# THE FUTURE OF HIGH-SPEED RAIL TRAVEL

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Can high-speed rail travel ever become a fact of life in the United States? Perhaps, if the demand creates a market for it.

Demand for intercity travel of many sorts in the United States has been growing, stimulated mainly by population growth. The U.S. population is predicted to grow by about sixty million by 2020. It is also growing older. The number of Americans fifty or older is expected to increase by 50 percent between 1995 and 2005, and that aging will continue. Older people are an important factor in transportation decisions because they not only affect the degree of comfort desired by travelers, but they also often have the ability to pay for premium service.

The rate of family recreational travel has increased. As families tend to disperse when children leave home to pursue job opportunities, there is a regular pattern of visits to family members living at some distance from one another. As businesses grow, employees need to meet with clients and customers. Even though personal and business travel has abated considerably during the current economic recession, it should rebound as the economy and population grow.

The most probable market for high-speed rail travel is a trip of from four hundred to five hundred miles. Most trips of more than five hundred miles are made by air because of the time involved. The great majority of trips in the range lower than four

hundred or five hundred miles are made by automobile. If the service levels are adequate, some trips in this mileage range are made by intercity bus and some by rail, but the private automobile dominates this market.

To recap, in terms of market the United States has a large, growing and aging population that has many reasons for intercity travel. Except for very long trips, the mode of choice is usually the automobile. Travel by auto is usually the least expensive, especially if more than one person is making the trip. Auto operating cost is perceived as modest, and the more miles traveled simply divides the fixed costs of car ownership over more miles. The automobile is flexible and ready to go at its owner's wish, and it is considered convenient and inexpensive.

Where the mode of travel other than auto is chosen, apart from very long trips, it is often because of the convenience of frequent service and the avoidance of congestion. Both Amtrak and intercity bus service is available in the northeast corridor and in certain markets in the Midwest and West Coast with trains or buses operating frequently.

A factor favoring a future demand for high-speed rail travel is that intercity travel has become more difficult in recent decades. Highway congestion is an increasing cause of delay and discomfort, and air travel has become more trying because of security measures at airports. Even before the concerns about terrorist attacks, air travel was plagued by delayed flights and accessibility issues at overcrowded, busy airports in large cities. Air service cutbacks since 2001 have further reduced the attractiveness of air travel.

Intercity bus travel is a negative choice for many Americans and is the chosen mode only in conditions of great frequency of service or where low cost of travel is important.

Buses, of course, are also the victims of highway congestion, which causes schedule delays.

Outside the northeast corridor and some West Coast corridors, such as between Los Angeles and San Diego, Amtrak intercity service is skeletal at best, often offering only one train per day along the route, resulting in many places being served at inconvenient hours. But where train frequency is high and the elapsed time of travel is comparable to travel by automobile, rail travel can be competitive, even if it is not particularly speedy. Because the automobile is the prime means of travel for trips in the range of up to four hundred or five hundred miles, there is a good chance that fast and high-quality rail travel can gain a share of the market. The higher the speed of the trains, the more competitive rail travel will become, given reasonable fares, frequency of service, and ease of accessibility.

If rail travel is to play a larger role in the future, it must be offered at higher speed than is now the norm in most places. A reasonable query is just how high must the speed be to compete in the travel market? At first the speed probably does not have to be in the 150 to 180 mph range that is operated on some rail systems abroad. For the start of high-speed rail operations, the rail service must surpass auto travel time and comfort. A saving of forty-five to sixty minutes on a four- or five-hour automobile trip would be an important start, but it would have to be coupled with frequent service and a high degree of reliability. Rail travel may also be competitive with air travel in terminal-to-terminal travel time in the

three hundred- to four hundred-mile travel range when consideration is given to the delays in reaching airports at either end of the journey and to the problems in check-in and baggage claim.

At the start of high-speed rail travel in the future, top speeds of 110 to 120 mph are probably adequate if sustained operating speeds in the 80 to 90 mph range can be achieved for a considerable portion of the journey. Such speeds are routine in portions of Amtrak's northeast corridor.

