PART VII

THE FUTURE

Chapter 23

PUBLIC TRANSPORTATION IN THE 21st CENTURY

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As indicated in previous chapters, the status and financial well-being of the public transportation industry depends greatly on factors inherent to the industry itself and on external influences often outside the control of transit managers. For example, the internal workings of a transit agency, labor practices, service policies, and the relationship between the agency and other public and private groups in the service area can greatly affect the position of a transit organization. Political and socioeconomic factors, such as changing levels of federal transit subsidies or suburbanization trends in metropolitan areas, can likewise influence agency success or failure.

This chapter examines the likely characteristics of public transportation in the twenty-first century. In doing so, the chapter risks overgeneralizing the characteristics of such service when, in reality, the type and level of public transportation service will vary greatly by city, state, and region. In addition, predicting the characteristics of any social or technological phenomenon 10 or 20 years in the future must necessarily assume some stability in the general background context of that phenomenon, for example, the state of the economy (unless, of course, there is some evidence to suggest otherwise). With regard to transportation, this context must consist of the socio-economic characteristics of the population that influence transportation decisions, economic growth that determines employment patterns and thus commuting, and alternative technologies (such as telecommunications) that could significantly alter working habits and the characteristics of the workplace. Thus, suggestions of the future state of public transportation must rely on some understanding of past trends and on an understanding of the history of the industry itself. Such information is found in previous chapters and will not be repeated in great detail in this chapter. When important to the discussion, however, some of the key observations or conclusions from earlier chapters will again be made.

PERSPECTIVES ON THE FUTURE OF PUBLIC TRANSPORTATION

Historians of transportation policy will probably look at the period from 1985 to 1995 as a time when national transportation policy in the United States was the subject of intense examination and debate. Motivated mainly by the completion of the interstate highway program and the need to determine what should come next on the national transportation agenda, several leading transportation groups initiated national studies to assess possible "futures" for the transportation program and to recommend governmental action to prepare for these futures (see, for example, References 1 to 5). In addition, the U.S. Department of Transportation issued a statement in 1990 on national transportation policy that outlined several major themes for future government action.6 The policy directions outlined in this document included maintaining and expanding the nation's transportation system, fostering a sound financial base for transportation, keeping the transportation industry strong and competitive, ensuring that the transportation system supports public safety and national security, protecting the environment and quality of life, and advancing U.S. transportation technology and expertise.

Most of these efforts, in various levels of detail, discussed the potential roles of public transportation in the twenty-first century (in some cases the target year was the year 2000 and in others it was 2020). It thus becomes important as a point of departure for this chapter to look briefly at the major conclusions of the most relevant studies.

APTA'S TRANSIT 2000

The American Public Transit Association (APTA), the organization that represents most of the large public transportation agencies in the United States and Canada, undertook a study that examined the trends affecting the future of public transportation and recommended specific actions that might be taken by the public transportation industry, government, and private sector groups to provide a favorable future environment for public transportation. In its report, APTA identified five major forces that were apt to affect public transportation in the coming decades. These forces and APTA's observations and conclusions relating to them are as follows:

Congestion and Auto Dominance

Auto availability and use will continue to increase, but the cost, convenience and consequences of personal vehicle travel are likely to deteriorate significantly in more and more areas of the country, heightening the need for new options and strategies to enhance mobility. . . the high rate of suburban growth is expected to continue into the next century . . . emerging development patterns require a broader range of public transportation solutions and related actions focused on capturing "choice" riders and serving the needs of particular consumers, geographic sub-areas and trip purposes.7

637

Threats to the Environment

Worsening air quality represents a growing crisis for the nation. . . It appears, therefore, any success in reducing air pollution will require strategies that seek to alter travel behavior including efforts to increase ridership on transit and other high-occupancy modes.8

Threats to Energy Independence

As a nation, we now risk becoming more dependent on foreign sources of petroleum than at any time since the early 1970s. . . . A coherent long-term energy policy must be put in place. . . . Increasing ridership on transit and high-occupancy services will be an important element of this policy.9

Inadequate Infrastructure Investment

The trend of declining infrastructure investment, particularly in transportation and public transit remains a mounting threat to our economy and quality of life.10

