

February 1995

INTERCITY PASSENGER RAIL

Financial and Operating Conditions Threaten Amtrak's Long-Term Viability



**Resources, Community, and
Economic Development Division**

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February 6, 1995

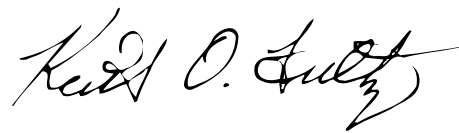
Congressional Recipients

This report assessing Amtrak's deteriorating financial and operating conditions was conducted as part of our legislative responsibilities under the Rail Passenger Service Act (P.L. 91-518, 84 Stat. 1327 (1970)). The report addresses the likelihood that Amtrak can overcome its financial and operating problems and presents alternative actions that could be considered by the Congress in deciding on Amtrak's future mission and on commitments to fund the railroad. On the basis of our review, we are making a recommendation to the Congress and several recommendations to the President of Amtrak.

We are sending copies of the report to the Secretary of Transportation, the President of Amtrak, and interested congressional committees. We will also make copies available to others upon request.

This work was done under the direction of Kenneth M. Mead, Director, Transportation Issues, who may be reached at (202) 512-2834 if you or your staff have any questions. Other major contributors to this report are listed in appendix V.

Sincerely yours,



Keith O. Fultz
Assistant Comptroller General

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The Honorable John D. Dingell
House of Representatives

Executive Summary

Purpose

Since 1971, the federal government has provided the National Railroad Passenger Corporation (Amtrak) with over \$13 billion to support intercity passenger rail service. In early 1994, GAO testified before several congressional committees that Amtrak's financial and overall operating conditions had deteriorated, seriously threatening the corporation's ability to provide an acceptable level of service. GAO continued to assess (1) Amtrak's financial and operating conditions, (2) the likelihood that Amtrak can overcome its financial and operating problems, and (3) alternative actions that could be considered in deciding on Amtrak's future mission and on commitments to fund the railroad.

Background

In 1970, the Congress created Amtrak as a for-profit corporation to provide nationwide intercity passenger rail service. Amtrak was expected to help alleviate the overcrowding of airports and highways and to offer the public a convenient and efficient transportation alternative. Until 1970, the railroads were required to provide passenger service, but by that year, their combined annual losses for passenger services had increased to about \$1.7 billion in today's dollars. In return for eliminating the requirement to provide passenger service and because of these losses, most railroads provided personnel and equipment to Amtrak, and it began operations in 1971.

Like all major national intercity rail services in the world, Amtrak operates at a loss, and it has always needed government funding. In 1995, Amtrak will receive \$972 million in operating and capital grants, funds to improve the infrastructure that Amtrak owns in the Northeast, and a payment for retirement and unemployment benefits.

Results in Brief

Amtrak's financial and operating conditions have declined steadily since 1990, and Amtrak's ability to provide nationwide service at the present level is now seriously threatened. Amtrak's federal support has increased from \$640 million in 1990 to almost \$1 billion in 1995, but this increase has not covered the widening gap between expenses and revenues. Also, requirements for capital investment continue to grow, and unmet needs for new equipment and improvements to facilities and track now total several billion dollars. Over the past several years, Amtrak has taken action to address this situation by assuming debt, deferring maintenance, and reducing staffing. However, many of these actions, while necessary for day-to-day survival, have simultaneously diminished the quality and reliability of Amtrak's service. Most recently, on December 14, 1994,

Amtrak announced an aggressive plan to improve its service quality and productivity and to reduce its annual expenses by \$430 million by adjusting routes and service, retiring its oldest cars, and reducing staff. Amtrak expects that these actions will close the gap between the operating deficit and federal grants for 1995. However, the gap will begin growing again in 1996, and the announced actions do not resolve the problems with Amtrak's equipment and facilities.

It is unlikely that Amtrak can overcome its problems in financing, capital investments, and service quality—and continue to operate the present nationwide system—without significant increases in passenger revenues and/or subsidies from federal, state, and local governments. Amtrak's ability to overcome these problems is exacerbated by an unfavorable operating environment. For example, competition from airlines in fares has increased, and the growth in Amtrak's revenues from ridership has suffered as a result. In addition, Amtrak estimates that it needs over \$4 billion to bring its equipment and facilities systemwide and its track in the Northeast Corridor¹ into a state of good repair. Also, within the next 2 years, Amtrak must negotiate new labor agreements and may confront substantial additional costs for new agreements with freight railroads to use their track.

Amtrak and the federal government face difficult choices. GAO believes that continuing the present course—maintaining the same funding level and route system, even with the proposed cuts in service—is neither feasible nor realistic because Amtrak will continue to deteriorate. Another option—substantially increasing funding—would permit Amtrak to make capital investments and improve service quality so that it could retain current riders and attract new ones. This alternative would be costly and extremely difficult to achieve in the current budget environment. An option at the other extreme would be to eliminate subsidies for Amtrak and privatize the railroad. This alternative may be difficult to achieve because few private firms would be willing to assume the risks of providing intercity passenger service, considering that no Amtrak route earns sufficient revenues to cover all its costs. Another option would be to refocus Amtrak's efforts and greatly realign or reduce the current route system, retaining service in locations where Amtrak can carry the largest number of passengers in the most cost-effective manner. This option does not preclude retaining relatively unprofitable routes or operating high-speed service outside the Northeast Corridor if the states or other

¹The Northeast Corridor is the area between Washington, D.C., and Boston. High-speed rail service is currently provided between Washington, D.C., and New York.

entities are willing to make the necessary capital investments and cover any operating deficits.

Principal Findings

Amtrak's Financial Condition Has Reached a Critical Stage

Over the years, Amtrak has made numerous attempts to reduce expenses and improve the efficiency of its operations. To Amtrak's credit, these actions have served to hold down the corporation's operating deficit, but they have not arrested the long-term decline in finances and operations. Since 1990, Amtrak's problems have accelerated, and the corporation is finding it increasingly difficult to provide convenient and efficient nationwide intercity passenger service. From 1991 to 1994, revenues were lower than projected, while expenses were higher than planned. As a result, Amtrak's revenues and federal operating subsidies did not cover operating deficits. Amtrak overestimated passenger revenues by \$600 million from 1991 through 1994. The projected revenues did not materialize for several reasons, including declining service quality and increased fare competition from airlines. To help cover the gap, Amtrak drew down its cash resources. At the end of 1994, it had a negative balance in working capital of \$227 million. Amtrak also deferred maintenance on train equipment and reduced staffing levels and some services. Despite these efforts, the 1994 deficit exceeded the federal operating grant by \$76 million. Amtrak had projected that this gap would increase to almost \$200 million in 1995.

In an effort to address the cash shortfall, Amtrak's Board of Directors adopted, in December 1994, a plan to cut expenses by restructuring the railroad's route network and improving productivity. Amtrak plans to reduce the train miles of service it provides by more than 20 percent, but it will accomplish the reduction largely by cutting back on the frequency of service, especially on its long-distance routes, rather than by eliminating routes entirely. Only 3 short-distance routes and segments of 10 others will be eliminated. Amtrak plans to negotiate with the affected states and could retain service where the states are willing to subsidize the losses on the routes. Amtrak estimates that these actions will result in the termination of about 5,000 of its 25,000 employees and will reduce operating expenses by about \$200 million in 1995, closing the gap between the projected operating deficit and the corporation's federal operating grant for 1995. According to Amtrak, collective bargaining and/or legislative change may

be required to achieve about 26 percent of these savings. However, even if fully implemented, these actions will not solve Amtrak's longer-term problems. Revenues will continue to fall short of expenses on most routes, and Amtrak projects that operating expenses will exceed operating revenues and the federal subsidy by \$1.3 billion from 1996 through the year 2000. In addition, Amtrak will still need over \$4 billion for capital investments.

Amtrak's Revenues Will Not Keep Pace With Capital Investment Needs and Other Costs

The cost of replacing and modernizing Amtrak's physical assets—maintenance facilities, train equipment, and support assets—is a greater challenge to the corporation's financial well-being than resolving the current shortfall in operating funds. To cope with funding shortages, in the late 1980s Amtrak started reducing car maintenance. By the end of 1993, costly heavy overhauls were overdue for 40 percent of its nearly 1,900 cars. Amtrak also deferred renovating and modernizing its outdated maintenance facilities, which has contributed to costly and inefficient operations.

Focusing exclusively on the shortfall in operating funds masks the critical problem of Amtrak's capital needs. Today, the average age of Amtrak's cars is about 22 years—similar to what it was when Amtrak first began operating. Amtrak now estimates that it needs to invest about \$1.5 billion for equipment overhauls and new equipment, primarily locomotives. Over the past 10 years, Amtrak's equipment and facilities have depreciated at the rate of \$200 million per year, while investment has averaged only \$140 million. Yet most of Amtrak's annual capital grant is already committed to paying off prior purchases and meeting legal mandates such as environmental cleanup. Also, because capital grants are subject to the annual appropriations process, it is difficult for Amtrak to formulate and implement long-term investment projects.

Labor costs are also a major factor in Amtrak's finances. Beginning in 1995, Amtrak will be negotiating changes to wages, benefits, and work rules with the 14 unions that represent 90 percent of its employees. Labor costs account for about 52 percent of Amtrak's operating costs. Amtrak has done a good job of improving labor productivity and plans to achieve further increases in productivity. However, Amtrak already pays train and engine crews less on average than freight railroads pay for comparable jobs. Continuing to hold down labor costs will present a difficult challenge.

Amtrak could also face increased costs for track leases and liability coverage. Freight railroads own about 97 percent of the track that Amtrak operates on. In 1971, Amtrak entered into 25-year agreements with the freight railroads to compensate them for the use of their track and for providing essential services such as maintaining track and stations, dispatching trains, and making emergency repairs to Amtrak equipment. The agreements expire in April 1996. The freight railroads do not believe that Amtrak's payments, which total about \$90 million annually, are adequate compensation for their services, and they will seek higher payments. Freight railroads are also concerned about their liability in accidents involving passenger trains and will likely seek reductions in their own exposure or increases in the amount of risk assumed by Amtrak.

Passenger revenues are not likely to increase enough over the next few years to reverse Amtrak's deteriorating condition. None of Amtrak's routes—including those in the Northeast Corridor—are profitable when capital costs are taken into account. Revenues in the corridor cover about 65 percent of costs on the routes, compared with about 50 percent for routes elsewhere. Furthermore, passenger revenues have declined about 14 percent in real terms—from over \$1 billion in 1990 to about \$880 million in 1994. The decline resulted from, among other things, a weak economy; intense price competition from airlines in certain markets; Amtrak's old, unattractive, and poorly maintained facilities and equipment; and accidents involving Amtrak trains. While the economy has recovered and the impact of train accidents on ridership has begun to abate, the other factors continue to inhibit growth in ridership.

Amtrak's fastest growing source of revenues is contracts to operate local commuter rail systems. These contracts generated over \$270 million in 1994. Over the long term, Amtrak believes that high-speed rail service will increase ridership and revenues. While high-speed service is now limited to the electrified portion of track between Washington, D.C., and New York City, Amtrak is extending electrification to Boston, improving the track, and purchasing new trains that will allow high-speed service from Washington, D.C., to Boston. Amtrak expects its market share between New York City and Boston to be similar to its 45-percent share between New York City and Washington, D.C. To realize this expectation, however, Amtrak will continue to need funds to expand rights-of-way, rehabilitate track and facilities, purchase new train equipment, and increase coordination with freight and commuter operators that share or own segments of the rights-of-way. High-speed service beyond the Northeast Corridor is unlikely without greatly increased federal and state funding.

Private-sector efforts to sponsor high-speed rail without substantial government funding have been unsuccessful.

Reassessment Is Needed of Amtrak's Mission and Commitments for Funding

The Congress needs to make important decisions about the quality and extent of future intercity passenger rail service, including whether to maintain the current route system. To maintain the present nationwide route network will require increased funding from federal, state, and/or local governments. Passenger rail service, however, competes for limited transportation funds, and unlike aviation, highways, and mass transit, it does not have access to a federal trust fund. State and local governments have some flexibility to allocate federal transportation funds among different modes, but their ability to support intercity passenger rail operations is very limited.

Increased funding, especially capital investment, would improve service quality and encourage more riders. Doubling Amtrak's capital grant to \$500 million annually—a difficult task in today's fiscal environment—would allow Amtrak to improve its maintenance facilities and rights-of-way and to purchase new equipment, primarily locomotives. But even if gains in efficiency and ridership resulted from such improvements, GAO estimates that Amtrak would continue to need more than \$400 million in annual operating subsidies through the year 2000. If funding for Amtrak is reduced or maintained at its current level, GAO believes that the route network will have to be restructured and reduced beyond the recently announced changes so that quality service can be provided within the available funding. By reducing its route network, Amtrak could eventually reduce its requirements for federal funding. However, the short-term savings will be limited without changes in labor agreements and/or legislation, which, among other things, provide for up to 6 years' wages for workers who lose their jobs when routes are eliminated. Amtrak has identified other legislative changes—such as eliminating its obligation to pay federal fuel taxes, providing statutory limitations on punitive damages against Amtrak, and removing restraints against Amtrak's ability to contract out for work—that it believes would also reduce future expenses.

If Amtrak's route network is to be restructured or substantially reduced, the Congress could direct Amtrak or a temporary commission, similar to the one established to close military bases, to define and realign a basic network, and, as appropriate, to recommend routes to be eliminated. Options could be developed for routes commensurate with various levels

of federal, state, and local funding. A basic network could be defined by determining where Amtrak carries the most passengers and has the greatest economic potential. In this regard, GAO found that 11 of Amtrak's 44 routes earn 68 percent of Amtrak's revenues. However, these routes also account for 61 percent of the railroad's expenses. Also, interconnections between routes or the presence of important public benefits defined by the Congress, such as helping alleviate congestion and pollution, would be relevant in evaluating how best to restructure the route network. The basic network could be augmented by regional routes supported by those states that were willing to contract with Amtrak to cover shortfalls between revenues and the full cost of operations.

If subsidies to Amtrak are eliminated and the railroad is privatized, it is unlikely that a nationwide passenger rail system could be preserved. Under this option, intercity service would be reduced to a few regional corridors, at most, because only a few well-traveled routes could potentially generate sufficient revenues to cover operating costs. Even in these cases, substantial federal investment in the infrastructure would likely be needed before the railroad was privatized. The experience with the Consolidated Rail Corporation (Conrail) in 1976 may illustrate how a profitable business can be established after substantial federal investment. However, the analogy with Conrail is limited because GAO found no evidence that intercity rail passenger operations can be profitable. In Europe and Japan, where population densities and geographic conditions are more conducive to rail travel than they are in the United States, intercity passenger service requires substantial public funding.

Recommendation to the Congress

In light of Amtrak's financial and operating problems, GAO recommends that the Congress consider whether Amtrak's original mission of providing nationwide intercity passenger rail service at the present level is still appropriate. If the Congress decides to reassess the scope of Amtrak's mission, it could direct Amtrak or a temporary commission, similar to the one established to close military bases, to make recommendations and offer options defining and realigning Amtrak's basic route network so that efficient and quality service could be provided within the funding available from all sources. The Congress could then decide what Amtrak's future route network should be.

Recommendations to the President of Amtrak

GAO is making several recommendations to the President of Amtrak to improve the financial information the corporation provides to the Congress, including a recommendation for Amtrak to provide the Congress with proposed legislative changes, such as those noted in its comments on a draft of this report, that Amtrak believes could improve its long-term viability. Amtrak should also estimate the effect of these changes on its finances and other affected parties. These recommendations will facilitate congressional decision-making on the scope of Amtrak's mission and funding.

Agency Comments

Amtrak said that GAO's draft report accurately presented the financial and operating status of the railroad and correctly portrayed its problems with capital investment. However, Amtrak had four principal points.

First, Amtrak stated that the draft report understated the impact of actions adopted by its Board of Directors in December 1994, contending that the board had, in effect, implemented GAO's recommendation to redefine and reduce the route system consistent with the funding available. GAO revised the report to specifically highlight the board's actions (see ch. 2). GAO believes the board's new business plan is an aggressive first step. The plan does not, however, implement GAO's recommendation. GAO recommends that the Congress reassess Amtrak's mission and establish likely levels of federal support for operations and capital investment so that either Amtrak or a temporary commission could identify options for a route network that is consistent with the funding available from all sources. Amtrak's proposed plan, even if fully implemented, still leaves a cumulative operating deficit, after federal subsidies, of \$1.3 billion for fiscal years 1996-2000. Moreover, Amtrak's plan does not resolve the problem of unmet capital needs, which now total \$2.5 billion in the Northeast Corridor alone. Furthermore, although the board set a goal that could ultimately eliminate the federal operating grant by 2002, doing so was made contingent on Amtrak's receiving (1) "sufficient capital funding to achieve a good-state-of-repair," (2) the current level of operating grants until 2002, and (3) increased funding from states to cover operating deficits for the services they receive. These are very significant funding assumptions that will require congressional endorsement as part of the process of defining options for Amtrak's future route network.

Second, Amtrak raised concerns about the timing of GAO's recommendation for a commission because the board's recent analysis showed that reducing the frequency of service was more economical than

closing routes and because Amtrak is a commercially driven corporation, which should not act like the Department of Defense in making decisions about closures. Amtrak's point on timing is well taken if the railroad's requirements for capital and operating funding for the national system, as presently constituted, are met. If they are not, reductions in service frequency and routes beyond those announced by the board will be required. As for Amtrak's reservations about a commission offering options to the Congress, GAO recognizes that Amtrak could offer options for defining the national route network, including realigning and closing routes, and the recommendation explicitly provides for this option. However, GAO realizes the difficulties inherent in deciding which of the 44 states and more than 500 stations should continue to receive service. GAO believes a commission is an option that could provide the Congress with an independent perspective on defining the national route system and any necessary realignments or closings.

Third, Amtrak thought the role of the states in intercity rail passenger service and the restrictions on the states' access to the transportation trust funds should be emphasized. GAO revised the report to reflect the fact that unlike aviation, highways, and mass transit, intercity passenger rail has no trust fund. In 1991, the Intermodal Surface Transportation Efficiency Act provided the states with some flexibility to use highway dollars for mass transit, but it did not authorize the direct use of such funds for intercity passenger rail service. Although the states' access to federal transportation trust funds is a key element of Amtrak's plan to have the states cover significantly more of the railroad's costs, it is clearly up to the Congress to decide whether and to what extent such flexibility should be extended to intercity passenger rail.

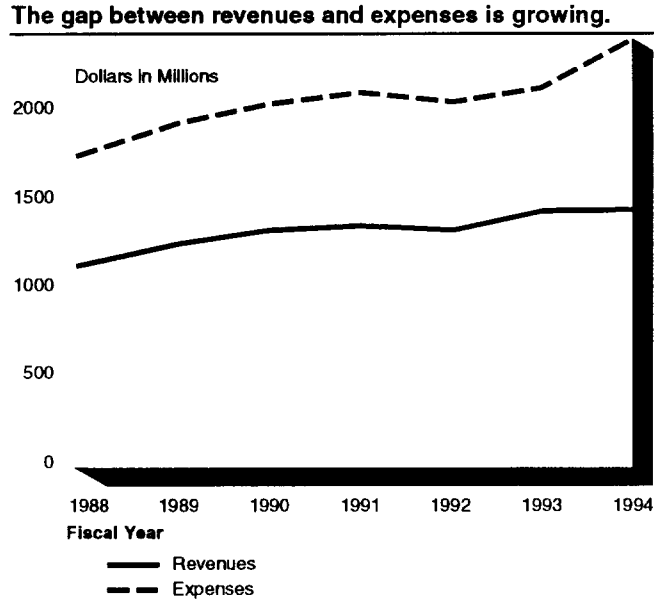
Finally, Amtrak observed that it needs to be freed from certain legislative restraints to help it operate more as a competitive commercial entity. Amtrak envisions changes to labor laws to give the corporation greater latitude in negotiating such matters as severance pay, contracting, and work processes. Also, Amtrak wants exemptions from requirements to pay federal fuel taxes and wants the authority to issue tax-exempt debt. GAO added a recommendation to its report that Amtrak provide its proposals to the Congress, along with the estimated effect of each proposal on Amtrak's finances and other affected parties. This information will provide a vehicle for congressional deliberation on the merits of each proposal.

Amtrak also provided comments that clarified certain technical information or statements made in a draft of this report. GAO incorporated

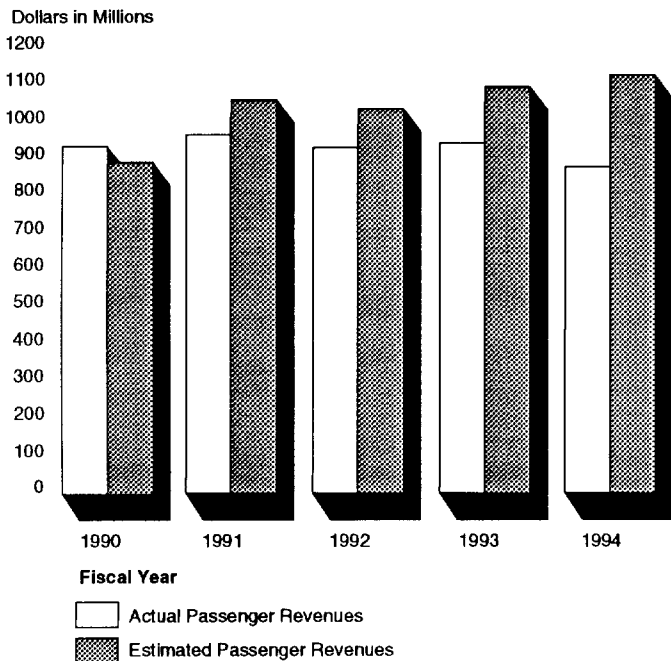
these changes in the report where appropriate. Amtrak's written comments, including its legislative proposals, are presented in appendix IV, and GAO's responses are discussed in chapter 5.

Figure 1 shows some key indicators of Amtrak's financial and operating conditions. The first three charts illustrate trends in Amtrak's revenues, and the next three charts show the age of Amtrak's fleet, the railroad's operating deficit, and the decline in working capital.

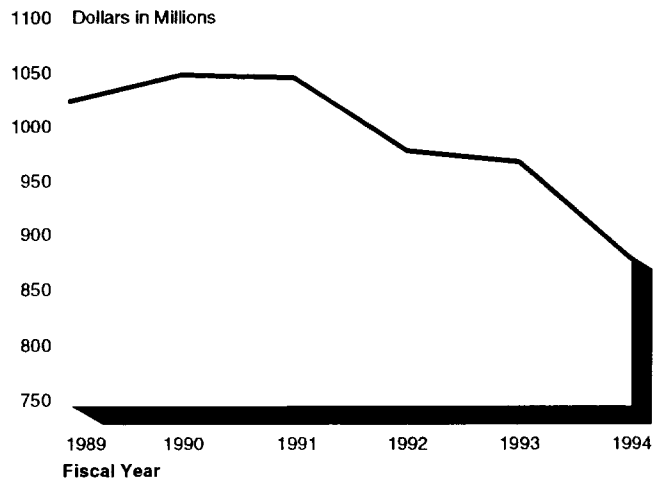
Figure 1: Key Indicators of Amtrak's Deteriorating Financial and Operating Conditions



Revenues have fallen well short of estimates for the last 4 years.

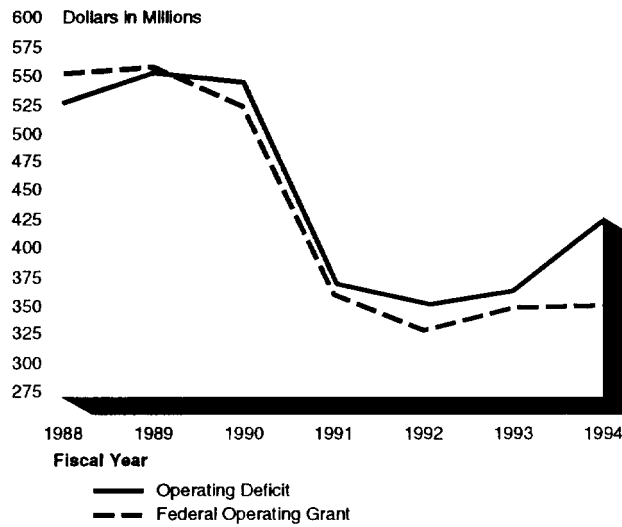


Since 1990, passenger revenues have fallen 14 percent in real terms.

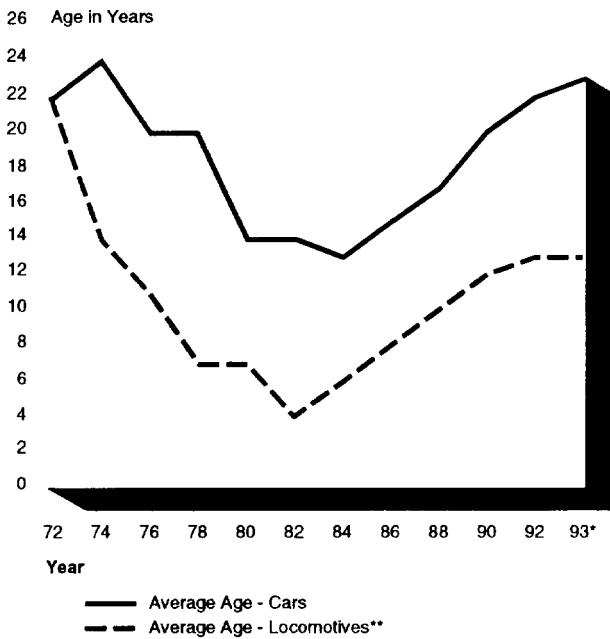


Note: Amtrak submits estimated amounts to the Congress in its grant request.

Federal operating subsidies have not covered the operating deficit.



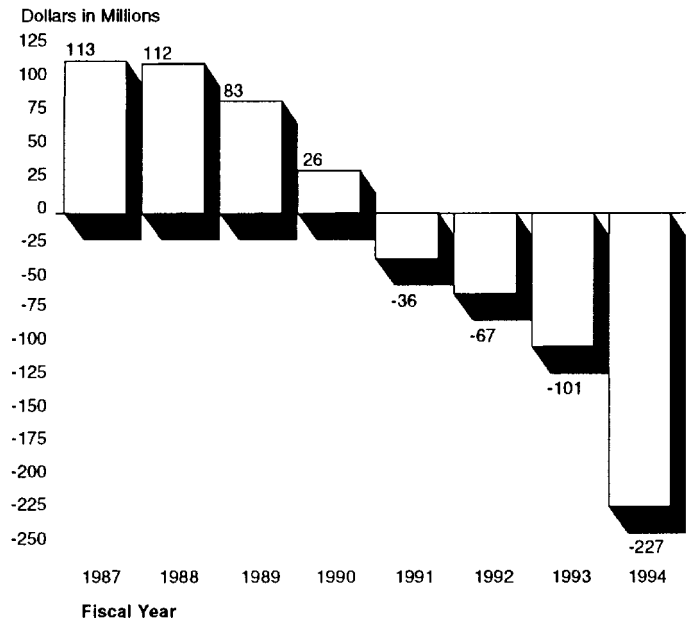
The average age of the fleet is similar to what it was in 1974.



*1993 is the last year for which data are available.

**Reflects only the age of locomotives used for operating trains.

A cash shortage forced Amtrak to consume working capital during the last 6 years.



