Transportation in Rural America
Issues for the 21st Century

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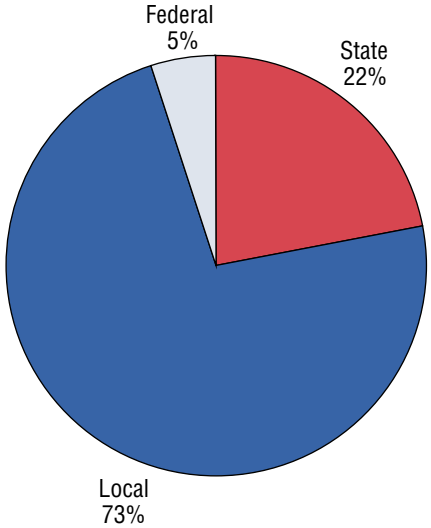
In the last 25 years, transportation in rural America has been transformed by deregulation, devolution of Federal responsibilities to State and local governments, and traffic growth created by the booming economy of the 1990s. All modes of rural transportation—highways, passenger service (transit, intercity bus, and passenger rail service), trucking, inland waterways, rail freight service, and passenger air service—have been affected. By linking rural residents with distant jobs and services and by enabling commercial shipping, transportation is a cornerstone of rural economic development. However, rural transportation is still beset by higher commuting and shipping costs due to widely dispersed population and industry.

In 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) devolved much of the Federal highway planning to the States, which, along with local areas, own the vast majority (95 percent in 1997) of roads (fig. 1). ISTEA initiated a comprehensive planning process that enlisted local, State, tribal, and public/private interest groups, and emphasized stronger links between the environmental impact of transportation improvements on clean air and water quality. Furthermore, the Act sought to integrate community development with transportation enhancements. (Nonmetro funding under ISTEA is illustrated in figure 2.)

The 1998 Transportation Equity Act for the 21st Century (TEA-21), ISTEA's successor legislation, reinforced State and local transportation roles and the broad strategic and oversight responsibilities of the Federal Government. The Surface Transportation program gave States and localities more flexibility in allocating highway and bridge funding, a portion of which must be spent in rural America. Bridge funds, in particular, must be spent on lower/local road classifications, many of which are in rural areas.

Figure 1
Rural public road maintenance, 1997
County, town, and municipal governments are responsible for 73 percent of rural roads



Source: Table HM-10, 1997 Highway Statistics, U.S. Department of Transportation, Federal Highway Administration, Washington, DC.

Under ISTEA and TEA-21, each State was required to set up a statewide transportation planning process (incorporating environmental concerns and intermodal connectivity), a transportation plan, and a transportation improvement program. States also were required to include local governments as well as other public and private organizations in the transportation planning process. While metro areas had Metropolitan Planning Organizations, rural areas previously had no organizational structure to carry out transportation planning.

ISTEA and TEA-21 adopted a systemic approach to transportation that recognized its multiple functions, including its impact on the environment, the economy, and passenger and freight mobility. Yet, 10 years after ISTEA, several key rural surface transportation issues remain.

