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Transportation and Infrastructure, House of  
Representatives

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# INTERCITY PASSENGER RAIL

## Congress Faces Critical Decisions in Developing a National Policy

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<b>Abstract</b> <p>We appreciate the opportunity to testify on the future of intercity passenger rail. As you know, intercity passenger rail in the United States is at a critical juncture. As has become increasingly clear and as we observed before this subcommittee last summer, the current approach to intercity passenger rail is not likely sustainable.<sup>1</sup> Given Amtraks worsening financial condition and opportunities for intercity passenger rail to play a larger role in our nations transportation system, there is growing agreement that the mission, funding, and structure of the current approach to providing intercity passenger rail needs to be changed. There is less agreement on how they should be changed. Both longer-term fiscal pressures and the new commitments undertaken after September 11th sharpen the need to look at competing claims and new priorities.<sup>2</sup> Stated differently, there is a need to consider what is the proper role of the federal government in intercity passenger rail.</p>		
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32

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Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to testify on the future of intercity passenger rail. As you know, intercity passenger rail in the United States is at a critical juncture. As has become increasingly clear and as we observed before this subcommittee last summer, the current approach to intercity passenger rail is not likely sustainable.<sup>1</sup> Given Amtrak's worsening financial condition and opportunities for intercity passenger rail to play a larger role in our nation's transportation system, there is growing agreement that the mission, funding, and structure of the current approach to providing intercity passenger rail needs to be changed. There is less agreement on how they should be changed. Both longer-term fiscal pressures and the new commitments undertaken after September 11<sup>th</sup> sharpen the need to look at competing claims and new priorities.<sup>2</sup> Stated differently, there is a need to consider what is the proper role of the federal government in intercity passenger rail.

Proposals to revise how intercity passenger rail service is delivered and financed are emerging. To help assess the benefits to the nation that might arise from these and other proposals, and whether the expected benefits warrant the costs, we believe that a framework for developing a national passenger rail policy would be useful. To assist Congress, our statement provides initial considerations for this framework. In particular, it focuses on (1) the potential public benefits of intercity passenger rail service, (2) the potential costs of providing such service, and (3) initial considerations that could guide Congress as it debates any future role of the federal government in supporting intercity passenger rail service. This statement is based on our discussions with officials from 30 state departments of transportation, commuter railroads, and freight railroads that are affected by Amtrak, several prospective intercity rail operators, and Amtrak. We also draw from our reports on intercity passenger rail, budget priorities, and lessons learned from federal financial assistance efforts directed to large organizations. (See app. I for selected products.)

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<sup>1</sup>U.S. General Accounting Office, *Intercity Passenger Rail: The Congress Faces Critical Decisions About the Role of and Funding for Intercity Passenger Rail Systems*, GAO/RCED-01-820T (Washington, D.C.: July 25, 2001).

<sup>2</sup>U.S. General Accounting Office, *Budget Issues: Long-term Fiscal Challenges*, GAO-02-467T (Washington, D.C.: Feb. 27, 2002).

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In summary:

- Intercity passenger rail has the potential to generate benefits to society (often called public benefits) by complementing other more heavily used modes of transportation in markets in which rail transport can be competitive. These potential benefits include stemming the increase in air and highway congestion, reducing pollution caused by automobiles, reducing fuel consumption and energy dependency, and increasing safety. The potential for achieving and maximizing these benefits appears the greatest along routes that parallel heavily traveled highway or air corridors between two cities that are not too far apart.
- Regarding costs, intercity passenger rail systems, like other intercity transportation systems, are expensive. While Amtrak's and others' estimates of costs to develop and maintain conventional and high speed passenger rail systems are very preliminary, it is clear the level of funding needed for both capital and operations will be significant. For example, Amtrak has called for \$30 billion in federal capital support over 20 years to upgrade its operations and to invest as seed money in high-speed rail corridors. Amtrak also estimates that the cost to fully develop the 10 federally designated high-speed rail corridors and Amtrak's Northeast Corridor could exceed \$50 billion over 20 years. While we have not assessed these estimates, we agree that such systems will be costly. Furthermore, our work indicates that intercity passenger rail will likely continue to require operating subsidies even if provisions are made to encourage private operators to provide such service.
- Given the uneven potential for generating social benefits and large costs of intercity passenger rail, Congress will need a framework for determining if and how intercity passenger rail fits into our nation's transportation system, and what level of federal investment should be made in light of other competing national priorities. Key initial steps in this framework could include (1) establishing clear, non-conflicting goals for federal support of intercity passenger rail systems; (2) establishing the roles of governmental and private entities and developing funding approaches that focus on and provide incentives for results and accountability, and (3) ensuring that the strategies developed address diverse stakeholder interests, to the extent possible, and limit unintended consequences.

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## Background

The Rail Passenger Service Act of 1970 created Amtrak to provide intercity passenger rail service because existing railroads found such service unprofitable. Although Amtrak was given significant flexibility with

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respect to its route system by the Amtrak Reform and Accountability Act of 1997, that act also directed it to operate a national passenger rail system that ties together existing and emerging regional passenger rail service and other intermodal passenger services.

Amtrak operates a 22,000-mile conventional passenger rail system (with train speeds typically up to 79 miles per hour), primarily over tracks owned by freight railroads. (See fig. 1.) Federal law requires that freight railroads give Amtrak trains priority access and charge Amtrak the incremental cost—rather than the full cost—associated with the use of their tracks. Amtrak owns 650 miles of track, primarily on the Northeast Corridor, which runs between Boston and Washington, D.C. On some portions of this corridor, Amtrak provides high-speed service (up to 150 miles per hour). In addition, access to this corridor is crucial for 8 commuter railroads (operated by state and local governments) that serve 1.2 million passengers each work day. Finally, according to Amtrak, about 38 trains from 6 freight railroads use the corridor each day.

Figure 1: Amtrak's Route System



Source: Amtrak.

Currently, intercity passenger rail plays a small part in the nation's overall transportation system (with the exception of some shorter distance corridors). On average, about 64,000 passengers in 45 states and the District of Columbia rode Amtrak trains each day in fiscal year 2001. (According to Amtrak about two-thirds of its ridership is either wholly or partially on the Northeast Corridor.) In contrast, in 2000, the latest year for which data are available, domestic airlines carried about 1.8 million passengers per day; and intercity buses carried about 984,000 passengers per day. Amtrak carried fewer than 1,000 passengers a day, on average, in 34 of the states where it operated in fiscal year 2001.<sup>3</sup> (See fig. 2.) Further,

<sup>3</sup>Amtrak instituted service in a 46<sup>th</sup> state, Maine, in mid December 2001.

Amtrak carried fewer than 100 passengers a day, on average, in 12 of these states.