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Abbreviations

DOD	Department of Defense
DOT	Department of Transportation
FRA	Federal Railroad Administration
GAO	General Accounting Office
ICC	Interstate Commerce Commission
NECIP	Northeast Corridor Improvement Project

Introduction

Passenger trains, at one time the nation's primary means of intercity transportation, began losing riders to automobiles in the 1920s and to airplanes in the 1950s and 1960s. Revenue losses on passenger services mounted, and in 1970, the final year in which these services were operated by private railroads, over \$1.7 billion (in 1994 dollars) was lost on these services. Railroads had stopped investing in new passenger cars and facilities, and service declined, leading to the near demise of passenger rail service. To revitalize intercity passenger rail service, in 1970 the Congress created the National Railroad Passenger Corporation, commonly called Amtrak. Amtrak began operations on May 1, 1971, with the task of reversing the decline in intercity rail ridership and making up for years during which the railroads had neglected passenger operations.

Background

Until World War I, intercity travel generally meant train travel, and the railroads operated up to 20,000 passenger trains daily. After World War II, however, ridership declined dramatically, and by 1970 only about 300 intercity passenger trains were operated daily, providing only about 0.5 percent of intercity travel. In response to declining revenues, most railroads did not invest in new passenger equipment and allowed the service to deteriorate. Trains frequently failed to run on time, speeds were slow because of poor track and roadbeds, and equipment was old and prone to breakdowns. Intercity train travel was rapidly becoming extinct in the United States.

The nation's railroads, which focused primarily on freight service, had to obtain permission from federal or state regulators to abandon unprofitable passenger train services. Before passage of the Transportation Act of 1958, state regulatory commissions had the authority to discontinue passenger trains. Some state agencies allowed the railroads to discontinue unprofitable passenger operations, and between 1920 and 1958, service was discontinued for more than one-half of the railroads' passenger miles.¹ Because of the large decline in the number of trains, state commissions became more reluctant to allow the railroads to discontinue more services. The 1958 act transferred effective control over decisions to discontinue passenger services to the Interstate Commerce Commission (ICC). The ICC was concerned that continuing losses from passenger train operations could threaten the financial health of the entire railroad industry. It therefore allowed railroads to eliminate passenger operations that generated serious deficits.

¹A passenger mile is one passenger traveling 1 mile.

The Congress Creates Amtrak

The Congress passed the Rail Passenger Service Act² in 1970, creating Amtrak to operate and revitalize intercity passenger rail service. The act called for Amtrak to be

a for-profit corporation to provide intercity and commuter rail passenger service, employing innovative operating and marketing concepts so as to fully develop the potential of modern rail service in meeting the Nation's intercity and commuter passenger transportation requirements. The Corporation will not be an agency or establishment of the U.S. Government.

The Congress gave Amtrak specific goals to (1) provide modern, efficient intercity railroad passenger service; (2) help alleviate the overcrowding of airports, airways, and highways; and (3) give Americans an alternative to private automobiles and airplanes to meet their transportation needs. The act required Amtrak to operate a basic passenger rail system that considered the passenger service that existed at the time the act was passed as well as opportunities to provide additional rail service that would be faster, be more convenient, and serve more population centers at a lower cost. Fig. 1.1 shows Amtrak's route network.

²P.L. 91-518, 84 Stat. 1327 (1970) as amended.

Figure 1.1: Amtrak's Route Network



Source: Amtrak.

Amtrak's first full year of operation was 1972. Although the route system today is not much larger than the one operated in 1973, it now carries about 30 percent more passengers, serves 22 percent more stations, and operates about 29 percent more train miles.³ (See table 1.1.)

³A train mile is one train traveling 1 mile.

Table 1.1: Comparison of Amtrak's System and Operations—1973, 1983, and 1993

	1973	1983	1993
Route miles	22,000	24,000	25,000
Train miles (millions)	27	29	35
Stations served	451	497	535
Passengers (millions)	16.9	19.0	22.1
Revenue-producing cars	1,717	1,480	1,853
Operating locomotives	337	273	360
Systemwide on-time performance	60%	82%	72% ^a
Employees (person-years)	^b	18,505	24,037

^aLong-distance on-time performance for 1993 decreased 14 percent from fiscal year 1992 as a result of extensive flooding in the Midwest.

^bData were unavailable for 1973.

Source: Amtrak.

Amtrak's Relationship With Freight Railroads

In 1971, Amtrak took over routes from all but three of the railroads that were providing passenger service at the time.⁴ In return for relief from their obligation as common carriers to provide passenger service, the railroads turned over their passenger cars and locomotives to Amtrak. The original fleet of over 1,500 cars averaged more than 22 years in age. In 1994, Amtrak's fleet of 1,900 cars still included about 435 of the original passenger cars.

Amtrak eventually took over control of yards, stations, train service employees, and reservation offices. By 1976, most of Amtrak's services, other than those provided by train and engine crews, were provided by Amtrak's own employees. Using \$120 million provided by the Congress, Amtrak purchased 103 miles of track between Philadelphia and Harrisburg, Pennsylvania; 83 miles joining Kalamazoo with Michigan City; 62 miles linking New Haven, Connecticut, and Springfield, Massachusetts; and 12 miles near Albany, New York. In addition, Amtrak acquired about 400 miles of the Northeast Corridor—between Washington, D.C., and Boston—from the estate of the bankrupt Penn Central railroad. The freight railroads, however, own the rest of the track over which Amtrak operates. The Rail Passenger Service Act grants Amtrak the right to use freight railroads' tracks, and Amtrak is expected to pay the incremental costs that

⁴The three remaining railroads providing intercity passenger rail service eventually turned over their business to Amtrak or went out of business altogether.

the freight railroads incur to maintain the tracks for passenger service.⁵ The freight railroads also provide dispatching and emergency services for Amtrak trains operating on their systems. In recent years, Amtrak has paid about \$90 million annually for these services. Amtrak compensates the freight railroads according to individual agreements established in 1971.⁶ These agreements expire April 30, 1996.

Amtrak's Intercity Rail Service and Other Markets

Amtrak's primary function is operating the 25,000-mile intercity passenger rail route system that serves 44 states. Amtrak operates about 350 trains to serve 6 routes in the Northeast Corridor, 17 short-distance routes (under 500 miles), and 20 long-distance routes. Thirteen of these routes are partially funded by eight states under section 403(b) of the Rail Passenger Service Act; three of these routes are fully funded by two states under section 403(d) of the act.⁷

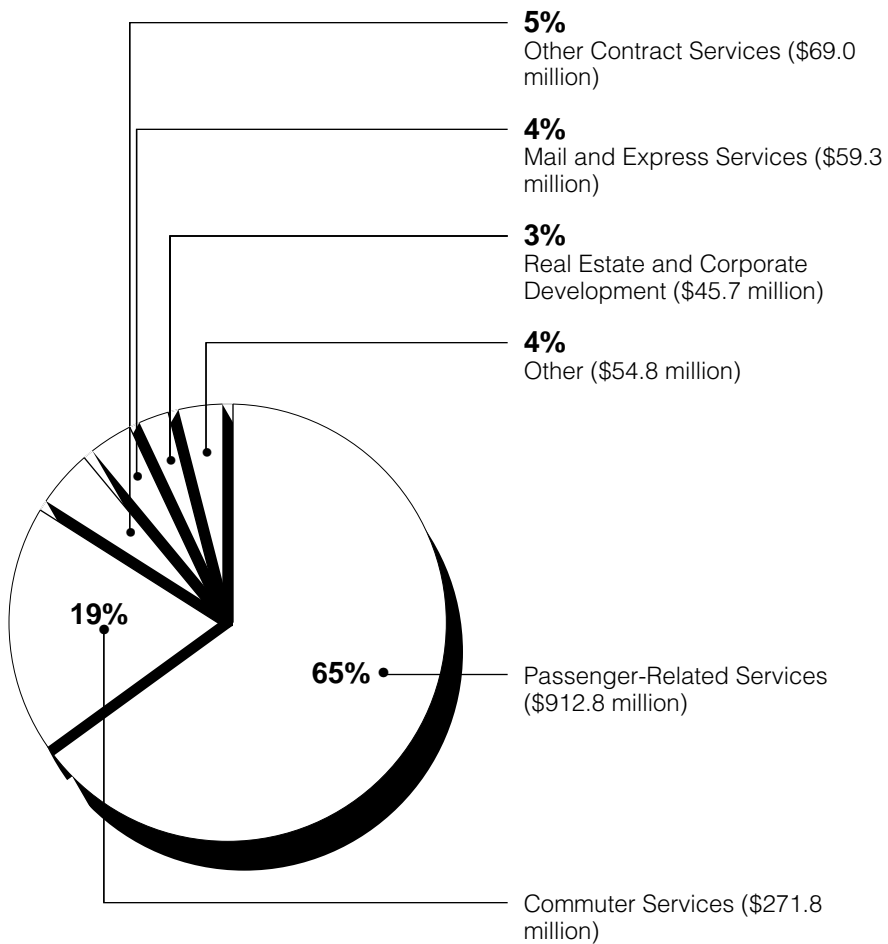
Amtrak generated \$1.4 billion in revenues in fiscal year 1994 and had \$2.4 billion in expenses. Its federal subsidy was \$909 million. Passenger-related services generated 65 percent of Amtrak's revenues in fiscal year 1994 (see fig. 1.2) but covered only about 38 percent of the expenses. Another 19 percent of Amtrak's revenues came from commuter rail service, which Amtrak operates in seven metropolitan areas under contract to state or local transportation authorities. Finally, Amtrak earns revenues from other activities, such as real estate development (including 30th Street Station in Philadelphia). Other revenues come from handling specialized freight, including U.S. mail and certain express deliveries, and leasing rights-of-way along the Northeast Corridor to telecommunications firms for data transmission lines, among other things. Over half of Amtrak's operating expenses in fiscal year 1994 were for salaries, wages, and benefits to employees. (See fig. 1.3.)

⁵Track conditions are governed by federal safety regulations, which define six classes of track. Maximum speeds are defined for each class—the higher the speed allowed, the stricter the standard. Thus, if freight traffic would normally operate at 40 mph (class 4) but Amtrak operated at 79 mph (class 6), Amtrak would have to pay the incremental cost of maintaining the track to class-6 standards instead of class-4 standards.

⁶Amtrak's agreement with Conrail (Consolidated Rail Corporation) was established in 1976, when that railroad was formed.

⁷Section 403(b) of the Rail Passenger Service Act allows Amtrak to initiate and/or operate intercity rail services that are financially supported by non-Amtrak agencies—such as a state, group of states, or regional or local agency—or by an individual. As of September 1994, Amtrak provided such services in Alabama, California, Illinois, Michigan, Missouri, New York, North Carolina, and Wisconsin. Section 403(d) allows Amtrak to operate services that are fully funded by states. As of September 1994, Amtrak provided such services in Pennsylvania and Washington State.

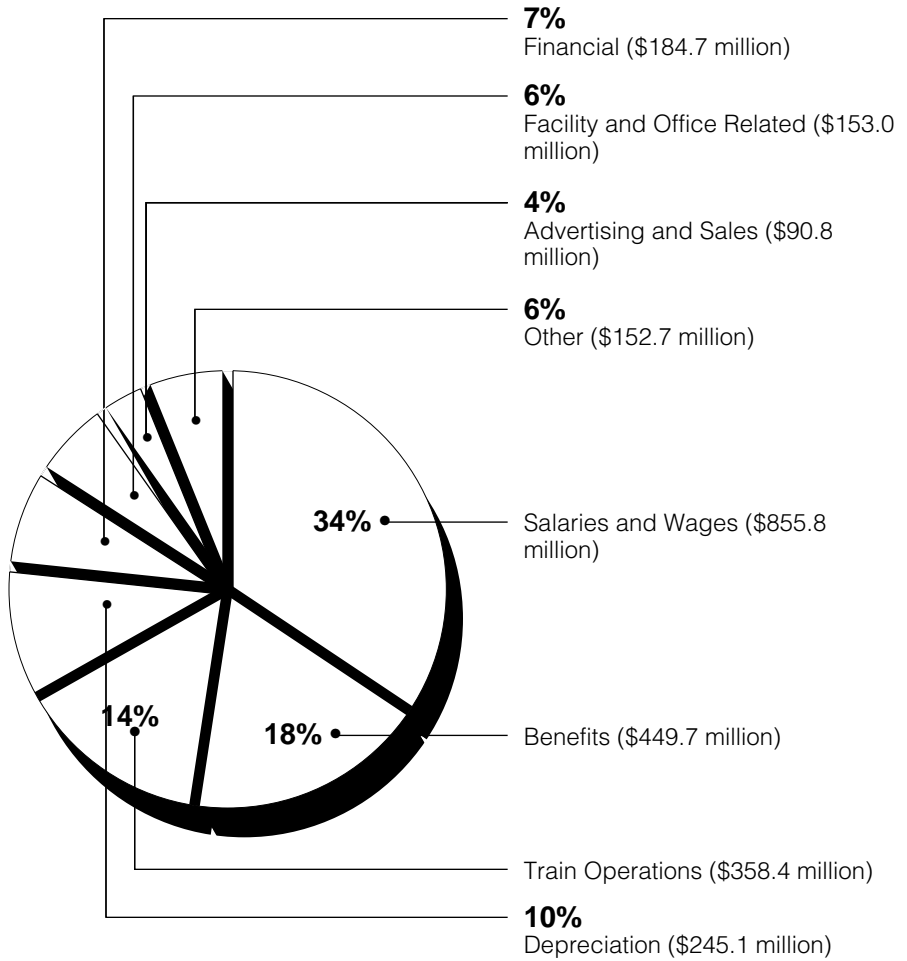
Figure 1.2: Amtrak's Operating Revenues for Fiscal Year 1994



Note: Total operating revenues were about \$1.4 billion in fiscal year 1994.

Source: Amtrak.

Figure 1.3: Amtrak's Operating Expenses for Fiscal Year 1994



Note: Total operating expenses were about \$2.4 billion in fiscal year 1994.

Source: Amtrak.

Federal Subsidies Supplement Amtrak's Revenues

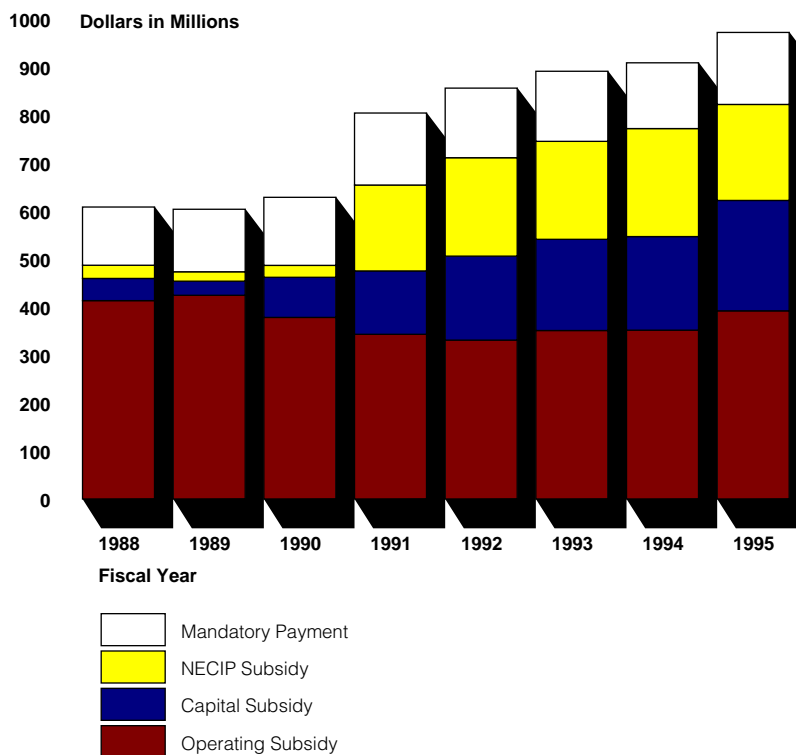
Since 1971, the federal government has provided Amtrak with over \$13 billion to support intercity passenger rail service. Figure 1.4 shows the amounts appropriated to Amtrak over the past 8 years. In fiscal year 1994, Amtrak received federal funds through an operating and capital grant, a

grant for the Northeast Corridor Improvement Program (NECIP),⁸ and a mandatory payment by the Federal Railroad Administration (FRA) to fund certain retirement and unemployment benefits.⁹ The capital grant pays for purchasing cars and locomotives; overhauling fully depreciated equipment (when the overhaul increases the value of the equipment); modifying equipment as required by law; upgrading facilities for maintenance, overhauls, and other work; and servicing debt. NECIP is a long-term capital improvement project that includes electrification of track between New Haven and Boston so that trains will be able to travel at speeds up to 150 miles per hour by the end of the century.

⁸NECIP is an ongoing project established in 1976 for the construction and upgrading of tracks, bridges, communications and signals, and electric traction between Washington, D.C., and Boston.

⁹Amtrak is required to participate in the railroad retirement and unemployment systems. Each participating railroad pays a portion of the costs for all retirement and unemployment benefits in the industry. Since Amtrak's payments exceed the corporation's specific retirement and unemployment costs, FRA has agreed to pay the excess costs for Amtrak.

Figure 1.4: Federal Appropriations for Amtrak, Fiscal Years 1988-95



Notes: Before fiscal year 1990, FRA's mandatory payments to the Railroad Retirement Trust Fund were included in Amtrak's operating grant; its payments to the fund for fiscal years 1988 through 1990 are estimated.

The fiscal year 1993 appropriation includes \$20 million in supplemental funds for operations and \$25 million for capital requirements.

In Amtrak's early years, the need for federal subsidies steadily increased as expenses grew faster than revenues. The railroad's net loss grew from \$153.4 million in fiscal year 1972 to \$716.9 million in fiscal year 1980. Inflation was partially responsible, but even in real terms, the net loss was growing. Beginning in the early 1980s, the President's budget stopped requesting annual operating support for Amtrak. Each year the Congress

⁸NECIP is an ongoing project established in 1976 for the construction and upgrading of tracks, bridges, communications and signals, and electric traction between Washington, D.C., and Boston.

⁹Amtrak is required to participate in the railroad retirement and unemployment systems. Each participating railroad pays a portion of the costs for all retirement and unemployment benefits in the industry. Since Amtrak's payments exceed the corporation's specific retirement and unemployment costs, FRA has agreed to pay the excess costs for Amtrak.

provided funding, but Amtrak's management knew it was under pressure to reduce operating losses. Amtrak combined an aggressive cost-cutting strategy with new efforts at revenue enhancement to try to improve its revenue-to-expense ratio.

Objectives, Scope, and Methodology

This report's objectives were to assess (1) Amtrak's financial and operating conditions, (2) the likelihood that Amtrak can overcome its financial and operating problems, and (3) alternative actions that could be considered in deciding on Amtrak's future mission and on commitments to fund the railroad. In this report,

- chapter 2 describes the extent to which Amtrak's financial condition has deteriorated and why;
- chapter 3 describes the increased costs facing Amtrak over the next several years that will make recovery from the financial and operating problems difficult;
- chapter 4 assesses the extent to which revenues are likely to increase, pay for these increased costs, and improve Amtrak's financial condition; and
- chapter 5 assesses the likelihood that Amtrak will be able to continue to provide nationwide service at the current federal subsidy level. It evaluates alternative levels of service and funding and the potential long-term results of these alternatives.

We performed this work as part of our legislative responsibilities under the Rail Passenger Service Act to conduct performance audits of Amtrak's activities and transactions. In addition, five congressional committees expressed interest in this work. The issues raised by the committees, along with our objectives, scope, and methodology, are discussed in detail in appendix I. The organizations that we contacted in the course of our review are listed in appendix II. We report dollars as constant 1994 dollars unless otherwise noted.

We provided Amtrak with a draft of our report for comment. Amtrak's principal observations and our responses to these observations are provided in chapter 5, and its written comments appear in full in appendix IV. We performed our work between August 1993 and December 1994 in accordance with generally accepted government auditing standards.

Amtrak's Financial Condition Is at a Critical Stage

We testified in early 1994 that Amtrak's financial condition had deteriorated steadily since 1990,¹ causing a decline in the quality of service. Since our testimony, Amtrak's condition has worsened. As service quality has deteriorated, Amtrak has had more difficulty attracting and retaining riders, resulting in further revenue losses and exacerbating the problem. All of Amtrak's intercity train service loses money—no route or portion of a route comes close to breaking even when capital costs are considered.

For several years, revenues have been substantially less than forecast, resulting in larger operating deficits than budgeted.² The operating deficits have exceeded federal operating subsidies by a total of about \$175 million since 1990. Amtrak's actions to reduce operating expenses have not been sufficient to offset the shortfall in revenues. To cover the gap between the operating deficits and federal operating subsidy, Amtrak has drawn down its cash resources. In 1987, its working capital had a positive \$113 million balance; by the end of fiscal year 1994, the balance was a negative \$227 million.³ Nevertheless, while its financial condition was deteriorating, Amtrak reported that its revenue-to-expense ratio was improving. This reported ratio was a misleading indicator of Amtrak's financial condition because it omitted many important expenses and showed an improving trend when Amtrak's financial condition was deteriorating.

Amtrak's management believes that the railroad's financial condition will continue to deteriorate and estimated a cash shortfall of about \$200 million by September 30, 1995. The situation had become so alarming by December 1994 that Amtrak's Board of Directors approved large reductions in service and staffing. These actions, along with anticipated increases in productivity, are expected to eliminate the 1995 cash shortfall. However, even if these proposed actions are successful in bringing costs in line with revenues and grants for 1995, they will not solve Amtrak's longer-term problems, such as the need for significant capital investment, which we discuss in chapter 3. Finally, without increased funding, Amtrak expects the gap between its deficit and the operating subsidy to reappear in 1996 and to produce a \$1.3 billion shortfall through the year 2000.

¹See *Amtrak: Financial Condition Has Deteriorated and Future Costs Make Recovery Difficult* (GAO/T-RCED-94-155, Mar. 17, 1994); *Amtrak: Deteriorated Financial Condition and Costly Future Challenges* (GAO/T-RCED-94-145, Mar. 23, 1994); and *Amtrak: Key Decisions Need to Be Made in the Face of Deteriorating Financial Condition* (GAO/T-RCED-94-186, Apr. 13, 1994).

²The operating deficit is the difference between the cash paid for operating expenses and the cash received from operations.

³Working capital is the difference between current assets and current liabilities. As such, it indicates a firm's ability to pay current liabilities from current assets.

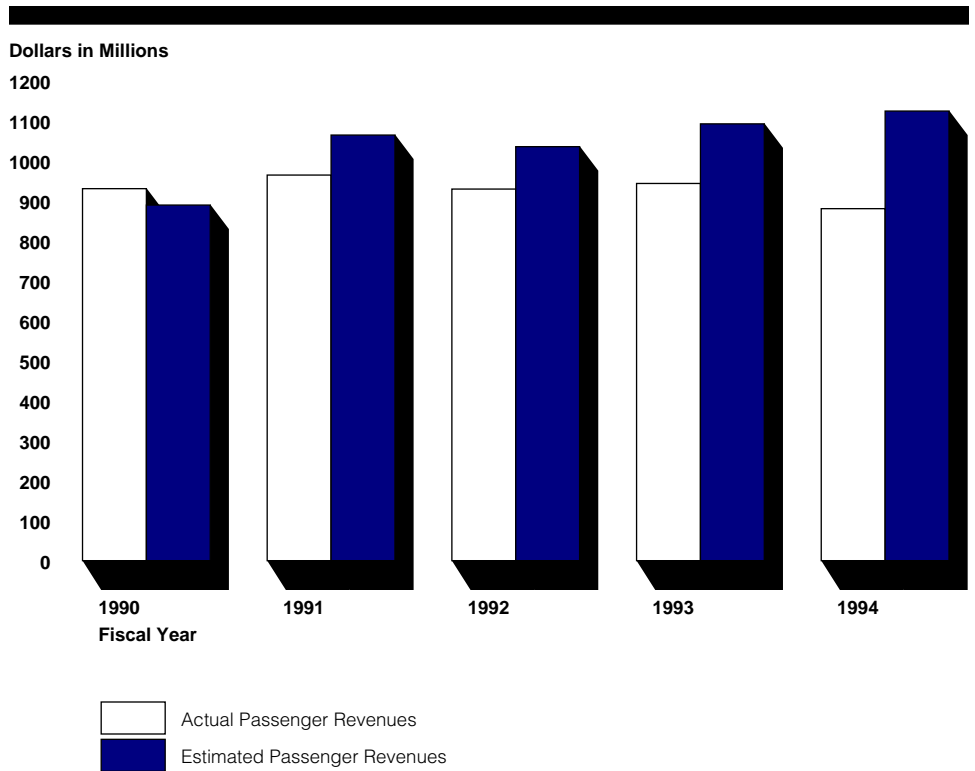
Deterioration in Amtrak's Financial Condition Has Reduced Cash Resources

Over the last several years, the revenues that Amtrak projected have not materialized. As a result, the operating deficits have been larger than the federal operating subsidies. Although Amtrak cut planned spending and developed strategies to conserve cash, these actions have not compensated for the shortfall in revenues. Moreover, Amtrak has not specifically budgeted for operating contingencies that interrupt service, such as accidents and the flood in the Midwest in 1993. As a result of shortfalls in revenues and losses stemming from these events, Amtrak has had to draw down cash resources and take on additional short-term debt.

Revenues Have Been Less Than Forecast

Each year Amtrak forecasts ridership and revenues to develop its request for federal operating grants and to set planned spending levels. From fiscal year 1991 through fiscal year 1994, Amtrak overestimated passenger revenues by a total of \$600 million. (See fig. 2.1.) In fiscal year 1994, actual passenger revenues were about 7 percent below those for fiscal year 1993 and about 22 percent less than forecast.

Figure 2.1: Amtrak's Actual and Estimated Passenger Revenues, Fiscal Years 1990-94



Note: Amounts are in current-year dollars.

Source: Amtrak.

Over the past 4 years, Amtrak has consistently overestimated its passenger revenues in terms of both ridership and yield (revenues per passenger mile).⁴ For its 1993 grant request, for example, Amtrak estimated \$1.092 billion in passenger revenues—overestimating actual passenger revenues by \$149 million. For 1990-94, Amtrak estimated that yield would increase with inflation. In fact, yield declined after adjusting for inflation. Management also contributed to overestimates of revenues by adjusting upward the results of a ridership forecasting model because of a belief that the nation's general economic improvement would lead to increased

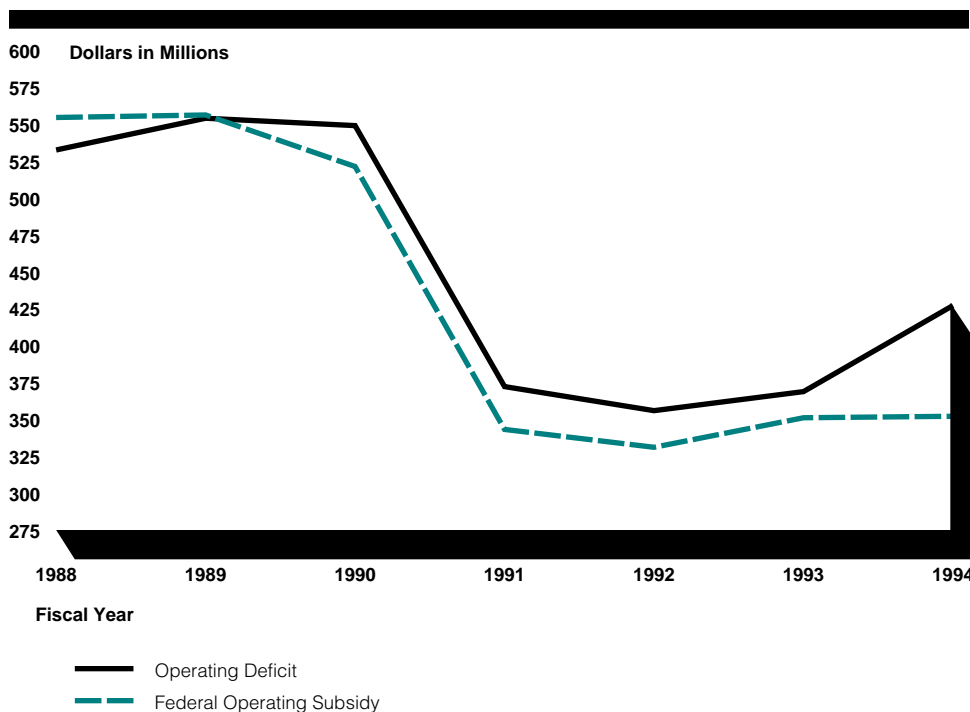
⁴To estimate revenues for the upcoming year, Amtrak first forecasts passenger miles. Amtrak then multiplies the number of passenger miles by its forecast for yield to estimate passenger revenues. The revenue forecast is adjusted several times—by Amtrak's market planning analysts and upper management—according to their informed judgments and other factors. Amtrak submits the adjusted revenue forecast to the Congress as part of its federal grant request. See app. III.

ridership. Finally, in adjusting the model results, Amtrak did not consider the extent to which events—such as floods and accidents—might occur in the upcoming year, depressing revenues. In fact, during 1993 and 1994, Amtrak was involved in several major accidents and sometimes had to cancel trains because of severe weather, which caused revenues to decline. In preparing its budget for fiscal year 1995, Amtrak did not rely on its ridership forecasting model.

