Moving America

New Directions, New Opportunities

Volume 1: Building the National Transportation Policy

U.S. Department of Transportation

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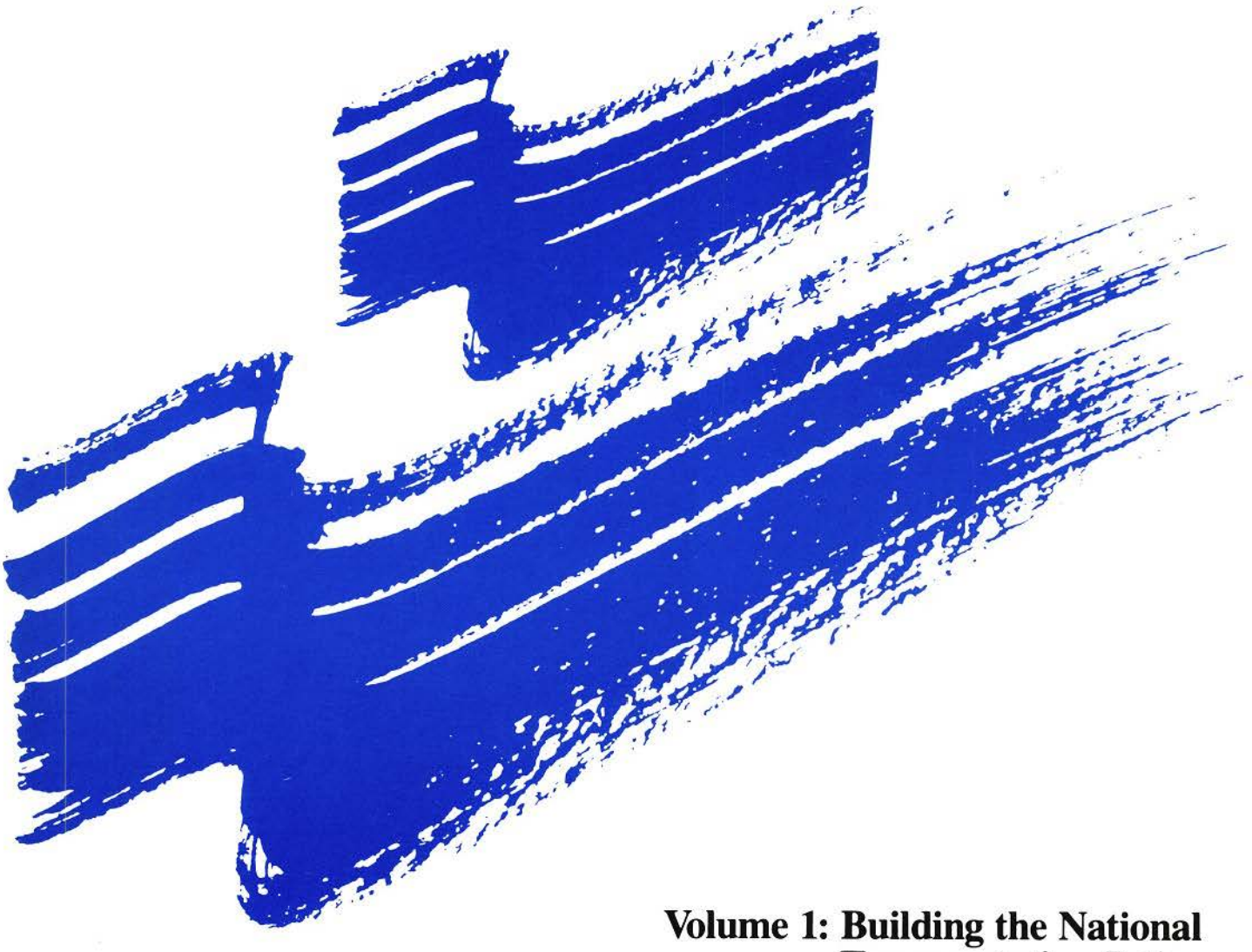

Volume 1: Building the National Transportation Policy

U.S. Department of Transportation

THE SECRETARY OF TRANSPORTATION

WASHINGTON, D.C.

July 1989

Dear Reader:

Maintaining America's position as the world leader in safe, efficient, and environmentally responsible transportation is a national priority. To this end, I have made the development of a national transportation policy the Department's most urgent objective. *Moving America: New Directions, New Opportunities* launches a comprehensive assessment of how best to meet the nation's transportation needs over the next decade and into the 21st century.

Transportation is about to enter a new era, not yet prepared for the challenges confronting it. To ensure our global competitiveness, successfully provide for the demands of our domestic economy, and maintain our military defense readiness, our transportation system must be renewed with the future in mind. We must determine where we are, decide where we want to go, and then find ways to get there.

The goal of our national transportation policy is to provide a decisionmaking framework for government, industry, and the public. Throughout the process of developing this policy we will be seeking advice and assistance from all interested segments of the American people. We are working with consumers, industry, labor, researchers, academic experts, environmentalists, government at all levels, and other constituents of the transportation community. It is our intention, by reaching out to all transportation users and providers, to broaden the Department's knowledge and heighten our sensitivity to the values and needs that our transportation system must serve.

I have asked Elaine Chao, the Deputy Secretary of Transportation, and Tom Larson, Administrator for the Federal Highway Administration, to oversee the development of this policy and outreach efforts. Our first major product, *Volume 1: Building the National Transportation Policy,* is an overview of our current situation, a snapshot of the transportation "landscape." It places the transportation system in context and identifies key issues. It is our open invitation to all Americans to give their attention to the state of U.S. transportation, and provide us the benefit of their concerns and insights.

I hope that all interested groups and individuals will take advantage of this opportunity and contribute their views on the future of American transportation.

Sincerely,

Samuel K. Skinner

Samuel K. Skinner

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I. America Needs a National Transportation Policy

"Our unity as a nation is sustained by free communication of thought and by easy transportation of people and goods . . . Together, the uniting forces of our communication and transportation systems are dynamic elements in the very name we bear—United States. Without them, we would be a mere alliance of many separate parts."

President Dwight D. Eisenhower,
Message to Congress,
February 22, 1955

The Role of Transportation

America's unity and vitality are inextricably entwined with the growth of transportation. Throughout our history, transportation has linked farms to markets, oil wells to refineries, factories to consumers, homes to workplaces, and people to academic, cultural, and recreational activities.

Transportation has been, and continues to be, a powerful engine for America's economic growth. Some of mankind's greatest advances have been possible only because developments in transportation opened a wider range of resources and economic opportunities. For over 200 years, the ever-increasing expansion of our transportation network of roads, canals, railroads, and airways has stimulated the specialization of economic activity and tied the country together.

Almost one of every five dollars spent on goods and services in our economy—equivalent to 18 percent of America's gross national product—is spent on transportation products and services. Our transportation system handles 3.5 trillion passenger-miles and 3.4 trillion ton-miles of freight annually. Transportation and transportation-related businesses employ one-tenth of America's workforce. Annual expenditures for transportation products and services in the United States total nearly $800 billion.

Key Concerns

Will today's transportation policies and infrastructure meet tomorrow's needs? Indeed, how well are we meeting today's needs?

Over the past decade at least a dozen major studies have been published which try to answer these questions and develop a transportation agenda for the future. Currently, assessments are underway by the National Governors Association, the Congressional Office of Technology Assessment, and the American Association of State Highway and Transportation Officials, the last in concert with over 100 public and private organizations. The impetus for these efforts includes the following:

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Infrastructure	Transportation infrastructure is wearing out, to the extent that the National Council on Public Works Improvement has called for doubling our investment in public infrastructure by the end of the century.
Safety	There continue to be too many transportation accidents and fatalities. The problem is greatest on highways, where there were 47,000 deaths in 1988. The figure could rise dramatically as highway traffic doubles by the early part of the next century.
National Security	The continuing decline in our maritime capability, the growth in terrorism and drug smuggling, and the shortcomings of our transportation infrastructure threaten our national security.
International Trade	International commerce and travel are growing at unprecedented rates. America must have a transportation system that can bring people and goods to the global marketplace quickly and at competitive prices. European and Asian nations are pursuing transportation innovations that—if unchallenged—will give them an edge.
Growth in Demand	Growth in demand for transportation services parallels economic activity. Even modest annual travel growth rates will add up to an enormous increase in traffic over the next 30 years. Without swift action to handle the demand, congestion will grow to intolerable levels, especially on highways and at airports.
Equity and Access	As a nation, we would like all Americans to enjoy the benefits our transportation system provides. Yet some Americans—especially elderly, disabled, and low income travellers—have special transportation needs that are unmet.
The Environment	Transportation has been a major contributor to the nation's environmental problems, with increasingly serious implications for the future. Key concerns include air pollution by automobiles and trucks, aircraft noise around busy airports, hazardous materials transportation and storage, and oil spills.
Dependence on Foreign Oil	The nation is likely to face a doubling in constant-dollar world oil prices by the year 2000. According to the Department of Energy, the percentage of oil we import may rise from 37 percent today to 55 percent in 2000. Alternative fuels will take time to be readily available at competitive prices.
Budgetary Constraints	Fiscal constraints at all levels of government and competing demands for public funds require that transportation programs be well-justified and widely supported. Investments with long-term payoffs are vulnerable to delay or curtailment when more immediate demands are pressing.