Figure 2: Amtrak's Average Daily Ridership by State, Fiscal Year 2001



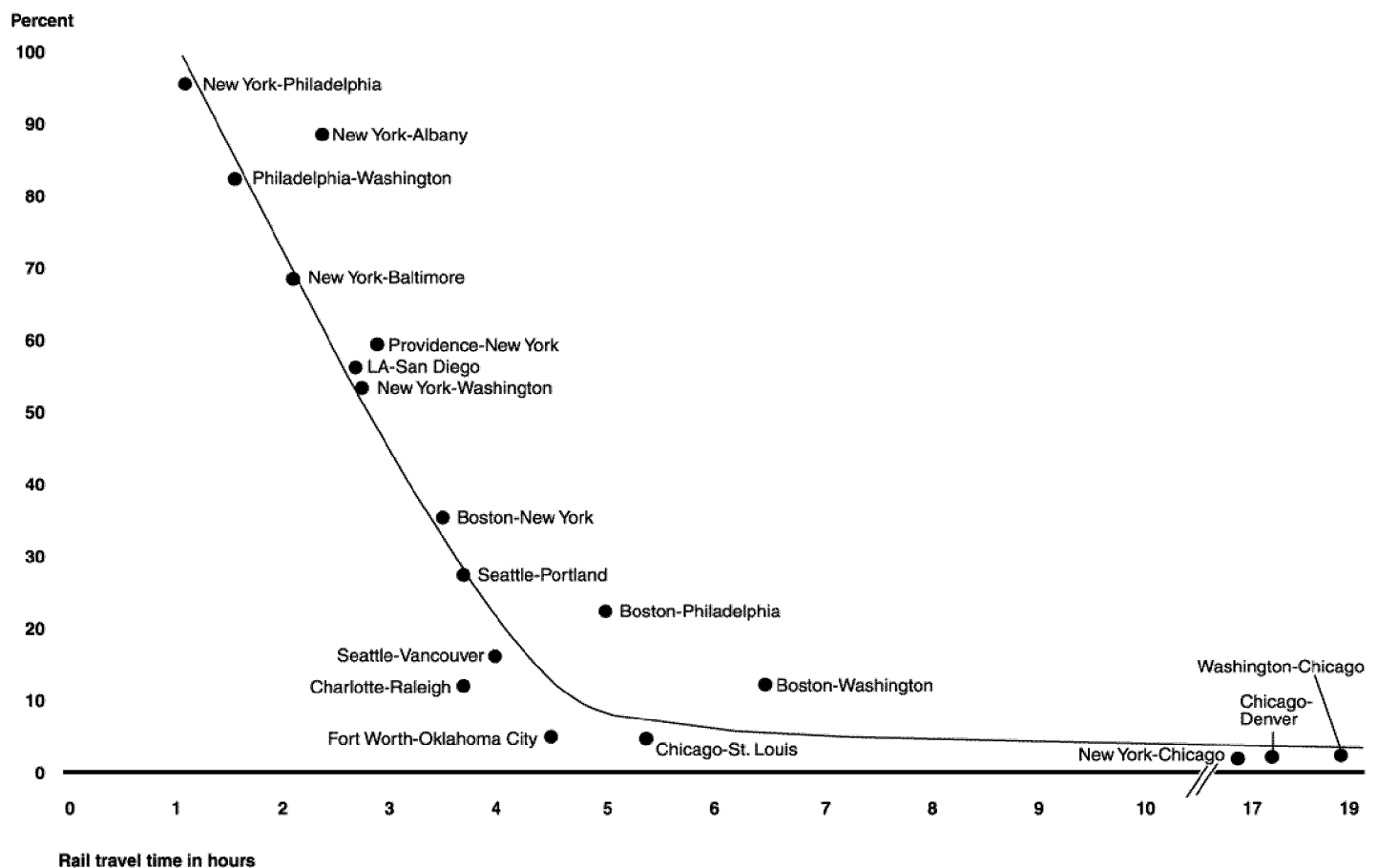
Note: Based on number of persons boarding and deboarding trains. Amtrak began service to Maine in mid-December 2001.

Source: Amtrak.



Amtrak's ridership in many markets is limited, in part, because it is generally neither time- nor price-competitive with air service for longer distances. As a result, Amtrak's market share relative to air service falls off rapidly as travel distance—and therefore travel time—increases. (See fig. 3.)

**Figure 3: Amtrak's Market Share Compared to Air Service for Selected Origins and Destinations**



Note: Generally, longer travel times are consistent with greater distances between origins and destinations. Data on Northeast Corridor trains reflect fourth quarter fiscal year 2001 market shares following the launch of Acela Express. For all other trains, data reflect market shares for fiscal year 2000.

Source: Amtrak.

In addition, highways have made cars competitive with conventional trains for shorter distances, particularly because the marginal cost of an additional automobile rider in a single vehicle is small. On a train, the

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additional passenger would typically pay an additional fare. Further, in contrast to Amtrak's system, highway and scheduled air systems are true networks. Amtrak's system is largely linear, connecting most stations to other stations on the same route. Transfer points are few, and limited train frequency can make changing trains impractical.<sup>4</sup>

A significant federal investment led to the development of the extensive air system and highway network. For example, the federal government invested \$225 billion in aviation systems and \$607 billion in highways from 1971 through 2000 (in 2000 dollars, latest data available).<sup>5</sup> In contrast, the federal government provided Amtrak over \$39 billion (in 2000 dollars) for capital and operating expenses from 1971 through 2002.<sup>6</sup> The federal government also provided substantial incentives to railroads (over whose tracks Amtrak runs) in the 19<sup>th</sup> century to help develop these transportation systems.

Amtrak's financial condition has been deteriorating over recent years. Although its revenue has been increasing, its expenses have been increasing at a greater rate. It has deferred maintenance on equipment and structures and has limited funds available for making safety improvements. Amtrak has mortgaged just about all of its assets other than the Northeast Corridor to provide it with enough cash to survive. In February 2002, Amtrak announced that it would need \$1.2 billion in federal financial assistance in 2003 to meet basic needs, more than twice the amount that Congress provided in 2002. The Department of Transportation's Inspector General has stated that Amtrak cannot survive the year on recent levels of federal support.

Proponents of high-speed rail systems (with speeds over 90 miles per hour) see these systems as a promising means for making trains more

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<sup>4</sup>Statement of the Honorable Allan Rutter, Federal Railroad Administration, before the Subcommittee on Transportation and Related Agencies, House Committee on Appropriations, Feb. 27, 2002.

<sup>5</sup>Includes expenditures by the Department of Transportation and other federal agencies. In nominal dollars, the federal government invested about \$158 billion in aviation systems and about \$415 billion in highways from 1971 through 2000.

<sup>6</sup>In nominal dollars, Congress provided Amtrak with about \$25 billion from 1971 through 2002.

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competitive with other modes of transportation.<sup>7</sup> They see the introduction of high-speed rail systems in various areas of the country as a cost-effective means of increasing transportation capacity (the ability to carry more travelers) and relieving air and highway congestion, among other things. However, high-speed rail service outside Amtrak's Northeast Corridor has not yet been established, partly because of its multibillion-dollar cost and because of concerns about overly optimistic ridership estimates.<sup>8</sup>

High-speed trains can operate on tracks owned by freight railroads that have been upgraded to accommodate higher speeds or on dedicated rights-of-way. The greater the passenger train's speed, the more likely it is to require a dedicated right-of-way for both safety and operating reasons. Ten corridors (not including Amtrak's Northeast Corridor) have been designated as high-speed rail corridors, either through legislation or by the Department of Transportation. (See fig. 4.) The 10 federally designated corridors are generally in various early stages of planning and may be eligible for federal assistance for planning and technology improvements through several Department of Transportation programs.