**Optimistic Forecasts Have
Affected Requests for
Federal Funds**

Because it overestimated revenues, Amtrak underestimated its operating deficits and therefore requested smaller federal operating subsidies than it needed. In fiscal years 1990 through 1994, Amtrak's operating deficit exceeded the railroad's federal operating subsidy by an average of about \$36 million per year. (See fig. 2.2.) This gap has forced Amtrak to reduce operations. These reductions have contributed to poorer service quality (fewer on-board service personnel) and delayed or deferred maintenance of equipment. Ultimately, such actions threaten Amtrak's ability to provide high quality rail service and to compete effectively for customers.

Figure 2.2: Amtrak's Federal Operating Subsidy and Operating Deficit, Fiscal Years 1988-94



Note: Before fiscal year 1990, FRA's mandatory payments to the retirement fund were included in Amtrak's operating deficit and grant. Amounts are in current-year dollars.

Source: GAO's analysis of Amtrak's data.

As a result of the shortfall in revenues and increased expenses, Amtrak's net loss in fiscal year 1994 grew to over \$1 billion, while the railroad's operating deficit exceeded the operating subsidy by \$76 million. These operating losses, combined with capital expenditures, caused a cash shortfall of about \$50 million as of September 30, 1994. For fiscal year 1995, Amtrak projects that the gap between its operating subsidy and operating deficit will grow to \$193 million. Amtrak officials believe this situation will result from a 5-percent decrease in passenger revenues in 1995 and an \$145 million increase in expenses. As a result of the gap between the operating subsidy and operating deficit along with planned capital expenditures, in the fall of 1994 Amtrak estimated a cash shortfall of about \$200 million by September 30, 1995.

In addition, Amtrak does not specifically budget for accidents and weather-related emergencies. The added costs of these problems exacerbate Amtrak's deteriorating financial condition. For example, in September 1993 the Sunset Limited derailed in Saraland, Alabama, and Amtrak incurred (1) additional costs to repair equipment and pay liability judgments and (2) a shortfall in revenues as a result of equipment shortages. In addition, whenever service is disrupted because of weather or accidents, Amtrak pays the costs its passengers incur to get to their destinations by another mode of transportation. Amtrak has estimated that in 1993 and 1994, such problems cost about a total of \$95 million in lost revenues and \$11 million in additional expenses.

Amtrak Reduced Expenses in Response to Shortfall in Revenues

To address the shortfall in revenues, Amtrak cut back budgeted expenses by reducing the number of management staff by 10 percent in 1991, by reducing train and station staffing levels in 1992, and by decreasing heavy maintenance programs for cars and locomotives in 1993.⁵ According to Amtrak, these cutbacks were expected to save about \$77 million in fiscal years 1991-93. In 1993, Amtrak took steps to conserve cash by reducing inventory, requiring advance payment for work that Amtrak performed for others, and delaying payments made to others by 15 days. From the beginning of 1993 to the end of 1994, Amtrak's investment in inventory declined from \$147 million to \$135 million.⁶ Finally, Amtrak requested and received a supplemental federal grant of \$45 million (\$20 million for operating expenses and \$25 million for capital expenses) in fiscal year 1993.

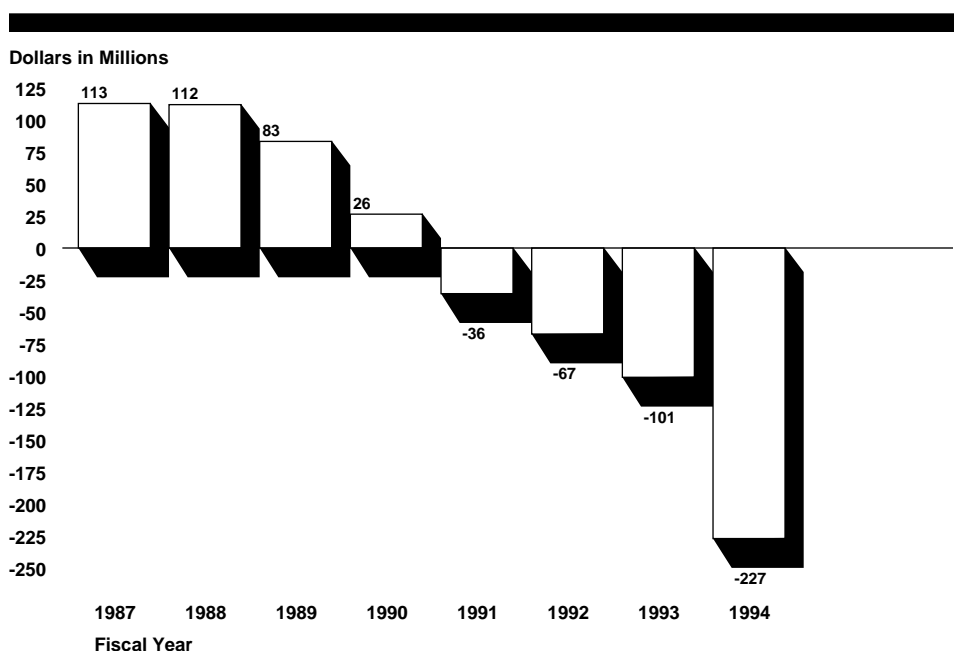
To offset the continuing shortfall in passenger revenues in fiscal year 1994, Amtrak again initiated actions to reduce budgeted expenses by about \$90 million. These actions included reducing (1) the frequency of service on some routes, (2) the number of passenger support staff, and (3) general overhead costs. However, Amtrak's actual expenses in 1994 exceeded budgeted expenses by over \$100 million. By September 30, 1994, Amtrak had increased its short-term lines of credit to \$120 million and borrowed \$60 million. In addition, by that date Amtrak's long-term debt for capital projects exceeded \$650 million.

⁵Train staffing was reduced from one attendant for every two cars to one attendant for every three cars.

⁶Although reducing investment in inventory reduces the cash needed to purchase replacement parts, continued declines in inventory may delay equipment repairs and maintenance by limiting the timely availability of parts. Amtrak expects the value of its inventory to increase over the next several years as it receives spare parts for new cars and locomotives.

Despite Amtrak's actions, the gap between operating deficits and federal operating subsidies continued to grow. As a result, Amtrak drew down its working capital, which fell from \$113 million in fiscal year 1987 to a \$227 million deficit at the end of fiscal year 1994 (see fig. 2.3), a decline of \$371 million in 1994 dollars. Continued reductions in working capital will jeopardize Amtrak's ability to pay immediate expenses.

Figure 2.3: Amtrak's Working Capital Surplus/Deficit, Fiscal Years 1987-94



Notes: Working capital is the difference between current assets and current liabilities.

Amounts are in current-year dollars. In 1994 dollars, working capital declined from \$144 million in 1987 to a deficit of \$227 million in 1994.

Source: GAO's analysis of Amtrak's data.

Amtrak Plans Service Reductions and Other Changes in 1995 to Reduce Cash Shortfall

Amtrak's financial situation became so alarming that on December 14, 1994, Amtrak announced an aggressive plan to eliminate cash deficits in fiscal year 1995 and attempt to put the corporation on a sound financial footing. Amtrak's management saw only two options—to abandon the nationwide intercity rail system or to minimize losses through improvements in productivity and reduction in routes and service. The Board of Directors directed that Amtrak eliminate 3 routes and segments

of 10 others and reduce service frequencies (the number of trains per week on a given route). As a result, about 20 percent of Amtrak's nationwide service (in train miles) is to be eliminated. Amtrak plans to negotiate with the affected states and could retain service where the states are willing to subsidize the losses on the routes. These reductions should allow Amtrak to eliminate about 5,000 jobs and remove most of its oldest cars from service. Amtrak expects that these actions will improve the on-time performance of its remaining trains and lower its operating costs. The plan also calls for generating additional revenues through adjusting ticket prices, developing commuter operations and other businesses, and selling or refinancing assets.

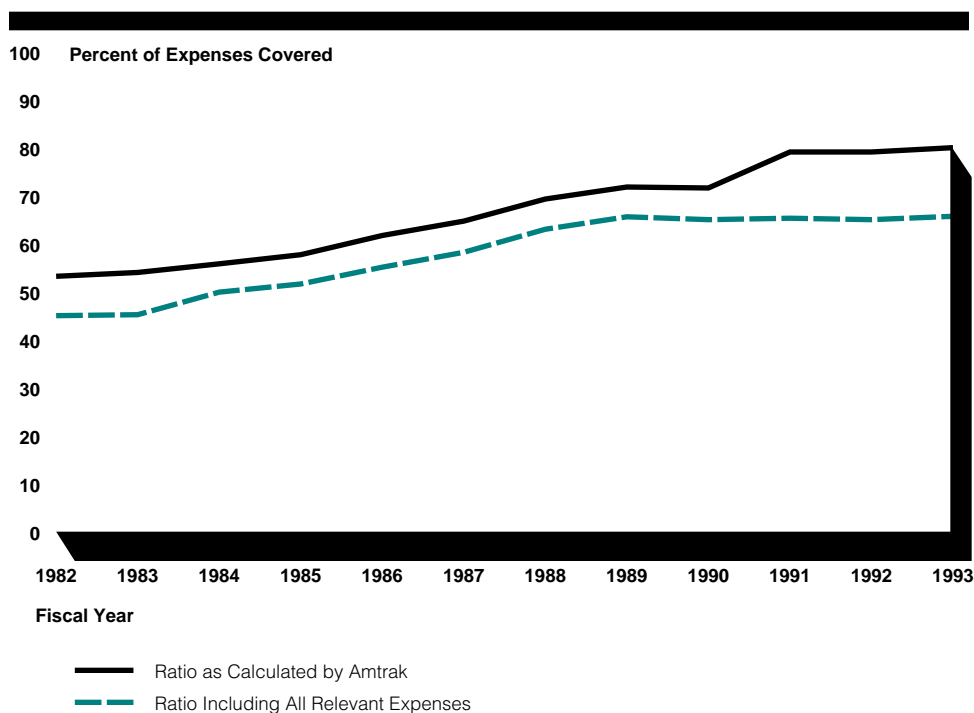
These and other actions to enhance productivity are expected to produce an annualized net savings to Amtrak of \$364 million, by reducing costs by about \$430 million annually while forfeiting only \$66 million in revenues. Amtrak expects these actions to result in savings of about \$200 million in 1995, eliminating the expected cash deficit for 1995. These actions, however, will not eliminate Amtrak's need for federal operating and capital grants now or in the future. Revenues will continue to fall short of expenses on most routes. Furthermore, collective bargaining and/or legislative changes might be required before approximately 26 percent of the anticipated savings can be achieved, according to Amtrak. In addition, the plan does not account for implementation costs, such as pay protection for employees whose jobs are eliminated as a result of route closures and capital investment needs that continue to grow. Finally, Amtrak projects that after 1995, if federal grants remain at current levels, the deficit will exceed operating grants by \$1.3 billion through the year 2000. These issues are also discussed in chapters 3, 4, and 5.

Revenue-To-Expense Ratio Is Misleading

Amtrak has calculated and reported a revenue-to-expense ratio to demonstrate that its operating revenues were covering a larger share of its operating expenses from year to year. As figure 2.4 shows, this ratio improved from fiscal year 1982 to fiscal year 1991 but has since leveled off. Amtrak reported that revenues covered about 53 percent of expenses in fiscal year 1982 and about 80 percent in fiscal year 1993. However, in calculating this ratio, Amtrak did not include all relevant expenses. Because Amtrak deferred certain costs, including some maintenance expenses, the ratio gave a misleading picture of Amtrak's financial health.

Amtrak officials agreed with our assessment that this ratio should not be used⁷ and stopped reporting it in fiscal year 1994.

Figure 2.4: Amtrak's Revenue-To-Expense Ratio, Fiscal Years 1982-93



Source: GAO's analysis of Amtrak's data.

In calculating the revenue-to-expense ratio, Amtrak has excluded certain expenses, including (1) depreciation, (2) mandatory payments for railroad retirement and unemployment insurance made by FRA on Amtrak's behalf,⁸ (3) various federal and state taxes, (4) user fees paid to FRA for track inspections and other activities, (5) miscellaneous expenses relating to accident claims, (6) losses incurred in providing 403(b) service to the states,⁹ and (7) disbursements for labor protection. Amtrak is required by

⁷See *Amtrak: Financial Condition Has Deteriorated and Future Costs Make Recovery Difficult* (GAO/T-RCED-94-155, Mar. 17, 1994).

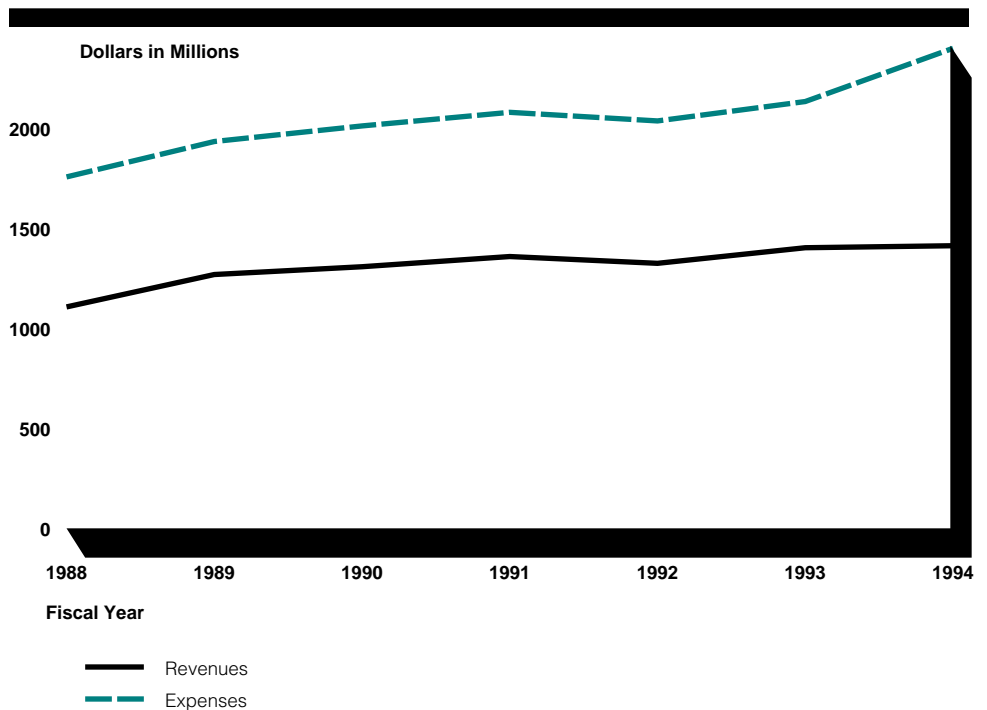
⁸These payments have been excluded only since fiscal year 1991.

⁹Amtrak provides intercity service that is partially funded by the states served under sec. 403(b) of the Rail Passenger Service Act (see ch. 4).

statute to exclude losses under section 403(b). It excluded other expenses for various reasons, including a belief that some items (such as labor protection payments) do not represent operating costs. If all these excluded expenses had been included, the ratio in 1993 would have been 66 percent—14 percentage points less than Amtrak reported.

The revenue-to-expense ratio is a misleading indicator of a firm's financial condition when the firm defers or forgoes expenses to show improved performance. Amtrak has deferred maintenance on rolling stock and equipment and reduced other expenses. While these actions have resulted in short-term improvements to the revenue-to-expense ratio, they have long-term implications for Amtrak's viability. This ratio was also misleading because it showed an improving trend when Amtrak's financial condition was deteriorating. Furthermore, as figure 2.5 illustrates, the overall gap between revenues and expenses has been widening since 1988.

Figure 2.5: Revenues and Expenses, Fiscal Years 1988-94



Note: Amounts are in current-year dollars.

Source: GAO's illustration of Amtrak's data.

Conclusions

Amtrak's financial condition has deteriorated over the last several years, and the problems accelerated in 1994. Actual revenues have been less than Amtrak projected and expenses have been higher than expected. As a result, federal subsidies have not fully covered Amtrak's operating deficits. This condition has adversely affected Amtrak's supply of cash, which is needed to pay bills and provide high quality service. Amtrak's financial deterioration worsened in 1994 in the wake of accidents and lower-than-expected revenues. Amtrak had expected that the general economic recovery would improve its financial situation, but this did not occur. Although Amtrak reduced its budgeted expenses, continued declines in revenues, cash, and working capital threaten Amtrak's ability to provide high quality intercity passenger rail service and compete effectively for customers. The service reductions and other actions that Amtrak plans to take in 1995, if implemented, will bring Amtrak's costs in line with revenues and grants for that year. However, these planned actions will not solve the corporation's longer-term problems, which we discuss in chapter 3.

The Congress needs better information on how Amtrak estimates revenues from passenger service, not only to determine the amount of federal subsidy, if any, to provide but also to make decisions about Amtrak's future. In chapter 5 we make recommendations to the President of Amtrak to improve the information provided to the Congress.

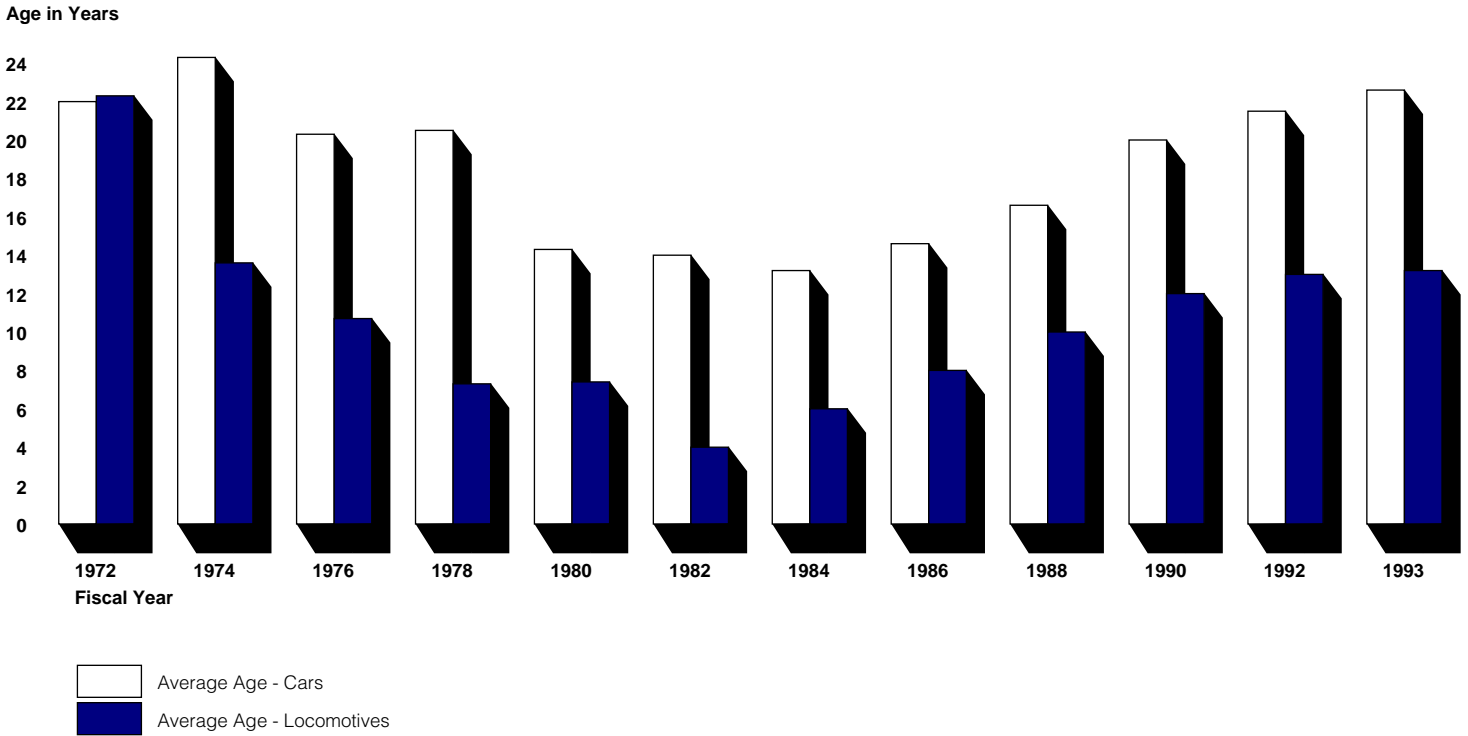
Capital and Other Costs Will Make Financial Improvement Difficult

The depletion of Amtrak's physical assets poses an even greater threat to the railroad's financial well-being than the current shortfalls in operating funds. Operating a passenger railroad is an inherently costly undertaking. The advanced age and poor condition of Amtrak's rolling stock (locomotives and cars) and overhaul facilities make it expensive to maintain the fleet. While purchases of new equipment will ease the burden of maintenance and overhauls, the funds to pay for this equipment must come from already-strained capital budgets. Amtrak may also face substantial additional costs to comply with environmental laws and to pay freight railroads for the use of their track. Amtrak is unlikely to be able to address these challenges under the current operating environment and at the current funding level. Reductions in routes announced in December 1994 should allow Amtrak to retire most of its oldest passenger cars. But, according to new estimates, the investments needed in infrastructure will more than offset any savings.

Costs for Maintaining Aging Fleet Are Growing

Today, Amtrak's fleet is about as old as the aged fleet the corporation inherited from the freight railroads over two decades ago. (See fig. 3.1.) Aging equipment requires more extensive repairs, and Amtrak spends over \$400 million annually to repair, maintain, and overhaul this equipment. Nevertheless, that amount understates Amtrak's true costs for maintaining the equipment because Amtrak has routinely deferred equipment overhauls to cope with funding shortages and performed less comprehensive work when overhauling some cars. Amtrak introduced a new maintenance/overhaul program in 1994 to reduce this backlog and improve the fleet's operating condition. However, this program is already underfunded, and new backlogs will inevitably result.

Figure 3.1: Average Age of Amtrak's Passenger Cars and Locomotives, Fiscal Years 1972-93



Notes: Fiscal year 1993 is the last year for which data are available.

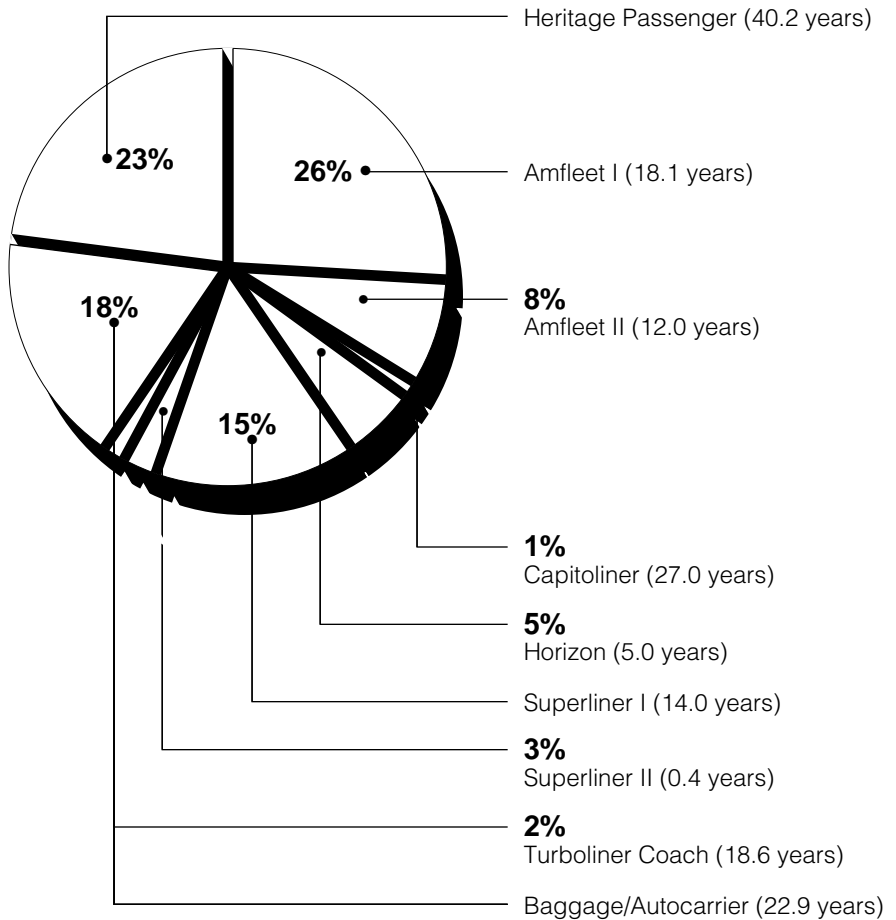
The average age of locomotives reflects only the age of locomotives used to operate trains.

Source: Amtrak.

Cars Are Growing Older and More Expensive to Maintain

A significant portion of Amtrak's equipment—31 percent of the cars and 54 percent of the locomotives—is beyond its useful life. About 23 percent of Amtrak's 1,900-car fleet consists of Heritage passenger cars that Amtrak obtained in 1971 from other railroads. These cars now average over 40 years old—much older than the 25-to 30-year average expected useful life estimated by Amtrak's Chief Mechanical Officer. The remaining passenger cars (Amfleets, Horizons, Superliners, Turboliners, and Viewliners) in total average 14.2 years—about half-way through their useful life span. (See fig. 3.2.)

Figure 3.2: Average Age of Amtrak's
Car Fleet, June 1994



Source: GAO's analysis of Amtrak's data.