Advancing America's Goals Through Transportation

Transportation plays a vital role in advancing America's national goals. A responsive, well-maintained, and efficient transportation system can further:

- **economic growth**
- **our competitiveness in the global marketplace**
- **national security**
- **a better quality of life for every citizen**

America needs a national transportation policy that will help meet these national goals. The policy must be a strategic approach based on cooperative public and private action. It must link transportation objectives to America's national goals and delineate the respective roles of government and the private sector in moving toward those objectives. The policy must lead ultimately to a transportation system with the following characteristics:

The system must satisfy the mobility needs of individuals and businesses.

It must offer sufficient capacity, without being overbuilt.

It must be safe, reliable, and energy efficient.

It must be efficiently maintained, operated, and managed.

It must be low in cost and priced so that, with few exceptions, users bear costs proportionate to their use.

It must co-exist in harmony with the environment.

It must be receptive to new and improved technology.

Developing and implementing such a national transportation policy will be no easy job. It will require vision, sacrifice, and the cooperation of all levels of government, business, labor, and transportation users.

Above all, in developing the policy, we must think and plan strategically. Businesses rely on strategic planning to think ahead, prioritize, and position themselves for the future; government policy—transportation policy—must be driven by strategic thinking as well.

A Strategic Approach to Developing the National Transportation Policy

America's transportation policy must be, perhaps more than anything else, a balancing of local and national needs, government and private roles, capital and non-capital management strategies, cost and accessibility, reliability and efficiency, and growth and environmental quality. It must incorporate many different objectives.

- **The policy should be flexible in responding to emerging transportation needs.**

  It should encourage a flexible allocation of transportation resources in order to address complex needs—foreseen and unforeseen—that often require multi-modal solutions. It should also breathe flexibility into the institutions and processes that shape transportation in order to eliminate barriers to innovative solutions and improvements.

- **The policy should be market-driven.**

  It should lead to transportation systems that are organized to meet market needs and responsive to changing demographic and travel patterns. It should employ market demand in determining the level of, and assigning a priority to, a system's investment requirements.

- **The policy should be performance-based.**

  It should direct investments toward solutions that provide the greatest benefits to the public. It should provide guidance on how transportation choices can best advance America's national goals.

- **The policy should promote balanced and integrated transportation solutions.**

  It should lead to investment strategies that fully consider public priorities and carefully weigh competing transportation investment options. A balanced approach recognizes the advantages provided by each mode of transportation, the benefits that can be derived from intermodal linkages, and the appropriate application of technology.

II. Blueprint for Building the National Transportation Policy

The Strategic Process

Business managers have long used strategic planning to prepare for complexity and change. Recently government managers have applied strategic planning techniques to public decisionmaking and policy development for similar purposes.

The strategic planning process we are using to build the national transportation policy began in February 1989 and will continue through January 1990 and beyond. The process consists of five major steps:

First **Frame the policy debate with an overview of the trends and factors that shape transportation now and in the future.**

This document, **Building the National Transportation Policy,** provides that overview, and is designed to stimulate and focus public discussion. It assesses the conditions and trends in the markets served by transportation, identifies the external factors that affect transportation, and sets out key issues for discussion.

Second **Elicit the views of transportation users and providers as well as state and local governments.**

The private sector and state and local governments are essential participants in building the national transportation policy. Consumers, the transportation industry, labor, business, government agencies, elected officials, environmental groups, and many others have valuable knowledge and perspectives to contribute. So do the Congress, its key transportation committees, and other federal agencies. During the summer and fall of 1989, we will solicit the views of these groups through an outreach effort organized around six "cluster groups." Five of these groups center on markets (intercity passenger, intercity freight, urban-suburban, rural, and international). The sixth will look at the role of innovation and human factors. We have listed cluster group leaders at the end of this overview.

Third **Conduct a series of policy issue seminars.**

We will sponsor a series of seminars to examine key issues with broad implications for the national transportation policy. Preliminary plans call for seminars on the special needs of the transportation disadvantaged, transportation and future energy requirements, national security transportation needs, transportation and the environment, and transportation as an engine of economic growth. Seminar participants will debate papers prepared by leading experts. These seminars will be conducted around the country during late summer and early fall of 1989.

Fourth **Develop the Statement of National Transportation Policy.**

Using the information gathered from the outreach effort, the seminars, and other sources, we will issue the National Transportation Policy Statement in January 1990. The statement will serve as the basis for the short- and long-term implementing strategies that will guide our legislative, budgetary, and regulatory initiatives, including the budget and legislative proposals for reauthorizing the federal aviation, highway, mass transit, and highway safety programs.

Fifth **Implement and update the strategies and plans.**

The issuance of the policy and complementary legislative and budgetary proposals will not mark the end of this process. We intend the National Transportation Policy to guide federal transportation decisions long after 1990. The policy will be an ongoing, living document that responds to ever-changing transportation needs and serves as a reference for transportation providers and users for many years.

III. The Forces Influencing Transportation, 1990–2020

Our strategic planning process starts with the review of factors affecting America's future mobility needs and desires. Many of these trends are demonstrated in the changing national patterns of commuting, urban development, and distribution of goods. They are best understood by examining demographic, economic, energy, environmental, and technological trends.

Demographic Trends: Who We Are and Where We Are Going

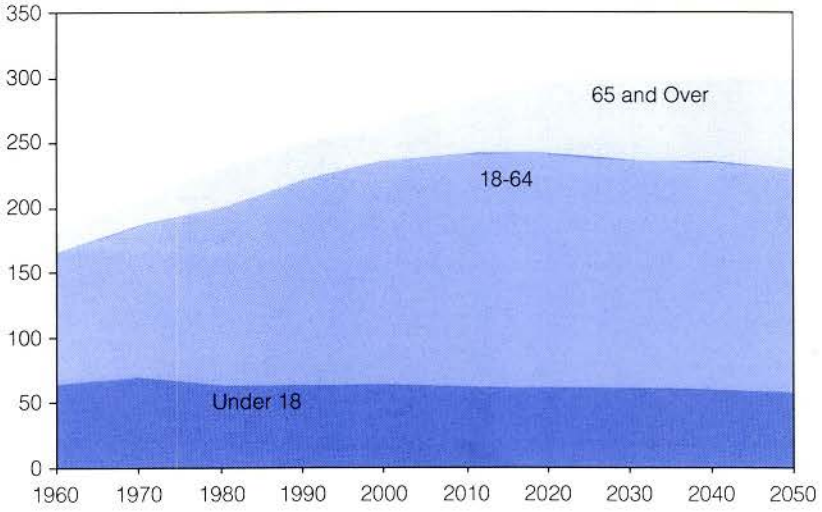
Population Growth

According to the latest Bureau of the Census projections, growth in population has slowed and is projected to slow to a zero growth rate by the year 2040. Even so, America's population will increase by 44 million over the next 30 years.

America's population will be aging in the coming decades: the median age will grow from 32.1 years today to 40.2 years in 2020. Between 1990 and 2010, the 45–64 age group will grow at a rate four times faster than that of the total population. After 2010, the population share of the elderly will rise dramatically.

U.S. Population by Age Group

(in millions)



Source: U.S. Bureau of the Census, Series P-25, No. 1018 (1989).

Possible consequences of these changes include:

- **increases in the growth of personal travel and tourism**
- **growth in demand for specialized transportation services and improved transportation amenities**
- **reduction in the percentage of work-related trips relative to other travel**
- **continued growth in traffic and congestion in the air and on the ground, but a possible smoothing of rush-hour peaks**

Workforce Changes

One of the most impressive accomplishments of America's economy over the past 30 years has been the absorption of an expanding population into the ranks of the employed. Since 1970 the economy has created jobs at a rate twice that of population growth.