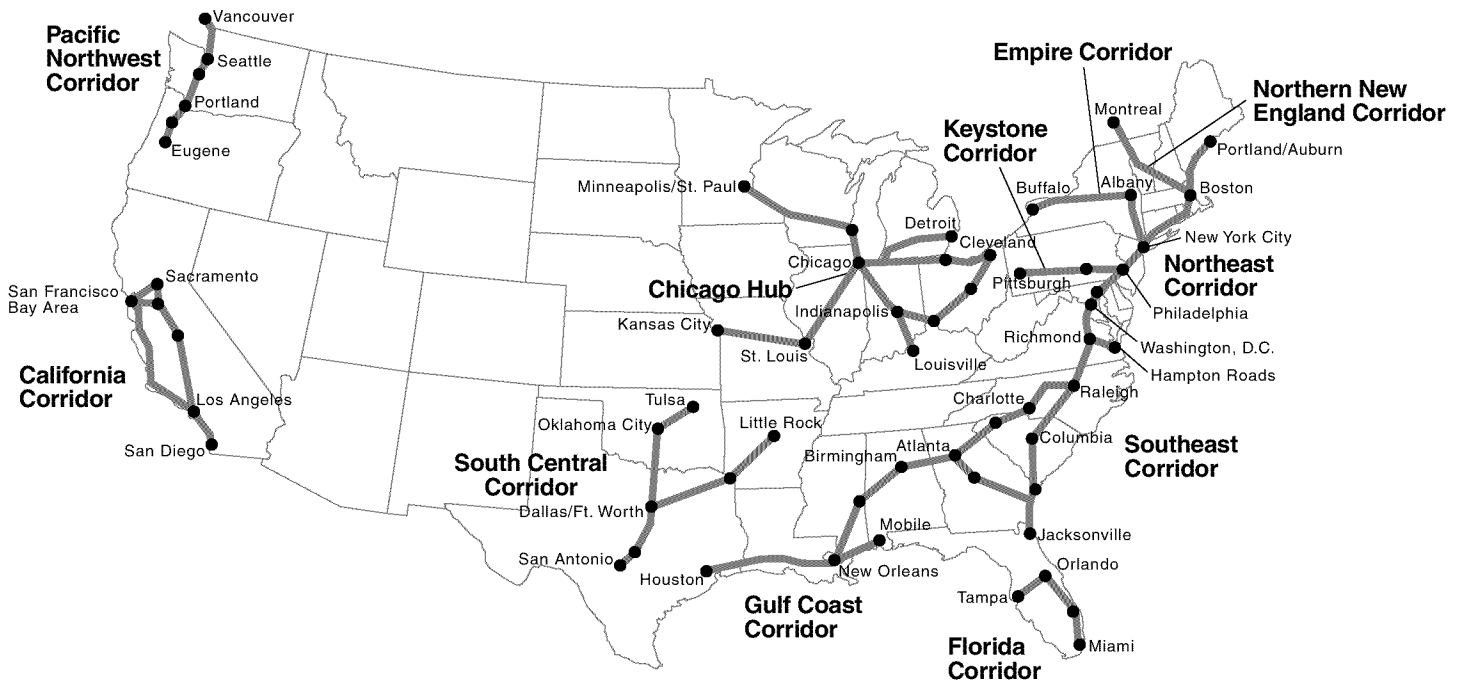
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<sup>7</sup>The Federal Railroad Administration defines high-speed rail transportation not by speed of travel but as intercity passenger service that is time-competitive with airplanes or automobiles on a door-to-door basis for trips ranging from about 100 to 500 miles. The agency chose a market-based definition, rather than a speed-based definition, because it recognizes that opportunities for successful high-speed rail projects differ markedly among different pairs of cities.

High-speed rail systems are generally of three types: (1) incremental improvements to existing tracks, signaling systems, and grade crossings and modern trains that permit speeds between 90 and 150 miles per hour on existing rights-of-way; (2) completely new infrastructures to support very-high-speed operations of 200 miles per hour or more; or (3) magnetic levitation systems that permit speeds of around 300 miles per hour. Typically, the cost to implement these options grows as the sophistication of the technology and the speed increase.

<sup>8</sup>U.S. General Accounting Office, *Surface Infrastructure: High-Speed Rail Projects in the United States*, GAO/RCED-99-44 (Washington, D.C.: Jan. 14, 1999).

**Figure 4: Designated High-speed Rail Corridors and Amtrak's Northeast Corridor**



Source: Federal Railroad Administration.

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## Public Benefits of Intercity Passenger Rail Service May Exist in Certain Markets

Intercity passenger rail has the potential to generate benefits to society (often called public benefits) by complementing other more heavily used modes of transportation in markets in which rail transport can be competitive.<sup>9</sup> These possible benefits include reduced highway and air travel congestion,<sup>10</sup> pollution, and energy dependence; increased safety; and an option for travelers to use passenger rail systems in the future. However, intercity passenger rail service is more likely to achieve these benefits in some markets rather than others.

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## Intercity Passenger Rail May Help Alleviate Congestion in Certain Markets

One potential public benefit of intercity passenger rail service that is often cited is the reduced highway congestion that will result if some people travel by train rather than on highways. The time that people spend stuck in traffic represents, in part, lost productivity to the economy. Where congestion exists, intercity passenger rail would not have to capture a large share of the travelers who would otherwise use other modes to generate substantial public benefits from reduced highway congestion. Roadway congestion and gridlock often result when a small number of vehicles access a roadway that is already at or near capacity. These additional users have disproportionate, detrimental effects on the flow of traffic and the users' travel times. As a result, diverting a small group of highway users to rail transport could have substantial public benefits by reducing roadway congestion. Because these benefits accrue to highway users and not rail passengers, an operator of intercity passenger rail service cannot expect to capture the value of these benefits in fares that rail passengers are willing to pay.

The specific markets where intercity passenger rail service has the most potential to generate public benefits from reduced highway congestion now and in the future are regions where the highway arteries are consistently operating beyond capacity and are characterized by slow-moving traffic. (See fig. 5.) Therefore, the rail service likely to alleviate the most highway congestion would parallel congested corridors that link

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<sup>9</sup>The identification of public benefits is important because, when public benefits are substantial, government support for an entity—such as intercity passenger rail service—can benefit the economy.

<sup>10</sup>When considering increasing transportation capacity, federal, state, and other decisionmakers will need to understand the extent to which travelers are using existing capacity and are likely to use the increased capacity in various modes. If new capacity is underutilized (e.g., because it is not cost competitive or convenient), then the expected benefit will not be fully realized.

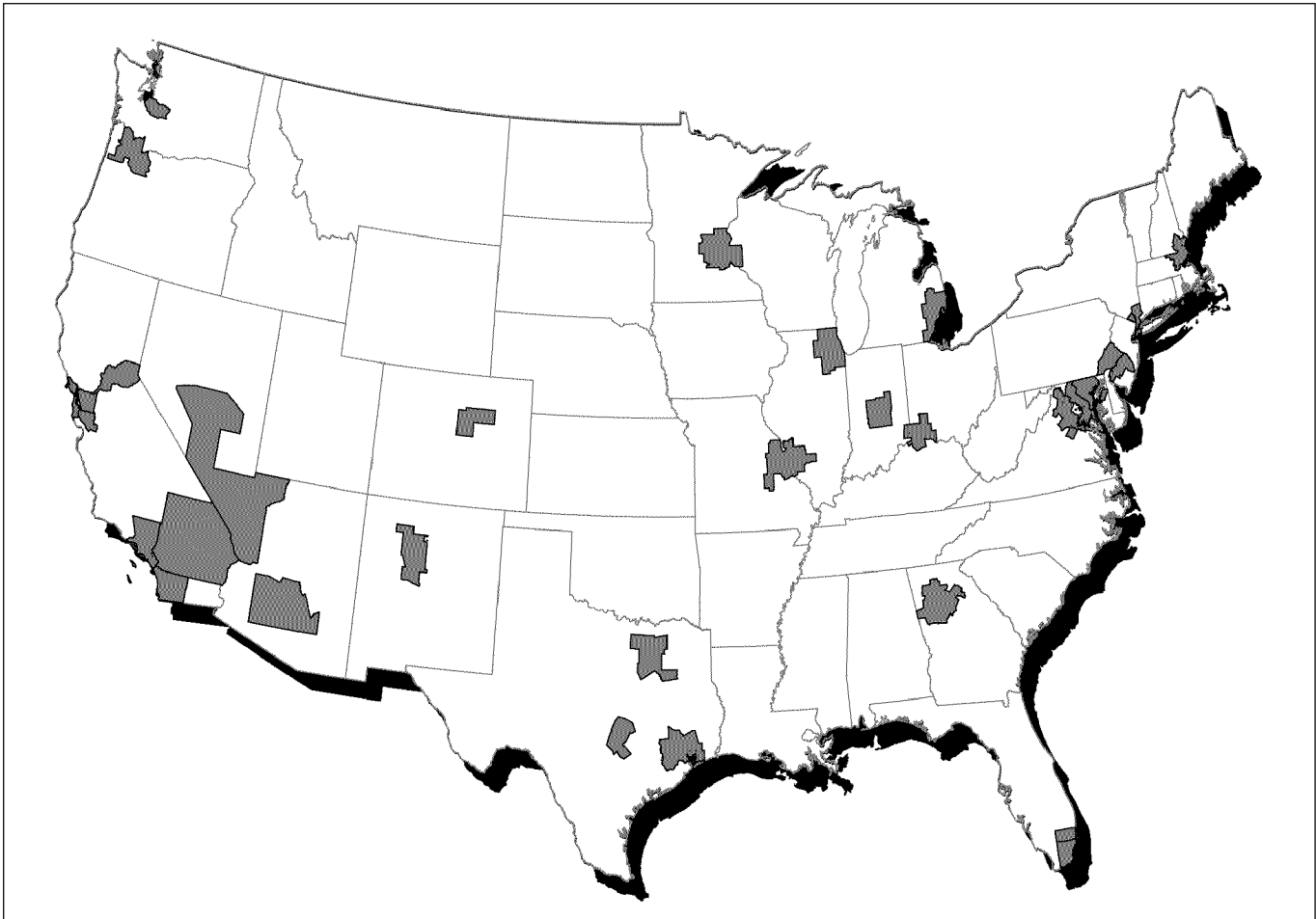
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cities with significant intercity transportation demand and urban congestion, such as those in the Northeast. For example, the cities of Seattle, Washington, and Minneapolis/St. Paul, Minnesota, both have significant urban highway congestion problems; however, there is little highway congestion on the route that connects them. Intercity passenger rail service operating between Boston, Massachusetts, and New York City, or Los Angeles and San Diego, California, would probably generate greater public benefits from reduced highway congestion than service running from Seattle to Minneapolis/St. Paul. However, realizing these potential public benefits may be difficult because the prices people pay to drive do not reflect the true costs of driving, some of which are borne by others due to pollution and congestion. In addition, Americans continue to have a strong attachment to cars as their principal transportation choice.