While ISTEA and, more importantly, TEA-21 emphasized involve-

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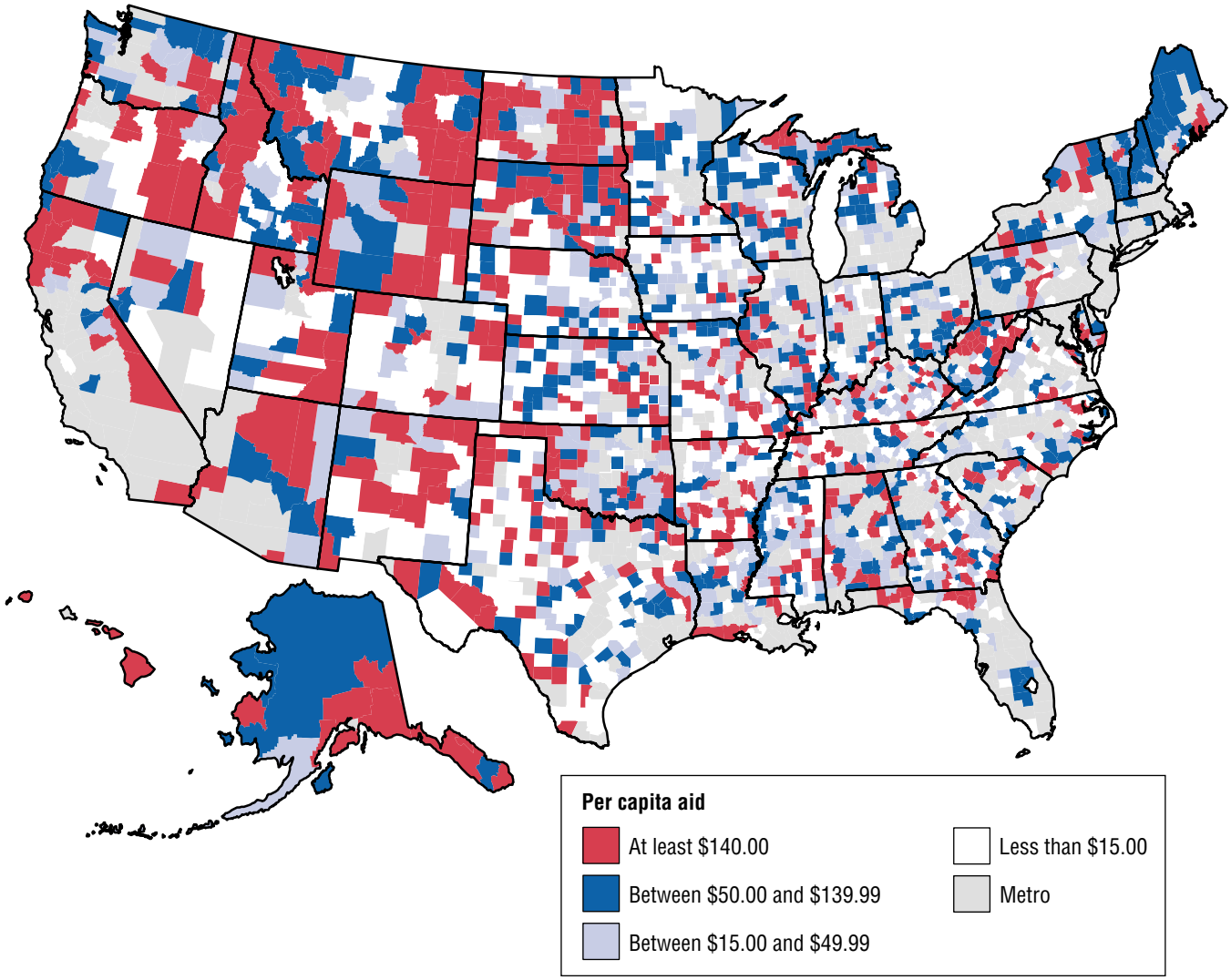
Figure 2

Nonmetro per capita Federal highway aid under ISTEA, FY1997

Funding was highest for counties in the West



Source: Calculated by ERS using data from the Bureau of Labor Statistics and the U.S. Department of Commerce.

ment of local rural officials in statewide transportation planning, participation varies widely across States, as both State and local governments adjust to their new, devolved transportation roles. The U.S. Department of Transportation (DOT) continues to develop inclusive planning procedures to ensure local involvement. However, without such administrative procedures, rural areas may not receive either the necessary funding or the statewide attention needed to maintain an adequate transportation infrastructure.