In coming decades, the labor force growth rate will be about half the average of the past 25 years. This could lead to slower output growth, but the effects of slower labor force growth may be partially offset by increased productivity, as the baby boom generation moves through its most productive years. Shortages of younger workers may cause industry to substitute capital and technology for scarce labor, leading to further improvements in productivity.

Slower growth in the younger age categories may result in:

- **slower growth in the creation of new households**
- **reduced growth in expenditures for housing and durable goods, including automobiles**
- **increased transportation labor costs**

Patterns of Growth

Regional and metropolitan growth patterns will play a significant role in influencing future travel trends and determining transportation investment requirements.

According to the U.S. Department of Commerce, the West and the South are expected to be the dominant growth regions, although growth differences among regions are likely to narrow.

Metropolitan areas now account for three-quarters of the total population, with over 40 percent of this population in suburban areas. Nearly 90 percent of America's population growth in the 1980's has occurred in metropolitan areas. The development of the large megalopolis, with concentrations of activity within and between suburbs, may foreshadow metropolitan America in the 21st century.

These population growth patterns will likely lead to:

- **continued growth in transportation demand, particularly in the West and South**
- **increases in urban traffic loads and greater demands on highways and public transit systems**

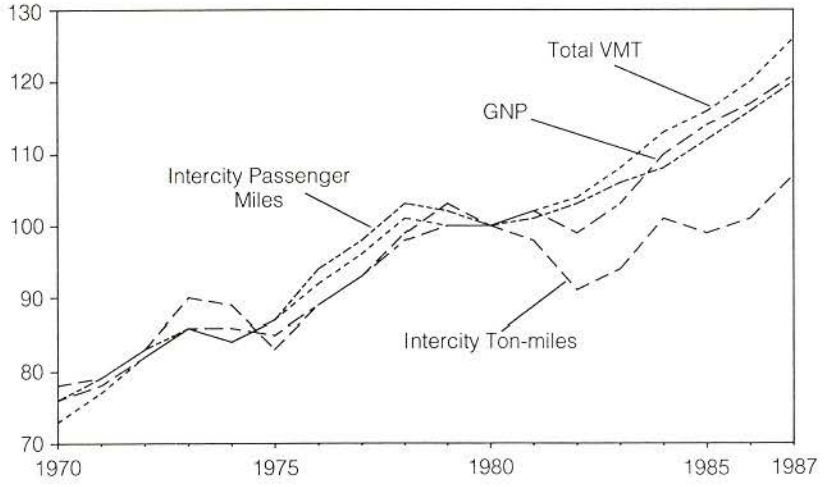
- **innovative transportation systems designed to accommodate shifting patterns of travel, especially in the suburbs**
- **increased demand for transportation between cities and between industrial centers**

Transportation and the Changing Economy

As the national economy grows, so will demand for transportation services and transportation-related products. Higher levels of economic activity will mean more jobs, more goods to be shipped, higher incomes, and greater demand for travel. Even under a slow-growth forecast, America's need for transportation services is likely to continue expanding.

GNP and Transportation Trends

Indexed to 1980



Source: Eno Foundation, *Transportation in America*, Federal Highway Administration, "Highway Statistics," 1970-1987

Moreover, changes in the economy's industrial mix can have a significant influence on the transportation sector. United States participation in international trade, for example, has increased from $387 billion in 1970 to $721 billion in 1980 and $985 billion in 1987 (expressed in 1982 dollars).

Continuation of this trend will affect the total demand for freight transportation and alter the pattern of commodity movements. Newly industrialized nations and the nations of the Third World will become increasingly important trading partners for the United States in the 21st century. Higher incomes, growth in the active elderly population, and global economic interdependence will also generate greater demands for international leisure and business travel.

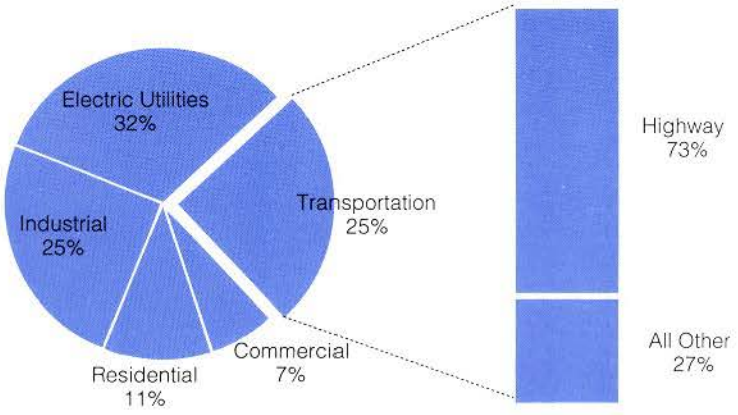
Growth in the world economy and improvements in productivity will become an increasingly important source of U.S. growth. Continued advances in transportation will be necessary to support this growth.

Energy, the Environment, and Technology

Energy

The future of transportation is tightly linked to the future of world energy markets, particularly petroleum. Although there have been significant gains in energy efficiency in transportation, consumption continues to grow. Reliance on petroleum persists. Improvements in fuel efficiency are projected to continue, but efficiency gains may be smaller and more expensive than in the past. According to U.S. Department of Energy (DOE) projections, growth in travel will largely offset improvements in fuel efficiency through the year 2000.

Use of Refined Petroleum Products, 1987



Source: U.S. Department of Energy, Energy Information Administration, "Annual Energy Outlook, 1989"; Oak Ridge National Laboratory, "Transportation Energy Data Book: Edition 9," April 1987. "Highway" and "All Other" calculations are based on 1984 data.

According DOE, petroleum supplies will continue to be available for the foreseeable future, but world energy markets are likely to tighten considerably, driven by increasing costs of finding new oil supplies, depletion of oil reserves, and increased market power by the Organization of Petroleum Exporting Countries (OPEC). As a result, world oil prices are expected nearly to double in constant dollars by the year 2000.

The transportation sector has been less successful at finding substitute energy sources than other oil consuming sectors. However, projected increases in petroleum imports and prices may lead to greater use of alternative fuels.

Proposed amendments to the federal Clean Air Act would also increase the use of alternative fuels. These amendments, aimed in part at substantially reducing levels of ozone and carbon monoxide in urban areas, would encourage widespread production of clean fuels and use of vehicles powered by clean fuels.

The Environment

Spurred by policies set forth in the National Environmental Policy Act and other environmental legislation, federal, state and local transportation policymakers have become increasingly concerned with the effects of their decisions on environmental quality. The problems receiving the most attention today relate to the environmental damage associated with the use of transportation facilities. These issues, ranging from air and noise pollution to tanker spills, are likely to continue to shape the future of transportation.

Vehicle Emissions. Recent attention to global warming has added to the pressure to reduce vehicle emissions. Proposed Clean Air Act amendments would impose more stringent emissions standards for automobiles and light trucks, expand vehicle inspection and maintenance programs, begin a program to promote the use of clean-burning oxygenated fuels, and encourage the replacement of a portion of the motor vehicle fleet with vehicles that operate on clean-burning fuels.

Noise and Hazardous Materials. As population becomes more concentrated, environmental concerns will increase for all forms of transportation. Aircraft noise will continue to affect airport growth, although noise pollution and its effects should diminish as the airlines phase out noisier, Stage 2 aircraft and local authorities make better use of noise abatement and land-use techniques. Recent oil and chemical spills have raised further questions about the environmental risks posed by marine and other transportation modes. Also, several states are considering requirements to control vapor emissions during cargo handling operations. Concerns about private sector responsiveness to hazardous materials spills and safety standards for transporting and handling hazardous materials will continue.

Advancing Technology

There are countless technological possibilities for the transportation system of the future. Technological change could affect the way goods are manufactured, with more reliance on computer-integrated manufacturing systems. Such a change might lead to increased decentralization of manufacturing, greater reliance on just-in-time inventory systems, and less emphasis on long-haul transportation. Improved superconductors may eventually reduce the cost of storing and transmitting electrical energy. This innovation could greatly enhance the prospects for electric vehicles and high-speed magnetic levitation trains, thus reducing our dependence on petroleum.

Technological progress will continue to change transportation in many ways over the next three decades. Use of computers has changed the automobile by reducing emissions, increasing fuel efficiency, and improving operating safety. For example, the fuel efficiency of the automobile has doubled in the past 15 years, and will continue to improve. Advances in telecommunications may substitute for certain work trips. Advanced light-weight, high-strength composite materials are likely to find increasing use in the construction of military and commercial aircraft, rail cars, automobiles, packing and building materials, and in roadway and bridge construction.