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**Figure 5: Thirty Metropolitan Areas With the Highest Level of Highway Congestion, 1999**



Source: Texas Transportation Institute.

The public benefits of intercity passenger rail service are also potentially greater between cities that have well-developed intracity mass transit systems because intercity passenger rail is more likely to be competitive with driving on those routes. One reason a traveler may choose driving between cities over using the train is the mobility a personal vehicle

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provides once the traveler has reached his or her destination. All else being equal, demand for intercity passenger rail service may potentially be greater between cities with efficient mass transit systems—for example, Philadelphia and Washington, D.C.—than between cities without or with less extensive intracity mass transit systems—for example Sacramento and San Jose, California—because there is potentially less of a need for a personal vehicle at the destination. Similarly, congestion is more likely to be alleviated in those cases where travelers view rail as a more attractive “door-to-door” travel option (in terms of price, time, comfort, and safety) than driving if rail terminals are convenient to riders’ starting points and ultimate destinations. Finally, the potential for intercity passenger rail to reduce highway congestion is greater where there is little or no additional space to build additional highway lanes and interchanges to reduce congestion.

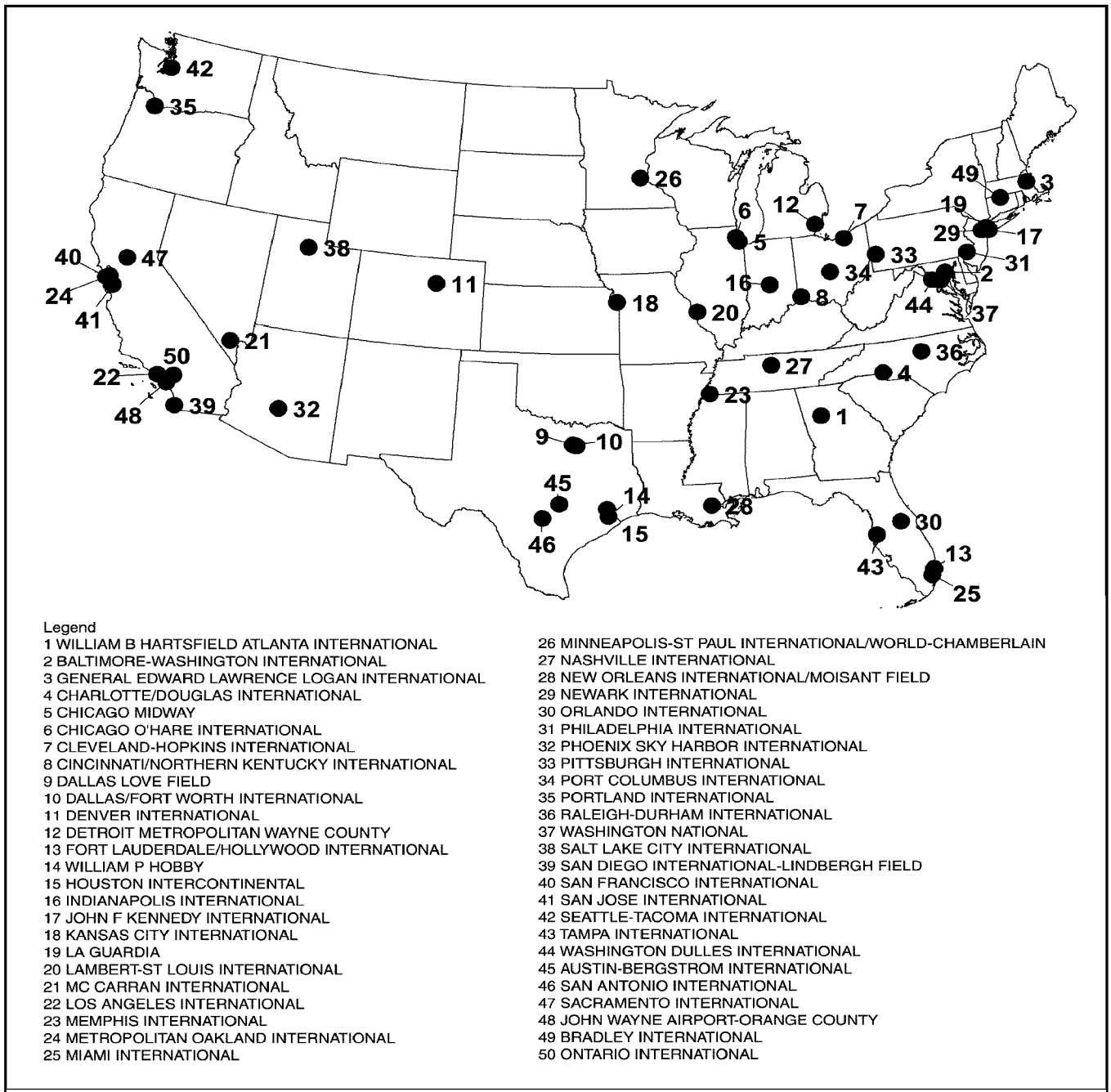
Intercity passenger rail service could also potentially ease air travel congestion (takeoff and landing delays) if it is able to capture enough market-share to reduce the number of flights between cities through frequent, competitively priced, and attractive service.<sup>12</sup> (See fig. 6.) As would be the case with reductions in highway congestion, air travelers, not rail passengers, would benefit from reductions in air travel congestion. As a result, for similar reasons, rail service operators may not be able to set fares that capture the value of these benefits.

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<sup>12</sup>For a brief discussion of the role that intercity passenger rail might play in the development of a national strategy to address air transportation demand, see U.S. General Accounting Office, *National Airspace System: Long-Term Capacity Planning Needed Despite Recent Reductions in Flight Delay*, GAO-02-185 (Washington, D.C.: Dec. 14, 2001).



Figure 6: Fifty Busiest Airports in the United States, 2000



Note: Based on enplanements. The airports are not listed in rank order.

Source: Federal Aviation Administration.

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For rail transport to capture the market-share necessary to reduce air travel congestion, the distance between potential intercity passenger rail cities must be short enough to make rail travel times competitive with air travel times (at comparable costs and levels of comfort). For example, during the first quarter of 2001, the number of air passengers (as measured by the number of trips) flying between Chicago, Illinois, and Detroit, Michigan, was comparable to the number of passengers flying between Chicago and Orlando, Florida.<sup>13</sup> However, the nonstop air distance from Chicago to Detroit is 233 miles, and the distance from Chicago to Orlando is almost 1,000 miles. Accordingly, it will be harder for intercity passenger rail to obtain a sizeable market share between Chicago and Orlando because the travel time by rail is significantly greater (about 3 hours by air and 40 hours by rail). As previously mentioned, Amtrak's market share decreases rapidly as travel time increases. Studies also suggest that as the speed of intercity passenger rail service increases, the potential benefits attributable to reductions in airport (and highway) delays increase, as does the potential distance over which rail is able to compete with air transport.