Demographic Change

The number of persons over 65 will grow... the number of women in the work force will increase... minorities will account for nearly 60 percent of the population growth through the year 2000... By virtue of their sheer numbers, these segments of the population will require that increased attention be paid to their varying travel preferences and patterns, and that the availability of both traditional and nontraditional services be expanded.11

Not surprisingly, APTA concludes that public transportation has an important role in dealing with the major forces likely to influence the future of transportation. The APTA report acknowledges, however, that the transit industry itself might have to take several initiatives in achieving such a role. Table 23-1 lists six goals that the report argues are important in guiding the actions of the transit industry in future decades. Interestingly, APTA portrays a broadened role for the transit industry as being a manager of mobility in metropolitan areas, including involvement in those services such as ridesharing that have traditionally fallen outside the purview of the transit agency. As noted in the report, "elevating these new roles and the establishment of new relationships between the public and private sectors in managing mobility is a major direction for public transit agencies in the future." 12

AASHTO'S FUTURE DIRECTIONS AND TRANSPORTATION 2020

The American Association of State Highway and Transportation Officials (AASHTO) is a national organization that represents all state transportation agencies in the United States As such, AASHTO is concerned with all transportation modes and, in particular, focuses on the substance and magnitude of funding programs that support the transportation system. AASHTO undertook two efforts during the 1980s that examined the future of public transportation and made extensive recommendations

TABLE 23-1 Transit Industry Goals for the Future

- GOAL 1 Preserve, protect, and expand current markets and choices available to current public transportation users.
- GOAL 2 Pursue new markets, increased ridership, and expanded market share by both traditional and innovative means.
- GOAL 3 Seek increased investment in public transportation at all levels.
- GOAL 4 Assume new responsibilities and forge new relationships in both the management of mobility as well as in the provision of public transportation services.
- GOAL 5 Foster and participate in land-use planning actions that more effectively integrate economic development and infrastructure investment decisions to enhance the use of public transportation in its many forms.
- GOAL 6 Enhance public awareness and acceptance of the need for greater investment and new partnerships in preserving and enhancing mobility for all.

Source: Adapted from American Public Transit Association, *Transit 2000* (Washington, D.C.: American Public Transit Association, 1989), p. 20.

for future actions. The importance of these efforts is in great part a reflection of the fact that, during the 1980s, state departments of transportation surpassed the federal government as the major source of outside funding to transit agencies. State transportation agencies, consequently, have and will continue to have a major voice in the overall policies and funding arrangements for public transportation.

A Study on Future Directions

In 1985 AASHTO issued a report entitled *A Study on Future Directions of Public Transportation in the United States*. As noted in the report's introduction, the study represented a national effort on the part of state transportation agencies to identify the important role they could play in supporting public transportation, in cooperation with the federal government, the private sector, and local communities. Importantly, AASHTO, similarly to APTA, considered public transportation as consisting of more than one type of service. The AASHTO definition stated that public transportation was "not a single mode, but a mixture of modes (transit, ridesharing, and paratransit) each complementing the other and interacting to form a system for passenger mobility and a cost-effective group of services."13

In looking at the different factors that could influence the future of public transportation, the report concluded that it was possible to envision one future scenario in which development of the public transit industry would likely continue. This future scenario would incorporate the following characteristics:

Demographic and land use changes will present new problems and opportunities for the industry. . . .

639

Less federal funding would create problems for some transit systems. There will be a need to develop more stable funding sources with state and local governments, but it is unlikely that funds will be in adequate supply.

Transit managers will experience *less political interference* and have greater flexibility to run their system. Part of the reason for this change will be increased involvement by the *private sector* in the transit industry.

Cost consciousness will be a key aspect of all transit system operations. Failure to control costs will lead to bankruptcy and the demise of various systems.

Professionalism will take on new meaning in the industry as managers and governing boards recognize that survival, and expansion, are functions of better professional performance. . . .

Moderate gains in technology will be of value to the transit industry. Such gains are not likely to be spectacular breakthroughs, but more likely system innovations that develop over time.

