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CASE STUDIES IN PRIVATE/PUBLIC COOPERATION TO REVITALIZE AMERICA: I. PASSENGER RAIL

REPORT

OF THE

JOINT ECONOMIC COMMITTEE
CONGRESS OF THE UNITED STATES

TOGETHER WITH

SUPPLEMENTARY AND ADDITIONAL VIEWS

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INTRODUCTION

By Chairman Henry S. Reuss

and

Vice Chairman Roger W. Jepsen

This Report carries forward the Joint Economic Committee's tradition of bipartisan collaboration on major economic issues, as expressed most recently in our unanimous 1981 Midyear Report on Productivity. In that Report, issued at the height of last summer's economic policy debate, the Committee rose above partisan considerations to address an issue of compelling national importance: Productivity. Here, we continue to work together in addressing a crucial component of that larger issue; namely, our national need for a balanced, efficient system of passenger transportation which includes adequate high-speed, inter-urban passenger rail.

This Report is the first in a series of Reports which the Joint Economic Committee will be preparing in the months ahead on the subject of "Private/Public Cooperation to Revitalize America." These Reports will each focus on a single industry or sector whose future development and prosperity is, in our judgment, vital to the development and prosperity of the national economy as a whole. As we examine these sectors, we will point out the potential in each case for cooperation between the private sector and the public sector, and suggest mechanisms which can facilitate that cooperation. Our choice of industries and sectors in

these case studies will be guided by a simple criterion: we will choose those areas where the greatest benefits are to be attained. In particular, we will examine industries and sectors that make two kinds of contributions to our national wealth: a direct contribution to the production of goods and services for American consumers and for export, and a catalytic contribution to the development of other industries. With this criterion, we go beyond the sterile dichotomy between "picking winners" and "picking losers" that one hears from time to time. In our judgment, these tasks are and should remain the essential domain of the market. But there are areas where sensible private and public cooperation, by "picking catalysts," can dramatically improve our national economic well-being and the prospects for future growth.

Passenger rail transport is such a case. As the following pages will argue, a new system of high-speed passenger rail transit, comparable to the Japanese Shinkansen, the British High Speed Train service, and the French Tres Grande Vitesse, can make a significant contribution toward the creation of a balanced national transportation system, a return of investment and growth to American cities and towns, the conservation of energy and reduction of our dependence on foreign oil, and toward the ultimate goal of restored productivity growth, improved international competitiveness, and a better life for all.

CASE STUDIES IN PRIVATE/PUBLIC COOPERATION TO REVITALIZE AMERICA: I. PASSENGER RAIL

A nation's transportation network is an integral component of its economic and social structure. The transportation system serves to speed the movement of people, goods, and ideas across a nation and between countries. Even more important, efficient transportation is an indispensable element in the productivity and competitiveness of industry. Good transport means everything from access to raw materials, ability of labor to reach jobs, and the efficient operation of product markets. The development and maintenance of a balanced, modern, and efficient transportation system is necessary if a society is to grow and prosper.

The critical relationship between transportation systems and national development has been evident throughout America's history. During the colonial period, America's economy was based upon water transportation and on the horse. Domestic markets were largely limited by the length of navigable waters and by the long overland travel times. Canals promised some development of inland agricultural resources, but canals were expensive and slow. In the 19th century all of this changed. The development of the railroads was a driving force in America's westward expansion and in our industrial revolution. As the railroads grew in size and speed, the economy reached new levels of prosperity, both because of expanded market areas

and because of the great impetus to coal, steel and machinery production created by the demand for rails and rolling stock.

The 20th century brought with it an even greater increase in the speed and ease of transportation. The major transportation developments of this century were the automobile and the airplane. The construction of the Interstate Highway System provided an inexpensive and convenient transportation network to the general public, as well as to the trucking industry. The development of the commercial airline industry provided a transportation system which, in effect, further reduced the great size of America by dramatically decreasing travel times. Throughout the United States' history, the development of new transportation modes and systems has been a catalyst to economic growth and social progress.