Similar to highway congestion, the potential for intercity passenger rail to reduce air congestion is greater where there is little or no additional space for runways. For example, San Francisco International airport has fewer options for increasing capacity than the Denver International Airport. The potential to reduce air congestion is also greater for markets where limited competition among airlines results in relatively high air fares. In such markets, intercity passenger rail service will be better able to compete than in markets where greater competition among airlines keeps air fares relatively low.

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### Intercity Passenger Rail May Help Reduce Vehicle Emissions in Certain Markets

Proponents of high-speed rail service state that a potential public benefit of intercity passenger rail is a reduced overall level of vehicle emissions, which results in lower pollution levels and indirectly reduces some health and environmental costs. If intercity passenger rail service can provide an incentive for travelers to shift from automobile to rail travel, this switch could reduce vehicle emissions and pollution. However, the magnitude of vehicle emission reductions will depend in part on the type of technology

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<sup>13</sup>Passenger trips flown per day between Chicago and Detroit, and Chicago and Orlando were 3,239 and 3,158, respectively. Data were obtained from the U.S. Department of Transportation publication "Domestic Airline Fares Consumer Report: First Quarter 2001 Passenger and Fare Information."

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used to power rail locomotives.<sup>14</sup> In addition, within the range that most vehicles are driven, automobile carbon monoxide and hydrocarbons emissions increase as vehicle speed decreases.<sup>15</sup> Therefore, where intercity passenger rail is successful at easing roadway congestion, this reduced congestion could result in less of these forms of pollution from the remaining vehicles on the highway(s). To the extent that they can be attained, the benefits from reduced pollution are similar to the benefits from reduced congestion in that they accrue to society as a whole, and not solely to the riders of intercity passenger trains.

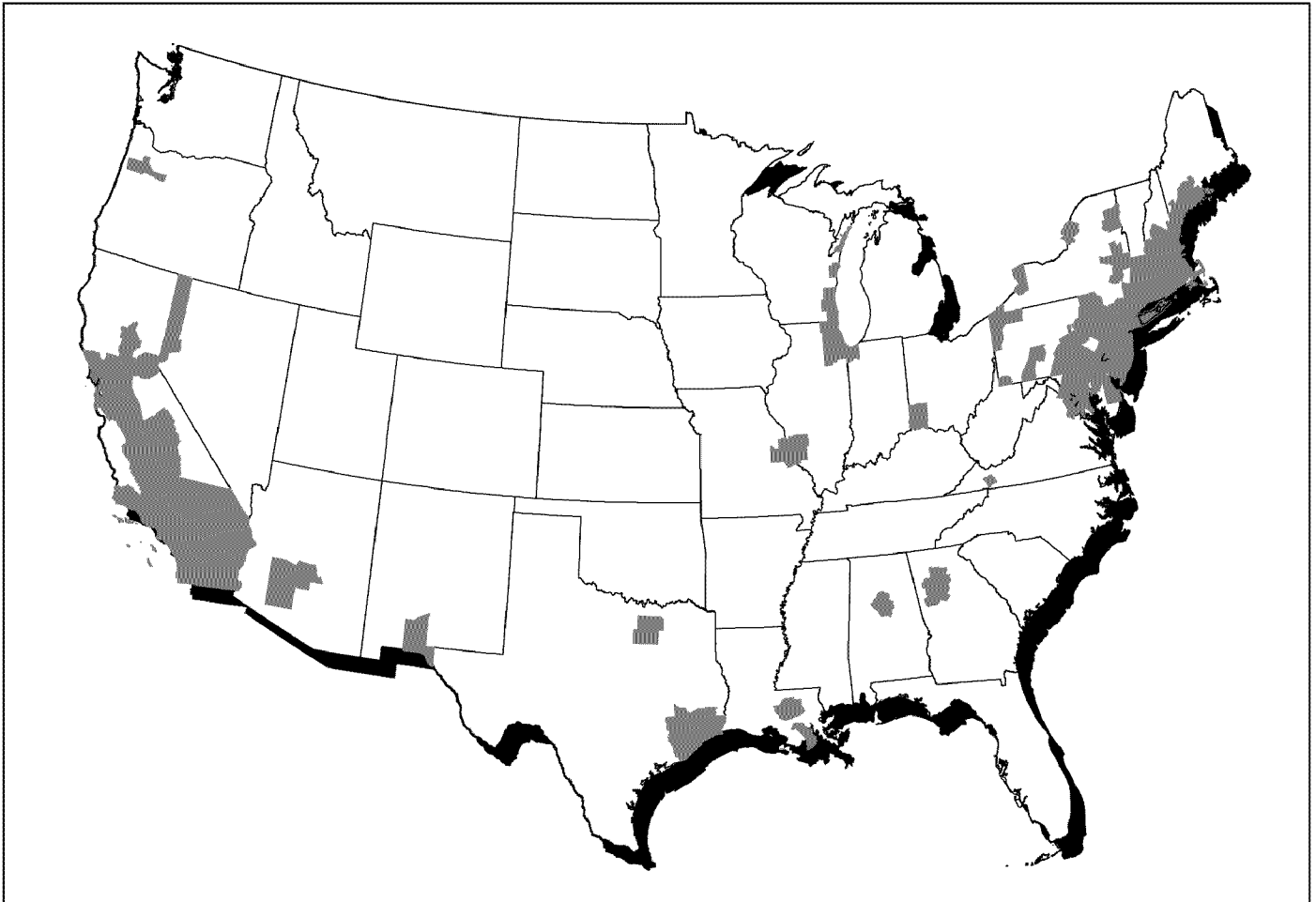
The ability of intercity passenger rail service in a particular market to generate benefits from reduced vehicle emissions depends on both the level of pollution and the likelihood that travelers will choose rail service over other modes of travel. (See fig. 7.) Markets where intercity passenger rail service could be competitive with other modes in terms of price, travel time, and quality and frequency of service are likely to offer the greatest opportunity to reduce pollution.

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<sup>14</sup>Conventional electric rail systems (taking into account the emissions of electric generating power plants) emit less carbon monoxide, hydrocarbons, and nitrous oxides per passenger-mile from burning coal (bituminous), natural gas, or fuel oil than conventional diesel-powered rail. For particulate matter, coal-generated electric rail produces more emissions than diesel, but natural gas- and fuel oil-generated electric rail produces less than diesel. Wayson, R.L. and W. Bowlby, "Noise and Air Pollution of High-Speed Rail Systems," *Journal of Transportation Engineering*, Vol. 115, No. 1, January, 1989.

<sup>15</sup>Automobile emissions of nitrogen dioxide increase with vehicle speed.

**Figure 7: Areas That Did Not Meet Air Quality Standards for Ozone, 2002**



Note: Areas darkened are counties in which the whole county or part of the county was designated nonattainment for ozone. Ozone is not directly emitted by mobile sources, but is formed by the airborne reaction of heat and sunlight with nitrogen oxides and volatile organic compounds, which, in turn, are emitted by cars and trucks. In 1999, 34 percent of all nitrogen oxide emissions and 29 percent of all volatile organic compound emissions were from motor vehicles.

Source: Environmental Protection Agency.

Where intercity passenger rail exists, results from studies examining the impact of changes in vehicle emissions and air pollution vary. A 2002 study by the California Department of Transportation found that improvements to the three state-supported Amtrak intercity rail routes in California—the Pacific Surfliner route between San Diego and San Luis

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Obispo, the San Joaquin route between Oakland/Sacramento and Bakersfield, and the Capitol Corridor route between San Jose and Auburn—would decrease air pollution from hydrocarbon and carbon monoxide emissions.<sup>16</sup> However, the study also found that air pollution from certain nitrous oxide and particulate compounds emitted from the diesel fuel-burning locomotives would increase. Our 1995 analysis of the Los Angeles to San Diego corridor projected that eliminating rail service between the cities would lead to a net increase—although small—in vehicle emissions from added automobiles, intercity buses, and aircraft.<sup>17</sup>

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### Intercity Passenger Rail May Contribute to Reduced Energy Dependency and Fossil Fuel Consumption

Intercity passenger rail may also generate some public benefit by reducing the country's dependency on gasoline and fossil fuels and, therefore, the costs associated with vulnerability to an energy supply disruption. These benefits, which would accrue to the public as a whole rather than to intercity passenger rail travelers only, may be achieved if intercity passenger rail would require less fuel than would other modes that the rail passengers might use if intercity passenger rail service were not available. The extent of these benefits would depend upon how many fewer trips would be taken via other modes of travel and the technology of the locomotive(s) used. Furthermore, similar to the link between highway congestion and vehicle emissions, automobiles burn fuel more efficiently at higher speeds (up to a point) compared to idling in traffic. Therefore, where intercity passenger rail service is successful at reducing roadway congestion, the amount of fuel consumed by the remaining vehicles could be reduced as well.