IV. Snapshot: The Markets Served by Transportation

Traditionally, governments view transportation as divided into "modes" e.g., highways, rail, and air. Studies are usually confined to a single mode of transportation, decisions generally are made along modal lines, and intermodal and multi-modal solutions emerge far too infrequently. This overview and, subsequently, the outreach effort, look at transportation from a less traditional viewpoint: the markets that transportation serves.

After a brief overview, we examine each market (intercity passenger, intercity freight, rural, urban-suburban, and international) and review the most significant transportation issues facing the users and providers. In addition, we examine the role of innovation and human factors in transportation.

America's Transportation Assets—An $800 Billion Investment

The net value of America's fixed public capital transportation assets—highways, bridges and roads, aviation and transit facilities and vehicles, inland waterways, and ports and harbors—is roughly $800 billion. Among America's transportation assets are:

- **2.2 million miles of paved highways and roads, and 1.7 million miles of unpaved roads.**
- **150,000 miles of private railroad track and 7,000 miles of exclusive use public transit right-of-ways.**
- **26,000 miles of commercially navigable inland and coastal waterways and 757 commercially navigable ports.**
- **140 million automobiles and 40 million trucks.**
- **1.3 million rail freight cars, 20,000 locomotives, and 2,000 rail passenger cars.**
- **5,300 airline aircraft and 220,000 general aviation aircraft.**
- **5,700 public use airports and 2,300 navigational aids and other aviation facilities.**
- **20,000 intercity buses and 80,000 buses in local transit service.**
- **40,000 commercial vessels and 16 million recreational boats.**
- **10,000 subway cars, trolley coaches, and other commuter transit cars.**
- **1.1 million miles of natural gas pipelines and 205,000 miles of oil pipeline.**
- **4 active government facilities for launching government and commercial spacecraft.**
- **Tens of millions of bicycles and untold miles of sidewalks used by bicyclists and pedestrians for commuting, recreation, and other non-motorized travel.**

Transportation Investment

Government expenditures for transportation infrastructure and services totaled $83 billion in 1986, an increase of almost 60 percent from 1980. Highway expenditures have increased rapidly, largely due to recent federal and state fuel tax increases. Federal airport expenditures have nearly doubled between the 1970's and 1980's. Of total government expenditures, approximately 73 percent is spent on roads and highways, 13 percent on mass transit, 9 percent on aviation, and 5 percent on rail and water transportation. For many modes, state and local expenditures substantially exceed federal spending.

Public investment in transportation is eclipsed by private investment in transportation vehicles, rights of way, and structures. For example, for every public dollar spent to build and operate America's roads and bridges, private firms and individuals spent $15; for every public dollar spent on civilian and commercial aviation, the private sector spends $9.

Transportation Spending

America spends about $800 billion each year on freight and passenger transportation services, the equivalent of 18 percent of gross national product.

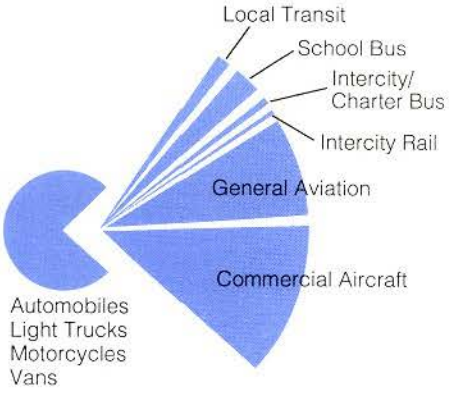
Passenger transportation expenditures account for over $500 billion of that total, of which 80 percent is attributable to private automobiles. Intercity trucking represents over 75 percent of total freight transportation expenditures.

Transportation expenditures at the household level exceed all other categories except housing. Moreover, all but about 5 percent of the typical household's transportation budget is used for expenditures related to highway vehicles.

Transportation Use

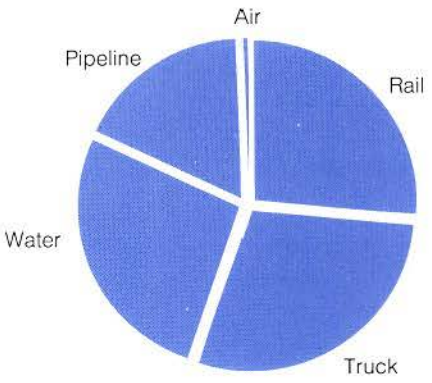
The personal motor vehicle (cars, light trucks, vans, and motorcycles) is the predominant form of passenger transportation. Over 80 percent of the 3.5 trillion passenger miles travelled in 1986 was in personal highway vehicles.

Passenger Miles Traveled, 1986



Freight movements are more evenly distributed among the major modes—trucks, rail, barges or ships, and pipelines, with air cargo representing a small but growing slice of freight traffic.

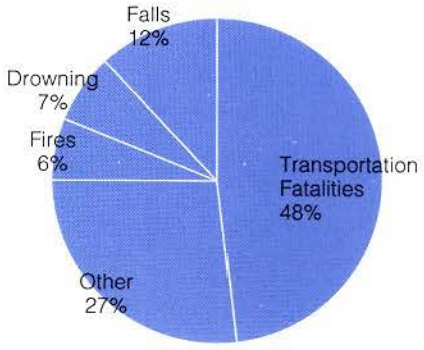
Domestic Freight Ton Miles, 1986



Source: Eno Foundation, *Transportation in America*

One half of the country's accidental deaths occur in the transportation sector, over 90 percent of them on highways.

Accidental Injury Deaths, 1982



Source: *Injury in America*, National Research Council and the Institute of Medicine

The Intercity Passenger Market

Today

Since 1940, intercity passenger travel has increased more than five-fold. In this market, as in transportation overall, the automobile dominates, providing over 1.5 trillion passenger miles in 1986. Air transportation is growing rapidly in the wake of deregulation, accounting for over 320 billion passenger miles in 1986. Intercity passenger bus and rail are smaller but important participants in the market, with 24 billion and 12 billion passenger miles respectively.

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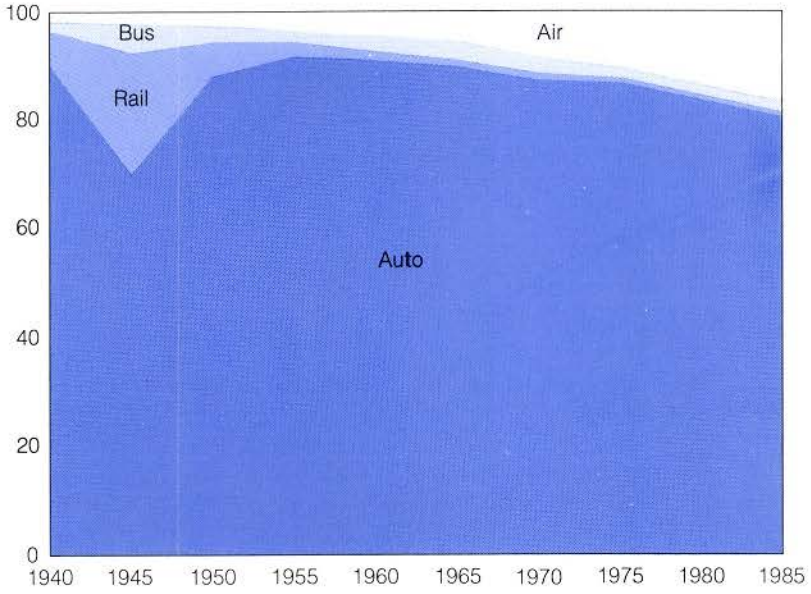
Intercity highway users face several problems. Deteriorating roads and bridges, combined with crowded conditions near many cities and in certain intercity corridors, increase travel time and costs. Also, thousands of deaths occur on intercity highways each year.

Of the remaining intercity passenger modes, commercial aviation, Amtrak, and charter bus services are experiencing strong growth in demand, while general aviation has been stable and scheduled intercity bus service has recently experienced an upturn after a long decline.

Domestic Intercity Passenger Miles—Percent Distribution by Mode



Source: Eno Foundation, *Transportation in America.*

Tomorrow

Americans will become even more mobile, as government estimates place airline travel growth at about 5 percent and intercity automobile traffic growth at 2 to 3 percent each year. Passenger rail should also experience strong growth, while travel by intercity bus and general aviation is unlikely to register significant gains. Much of the growth in intercity passenger travel will stem from increases in leisure travel generated by higher levels of disposable income, assuming no dramatic increase in intercity travel prices and a health economy.