As equipment ages, it breaks down more often and requires more extensive repairs. In an August 1994 study, Amtrak found that failures of Heritage cars cause more train cancellations and longer delays than failures of any other type of car. Heritage cars that fail are out of service awaiting parts about three times longer on average than newer cars. Needed parts for Heritage cars must often be manufactured because they can no longer be purchased off the shelf. Moreover, because there are 27

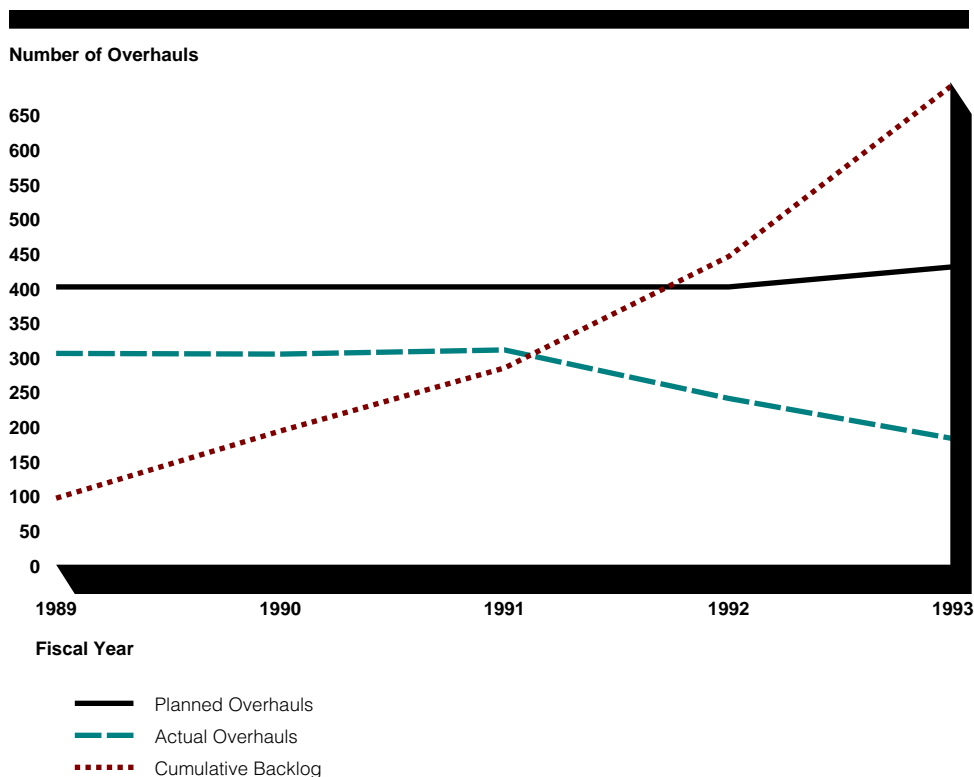
different Heritage models, Amtrak cannot produce replacement parts in economical quantities. As a result, the cost per seat to perform a limited “intermediate” overhaul on a Heritage car can be 25 to 50 percent higher than the cost to undertake a complete heavy overhaul on a Superliner. Before December 1994, Amtrak planned to replace some Heritage cars as 245 new Superliner and Viewliner cars were delivered by 1997.¹ About 200 Heritage cars would have remained in service. Now, however, Amtrak expects to retire all but a few “specialty” Heritage cars (diners, cab cars) as it reduces service frequencies and eliminates routes in fiscal year 1995. According to Amtrak, this will have a significant impact on the costs to maintain equipment and out-of-service rates.

Backlogs and Funding Shortages Spurred Change in Overhaul Program

Before fiscal year 1994, Amtrak’s goal was to maintain all its cars through a program of periodic preventive maintenance and regular heavy overhauls (every 3 to 4 years). These overhauls can cost about \$300,000 for each car. In comparison, a new car costs about \$2 million. However, to cope with its deteriorating financial condition, Amtrak began deferring maintenance in the late 1980s. Amtrak also began using capital funds in 1992 to overhaul many older cars (Heritage and Amfleet I models) and locomotives. Even with the infusion of capital funds to overhaul these cars, overhauls were past due for nearly 40 percent of the fleet by September 1993. (See fig. 3.3.)

¹Amtrak had only three prototype Viewliner cars in its fleet as of December 1994.

Figure 3.3: Backlog of Heavy Overhauls on Cars, Fiscal Years 1989-93



Note: Amtrak implemented a new “progressive maintenance” program in October 1993.

Source: GAO’s analysis of Amtrak’s data.

As the backlog grew, Amtrak officials recognized that the railroad’s preventive maintenance/overhaul program was not adequate. Cars looked shabby and were breaking down with increasing regularity. When the fiscal year 1994 budget provided no increase in funding, the Mechanical Department began to implement a new “progressive maintenance” program in October 1993.² Under this program, Amtrak performs heavy maintenance when a car breaks down and also a limited overhaul each year on every car. Every third year, the annual overhaul will be more comprehensive but still less extensive than the heavy overhaul performed before. Only Amtrak’s newer passenger cars will be maintained under this

²We reviewed the progressive maintenance program and the program it replaced in Amtrak: Financial Condition Has Deteriorated and Future Costs Make Recovery Difficult (GAO/T-RCED-94-155, Mar. 17, 1994).

program. The remaining Heritage cars and Turboliner coaches will continue to receive preventive maintenance and/or limited overhauls as before. The progressive program is intended to keep more cars in service—thereby generating more revenues—but is not expected to reduce overall maintenance costs. By the end of fiscal year 1994, all Amfleet, Horizon, Superliner, and Viewliner cars were eligible for inclusion in the progressive program. However, Amtrak is already falling short of reaching its goals under this program. While 1994 was a transition year, fewer cars than required received annual overhauls because of budget reductions. Also, maintenance officials have found that the program is not appropriate for all these cars. For example, increased customer complaints about the condition of Amfleet cars in the Northeast Corridor have prompted Amtrak to return these cars to a scheduled maintenance program in fiscal year 1995, although they will continue to receive overhauls under the progressive program. Furthermore, the progressive program was intended to use only operating funds, but Amtrak has already found it necessary to allocate 1995 capital funds for the heavier 3-year overhauls of the Amfleet I cars.

**New Program Brings
Higher Workload at Some
Facilities and Higher
Overall Costs**

As Amtrak implements the progressive program, two of its three overhaul facilities—located at Bear, Delaware, and Beech Grove, Indiana—will need to handle significantly more cars than they did under the previous heavy overhaul program.³ Both facilities fell behind in performing overhauls in the past because funds were not available.

The Bear facility is responsible for annual progressive overhauls on Amtrak's 629 active Amfleet cars, which provide service primarily in the Northeast Corridor. In fiscal year 1993 (the last full year of heavy overhauls), the facility overhauled 59 cars, but it had overhauled as many as 152 cars per year in earlier years. Officials said that this facility has the physical capacity to perform the 629 overhauls required under the progressive program, but only if its production staff is increased by 90 from its current level of 183.

The Beech Grove facility is responsible for overhauling nearly 1,200 cars and 265 locomotives that operate outside the Northeast Corridor. In fiscal year 1993, this facility performed heavy overhauls of 117 cars and 50 locomotives—about 47 percent less than the number required to meet the established overhaul cycles. During 1995, it would need to perform at least

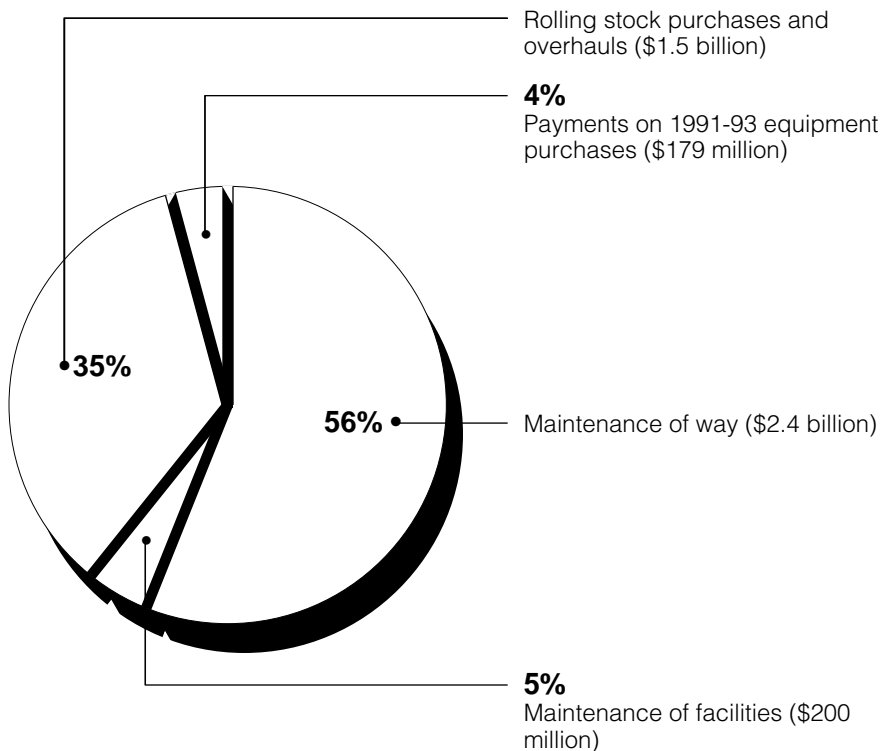
³A third facility at Wilmington, Delaware, overhauls mostly electric locomotives. Because the process for overhauling locomotives has not changed, Wilmington has not been affected by the new progressive program.

166 heavy overhauls and 350 progressive overhauls of the cars while continuing to overhaul an average of 66 locomotives to keep up with the established schedule. However, the current budget for Beech Grove will fund only about 63 percent of these overhauls. Furthermore, Amtrak's new Superliners and Viewliners will add to Beech Grove's workload as they become eligible for annual overhauls starting in 1996 and 1997, respectively. While the per-unit cost of a progressive overhaul is substantially less than the cost of a heavy overhaul, the total cost to Amtrak to fully implement the new program will be greater because so many more cars will be overhauled each year. For fiscal year 1995, Amtrak needs an additional \$31.2 million to do this work.

Capital Investment Needed to Improve Efficiency and Increase Productivity

The depletion of Amtrak's physical assets—maintenance and overhaul facilities, rolling stock, rights-of-way in the Northeast Corridor, and other support assets—is perhaps a greater threat to the railroad's financial well-being than the current shortfall in operating funds. Over the past 10 years, Amtrak's equipment and facilities depreciated at the rate of \$200 million per year, while investment averaged only \$140 million annually. Amtrak currently estimates that even with the reduced route system announced in December 1994, it needs capital investment of over \$4 billion to purchase rolling stock and to bring the infrastructure into a state of good repair. (See fig. 3.4.) This amount does not include money needed for equipment and facilities for high-speed service in the Northeast Corridor.

Figure 3.4: Amtrak's Estimate of
Capital Investment Needs



Notes: The amount estimated for purchasing rolling stock and for overhauls does not include funds needed to purchase high-speed train sets.

Maintenance of way costs include repairs needed on the Northeast Corridor right-of-way but exclude funds needed for new facilities and for completion of the electrification project to allow high-speed service on the north end of the corridor.

Payments on equipment purchased in 1991-93 reflect the amount needed for principal and capital interest from 1995 to 2004. Regular interest (paid out of Amtrak's operating funds) is not included. Amtrak will need an additional \$615 million for principal payments on this equipment between 2005 and 2017 to retire the debt.

These capital needs total \$4.3 billion.

Source: Amtrak.

Amtrak's capital subsidies have not been sufficient for the railroad to attempt this level of investment. Amtrak borrowed much of the capital needed to replace some of its oldest cars and locomotives with new equipment ordered in the early 1990s, and a significant portion of its annual capital subsidy must be used to pay this debt. The limited

remaining capital funds are generally committed to short-term projects that enable Amtrak simply to keep its equipment operating and complying with federal laws. Very little is left over to invest in projects that might increase revenues, improve the efficiency of operations, or increase the capacity and productivity of overhaul facilities.

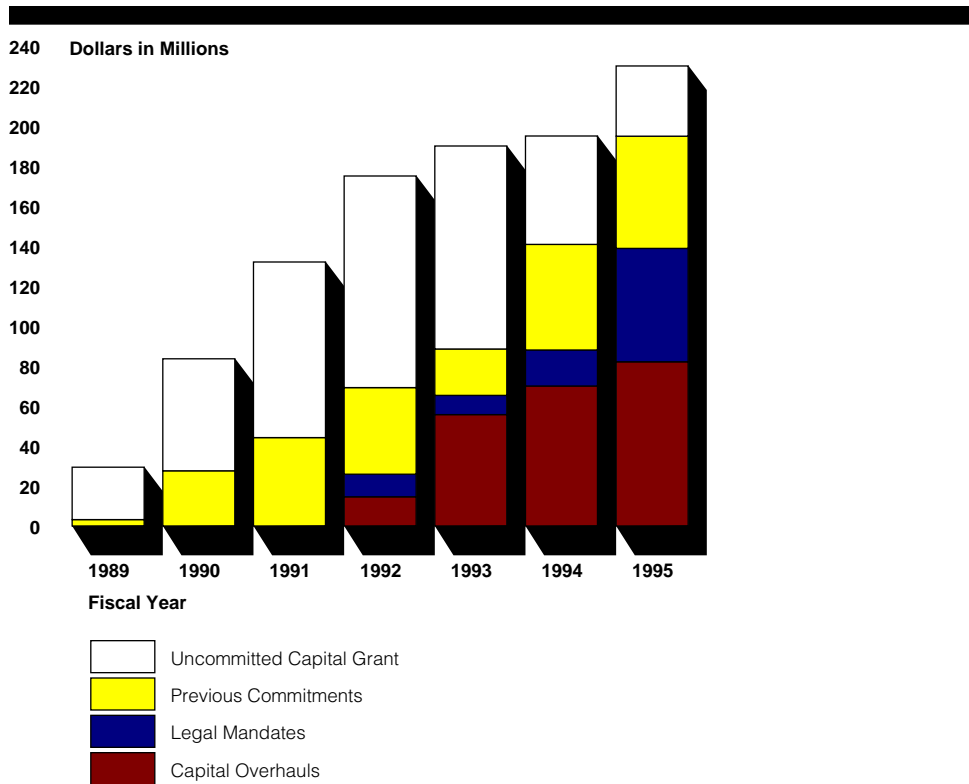
Future Federal Capital
Grants Have Already Been
Committed

The ability of Amtrak to improve its facilities, overhaul its oldest cars and most of its locomotives, and purchase new equipment depends wholly on its federal capital grant. The demands on these funds far exceed the grants provided over the past few years. Amtrak received \$560 million in capital funding from 1992 to 1994.⁴ According to Amtrak, it must now set aside a sizable portion of the subsidy to pay for the rail equipment and computers it purchased and facility improvements it made with borrowed funds in the past, as well as for legally mandated equipment modifications and environmental cleanup efforts. Additionally, Amtrak uses an increasing amount of its capital funds to overhaul cars and locomotives, leaving only a small amount for all other capital replacement needs.⁵ (See fig. 3.5.)

⁴Amtrak received an additional \$634 million for improvements in the Northeast Corridor, bringing its total capital funding to nearly \$1.2 billion for fiscal years 1992-94.

⁵In 1992, Amtrak reclassified some overhauls of equipment as capital expenses because the cost exceeded 50 percent of the book value of the car or locomotive.

Figure 3.5: Commitments of Amtrak's Federal Capital Funds, Fiscal Years 1989-95



Notes: Uncommitted funds are those remaining from the capital grant that are not already committed for specific requirements at the beginning of the fiscal year. Amtrak receives additional capital funds for NECIP that are not included in this figure.

Capital fund categories for fiscal year 1995 are estimated.

Source: GAO's analysis of Amtrak's data.

Amtrak allocated \$14.6 million of its capital funding to overhauls in fiscal year 1992, \$55.7 million in fiscal year 1993, and \$70 million in fiscal year 1994. As a result, less money was available for capital investment in new equipment or new infrastructure. In its capital subsidy request for fiscal year 1995, Amtrak identified more than \$800 million in needed capital spending, of which \$195 million will be used to pay off debt, comply with federal laws on equipment modifications, or fund capital overhauls. However, only \$230 million in capital funds was appropriated. In fiscal year 1995, Amtrak will have only \$35 million to invest in new capital

projects like facility renovations and major repairs to track and rights-of-way—down from more than \$100 million in 1993.

Furthermore, Amtrak recently recognized that the need to reinvest in the Northeast Corridor right-of-way (track, signals, and auxiliary structures) is becoming critical. It now estimates that at least \$2.5 billion will be needed to bring this infrastructure into a state of good repair. Much of this investment is needed on the south end of the corridor, from Washington, D.C., to New York, where Amtrak operates high-speed trains and has captured the largest share of the transportation market. Amtrak will use \$115 million of its \$200 million NECIP appropriation for fiscal year 1995 to improve track, signals, structures (e.g., bridges), electric traction (catenary⁶ and related power structures), maintenance-of-way equipment, and tunnels in this part of the corridor. According to Amtrak's Chief Engineer, however, these improvements are only a small fraction of what needs to be done. The remaining \$85 million of the NECIP appropriation will be used for electrification and improving track and facilities on the north end of the corridor, as well as for purchasing high-speed train sets (see ch. 4).

Maintenance and Overhaul Facilities Need Substantial Capital Improvements

Amtrak owns and/or operates 18 facilities where cars and locomotives are maintained and overhauled. Amtrak has developed a 10-year master plan for improving these facilities so they can accommodate future requirements, including the new progressive maintenance/overhaul program.⁷ The plan is estimated to cost \$326 million. Five facilities need substantial renovation and/or modernization—the three overhaul facilities at Beech Grove, Indiana, and Wilmington and Bear, Delaware, and two divisional repair facilities in Los Angeles and New York. Together, these facilities will require \$262 million to renovate or replace structures, improve efficiencies in operation, repair damage caused by earthquakes, and build new structures.

The facility at Beech Grove needs not only the increased funds to perform the progressive overhauls discussed above but also upgrades to its physical plant if it is to meet Amtrak's future overhaul requirements. Beech Grove is responsible for overhauls of and repairs to 61 percent of

⁶Catenary is the overhead wire system that delivers electricity to the locomotive for traction, or movement.

⁷According to Amtrak officials, the strategic plan adopted in December 1994 supersedes the 10-year plan and calls for consolidating Amtrak's overhaul and repair facilities. However, no decision has yet been made on how this consolidation will be implemented.

Amtrak's total fleet. The facility is nearly 100 years old and is in very poor condition. Much of the on-site track was installed in the early 1900s and has deteriorated, resulting in frequent derailments. The facility was not designed for production-line overhauls of cars. The buildings are run-down, and some cannot accommodate the work for which they are used. For example, Amtrak's newest diesel locomotives are too large to fit inside the locomotive shop building, and the shop's cranes are not large enough to lift the locomotives so that wheel sets can be removed.

In 1990, Amtrak initiated a five-phase modernization plan to correct some of Beech Grove's problems. By September 1993, about \$12 million of the total cost of \$47 million had been spent on such projects as combining the truck and forge shops, improving a coach production line, constructing employee welfare facilities (lunchrooms, rest rooms, and locker rooms), replacing roofs, and replacing or rehabilitating overhead cranes. In August 1994, Amtrak committed an additional \$1.9 million to repair Beech Grove's transfer table⁸ and repair or replace some of the track most critical to the facility's operation. These projects will help Beech Grove perform its required overhauls and reduce derailments at the facility. (See fig. 3.6.)

⁸A transfer table is a moveable piece of track that moves rolling stock to various workstations.

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Capital and Other Costs Will Make Financial
Improvement Difficult

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Improvement Difficult

Figure 3.6: Facility at Beech Grove



Deteriorated track



Cars derailed at the facility

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Improvement Difficult



Rerailing equipment



No indoor storage for inventory of seats

Source: Amtrak.

However, many renovations and modernization projects remain unfunded, including a new warehouse and distribution system for material, modifications to the locomotive shop, additional replacement and rehabilitation of track, and a new wheel shop. With the introduction of the progressive overhaul program, which presents even greater challenges to the facility's operations, Beech Grove officials have drafted a new modernization plan to accomplish these projects and other work. First-year costs of \$9.8 million have been budgeted for fiscal year 1995, but \$28.4 million more is needed to complete the work.

Of all Amtrak's repair facilities, Sunnyside Yard in New York City is most in need of improvement. This facility has almost no maintenance structures. Virtually all work is performed outside, so that equipment and personnel are exposed to the elements. The single service building for performing minor maintenance (called "running repairs") can accommodate only 8 cars at a time and is thus barely adequate for the 12 to 15 cars needing repair each day. The only locomotive repair building at Sunnyside was recently condemned because of chemical contamination; it will cost \$550,000 to remove this building and the related contamination. In addition, because Sunnyside lacked auxiliary power hook-ups to allow car heaters to operate while the cars were being serviced in the yard, the plumbing systems on over 50 cars froze and broke during the winter of 1993-94. Repairs to these cars cost about \$1.8 million. Amtrak estimates costs of more than \$100 million for improvements at Sunnyside, including (1) constructing a new service and inspection building and a car-cleaning facility, (2) realigning track and constructing new storage track, and (3) completing necessary environmental cleanup.

Capital Equipment Requirements Are Also Significant

As stated previously, maintenance and repair costs remain high because of the large number of aging Heritage cars. Between 1991 and 1993, Amtrak purchased 245 Superliner and Viewliner cars and 72 locomotives for \$743 million and \$181 million, respectively.⁹ These cars should be cheaper to maintain than the Heritage cars they will replace because they have standardized parts and modular components to allow for easier repair. Amtrak estimates that it will save \$341 annually in maintenance costs for every seat in a Heritage car replaced by a seat in a Superliner. Also, most of the cars are designed with many more seats per car than the cars they are replacing, potentially adding passenger revenues without adding more cars to the train. Amtrak believes that passengers will be more likely to

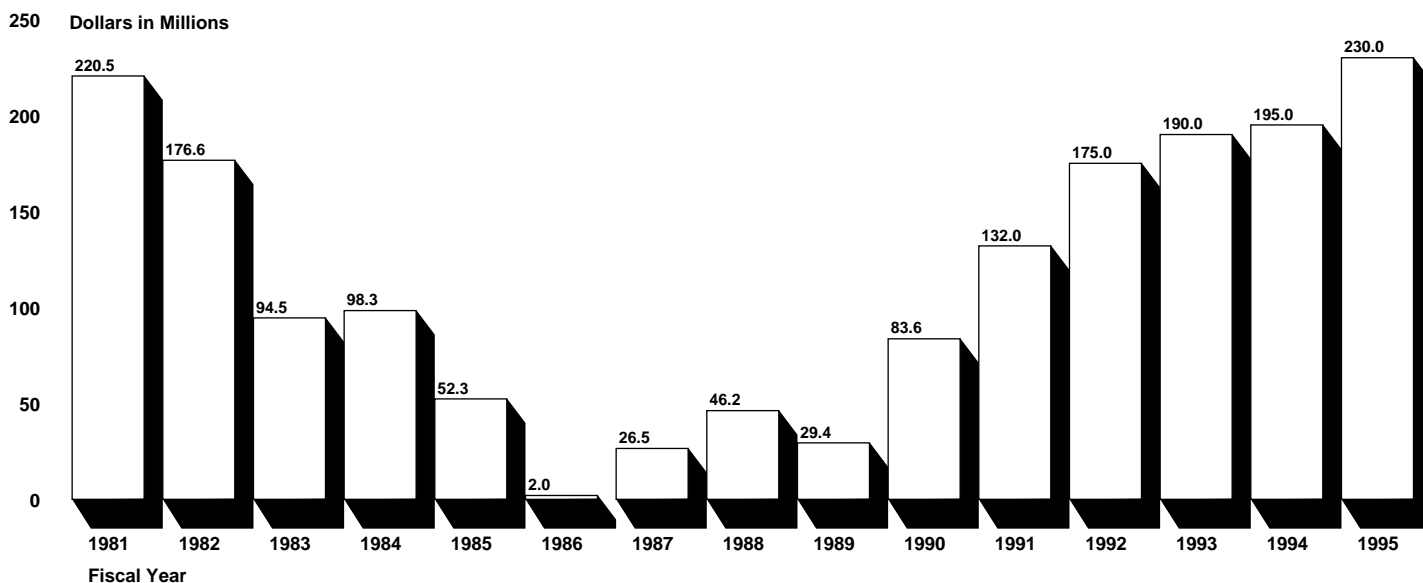
⁹One of the new locomotives was destroyed in the accident in Saraland, Alabama, in September 1993, less than a month after being delivered.

travel by rail if they can ride in newer, more modern Amtrak cars. The new locomotives will provide greater power, will increase fuel efficiency, and should contribute to better on-time performance.

However, in addition to the new equipment that is now being delivered, Amtrak has estimated it will need over 700 more new cars and locomotives in the future. Its current long-term equipment acquisition plan, approved in November 1992, includes estimates for replacing all remaining Heritage cars with Viewliners and replacing some of the nonpassenger cars and locomotives that are in poor condition or are nearing the end of their useful lives. Amtrak estimates that it will need to purchase 299 locomotives and 416 cars at a cost of about \$1.5 billion from 1994 to 2002. While these needs will be reassessed following the service reductions in 1995, Amtrak officials believe that a large portion of the locomotive fleet will still need to be replaced within the next 5 years.

According to Amtrak's President, it is very difficult to commit to long-term capital projects because of uncertainty about future funding. As a result, Amtrak tends to focus on short-term operations and is less able to invest in projects that would create long-term operating efficiencies. Capital grants are appropriated annually and often fluctuate from year to year. (See fig. 3.7.) As stated above, a significant amount of money is needed just to repay debt and pay for capital overhauls and equipment modifications. Also, the Committees on Appropriations have, in recent years, placed restrictions on when Amtrak is allowed to withdraw its money from the Treasury, usually mandating that all withdrawals be delayed until the fourth quarter of the fiscal year.

Figure 3.7: Amtrak's Capital Grant, Fiscal Years 1981-95



Source: GAO's illustration of Amtrak's data.

Labor Costs Could Increase

Labor costs could increase as Amtrak begins to renegotiate contracts in 1995 with the 14 labor unions that represent about 90 percent of Amtrak's 25,000 employees. Amtrak estimated that wages increased between \$120 and \$140 million from 1991 to 1995 as a result of the last round of collective bargaining. Similar increases may result from the upcoming negotiations. For example, if wages and benefits increase by 4 percent per year to keep pace with inflation, Amtrak's costs could increase by about \$40 million per year, or about \$200 million (in current-year dollars) over a 5-year period.¹⁰ The current contracts provide for most union employees to receive annual wage increases of about 4 percent between 1991 and 1995.

Amtrak has reduced labor costs and increased productivity when possible. Its employees receive less compensation on average than freight railroad employees performing comparable jobs. For example, in 1992 Amtrak compensated train and engine crews about \$42,900 per employee, while

¹⁰This estimate does not include the potential gains in productivity that Amtrak could achieve as a result of such things as changes in work rules. Such gains could offset some or all of the cost increases.

other Class I freight railroads compensated similar employees about \$54,800 per employee.¹¹ Also, since 1983 Amtrak has increased productivity by (1) adopting an 8-hour basis of pay for train and engine crews (before this change, crews earned a full day's pay on the basis of the number of miles traveled), (2) eliminating the requirement for a fireman on trips of less than 4 hours, and (3) establishing a 5-year graduated entry wage for certain newly hired employees. Amtrak estimates that these changes have saved about \$50 million per year.

Amtrak's costs in 1994 for salaries, wages, and benefits accounted for about 52 percent (\$1.3 billion) of the railroad's total operating expenses. Federal laws unique to the rail industry keep Amtrak's labor costs higher than they would be otherwise. For example, in 1992 Amtrak paid about 26 percent of its payroll in retirement taxes to meet requirements of the Railroad Retirement Act of 1937; this percentage is similar to the rate paid by other railroads.¹² In comparison, other industries paid only about 6 percent of their payroll in retirement costs and retirement-related savings plans. Also, in 1992 Amtrak paid about \$0.67 per employee-hour worked for accident and injury claims under the Federal Employers Liability Act. This amount compares with about \$0.36 per hour worked paid by private industry under state workers compensation systems.¹³

Labor costs could also increase if Amtrak eliminates entire routes or reduces service below three round-trips per week. Amtrak and freight railroad employees are covered by the Rail Passenger Service Act, which requires adoption of a labor protection agreement for employees affected when intercity rail passenger service is discontinued. Under the agreement, known as Appendix C-2 and adopted in 1973, employees who are dismissed may be eligible for payment of their average monthly compensation for up to 6 years or, at their option, may receive a separation allowance of up to 12 months' pay.¹⁴ According to Amtrak, if the entire route system were shut down, the railroad would incur labor protection expenses of between \$2.1 billion and \$5.2 billion.

¹¹Class I freight railroads are those that earned \$251.4 million or more in annual revenues in 1992.

¹²This percentage includes retirement costs for both management and nonmanagement employees. According to Amtrak, management employees participate in a defined contribution retirement plan and receive certain other retirement benefits that are not available to nonmanagement employees.