A 2002 California Department of Transportation study that examined the impact of passenger rail on fuel consumption estimated that in 2011, 13 million gallons of gasoline could be saved by expanded service on the three intercity rail corridors cited previously.<sup>18</sup> Similarly, the Congressional Research Service reported that Amtrak is much more

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<sup>16</sup>California Department of Transportation, California State Rail Plan: 2001-02 to 2010-11 (Jan. 2002).

<sup>17</sup>U.S. General Accounting Office, *Amtrak: Issues for Reauthorization*, GAO/T-RCED-95-132 (Washington, D.C.: Mar. 13, 1995). Carbon monoxide and hydrocarbons emissions were predicted to increase, and nitrous oxide and sulfur dioxide emissions were predicted to decrease.

<sup>18</sup>California Department of Transportation, California State Rail Plan: 2001-02 to 2010-11 (Jan. 2002).

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energy-efficient than air travel; yet, it also found that Amtrak is much less energy-efficient than intercity bus transportation and about equally as energy-efficient as automobiles for trips longer than 75 miles.<sup>19</sup> However, our analysis of the Los Angeles to San Diego corridor projected that eliminating rail service between the cities would lead to a net increase in fuel consumption.<sup>20</sup>

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### Passenger Trains Are a Safe Mode of Transportation

Another area of potential public benefits from intercity passenger rail is the relative safety of passenger travel by rail. According to the Federal Railroad Administration, from 1997 through 2000 Amtrak itself was responsible for only one passenger fatality. Furthermore, the Transportation Research Board reports that rail operators caused no passenger fatalities in 25 years of high-speed rail travel in Japan and France.<sup>21</sup>

If passengers believe passenger rail is safer than other modes, they may opt to travel by rail, all else being equal, to improve their own safety. In addition, some public benefits might also result from more travelers using a safer mode of travel. For example, if travelers switch from cars to trains, the reduced highway congestion may lead to fewer accidents for those travelers continuing to use highways. In addition, society as a whole may benefit from reduced fatalities and injuries through reduced public spending on medical care and less lost productivity. These potential public benefits may be greater for routes that parallel corridors where many accidents occur and the public benefits from travelers' switching from car to rail are likely to be the greatest.

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<sup>19</sup>Congressional Research Service, *Amtrak and Energy Conservation* (Jan. 19, 1999). The analysis in this report was based on Btu per passenger-mile results and took into account variations in load factors, congested routes, and other factors that would affect the outcomes in particular circumstances. This analysis, however, did not include energy imbedded in the infrastructure of each mode of intercity passenger transportation or energy expended in ancillary activities such as powering stations and repairing roadways and guideways. This limitation complicates any comparison of relative energy efficiency of different travel modes.

<sup>20</sup>GAO/T-RCED-95-132.

<sup>21</sup>Transportation Research Circular, "Research Problem Statements on Intercity Passenger Rail." Number 490, Jan. 1999, Transportation Research Board, National Research Council.

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## Other Benefits May Also Exist

Other public benefits may result from intercity passenger rail—even if ridership is fairly limited. One such benefit is sometimes called option demand: society might be willing to pay to maintain intercity rail service to retain the option to use it in the future. That is, for some people, having the option of rail service available in case circumstances change—such as the availability of air travel or concerns about air travel safety—could have some value, even if they do not currently plan to use it. A second type of benefit is sometimes called non-use, or existence, value. This concept, which is most commonly used as a basis for valuing natural resources, such as the Grand Canyon, is that people receive value from knowing that some things exist even if they do not plan to directly use them.

Although option demand and non-use value are concepts that analysts widely accept, quantifying these benefits is difficult and sometimes controversial. They are frequently measured by survey techniques that attempt to estimate willingness-to-pay. Many researchers find that estimates obtained with such techniques are less persuasive than estimates derived from information on actual purchases of goods and services.

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## Like Other Modes, Intercity Passenger Rail Requires Substantial Investment

Intercity passenger rail systems, like other intercity transportation systems, are expensive to build, maintain, and operate. Federal spending to support intercity passenger rail service would have the greatest effect where the expected public benefits warrant the costs expected to be incurred. Estimates of the costs of maintaining and expanding current systems and developing new ones are preliminary. Although we have not assessed the quality of these estimates, we agree that such systems will be costly. For example, the amount of funding that Amtrak will likely need for both capital and operating assistance to maintain intercity passenger rail service at today's service levels far exceeds the amounts that have been provided in recent years. For example, in February 2001, Amtrak estimated that it would need about \$16 billion (in constant 2000 dollars) in federal capital support from 2001 through 2020 just to maintain current levels of service. Amtrak expects that an additional \$14 billion during this period would be needed to expand and enhance services. Amtrak anticipated that state and private support would supplement federal assistance.

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This \$30 billion estimate is again about half more than the \$19.6 billion (in 2000 dollars) that Amtrak has received in both federal capital and operating support over the past 20 years (1983 through 2002).<sup>22</sup> Similarly, the annual amount Amtrak called for—about \$1.5 billion per year—is about 50 percent more than the average annual amount that Amtrak has received from Congress over the past 5 years (\$1 billion per year, in 2000 dollars).<sup>23</sup>

In addition to the substantial funding needed to maintain (and perhaps enhance) current Amtrak conventional and Northeast Corridor service, full development of high-speed rail corridors throughout the country would also be very expensive. Overall costs to develop high-speed corridors are unknown because these initiatives are in various stages of planning. However, according to a preliminary Amtrak estimate, the capital costs to fully develop the federally designated high-speed rail corridors and the Northeast Corridor could be \$50 billion to \$70 billion over 20 years. The federal government could be expected to provide much of these funds. For example:

- The Midwest Regional Rail Initiative, comprised of nine Midwestern states, estimates that providing high-speed and other enhanced service could cost \$4.1 billion (in 1998 dollars) over 10 years. The proposal calls for federal funds to cover 80 percent of infrastructure costs.
- California estimates that it would cost \$4 billion (in 2000 dollars) over 10 years to implement incremental high-speed rail service in that state. It expects that the federal government will contribute about \$3 billion of this amount.

Recently introduced legislation has also recognized the substantial capital investment required for intercity passenger rail systems. For example, in the House of Representatives, the Rail Infrastructure Development and Expansion Act for the 21<sup>st</sup> Century (H.R. 2950) would authorize the issuance of tax-exempt bonds, grants, direct loans, and loan guarantees of over \$71 billion (in nominal dollars) for high-speed rail infrastructure, corridor development, rehabilitation, and improvement. In the Senate, the

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<sup>22</sup>In nominal dollars, Congress provided Amtrak with about \$16.6 billion from 1983 through 2002.

<sup>23</sup>In nominal dollars, Congress provided Amtrak with about \$5.1 billion from 1998 through 2002.



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National Defense Rail Act (S. 1991) would authorize significant funding for passenger rail infrastructure investment, including \$1.5 billion (in nominal dollars) a year over 6 years for high-speed rail corridor development.