Growth in both leisure and business travel will fuel congestion and higher levels of delay. Without effective traffic management policies or new and upgraded facilities, major intercity corridors face serious delay prospects.

Intercity passengers could benefit from a range of management and technology innovations, including:

- **intelligent vehicle and highway systems ("smart cars," "smart trucks," and "smart highways") that could aid intercity traffic moving through congested metropolitan areas**
- **advanced air traffic control systems, more balanced airline scheduling, improved flow control procedures, and other methods to spread out demand at congested airports**
- **high-speed rail systems (perhaps magnetically-levitated trains) in heavily-traveled corridors**
- **intercity bus hubbing and integration with local public transportation systems**

Characteristics of Intercity Passenger Transportation

	Automobiles	Aviation	Railroads	Buses
Principal Markets	Serve business and personal travel over short/long distances	Serves time-sensitive business and personal travel over short/long distances	Serve business and personal travel over short/long distances	Serve personal travel over short/medium distances
Ownership	Privately owned vehicles operating on public roads	Private aircraft operating at private and public airports	Quasi-public carrier operating on primarily its own or private tracks	Private carriers operating on public roads; mostly private terminals
Extent of Federal Subsidy	None	Essential air service, commuter/air taxi, and general aviation receive significant federal subsidies	About ⅓ of total Amtrak costs are federally subsidized	Subsidized through significant special exemptions from federal fuel tax
Nature and Extent of Regulation	Federal safety standards and state safety regulations	Federal equipment and operating safety standards	Federal and state safety regulation, operating standards set by government and industry	Federal and state safety rules

Major Issues Facing the Intercity Passenger Market

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Prominent among the many issues confronting the intercity passenger market are four:

- **Meeting Travel Demand.** How can we meet travel demand more effectively? Where are capacity problems most likely to occur, and are they best dealt with on the demand or supply side? What mix of capacity expansion, traffic management and technology will be most effective and efficient in reducing delays? How can we best balance environmental concerns, including noise pollution, with the need to expand capacity, and what role should the federal government play in doing so?

- **Funding System Improvements.** Is the government's investment program in airport/airway and highway capacity responsive to user demand? In light of growing airport congestion, should the federal Airport Improvement Program be revised to give more priority to capacity improvement? With the completion of the Interstate Highway System, what should the federal highway program be in the future? What is the most appropriate level of investment? How should the financing responsibility be allocated among local, state, and federal government and the private sector? Are user charges applied appropriately? What are the barriers to expanding the existing systems, and how might those barriers be overcome? How can public investment in intercity passenger transportation be directed to its most productive use?

- **Safety.** How can we effectively and efficiently reduce the thousands of fatalities that occur annually in intercity highway travel—and prevent thousands more fatalities in future years as traffic grows? How can we best maintain a high level of safety in aviation? What safety initiatives hold the highest payoff promise? How can we mitigate the risks associated with mixing large trucks and smaller vehicles on our highways? A similar problem applies for aviation. How can operator safety be enhanced? In particular, how can we eliminate accidents caused by operator fatigue, insufficient training, and drug and alcohol use?

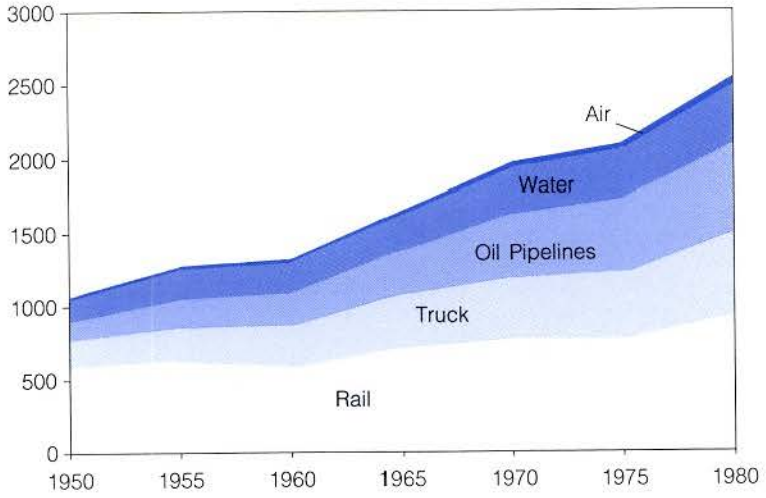
- **Competition Within and Among Modes and Intermodal Operations.** What steps can the government take to strengthen competition in the airline industry and other transportation sectors? What effect does capacity have on competition, and how can our capacity decisions advance competition? To what extent should the federal government engage in subsidy programs for air, rail, and bus transportation? How can we improve intermodal connections?

The Intercity Freight Market

Today

The U.S. freight transportation system, largely a private enterprise, is strong and dynamic. Recent years have brought steady growth in all freight modes. **Railroads,** after fifty years of decline, have rebounded financially and responded competitively to the opportunities provided by rail deregulation. **Trucking** has become highly competitive as well as profitable for most trucking firms. **Water carriers** have maintained their market share of total freight tonnage at about 16–17 percent. **Pipelines** have responded well to decontrol. **Air freight** has grown dramatically over the past ten years, responding to growing demand for high-value, time-sensitive transportation.

Intercity Freight Ton Miles, By Mode
(in billions)



Fostered by deregulation of rates and entry conditions, freight carriers have developed a number of innovative approaches to meet the changing needs of shippers, including:

- **use of computers and modern cargo-handling equipment to decrease the time and cost of moving shipments to their destinations**
- **emergence of multi-modal carriers that offer coordinated, door-to-door freight service**
- **short-line and regional railroads that fill niches in the intercity freight market**
- **expanded use of containers that facilitate multi-modal shipments**

Tomorrow

Today's intercity freight market appears to be healthy and responsive to customer needs, but its prospects for continued improvement are less certain. Future gains in efficiency may be possible through new technology, improved data and communication systems, more extensive use of intermodal shipping, and greater uniformity of state regulations and licensing. Without some improvements, shipping times may actually lengthen due to worsening delays on highways and at airports.

The prospective growth of intermodal traffic can provide substantial benefits by encouraging a more productive use of the intercity freight infrastructure. Much intermodal traffic already moves by rail in corridors where the highways are now at or near capacity or will be in the near future.

As we enter the 21st century, manufacturing and other economic activity will likely continue to decentralize, increasing the emphasis on timely and reliable freight movements. International markets, environmental factors, and advances in technology will influence the number and type of agricultural and energy shipments and new market niches will emerge, such as the need to move waste shipments over greater distances as close-in landfills reach capacity.

Characteristics of Intercity Freight Transportation

	Railroads	Trucking	Water	Pipelines	Air Cargo
Principal Markets	Transport bulk commodities and manufactured goods over medium/long distances	Transports all commodities over short distances and manufactured goods over medium/long distances	Transports bulk commodities over medium/long distances	Move liquid and gas over all distances	Transports high-valued goods and perishables over long distances
Ownership	Private equipment on private track	Private carriers on public roads	Private vessels on public waterways	Privately owned	Private aircraft using public airways and airports
Extent of Federal Subsidy	None	Minor to substantial, depending on truck weight and configuration	Substantial, but dropping	None	None
Nature and Extent of Regulation	Federal control of abandonment, mergers, and some rates; federal safety regulation	Some state control of service and rates; federal and state safety regulation and licensing	Federal safety regulation; federal licensing	Federal control of oil rates; federal and state safety regulation	Federal safety regulation and licensing

Major Issues Facing the Intercity Freight Market

The intercity freight market faces issues similar to those faced by other markets, particularly the intercity passenger market (with which freight shares many facilities) and the urban-suburban market (in which freight relies on local transportation for delivery). Five intercity freight issues stand out.