Increased industry involvement by all participants, leading to increased political involvement, seems likely to occur. . . . 14

The report concludes by presenting recommendations to the various groups that would necessarily be involved in the future of public transportation—the federal government, state governments, local governments, public transit operators, labor, private operators, the business community, transit users, and industry associations.

Transportation 2020

Several years after publishing the *Future Directions* report, AASHTO was involved in a major national effort called Transportation 2020, which was organized to lay the groundwork for future transportation programs. As part of this effort, several groups were formed and positions and policies adopted on all aspects of a national transportation program, including future consideration for public transportation. AASHTO focused on several components of possible futures for public transportation, but three areas received the most attention—future technological innovations, institutional structures, and financial needs.

The discussion of technology primarily examined the question of whether one could anticipate any major technological breakthroughs in the technology of public transportation during the next several decades. In a paper written to provide the context for the discussion on technology, Harman15 outlined the major advances anticipated in the different forms of public transportation. These included:

Buses. There will likely be production of a bus that has two methods of propulsion in one coach, a diesel engine for use on suburban streets and electric power for city streets and in tunnels. [This bus is now in use in Seattle.] Some innovation can be expected in alternative forms of access to the vehicle, in particular for the elderly and

handicapped. Although some concepts are currently being developed that would make the bus—road interface much more "intelligent" in terms of navigation and vehicle control, such programs are not likely to see widespread implementation in the early part of the twenty-first century.

Heavy and Light Rail. The major source of innovation will likely come in the means of providing propulsion and in automatic system control.

Commuter and Intercity Rail. There were possible major advances that could be anticipated in the application of magnetic levitation technology and other forms of providing high-speed passenger transportation.

Automated Guideway. The technology for implementing automated guideway transit, group rapid transit, or personal rapid transit systems is already available. The key issue is now to find the appropriate applications.

Harman then suggested that perhaps the greatest technological innovations will come in the areas of transit user information systems, automatic vehicle monitoring, and in "revisiting" already tested applications such as high-occupancy vehicle facilities.

The institutional framework within which public transportation agencies operate will be an important factor for the future of the public transportation industry. In a discussion paper16 on the institutional environment of transit, AASHTO identified four major factors that could heavily influence the reformulation of institutional roles:

- 1. The impact of budget deficit on public transportation funding programs.
- 2. The impact of demands on the provision of public transportation service (for example, specialized services for the elderly).
- 3. The impact of private sector competition.
- 4. The impact of federal labor protection rules on the costs of providing service.

Finally, the AASHTO 2020 effort gave considerable attention to the financing needs of the industry.17 Three scenarios were used to develop the expected capital costs of achieving different policy objectives. The first scenario involved maintaining the existing physical system, retiring the backlog of required investments in fixed facilities, and sustaining the fleet of rail and bus vehicles at its current size and average age. It was estimated in the AASHTO effort that simply continuing existing funding levels (\$2.09 billion annually in 1988) would result in the average age of a bus vehicle in areas over 200,000 population increasing from 8.4 years in 1989 to 12 years by the year 2000 (optimum bus life is 6 years). Similarly, rail vehicle average age would reach 22 years, up from 17 years in 1989 (optimum is 12.5 years). By the year 2020, nearly 25% of all rail trackage in U.S. rail transit systems and nearly 60% of the bus maintenance and storage facilities would need repair. Deterioration of the physical plant would be even more dramatic in areas under 200,000 population.

The second scenario represented taking the necessary steps to reduce existing average ages of the fleet to the preferred average age. The immediate consequence to the transit industry, of course, would be to accelerate the replacement of the current

fleet as compared to existing policies. By so doing, however, a newer fleet could be expected to produce operating and maintenance savings that could be used to offset this increased cost.

The third scenario assumed that transit travel would retain its current market share relative to highway travel in the future. Given an assumed annual increase of 2.14% (the same magnitude assumed for growth in highway travel), to keep its market share annual transit ridership would have to increase from about 8.8 billion annual riders in 1989 to about 11 billion by 2000 and to over 17 billion by 2020. This increase in demand would first fill up existing capacity reserves, but would then require capacity expansion. AASHTO estimated that over 14,000 new buses and 2375 new rail vehicles would be needed to serve this demand. By 2020, this growth would require nearly doubling the 1989 bus fleet and a 50% increase in the rail fleet.