Today, however, serious questions are being raised about the condition and future viability of America's transportation network. Representative Bud Shuster (R-Pa.), Chairman of the Congressionally-mandated National Transportation Policy Study Commission, upon release of that commission's final report in June, 1979, stated that a "transportation crisis in this country is just around the corner." The transportation system will be called upon to handle increasing amounts of freight and passenger traffic over the next two decades. In its report, the National Transportation Policy Study Commission estimated that by the year 2000, national domestic person-miles of travel will

increase 81 to 96 percent and national domestic freight ton miles will increase between 165 and 314 percent. The existing transportation system will be hard pressed to handle this dramatic increase over such a short period of time.

The U.S. Highway System is rapidly deteriorating. According to the Federal Highway Administration, the Federal government must expend $360 billion (in 1980 dollars) over the next 15 years just to maintain and repair existing far-from-adequate road quality of the 847,000 mile Federally aided highway system. In addition, certain stretches of the system are dangerously overcrowded with no room for expansion. The problems of the Federally aided highway system are no different than the ones which State and local officials confront when they examine other segments of the American highway network.

Other major forms of domestic transportation are also experiencing difficulties. The Nation's major airports and primary air lanes are congested and overcrowded. Even though major population centers receive adequate air service, many smaller communities are losing service as a result of the increasing cost of providing service. In the Northeast and Midwest, some of the freight railroads are experiencing severe financial difficulties. Major freight railroads across the Nation are troubled by deteriorating track and equipment.

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Compounding the possibility that the present transportation system may be unable to meet future demands is the dramatic rise in the price of petroleum-based fuels, and uncertainty over their future availability. The increase in the cost of fuel has been translated into equally dramatic increases in the cost of transportation services and personal travel. A further negative consequence of the energy issue is the United States' dependence on foreign energy sources.

One part of the answer in meeting the Nation's future transportation needs would be the establishment of a balanced transportation system: a system which capitalizes on the benefits of every mode of transportation, rather than extending the use of one or two modes into areas where they are not the most efficient or economical. An important component of a balanced transportation system, and one part of the solution in meeting future transportation demands, is a viable rail system, including passenger operations.

Many of the world's major industrial nations, in recognition of the need for passenger rail, have continued to build modern passenger rail systems since the end of World War II. The United States, though, has allowed its passenger rail system to deteriorate. Policies promoting rail passenger systems are already in place in Canada, Japan, and throughout Western Europe. These nations have recognized the benefits of a modern passenger rail system. The United States is one of the few industrialized countries

in the world where there is still serious debate over the future of rail passenger service.

Perhaps the best known example of a modern, high-speed passenger railroad is the Shinkansen or "Bullet Train" of the Japanese National Railway. Construction of the first section of the Shinkansen between Tokyo and Shin Osaka was authorized in 1957. Based on the implementation of new and advanced technologies, the Bullet Trains make the 320 mile trip between Tokyo and Shin Osaka in 3 hours and 10 minutes. On a regular basis, the train reaches a top speed of 130 miles per hour and operates at an average speed of approximately 100 miles per hour. The newest section of the Shinkansen stretches 350 miles between Shin Osaka and Hakata. Traveling at an average speed of over 90 miles per hour, with a top speed of 130 miles per hour, the trip takes 3 hours and 44 minutes.

The Bullet Trains have become a major form of passenger transportation in Japan. Over 120 million people a year have used the high-speed rail system since 1976. On a busy day, as many as 275 trains operate on the Shinkansen. On the Shin Osaka-Hakata line, two trains depart every hour. Service on the Tokyo-Shin Osaka line is even more frequent. At certain peak-travel times, up to nine trains an hour will depart. These trains operate like clock work over the entire system, sometimes with only a few minutes between trains.

The Japanese experience with high speed passenger rail will not end with the existing Shinkansen system. The Japanese are constantly designing and testing new technologies. In addition, three new high-speed lines are being constructed and 12 others are being studied.

The development of high-speed passenger rail systems is not limited to Japan. In 1976, the British introduced the 125 mile per hour High Speed Train (HST) into regular passenger service. The HST, along with some other rail improvements, helped reverse a decline in passenger ridership which had occurred in 1975. The British are currently testing a new high-speed train called the British APT (Advanced Passenger Train), which employs cars that tilt as they go around corners in order to allow higher operating speeds.