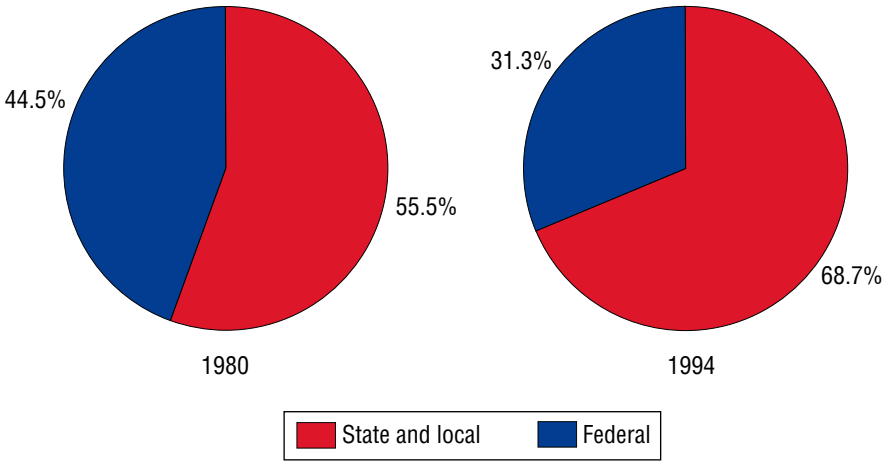
Traffic levels have increased sharply throughout the United States since 1991. While congestion in metro regions has been amply publicized, many rural areas adjacent to metro areas and those with amenity-based economies also face increased traffic. More cars and trucks add to local maintenance costs and detract from rural quality of life. Rural officials sometimes complain that State/Federal highways actually exacerbate these conditions (Brown et al.).

Globalization of trade, as exemplified by the North American Free Trade Agreement (NAFTA), has created additional highway traffic along U.S. borders, along north-south trade corridors, and around

Figure 3

Government outlays for transportation, 1980 and 1994

Most outlays come from State and local sources



Source: Bureau of Transportation Statistics, U.S. Department of Transportation.

Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) apply advanced technologies including information processing, electronics, and communication, in combination with management strategies to improve overall transportation system operations. Federally funded rural ITS priorities under TEA-21 reflect rural conditions, namely longer local travel distances, lower traffic volumes, longer emergency response times, a sparse telecommunications infrastructure, and a dispersed overall system with high per-unit costs. Rural ITS applications include weather and road condition information for rural highway users, the use of automatic vehicle location and computer-aided dispatch systems for rural transit, automated collision notification, and better tourism/travel information to improve safety and security for users of rural transportation infrastructure.

major U.S. ports. Much of the spillover traffic uses the local road system, adding to the fiscal pressure on local governments to maintain or upgrade local roads. Federal highway outlays have increased, but State and local expenditures far surpass Federal spending (fig. 3).

Intelligent Transportation Systems (ITS), which employ new technologies to help solve transportation problems, are being emphasized under TEA-21 to enhance rural safety information and rural passenger transportation (see "Intelligent Transportation Systems"). ITS applications could be used to leverage existing transportation resources in rural communities. However, it may be necessary to increase Federal resources in new technology or facilitate innovative partnerships to apply ITS in rural areas.

Many Rural Areas Lack Passenger Service

Rural passenger service is perhaps best described as a composite of separate programs, including rural transit, specialized services for the elderly and handicapped, and transportation for those enrolled in human services programs. Intercity bus and passenger rail (Amtrak) also serve rural residents.

Rural public transit, the rural analogue to bus service in metro areas, is available in approximately half of the rural counties nationwide, for a total of about 1,200 systems. These "5311" transit systems are county-based and tend to be found in the more populated rural areas (see “Section 5310 and Section 5311 Transit Systems,” p. 7). Few are found in the most rural, isolated areas (fig. 4). These systems range in size from 1 to over 50 vehicles. According to a recent survey, from 1994 to 1999, the average fleet size in rural areas increased by 60 percent, with ridership increasing by 62 percent (Community Transportation Association of America).

Specialized transportation services for the elderly and persons with disabilities are available under the Section 5310 program. Federal funding is provided to private nonprofit groups and certain public organizations for capital expenses, including purchase-of-service agreements whereby an agency pays a transportation provider for services. There are approximately 3,700 of these systems throughout the country and they serve both urban and rural clients.

Human service agencies often provide transportation. Some purchase vehicles and hire drivers, while others contract with rural transit operators. However, caseworker time, vehicle expenses, and contract costs are often not classified as transportation but rather as meeting the service needs of a particular client. Given client-based cost accounting, it is difficult to measure rural transportation as provided by human service agencies.