Table 23-2 presents the average annual costs associated with each scenario. One of the major conclusions from this table is that substantial sums of money, more than is being allocated today, must be found just to keep the condition of the transit fleet at 1989 levels. Of special note is that Table 23-2 only presents capital cost estimates. AASHTO estimated that operating costs to maintain the existing conditions scenario between 1988 and 1991 would result in a \$1 billion annual shortfall, given 1988 financing outlays.

TABLE 23-2

Capital Investment Estimates for Alternative Scenarios

Time Period						
Enhancements						
Urbanized Areas						
\$ million (current)	1988-1991	1992-2000	2001-2010	2011-2020	Total	
Projected total capital	8,463	18,283	20,050	20,050	66,846	
funding						
Estimated total capital	15,200	27,041	22,217	22,860	87,318	
costs to maintain status						
quo condition						
Estimated total incremental 1,792		2,688	_	_	4,480	
investment to achieve ideal						
condition						
Estimated total incremental —		4.537	4,703	5,813	15,055	
investment to maintain						
market share						

Source: Adapted from Linda M. Wheeler, Joseph Voccia, and William Lenski, "Financial Resource Needs of Public Transportation Systems," *Transportation Quarter*, 43, no. 4 (October 1989), 537.

NATIONAL COUNCIL ON PUBLIC WORKS IMPROVEMENT

In response to a general public concern on the state of the nation's infrastructure, the U.S. Congress in 1984 created the National Council on Public Works Improvement. As part of its mandate, the council undertook a study of mass transit facilities and

services in the United States. In reviewing the history of mass transit, especially during recent years, the study concluded that transit policies and programs had fallen short of their stated objectives and that it was the governmental structure of such policies and programs that was in itself primarily to blame. For example, the report concluded that the large federal discretionary capital element of the federal transit program had distorted local decision making toward capital-intensive transit systems and away from more cost-effective approaches such as preferential bus facilities.

The report makes several conclusions that are important in the context of this chapter in that they provide another set of factors that could influence public transportation in the twenty-first century. These include:

The monopoly operation of mass transit hasled to a rather restricted set of organizational arrangements and service offerings, namely public ownership and operation of fixed route services using large buses and rail lines. The demography of urban areas has been evolving in ways which make it more and more difficult for conventional fixed route bus and rail services to serve the demand for trips. More flexible services using taxis, vans and minibuses could serve many of these new markets more effectively.

There are great difficulties in achieving rational combinations of mass transit, highway, and land use policies in V.S. cities because of the nature of existing institutional arrangements and because of extensive earmarking in transportation funding programs. . . . the prospects for more integrated approaches to transportation and land use planning in U.S. cities do not look very good at the present time. .

The institutional arrangements for transit in most U.S. cities direct all public financial assistance for transit to a single publicly-owned transit agency. . . . alternative services and providers are often neglected, and many important related policy areas such as land use, roads, and parking, are addressed inadequately if at all. The solution to this problem is to separate transit policymaking from transit operations. . . .

... further reforms of policies and programs are critical to future successes, because many of the advances to date have been gained at a very high financial cost and without addressing major institutional issues18

In discussing the prospective impact of public transportation, the report concluded that "More realism will be needed in defining the aspirations of transit in the future, with the focus on what is achievable within the prevailing land use and transportation policy environment." 19

These three major efforts—from APTA, AASHTO, and the National Council on Public Works Improvement—provide different perspectives on the future prospects of public transportation. Each identifies key factors that will clearly influence the type and level of public transportation service we will see in the twenty-first century. Probably the most important theme that runs through each study is that the characteristics of the future public transportation system are not so much a reflection of the social and economic environment as they are of the willingness of public officials and the private sector to put in place the financing and complementary public policies (for example,

parking management) that will be necessary to develop the public transportation system that is desired.