The French made a decision in 1971 to build a direct high-speed line between Paris and Lyons. The result is what some railroad experts regard as the most advanced train in the world. On September 27, 1981, the "Tres Grande Vitesse" (TGV) began operations on the 265 mile route between the two cities reaching a top speed of 160 miles per hour. The combination of the new track and the high-speed train will reduce travel time between Paris and Lyons from 3 hours and 48 minutes to two hours flat. By 1985 the French plan to have 87 TGV units in operation. They also expect the seven hour trip between Marseilles and Paris to be reduced to four hours.

Throughout Europe and Canada, high-speed trains are either already in operation or currently being developed. Sweden and West Germany currently operate high-speed passenger rail systems. Switzerland is developing a high-speed line between Geneva and Zurich. The Italians are planning to link Milan, Florence, Rome and Naples through high-speed rail service. Canada is moving ahead with plans for high-speed service in the Windsor-Toronto-Montreal-Ottawa and Quebec corridor.

The passenger rail system in the United States compares poorly with its counterparts in Europe and Japan. For example, Amtrak currently operates about 1,700 passenger cars. From 1975 through the end of 1980, by comparison, France placed 2,830 new cars into service. The majority of the European nations operate at least five times as many passenger cars as the United States. The largest disparity, though, is between Japan and the United States. The Japanese operate 26,000 cars over a rail system that covers only half the mileage of the U.S. system.

While the passenger railroads in the other industrialized nations are continually striving to increase the average speed of their trains, the United States has allowed its train speeds to decrease. The average speed of passenger trains in the United States has declined from 75 miles per hour in the mid-1950's to a current average of 40 miles per hour. It is interesting to note that the current U.S. average for passenger trains is slower than the 60 miles per hour average of freight trains operating in

France. The only American trains which operate at average speeds approaching those attained on the high-speed rail system of Europe and Japan are those which run in the Northeast corridor between Washington, D.C., and New York City.

There are two primary factors for the decline of the U.S. passenger rail system, traceable to the years immediately following the end of World War II. One reason is the growth in the number and use of private automobiles. The development of an excellent highway and street system, the availability of inexpensive fuel, and the increasing affluence of the American public enabling more people to purchase automobiles, all contributed to the increase in the use of automobiles. As a result, the demand for passenger rail services declined. The combination of higher fuel costs, smaller and more expensive cars, and more congested highways, is causing Americans to re-evaluate their attitudes towards personal transportation.

The second key factor, which is often overlooked, is the change in freight railroad operations since the end of World War II. The post-war economy brought many changes in the U.S. freight railroad industry. Initially, the railroads were overworked and undermaintained. In the 1950's, however, the freight railroads saw their once dominant position weaken as they began to lose business to competing truck and air freight service. In response to their declining share of the market and the poor condition of their tracks, the freight railroads changed their operations

by switching to longer, heavier, and slower freight trains. This change had a dramatic effect on the passenger rail system because it forced passenger service to become slower and less dependable.

The change in freight operations had two effects on the track structure which have had negative repercussions for passenger rail service. One effect has been the reduction or elimination of the superelevation in the track. Superelevation, or tilting of the track, is necessary in order for rail cars to negotiate curves safely at high speeds. The greater use of heavier freight cars and longer trains increased the cost of maintaining track superelevation. The use of slower trains reduced the degree, or level, of superelevation required to operate freight trains. Both of these factors combined to reduce the railroads' need to maintain the high levels of superelevation required to run high-speed passenger service. The lower superelevation forced the railroads to reduce the speed of their passenger operations and increase the trip time, further reducing the attractiveness of passenger rail.

The decision by the railroad industry to run slow, heavy, and long freight trains has also resulted in greater stress and damage to the track and road bed. The movement of every heavy freight car does immediate damage to the rails. This damage is called plasticity or metallurgical failure. The destructive effect on the rails of each freight car movement is cumulative and permanent. Over time, plasticity causes the metal on the rails and the

freight car wheels to flake off. As the condition of the track worsens, the railroads must slow down the operating speeds of all trains. Passenger service is further affected by the poor track condition because it causes a rough, uncomfortable ride.