Intercity bus transportation also provides mobility for rural residents. Deregulation of intercity bus service, under the Bus Regulatory Reform Act of 1982, relaxed entry requirements for bus/motorcoach companies. This has generally resulted in better long-haul service, more complete fare information, and a greater diversity of services, including enhanced charter and tour service. Yet this industry diversity comes at a price for rural residents. Data from the Department of Transportation indicate that more than 11,000 locations received intercity bus service in 1982, but only 5,000 communities were served in 2000. Many of those service reductions took place in rural areas, as bus companies were no longer required to cross-subsidize low-revenue routes with profits from high-revenue routes.

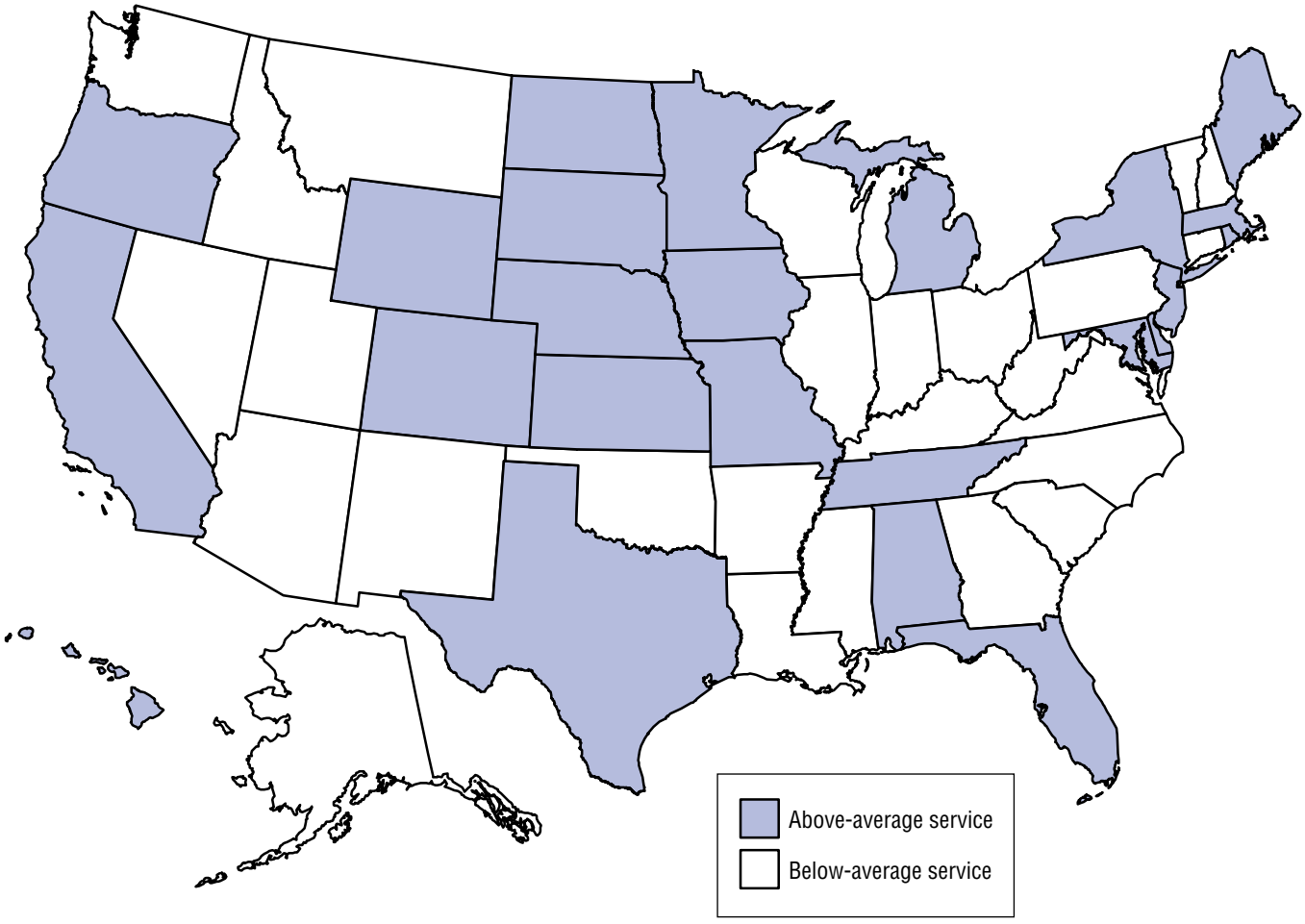
Another change affecting rural transportation was brought about by the 1990 Americans with Disabilities Act (ADA). ADA requires public transportation providers to make transportation available to individuals with disabilities, specifying requirements for transit systems as well as private, for-hire providers. ADA especially challenges rural transportation providers by adding to the cost of systems already hard pressed to serve geographically remote populations.