PUBLIC TRANSPORTATION IN THE 21st CENTURY

What then can we expect of public transportation in the twenty-first century? It is first important to state that there *will* be some form of public transportation. Such service provides an important mobility function in urban areas that is unlikely to be replaced by some other system. Many of our cities, especially the older, denser cities of the Northeast and Midwest, and even newer cities like Atlanta, Denver, San Francisco, and Seattle, depend very heavily on transit service. And although the central cities will presumably continue to show proportionately less growth than the surrounding metropolitan area, the central business district of most cities will continue to be an important regional activity center requiring some form of high-capacity transit service.

On the other hand, some aspects of twenty-first-century public transportation, and especially of the public transportation agency, could be very different from today. There are three factors of those described in the previous section that, in particular, will play a relatively greater role in influencing the future than others.

- 1. The large costs of maintaining existing levels of transit service, and even larger costs for service expansion.
- 2. The continuing reliance of the American public on the private automobile for personal transportation.
- 3.Low-density development continuing to occur throughout our metropolitan areas (although there will also probably be some population and employment trends back toward higher densities in urban centers and suburban activity centers).

These factors suggest that it will be very difficult to provide appreciable levels of effective transit service in the growing suburbs of our metropolitan areas, at least with transit service as traditionally defined. Several authors have reached a similar conclusion and have recommended that the future viability of public transportation depends on the industry itself taking several steps. Jones,20 for example, argued that the federal support for transit in the 1960s and 1970s helped transit agencies to temporarily reverse ridership declines, but that this support was a response to the symptoms rather than the causes of the problems facing the industry. He argued that successful transit agencies of the future would be pursuing six goals: reestablishing manageability, matching services to markets more effectively and efficiently, restraining cost escalation, achieving sustained productivity improvement, preserving reasonable continuity of service and fares, and preserving the economic welfare of the transit

worker. Because these six goals do in fact help a transit agency respond to the important trends previously described, they do seem to be appropriate characteristics of future successful transit agencies. In addition to these goals, Jones described six *structural* changes that were also necessary for future success. These changes are shown in Table 23-3. In concluding, Jones stated that "In the absence of fundamental change, gradual economic attrition will characterize the industry's future—as it has its past. . . . For transit, change is the essence of stabilization."21

TABLE 23-3 Recommended Structural Changes for Transit

A new fare structure

One that is differentiated by time of day and distance traveled Greater discretion to price
Achievable if a surtax is imposed on all-day service parking.

A new sales-oriented One that is decentralized so that planning, organization structure routing, and scheduling decisions can be based on an intimate knowledge of the market for locally customized services

A different fleet mix One with the capacity necessary to serve the peak but better suited to shuttle,

serve the peak but better suited to shuttle, charter, and taxilike operations in the off-peak A wider diversity of

service offerings

Some sold on a contract or subscription
basis, some purchased from private vendors
A new contract with labor

One that permits wider use of part-time

and cross-trained employees while creating a wider range of promotion opportunities

for transit workers.

Source: Adapted from David W. Jones, Jr., *Urban Transit Policy: An Economic and Political History*, @1985), p. 171. Adapted by permission of Prentice Hall, Englewood Cliffs, N.J.

The major thrust of Jones's conclusions is for greater productivity in the transit industry. This theme of improved productivity as the basis of a successful transit future is found in several other references as well. Meyer and Gomez-Ibanez, for example, conclude that the primary goal in the future will be "reducing routine operating labor requirements, while still maintaining reasonable levels of service Transit can also be adapted to take better advantage of its market opportunities."22 Similarly, a 1984 conference on the future of public transportation recommended that the future transit industry had to take several steps: take more global and strategic views, develop flexible services for suburban areas, aggressively work with the private sector to develop better market conditions for transit and more cost-effective service, and better meet cost control and efficiency mandates.23 Finally, Fielding,24 in identifying the same problems facing transit, concluded that the truly successful transit agency will have adopted a strategic management approach that relates stated goals to the internal and external resources needed to achieve them.