The change in freight operations has other negative implications for the U.S. passenger rail system. The advent of slower freight trains necessitated that railroads adjust their track and grade crossing signalling systems to compensate for the slower speeds. Because it is prohibitively expensive to install signal equipment which can accommodate both high and low speed operations on the same track, the railroads elected to reduce the speeds of their passenger trains. Passenger train operations are also hampered by freight train interference. When two trains meet on the same stretch of track, one of the trains must pull onto a siding to allow the other train to pass. Many of the railroad sidings are too short to hold all of the cars in a long freight train. A passenger train, caught behind a slow moving freight train, will be unable to pass because the freight train cannot pull into a siding. In addition, railroad management has been accused of relegating passenger operations to a subordinate position in relation to freight operations, because freight operations are their primary sources of revenue. These factors combined have made it nearly impossible to provide dependable, fast passenger service under the current system.

Despite the limitations and problems associated with the United States' current rail passenger system, Amtrak enjoys a high level of demand on many routes. During the first half of 1981, ridership increased by up to 1,000 percent on some routes. According to Amtrak, some 645 trains were completely sold out for the summer by April 1, 1981. In addition, during August of 1980, Amtrak turned away 400,000 requests for tickets on three of its Western routes.

Amtrak's ridership has increased most significantly on the two routes which are in some ways comparable to Japan and Europe's passenger rail corridors. In the Northeast Corridor, ridership grew from 6,904,000 passengers in 1975 to a high of 8,506,000 in 1979. On the West coast, an increase in the frequency and speed of trains between Los Angeles and San Diego resulted in a four-fold increase in ridership during the six-year period from 1974 to 1980. Amtrak estimates that 1981 ridership on this route will exceed the 1980 record level of 1,254,000 passengers.

Although the reasons for the increase in ridership and demand cannot be stated with absolute certainty, a few factors appear to be most significant. Part of the increase can be attributed to travelers searching for alternatives to the increased cost of automobile and airline travel resulting from higher fuel costs. Another factor is that in the automobile industry's search for better gas mileage, new cars tend to be smaller. As a result, long trips by automobiles have become increasingly uncomfortable. Amtrak President Alan Boyd noted, in his July 23, 1981 testimony

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before the Joint Economic Committee, that "The trends are clear: personal travel in this country is going to become far more difficult and more inconvenient by any mode except rail."

In Amtrak's most heavily traveled corridor, the Northeast corridor, revenues are now exceeding operating costs. This fact, coupled with the recent increase in Amtrak ridership and the forecast of huge increases in future passenger rail travel demand, demonstrates the potential viability of high-speed passenger rail systems in the United States modeled after the European and Japanese systems.

The deteriorating condition of America's transportation network, the increasing cost of energy, and dependence on foreign energy sources will continue to strain the U.S. transportation system and economy during the coming years. These forces will work to increase the costs, limit the availability, and reduce the efficiency of transportation services. A proper response to these transportation-related problems can serve not only to improve the U.S. transportation system, but also to help revitalize the Nation's economy.

The need to improve the Nation's transportation system was detailed in the Joint Economic Committee's bipartisan and unanimous "1981 Mid-Year Review of the Economy." In the report, the Committee recommended that investment in vital public and private infrastructure be improved as one phase

of a program to increase productivity and revitalize the economy. The Nation must have an adequate and well maintained infrastructure because proper macroeconomic policies or a well designed capital depreciation program will not have a maximum effect without proper railroads, highways, ports, water systems, utilities and the like. A highly developed infrastructure is necessary because it serves as a major component in a country's economic foundation.

One part of America's infrastructure should be a high-speed rail passenger system. The Europeans and the Japanese have demonstrated that high-speed rail passenger operations can be successful. This success can be duplicated in the United States. As personal travel becomes more difficult and inconvenient, passenger rail systems emerge as a viable and intelligent alternative to present personal transportation systems.

The development of a high-speed passenger rail system in the United States would have benefits that extend far beyond saving energy and improving personal transportation. Revitalizing the Nation's passenger railroads would provide an excellent start in reindustrializing America because it would require the creation of a major industry. For the next generation, Americans could be busy making rail locomotives and rolling stock, new track, electrification systems, and other things needed to redevelop our entire rail system. Just as the automobile helped make the 1920's

prosperous, the decade of the 1980's could see an American revival based on the railroad.