Amtrak, a federally subsidized, for-profit corporation established in October 1970, provides another form of transportation for rural residents. Amtrak passenger service began in May 1971. However, only

Figure 4

Index of quality of rural public transit service

The rural Midwest is well served by public transit



Source: Community Transportation Association of America.

about half of all passenger routes were taken over by Amtrak, and many rural towns lost passenger rail service at that time. Although Amtrak offers a national network, it mainly links major metropolitan areas, with fewer than 200 nonmetro communities on its routes and minimal passenger rail connections with county transit systems. Amtrak is required by Congress to become operationally self-sufficient by 2003 (with capital grants continuing in the future). However, it is not clear whether Amtrak can operate without public subsidies.

Difficulties Remain in Serving Rural Transit Needs

The current state of rural passenger transportation highlights several issues that may affect successful implementation of other Federal programs. First, county-level duplication of federally funded transportation services exists alongside some remote rural counties with little or no coverage. Coordinating the many funding sources and reporting requirements unique to each federally funded program has given rise to the Federal Coordinating Council for Access and Mobility (CCAM), which brings together the relevant agencies within DOT and the U.S. Department of Health and Human Services.

Second, although rural transit may meet the mobility needs of the local traveler, service often stops at the county line, creating a disconnect that leads to a balkanized rural transit system. For example, an individual using a county-based transit system to visit a medical facility in another county cannot connect seamlessly with another county-based transit system—the two county transit systems must establish a special connection to serve the individual. A key issue is whether this assortment of county transit operations can be unified to provide a seamless system of transit beyond the local community.

Third, intercity bus transportation is poorly linked with other types of county transit systems in much of rural America. While TEA-21 provides funding to encourage intercity bus companies to "interline" with rural transit, those linkages are fairly limited, taking place in only a few nonmetro communities.

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Fourth, rural passenger transportation has become increasingly important since welfare reform was enacted in 1996. Nationally, fewer than 1 in 10 recipients of public assistance owns a car, and nearly 40 percent of the 10 million daily public transit riders are considered low-income. Nationally, one in four families receiving public assistance lives in a rural area, and a disproportionate share of rural residents lives in poverty-level households. However, the limitations of existing transit in terms of scheduling and routing may impede the ability of welfare recipients to obtain employment, make necessary childcare arrangements, and keep a job. Although the Department of Transportation has funded the Job Access and Reverse Commute program to encourage innovative mobility options, pilot projects are just now getting underway, and hence, little information exists on their success at moving people to work reliably and efficiently.

Trucking Services Expanded Sharply Under Deregulation

The Motor Carrier Act of 1935 brought trucks and buses under the regulation of the Interstate Commerce Commission (ICC). Agricultural commodities were exempted from regulation by this Act. By the mid-1970s, growing public concern about the inefficiency of regulating the motor carrier industry led the ICC to loosen entry requirements, and the Motor Carrier Act of 1980 further relaxed barriers to entry.

Deregulation led to explosive growth in small trucking companies as the cost of entry declined. Existing carriers expanded into new territory, and new, smaller companies responded to market demand. Companies retired company-owned truck fleets and turned to independent, for-hire trucking firms for lower rates and improved service. Today, there are nearly 500,000 trucking companies in the Nation, with most owning 6 or fewer trucks (U.S. Department of Transportation, 2000).

Trucking firms have become increasingly competitive since deregulation, offering more frequent service, smaller loads, and faster service times. "Hub-and-spoke" systems have evolved to facilitate faster, more efficient delivery, aided by the Internet and computerized coordination of services and product purchases. Trucks can

now transport an assortment of products to several customers, feeding just-in-time inventory systems (McMullen).

