

Chapter 1

The Role of Highways and Transit

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The Nation's Transportation System

America's transportation system is the essential element facilitating the movement of goods and people within the country. It forms the backbone of local, regional, national, and international trade, making most economic activity critically dependent upon this resource. The Nation's urban transportation systems have enabled the growth of America's cities, linking workers with employers, wholesalers with retailers, markets with buyers, and residents with recreational and cultural facilities. The intercity transportation system helps bring America's cities, States, and regions together, linking farmers and manufacturers to markets, raw material suppliers to processors, businesses to clients, and tourists to destinations.

These transportation functions are served by a wide variety of modes. Airways and airports provide rapid, long-distance transportation services for travelers, mail, and freight. On the surface, freight moves by water, rail, highways, and pipelines, while people move by passenger rail, buses, ferries, and private vehicles.

The surface transportation system serving the United States today reflects investment and location decisions made by both governments and private enterprise since the beginning of the Nation. Early settlement and transportation patterns were determined primarily by geography, with waterborne and horse-drawn transportation the dominant modes. Over the years, improvements in vehicle technology, including steamships, locomotives, automobiles, and airplanes, have greatly expanded both the speed and flexibility of transportation movements, allowing economic activity to concentrate in cities and spread across the country. Harnessing the potential of these technologies has required large investments in guideways and facilities, including ports and canals, railroads and terminals, highways and bridges, and airports and airways. The development of these facilities has also been greatly aided by advancements in bridge, tunnel, pavement, building, and communications technologies.

The Federal government has played a key role throughout the country's history in shaping the transportation system, both in regulating interstate commerce and in funding and facilitating transportation improvements. Examples of the latter include the construction of the National Road in the early 19th Century; the Pacific Railroad Act of 1862; inland waterways built by the Army Corps of Engineers; the Federal-Aid Highway Program and the Interstate Highway System of the 20th Century; and Federal assistance for mass transit operators beginning in the 1960's.

This report focuses on the infrastructure quality and operating characteristics of two key surface transportation modes: highways (and their component bridges) and mass transit (including buses and urban rail). These two modes are closely linked in their function, funding, and program administration. Highways and transit both play a key role in providing mobility in urban and rural areas. Most Federal funding for highways and transit is drawn from the Highway Trust Fund. The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) manage the Federal role in highway and transit infrastructure, respectively. These two agencies work closely with each other and other Federal, State, and local agencies to ensure that the vast public investment in transportation is maintained and that future transportation needs can be met in accordance with national policy goals.

The Role of Highway Transportation

Highways form the backbone of America's transportation system, connecting all regions and States to one another. This extensive highway network is nearly ubiquitous in its reach across America. For example, a survey conducted in 1996 for a U.S. automobile magazine found that no point in the 48 contiguous states is

greater than 30 miles from a paved highway or dwelling. Moving people and goods across this network is critical to meeting the everyday needs of our Nation's people.

America's highways are striking in their versatility, having been engineered to allow for a wide array of users and vehicles simultaneously. A given stretch of urban interstate freeway might be shared by large commercial trucks and vacationers passing through the area; local workers commuting to jobs in buses, carpools, and private autos; residents running errands or shopping; delivery trucks bringing merchandise to shops or homes; and business people and contractors driving from one customer to another.

Highway transportation depends on both public and private inputs and investment. In the United States, most vehicles used on highways are owned and operated by private individuals and firms, while most highway infrastructure is funded and maintained by the public sector. This stands in contrast to freight railroads, where both vehicles and infrastructure are owned by private firms, and to mass transit, which is generally provided by public agencies, either directly or through contracted private operators. Understanding this dual nature of highway travel is important in understanding how public policy affects the efficient use of the highway network.

Another key feature of highways, experienced by millions each day, is that they are subject to congestion. High traffic volumes relative to highway capacity (experienced especially during peak travel periods) can lead to reduced travel speeds and stop-and-go traffic, even on freeways (which have controlled access and no traffic signals). Crashes and adverse weather conditions can also temporarily and unpredictably reduce capacity, causing additional travel delay. While these congested periods are generally associated with morning and evening weekday commuting flows, they may also coincide with weekend shopping, recreational travel, and traffic incidents.