In addition to capital subsidies, intercity passenger rail will likely require operating subsidies from federal, state, and/or local stakeholders in order to be competitive with other transportation modes. In particular, operating a national intercity passenger rail system as currently structured will require operating subsidies. Amtrak has only one route—the Metroliner service on the Northeast Corridor—on which train revenue covers operating costs.<sup>24</sup> Metroliner service earned an operating profit of \$51 million in fiscal year 2001. Operating losses on other routes ranged from \$600,000 to \$71.5 million. In addition, if potential private operators were allowed to bid for the opportunity to provide train service over discrete routes, operating subsidies would likely be required. We contacted five private rail companies that have been identified as possible intercity rail providers. Four said that although they could provide efficient intercity passenger rail service, they would still need operating subsidies. The fifth private operator stated that it had not yet determined whether operating subsidies would be needed. We also contacted the six freight carriers in North America about providing intercity passenger rail service. Three of the six said they would consider providing passenger service if it made business sense and did not interfere with freight services. However, most of these railroads indicated that operating subsidies would be needed.

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## Initial Considerations in the Development of an Intercity Passenger Rail Policy

Given the diverse potential benefits of intercity passenger rail systems and the large costs associated with them, the development of a national intercity passenger rail policy represents a major challenge. This challenge is made more difficult because of longer-term fiscal pressures and the new commitments undertaken after September 11<sup>th</sup>. Congress will have to consider what is the proper role of the federal government in intercity passenger rail as it examines competing claims and new priorities. When considering development of a policy for the future of intercity passenger rail service in the United States, Congress will face the question of whether and where the potential public benefits are sufficient

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<sup>24</sup>As measured on a cash basis, that is, revenues less cash expenses. Depreciation is not included. Another route, the Heartland Flyer between Texas and Oklahoma made a profit of \$600,000 primarily because the state of Oklahoma provided Amtrak with \$4.6 million, about 80 percent of the route's total revenue.

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to warrant government intervention to ensure that intercity passenger rail service—which the private sector has not found profitable to provide on its own—will exist.

As Congress debates a transformation of intercity passenger rail, including whether continued direct federal government support is warranted, initial considerations that could be of use are (1) establishing clear, non-conflicting goals for federal support for intercity passenger rail systems; (2) establishing the roles of governmental and private entities and developing funding approaches that focus on and provide incentives for results and accountability; and (3) ensuring that the strategies developed address diverse stakeholder interests, to the extent possible, and limit unintended consequences. Numerous mechanisms and stakeholders could be used to help Congress incorporate these considerations into a national policy for intercity passenger rail.

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### Establish Clear, Non-conflicting Goals for Federal Support of Intercity Passenger Rail

A critical initial decision for Congress concerns the goals of an intercity passenger rail system within the context of the nation's passenger transportation network. Clearly defined goals will provide a foundation for making other decisions, such as determining the structure of a passenger rail system, identifying the level of funding required, and determining how assistance will be provided. For example, Congress might establish the goal of providing intercity passenger rail service to as many cities and towns that have existing railroad infrastructure so as to provide enhanced transportation choice. In contrast, Congress might establish a more limited goal of contributing to alleviating congestion and improving air quality by providing intercity passenger rail only between select densely-populated areas. Clearly, the nature and scope of the selected goals establishes expectations for the federal government's financial commitment to intercity passenger rail.

To help ensure the goals are achieved, conflicting goals should be avoided to the extent possible because attempts to attain one goal might reduce the likelihood of attaining another. An example of such a conflict can be seen in Amtrak's efforts to maintain its national route system while becoming free from federal operating assistance. In an effort to maintain a national system Amtrak has continued to run routes for which fare revenues do not cover operating costs, even when subsidized by other Amtrak revenues. As cited earlier, only one route made an operating profit in 2001 without state support. In addition, the goals should be measurable—that is, they should identify the amount of public benefits to be attained. Stating goals in measurable terms makes it easier to assess

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the success or failure of government support for intercity passenger rail service, and ultimately to hold the intercity passenger rail system accountable for the results.

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### Establish Roles of Governmental and Private Entities in Providing Intercity Passenger Rail

Establishing the relative roles of the federal, state, and local governments and private entities in providing intercity passenger rail service will help ensure, to the extent practicable, that the goals can be achieved. This step is critical because defining these roles will help to establish incentives for leadership, financial participation, risk-sharing, and accountability. Roles are defined not only by specific structures and organizations but, perhaps more significantly, by the forms, conditions, and terms of assistance.

Regarding structures and organizations, for example, should there still be a government-established entity, such as Amtrak, that provides intercity passenger rail service? Or should federal and state governments allow private operators to receive government assistance on a competitive basis to provide intercity passenger rail service, whether nationally or regionally? In addition, federal, state, local, and private roles will need to be established regarding how decisions about routes are made, how costs will be shared, and what safeguards are used to protect the federal government's interests. For example, should any new rail system reflect a top-down approach in which the federal government or another entity (like Amtrak) determine the route structure on the basis of a national focus? Or, should it be a bottom-up system in which entities closer to rail users (such as states or regional collections of states) decide where intercity passenger service will generate the most public benefits for their citizenry? Currently, passenger route decisions are made at a national level through Amtrak.

Regarding financing, the federal government is currently the major public sector financier of intercity passenger rail (about \$1 billion per year on average from 1998 through 2002). Comparatively, Amtrak estimates that states will contribute \$223 million in 2002 to support specific Amtrak routes and improve infrastructure. Maintaining current intercity passenger rail service will likely continue to cost a minimum of \$1 billion per year according to Amtrak and the Department of Transportation's Inspector General. Federal funding for intercity passenger rail service will continue to compete with other national transportation and non-transportation needs.

Most of the officials from the 17 state departments of transportation whom we contacted indicated that they would be willing to provide funds to continue intercity passenger rail operations in their states. However, the

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officials stated that continued federal investment would also be needed. Moreover, to ensure that intercity rail was on equal footing with other transportation modes, they suggested that an 80/20-federal/state cost-sharing arrangement would be appropriate. However, the officials also expressed concerns about their ability to form partnerships with other states to finance intercity passenger rail, noting that determining fair cost-sharing arrangements for capital improvements among the states would be difficult. In addition, some officials commented that investing state funds in improvements in another state is often politically difficult and, in some cases, prohibited by law.

The choice and design of tools for providing federal financial assistance have important consequences for performance, transparency, and accountability. Governments have at their disposal a wide variety of funding mechanisms for providing financial assistance, such as grants, bonds, tax subsidies, loans, loan guarantees, and user fees. The numerous tools vary in the extent to which they allow federal assistance to (1) generate a stable source of revenue sufficient to provide the capital needed to develop intercity passenger rail systems; (2) ensure that investments provide an appropriate return relative to investments in other intercity transportation systems; (3) leverage the federal dollar by providing positive incentives for investments by others and discouraging the replacement of state and local funds with federal funds (commonly called supplantation or substitution); and (4) strike a balance between accountability and flexibility. Various funding mechanisms can also be structured to support or facilitate the development of partnerships between government and private entities across regions.

Regardless of the tool(s) selected, specific safeguards would be needed to protect the federal government's interests. The safeguards could vary, depending on the nature of the financial assistance tools used. For example, the Federal Transit Administration's (FTA) New Starts program provides several such safeguards.<sup>25</sup> In this program, FTA evaluates and rates potential transit projects against project justification and local financial commitment criteria. The criteria include mobility improvements, environmental benefits, cost effectiveness, operating efficiencies, local cost sharing, and quality of capital and operating finance

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<sup>25</sup>The New Starts program provides grants to local transit providers for constructing or extending certain types of mass transit systems.

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plans. FTA uses the ratings to decide which projects will proceed to preliminary engineering and final design phases, be recommended for funding, and receive grants. In addition, the grant agreement establishes the terms and conditions for federal participation in a project, including the maximum amount of federal funds to be made available. Project sponsors are generally responsible for higher than expected costs.

In addition to the financial tools, other mechanisms could be used to hold the recipients of financial assistance accountable for results. To improve federal program effectiveness and public accountability, Congress passed the Government Performance and Results Act of 1993 (the Results Act). Under this act, executive agencies must prepare 5-year strategic plans, annual performance plans, and annual reports on the extent to which goals were met and on what actions are needed to achieve or modify goals that have not been met. By requiring these actions, the Results Act seeks to hold agencies accountable for results. Similar accountability mechanisms could be built into intercity passenger rail policy.