Two motor carrier issues of particular importance remain for rural areas. First, an increasing number of highway fatalities have involved large trucks. The Motor Carrier Safety Improvement Act of 1999 created the Federal Motor Carrier Safety Administration to increase roadside inspections, conduct compliance reviews, increase education, and better monitor new drivers.

Second, the trucking boom has increased the cost of road maintenance for local governments, which maintain 80 percent of rural roads. Larger trucks increase wear and tear on an aging rural road and bridge system designed for lighter, smaller vehicles. One study estimates additional costs of heavy truck damage ranging from an average of $0.075 per ton-mile for county/local roads to $0.05 per ton-mile for State roads (U.S. Department of Agriculture). To reduce road costs, rural areas have instituted year-round and seasonal weight restrictions, limited-access postings, and tax increases to meet road maintenance needs.

Inland Waterways Ship Bulk Commodities Cheaply

The national inland waterway system—including the Mississippi River and its tributaries, the Snake River-Columbia River system, and the Great Lakes-St. Lawrence Seaway—provides a low-cost, effective means of transporting bulk products over long distances. The U.S. Army Corps of Engineers is charged with maintaining and improving the waterway system as well as balancing the interests of all user groups.

The inland waterway system is important for agriculture, particularly the export grain industry. It is the cheapest means of transporting bulk, low-value products. Further, barge rates are not subject to regulation by the Federal Government, allowing barge companies to price according to market demand. In 1996, approximately 54 percent of all U.S. corn exports and 40 percent of all soybean exports moved by barge along the Illinois and Mississippi River systems to export elevators on the Gulf Coast. U.S. bulk-grain exports are highly competitive in the global marketplace because the U.S. transportation system efficiently moves bulk commodities from the interior of the Nation to export destinations. Some farm groups are concerned that waterway infrastructure improvements in grain-producing competitor nations, including China and Argentina, may erode the U.S. price advantage in world grain markets (U.S. Department of Agriculture).

Today, the traditional commercial use of the marine transportation system—and the U.S. inland waterway system in particular—is facing a number of challenges from its diverse users. A Corps of Engineers study of the Upper Mississippi River-Illinois River system, comprised of locks and dams originally constructed during the 1930s, was initiated in 1993 to determine its structural needs over the next 50 years. As this ongoing study has progressed, the Corps has seen its economic assumptions and modeling challenged by environmentalists, recreational users, and agricultural interests. Other than routine maintenance of existing infrastructure (locks and dams), new construction awaits a long-term plan based on the study findings. A recent National Academy of Sciences technical review of the study urged the Corps to consider less costly ways to alleviate barge traffic, including barge tolls and better scheduling. At present, the evolving nature of this debate means that rural implications remain unclear.

Deregulation Spurs Railroad Consolidation

Faced with increased competition from the trucking industry, inland waterway transportation, and pipelines, the national rail network has been steadily shrinking from 254,000 miles in 1916 to 171,000 miles by 1997, a 33-per-

Section 5310 and Section 5311 Transit Systems

Section 5310 of the Federal Transit Act authorizes capital assistance to States for transportation systems serving the elderly and persons with disabilities. States, in turn, distribute the funding in both rural and urban areas to nonprofit organizations or lead agencies in coordinated transportation programs. Funding cannot be used for operating expenses, only for capital expenses.

Section 5311 of the Federal Transit Act is a formula grant program that authorizes both capital and operating assistance grants to public transit systems in areas with populations of less than 50,000. The Federal share for capital and administrative expenses is 80 percent and the local share is 20 percent; the Federal share of operating expenses is up to 50 percent.

cent reduction (U.S. Department of Transportation, 1999). This trend became more pronounced with the passage of the Staggers Rail Act of 1980, which deregulated the rail freight industry. Before deregulation, rail infrastructure had been overbuilt, but Federal regulation had required railroads to maintain both track and service levels, regardless of their profitability. With deregulation, carriers aggressively streamlined rail infrastructure (track, railyards, and stations) to reduce unprofitable routes and consolidated operations to improve their profitability, resulting in a high degree of concentration among Class I railroad companies, or those with annual revenues of at least $250 million.