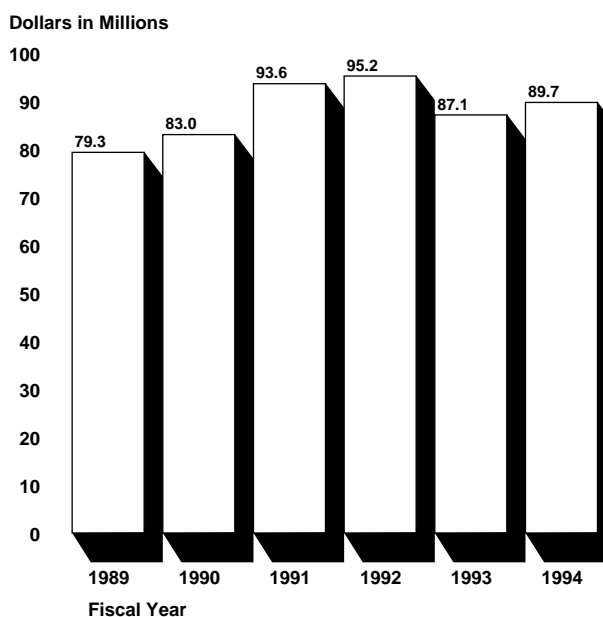
¹³See Railroad Competitiveness: Federal Laws and Policies Affect Railroad Competitiveness (GAO/RCED-92-16, Nov. 5, 1991).

¹⁴Employees who are able to exercise their seniority rights and find other jobs within Amtrak may be eligible for displacement pay (the difference between their old and new average monthly compensation) for up to 6 years.

New Operating Agreements With Freight Railroads Could Increase Costs

Freight railroads own about 97 percent of the track over which Amtrak operates and provide such essential services as dispatching trains, making emergency repairs to Amtrak trains, and maintaining stations. These services are provided under operating agreements that Amtrak maintains with 18 railroads. On April 30, 1996, most of Amtrak's initial 25-year operating agreements with freight railroads will expire, and new agreements must be negotiated. On the basis of our discussions with freight railroad officials, it is likely that Amtrak's costs under the new agreements will increase substantially. Amtrak currently pays about \$90 million per year in both base payments and incentive payments to freight railroads. (Incentive payments are additional amounts that railroads can earn when Amtrak trains operate on time.) (See fig. 3.8.)

Figure 3.8: Amtrak's Payments to Other Railroads, Fiscal Years 1989-94



Source: GAO's illustration of Amtrak's data.

Freight railroad officials told us that compensation will be a key issue in negotiations with Amtrak. They believe that their companies are not adequately compensated for the services they currently provide to Amtrak. They offered several reasons. First, the methodology used to determine

reimbursements for the incremental costs of maintaining track—that is, the extra costs of wear and tear on the track—does not adequately measure the costs resulting from Amtrak’s use of the track. Of the \$90 million that Amtrak pays annually to freight railroads, about \$20 million is for the incremental cost of maintaining the track, and Amtrak estimates that its costs for track maintenance could double if another methodology is used. Second, incentive payments do not consider delays caused by Amtrak’s trains—when an Amtrak locomotive fails, for example—in calculating on-time performance. Rather, these delays are held against the freight railroads and consequently limit the amount of incentives that they earn.

Freight railroads may also seek higher compensation for “level-of-utility” requirements that expire with the operating agreements. Amtrak trains generally travel at higher speeds than freight trains. As a result, the track must be maintained to higher safety standards. This increased standard is referred to as a higher level of utility. In addition, according to freight railroad officials, Amtrak does not fully reimburse railroads for clearing freight traffic and interrupting maintenance-of-way work to allow Amtrak’s trains to proceed on time.

Freight railroad officials also said that liability arrangements would be a key issue in negotiations. They are concerned about their liability in settling high-cost claims that result from passenger-train accidents occurring on their track. This concern arose after a Conrail train collided with an Amtrak train near Chase, Maryland, in January 1987; 16 people died and more than 350 people filed injury claims. In this case, Conrail paid about \$94 million in personal injury and death claims. Freight railroad officials fear that similar situations could develop on their property. Under current operating agreements, Amtrak and the freight railroads use a “no-fault” liability arrangement, in which each party is responsible for paying for its own equipment and personnel. In addition, Amtrak pays freight railroads between \$0.0367 and \$0.0734 per train mile for the liability coverage that they must maintain in connection with providing Amtrak service. In fiscal year 1993, Amtrak paid about \$2.8 million for purchased insurance.¹⁵ Freight railroad officials told us that they would like to see this arrangement changed. They suggested that either Amtrak assume full responsibility for accidents in which it is involved, regardless of who is at fault, and/or liability claims be capped and handled through a pooled

¹⁵Amtrak maintains about \$200 million in liability insurance, of which the first \$25 million per occurrence is self-insurance. The balance is purchased from commercial insurance companies.

insurance fund. In either case, Amtrak's costs for liability protection could increase substantially.

Costs May Increase for Employee Benefits and Environmental Cleanup

Although health care and postretirement benefits are currently a small part of Amtrak's budget, they could become more significant in the near future. In January 1995, the health care premiums that Amtrak pays for its union employees are projected to increase by about \$61 per employee per month. Amtrak estimates that this increase could boost operating expenses by about \$25 million per year. In addition, Amtrak provides postretirement health care and life insurance benefits to salaried employees. For fiscal years 1992 and 1993, Amtrak paid postretirement benefits of \$1.4 and \$1.5 million, respectively. Amtrak estimates that cash outlays for these benefits will grow from \$3 million in fiscal year 1994 to around \$20 million by the year 2010.

Amtrak can also expect higher costs associated with environmental cleanup. Amtrak's current expenditures for environmental cleanup projects have ranged between \$2 million and \$8 million per year. However, according to Amtrak, this amount represents only a fraction of its known environmental problems. For example, Amtrak may have to spend between \$17 and \$69 million to bring the 69 fueling sites along its routes into compliance with the Clean Water Act, according to Amtrak officials. Amtrak also estimated that an additional \$1 million per year over a 5-year period will be needed to eliminate asbestos at its stations and facilities. Other environmental projects are likely to increase costs further. Amtrak's policy is to limit spending for environmental cleanup to high-priority projects that pose immediate dangers to the environment. At the end of fiscal year 1994, Amtrak recognized a \$33 million liability for future costs for environmental cleanup. Amtrak acknowledged that costs would increase if it fully complied with environmental standards and requirements and implemented prevention and control measures.

Conclusions

In the coming years, Amtrak faces increased costs that it can no longer defer or avoid. These costs include keeping its equipment in operating condition, purchasing new equipment, meeting its debt obligations, negotiating and paying for new labor agreements, paying reasonable fees to use other railroads' track, and paying for increased employee benefits and environmental cleanup at Amtrak sites. Its past efforts to reduce costs, while necessary, have resulted in deterioration of equipment and some facilities.

The need for improvements is becoming critical, and these improvements will not come cheaply. The new progressive maintenance/overhaul program, designed to keep more cars in service at a lower unit cost, will still cost over \$30 million more to implement in fiscal year 1995 than was spent in 1994 and will eventually cost nearly \$60 million more as new equipment enters the program. However, without this commitment, Amtrak risks growing backlogs of equipment in need of overhaul, depleting the number of cars available for service. The new cars and locomotives currently being delivered should ease the pressures, in both the short and long term, as older cars that are costly to maintain are replaced and more revenues per car are generated. By the turn of the century, however, this equipment will need to be overhauled each year, increasing the burden on Amtrak's aging overhaul facilities.

We believe that capital investment is important and will lower operating expenses in the long term by increasing productivity and improving efficiency. The Beech Grove overhaul facility could be made much more economical by replacing, repairing, and modernizing the track and structures that now impede efficient work there. Such investments could enable Amtrak to increase efficiencies and provide comfortable, modern, on-time service to its passengers. If the problems that have been driving customers away from Amtrak are reduced, demand for service may well increase. In chapter 4, we discuss the prospect that Amtrak can generate sufficient additional revenues to offset these increased costs.

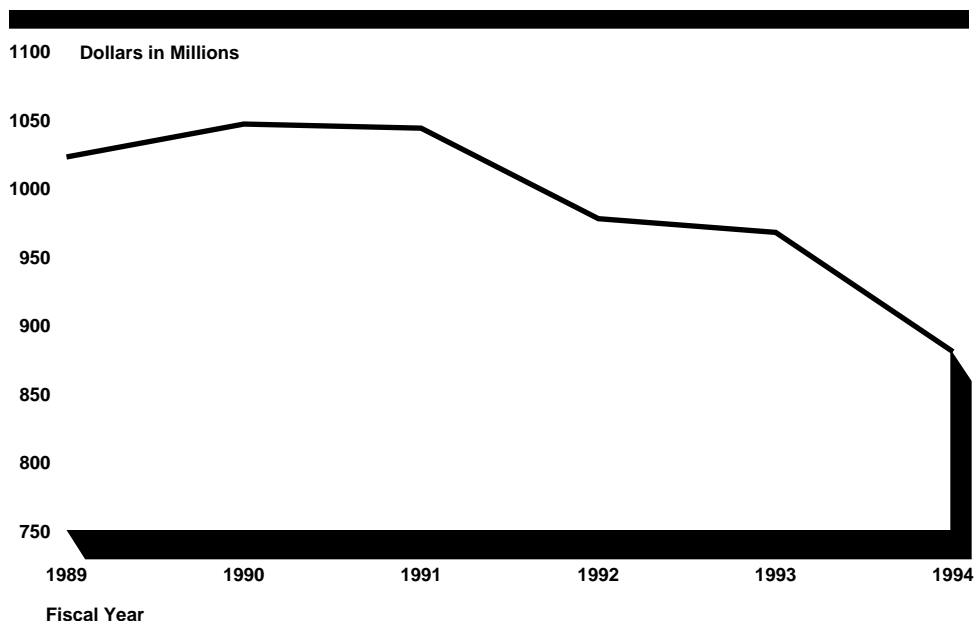
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Amtrak's revenues have never covered all the costs for providing intercity rail passenger service on any route. This gap, after narrowing during the 1980s, has again widened. Even as the economy has recovered, Amtrak's ridership and revenues have not improved correspondingly. There are several opportunities for Amtrak to earn additional revenues, including completing a computerized system to maximize its revenues per seat, increasing the amount of compensation the states pay Amtrak for losses on services it provides in the states under section 403(b) of the Rail Passenger Service Act, introducing high-speed rail in selected corridors, and expanding commuter rail operations. However, none of these actions is likely to eliminate Amtrak's operating deficit.

Revenues Will Continue to Be Influenced by Service Quality and Competition From Other Modes of Transportation

Since 1990, Amtrak's passenger revenues have fallen about 14 percent in real terms (see fig. 4.1)—from over \$1 billion in 1990 to about \$880 million in 1994—and riders have been experiencing more problems on their trips as Amtrak continues to operate aged equipment and to defer maintenance. Amtrak has cited a weak economy and intense price competition from the airlines as some of the key reasons for its poor performance. But deteriorating service quality and a spate of recent accidents have also contributed to declining revenues.

Figure 4.1: Amtrak's Passenger
Revenues in 1994 Dollars, Fiscal Years
1989-94



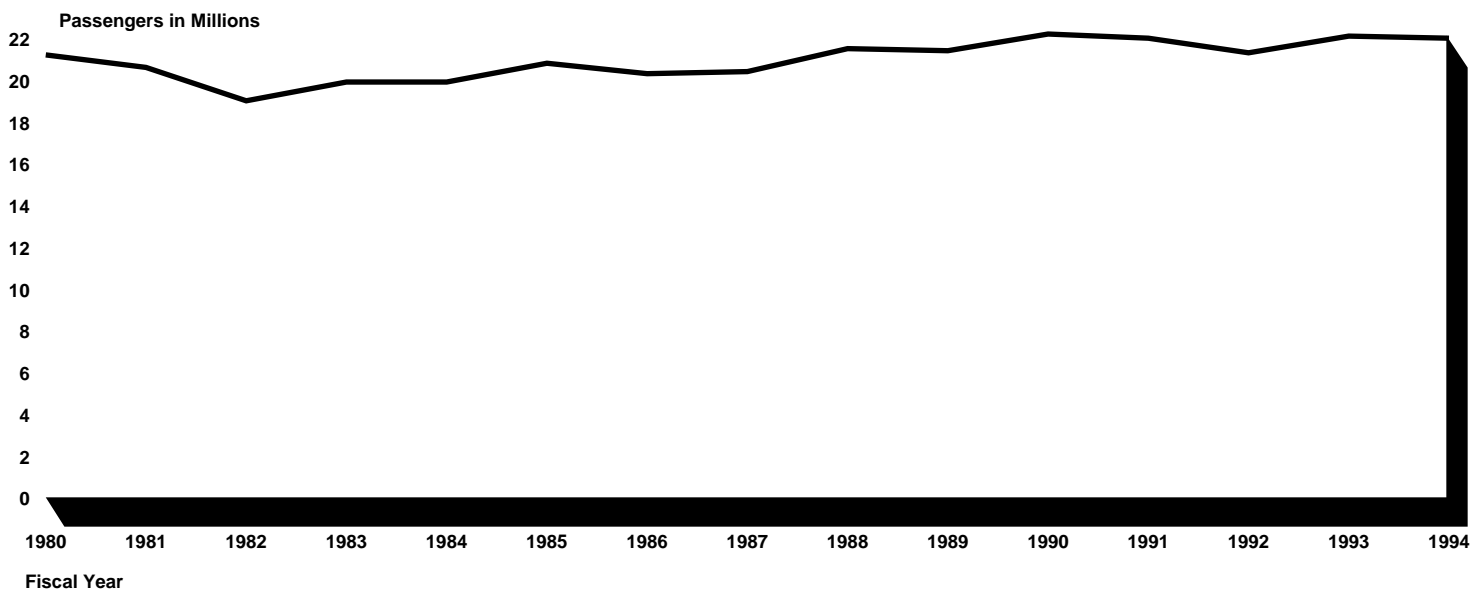
Source: GAO's analysis of Amtrak's data.

Revenues Have Declined as Service Quality Has Deteriorated

Although Amtrak's ridership generally increased during the 1970s, financial losses persisted, and in recent years Amtrak's annual deficit has risen steadily. Since the 1980s, Amtrak's ridership has remained relatively steady, fluctuating between 19 million and 22 million passengers annually. (See fig. 4.2.) To deal with the widening gap between revenues and expenses, Amtrak has had to rely heavily on cost reductions, because substantial revenue increases could not be expected with ridership stagnant and fares constrained by falling air fares and gasoline prices (when adjusted for inflation). As Amtrak cut expenses, the quality of service deteriorated, making increases in ridership even less likely.

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Figure 4.2: Amtrak's Intercity Ridership, Fiscal Years 1980-94



Note: Ridership data for 1994 are preliminary.

Source: GAO's illustration of Amtrak's data.

According to a June 1994 survey of Amtrak's passengers, about 61 percent had experienced at least one problem during their trip. Both the proportion of passengers experiencing problems and the number of problems per passenger increased with the distance traveled. About 74 percent of passengers on western long-distance trains and about 67 percent of those on eastern long-distance trains experienced problems.¹ However, even riders on Amtrak's high-speed Metroliners encountered problems—roughly 44 percent of passengers reported problems.

The most common problems cited in the customer survey concerned on-time performance. Late arrivals and departures accounted for about 21 percent of the problems that passengers cited. Dissatisfaction with the cleanliness of facilities was also common, accounting for about 10 percent of the problems mentioned. Between 1989 and 1992, overall on-time performance improved from 75 to 77 percent; performance on certain

¹Amtrak defines long-distance trains as those traveling 500 miles or more.

routes and for certain trains, however, remains poor. In 1993, Amtrak's systemwide on-time performance declined to 72 percent. On one route—the Empire Builder, which runs between Chicago and Seattle—trains arrived on time only 4 percent of the time, according to Amtrak. Amtrak estimates that late arrivals and departures alone result in about \$80 million in lost revenues annually. Altogether, Amtrak believes that it is losing over \$300 million annually because of problems affecting customer satisfaction.²

Rail Accidents Have Caused Temporary Declines in Ridership

The series of accidents involving Amtrak trains—one near Mobile, Alabama, in September 1993; others in Boise, Idaho; Kissimmee, Florida; and Gary, Indiana, during November and December 1993; a derailment at Selma, North Carolina, in May 1994; and an accident near Batavia, New York, in August 1994—appear to have resulted in temporary declines in ridership and thus revenue losses. After the September 1993 accident, Amtrak's ridership nationwide fell by about 4 percent, affecting revenues for about 2 months. After the subsequent accidents, revenues dropped by as much as 15 percent. Revenue recovery took increasingly longer and occurred only after aggressive marketing campaigns.

Economic Conditions and Competition Have Strained Amtrak's Revenues and Passenger Yields

Competitive pressures have limited Amtrak's ability to increase revenues by raising fares. From 1990 to 1993, Amtrak's overall yield—revenue per passenger mile—fell by about 10 percent, after adjusting for inflation. The declines were larger, about 12 percent, for routes outside the Northeast Corridor.³ Yields on traffic in the Northeast Corridor—where Amtrak derives about one-half of its ridership—fell by about 6 percent. These falling yields represent fare reductions made in response to, among other things, lower fares on airlines and buses. Meanwhile, passenger yields on domestic airlines fell by about 12 percent from 1989 to 1993 and are now below Amtrak's. Yields on intercity buses fell about 10 percent from 1989 to 1992 and are well below the yields of Amtrak and the airlines.

Most intercity trips are made by private vehicles. Automobiles and other private vehicles account for about 80 percent of total passengers miles of intercity travel, while Amtrak represents only about 0.3 percent. Falling real gasoline prices continue to encourage people to drive. Since 1990, the

²These numbers are based on estimates of the number of potentially lost customers—both those experiencing problems and those lost for other reasons, such as word of mouth—multiplied by an expected annual revenue of \$514 per passenger.

³The numbers cited are passenger yields, which includes revenues from both tickets and food and beverage services.

real price of regular unleaded gasoline has declined by about 10 percent. This price decrease, combined with a general increase in the average fuel efficiency of new cars, continues to make driving a relatively inexpensive option, especially for leisure travel by families. Many people make the decision to drive on the basis of only the out-of-pocket cost of their trip. Many related costs, such as insurance and depreciation, are perceived as largely fixed and do not enter into the traveler's choice of mode.

Thus, lower fares for air and bus travel and lower gasoline prices combined to improve the relative attractiveness of the alternatives to taking the train, while the quality of train service declined. These trends have continued for some time, and Amtrak will find it difficult to overcome them.

Yield Management System May Have Benefits, but Revenue Gains May Be Marginal

To increase revenues and improve yields, Amtrak is computerizing its yield management system, which allocates seats among several service classes. This system is similar to those used by the airlines to control seat inventories and maximize revenues. Amtrak does not want to sell a seat to a passenger traveling only a short distance on a long-distance train if by doing so it is unable to sell the seat to a long-distance passenger. Still, because most Amtrak passengers travel only on a portion of a route, Amtrak cannot reserve all the seats for long-distance travelers and must optimally manage its seat inventory. Moreover, because of the number of stops a train makes and the number of passengers boarding and deboarding at each stop, programming a yield management system for passenger trains is much more complicated than computerizing a system for airlines. As of July 1994, 100 long-distance trains were included in the computerized system, and Amtrak plans eventually to have 220 of its reserved-seat trains in the system. Because of budget constraints, the system is being implemented in phases. It was introduced in 1991 and is not expected to be completed until the end of fiscal year 1995.

This system should help Amtrak maximize revenues, especially on heavily patronized long-distance trains during the peak travel seasons. However, it is not likely that the added revenues resulting from better yield management will make a substantial impact on Amtrak's deficit because most trains are far from overbooked,⁴ and Amtrak has used a manual yield management system for some time.

⁴The load factor—the number of passenger miles per seat mile—for all Amtrak trains was 52 percent in fiscal year 1993. In 1994, the load factor dropped to 49 percent.

Current Intercity and State-Supported Routes Lose Money

Amtrak as a whole loses money. However, to judge the financial performance of individual Amtrak routes, it is necessary to determine the revenues and costs associated with each route. Doing so can be difficult. When all costs, including administrative and capital costs, are fully allocated, all Amtrak routes—even the heavily traveled Northeast Corridor—generate sizable deficits. Amtrak also operates intercity passenger rail services that receive financial assistance from the states where they operate. The support from the states does not fully compensate Amtrak for the cost of operating these trains. Under its December 1994 business strategy, Amtrak will seek reimbursement from the states for all the losses incurred by these trains.

All of Amtrak's Intercity Routes Lose Money

As noted above, none of Amtrak's routes are profitable if the costs are fully allocated, and only services in the Northeast Corridor and on a few special trains⁵ generate revenues that exceed avoidable costs. Some costs would cease if a route were discontinued or, conversely, start if a new service were introduced. These costs include short-term avoidable costs, such as those for train and engine crews and fuel. Other costs would not end immediately if a route were eliminated. These include not only long-term avoidable costs, such as expenses for heavy equipment maintenance and training, but also the short-term costs directly attributable to a route.

Losses on individual routes vary depending on what costs Amtrak considers in the calculation. If costs are fully allocated, passenger revenues covered only about 54 percent of the costs in fiscal year 1993. In calculating fully allocated costs, Amtrak excludes certain expenses, including general and administrative overhead, interest, non-intercity passenger operations, and adjustments from previous periods. For short routes—those less than 500 miles—revenues covered 83 percent of the long-term avoidable costs, while revenues from long-distance service covered 75 percent of such costs. The Northeast Corridor made a positive contribution on the basis of long-term avoidable costs. If only short-term avoidable costs are considered, then both short- and long-distance routes outside the Northeast Corridor come close to covering their costs. (See table 4.1.)

⁵Special trains provide unscheduled, intermittent service at a profit. These trains earn less than 0.2 percent of Amtrak's total revenues and contribute 0.1 percent to total expenses.

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Table 4.1: Costs and Revenue-to-Cost Ratios for Routes, Calculated Using Different Cost Allocation Methodologies, Fiscal Year 1993

Dollars in millions				
	Long-distance routes	Short-distance routes	Northeast Corridor routes	Total passenger routes
Train revenues ^a	\$482	\$160	\$375	\$1,019
Fully allocated costs	\$961	\$348	\$579	\$1,891
Long-term avoidable costs	\$639	\$193	\$231	\$1,064
Short-term avoidable costs	\$532	\$163	\$190	\$885
Ratio of revenues to fully allocated costs	0.50	0.46	0.65	0.54
Ratio of revenues to long-term avoidable costs	0.75	0.83	1.62	0.96
Ratio of revenues to short-term avoidable costs	0.91	0.98	1.97	1.15

Note: Totals do not add because of rounding.

^aRevenues exclude non-intercity passenger sources (e.g., commuter operations).

Source: GAO's analysis of Amtrak's data.

Part of the reason that services in the Northeast Corridor appear more profitable than services in other parts of the system is that Amtrak treats a significant portion (60 percent) of the costs to maintain track in the Northeast Corridor as fixed costs and therefore excludes them from the measures of avoidable costs. Elsewhere, Amtrak considers track maintenance costs as avoidable costs because they represent a contractual obligation between Amtrak and the freight railroads that own the track. Furthermore, the Northeast Corridor includes both conventional trains and high-speed Metroliner trains. While the Metroliners recover 90 percent of their fully allocated costs, the conventional trains do not perform as well. The Metroliners skew the overall cost recovery ratio of the Northeast Corridor so that it performs much better than other routes.⁶ (See table 4.2.)

⁶Special trains, which account for 0.2 percent of Amtrak's revenues, covered 88 percent of their fully allocated costs in fiscal year 1993.

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Table 4.2: Comparison of Revenues and Expenses for Trains in the Northeast Corridor, Fiscal Year 1993

Dollars in millions		
	Metroliners	Conventional trains ^a
Train revenues	\$127.9	\$233.5
Fully allocated costs	\$142.1	\$392.7
Ratio of revenues to fully allocated costs	0.90	0.59

^aExcludes Philadelphia-Harrisburg and Atlantic City service.

Source: GAO's analysis of Amtrak's data.

State-Supported Section 403(b) Service Operates at a Loss

The Rail Passenger Service Act allows Amtrak to initiate and/or operate intercity rail service, known as 403(b) service, that is financially supported by the states. In fiscal year 1994, Amtrak had contracts with eight states to operate such service over 13 routes.⁷ This service accounted for about 14 percent of Amtrak's ridership.

Under the provisions of the act, the states pay 45 percent of operating losses for such service in the first year of operation and 65 percent of losses in subsequent years. For service that began before 1989, states reimburse Amtrak for short-term avoidable losses, while for service that began after 1989, states reimburse Amtrak for long-term avoidable losses. In fiscal year 1994, three of the eight states—Missouri, New York, and Michigan—reimbursed Amtrak for short-term avoidable losses; three states—Alabama, North Carolina, and Wisconsin—reimbursed Amtrak for long-term avoidable losses; and two states—California and Illinois—reimbursed on both long- and short-term bases, depending on the route. States also pay 50 percent of the capital costs (a calculation based on depreciation and interest) associated with the equipment used for this service. Any losses (capital or operating) not paid by the states are absorbed by Amtrak. For the most part, Amtrak uses its own equipment to provide this service.

In fiscal year 1993 (the last year for which financial data on 403(b) service are available), Amtrak absorbed about \$82 million in losses on section 403(b) services. This amount included about \$78 million in operating costs and \$4 million in capital costs. Amtrak absorbed such costs as heavy maintenance and overhaul of cars and locomotives, repairs following accidents, and an allocated portion of fixed costs (e.g., expenses to

⁷These states were Alabama, California, Illinois, Michigan, Missouri, New York, North Carolina, and Wisconsin.

operate yards and stations and various overhead costs). The states paid about \$26 million. Amtrak absorbs other costs from the service as well. For example, Amtrak's use of equipment for section 403(b) service precludes its use on other intercity routes where equipment shortages could occur. Amtrak is not reimbursed for these lost opportunity costs. In 1992, Amtrak adopted a policy whereby no new 403(b) service will be initiated unless a state purchases and provides the cars and locomotives. Few states have been willing to make this type of investment.

As part of the new business strategy adopted in December 1994, Amtrak will seek to gradually eliminate the "deeply discounted" service provided to the states under section 403(b). To accomplish this goal, it plans to renegotiate the reimbursement terms of all 403(b) service over the next several years so that the participating states subsidize all costs not covered by revenues. Doing so may require changes to the Rail Passenger Service Act, according to Amtrak, but the corporation has not yet decided what legislative changes it may seek.

High-Speed Rail Service Could Generate New Revenues but Require Significant Nonfederal Support

Many supporters of intercity rail passenger service believe that more people would ride the trains and that routes could be more profitable if high-speed services were introduced. Amtrak continues to work on the Northeast Corridor Improvement Program (NECIP) and plans to extend high-speed service from New York to Boston. Amtrak still requires about \$1.5 billion to complete this modernization. High-speed trains have been proposed for other corridors around the nation, but attempts to build them have encountered serious obstacles.⁸ Significant capital costs will be incurred for improvements to the infrastructure and for new equipment regardless of where these systems are built. The High-Speed Ground Transportation Development Act of 1994 authorizes \$169 million to assist in planning these systems, but no funds have been appropriated. Moreover, other questions, such as who will operate these systems and who will pay for them, remain unanswered.

