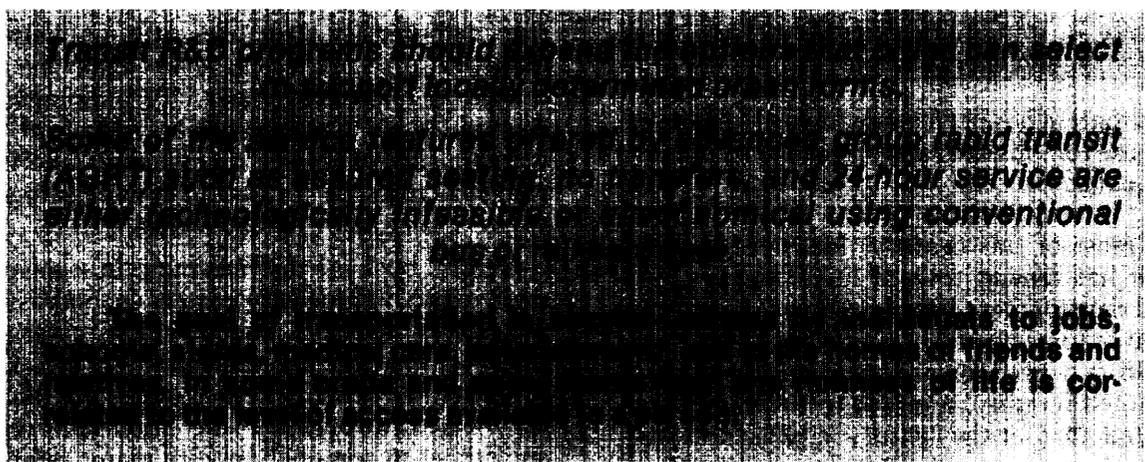


URBAN TRANSPORTATION NEEDS



There would be a basic logic in saying that providing access is the purpose of a city; it aggregates individuals and activities so that mutual access is possible. The specific spatial arrangement of this aggregation depends on the character of the transportation available. A century ago when urban travel was largely on foot, effective access depended heavily on proximity. Homes had to be near work, and stores near homes. Densities were high, streets were narrow, and travel distances short. This pattern is preserved and observable in those parts of our cities that grew up before introduction of trolley cars and proliferation of the automobile.

The mobility provided by the automobile has been a major factor permitting the majority of the U.S. population to achieve personally desired housing and lifestyle goals. It has also become for most the preferred means of travel. Yet, it has become increasingly apparent that there are substantial problems in reliance on the automobile as the predominant urban travel mode. These problems include increasing con-

gestion, pollution, and energy consumption. While some of the problems can, in the long run, be cured or greatly alleviated, there are at least two that cannot.

First, the automobile is unavailable to many urban residents—the poor, elderly, young, and handicapped. The dispersed development engendered by the automobile makes it difficult to provide efficient public transit service to meet the travel needs of these groups.

Second, the car is very inefficient in its use of space. The transportation capacity needed in the higher density portions of the city cannot be provided by automobiles; a more space-efficient mode of travel is needed.

Transportation does influence the way cities evolve and function. We would like to be able to match transportation to the needs of the city. It becomes, therefore, appropriate to directly consider the alternate, and sometimes conflicting, goals that cities might choose to adopt.

Goals for Our Cities

Transportation systems not only provide for personal mobility, but also influence the long-term spatial evolution of cities. Therefore, these facilities should be designed to meet social and economic objectives such as:

- housing for all residents offering choices of price, location, and lifestyle;
- jobs for all residents wishing to work;
- services—social, medical, cultural, recreational, and commercial; and

- a transportation system that permits citizens of urban areas to reach housing, jobs, medical, cultural, and recreational facilities with a minimum expenditure of time, money, and energy resources.

Little progress has been made toward fashioning strategies for physical development to achieve these goals.

For most of this century, metropolitan area growth has tended toward lower density residential development based first on streetcar and then on automobile transportation. While some signs of a trend toward reurbanization have been noted recently, a return to the highly concentrated turn-of-the-century city is not foreseen. Change in urbanization occurs very slowly. Were a concerted effort toward reurbanization to be undertaken today, significant and visible change would not appear until the next century.