Even with improved productivity and market-based services being major concerns in future transit agencies, it seems likely that the core of the public transportation

system in twenty-first-century U.S. cities will be similar to what we have today. High- capacity, line-haul transit service and local bus systems (where ridership permits) will still be the responsibility of a governmental agency. Cities will continue to explore alternative ways of segregating high-speed transit service from normal road traffic to allow transit to operate more effectively. Houston's regional transitway system and Seattle's regional high-occupancy vehicle (HOV) lane and dual-mode bus corridor program are two examples of how this can be done. Other cities, like Los Angeles and Minneapolis-St. Paul are considering rail alternatives. However, there will be an important difference between past efforts and what will be done in the future. Because most of our metropolitan areas will no longer be dominated by a single downtown, but rather will consist of major activity centers dispersed throughout the region, planning for high-capacity public transportation in the future will focus on (1) how to connect regional commuter markets to all major metropolitan activity centers and (2) how to interconnect the activity centers themselves. This latter issue, the interconnection of activity centers, has received attention in numerous studies throughout the United States (for example, in Atlanta, Boston, Houston, and Seattle).

Future public transportation is also apt to have different institutional/funding arrangements from those that exist today. Obtaining the necessary funds to support transit service and dealing with the suburban market are two major reasons why these arrangements will probably be different. The following sections identify some of the most likely changes.

THE PUBLIC TRANSIT AGENCY OF THE FUTURE WILL BE INVOLVED WITH NOT ONLY WHAT IS CONSIDERED TODAY AS TRADITIONAL TRANSIT SERVICES, BUT ALSO WITH ACTIONS THAT FOCUS ON TRAVEL DEMAND MANAGEMENT (TDM).

Transit agency involvement in travel demand management (for example, ridesharing, flextime, and trip reduction ordinances) will be caused primarily by the changing development patterns of our urban areas. Dispersed employment sites and even more dispersed residential locations will preclude the feasible use of high-capacity transit to serve all major work-trip patterns. In high-growth areas, congestion will doubtlessly continue to be a critical public concern. With major expansion of the road system infeasible or unwanted, many local officials have begun to use other means to assure reasonable levels of service on the road system (in some areas, air quality concerns could be an important factor influencing such consideration). Through local ordinances that require certain levels of trip reduction or through initiatives that encourage the development of employer-based mobility plans, the management of travel demand will be an important concern to twenty-first-century transportation officials. Whether the transit agency itself provides the expertise for analyzing TDM actions and eventually implements the service or whether it simply works closely with employer associations and/or nonprofit commuting organizations, the transit agency of the future will be involved with travel demand management strategies. They are a logical extension of the agency's primary purpose.

PUBLIC TRANSPORTATION IN THE $21^{\rm ST}$ CENTURY 647 MANY TRANSIT AGENCIES WILL BE FUNDING NONTRANSIT (FOR EXAMPLE, ROAD) IMPROVEMEN'TS AS PART FINANCING, PART CONSTITUENCY-BUILDING EFFORTS.

Securing the funds that are necessary to rehabilitate today's physical plant (for example, railbeds, maintenance facilities, and buses) and also to operate tomorrow's service will create serious pressures on a transit agency to broaden its constituency. It will not be surprising to see transit agencies using "transit" funds to build or improve roads as a means of doing this. Such is the case today in Houston, where 25% of the sales tax receipts dedicated to transit use are used for "general mobility" projects, most often road improvements. Such a strategy is effective in showing the general public the transportation benefits of dedicated tax sources for transit. In other cases, transit agencies will not be directly responsible for road improvements, but dedicated sources of funding for transit (like sales taxes) will more likely be dedicated sources of funding for general transportation or mobility purposes. Transit programs would thus be funded within a much broader financing strategy. In some extreme cases, transit agencies might even disappear as separate agencies but remain as a function of a "super transportation" organization. Such a regional transportation agency is currently being considered in Denver.

NONTRANSIT TRANSPORTATION AGENCIES WILL SPEND AN INCREASING SUM OF MONEY ON RETROFITTING ROADWAYS OR TRANSFER POINTS TO ACCOMMODATE PUBLIC TRANSPORTATION SERVICES.

In many urban areas, highway agencies have been spending significant sums of money on traffic signal coordination and transit signal preemption, preferential transit lanes at key congested locations, and pedestrian amenities at transit terminals. These types of highway-related transit investments will likely continue as the result of a continuing emphasis on a multimodal transportation approach to solving mobility and congestion problems.