Financial Benefits From Northeast Corridor High-Speed Service May Be Difficult to Attain

Extending electrification from New Haven, Connecticut, to Boston under NECIP will allow train speeds of up to 150 miles per hour, will cut travel times between New York and Boston from 4 hours to under 3 hours, and should generate increases in both ridership and revenues. Amtrak estimates that annual revenues from this project will exceed long-term

⁸See See High-Speed Ground Transportation: Issues Affecting Development in the United States (GAO/RCED-94-29, Nov. 17, 1993). See also In Pursuit of Speed: New Options for Intercity Passenger Transport (Special Report 233), Transportation Research Board (Washington D.C.: 1991).

avoidable costs by about \$36 million (in 1993 dollars) in the year 2010. Although this amount will not cover capital costs, any revenues received in excess of long-term avoidable costs will help reduce Amtrak's need for federal operating subsidies. These increased revenues are predicated on Amtrak's capturing about 45 percent of the rail/air travel market between New York and Boston, a share equal to that currently held by Amtrak between Washington, D.C., and New York, where trains achieve speeds of 125 miles per hour. As of September 30, 1994, Amtrak estimated that the major improvements in infrastructure required to provide 3-hour service between New York and Boston would be completed in 1999.

Since 1976, about \$3.3 billion (in current-year dollars) has been appropriated for NECIP. Amtrak estimates that about \$1.5 billion more is needed to complete the project. FRA estimates that an additional \$582 million (in constant 1993 dollars) will be needed to address problems with track capacity. Counting prior expenditures on the Washington-New York segment, the corridor will cost about \$5 billion. The track between New York and Boston is currently shared by Amtrak and freight and commuter railroads—all of which plan to increase their use of the track in future years.⁹ The existing track cannot accommodate all of these plans. Therefore, either some train operations will have to be shifted to off-peak hours or additional capacity will have to be constructed to ensure that all parties' needs are met. Since Amtrak does not own about 95 miles of the rights-of-way between New York and Boston, it may have difficulty negotiating shifts in train schedules and/or costs to gain additional capacity. Consequently, Amtrak may either have to absorb more of the additional costs than it expects or delay its planned increases in train schedules until capacity problems can be resolved. Either action could significantly affect Amtrak's ability to achieve timely revenue gains as a result of NECIP.

High-Speed Service Outside the Northeast Corridor Faces Significant Obstacles

Providing high-speed rail service outside the Northeast Corridor will be influenced by the recently enacted High-Speed Ground Transportation Development Act of 1994. This legislation authorizes \$169 million over a 3-year period through fiscal year 1997 for planning assistance for high-speed rail corridors. To date, no funds have been appropriated and no construction funds have been authorized. A number of important questions have yet to be answered, including who will be designated to operate future high-speed rail service. There is no guarantee that Amtrak

⁹For example, Amtrak plans to more than double the number of trains on most sections of the route by the year 2010.

will be selected to operate these services. Nor is it clear how much federal assistance might be provided to build high-speed rail systems. The responsibility for funding these projects is likely to fall on the states, localities, or private investors.

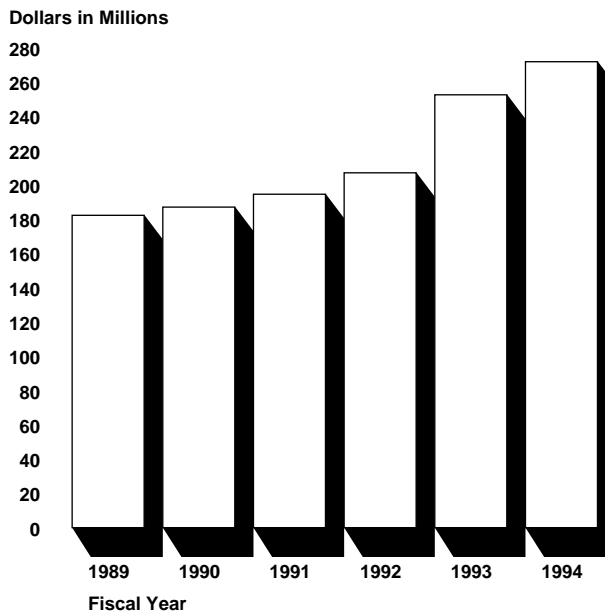
The impact of high-speed rail systems on Amtrak's need for federal subsidies is also unclear. If Amtrak's role is limited to operating such systems under contract to others and federal operating subsidies are limited, Amtrak and the federal government could largely be shielded from losing money on these operations. If high-speed rail service is operated as part of Amtrak's national intercity route system, then federal operating subsidies will rise or fall depending on whether revenues exceed long-term avoidable costs. Any federal capital assistance would presumably be provided through separate appropriations. Amtrak estimates that nine high-speed train sets, at a total cost of about \$170 million, would be needed to provide nine daily round-trips on a 300-mile corridor.

Ancillary Activities Are a Growing Source of Revenue, but Financial Contribution Is Unclear

Amtrak also earns revenues by operating commuter rail services under contract to state and local governments and regional transit agencies, developing its real estate holdings, and providing mail and express service. Amtrak was unable to provide us with an accounting of the costs associated with these activities until December 1994; therefore, we have not assessed their profitability. In fiscal year 1993, these activities accounted for about \$435 million—or about 30 percent—of Amtrak's \$1.4 billion in revenues. In general, ancillary activities have been a growth area for Amtrak and, overall, appear to have produced a modest profit. In particular, commuter rail services, which generated revenues of about \$270 million in fiscal year 1994, were Amtrak's second largest source of operating revenue. Amtrak operates eight commuter rail systems in five states under competitively awarded cost-plus contracts. Amtrak primarily operates these services and does not use its own equipment. Since 1983, when Amtrak entered into its first contract with the Maryland Rail Commuter System, its commuter revenues and ridership have grown as Amtrak has entered into new contracts. (See figs. 4.3 and 4.4.) Amtrak began operating two major new systems in 1993—the Virginia Railway Express in northern Virginia and Metrolink in Los Angeles—to boost its commuter ridership from 20 million in 1992 to 29 million in 1993. Amtrak now carries more passengers on its commuter services than on its intercity operations.

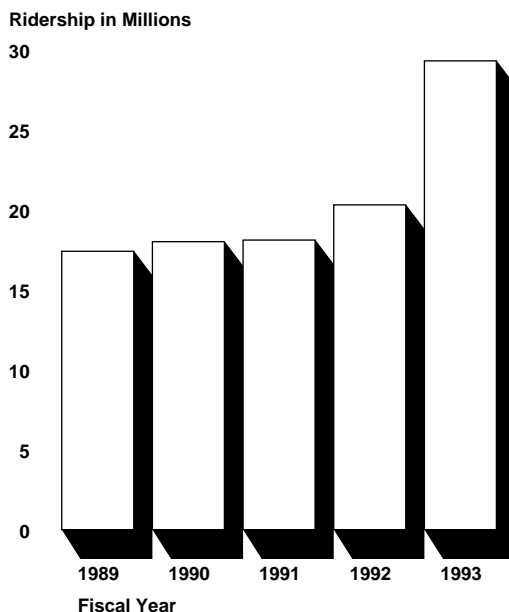
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**Figure 4.3: Amtrak's Revenues From
Commuter Railroads, Fiscal Years
1989-94**



Source: GAO's analysis of Amtrak's data.

Figure 4.4: Amtrak's Ridership on
Commuter Railroads, Fiscal Years
1989-93



Source: Amtrak.

The financial contribution from Amtrak's ancillary activities is largely unknown. During our review, Amtrak had difficulties in identifying the costs of these activities and, for the most part, was unable to provide us with financial statements for them in a timely manner. This was particularly true for commuter rail activities. Data on revenues and ridership were available but data on expenses were not. We also had difficulty identifying general and administrative expenses for these activities and the way these costs are allocated to specific lines of business or specific contracts. According to Amtrak, these costs are not accounted for separately but are instead allocated according to standard corporatewide formulas. We did not audit these formulas. As a result, it is not clear what the financial contribution of Amtrak's ancillary activities might be, nor whether costs are being allocated correctly.

Conclusions

Since 1990, Amtrak's ridership has been relatively stagnant, revenues have declined, and the quality of service has deteriorated. Amtrak's problems can be attributed partly to uncertain economic conditions and to

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competition from the airlines and from buses. But they are also the result of continued reliance on old, unattractive equipment that is prone to breakdowns and delays. Lacking the resources to purchase the new equipment that would increase the quality of service and constrained to match operating costs with federal subsidies, Amtrak has been forced to cut costs, delay maintenance of equipment, and generally let the quality and attractiveness of train travel deteriorate further. The prospects for recovery of ridership and revenues are poor.

Increasing the amount of compensation the states pay for services provided under section 403(b), contracting to provide more commuter rail operation, and introducing high-speed trains outside the Northeast Corridor could all enhance revenues, but none of these initiatives can be expected to close the current deficit. In chapter 5, we make recommendations to Amtrak to determine the profitability of its ancillary activities and to provide further information to the Congress on the corporation's potential involvement in high-speed service outside the Northeast Corridor. Chapter 5 also discusses alternatives for matching the country's needs for viable intercity rail passenger service with the realities of limited federal resources.

Reassessment of Amtrak's Mission Is Needed

Amtrak and the federal government need to make important decisions about the future of intercity passenger rail service and the government's commitment to subsidize such operations. Amtrak's condition will only get worse if it continues to operate the current system—even with the reductions in service planned for 1995—at the current level of state and federal funding. High quality nationwide passenger service of the present scope that might attract and retain passengers would require substantially higher levels of additional support, particularly for capital investment. The key question is whether the federal government or the individual state governments are willing to make the required investments, given the competing demands on their resources. A substantially reduced passenger rail system, while more feasible from a fiscal viewpoint, requires that difficult decisions be made on the type, quality, and location of the remaining services.

Continued Operation of Existing Service Is Not Feasible at Current Subsidy Level

We do not believe that the current situation—the present nationwide passenger rail system at the current subsidy level—represents a viable option. Amtrak's financial condition will continue to deteriorate, and the railroad's ability to provide nationwide service at the present level will be seriously threatened. To maintain the current nationwide system will require significantly increased resources if Amtrak is to offer quality service. Without additional funds from federal, state, and local governments, Amtrak will have to cut expenses significantly by eliminating some routes and reducing the frequency of service on others. In either case, ridership could fall as the level of service declines.

In September 1994, Amtrak officials announced their decision to reduce Amtrak's management force from 2,700 to 2,100 people by the end of 1994 through voluntary or forced separation. The staffing cut is part of a plan to shift control over pricing, marketing, and service to local offices and train crews by reducing headquarters staff in Washington, D.C., and transferring staff to three regional operating centers. Amtrak hopes to improve efficiency by establishing operating centers in Philadelphia for the Northeast Corridor, Los Angeles for West Coast service, and Chicago for the rest of the nation. These changes and reductions in staff, however, involve too few dollars to substantially affect Amtrak's financial condition. After severance costs, Amtrak expects these cuts to save approximately \$30 million in fiscal year 1995.

Realizing that additional actions needed to be taken, in December 1994 Amtrak announced plans to cut expenses by reducing service, as we

discussed in chapter 2. If implemented, these actions could bring Amtrak's operating costs in line with the revenues and grants for 1995. Nonetheless, these planned actions will not solve the corporation's longer-term problems. Revenues will continue to fall short of expenses on most routes, and Amtrak estimates that operating expenses will exceed operating revenues and the federal operating subsidy by \$1.3 billion between 1996 and the year 2000. Furthermore, Amtrak will still need over \$4 billion to replace worn-out equipment and infrastructure.

Achieving about 26 percent of the \$364 million in annual net savings that Amtrak anticipates from these actions might require collective bargaining and/or legislative change, according to Amtrak. Also, in eliminating routes, Amtrak will incur labor protection expenses to compensate workers who lose their jobs or are placed in lower-pay positions. Amtrak estimates that labor protection costs due to the proposed changes could be between \$80 million and \$158 million.

Amtrak has identified additional legislative changes that it believes could improve the corporation's long-term viability. These changes include

- including Amtrak in a federal transportation trust fund;
- limiting Amtrak's provision of state-assisted rail passenger service to situations in which the state is willing to provide the actual cost of such service;
- amending section 405 of the Rail Passenger Service Act to permit negotiations on labor protection issues without the statutory rigidity that currently limits those negotiations;
- further amending section 405 to remove constraints on contracting for work;
- eliminating from Amtrak's budget the mandatory payments for railroad retirement and unemployment benefits incurred by non-Amtrak employees¹;
- eliminating Amtrak's obligation to pay federal fuel taxes;
- requiring that Amtrak's federal operating grant be provided on the first day of the fiscal year to reduce overall cash flow costs and requirements;
- limiting punitive damages assessed against Amtrak through tort reform;
- providing Amtrak with the authority to issue tax-exempt debt;
- providing tax incentives to freight railroads for the revenues they earn from on-time performance payments from Amtrak; and

¹Amtrak also believes that part-time station custodians should not be considered railroad employees for purposes of this payment.

-
- clarifying Amtrak's exemption from local regulations on permits for work to improve the Northeast Corridor.

At the time of our review, Amtrak officials had not determined the extent to which these proposed changes to legislation would reduce the corporation's expenses, but they plan to do so. In addition, Amtrak has not identified the costs and benefits associated with these changes, including the impact of tax reductions or credits on the national debt and the impacts on other affected parties. Nor have we assessed the impact of these actions on Amtrak or other affected parties.

Improving Existing Rail Service Would Require Increased Federal Funding

Increased funding, especially capital investment, is essential if Amtrak is to continue its nationwide service at the present level. Over the longer term, increased funding offers Amtrak the potential to increase revenues and improve service quality on its existing routes, increase the efficiency and productivity of its operations, and, possibly, introduce high-speed service on some routes.

To substantially improve its deteriorating financial condition, Amtrak must increase its passenger revenues, which have been declining in real terms since 1990, as noted in chapter 4. By investing in new passenger cars and locomotives, Amtrak could increase its seating capacity on the routes where the demand is greatest. As we discussed in chapter 3, Amtrak recently purchased 245 passenger cars and 72 locomotives for nearly \$1 billion.

If the Congress more than doubled Amtrak's current capital subsidy to \$500 million annually from fiscal years 1995 to 2000—which may be difficult within the current federal budget—Amtrak could improve its maintenance facilities, stations, and information systems, among other things. However, even with the gains in efficiency and ridership expected from these improvements, Amtrak would still need more than \$400 million in annual operating subsidy from state or federal governments through the year 2000.² (See table 5.1.)

²App. I describes how we made these estimates. These estimates were made using data available from Amtrak during the summer of 1994. Since that time, Amtrak has announced its strategic business plan, which fundamentally changes some of the forecasts used in our analysis. According to Amtrak, its revenue outlook is now much less optimistic than it was in the summer of 1994, and its cost outlook is more conservative. However, Amtrak believes that updating our estimates would not produce results that differ substantially from the estimates we report.

Table 5.1: Estimated Revenues, Expenses, and Operating Grant If Amtrak Receives an Annual Capital Subsidy of \$500 Million, Fiscal Years 1995-2000

Dollars in millions

	1995	1996	1997	1998	1999	2000	Total
Estimated operating revenues	\$1,427	\$1,646	\$1,778	\$1,944	\$2,099	\$2,239	\$11,133
Estimated expenses	\$1,960	\$2,107	\$2,247	\$2,382	\$2,523	\$2,649	\$13,868
Operating grant requirement ^a	\$533	\$461	\$469	\$438	\$424	\$410	\$2,735

^aThe operating grant requirement is the difference between the estimated operating revenues and estimated expenses.

Source: Analysis of Amtrak's data for GAO by Snavelly, King & Associates, Inc.

Redefining System and Realigning Service Could Improve Amtrak's Financial Condition and Service Quality

The Congress could redefine Amtrak's role and mission by restructuring and realigning Amtrak's route system to a smaller basic network that would continue to be eligible for federal funding. This basic network could be augmented by regional routes fully funded by states. This approach has the potential to improve Amtrak's financial condition and service quality. Additionally, it may lead to reductions in federal funding over the longer term, although capital subsidies will continue to be needed. An analysis of Amtrak's current market—the routes with the largest ridership and revenues—could be used as a starting point in determining a basic route network that would be eligible for federal funding. We believe that the specific routes included in this restructured system could be determined by Amtrak or by a temporary commission such as the one formed to evaluate military base closures.

Criteria for Defining a Reduced Route Network

A basic route network could be defined by determining where Amtrak's market is currently strongest. As a starting point, we identified the (1) routes with the largest ridership and (2) routes that generated the greatest revenues. We found that 12 of Amtrak's 44 routes accounted for 70 percent of Amtrak's 22 million riders in fiscal year 1993. The top five routes—all in the Northeast and southern California—each had over 1 million riders and accounted for 56 percent of all riders.³ (See fig. 5.1.)

³The top five routes for passengers were the Metroliner (which operates high-speed trains between Washington, D.C., and New York City), conventional service in the Northeast Corridor (between Washington, D.C., and Boston), New York City-Philadelphia, New York City-Albany-Niagara Falls, and Los Angeles-San Diego. The other seven routes were New York City-Florida through coastal North and South Carolina, New York City-Florida through inland North and South Carolina, Chicago-Milwaukee, Chicago-Seattle, Chicago-Oakland, Los Angeles-Seattle, and Oakland-Bakersfield.

Figure 5.1: Amtrak's Major Ridership Markets, Fiscal Year 1993



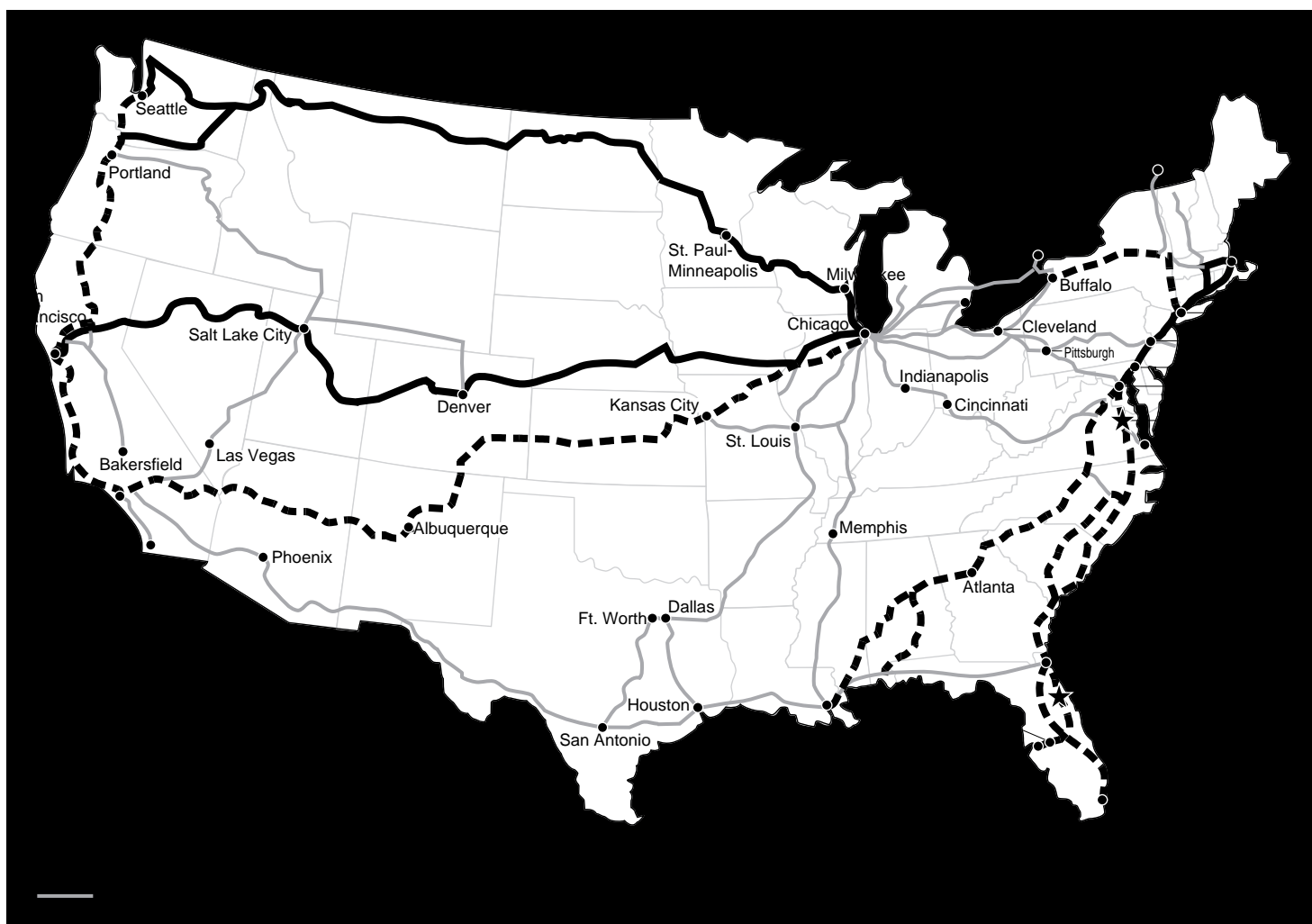
The routes with the most riders roughly coincided with the routes generating most of the passenger revenues. Eleven routes (each with revenues greater than \$30 million in fiscal year 1993) earned 68 percent of Amtrak's passenger revenues in fiscal year 1993 and accounted for 61 percent of the fully allocated costs.⁴ The top five routes generated 47 percent of the total train revenues and accounted for 38 percent of the

⁴In fiscal year 1993, Amtrak's train revenues were about \$1 billion.

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costs.⁵ The other six routes extend service on the East Coast, provide a third route from Chicago to the West Coast, and serve the West Coast.⁶ (See fig. 5.2.)

Figure 5.2: Amtrak's Major Revenue Markets, Fiscal Year 1993



⁵In fiscal year 1993, Amtrak's fully allocated costs were nearly \$1.9 billion.

⁶The top five routes for revenues were Metroliners (high-speed service between New York City and Washington, D.C.), conventional service in the Northeast Corridor (between Boston and Washington, D.C.), Chicago-Seattle/Portland, Chicago-St. Louis-Oakland, and the Autotrain. The other six routes were New York City-Albany-Niagara Falls, New York City-Florida through coastal North and South Carolina, New York City-Florida through inland North and South Carolina, Chicago-Los Angeles, New York City-New Orleans/Mobile, and Los Angeles-Seattle.

Coast-to-coast service could be maintained if the Chicago-New York City/Boston route—the next largest in revenues—is added to the network. Generally, however, the data on ridership and revenues indicate that there is not a strong demand for passenger rail service between the East Coast and Chicago, largely because rail service cannot compete in time with air travel. The daily train leaving Washington, D.C., at 4:40 p.m. arrives in Chicago at 9:10 a.m. the next day—a trip of over 16 hours. By comparison, a flight between Washington, D.C., and Chicago takes about 2 hours.

Further Analysis Could More Precisely Define Basic System

The criteria for identifying the routes that could constitute a new basic system needs to balance the requirement that the routes be well-patronized with the costs associated with providing the service. Our analysis provides a preliminary look at a basic route network. Some of the routes with the most riders and revenues, however, also have the largest losses. Further analysis of the revenues and costs associated with routes is needed to determine (1) what revenues could potentially be lost as a result of losing passengers who are now connecting from routes that would be eliminated and (2) whether entire routes or only segments generate high revenues and ridership. In addition, the direct costs for each route, which are currently allocated using a formula, need to be measured more precisely and directly allocated.

Amtrak compiles boarding and destination information on its passengers from tickets collected on the trains. These data could be analyzed to determine the potential effect on revenues and ridership of the loss of passengers now connecting from other routes. Such an analysis would reveal, for example, the number of passengers on the Chicago-San Francisco route who begin their trips at stations that could potentially be eliminated. Additional information would need to be gathered on transportation alternatives for interconnecting passengers and the number who may still ride Amtrak after taking a car or bus to the nearest alternative station.

The data from tickets could also be analyzed to determine revenues and ridership on segments of routes. For example, most of the revenues and ridership on the Chicago-Seattle route might be commuter traffic between Chicago and Milwaukee and/or intrastate travel between Spokane and Seattle.

Until mid-December 1994, Amtrak did not know precisely the direct costs associated with its individual routes. Even costs that could be directly

measured, such as fuel and labor, are computed and allocated to routes on the basis of formulas developed by Amtrak. Such formulas are a reasonable way to account for expenses on a systemwide basis. However, this method may provide insufficient information to allow management to make judgments on the relative performance of individual routes. For example, this method does not consider operating conditions that may be specific to routes, such as the costs of turning a train around at the terminal stations. These costs are allocated to all routes, although turning trains around is not necessary on some routes. In addition, consideration must be given to the sensitivity of financial performance on a given route to the age and type of equipment assigned to it.

Finally, Amtrak currently allocates costs to routes differently depending on whether the route is considered "basic" or "incremental" service. For example, Amtrak designates the route between Washington, D.C., and New York City as basic service and allocates a portion of all operating costs to the route. In contrast, the Philadelphia-New York City route is designated as incremental service, and only the costs of adding cars to trains on the basic Washington-New York City route are allocated to it. In addition, Amtrak does not allocate the cost of locomotives to incremental routes.

Amtrak officials have recognized these problems with their cost information and acknowledge that this method of allocating costs may be making some routes appear much more unprofitable than they really are. During the fall of 1994, Amtrak undertook an in-depth analysis of the costs and revenues of individual routes in developing its December 1994 strategic business plan. As part of its new business plan, Amtrak intends to measure more direct costs and allocate them to routes rather than allocating all costs according to formulas.

Determining a New Route Structure

Specific, alternative route structures and expected levels of federal support could be developed and recommended to the Congress by Amtrak or a temporary commission established by the Congress for that purpose. The commission or Amtrak could identify several alternative networks, depending on the level of funding available. A commission to restructure passenger rail could operate in a manner similar to the Department of

Defense's (DOD) Base Realignment and Closure Commission.⁷ After the Congress identifies specific future goals and objectives, the commission could obtain route-specific data from Amtrak on ridership, revenues, and costs and define basic route networks commensurate with the different funding levels.

After identifying a potential basic network, specific route structures could be assessed by considering (1) all the fixed costs that could be reduced or increased if a large number of routes were eliminated⁸ and (2) the increased revenues that could be gained by redeploying equipment to routes where the demand would support increased service.

Additional factors that the commission or Amtrak could assess include the availability of alternative intercity transportation and the impact of the proposed network on energy consumption, pollution, and traffic congestion. However, if these nonfinancial factors are used to determine the route structure, it will be difficult to make improvements in service quality and Amtrak's financial condition without higher federal subsidies.

Additional Service Could Be Provided Where States Are Willing to Subsidize It

After the Congress agrees on a basic rail service network that would be eligible for federal funding, individual states could be given the option of adding specific service to Amtrak's basic network if they are willing to fully subsidize the added service. Some states have already entered into such agreements with Amtrak. For example, Washington State contracted with Amtrak to operate upgraded service between Seattle and Portland, Oregon. All seats on the train were reserved, the train included a dining car that served local specialties such as salmon, and the train featured on-board telephone service and video entertainment. By comparison, Amtrak's regular service between Seattle and Portland offered only snack and beverage service. The Washington State Department of Transportation collected all revenues for this service and paid all costs.

⁷DOD's current Base Realignment and Closure Commission, established by law in 1990, is responsible for reviewing the recommendations on base closures made by the Secretary of Defense. On the basis of those recommendations, the commission proposes the closure and/or realignment of military bases. In establishing this commission, the Congress outlined specific procedures to be followed, including provisions that all bases be compared equally against selection criteria developed by DOD and a plan for the structure of the armed forces for the following 6 fiscal years. In addition, DOD is required to certify the accuracy of the data it presents to the commission. Finally, all recommendations for base closures and/or realignments are subject to public comment and are then forwarded to the President. If the President approves, the recommendations are forwarded to the Congress. Either the Congress must reject all recommendations within a specified period of time or the Secretary of Defense is directed to implement the recommendations.

⁸Fixed costs could increase as a result of the labor protection costs—up to 6 years' wages—that Amtrak would incur for employees who lose their jobs when routes are eliminated.

Nonetheless, a state's flexibility in using federal funds for intercity passenger rail service is constrained under current law. Passenger rail service competes for limited transportation funds and, unlike aviation, highways, and mass transit, it does not have a federal trust fund. State and local governments have some flexibility to allocate their federal transportation funds among different modes, but not to intercity passenger rail operations.