Another way to promote performance and accountability would be to require the intercity passenger rail operator(s) to assume some level of financial risk. For example, the operator might receive a fixed level of subsidy plus all the ticket revenue generated. If the sum of the fixed subsidy and ticket revenue were less than operating expenses, the shortfall would be the operator's responsibility to meet. This arrangement would encourage operators to provide quality service that attracts customers and to operate efficiently. Several potential private operators that we contacted said that they would be willing to assume some level of financial risk.

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**Ensure That Strategies  
Address Diverse  
Stakeholder Interests and  
Limit Unintended  
Consequences**

Revising intercity passenger rail policy could have substantial effects on a number of stakeholders, including Amtrak and its employees, the railroad retirement and unemployment systems, commuter railroads, states, and freight railroads. Important attributes of any new national intercity passenger rail policy are that it addresses diverse stakeholder interests, to the extent possible, and limits unintended consequences.

Amtrak, its creditors, and its employees could be the groups most directly affected by substantial changes in intercity passenger rail policy. The most sweeping effect on these stakeholders would occur if Amtrak were to be liquidated. Amtrak recently estimated that the net cost (net from sales of assets) of liquidation could be \$7.7 billion to \$11.5 billion (in nominal dollars) over a 5-year period. This cost includes possible losses by creditors (including labor protection payments to Amtrak employees)

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and the railroad retirement and unemployment insurance systems. We are updating our 1998 assessment<sup>26</sup> of the potential costs of an Amtrak liquidation for this committee and expect to report on this topic later this summer.

Similarly, Amtrak's Northeast Corridor is a vital piece of infrastructure that would have to be dealt with carefully because of its many other users. Currently, the corridor handles about 1,200 Amtrak, commuter railroad, and freight railroad trains a day. By far, the heaviest users of the corridor are the commuter railroads, which depend at least in some part on access to the corridor to bring their riders into major cities (on average, about 1.2 million riders per day).

Many state officials told us that intercity passenger rail is an important part of their transportation systems. Officials in most of the 17 states that we contacted indicated that they would try to continue some type of intercity rail service if Amtrak service was discontinued in their states. However, these officials expressed a number of concerns about their ability to do so. Two common concerns that they raised were whether new operators could obtain a right to use freight railroads' tracks under terms similar to those that apply to Amtrak and whether states could form partnerships with other states to support intercity passenger rail service. In particular, the states worry that the freight railroads would not grant a new operator access rights or would increase their fees above the incremental costs. Thus, obtaining these rights would greatly affect states' decisions to support intercity passenger rail.

Freight railroads would also be directly affected because freight railroads own nearly all of the tracks in the United States. Freight railroad officials are concerned about the degree to which providing intercity passenger rail service does and will affect their ability to serve their customers and to earn profits. Freight railroads are concerned about the impact on their business and liability issues if additional conventional passenger rail service and/or high-speed rail service operates on their tracks. Operating high-speed trains on their tracks amplifies these problems because as passenger train speeds increase, freight railroads must provide more room

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<sup>26</sup>U.S. General Accounting Office, *Intercity Passenger Rail: Issues Associated With a Possible Amtrak Liquidation*, GAO/RCED-98-60 (Washington, D.C.: Mar. 2, 1998). In this report, we concluded that the United States would not be legally liable for secured or unsecured creditors' claims in the event of an Amtrak liquidation. Nevertheless, we recognized that creditors could attempt to recover losses from the United States.

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in order to operate both passenger and freight trains safely. In addition, freight railroad officials believe that they are not fully compensated for providing this service. Although the officials were generally open to the idea of giving new passenger operators access to their tracks, they stated that they would seek to charge more than the incremental costs associated with this use. As mentioned earlier, states that we contacted generally had different expectations about access fees than the freight railroads, which would also affect their willingness to participate.

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In summary Mr. Chairman, there is a growing consensus that the current approach to providing intercity passenger rail system needs revision. If Congress wants to retain a system such as the one in place today, substantially more capital and operating funds are likely to be needed than are currently provided. Congress will have to weigh the decision of whether to provide this additional funding for intercity passenger rail against short- and long-range fiscal challenges in other areas of the federal budget. With this backdrop, Congress will soon have to decide if and how intercity passenger rail service can provide public benefits and complement other modes of transportation as an integrated part of our national transportation network. The first step is to establish clear and nonconflicting goals for providing federal assistance for intercity passenger rail service as part of complementary and mutually reinforcing national policies for other modes of transportation. All decisions—from establishing incentives for participation, to ensuring accountability for results, to determining the structure of intercity passenger rail systems, to ensuring that the strategies developed address diverse stakeholder interests—will cascade from the goals that are established. Numerous mechanisms and stakeholders could be used to help Congress develop a national policy for intercity passenger rail. We stand ready to assist Congress in examining this issue.

This concludes our prepared remarks. We would be pleased to answer any questions you or other members of the Subcommittee may have.

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## Scope and Methodology

To assess the potential public benefits of intercity passenger rail service, we reviewed published economic and transportation literature relating to intercity passenger rail. To provide information on the costs of providing intercity passenger rail service, we obtained information from Amtrak, the Amtrak Reform Council, the Department of Transportation's Inspector General, and, where available, from high-speed rail corridors. To

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determine the initial considerations that could guide Congress as it debates the future role of the federal government in supporting intercity passenger rail service, we relied upon a number of products that we have issued on setting budget priorities, assessing investment decisions, and evaluating federal financial assistance to financially struggling organizations. We also contacted 30 organizations—states (on and off the Northeast Corridor), commuter railroads, and freight railroads—that are affected by Amtrak, 5 prospective intercity rail operators, and Amtrak. Our work was carried out from January through March 2002 in accordance with generally accepted government auditing standards.

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## Contacts and Acknowledgments

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# Appendix I: Selected GAO Products

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## Developing National Strategies

*Regulatory Programs: Balancing Federal and State Responsibilities for Standard Setting and Implementation.* GAO-02-495. Washington, D.C.: March 20, 2002.

*Budget Issues: Long-Term Fiscal Challenges.* GAO-02-467T. Washington, D.C.: Feb. 27, 2002.

*Mass Transit: Many Management Successes at WMATA, but Capital Planning Could be Enhanced.* GAO-01-744. Washington, D.C.: July 3, 2001.

*Combating Terrorism: Key Aspects of a National Strategy to Enhance State and Local Preparedness.* GAO-02-473T. Washington, D.C.: Mar. 1, 2002.

*Commercial Aviation: A Framework for Considering Federal Financial Assistance.* GAO-01-1163T. Washington, D.C.: Sept. 20, 2001.

*Federal Budget: Choosing Public Investment Programs.* GAO/AIMD-93-25. Washington, D.C.: July 23, 1993.

*Guidelines for Rescuing Large Failing Firms and Municipalities.* GAO/GGD-84-34. Washington, D.C.: Mar. 29, 1984.

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## Amtrak

*Intercity Passenger Rail: The Congress Faces Critical Decisions About the Role of and Funding for Intercity Passenger Rail Systems.*, GAO-01-820T. Washington, D.C.: July 25, 2001.

*Intercity Passenger Rail: Amtrak Will Continue to Have Difficulty Controlling Its Costs and Meeting Capital Needs.* GAO/RCED-00-138. Washington, D.C.: May 31, 2000.

*Northeast Rail Corridor: Information on Users, Funding Sources, and Expenditures.* GAO/RCED-96-144. Washington, D.C.: June 27, 1996.

*Intercity Passenger Rail: Financial and Operating Conditions Threaten Amtrak's Long-Term Viability.* GAO/RCED-95-71. Washington, D.C.: Feb. 6, 1995.

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## High-Speed Rail

*The High Speed Rail Investment Act of 2001.* GAO-01-756R. Washington, D.C.: June 25, 2001.

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*Surface Infrastructure: High-Speed Rail Projects in the United States.*  
GAO/RCED-99-44. Washington, D.C.: Jan. 14, 1999.

*High-Speed Ground Transportation: Issues Affecting Development in the United States.* GAO/RCED-94-29. Washington, D.C.: Nov. 17, 1993.