and common travel patterns for its success. The convenience of the automobile freed people from the need to live near rail lines or stations; they could choose locations almost anywhere in an urban area, as long as roads were available to connect them to other places. Many states in the United States established motor fuel taxes that were used only to build and maintain highways. Thus, the auto highway system became largely self-sustaining.

THE BENEFITS OF URBAN MASS TRANSIT

Advantages to individuals and communities

Where the automobile is a major competitor to mass transportation, the use of transit has declined, reducing revenues available to pay the costs of these systems and services, and—in a setting where government subsidies are essential for sustaining mass transit—political support has eroded as well. As more people rely on the automobile, their interest in directing public resources to improving the highway system dominates their concern for subsidizing transit.

For those who can use the automobile for quick and reliable transportation, this trend simply represents the evolution of urban transport from collective riding to individual riding, from the economies of sharing a relatively high-speed service in a corridor where travel patterns are similar or the same, to the privacy of one's own "steel cocoon," which can go anywhere, anytime, without the need to coordinate travel plans with the schedule and routes of a transit operator attempting to serve large groups of people. The automobile has captured a large share (more than 95 percent by 1983) of urban trips in the United States, and only in some cities of more than two million people does the mass transportation share reach or exceed 10 percent of the trips.

If the automobile provides superior service for the majority of riders, why not let the market operate without government intervention, perhaps leading to the demise of transit? While this has happened in some medium-size and small American cities, mass transportation can be important for a number of reasons.

First, some portion of the urban travel market is made up of people who cannot use the automobile to travel because they are handicapped, elderly, or too young to drive. Some people cannot afford to own and operate a car, and the young, the old, and the handicapped often fall into this category. If these people are to have the mobility essential for subsistence and satisfaction in their lives, some form of public transportation is necessary.

Second, transit provides a community with a way to move potentially large numbers of people while consuming fewer resources. A single bus, if it is full (50 to 80 passengers), can carry as many people as 50 or 60 cars, which normally operate with fewer than 2 occupants. The bus requires less street space, equivalent to 2 or 3 automobiles, and, when it is full, it requires much less energy to move each person. Because emissions from internal-combustion engines are proportional to fuel consumption, a full bus will produce less pollution per person-trip than an automobile. Finally, because they are operated by professional drivers, buses have a lower

accident rate than automobiles. Electric rail rapid transit trains produce even less air pollution and are far safer per person-trip than either automobiles or buses.

Transit, when it is well utilized, then, produces important benefits for the community: air-quality improvements, less land consumption than an auto-dependent transportation system, lower energy requirements, and lower accident costs. A single lane of an urban freeway may carry 5,000 persons per hour. A light rail transit line (electric trolley cars) on a separate guideway taking the same space as the highway lane might carry as many as 14,000 persons per hour. High-quality mass transportation serving dense employment and shopping areas, such as the central business district of a city or the downtown area of a suburban community, can help ensure the economic success of those areas by making it easier and less costly for large numbers of workers and shoppers to enter and leave. A successful transit system also reduces the need for downtown parking, making land available for more productive uses. Thus public transportation provides support for particular land development patterns, such as downtowns, and higher-density employment, educational, cultural, and retail activity centres.

Effects of public policy

The benefits of mass transportation result from the utilization of these services: more utilization produces more benefits. Crowded buses and trains signify a smaller market share for the automobile, with its attendant air pollution, congestion, accidents, and excessive land consumption. Heavy utilization of mass transportation can produce a larger revenue stream from passenger fares, which can help support these systems, either by reducing subsidy requirements or, in a few very high-density travel corridors, actually covering all the costs of providing mass transportation.

There are a number of ways to increase and maintain mass transit ridership. These differ by context and government policy, and none offers guaranteed results. Keeping transit utilization high is much easier where competition from the automobile is limited. In Third World cities, where the automobile has never taken hold, transit, bicycles, and walking remain dominant modes. Cities are more densely settled, and work, shopping, and residential activities are closely intermingled so that trip distances are short. This encourages walking and the use of bicycles, with their low energy requirements. Even if mass transportation is slow and crowded, it may be the dominant mechanized travel option in such settings.

Cities in many developed countries in Europe and Asia have long-standing government policies that simultaneously controlled the growth of automobile ownership through high taxes on vehicles and their fuel; restricted land development to encourage high-density activity centres, including suburban new towns, as well as mixed land uses to keep trips short; and funneled a steady stream of public resources to subsidize mass transit operations and make capital investments to extend systems into new areas. These public investments in transit were generally not matched with similar investments in facilities for the automobile. Indeed, a number of cities around the world have restricted automobile travel to their downtown areas by defining auto-free zones (e.g., Gothenburg, Sweden), prohibiting the growth of parking, or charging high entry tolls for vehicles carrying only one or two people (Singapore).

In the United States the approach has been to allow the free market, for both travel and land development, to determine the role of competing modes. Mass transportation does attract high market shares where the automobile is inherently less competitive, as, for example, travel to dense downtown areas during the rush hours. In the central areas of larger cities such as New York, Boston, Washington, Chicago, and even Los Angeles, street congestion can be intense and parking fees high. Where high-quality mass transportation is available (particularly rail service, which is as fast as or faster than the automobile), with frequent departures and high reliability, it can capture 50 to 80 percent of all travel to downtown in the

rush hour. At other hours of the day, the mass transportation share of downtown travel may drop to 20 percent, and across the regions in which such cities are centred, the all-day transit share may be as little as 5 to 10 percent of trips.

Mass transit is critically important to the economic and social health of these cities, and it is also important in other communities where its market share is lower but its contributions to peak-period congestion reduction and mobility assurance are significant. These effects provide the argument for public involvement in transit, through ownership, development, operation, and service subsidies. The key policy choices about mass transit in the United States concern how to spend public funds to produce these benefits, including decisions about capital investments for new and replacement technologies, the quantity and quality of services to offer, and how to pay for all of this.

Conclusion- There is urgent necessity of public mass transit system in India. There are various reasons like population explosion, restricted width of roads and highways in urban India. As India is developing fast we must tackle pollution control also which ultimately effect on public health and annual health budget of Government. Public Mass transit may be in the form of Bus Rapid Transit System, Metro, Monorail, In land water transport. The moto behind mass public transport is to transport People from one place to another place not to transport vehicles, but it is also observed that the most mass public transport system affected by the initial huge investment, revenue collection and its sustainability. Techno-economical study should have carried out to know the feasibility of system. At present in India BRTS (Bus Rapid Transit System) is the most economical concept as compared to other means of transport. Approximate cost of this system is only Rs 1.25 Cr Per KM as compared to Metro which is Rs 250 Cr per KM (Also Depend on, whether running above ground or below ground)

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