Even If It Restructures, Amtrak Will Continue to Need Capital Funds

Even if it completes a major restructuring of its service, Amtrak will continue to need capital funds for equipment and infrastructure. In Europe and Japan, where competitive conditions are more conducive to rail travel, intercity passenger service requires substantial public support, including significant investments in the infrastructure. For example, France plans to invest nearly \$25 billion in its railroad during the 1990s. This amount includes \$6.8 billion for rolling stock, \$5.3 billion for investments in infrastructure on high-speed lines, and \$1.1 billion for other investments in infrastructure. Germany plans to invest over \$70 billion in its main railway lines in the 1990s, including \$28.8 billion for improvements in infrastructure, \$18.5 billion in other upgrades, and \$8.2 billion in equipment.

Amtrak will continue to need federal grants to meet its capital needs. A 1991 study⁹ conducted for FRA evaluated four scenarios for Amtrak's future—a system in the Northeast Corridor only, the Northeast Corridor plus a few routes connected to the corridor where losses are relatively small, Amtrak's current route network, and the current network minus several routes where losses are the largest. All scenarios assumed that Amtrak would require a capital subsidy. This study further assumed that Amtrak would improve its efficiency in certain areas, such as its maintenance facilities. Even though some assumptions were overly optimistic in predicting improvements in Amtrak's efficiency, this study estimated that by the year 2000, Amtrak would still require a federal operating subsidy under all scenarios. The smallest subsidy would be required for the current network minus the routes with the largest losses. The requirement to pay up to 6 years' wages to employees who lose their position if a route is eliminated was a major factor in determining the cost under the alternative scenarios.

⁹Amtrak Review, prepared for the U.S. Department of Transportation by Battelle et al., draft (Oct. 17, 1991).

Privatization of Amtrak Is an Unlikely Option Under Present Circumstances

If the Congress chooses to eliminate or greatly reduce federal subsidies for Amtrak, it could privatize the operation and make it subject to market forces. Amtrak's route network would be reconfigured so that only those parts of the system that had the potential to cover their costs would continue to operate. While some rail passenger services conceivably could be taken over by the private sector, significant federal investment would be needed before any part of the current system could be privatized, and nationwide service as it exists today could not be offered.

Privatizing Amtrak might be complicated by a number of factors. First, it is not clear what would be privatized. Amtrak owns very little track outside the Northeast Corridor. Also, most of the stations Amtrak serves are owned either by other railroads or by local governments. Even many of Amtrak's passenger cars and locomotives are leased. Second, the term "privatize" is sometimes used to mean "defederalize"; that is, to shift the responsibility for subsidizing intercity train operations to state and local governments. Passenger train services might be inherently unprofitable. Therefore, private, for-profit firms are unlikely to be interested in such business without some government assistance. The private railroads in this country were unable to operate passenger service profitably, and throughout the world, intercity passenger trains are heavily subsidized. If the public benefits of intercity passenger train services are largely local or regional, these services might more appropriately be offered or supported by state or local governments. Third, even in the Northeast Corridor, where Amtrak controls significant assets, different degrees of privatization are possible. For example, programs to privatize freight rail service in the Netherlands envision privatizing the operations but not the infrastructure. The government will continue to provide capital to maintain and develop the track and other facilities.

In addition, privatizing those parts of Amtrak that could potentially be profitable might still require substantial initial investment to create a saleable asset, similar to what occurred with Conrail. In that instance, many unprofitable routes were abandoned and, after substantial federal investment, a profitable core business was established. However, the analogy with Conrail may be limited because, on the basis of experience in the United States and throughout the world, we have found no evidence that intercity passenger rail operations can cover all costs and generate a return on investment. Therefore, even if privatized, Amtrak will continue to need federal or state funds to meet its capital needs. Even the Northeast Corridor would be difficult to sell to a private firm until the upgrade

between New York and Boston is complete and significant repairs have been made to the segment between New York and Washington, D.C.

Finally, privatizing Amtrak is not likely to result in successfully preserving a nationwide passenger rail system. Under this option, passenger rail service could be reduced to a few regional corridors because only a few well-traveled routes could ever generate sufficient revenues to cover the substantial operating costs.

Conclusions

Amtrak and the federal government face a difficult set of choices. We believe that continuing the present course—the same funding level and basic route system, even with the proposed service cuts—is neither feasible nor realistic because Amtrak will continue to deteriorate. The Congress is confronted with numerous budget decisions that make substantial increases in Amtrak's subsidy unlikely. If increases are not forthcoming from federal and state sources of funds, Amtrak's viability may depend on restructuring operations to reduce the route network. Even so, Amtrak will continue to require government subsidies, especially to meet its capital needs. Amtrak and the federal, state, and local governments need to make important decisions about the quality and extent of intercity passenger rail service to be provided and the long-term funding of such an operation. First, the Congress needs to decide on the nation's expectations for intercity passenger rail service and the scope of Amtrak's mission to provide that service. These decisions require defining a national route network, along with determining the extent to which the federal government would fund operating losses and capital investments and the way any remaining deficits will be covered. We believe that Amtrak or a temporary commission could provide the Congress with specific options that would define a national route network consistent with the available funding. Finally, once the Congress decides on a national route network, Amtrak could develop and provide to the Congress a long-term financing and operating plan (5 to 10 years). This plan should provide realistic expectations for repairing and maintaining Amtrak's fleet, replacing aging infrastructure, and meeting increases in expenses that can be reasonably anticipated.

Recommendation to the Congress

In light of Amtrak's financial and operating problems, we recommend that the Congress consider whether Amtrak's original mission of providing nationwide intercity passenger rail service at the present level is still appropriate. If the Congress decides to reassess the scope of Amtrak's

mission, it could direct Amtrak or a temporary commission, similar to the one established to close military bases, to make recommendations and offer options defining and realigning Amtrak's basic route network so that efficient and quality service could be provided within the funding available from all sources. The Congress could then make the final decision on Amtrak's future route network.

Recommendations to the President of Amtrak

To ensure that Amtrak accurately communicates its operating and financial conditions and its need for federal funds to the Congress, we recommend that the President of Amtrak

- provide detailed information in federal grant requests on how revenues from intercity passenger service have been estimated;
- incorporate into federal grant requests dollar estimates of the costs of future accident and weather-related contingencies;
- develop and present to the Congress a plan outlining the costs and benefits of participating in high-speed rail service outside the Northeast Corridor, including the impact on Amtrak's annual grant request;
- undertake a comprehensive review and/or audit of the costs associated with its commuter rail and other ancillary activities, identifying the costs associated with these activities, the way these costs are allocated to individual commuter rail contracts, and the overall profit or loss of each activity as well as assessing the appropriateness of any formulas used to allocate costs; and
- provide the Congress with proposed legislative changes that could improve Amtrak's long-term viability, along with estimates of the expected effect of each proposal on Amtrak's finances and a discussion of the other parties that will likely be affected and to what extent.

Agency Comments

Amtrak said that our draft report accurately presented the railroad's financial and operating status and correctly portrayed the corporation's capital investment problems. However, Amtrak had four principal points.

First, Amtrak stated that the draft report understated the impact of actions adopted by its Board of Directors in December 1994 and said the board had, in effect, implemented our recommendation to redefine and reduce the route system consistent with the funding available. We revised our report to specifically highlight Amtrak's proposed operating changes, including plans to reduce staffing, reduce the frequency of service on some routes, and eliminate service on others. In addition, Amtrak

acknowledges that even with the planned service reductions, its operating deficits will exceed operating subsidies by \$1.3 billion through the end of the century. While we believe that the new business plan is an important first step, it does not implement our recommendation, nor does it resolve Amtrak's financial, capital, and service quality problems.

Unless sufficient funds are available to support Amtrak's current operations and provide the necessary capital, we recommend that the Congress reassess Amtrak's scope of operation and mission and direct either Amtrak or a temporary commission to provide the Congress with options for a route network that is consistent with the level of funding available. Not only do the service reductions announced in the board's plan still leave a large gap between the deficit and the subsidies from the federal and state governments after 1996, but about a quarter of the planned savings will require negotiations with organized labor and/or legislative changes. Also, Amtrak's plan does not resolve how the corporation will meet its capital needs, now totaling about \$2.5 billion in the Northeast Corridor alone. Although the board set a goal that could ultimately eliminate the federal operating grant by 2002, this was made contingent on Amtrak's receiving (1) "sufficient capital funding to achieve a good-state-of-repair," (2) the current level of operating grants until 2002, and (3) increased funding from the states to cover operating deficits for service they receive. These are significant assumptions about funding that will require congressional endorsement as part of the process of defining options for Amtrak's future route network.

Second, Amtrak expressed concern about the timing of our recommendation for a commission because the board's recent analysis showed that reducing service frequency was more economical than closing routes and because Amtrak is a commercially driven corporation, which should not act like the Department of Defense in making decisions about closures. Amtrak also states that little more can be done beyond the board's recommendation, short of closing down the national system. Amtrak's point on timing is well taken if the railroad's requirements for capital and operating funds for the national system, as presently constituted, are met. If they are not, cutbacks in service frequency and routes beyond those announced by the board will be required. In addition, much of the expected savings comes from reductions in frequency on long-distance routes. Amtrak believes that revenue losses will be minimal because most long-distance train riders are discretionary travelers who are not time-sensitive and, therefore, will adjust their travel plans to accommodate Amtrak's reduced service level. Unfortunately, Amtrak

lacks experience on the effect on ridership of reducing the frequency of long-distance service. Amtrak's estimates of significant net savings assume that ridership and revenue losses will be minimal. This is an important assumption. With respect to Amtrak's view that the economics of intercity rail passenger service preclude cutbacks beyond those already planned unless the goal of providing a national system is abandoned, we believe that Amtrak must first define what it means by a national system. If it means a cross-country network of interconnected routes, then it may not be possible to support such a system with the available funds. However, there may be numerous routes, either densely traveled corridors or segments of existing long-distance routes, on which service could be continued with these funds. In addition, with appropriate congressional approval, Amtrak might enter into partnerships with individual states or groups of states to "reconnect" the federally supported parts of the system.

As for Amtrak's reservations about having a commission offer options to the Congress, we recognize that Amtrak could provide the Congress with options for realigning and closing routes, and we explicitly provide for that option in our recommendation. We recognize that Amtrak has superior knowledge of the economics of its operation, and Amtrak's recent analytical efforts could provide the starting point for considerations about restructuring the system. However, we also realize the difficulties inherent in deciding which states and locations should receive service. Because the commission would be independent, it could help eliminate some of the problems normally associated with reducing service in different areas of the nation. In addition, if the Congress chooses, such a commission could take into account factors beyond revenues and costs, such as highway and airport congestion relief, in deciding how to realign the route network.

Third, Amtrak believed that the role of the states in intercity rail passenger service and the need for access to federal transportation funds deserved emphasis in our report. We revised the report to reflect the fact that unlike aviation, highways, and mass transit, intercity passenger rail has no trust fund and that the ability of the states to use the trust funds that exist for other modes for rail is extremely limited. In 1991, the Intermodal Surface Transportation Efficiency Act provided the states with some flexibility to use highway dollars for mass transit, but it did not authorize the direct use of such funds for intercity passenger rail service. Although the states' access to federal transportation trust funds is a key element of Amtrak's plan to have the states cover significantly more of the railroad's costs, it is a policy judgment for the Congress to make whether and to what extent such flexibility should be extended to intercity passenger rail. Amtrak also

wanted assurance that we consider the federal funds for Amtrak's capital needs as an investment and not a subsidy. Our report clearly notes that capital expenditures are an investment.

Finally, Amtrak believes that if it is freed from certain legislative restraints, it could operate more as a competitive commercial entity. Amtrak envisions changes to labor laws to give it greater latitude to negotiate on such matters as severance pay, contracting, and work processes. Amtrak also wants (1) an exemption from requirements to pay federal fuel taxes, (2) authority to issue tax-exempt debt, (3) inclusion in a federal transportation trust fund, (4) relief from requirements under the Railroad Retirement Act, and (5) limits on its liability for punitive damages after accidents. We added a recommendation to our report that Amtrak provide its proposals to the Congress, along with the estimated effect of each proposal on Amtrak's finances and on other affected parties. This information will provide a vehicle for congressional deliberation on the merits of each proposal and allow for consideration of opposing views.

Amtrak also provided comments that clarified certain technical information or statements made in a draft of this report. We found Amtrak's suggestions useful and incorporated these changes in the report where appropriate. Amtrak's written comments and legislative proposals are presented in full in appendix IV.

Objectives, Scope, and Methodology

In March and April 1994, during House and Senate hearings to authorize and appropriate Amtrak's federal grant for fiscal year 1995, we testified that Amtrak's financial and operating condition had deteriorated and that the railroad's ability to provide an acceptable level of service was seriously threatened.¹ Five committees expressed concern about Amtrak's financial viability and future need for federal funding: (1) the Senate Committee on Commerce, Science, and Transportation; (2) the Subcommittee on Transportation and Related Agencies, Senate Committee on Appropriations; (3) the Subcommittee on Transportation and Related Agencies, House Committee on Appropriations; (4) the Subcommittee on Transportation and Hazardous Materials, House Committee on Energy and Commerce; and (5) the Subcommittee on Information, Justice, Transportation, and Agriculture, House Committee on Government Operations. After the hearings, we were directed to continue to assess (1) Amtrak's financial and operating conditions, (2) the likelihood that Amtrak can overcome its financial and operational problems, and (3) alternative actions that could be taken in deciding on Amtrak's future mission and on commitments to fund the railroad.

We conducted this review under basic legislative authority provided by the Rail Passenger Service Act, which authorizes the Comptroller General to conduct performance audits of Amtrak's activities and financial transactions. The review also responded to some of the requirements in Senate Conference Report 103-150, supporting the Department of Transportation's appropriations legislation for fiscal year 1994, that we review (1) Amtrak's staffing, including a review of salary, promotion, and job classification policies and procedures; (2) the adequacy of Amtrak's budget resources, capital expenditures, and operating expenses, including equipment overhauls and maintenance expenses; (3) revenues from Amtrak's management of real estate properties; and (4) ticketing policies and revenues from Amtrak's yield management system.

Amtrak's Declining Financial and Operating Condition

To assess Amtrak's declining financial and operating condition, we interviewed officials and reviewed documents throughout Amtrak. We spoke to numerous officials in Amtrak's Finance and Administration Department, including the Chief Financial Officer, Treasurer, Director of Corporate Accounting, and Director of Resource Management, as well as auditors from the two independent auditing firms (Arthur Andersen & Co. and Price, Waterhouse & Co.) that Amtrak has employed over the past

¹See GAO/T-RCED-94-155, Mar. 17, 1994, GAO/T-RCED-94-145, Mar. 23, 1994, and GAO/T-RCED-94-186, Apr. 13, 1994.

5 years. We analyzed Amtrak's annual financial reports, federal grant submission to the Congress, capital acquisition plans, and other financial documents such as annual budgets, revenue forecasts, and minutes from meetings of the Board of Directors. In addition, we analyzed supporting data on Amtrak's projections of expenses and revenues, including current debt levels and projections of the cost of servicing debt, and procedures for managing cash. We discussed Amtrak's grant disbursement process with officials of the Federal Railroad Administration (FRA) who are responsible for overseeing Amtrak's drawdowns of federal funds. To evaluate Amtrak's cost accounting methodology, we also reviewed Amtrak's cost accounting reports on route profitability and the internal guidance on preparing those reports. Finally, we reviewed the documents generated by the independent auditors in rendering their opinion on the fairness of Amtrak's financial statements.

As part of our review of Amtrak's finances and to evaluate the railroad's procedures for developing the annual request for federal funds, we examined the models Amtrak uses to estimate its internal budget and federal grant request. In particular, we analyzed Amtrak's aggregate demand model to determine its (1) structure, (2) input variables and data, and (3) accuracy in estimating passenger revenues. However, we did not independently verify the accuracy of Amtrak's data, nor did we test the equations used by Amtrak to determine statistical or predictive accuracy. We also obtained memos on the revenue projections used in developing Amtrak's federal grant request for fiscal years 1989-94. Using these data, we analyzed the differences between each year's forecast and the actual revenues realized to determine the error due to yield alone and the error in forecasts of passenger miles alone.

We also reviewed the statistical and forecasting results of alternative specifications of the demand forecasting model that Amtrak developed as part of efforts to improve the model's forecasting accuracy. These alternative specifications (1) deleted some variables from the original model and/or (2) added variables representing consumer confidence, national unemployment levels, and ticket class (first class vs. coach).

We obtained information on the cost of Amtrak's operations and the condition of the railroad's assets from officials in Amtrak's Engineering, Mechanical, Corporate Planning, and Passenger Marketing departments. We analyzed data on the current condition of Amtrak's equipment, facilities, and rights-of-way, including the historical and current costs of operating and maintaining these assets, deferrals of maintenance and

renovation projects, and requirements for capital investment. We observed the condition of Amtrak's overhaul facilities at Beech Grove, Indiana, and Wilmington and Bear, Delaware, and of repair and maintenance facilities in Chicago, Illinois, New York, New York, and Washington, D.C., during tours conducted by the officials responsible for the facilities' operation and management. We also obtained information on environmental pollution at Amtrak-owned sites and the estimated costs of cleanup. We evaluated Amtrak's labor costs by interviewing officials in Amtrak's Labor Relations and Personnel offices and in the 14 labor unions that represent Amtrak's employees. In addition, we interviewed officials at seven major freight railroads to obtain information on potential cost increases for Amtrak's use of these railroads' track and for liability agreements (see app. II).

Ability to Overcome Financial and Operational Problems

To assess the likelihood that Amtrak can overcome its financial and operating problems, we evaluated the functions within Amtrak, in addition to its intercity rail service, that appear to have the potential for generating revenues. This evaluation included interviewing officials in Amtrak's Passenger Marketing and Sales Department, Corporate Planning Department, and Northeast Corridor High-Speed Rail Improvement Project. We reviewed all of Amtrak's contracts to provide commuter rail service and interviewed officials in several of the commuter rail authorities to which Amtrak is contracted. We discussed the potential for real estate development with officials of the Real Estate and Operations Department and obtained information on the three Amtrak stations that have been or are being developed (Union Station, Washington, D.C.; 30th Street Station, Philadelphia, Pennsylvania; and Chicago Union Station, Chicago, Illinois). We also reviewed financial reports and business plans concerning Amtrak's efforts to generate revenues through right-of-way leases for telecommunications lines and mail and baggage service.

We reviewed the potential for increased revenues from high-speed rail operations by evaluating information provided by Amtrak's Director of Capital and Business Planning and Director of Route Planning and Strategy and by talking with members of FRA's Railroad Development staff. We also reviewed data supplied by the Michigan Department of Transportation on estimates of costs and revenues for a planned high-speed rail link between Detroit, Michigan, and Chicago, Illinois.

Alternative Actions for Deciding on Future Mission

To assess the alternative actions that could be considered in deciding on Amtrak's future mission and on commitments for funding the railroad, we analyzed data on passenger and route profitability provided by Amtrak's Chief Financial Officer. We also contracted with Snavely, King & Associates, Inc., to estimate the amount of federal operating grant that Amtrak might need in the year 2000 under two scenarios: (1) if it receives an annual capital subsidy of \$500 million for fiscal years 1995 through 2000 and (2) if it receives an annual capital subsidy of \$195 million for those years. For its analysis, Snavely, King & Associates used Amtrak's actual expenses, revenues, and federal subsidies for fiscal years 1991 through 1993; Amtrak's estimate of how the capital subsidy would be used from 1995 through 2000; and Amtrak's estimate of the expected increases in revenues, reductions in costs, and/or increases in expenses to repay debt. Snavely, King & Associates estimated Amtrak's operating grant requirement (the difference between estimated operating revenues and estimated expenses) for fiscal years 1995 through 2000 on the basis of trends before 1994 and the following assumptions:

- average annual economic activity includes a 2-percent growth in real gross domestic product,
- unemployment is at least 5-6 percent nationwide,
- disposable income rises by 2-3 percent per year,
- inflation increases by 4 percent per year, and
- increases in the consumer price index remain below 5 percent per year.

For the scenario in which Amtrak receives an annual capital subsidy of \$195 million, costs and revenues were estimated to increase by 4 percent per year. At an annual capital subsidy of \$500 million, costs were estimated to increase by 4 percent per year and revenues were made one percentage point higher than the compounded cost inflation rate during each year to estimate the benefits achieved from the higher level of service quality resulting from the higher level of capital investment.

As shown in table I.1, Amtrak's operating subsidy remains over \$500 million through the year 2000 under the scenario of \$195 million in capital funding. As table I.2 shows, the operating subsidy declines from fiscal years 1995 through 2000 under the scenario of \$500 million in capital funding.

**Appendix I
Objectives, Scope, and Methodology**

Table I.1: Detailed Estimates of Revenues, Expenses, and Operating Subsidies If Amtrak Receives an Annual Capital Subsidy of \$195 Million, Fiscal Years 1995-2000

Dollars in millions

	1995	1996	1997	1998	1999	2000	Total
Base revenues	1,400.0	1,400.0	1,400.0	1,400.0	1,400.0	1,400.0	8,400.0
Revenue increases from projects	27.0	126.2	174.5	231.7	274.8	303.3	1,137.5
Revenue increases from inflation	0	61.0	128.5	203.7	284.5	369.0	1,046.7
Total operating revenues	1,427.0	1,587.2	1,703.0	1,835.4	1,959.3	2,072.3	10,584.2
Base expense	1,885.7	1,885.7	1,885.7	1,885.7	1,885.7	1,885.7	11,314.2
Expense increases from projects	13.3	54.3	80.2	117.1	142.2	165.6	572.7
Expense increases from inflation	0	77.6	160.4	250.1	344.5	444.4	1,277.0
Expense increases from interest payments	60.9	72.2	95.5	106.0	102.9	99.9	537.4
Total expenses	1,959.9	2,089.8	2,221.8	2,358.9	2,475.3	2,595.6	13,701.3
Operating subsidy requirement	(532.9)	(502.6)	(518.8)	(523.5)	(516.0)	(523.3)	(3,117.1)

Table I.2: Detailed Estimates of Revenues, Expenses, and Operating Subsidies If Amtrak Receives an Annual Capital Subsidy of \$500 Million, Fiscal Years 1995-2000

Dollars in millions

	1995	1996	1997	1998	1999	2000	Total
Base revenues	1,400.0	1,400.0	1,400.0	1,400.0	1,400.0	1,400.0	8,400.0
Revenue increases from projects	27.0	167.2	229.0	312.7	379.0	425.1	1,540.0
Revenue increases from inflation	0	78.4	149.2	231.0	320.0	413.7	1,192.3
Total operating revenues	1,427.0	1,645.6	1,778.2	1,943.7	2,099.0	2,238.8	11,132.3
Base expense	1,885.7	1,885.7	1,885.7	1,885.7	1,885.7	1,885.7	11,314.2
Expense increases from projects	13.3	70.8	103.2	149.1	139.9	220.1	750.4
Expense increases from inflation	0	78.3	162.3	254.1	353.2	456.2	1,304.1
Expense increases from interest payments	60.9	72.2	95.5	92.6	89.8	87.1	498.1
Total expenses	1,959.9	2,107.0	2,246.7	2,381.5	2,522.6	2,649.1	13,866.8
Operating subsidy requirement	(532.9)	(461.4)	(468.5)	(437.8)	(423.6)	(410.3)	(2,734.5)

Organizations Contacted by GAO

Amtrak

Engineering Department
Executive Offices
Finance and Administration Department
Government and Public Affairs Department
Labor Relations Department
Law Department
Marketing and Business Development Department
Mechanical Department
Passenger Services Department
Transportation Department

Freight Railroads

Burlington Northern
Consolidated Rail Corporation (Conrail)
CSX Transportation
Illinois Central Railroad
Norfolk Southern Corporation
Southern Pacific Railroad
Union Pacific Railroad

Unions

AFL-CIO Transportation Trades Department
American Federation of Railroad Police
American Train Dispatchers Association
Amtrak Service Workers Council
Brotherhood of Locomotive Engineers
Brotherhood of Maintenance of Way Employees
Brotherhood of Railroad Signalmen
International Brotherhood of Firemen and Oilers
Joint Council of Carmen, Coach Cleaners, and Helpers
Railway Labor Executives Association
Sheet Metal Workers International Association
Transport Workers Union
Transportation Communications International Union
United Transportation Union

Federal Agencies

Federal Railroad Administration
Federal Transit Administration
Interstate Commerce Commission
U.S. Redevelopment Corporation

Appendix II
Organizations Contacted by GAO

Associations

Association of American Railroads

Commuter Rail Agencies

Maryland Department of Transportation
Massachusetts Bay Area Transit Authority
Metrolink
Virginia Railway Express

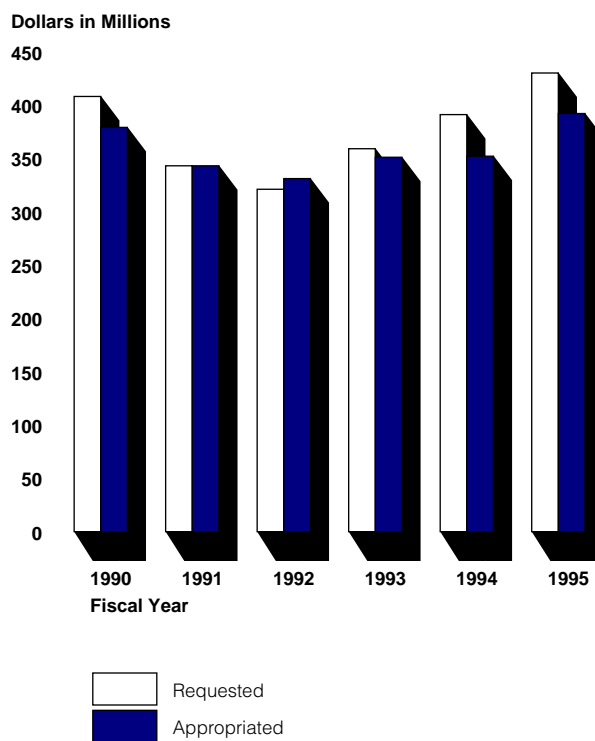
Auditing Firms

Arthur Andersen & Co.
Price, Waterhouse & Co.

How Amtrak Develops Its Request for Its Federal Operating Grant

To develop its request for the federal operating grant, Amtrak estimates both revenues and operating costs for the upcoming year. The estimate of revenues includes revenues from both passenger service and other activities, such as commuter rail and real estate. Revenues from passenger trains constitute about two-thirds of Amtrak's revenues. Amtrak estimates its other revenues and operating costs through its annual budget preparation process. The amount Amtrak requests for its operating grant is determined by subtracting projections of cash operating expenses from estimates of total revenues.¹ Figure III.1 compares Amtrak's initial requests with the actual funds received in fiscal years 1990-95.

Figure III.1: Comparison of Amtrak's Operating Grant Request With Actual Appropriations, Fiscal Years 1990-95



Note: The figure for fiscal year 1993 includes a supplemental request by Amtrak of \$27.5 million and a supplemental appropriation of \$20 million.

Source: Amtrak.

¹Capital depreciation, which is included in Amtrak's operating expenses and operating deficit, is a noncash expense and therefore is not included in calculations to determine Amtrak's operating grant.