- **Infrastructure.** How do we ensure that there is adequate and adequately maintained infrastructure to meet freight transportation needs, including the need to connect with the global marketplace? Given the differences among modes and their federal user fees, how can this be done fairly, without inappropriate competitive advantages for one mode over another?
- **Economic Efficiency and Performance.** How should government policy address growing demand for capacity, safety, and speed improvements on public highways? To what extent does government act as a barrier to improvements that would reduce costs for shippers? Should the government promote the use of advanced shipping technology, such as electronic data interchange? To what extent would increased local-state-federal coordination in deregulation, registration, safety and taxation promote efficiency?
- **Competition Among and Within Modes.** To what extent do government policies stimulate or impair competition between and within modes? What is the state of competition within certain freight sectors, e.g., less-than-truckload carriers and Class I railroads? How do the differences in infrastructure investment between modes affect shippers? Should the government promote diversions of commodity movements to underused facilities, and if so, what are the costs and benefits and how should this be done?
- **Safety.** How much risk is associated with moving hazardous freight through populated areas and in some cases (airlines) in the same vehicles with passengers? Should government policy encourage the movement of hazardous materials over less risky routings and modes? At what cost? Are the methods used to weigh safety concerns against costs adequate? Are current industry practices in vehicle design and operations adequate to ensure safety?
- **Government Regulatory Roles.** Should there be a more active federal role in standardizing taxation and licensing practices affecting interstate carriers? What role should the federal government take in providing local access to intercity freight transportation? Should there be government restrictions on freight operations, based on safety, energy, or environmental impacts?

The International Market

Today

The value of America's imports and exports is growing at a fast pace. **From 1970 to 1988, U.S. international trade increased from 13 percent of gross national product to 21 percent,** due to increased demand for U.S. goods by a rapidly expanding global economy and a greater dependence by the United States on imported goods, including energy.

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The strength of U.S. exports and government pursuit of policies that promote U.S. competitiveness and a more liberalized world trading system have helped create an expanding international market and, consequently, greater demand for international transportation services. United States international transportation companies also support our national defense capability.

Rail and Trucking. International motor carrier shipments between the United States and Canada, our largest trading partner, move under open competition. Land shipments, including rail freight operations, between the United States and Mexico are much more restricted, however.

Maritime. The U.S. maritime fleet operates in a fiercely competitive market, and currently carries only 4 percent of the total tonnage moving to and from America. Containerships face low freight rates because of worldwide excess capacity; tankers and dry bulk fleets face costs higher than those of foreign competitors as well as low world market freight rates. United States shipowners have responded by consolidating, entering into consortia with foreign competitors, and introducing innovations such as integrated, multi-modal systems, among other things. The declining fortunes of the U.S. flag liner fleet also highlight the military sealift shortages and the effect of those shortages on U.S. national security.

Aviation. In 1988 United States airlines carried 52 percent of international passenger traffic to and from the United States and 35 percent of total air freight. International air transportation, particularly to Pacific Rim countries, is increasing rapidly, and represents a significant portion of U.S. airline operations.

Space Launches. New international transportation markets have emerged with the development of new technologies. For example, the United States is a world competitor in the commercial space launch industry, underscoring the success of government policies to encourage and facilitate private space launches.

Tomorrow

Continuing growth in, and expanded access to, international markets will provide numerous opportunities for our international air and surface transportation industries. Competition for that trade, however, can be expected to be fierce, requiring the U.S. government to be vigilant to ensure that international trade in transportation services is conducted fairly. United States importers and exporters should continue to enjoy relatively low international transportation costs and a wide range of shipping options.

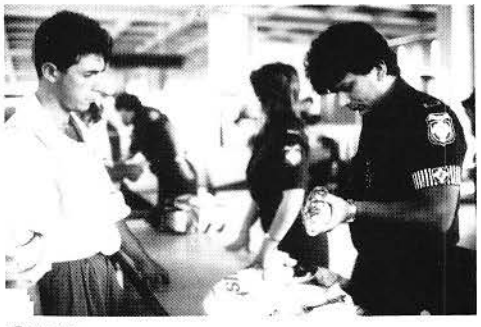
While the United States will likely continue its leadership position in supplying transportation equipment and consulting services, especially in aircraft, railroad rolling stock, engineering, construction and financing, other countries will challenge that position. American companies will continue to face keen competition, sometimes underwritten by extensive foreign government support—in both domestic and international markets. The U.S. shipbuilding industry in particular can expect to undergo a difficult period of adjustment as it seeks to regain its competitive footing in world markets.

International security programs to combat terrorist acts will continue to affect international transportation. As the 1992 integration of the European market nears, we will be faced with the formidable task of adjusting our trading practices to meet those of the "new Europe."

Characteristics of International Transportation

	Maritime	Aviation	Trucking	Railroads
Principal Markets	Transports bulk and general cargo worldwide with line-haul and feeder vessels	Transports business and personal travellers and high-value goods and perishables to all international markets	Transports commodities to Canada and Mexico and provides links with maritime, air, and rail	Transport commodities and containers to Canada and Mexico and connect ports with inland points
Ownership	Privately owned in the U.S., government owned in many developing countries and countries with state-controlled economies	Aircraft and some terminals privately owned in U.S. and other developed countries; government ownership in many other countries	Vehicles and terminals privately owned in U.S., Canada, and Mexico; roads publicly owned and maintained	Privately owned in the U.S.; public and private ownership in Canada; government ownership in Mexico
Nature and Extent of Regulation	Limited U.S. economic regulation with access open to virtually all nations; foreign investment in U.S. vessels is limited. U.S. has authority to counteract unfair, discriminatory, or non-reciprocal treatment; internationally agreed safety standards, but U.S. standards are higher	Access to markets determined by bilateral agreements; foreign investment in U.S. carriers is limited. U.S. has authority to counteract unfair or discriminatory treatment; internationally agreed safety standards	U.S. and Canada have limited economic regulation and nondiscriminatory access; no restrictions on foreign investment in U.S. trucking; Mexico severely limits U.S. trucker access and U.S. responds in kind	U.S., Canada and Mexico regulate economic and safety aspects of domestic legs of international operations; no restrictions on foreign investment in the U.S.

Major Issues Facing the International Market



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- **Service and Efficiency.** In order to remain competitive and meet the growing needs of shippers and passengers, U.S. transportation companies must provide better and less costly services. This may, however, challenge the survivability of some of those companies. How should we balance the competing needs of transportation providers and users in international markets? How can we encourage U.S. transportation companies and port authorities to invest in more efficient equipment and facilities?

- **International Competition.** How can the federal government best counter foreign policies and practices that discriminate against or inhibit competitive services by U.S. carriers? In view of other countries' promotional trade practices, what should the U.S. government—and DOT in particular—do to ensure that U.S. transportation equipment manufacturers are able to compete effectively with their foreign counterparts? Can we harmonize international safety standards to make it less burdensome for manufacturers producing for the international market and reduce the potential for non-tariff barriers? What are the merits of multilateral versus bilateral versus unilateral approaches? How can the federal government ensure that the 1992 integration and liberalization of the European market will provide U.S. carriers with comparable opportunities to compete? How might the U.S. international policy be adjusted to encourage more rapid expansion of international air service to America's cities?

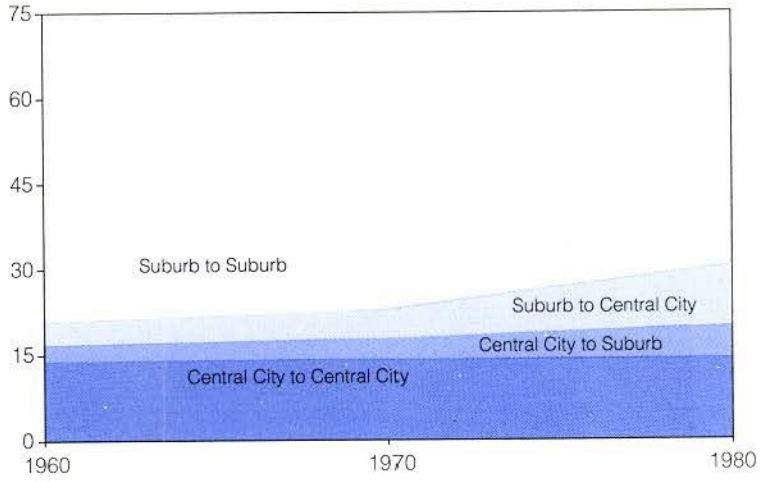
- **National Security, Safety, and Economic Growth.** How effective are current practices promoting the U.S. transportation industry in advancing key national goals? How should the U.S. government respond to promotion policies of other countries for their carriers? How can we encourage U.S. transportation companies to invest in transportation research and development in order to improve our global competitiveness? How can the United States work cooperatively with other countries in dealing with transportation safety, terrorism, the environment and drug interdiction? To what extent can the United States accomplish its own economic goals through international cooperation in the transportation sector? What support, and from what sources, is necessary to assure a U.S. maritime fleet adequate to meet our national defense commitments and support U.S. troops when deployed overseas?