Highway transportation in the United States plays a significant role in two major areas: providing personal mobility to households and facilitating freight movement:

Personal Mobility. The use of private automobiles on our large highway network provides Americans with a high degree of personal mobility. Automobile transportation allows people to travel where they want, when they want, and with whom they want. The freedom accorded by autos and highways accounts in large part for the enormous popularity of automobile travel, leading to the high rates of automobile ownership and use found in the United States.

Freight Movement. Highways are a key conduit for freight movement in the United States, accounting for 54 percent of total freight transport by weight (and 83 percent by value) in 1998. Highways can be used for hauls of virtually any length, from coast-to-coast shipments to short mail and parcel delivery trips. While technological and legal limits on truck size make other modes (such as railroads and barges) more suitable for long-distance movements of bulk commodities, highways are important for drayage movements between terminal facilities (such as ports and railheads).

The Role of Public Transportation

Public transportation plays a vital role in enhancing the productivity and the quality of life in the United States. It promotes access to employment, community resources, medical care, and entertainment in communities across America. Both those who choose to ride, and those who have no other choice benefit from its presence. By reducing congestion, air pollution, and travel times, it even benefits those who choose not to ride.

Transit provides the following major benefits to passengers, communities and the Nation:

Access, Choice and Opportunity. Whether to reduce travel time, ease the stress of a daily commute, or contribute to a healthier environment, more and more Americans are choosing to ride transit. For some Americans, there is no choice; over 90 percent of public assistance recipients do not own a car and must rely on public transportation for access to community resources and job opportunities. Public transit serves provides a basic mobility service to these persons and to all others without access to a car.

Economic Growth and Development. Transit spurs private sector development, generates business activity, creates jobs, boosts property values and tax earnings, and connects employers and workers. Effective transit policies within a broader community development plan can also help to mitigate suburban sprawl that may accompany unmanaged growth. Communities with good public transit systems are economically thriving communities and offer location advantages to businesses and individuals choosing to work or live in them.

Safe and Healthy Communities. Public transportation helps communities and the Nation to protect the environment, conserve energy, and ensure the safety and security of our citizens. In addition to contributing to a reduction in road congestion, each additional transit trip reduces automotive emissions and contributes to meeting local air quality goals. Our public transportation agencies are also contributing to a cleaner environment through the use of more clean-burning compressed natural gas (CNG) and other alternatively fueled buses. High occupancy transit vehicles move more people at lower energy cost, and public transportation is leading the effort in testing new, energy-efficient hybrid electric technologies. Public transportation provides emergency transportation to help cope with natural disasters or terrorist incidents. To the degree that public transportation facilities provide a locus for public activities, they provide a sense of community and thus enhance neighborhood safety and security.

Balanced Transportation: The Complementary Roles of Highways and Transit

Highways and transit serve distinct but overlapping markets in our national transportation system, which complement each other in many ways. Transit may serve the basic mobility needs of riders for whom car ownership is not a viable option, while highways and autos may best meet the needs of residents and firms whose trip patterns are not readily met by transit. The needs of all citizens are best served by access to both high-quality transit and high-quality highways.

Highway and transit investments can expand the travel choices available to people. By providing alternative means of reaching a destination, highways and transit allow individuals to choose the travel path which best meets their needs and desires. A high-quality transit system allows people desiring to live in a dense, urban environment to do so without sacrificing their mobility, while an adequate highway network can do the same for people who desire a more suburban lifestyle. A high-quality highway network benefits shippers by allowing them to choose the mode which best meets their needs for transporting their products. Highways also provide a principal means of intercity travel for people.

Transit modes such as buses, vanpools, and demand response services share roadways with private autos and are affected by highway pavement and traffic conditions. Highway investment can thus benefit both transit operations and auto users. Conversely, transit improvements may draw current auto users to that mode, thereby reducing highway congestion or freeing up capacity for other users who are deterred by existing traffic conditions. A high quality transit system can also increase the effectiveness of highways by encouraging and supporting carpooling. Reliable transit service can serve as a backup mode for riders in

both formal and informal arrangements at times when carpools don't adequately serve their travel needs, thus making carpooling more attractive and contributing indirectly to the efficient use of existing road capacity.

Highway investments can also encourage transit usage and improve operating efficiency. Since an area served by both a good road network and good transit service is likely to be more attractive to firms than one served by transit or highways alone, adequate highway access may promote the use of mass transit by encouraging economic development near transit stations. Good highway access to transit stations in outlying areas, coupled with sufficient parking capacity, can also broaden the appeal of transit to those who would find it difficult to complete their trips using only transit.