Estimates of Revenues From Passenger Rail Operations

To forecast passenger revenues, Amtrak uses an econometric model to estimate the number of passenger miles throughout the system (excluding commuter rail operations).² The estimated passenger miles are multiplied by Amtrak’s projected yield (ticket revenues per passenger mile) to forecast revenues for the passenger trains. The results, after adjustment according to the informed judgments of Amtrak’s analysts (and henceforth referred to here as initial model results), help the Congress determine the amount of federal subsidy that Amtrak needs. Table III.1 outlines the model’s principal elements.³

Table III.1: Amtrak’s Model for Forecasting Systemwide Ridership

Purpose	Structure	Variables
To prepare short- and long-range forecasts of systemwide passenger miles (and revenues) for <ul style="list-style-type: none"> • federal grant request, • internal budgets, • long-range plans for equipment, and • 5-year business plan. 	Multivariate, linear regression model using quarterly, seasonally adjusted time series data Ordinary least squares estimation using a procedure to correct for serial correlation Estimated regression elasticities calculated from estimated regression coefficients	Dependent variable is passenger miles. Independent variables are disposable income (in constant dollars); retail gasoline price (in constant dollars); Amtrak’s yield (in constant dollars); ratio of Amtrak’s yield to airlines’ yield; dummy variables to reflect events such as holidays, weather, strikes, and derailments; dummy variables to reflect quarterly seasons; no constant term.

Note: Data for the model’s independent variables are obtained from Data Resources, Inc., Amtrak’s own internal analyses, and other sources.

Source: Amtrak.

The most important determinant of rail passenger miles is the strength of the national economy, which is represented in the model by disposable income (in constant dollars). A 1-percent increase in disposable income is expected to yield a 1.8-percent increase in intercity rail passenger miles.

Each time during the year that a new forecast is generated, the model is recalibrated (that is, the regression coefficients are statistically reestimated). The model’s specification—the variables and functional form of the equation—has not changed for the past several years except through deletion or addition of the variable for the retail price of gasoline.

²Amtrak did not use the model to estimate its fiscal year 1996 grant request.

³Amtrak operates two other models to forecast ridership. One model forecasts the annual number of passengers and passenger miles between pairs of cities outside the Northeast Corridor that are served by Amtrak. This model estimates changes in ridership and revenues on the basis of changes in service, such as schedule, frequency, arrival and departure times, and total travel time. A second model is used mainly for forecasting ridership demand in the Northeast Corridor.

Amtrak's Process for Developing the Estimate of Passenger Revenues

Amtrak's forecast of passenger revenues for the federal grant request starts in the Market Planning and Forecasting Group (Market Planning) in October as part of Amtrak's overall budget preparation for the next fiscal year. In October and November, Market Planning produces an initial model forecast. Market Planning analysts then use their judgment to adjust the forecast up or down for such factors as expected new services, expected delays in putting new passenger cars in service, and anticipated work stoppages. Market Planning forwards these adjusted forecasts to the Resource Management Department, which makes additional refinements. Senior Amtrak officials then either approve these estimates for the budget or make further changes. Amtrak's Board of Directors then approves the overall budget, which becomes the basis for the grant request.

Since 1991, Amtrak's initial model computations and subsequent revisions by management have increasingly overestimated actual revenues. (See table III.2.) From fiscal year 1990 to fiscal year 1994, the model overestimated actual revenues by a total of \$467 million, and the grant request—which includes subsequent adjustments by management—overestimated revenues by \$561 million. These overestimates were significantly larger in fiscal year 1994 than they were in the previous years.

Table III.2: Amtrak's Actual Passenger Revenues, Initial Model Estimate, and Later Revenue Estimate

Dollars in millions

Fiscal year	Actual revenues	Initial model estimate ^a		Later estimate submitted in federal grant request	
		Estimated revenues	Difference from actual	Estimated revenues	Difference from actual
1990	\$930	\$889	-\$41	\$892	-\$38
1991	\$964	\$1,005	+\$41	\$1,064	+\$100
1992	\$929	\$1,035	+\$106	\$1,035	+\$106
1993	\$943	\$1,080	+\$137	\$1,092	+\$149
1994	\$880	\$1,104	+\$224	\$1,124	+\$244
Total	\$4,646	\$5,113	+\$467	\$5,207	+\$561

^aModel estimate for federal grant request, as adjusted by Amtrak's Market Planning and Forecasting Group.

Source: GAO's analysis of Amtrak's data.

Amtrak's Yield Forecast

While Amtrak forecasts passenger miles through statistical modeling, it estimates average yield judgmentally, on the basis of economic and competitive factors. Amtrak considers factors such as airline fares and increased airline competition in determining expected yield. Over the 1990-94 period, Amtrak estimated that its average yield would increase at the rate of inflation as measured by the Consumer Price Index.⁴

In recent years, Amtrak has substantially overestimated yield. Real yield fell each year over the 1990-94 period; from 1992-1994, even nominal yield fell. Amtrak's real yield fell at an annual average rate of 3.2 percent over the 5-year span from 1990 to 1994.

Analysis of Forecast Errors

Amtrak's initial model forecast of passenger revenues totaled \$467 million more than actual revenues from fiscal years 1990 to 1994. We found that this difference resulted predominantly from Amtrak's overestimation of yield and, to a lesser extent, from the model's overestimation of passenger miles. To analyze errors in the model's estimates of passenger revenues, we used the initial forecasts—the model results as initially adjusted judgmentally by Amtrak's Market Planning analysts.⁵

Table III.3 compares Amtrak's forecasts of passenger miles and average yields with corresponding actual values over the 1990-94 period. Amtrak underestimated both passenger miles and average yield in fiscal year 1990. Since then Amtrak has usually overestimated both passenger miles and average yield. From 1992 through 1994, both passenger miles and average yield were substantially overestimated. Over the entire 5-year period, the average forecast errors (using absolute values) were 4.9 percent for passenger miles and 6.7 percent for average yield.⁶

⁴Amtrak forecasts the increase in yield, not from the yield forecast of the previous year's initial model, but rather from the yield estimated in a later internal budget forecast. In recent years, these later yield estimates have typically been adjusted downward.

⁵Teams using econometric models routinely employ varying degrees of judgment to produce their forecasts. Therefore, we evaluated Amtrak's model forecast after it had been adjusted by technical analysts.

⁶A consultant to Amtrak reviewed this model's results for the period 1983-91. The consultant stated that the model's estimated forecast error of 4.3 percent for passenger miles seemed reasonable for simple forecasting models of this type.

**Appendix III
How Amtrak Develops Its Request for Its
Federal Operating Grant**

Table III.3: Comparisons of Amtrak’s Actual Passenger Miles and Average Yield With Forecasts, Fiscal Years 1990-94

Passenger miles in millions and yield in dollars per passenger mile

Fiscal year	Passenger miles				Average yield ^a			
	Actual	Forecast	Forecast minus actual	Percent forecast differs from actual	Actual	Forecast	Forecast minus actual	Percent forecast differs from actual
1990	6,057	5,980	-77	-1.3 %	\$0.1535	\$0.1486	-\$0.0049	-3.2 %
1991	6,273	6,264	-9	-0.1 %	\$0.1537	\$0.1604	+\$0.0067	+4.4 %
1992	6,091	6,312	+221	+3.6 %	\$0.1525	\$0.1640	+\$0.0115	+7.5 %
1993	6,199	6,591	+392	+6.3 %	\$0.1521	\$0.1639	+\$0.0118	+7.8 %
1994	5,921	6,702	+781	+13.2 %	\$0.1486	\$0.1647	+\$0.0161	+10.8 %
Total	30,541	31,849	+1,308	+4.9^b %	^c	^c	^c	+6.7^b%

^aYield is ticket revenues divided by passenger miles.

^bAverage percentage error: the sum of the absolute values of the percentage errors divided by 5 years (1990-94).

^cNot applicable.

Source: GAO’s analysis of Amtrak’s data.

Table III.4 compares actual and forecast passenger revenues over the same period. The combined effect of the forecast errors for passenger miles and yield results in even larger errors in revenues.⁷ In fiscal year 1994, Amtrak overestimated passenger revenues by 25.5 percent, for a 5-year average (using absolute values) of 12 percent.

⁷The yield estimate also indirectly affects the revenue forecast because it is included in the model in two explanatory variables—Amtrak’s average yield and the average yield ratio for Amtrak and the airlines. The revenue errors resulting from an inaccurate yield forecast would be even larger except for a partially offsetting indirect effect. For example, because Amtrak’s yield has been overestimated in recent years, the forecast of passenger miles is correspondingly lower, leading to a lower forecast of passenger revenues than would result otherwise. However, the direction of the indirect effect of the Amtrak/airline yield ratio is unclear, except that its effect is likely small.

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Table III.4: Errors in Forecast Passenger Revenues as a Result of Forecast Average Yield, Forecast Passenger Miles, and Residual Error, Fiscal Years 1990-94

Dollars and passenger miles in millions

Fiscal year	Passenger revenues		Forecast average yield		Forecast passenger miles		Revenue estimate using forecast passenger miles ^c	Error due to passenger miles ^a	Residual Error ^d
	Actual	Forecast	Total forecast error ^a	Percent error	Revenue estimate using forecast yield ^b	Error due to yield ^a			
1990	\$930	\$889	-\$41	-4.4 %	\$900	-\$30	\$918	-\$12	+\$1
1991	\$964	\$1,005	+\$41	+4.3 %	\$1,006	+\$42	\$963	-\$1	-\$0
1992	\$929	\$1,035	+\$106	+11.4 %	\$999	+\$70	\$963	+\$34	+\$2
1993	\$943	\$1,080	+\$137	+14.5 %	\$1,016	+\$73	\$1,002	+\$59	+\$5
1994	\$880	\$1,104	+\$224	+25.5 %	\$975	+\$95	\$996	+\$116	+\$13
Total	\$4,646	\$5,113	+\$467	+12.0^e %	\$4,896	+\$250	\$4,842	+\$196	+\$21

^aForecast passenger revenues minus actual passenger revenues.

^bForecast yield multiplied by actual passenger miles.

^cForecast passenger miles multiplied by actual yield.

^dThe "residual" errors in forecast revenues after accounting for errors resulting from forecast yield and forecast passenger miles. These "residuals"—the product of the errors in average yield and passenger miles—were small and of the expected signs.

^eAverage percentage error using absolute values.

Source: GAO's analysis of Amtrak's data.

Table III.4 shows that, from 1990, the largest source of error in the forecast of passenger revenues each year was generally the error in estimating

Appendix III
How Amtrak Develops Its Request for Its
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average yield.⁸ For example, in fiscal year 1990, the error in the average yield forecast accounted for \$30 million of the total underestimate of \$41 million in passenger revenues. From 1991 to 1993, the error in average yield accounted for \$185 million of the total 3-year overestimate of \$284 million.

The forecast errors in passenger revenues accounted for by the underestimates in passenger miles were relatively small for 1990 and 1991. Since then, however, passenger miles were increasingly overestimated and accounted for a substantial portion of the overestimates in passenger revenues. In 1994, both the total forecast error and that portion accounted for by the error in forecasting passenger miles were very large. We believe, however, that this result was likely an aberration since a sizable portion of

⁸We “decomposed” Amtrak’s revenue forecast errors into three components: (1) the error in forecast yield, (2) the error in forecast passenger miles, and (3) the “residual” error resulting from errors in average yield and passenger miles combined. In this simple decomposition procedure, we account for the direct but not the indirect effect of yield, which may be partially offsetting.

By definition, passenger revenues equals yield times passenger miles. Therefore, the error in Amtrak’s passenger revenues forecast (i.e., forecast passenger revenues minus actual passenger revenues) can be divided algebraically into these three components as follows:

$$\begin{array}{ll} PR_A = Y_A * PM_A & \text{where,} \\ PR_F = Y_F * PM_F & \end{array} \quad \begin{array}{l} PR = \text{passenger revenues} \\ Y = \text{yield} \\ PM = \text{passenger miles} \\ A = \text{actual} \\ F = \text{forecast} \end{array}$$

let,

$$\begin{array}{l} \text{diff}(Y) = Y_F - Y_A \\ \text{diff}(PM) = PM_F - PM_A \end{array}$$

by definition,

$$\begin{aligned} PR_F &= [Y_A + \text{diff}(Y)] * [PM_A + \text{diff}(PM)] \\ &= [Y_A * PM_A] + [PM_A * \text{diff}(Y)] + [Y_A * \text{diff}(PM)] \\ &\quad + [\text{diff}(Y) * \text{diff}(PM)] \end{aligned}$$

Therefore, forecast passenger revenues differ from actual passenger revenues by the second, third, and fourth terms of the last equation. The first term in this equation equals actual passenger revenues. The second term is the difference in the revenue estimate from actual when forecast yield (from table II.4) is used, because when actual passenger miles are multiplied by forecast yield, the remaining terms all equal zero. Similarly, the third term is the difference in the revenue estimate from actual when forecast passenger miles (from table II.4) is used, because when actual yield is multiplied by forecast passenger miles, the remaining terms all equal zero. Accordingly, the “residual” error in table II.4—the fourth term of the equation—equals the total error in the passenger revenues forecast minus the second and third terms of the equation.

the reductions in revenues and passenger miles was due to an uncharacteristically large number of accidents and physical disasters.⁹

Amtrak's tendency to be overly optimistic about factors affecting passenger rail demand may explain, at least partially, why it has overestimated both average yields and passenger miles in recent years. For example, Amtrak does not estimate the effects of events that can potentially depress revenues, such as accidents and bad weather, in its initial model forecast. While such events cannot be specifically forecast, the expected total effect of such events each year likely can be. In particular, Amtrak has consistently assumed that nothing with a negative effect on revenues would happen each year; but negative events, in fact, occurred regularly.

Similarly, over the past 5 years, Amtrak has consistently been too optimistic in its forecasts of the revenue-enhancing effects of its new services. The assumptions about revenues used in formulating the federal operating grant request over fiscal years 1991-94 assumed that several new trains would begin operations each year. In fact, only a few new trains were initiated over the entire period. Therefore, revenues were correspondingly lower than forecast. For example, in 1992 only two of five expected additional trains were added, leading to a shortfall in revenues of \$6.9 million. Amtrak staff have stated that the unexpectedly slow recovery from the last recession was an additional cause of their recent overestimates.

Amtrak's Previous Model Research and Suggested Future Improvements

Market Planning officials stated that they have tried to modify and improve the model on a regular basis. They have used different or additional explanatory variables, including (1) a lagged dependent variable (passenger miles), (2) time, (3) the unemployment rate, (4) the employment rate, (5) on-time performance, (6) the Consumer Confidence Index, and (7) seat miles and train miles. They have also deleted from the model the average yield ratio for Amtrak and the airlines. Other experimentation has included exponential smoothing and separating the model into Northeast Corridor and non-Northeast Corridor, and into first class and coach.

⁹Amtrak has estimated that in 1994, the negative revenue impacts of derailments resulted in about \$70 million in lost revenues; the impacts of ice storms and the earthquake, about \$11 million in lost revenues. These occurrences directly reduced passenger miles but affected average yield much less since both revenues and passenger miles were reduced when trains could not run.

Amtrak found none of these alternative specifications to be consistently superior to the model's current specification either on statistical grounds or in forecasting accuracy. For example, Amtrak's results using the Consumer Confidence Index and unemployment variables yielded slightly better statistical results but worse forecast results (greater overforecasting in fiscal year 1992). When the model was decomposed into first class and coach, the accuracy of the forecast was better in fiscal year 1992 but worse in fiscal years 1990 and 1991.

Amtrak analysts believe that a key variable missing from the model is their customers' perceived quality of service. These analysts believe that a decline in perceived service quality and safety has increasingly discouraged potential ridership. Amtrak is conducting customer surveys to establish baseline information and plans to track customer satisfaction monthly. In addition, Amtrak analysts believe that the ridership model might be better specified in a multiequation form to better reflect the interdependencies between independent variables. According to Amtrak officials, they have not performed such research because of budget limitations.

Estimates of Revenues for Other Lines of Business and Cost Estimates

Amtrak obtains other estimates for its federal grant request—revenues from other lines of business and expenses—through its internal budgeting process. In October, Amtrak uses its current-year budget as a basis for projecting the next fiscal year's grant request. Next, Amtrak adjusts the budgeted expenses and additional revenues on the basis of the projected rate of inflation and any planned changes in operations. To make operating adjustments to its base budget, Amtrak requests departmental heads to provide revised estimates on the basis of anticipated changes, such as a salary freeze, an increase in employee benefits, a reduction in train service, or anticipated new business.

After these adjustments, the estimate of expenses for the grant request is compared with the projected revenues (passenger and other revenues) and Amtrak's anticipated federal operating subsidy. If the projected operating deficit exceeds the anticipated federal operating subsidy, Amtrak again revises its expense estimates. After Amtrak balances its projected operating deficit with its anticipated federal operating subsidy, it submits its grant request. Amtrak will submit its fiscal year 1996 grant request by February 1, 1995.

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The estimate of expenses submitted in the grant request is based on the estimated operating budget and not on actual prior-year results. As Amtrak receives its revenues and incurs expenses throughout the fiscal year, its current fiscal year budget is constantly updated to reflect actual results. Furthermore, budgeted and estimated expenses are driven by the revenues because Amtrak constantly adjusts its expenses to meet shortfalls in revenues so that its operating deficit equals its federal operating grant. These continual adjustments during years of declining revenues have resulted in Amtrak's estimated expenses being higher than actual expenses. (See table III.5.)

Table III.5: Comparison of Estimated and Actual Expenses, Fiscal Years 1990-94

Dollars in millions			
Fiscal year	Actual expenses	Estimated expenses submitted in federal grant request	Estimated expenses compared with actual expenses
1990	\$2,012	\$1,934	-\$78
1991	\$2,081	\$2,116	\$35
1992	\$2,036	\$2,122	\$86
1993	\$2,134	\$2,215	\$81
1994	\$2,400	\$2,243	-\$157

Source: GAO's analysis of Amtrak's data.

Summary

There are three main reasons why Amtrak has inaccurately estimated its passenger revenues over the past 5 years. The primary cause of the inaccurate estimates is the assumption that yield would track the Consumer Price Index. Yield affects the passenger revenues forecast both directly and indirectly. The direct, and most important, effect occurs because yield is multiplied by passenger miles to obtain the forecast of passenger revenues. However, the indirect effect, in which yield affects the passenger miles forecast, may at least partially offset revenues errors as a result of the direct effect.

Second, the overestimates of passenger revenues submitted to the Congress in recent years have been made larger by the upward adjustments to the initial revenues estimates by Amtrak's senior management.

Third, Market Planning makes no allowance in its revenue forecasts for events that may depress revenues; similarly, the effects of

Appendix III
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revenue-enhancing events have been overestimated. This overoptimistic approach has contributed to the revenue overestimates in the last several years.

Finally, the overestimates of passenger revenues affect Amtrak's estimate of expenses for the federal operating grant request. The estimated expenses for the upcoming year are adjusted to equal the projected revenues plus the anticipated federal operating subsidy. Since actual revenues have been lower than forecast, estimated expenses have been higher than actual expenses.

Agency Comments

Note: GAO comments on Amtrak's letter are found in chapter 5.

National Railroad Passenger Corporation, 60 Massachusetts Avenue, N.E., Washington, D.C. 20002 Telephone (202) 906-3000



11 January 1995

Mr. Kenneth M. Mead
Director, Transportation Issues
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Mead:

Thank you for the opportunity to comment on the GAO draft of the report to Congress on Amtrak. Your staff has done a good job defining the status of Amtrak. It is an accurate picture of the decline of the corporation caused by an extreme decapitalization of the railroad at a time it was faced with rapid changes in the marketplace. However, in drawing a picture of dependence on federal operating assistance, your report unintentionally understates the power of the actions recently taken by Amtrak's Board of Directors.

On December 13th, Amtrak's Board in effect implemented one of your key recommendations: "direct Amtrak or a commission similar to the one established to close military bases, to develop a plan with recommendations for reducing Amtrak's operations so that efficient and quality service could be provided with the available funding." The adopted business and strategic plan, utilizing a world-class economic analysis model to determine the commercially optimal mix of routes of service, resulted in a system which:

- o eliminates 21% of the train miles and 10% of the existing passenger miles
- o reduces the workforce by 5,600 jobs
- o allows for the near-term retirement of all non-specialty Heritage equipment and has a surplus of locomotives and passenger cars
- o identifies substantial room for better utilization of the existing fleet
- o commits to significant gains in productivity improvement through overhead reductions and improvement in work rules and methods, and
- o allows for enhanced quality by creating a system more appropriately sized to available resources, thereby creating a foundation for revenue growth.

These business actions were accompanied by a Board resolution which "directs management to identify proposals which reduce and could ultimately eliminate the federal operating subsidy over the FY 1995-2001 time period contingent upon sufficient capital funding to achieve a state-of-good-repair and premised on a combination of additional productivity, creative and aggressive market development and increased state/local partnerships."

AN EQUAL OPPORTUNITY EMPLOYER

Appendix IV
Agency Comments

2

Your report, by necessity, deals with Amtrak as you find it in 1994. Unfortunately, the analytic work supporting the strategic plan (including the methodology used to better understand the economics of our current networks and to forecast the outyear financial results) was not available to GAO analysis with the bulk of the work on this draft was undertaken. While this new information is consistent with that available to GAO's analysis, it does have significant implications for the view of Amtrak's present plight and future prospects.

Amtrak's greatest need from the federal government is no longer more subsidy, but to be freed from statutory restraints for Amtrak to operate as a competitive commercial entity. The new Congress can be a partner in helping make Amtrak independent of federal operating assistance. I am attaching a list of actions the Congress could take to insure a healthy, business-like intercity rail system. The new Amtrak must operate and be held accountable for best practice costs as any other private, competitive business must be. Neither passengers, nor federal, state or local customers should bear excess cost burdens due to poor management, inefficient operation, poor customer service, or inappropriate legal restrictions.

Assuming best practice costs are achieved, Amtrak will still have residual costs which must be supported (like all other modes in the U.S. and all other passenger rail systems in the world). We believe these costs will continue to merit support, as they have in the past, because of the superior position of intercity rail in meeting other economic, social and environmental needs. Again, the issue for federal policy makers is not which or how many routes should exist. Instead it is to determine how best to share costs for those routes which are not solely justified on a commercial basis in a manner consistent with needs and benefits. In order for this to happen, the beneficiary government (at whichever level) must have the power to decide its own fate and level of commitment. Existing constraints on the application of ISTEA or transportation trust funds to intercity passenger rail operating or capital support which limit state or local choices about passenger rail service must be eliminated. Further, other federal economic development programs should be amended to include incentives for the application of funds to stations or rail-adjacent facilities (e.g. CDBG, SBA).

One area of the report deserves more detailed analysis. A continuous need for government support is detailed, but the report does not look at the factors that forced that support to be federal. Nor does it look at why the capital needs should be part of a unified national approach to capital investment in national transportation system.

First, the states have been denied the use of federal funds for rail purposes. Federal transportation allocation restricts states from using any portion of those funds on Amtrak. We must have legislation to allow states and local governments to make decisions about funding intercity rail. If states had that flexibility, Amtrak could compete in the marketplace, based on the quality of service, cost, and market flexibility. I believe it makes sense for us to be allowed to directly compete with the other modes, because I know we have a good product.

Second, direct capital investment in Amtrak plant should be considered just that, an investment and not a subsidy - just as it is in the other modes. The upgrading of the Northeast Corridor should be looked at as avoiding further road congestion, air pollution, and the need for future airport construction in the Northeast. If capital projections are treated as subsidy, it distorts the true distinction between operating and capital funds, and leaves the impression of an ever-increasing operating subsidy which is not accurate.

Appendix IV
Agency Comments

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Your report raises the possibility of a "route closing" commission. I do not believe the concept is well-timed for two reasons. First, we are working with a new knowledge of the actual economics of Amtrak which shows that the system gets the most economic return from frequency reductions and not closings. The Board's December actions maximized the frequency reductions. The model shows that beyond that level there is little left to do but close the national system. A route-closing commission would do little to address that reality.


In addition, a commercially-driven corporation should not act like the defense department. I am confident of our ability to make business decisions and defend them. We have to go where our customers want to go, and not where we think it would be nice to go. The message behind a commission is that we are another government department. That is not consistent with the business focus of this corporation. If the federal government or a state wants to add a specific service, or retain unprofitable service, then we will accurately price it. If it is paid for, we will provide it.

It is very important to note that we do not look exclusively at route actions to achieve savings. For example, while your report suggests that labor costs will add significantly to our financial problems, I find that the current budget environment has been sobering for both management and rail labor. There are many opportunities for productivity improvement that will allow the system to operate more efficiently and we are pursuing them aggressively. The report also suggests that our recent actions will diminish the quality and reliability of our service. That is simply not so. We will have a much smaller, newer fleet with better reliability and a much better opportunity to control our on-time performance. These will be accompanied by the long-term costs reductions resulting from Amtrak's accelerated retirement of our "heritage" equipment. The report also suggests that tort liability will be a big future cost. That liability cost should be recognized as an opportunity for the new Congress to move on tort reform.

Likewise, "privatization of the company" is "unlikely" as your report finds, nevertheless privatization is a fact of life at Amtrak. We only own 300 route miles of track out of the 24,000 routes miles we travel, the rest are owned by the freight railroads. Several hundred rail cars, will in effect be owned by private financial institutions. Amtrak owns 80 of the 530 stations at which we stop. We have outsourced our data processing and information management systems, and we are pursuing options to lease our locomotive fleet from the private sector.

Amtrak kept intercity rail service alive for America for 24 years. We believe that we are about to see a true revival of rail passenger service as is being seen throughout the world. With limits on our ability to build new road, new airports, and with concerns about future mobility growing, rail has a place in the Nation as never before. We know we can make the service cost-effective, with high quality, and we know we can sell that service to a demanding customer, as well as to the state and regions of the country. The new Congress can be a partner in helping make Amtrak independent of federal operating assistance. It would be a disservice to this and future generations to have to come this far and to have rail passenger service slip away. It does not have to.

Sincerely,


Thomas M. Downs
President

Attachment

There are a number of legislative actions that could be taken to improve Amtrak's long-term economic and financial prospects:

- o Amtrak must have a secure source of funding. Our request is that Amtrak be included in a federal transportation trust fund. This could be done in a way that would also allow individual states to invest their federal transportation funds to meet their own transportation priorities.
- o The Board has decided that its preferred approach in dealing with labor protection issues is through collective bargaining. This will require an amendment to Section 405 of the Rail Passenger Service Act to permit negotiation of labor protection without the statutory rigidity that limits those negotiations.
- o Collective bargaining can also solve many of our work processes. Section 405 of the Rail Passenger Service Act also imposes constraints on our ability to negotiate the optimal mix of solutions including contracting out work.
- o Railroad Retirement has a significant cost impact on Amtrak. Amtrak currently includes approximately \$150 million in excess RRTA and RUIA obligations. These costs were incurred by non-Amtrak railroad employees and would remain even if there were no Amtrak. These costs have nothing to do with the operation of Amtrak trains and should not be a part of Amtrak's budget. In addition, the law should be clear that part-time station custodians (of which there are currently about 150 and growing) should not be considered railroad employees for the purpose of Railroad Retirement.
- o It makes little sense for Amtrak to seek appropriated funds in order to pay the federal government fuel taxes. Amtrak should be exempt from this requirement.
- o State-assisted rail passenger service should be provided only if the state is willing to provide the actual costs to Amtrak of providing such service.
- o Amtrak could reduce its operating costs if the total operating grant were provided on the first day of the fiscal year as it is already scored by the Congressional Budget Office.
- o Amtrak's cost, with respect to its contracts with the freight railroads and its own liabilities, could be significantly minimized with a limitation or cap on punitive damages if Congress considers tort reform.

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- o Amtrak could minimize interest costs on its debt portfolio if its Internal Revenue Code were amended to allow for issuance of some tax-exempt debt.
- o Amtrak could improve its on-time performance and enhance revenues with a motivated freight carrier. Providing a tax incentive for the amount of revenue earned from on-time performance payments to the freight railroads would provide such motivation.
- o Federal law needs to clarify Amtrak's exemption from local permitting for work done under the Northeast Corridor Improvement Project. Without such clarification, costs of the project to the federal government would go up and delays could be incurred.

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