The Urban/Suburban Market

Today

The population and economic activity of America are increasingly concentrated in metropolitan areas, particularly large metropolitan areas. Suburbs surrounding central cities are absorbing most metropolitan growth. **The urbanization of America has placed increasing demands on urban transportation systems. Urban traffic loads continue to increase and travel between suburbs continues to grow in importance.**

Urban/Suburban Commuting Trips, 1960–1980
(in millions)



Source: *Commuting in America*, Eno Foundation

- **Three quarters of the 250 million trips made by Americans each day are made in metropolitan areas. Over 80 percent of these trips are made in private motor vehicles.**
- **Increasing suburban development and the shift of homes and jobs away from central cities has led to greater dependence on the private automobile, challenging traditional transit service and creating a new pattern of commuting flows. In some large cities, transit systems handle a large portion of daily work trips.**
- **Freight moving into and out of cities is carried, in large part, by heavy trucks, with smaller trucks and vans used for local delivery. Although essential to urban economic activity, trucks traveling within, or through, urban areas contribute to urban transportation problems, including congestion, pollution, greater safety risks, and physical deterioration of facilities.**
- **Many major cities are the sites of port facilities and airports that serve as points of entry or exit for cargo distributed or gathered throughout a broad area.**

The most prominent shortcomings of the urban transportation system are urban and suburban congestion, lack of good alternatives to the automobile for people needing or wanting them, and the environmental problems associated with vehicle use. Despite the heavy travel demand in urban areas, there has been relatively little investment in new physical capacity for over a decade, leading, in the views of many, to an underinvestment in urban transportation capacity. A number of approaches have been taken to improve urban transportation, including:

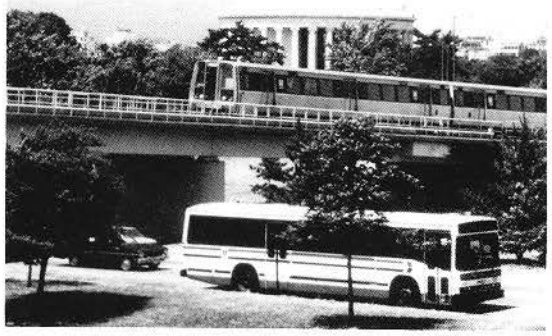
- **expanded transit service by bus, rail, or publicly-operated vanpools offering flexible service to meet individual needs**
- **programs to stimulate private sector participation in transit services**
- **ridesharing and high-occupancy vehicle lanes**
- **addition, on a limited basis, of new freeway and arterial lanes**

Tomorrow

Transportation systems that serve the urban/suburban market are in danger of becoming victims of their own success. Urban transportation systems have been instrumental in fostering the growth of metropolitan America, but increasing concentrations of commercial and industrial activity in metropolitan areas and continued growth in suburb-to-suburb commuting are straining limited urban transportation capacity. Travel delays in the nation's largest urbanized areas now cause nearly 2 billion lost person-hours annually.

A DOT study has estimated that travel delays in metropolitan areas in the early 21st century may be several times greater than they are today, unless aggressive efforts are made to respond to urban traffic growth. These efforts may include, among other things, advanced driver information systems that make more efficient use of streets and highways and long range plans and financing to maintain or manage existing capacity, as well as to preserve the transportation corridors needed for major new facilities.

Major Issues Facing the Urban/Suburban Market



Those who have a stake in metropolitan transportation face several critical issues in coming years:

- **Congestion.** To what extent does congestion in the urban/suburban market stifle economic growth? What course of action should local, state and federal governments pursue to reduce congestion and delays? What should be expected from the private sector? What role should land-use planning play in addressing congestion and growth in demand? How effective is public transportation in reducing congestion? What can technology reasonably contribute to managing traffic more effectively? What additions to capacity would be most cost-effective? How responsive are local, state, and federal decisions to changes in metropolitan travel patterns, especially the trend toward more suburban-to-suburban travel?
- **Infrastructure Financing.** How much should we invest to maintain and improve highways, bridges and public transit facilities in urban/suburban areas? How can we ensure that investment is directed wisely and that financing decisions balance competing priorities—capacity expansion versus rehabilitation, urban

highways versus mass transit? What share of the burden of financing urban transportation improvements should be borne by local, state and federal governments and the private sector? How should public costs be allocated among users? To what extent could innovative financing techniques, including developer's fees, contribute?

- **Special Transportation Needs.** How can metropolitan transportation networks better respond to the special needs of elderly, disabled, and low-income travellers? What role can public transportation play? Who should bear the cost of such services?
- **Environment.** What are the most effective and acceptable ways to reduce harmful vehicle emissions in severely polluted cities? How can we balance the conflicting demands for a quality urban environment with the need for responsive, inexpensive transportation?
- **Safety.** What measures will do the most to improve safety for users of urban transportation systems and for pedestrians? How much will they cost? What is the safety potential of "smart motor vehicles/smart highways"? Are there other technological innovations on the horizon that can improve transportation safety in urban areas?

The Rural Market

". . . we need to ask ourselves this question: is rural America being reconnected or just neglected in the massive resources committed to the modern transportation network?"

Kay Orr, Governor of Nebraska and
Chairman of the Committee on
Transportation, Commerce, and
Communication of the
National Governors Association

Today

Rural life and rural transportation are in a state of rapid change, with urban and suburban centers continuing to draw people and economic activity away from rural areas. Rural transportation needs have become widely varied and dispersed as the communities or households in rural areas rely increasingly on the movement of people and goods within and between regions. Although the rural economy has diversified considerably, about one-fourth of America's non-metropolitan counties remain dependent on farming income.

Most rural passenger and freight transportation needs are met by highway vehicles. Rural areas generally have limited funds available to support transportation infrastructure or economic development. Also, rural areas do not have the population necessary to support conventional public transportation. This can have a serious effect on low-income, elderly, and disabled residents, especially in the delivery of health-care services.

There are certain safety issues that are specific to the rural environment. Travel speeds are often higher on rural roads. Therefore, when accidents do occur, they tend to be more severe. Further, rural population demographics differ somewhat from the general population. Safety belt usage is lower, and the drunk driving involvement rate is higher.

The economic well-being of agricultural and other rural areas is heavily dependent on the ability to ship and receive raw materials and finished products. Until 1980, both rail and truck carriers often were required by the federal government to continue serving certain communities even if the service proved unprofitable. Deregulation of freight railroads and trucking, as well as airline and bus service, has brought many changes:

- **Increased competition has resulted in many rate decreases for freight transportation by both trucks and railroads.**
- **Carriers have altered the destinations they serve, and the nature and frequency of service. Areas without significant industrial facilities often are left with only limited truck service, although many new short line and regional railroads have been formed to preserve and improve rural freight service.**

- **Some communities have been left with reduced intercity bus, rail, and air passenger service although the number of carriers and flights serving rural areas has increased overall.**

Rural infrastructure in many cases is not adequate to handle heavy traffic. Rural roads and bridges in particular have suffered from increased use of trucks, partly related to the decline in rural rail operations.

Tomorrow

Because of the low population density that defines rural areas, it will continue to be costly per ton-mile or per passenger-mile to provide many types of transportation services in rural areas. Therefore, improvements in rural access to the national transportation system are not likely to be dramatic. Possible improvements include:

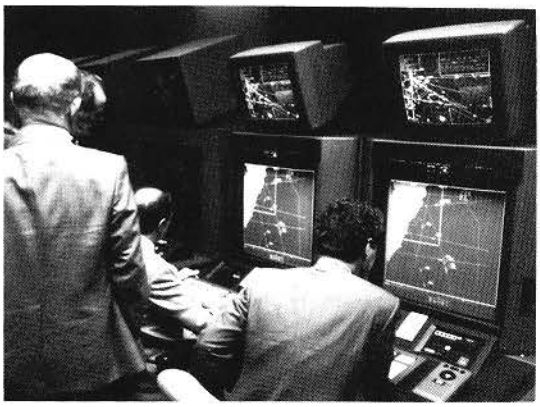
- **development of small bus companies with service tailored to specific rural markets**
- **use of bus hubbing service patterns similar to those used by airlines**
- **further adjustments in trucking service patterns to meet local needs and continuing growth of short-line railroads**

Major Issues Facing the Rural Market

In rural areas, key transportation issues include:

- **Access to Service.** What level of transportation service will provide adequate movement of freight and people between rural and urban areas and within rural areas? Are additional facilities or services necessary for adequate access? What is the best way to meet the particular mobility needs of the elderly, disabled, and low income population in rural areas?
- **Public Support.** What level of rural transportation service is a public sector responsibility, and how should that responsibility be divided among local, state, and federal governments? How will basic maintenance of public roads, bridges and other transportation facilities in rural areas be financed? Can rural areas free up funds for essential transportation needs by consolidating services or facilities? How should costs of rural transportation services be assigned between users and nonusers?
- **Private Sector Participation.** How can government policies encourage the introduction of privately-funded, low-density service to rural areas? Are there any impediments imposed on private carriers by government regulation or policies that contribute to excess costs or otherwise hinder provision of viable service? Do tax or other policies encourage abandonment of rural transportation operations that might otherwise prove beneficial or cost-effective? How can we encourage entrepreneurs to form short lines where needed rail lines might otherwise be abandoned?
- **Safety.** How should the unique safety problems of rural transportation be addressed? What are the most effective means for dealing with these problems? What level of government should have primary responsibility for addressing rural safety issues?