For at least some travel patterns in U.S. metropolitan areas, high-capacity transit could provide an appealing alternative to automobile travel. To provide such capacity without spending large sums of money in building a new fixed-guideway transit system, many urban areas will likely examine more closely the transit use of existing roadways. For example, in Houston a regional reconstruction of the urban freeway system has been coordinated with the construction of busways in the freeway medians. In numerous metropolitan areas, high-occupancy vehicle lanes are used today to accommodate large volumes of transit riders.25 In Atlanta, the design for the reconstructed urban freeway system included access and egress points for future HOV lanes, the only issue yet to be decided being when to put the lanes in operation. If for no other reason than the expensive cost of obtaining new land (right-of-way) for the construction of high-capacity transit facilities, one is likely to see more *highway* corridors in urban areas becoming *transportation* corridors, with some form of high-capacity transit in place near the highway, most probably in the freeway median. (In

some cases, these transportation corridors will be transportation—utility corridors that include not only transportation facilities, but also distribution systems linked to such things as telecommunication, power, and water).

BESIDES THE CURRENT REVENUES FOR TRANSIT THAT COME FROM GOVERNMENT GRANTS AND FARES, FUTURE TRANSIT FINANCE WILL INCLUDE A GREATER SHARE FROM THOSE (OTHER THAN RIDERS) WHO BENEFIT FROM TRANSIT SERVICES.

Especially in connection with the construction of new high-capacity facilities, we are apt to see such mechanisms as special assessment districts used to provide financial support for transit. In such a case, a specified geographic area and/or a target group such as businesses are identified as gaining from the initiation of new transit service. A special tax is then assessed to contribute toward the public expense of providing the service. Even though such an approach is likely to be used more frequently in the twenty-first century, the base financing for public transportation will still remain as it is today, dedicated tax sources or government grants (increasingly from state governments).

PUBLIC TRANSIT AGENCIES WILL BE INCREASINGLY INVOLVED WITH THE SERVICE DESIGN, FUNDING, AND FARE POLICY ISSUES ASSOCIATED WITH THE CONNECTION OF NONAGENCY SERVICES TO THE BASE TRANSIT NETWORK.

As metropolitan areas continue to grow, many suburban areas will begin offering their own types of transit service, much more limited yet tailored to their specific needs. As opportunities arise, private providers of public transit services will also enter the market. In addition, some major activity centers will construct automated people-mover systems that will provide internal circulation for that site (such systems are currently in use in Las Colinas near Dallas and in downtown Detroit and Miami). Many of these services, to be effective, will need to be connected to the regional transit network. Such connections will require agreements concerning the use and pricing of the respective services. The public transit agency of the future, through its provision of the regional base transit network and its planning expertise, will thus become an important actor in regional mobility even beyond its service area.

PUBLIC TRANSIT IN THE TWENTY-FIRST CENTURY WILL BE VIEWED IN THE CONTEXT OF THE GENERAL TRANSPORTATION SYSTEM, AND THE INTERMODAL TRANSFER FROM ONE SERVICE (FOR EXAMPLE, TRANSIT) TO ANOTHER (FOR EXAMPLE, AN AIRPORT) WILL BE A CRITICAL SYSTEM DESIGN ISSUE.

Metropolitan areas in the twenty-first century will be tied together by economic and political forces that relate more to the global economy than they do to local political considerations. The economic competitiveness of each metropolitan area will be influenced by numerous factors, the existence of an educated labor force, a good quality of life environment, an established service industry, connection to capital

markets, and a working transportation system. An effective transportation system will require good interconnections between the different modes of transportation available in the region. Consequently, the twenty-first-century highway system will be expanded or modified to provide convenient access to ports, rail yards, trucking terminals, airports, and transit facilities. Transit services will be viewed with particular interest in providing convenient interconnection opportunities with the highway system and airports. It is no surprise that new rail transit services have recently opened in Atlanta and Chicago. Such connections will become increasingly important for the twenty-first-century city.