Unlike the trucking industry, which has relatively low fixed costs, the railroad industry, which owns and maintains the track, has high startup costs. Consequently, deregulation in the railroad industry has largely resulted in consolidation among existing railroads. By 1998, there were fewer than 10 Class I railroads, down from over 100 in 1960.

In recent years, Federal regulators have approved several major railroad mergers. Mergers have resulted in abandonment of unprofitable rural track, leading to loss of rail service in rural communities. As a consequence, these consolidations have sometimes disrupted rail service, an issue of particular concern for agriculture and other rail-dependent industries. The risks for agricultural and rural communities of decreased rail freight competition may be significant when areas served by two railroads lose one of their lines due to a consolidation.

Consequently, in June 2001, the Surface Transportation Board, the Federal agency responsible for overseeing railroad mergers, issued new rules for mergers involving two or more Class I railroads. These new rules increase the burden on merger/consolidation applicants to demonstrate that the proposed action would be in the public interest, particularly that the new, merged operation would enhance competition for rates and services for smaller railroads, ports, and passenger and commuter services.

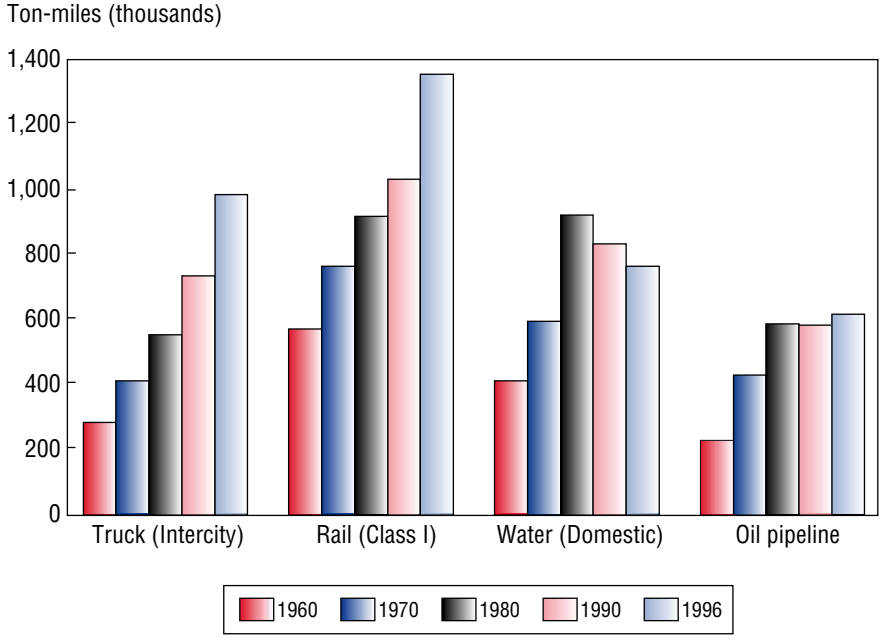
Consolidation in the rail freight industry has led to the growth of short-line and regional railroads (collectively referred to as "small railroads"), which usually operate on lighter density lines abandoned by major railroads. Since the railroad industry was deregulated in 1980, small railroads have been established in many rural areas, helping to mitigate the negative effects of mergers. By 1996, small railroads accounted for about a third of all rail route miles in the Nation, 9 percent of the rail industry's total freight revenue, and 11 percent of railroad employment nationwide.

Loss of rural rail service also has increased truck traffic on rural roads. While competition from trucking may have helped keep rail rates down, it has resulted in greater deterioration of rural roads, most of which are funded by local governments. In fact, increases in freight traffic have occurred across all transportation modes serving rural America since the early 1960s (fig. 5).

Deregulation Brings Cheaper, More Frequent Passenger Air Service

The airline industry was deregulated by the Airline Deregulation

Figure 5
Ton-miles of freight shipments, 1960-96
Deregulation spurred freight increases in rail and trucking shipments in recent years



Source: Bureau of Transportation Statistics, U.S. Department of Transportation.