Innovation and Human Factors



"For 6,800 years following the invention of the wheel, humanity had made almost no progress in transportation. . . . Once the railroads introduced a mechanized means of transport, the rate of change picked up. It was only 80 years from the railway age to the motor age, 40 years from the motor age to the age of commercial flight, and 20 years from the air age to the first travels in space."

Wilfred Owen, former senior fellow
at the Brookings Institution

Technological innovations, such as the widespread use of containers; improvements in diesel and jet engines; and the speed and efficiency of information sensing, communication, and data processing systems have revolutionized transportation. However, innovation in transportation is not limited to technology. Advances in management and operating practices, financing techniques, and behavioral sciences, including the study of human factors, all have improved the efficiency, reliability, and safety of today's transportation systems.

New Ideas at Work

Integrating transportation and information networks has led to the development of "seamless" national and international distribution systems. The importance of efficient transportation, distribution, and warehousing functions has spawned door-to-door intermodal service and just-in-time shipments. One of the most successful examples of this is the growth of nationwide overnight parcel delivery services.

Innovations in traffic flow management are helping relieve traffic congestion in aviation and on highways. In some situations where capacity cannot expand, flow control remains the only weapon against congestion. In other cases, it complements capacity expansion.

Many transportation service providers are changing their operating strategies. Adoption of hub-and-spoke networks in the wake of airline deregulation has provided dramatic improvements in airline efficiency. The maritime industry has also begun to employ more productive service patterns. Railroads are using new operations research techniques that will improve connections between different carriers and modes. Computer technology and high-fidelity simulation have revolutionized training in several transportation environments. Airlines have developed sophisticated yield management programs to increase their profits.

Innovation will continue to provide benefits. Optical and passive sensors, remote radio and satellite tracking, and ergonomic designs are not yet in everyday use. New ways to use information, such as flight operations data, may help to improve reliability and reduce costs. Magnetic levitation, superconductivity, and new materials have already been introduced experimentally into transportation systems.

Many new technologies and innovations will emerge from continued exploration and development in space transportation.

People and Technology

New technology, practices and processes still depend on people. Human factors have become a critical element in transportation system innovation and, indeed, represent the current frontier in transportation research and development. **In particular, government and industry are placing increased emphasis on human factors in order to reduce transportation accidents.** Most transportation fatalities, injuries, and property damage result from failures in human performance, including drug and alcohol abuse.

Fatigue and boredom resulting from too much automation and operator overload arising from too much information pose risks that can be reduced through human factors research. We also need to explore more fully how operator training and testing affects safety and reliability and how to assure an adequate labor pool for transportation in the future.

Major Issues Relating to Innovation and Human Factors

- **Role of Government in Innovation.** How should the federal government use its influence and resources to promote innovation in ways that facilitate rather than impede commercial market forces? To what extent should the federal government rely on regulatory authority, research and development resources (which have been declining in recent years), financial grants and subsidies, and national leadership? What are the barriers to innovation, and what can the government do to lower them? What changes are needed in budgeting, organization, and management of federal research and development activities in response to the expansion in the federal government's research and development mandate beyond hardware development? Are there significant gaps in current data resources that hamper research and development efforts and innovation?
- **Human Factors.** What further research is needed on (a) the use of automation and advanced technology; (b) transportation system monitoring capability; (c) factors affecting human performance both positively and negatively; (d) human performance assessment; (e) information transfer; (f) the design of controls, displays, and workstations; (g) training and selection of personnel; and (h) system certification and validation standards?
- **Financing, Management, and Operations.** How can we improve the assembly, management, transmission, and analysis of transportation-related data? How can we best use computer monitoring of the condition and performance of facilities and equipment, e.g., structural sensors on bridges? To what extent should we use flow control and peak period pricing to improve traffic efficiency in congested areas? How can innovation improve our ability to allocate transportation costs more equitably and appropriately? Are we prepared, for example, to use vehicle tracking technologies and the associated information networks to implement user fees that charge more for use of congested facilities or operations at congested hours of the day?

V. Sparking the Policy Debate

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In developing the national transportation policy, we must find a workable balance among the requirements of various markets and across different modes. Finding that balance will require, first of all, sparking a national debate that encompasses all policy considerations.

Platform for Building the National Transportation Policy

Listed below are seven policy considerations that apply to most transportation decisions. DOT will use these considerations to evaluate transportation needs and concerns and develop policy.

Efficiency and Performance

- Because resources are scarce and transportation needs are many, transportation policies must be directed toward minimizing waste and making the best possible use of available resources. Policy options will, therefore, be evaluated according to their effects on the efficiency and performance of transportation markets and the economy at large. In this comparison, consideration will be given to factors such as cost-effectiveness, productivity effects, and investment payoff.

Economic Growth and Competitiveness

- Transportation's major role is the movement of people and goods as part of the U.S. productive system. Policy options will, therefore, be compared according to their effects on the nation's potential economic growth and international competitiveness. Identifying links between policy options and these national goals will be an important step in the evaluation process.

Mobility and Accessibility

- Policy options will be compared according to their effects on meeting the nation's mobility and accessibility needs. Options for improving mobility and accessibility will be evaluated according to cost, effect on service to elderly, disabled, and low income travellers, and the extent to which users are willing and able to pay for the improvement.

Safety and Security

- America needs and demands a safe and secure transportation system and policy options will be compared according to their effects on system safety and security. The contribution of the transportation system to national defense is also of overriding importance. Consideration will be given to the effects of policies on improving safety and security, and to the costs associated with such improvements.

Environmental Preservation and Energy Efficiency

- Policy options will be compared according to their environmental effects, including air, water, and noise pollution, health risks, and other adverse effects on quality of life. Effects on energy consumption and energy efficiency will also be important considerations, as will the possible role of market mechanisms and technology in achieving environmental and energy policy goals.

Financial Considerations and Capabilities

- In a time of tight budgets and intense competition for available dollars, financial considerations and capabilities will play a major role in the evaluation of transportation policy options. Among the factors to be considered are the extent to which user charges can be used to finance capital and operating costs, the extent to which options improve the allocation of costs among users, the extent to which public subsidies are called for, and the extent to which different levels of government and the private sector can bear the cost of transportation improvements.

Governmental Role

- Once it has been determined that some governmental action is needed to improve the transportation system, either because private sector activity is not appropriate or must be supplemented, the question remains of which level of government is most appropriate to implement the transportation policy. Among other things, resolution of this question involves consideration of jurisdictional responsibilities and financial capabilities.

What Are the Next Steps?

Identification of Transportation Problems and Possible Solutions. The Department of Transportation will use the information we receive to identify national, regional, State, and local transportation problems and possible solutions.

Transportation Priorities. The Department will then evaluate these requirements and concerns, identify options for addressing them, and determine transportation priorities.

National Transportation Policy. The Department will develop a National Transportation Policy that is responsive to America's transportation priorities.

Strategic Transportation Plan. The Department will use the information and views collected in its outreach effort to develop strategies for implementing the National Transportation Policy.

What Can You Do?

Users, providers, and other parties with a stake in building our national transportation policy are invited to contribute. You can:

- **Participate in the Department of Transportation's outreach program, attend "cluster group" discussions and policy seminars, provide written comments to the Department** (as outlined in the July 3, 1989 *Federal Register* notice), **or write or call the appropriate National Transportation Policy contact listed at the end of this document.**
- **Join in parallel activities sponsored by state and local transportation agencies, businesses, and interested associations.**

For additional copies of this document, contact the Office of the Assistant Secretary for Public Affairs, at address and phone number listed on the following page.

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