A pervasive high-speed rail service that would attract many patrons cannot be achieved quickly once the decision is made to go ahead. The necessary fixed accommodations for a first-rate service are not available. Present-day track location and station facilities are the products of the nineteenth and early twentieth centuries. In a general sense, the railroad infrastructure for passenger service is not only outmoded but also misplaced for the travel demand of the twenty-first century. For example, curves and tunnels retard the speed of Amtrak operation through Baltimore, and movable bridges on the line between New York and Boston impede its high-speed service.

The great majority of trackage is owned by the freight railroads, whose primary interest is the operation of profitable freight service. Amtrak owns very little actual trackage, except for the northeast corridor and some mileage in Michigan, which has been upgraded to relatively high-speed standards in comparison with the rest of the trackage available. Current rail facilities are geared to freight transportation and some of the railways are adequate for 50 or 60 mph but lack the surface quality and superelevated curves needed for sustained high-speed passenger operations.

If higher speed and eventually true high-speed rail service in the 150 to 180 mph range, and higher, is to be provided in the United States, a major question is how it should be approached. One way is to upgrade existing railroad facilities and freight lines. This would be a time-consuming process because improvements would have to be made without interrupting freight service. Close cooperation with the freight railroads is an absolute necessity. The freight railroads will gain advantage in terms of more modern signal systems, a reduction in grade crossings, better track, and more double track or additional and lengthier sidings. In some cases the higher speed service might share the freight railroad right-of-way, but not the trackage. This could be done under lease or easement.

Another approach is to build high-speed lines from scratch. This was the technique used in Japan for the high-speed Shinkansen trains, and in Germany for the intercity express service. New rights-of-way were obtained and new lines were built for the exclusive use of the high-speed rail service.

A different approach was used in France for the highly successful TGV trains. In cities and built-up areas, existing rail lines were employed for the TGV service. Much of this existing trackage was excellent and reasonably fast speeds were possible. Outside the cities, new trackage was built for the exclusive use of the TGV trains, where speeds of 140 to 200 mph were possible.

For the United States, the French approach appears to be one to consider carefully. The cost of new lines in cities would be prohibitive, and upgrading existing trackage would be the only practical approach. Out in the open country, new high-speed lines could be constructed. Given the time and the financial resources, a network of high-

speed rail services could be constructed over a period of years. There should be no illusion that the process would be rapid.

If the future of high-speed passenger transport by rail is to be a bright one, a key factor is ease of access. The stations must be conveniently located and integrated with other modes of transportation. New stations must be built in alliance with the interstate highway system. Central city stations must be maintained, of course, but new stations built on the outskirts of cities and at the beltways around major cities would provide easy access to stations. The highway-oriented stations must be designed for the convenience of passengers arriving and departing by automobile and provide adjoining parking facilities.

Intercity bus service should feed the rail stations, with buses offering an important link between smaller communities and the high-speed rail service. Many places could never justify rail passenger service, but a frequent bus service from smaller communities and closely integrated with the rail service could provide extended reach for the fast passenger trains through the flexibility of the highway service.

In the best of worlds, and to capitalize on existing investments, there must be high-speed rail stations at key airports. Although long-distance travel will continue to be dominated by airline service, the airlines and the high- speed rail service can feed one another at combined rail-air terminals. Such facilities should also be the focus for local transit service and regional intercity bus service with the transfer between the modes as seamless and trouble free as design and practice can manage.

To make the high-speed service truly workable and to justify the expense, the service must be frequent and reliable in order to attract large numbers of passengers. It is

obvious that one big plus for automobile travel is the fact that a car is ready when the owner wishes to use it. To even begin to match that convenience, for-hire passenger services must be frequent. Probably an eventual minimum level of hourly service between key city pairs, a three- or four-hour journey apart would be reasonable. Reliability has to be built into the service by modern signal systems and facilities that reduce or eliminate the causes of delay. Where existing freight lines are employed, which would probably be the way much of high-speed rail passenger service would begin, dispatching and operation have to be carefully planned and adequate facilities for both services provided.

There are impediments to the development of high-speed rail travel. Getting enthusiastic public support for expensive rail passenger projects will not be easy; sticker shock resulting from the tens of millions of dollars implementation would cost can be a real factor in delaying action. A problem in convincing the public is that most Americans have not been exposed to high-quality, rapid rail service. It has been at least a half century since the height of high-quality rail passenger service was reached, and more than sixty years since all of the fastest trains in the world operated in the United States. Only the northeast corridor enjoys at least an approach to high-speed service. It is hard to attract patrons to something of which they are ignorant, and perhaps even more difficult to convince the public to use tax dollars for that purpose.