A step toward higher densities is often viewed as desirable by urban planners since concentration permits greater use of transit or walking to satisfy activity needs. Yet, the same high levels of concentration that promote transit use also attract high levels of auto traffic to activity centers. So long as increased activity density is limited to only one end of the trip (e.g., the location of jobs or shopping facilities) the auto will remain the desired and most convenient mode for most trips. If cities are to be pleasant places to live and work, an easy and convenient transfer from the auto to the mode serving inside the high-density area will be absolutely essential.

The economics of urban activities also play a major role in the shaping of cities. While many functions can be efficiently conducted in high-rise, high-density structures, it is unlikely that industrial processes will ever again be conducted in multistory inner city buildings. The economics of transportation, industrial, and warehousing processes dictate that land-intensive structures be located in low-density areas where space can be obtained cheaply.

Central business districts may, in some cases, evolve into high-density centers encompassing a mixture of activities and dwellings catering to those who prefer the metropolitan life. Other dwelling and activity center nodes are likely to be located throughout the suburban region, sometimes in conjunction with major retail centers. Residential areas of somewhat higher density may evolve but the mature, low-density, suburban residential areas will remain and new, low-density, exurban development may continue to be developed. Many factors will influence these trends including land cost / travel cost tradeoffs and tax and fiscal /monetary policy.

There is no unanimity of tastes and preferences as to what cities should look like, and not all cities will evolve the same way. Some urban areas may choose to revitalize and encourage high-density growth. Some may choose to shrink their central business districts and encourage the growth of suburban activity centers, Others may leave development programs entirely to market forces. Transit R&D programs should expand the options that cities can select to support locally determined urban forms.

Goals for Urban Transportation

Although current experience in urban areas shows that people will tolerate many inconveniences in traveling, the desired system for personal transport is one that:

- permits the traveler to make trips at convenient times, rather than on the schedule of a specific vehicle;
- provides a comfortable trip—not overly crowded, seats available, few transfers, little waiting, and a place to store packages;
- allows travelers to reach activities within a reasonable time (e. g., no more than 30 to 40 minutes for work travel);
- permits travel at a cost commensurate with the value of the trip and the quality of service provided; and
- is compatible with the structure of the area being served.

The automobile meets these goals for many types of travel in urban areas, but it is unsatis-

factory in high-density areas and on arterials leading to them. Here, more space-efficient transportation is needed. AGRT systems are claimed to reduce congestion-related problems by providing the following features to attract people out of their cars:

- extensive coverage —stops within walking distance of large numbers of central city residents;
- frequent service—service headways sufficiently short so that it is not necessary to



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Assured seating important to consumer

consult a schedule in order to avoid long waits;

- service to major activity locations in the metropolitan area-Central business district work places, work and retail activity nodes, and lower density industrial workplaces;
- reliable and dependable service;
- climate controlled vehicles
- assured waiting for all users;
- perception of safety and security;
- direct service between most or all stations to minimize transfers; and
- privacy.

Features such as climate control and security can be provided with conventional systems. Other features such as no transfers, 24-hour service, and assured seating are either technologically infeasible or uneconomical using conventional bus or rail hardware,

It is technologically feasible to provide a service with the characteristics stated above. Automation may be a key factor in making small-vehicle large-network systems, offering improved service levels, more economically feasible.

As service and economic considerations warrant attention, so too does architectural and es-

thetic acceptability. In only rare instances have facilities for automobile transportation been adequately blended into the urban environment. The bulky, smelly, noisy, diesel bus, does little better. Subways remove often obtrusive vehicle systems from the cityscape, but also deprive the rider of the enjoyment of light and air and the excitement of observing city activity. Small-vehicle transit systems, even if elevated, will be less obtrusive and more amenable to integration into the city structure. The small, lighter weight guideways should provide more opportunities for architectural creativity, and could also be enclosed within new or existing structures, much like the Minneapolis skyway system.

The Urban Mass Transportation Administration's AGRT development program should be evaluated in comparison with other technological and operational options that could be developed for the future. It is not certain at this time what solutions will be needed in the future. Just as the changing character of cities and lifestyles was often a primary factor in the decline of conventional public transportation, so are future changes going to be key determinants of future transportation choices.