Photo courtesy AMTRAK Public Affairs, Washington, DC.

Act of 1978. This legislation eliminated the Civil Aeronautics Board and allowed air carriers to enter and exit markets and adopt rate structures of their own choosing. To ensure continued service to smaller and more isolated communities, the legislation established the Essential Air Service program, which provides subsidies directly to airlines to maintain service to those small communities that were served at the time of deregulation. This program, with an annual funding level of $50 million, supports scheduled air service to more than 100 rural communities, mainly in the Midwest, the Rocky Mountain States, and Alaska.

Deregulation of the domestic airline system resulted in a sharp increase in overall domestic airline traffic, with air carriers concentrating their operations around hub airports. Deregulation has transformed the level and types of service provided to all communities. Some rural communities have experienced significant declines in their air service, while others have benefited from increased service, and still others have experienced relatively stable service since 1978. Much of this is determined simply by passenger demand.

On average, airline deregulation has been a boon to the flying public, producing lower fares and expanded service. With the development of "hub-and-spoke" networks, many small communities receive better service than before deregulation because they are connected by nonstop flights to hub airports that offer nonstop services throughout the country. Moreover, the number of communities throughout the Nation served by more than one carrier has grown with deregulation. In many cases, the equipment is better matched to the levels of traffic in individual communities and has resulted in qualitative improvements such as greater flight frequencies and better connecting opportunities. These improvements, however, are not universal.

Although many community leaders feel that airline service is critical to the rural economy, the relationship between airports and rural development is uncertain. While some studies show that airports spur local economic development, especially in the high-tech sector (Reeder and Wanek), the strength of the relationship appears to vary depending on local factors, including industry mix, the diversity of the economy, the existing regional transportation infrastructure, and local employment level. Furthermore, while most studies of business location choices do not identify the availability of local scheduled air service as an important factor influencing location decisions, business and community leaders often cite lack of convenient, affordable air service as a disadvantage of rural business locations (Gale and Brown).

Authorized funding for airport construction and development was sharply increased in early 2000 under the $40 billion Aviation Investment and Reform Act for the 21st Century (AIR-21), a 3-year bill that increases aviation investment by $10 billion over previous levels. Most of the money will be used for radar modernization and airport construction. AIR-21 also authorized a number of provisions covering airports in small communities, including increased funding for nonhub airports, the development of an incentive-based program that helps airlines buy jets to serve small airports, and the creation of a new funding program to help small, underserved airports market and promote their air service. However, to date, Congress has not appropriated any funds to carry out the latter two programs.

Several airline competition and quality-of-service issues remain. DOT recently examined whether anticompetitive practices by major carriers stifle competition from small, startup airlines, which are important in many rural areas. DOT also has been investigating other competition-related practices at airports and among major airlines, including whether airport landing fees and the spending practices of major carriers put small airlines at a disadvantage.

Some contend that rural areas have been hurt by the tightening of

safety and maintenance standards on commuter aircraft that serve 10 or more passengers—the so-called Commuter Safety Rule. More stringent Federal safety standards may have contributed to the loss of air service for some small communities as the costs of operating commuter air service have increased. Many commuter airlines phased out their 19-seat aircraft in favor of larger planes that are not as well suited to small rural markets.

Conclusions

Transportation in rural areas today is still in transition after a quarter century of deregulation, Federal devolution, and significant traffic increases across all modes. Deregulation has in fact created significant benefits for rural areas. Rural areas are better served by the airlines, a more efficient rail system, an expanded trucking system, and increased charter bus tour opportunities. Federal devolution of transportation policy through ISTEA and TEA-21 has given States and local governments increased authority over transportation planning and funding decisions.

Not all changes, however, have benefited rural America. Some feel air service levels in remote rural areas have declined; a streamlined rail system has left many rural areas with reduced or no rail service; trucking safety concerns remain and road maintenance costs have risen; bus deregulation led to fewer rural bus stops. While ISTEA and TEA-21 gave maximum planning flexibility to States and local governments, rural community involvement in planning and funding transportation continues to evolve. RA

For Further Reading . . .

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