Everything in transportation is expensive and the cost of implementing high-speed rail passenger service is bound to be formidable. In considering the service as both intercity and interstate, there is an obvious role for the federal government. Congress must make laws necessary to foster the service and the national government should pay a

portion of the cost. The states have a clear role to play because much of the advantage will fall on them and the communities within their borders. Cities may play a role in working to assure that land is available in key places and paying for operations that meet the specific needs of a city. None of this is going to be easy or quick because money is apt to be in short supply for the foreseeable future.

Another problem to be faced is the Amtrak experience. Amtrak has been constantly savaged by the press and by some politicians. It is often portrayed as a total failure and waste of money and apparently some columnists and publications feel Amtrak is the major transportation problem the United States faces. The discussion over Amtrak often blocks out other transportation news, even though Amtrak is but a very minor factor in public expenditures. The airlines have been bailed out to the tune of billions of dollars in the wake of the tragedy of September 11, and there is little comment by the public or concern shown by supposedly penny-pinching politicians and the press. Amtrak has succeeded best in attracting patronage where it has offered relatively fast trains in key corridors, such as between Washington and New York and Seattle and Portland.

There are some forces at work that will help to promote and to encourage high-speed rail travel. Perhaps the major influence is the discontent with current modes of travel. Auto travel can be a very difficult proposition. It depends on the location of the travel, but the congestion and high-speed danger of some interstate highways make driving difficult and certainly no fun, especially for older motorists.

The hassle and the lengthy check-in at many airports is just one of the problems discouraging airline travel. The fear of another terrorist attack by means of airplanes is still a factor. Some airlines, in order to save money and to boost revenues, have added

seats to some planes, cutting down on legroom. The lack of airline food service is a problem for some travelers. Such problems may be overlooked for really long journeys, such as Chicago to Seattle, but for the journey of two hundred to five hundred miles the negatives lessen the advantage of air travel. Airport overcrowding and congested traffic conditions are also discouraging factors, as are late takeoffs and landings and frequently delayed flights.

Scheduled, regular route intercity bus service has been cut back significantly in the years following deregulation of the industry in 1983. In some states, such as Indiana, hundreds of places lost intercity bus service. Station facilities are often poor or nonexistent, and the room on buses is limited.

Highway and airport congestion are not easy problems to solve. Expanding highways in large cities is a difficult economic and political problem. Building new, large-capacity highways in built-up areas is unthinkable. The same is true of expansion of airports. Space is limited and new airports tend to be built at some distance from the desired destinations, reducing the attraction of airline service.

All transportation is expensive, and the economic, social, and political cost of expanding highway and air transportation makes rail passenger transportation a viable option. Creating a high-speed rail service on a national basis would not be cheap. However, a carefully wrought program of construction could be a major stimulus to the economy, creating a long-lasting jobs program that could spread over much of the nation. In effect, it could be for rail service what the interstate highway program was for motoring.

Incrementalism is probably the key to the creation of high-speed rail travel. Presenting a comprehensive bill for a nationwide high-speed rail system could frighten taxpayers and politicians into inaction. The best approach would be to start with doable projects, such as improvements over time in the northeast corridor to remove obstacles that delay service.

The corridor between San Diego and Los Angeles is another place where track could be improved and running time shortened by steady upgrading. In the Pacific Northwest, the service between Seattle and Portland is also ripe for steady upgrading.

In the Midwest, the state of Illinois has already upgraded a portion of the track between Chicago and St. Louis. This could be the beginning of a new corridor of frequent, high-speed trains. Building on early successes, it should be possible over time to make the investments needed to offer high-speed service between Chicago and other major midwestern cities, such as Detroit, Toledo, and Cleveland, and Indianapolis, Cincinnati, and Louisville. The services already offered in the central valley of California with its networks of feeder bus services offer a model for the Midwest and other parts of America.

The most important element in the development of high-speed rail service is the will to do it. It will not be easy to generate support, especially because the public and politicians are generally anchored in the status quo. Public demand is essential and the rising difficulty of other means of travel could spark action. Leaders with real understanding and vision are necessary and, sadly, are in short supply.