SUMMARY

As noted in the beginning of this chapter, predicting the future of public transportation is full of uncertainty. What type of transit services we will have in the twenty-first century depends on many factors that could dramatically change the type and extent of such services. A significant change in the provision of federal transit funds, for example, something that is very difficult to predict, could substantially influence the direction of public transit in almost every U.S. city. Traffic congestion could reach such levels in some cities that local officials would implement development and parking management strategies that would greatly enhance transit's role in the region. Air quality attainment policies will also likely have significant impacts on future transit services. Assuming some stability in the external factors that influence transit, however, the twenty-first-century public transportation system will most likely look something like that shown in Figure 23-1. The key characteristics of this system include:

- 1. The public transit agency will be primarily responsible for the line-haul, high-capacity means of public transit and for local bus service where ridership warrants such service.
- 2. The many activity centers in the metropolitan area, of which the downtown is just one, are connected with some form of high-capacity transit.
- 3. Employee transportation to and from these major activity centers will be managed by activity center business associations or by the transit agency under contract with such associations.
- 4. Nontransit agency services, provided by either suburban county or private providers, will interconnect with the mainline transit system at major activity centers or at transfer points.
- 5. People-mover systems will provide internal circulation in the densest of activity centers and will interconnect with the mainline transit system at transfer points.

Major transit service, whether high capacity or some form of individualized service, will be provided to key intermodal transportation terminals such as airports.

In addition to these system characteristics, the transit agency of the twenty-first century will exist in a different institutional—funding environment than that which exists today. In particular, it is likely that agency officials will be concerned with more than just traditional transit service. Such things as demand management techniques, land-use planning, combined transit and road funding, and working with a wide variety of other groups interested in transportation will most likely make the transit agency of the twenty-first century an organization that has much broader interests than today's transit agencies.

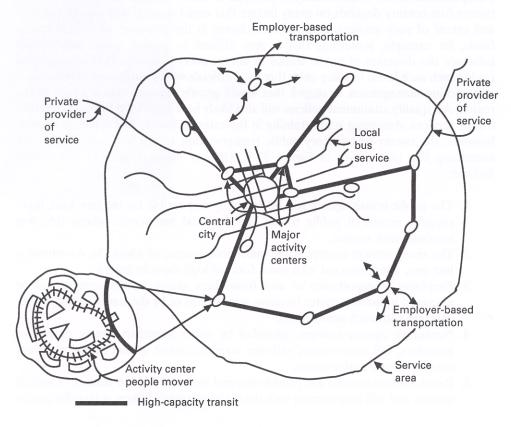


Figure 23-1 Likely public transportation system in the twenty-first century.

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EXERCISES

- 23-1 Travel behavior is directly tied to the type of development patterns that exist in a metropolitan area. For example, in New York City, dense development patterns have contributed to high levels of transit ridership, whereas in newer, auto-dominated cities, transit ridership is minimal. For the following types of future development patterns for a city with which you are familiar, identify the likely patterns of transit ridership that will result: (a) development occurring mainly in existing major employment sites and activity centers, including the downtown; (b) development occurring mainly in the existing suburban employment sites and activity centers, with disinvestment occurring in the downtown; and (c) development occurring mainly on the current periphery of the urban area, resulting in increased sprawl throughout the region.
- 23-2 For a city with which you are familiar, identify what you consider to be the key economic, social, demographic, and political characteristics of its future. How will these characteristics influence the future of transit in this city?
- 23-3 Assume you are an advisor to a secretary of transportation, governor, or mayor who wants to issue a policy statement on the future of transportation. Outline the key components of such a statement that you would recommend. How does your policy relate to public transportation?
- 23-4 Multimodal transportation planning considers all modes of transportation and their interfaces. Considering transit in the twenty-first century, how should such multimodal transportation planning be undertaken? What are the likely characteristics of such a planning process?
- 23-5 Previous chapters have outlined the types of improvements that can be made to transit systems, ranging from simple operational changes (like rescheduling) to major capital investments (like subways). For a city with which you are familiar, identify those types of improvements that will likely be made over the next 20 years to improve public transportation. Assume in one scenario that sufficient funds are available to implement whatever improvement is necessary. In another scenario, assume limited funds and thus a serious constraint on what is possible.
- 23-6 Many people hope that advances in transportation technology will solve all the transportation problems our society currently faces. Think about some of the technological innovations that are likely to occur in the next 20 years (see Chap. 24). How will these technologies affect public transportation?