Given the benefits which would accrue from the development of a passenger rail system, the United States should establish a goal of creating a high-speed rail passenger system equal to or better than those of the other industrialized nations. The development of a passenger rail system in the United States should not be a revivalist or preservationist movement. The American system should be a railroad of the future based on modern technology and new ideas.

The following recommendations outline some of the major concepts and components in the development of a successful high-speed passenger rail system in the United States:

Recommendation No. 1: Develop High-Speed Inter-City Rail Systems in Highly Populated Corridors

America's passenger railroad system should be based on current and future demand, and realistic assessments of the public's transportation needs and preferences. Experience in the United States and abroad has clearly demonstrated that passenger railroad systems can be successful if certain conditions are met. In general terms, the passenger system must provide high-speed, reliable, comfortable service that connects the major cities in highly populated corridors.

The most important factor in determining the success of a system is operating speed. Studies have shown that the rate of speed, or schedule time, is the key determinant of

demand. According to Robert J. Casey, Executive Director of the Ohio Rail Transportation Authority (ORTA), in his July 23, 1981 testimony before the JEC, computer modeling performed by ORTA showed that higher speeds increased potential ridership. In France, the French National Railway has increased its share of the total passenger market relative to other modes during the past decade. According to the March 12, 1979 report, "Background Information on the Railroad of Western Europe and Japan," by John Fischer of the Congressional Research Service, "This has been in part a result of significant improvements to its equipment, allowing for higher speed operations."

The average speed needed to make rail service viable is primarily dependent on the travel time of competing modes. The total trip must be fast enough to provide an incentive for travelers to leave the train's major competitor--the automobile. Service on the successful high-speed trains in France, Britain, and Japan is comparable to the airlines. The average speed of their trains is over 100 miles per hour. At a minimum, service in the United States must be comparable to the passenger operations in those countries.

Another important factor is the frequency of service. In order to provide the traveler with convenient service, trains should be operated almost hourly and with service to all major intermediate points. Infrequent service does not allow most travelers the flexibility and freedom they need when planning trips. Amtrak President Alan Boyd echoed these views when he stated at the July 23, 1981 Joint

Economic Committee hearing that, "Experience in the Northeast corridor has proven that people will leave their cars and take the train on trips of generally 100-300 miles if they are provided frequent, reliable, safe, and comfortable service."

The final major factor which needs to be considered in developing a competitive passenger rail system is the population density in the area served. In order to generate enough ridership, a route must not only connect two major cities, but also serve a heavily-populated region which includes a number of intermediate-sized cities. The high-speed trains in Europe and Japan run through the most densely populated areas in the country. In addition to the Northeast Corridor (Boston-Washington, D.C.), there are a number of regions in the U.S. where population densities approach the levels in Europe and Japan. These include:

(1) Atlanta, GA, to Nashville, TN.
(2) Atlanta, GA, to Savannah, GA.
(3) Boston, MA, to New York, NY, to Washington, D.C.
(4) Boston, MA, to Springfield, MA, to New Haven, CT.
(5) Cleveland, OH, to Columbus, OH, to Cincinnati, OH.
(6) Chicago, IL, to Indianapolis, IN, to Cincinnati, OH.
(7) Chicago, IL, to Cleveland, OH.
(8) Chicago, IL, to Detroit, MI.
(9) Chicago, IL, to St. Louis, MO.
(10) Chicago, IL, to Milwaukee, WI.
(11) Los Angeles, CA, to Las Vagas, NV.
(12) Los Angeles, CA, to San Diego, CA.

(13) San Jose (Bay Area), CA, to Sacramento, CA, to Reno, NV.

(14) Miami, FL, to Jacksonville, FL.

(15) New York, NY, to Albany, NY, to Buffalo, NY.

(16) Philadelphia, PA, to Atlantic City, NJ.

(17) Philadelphia, PA, to Harrisburg, PA.

(18) Seattle, WA, to Portland, OR.

(19) Houston, TX, to Dallas-Ft. Worth, TX, to San Antonio, TX (the Texas Triangle).

(20) Washington, DC, to Richmond, VA.

Recommendation No. 2: Separate Passenger and Freight Operations.

The Japanese Shinkansen and the French TGV have demonstrated the need for and benefits of operating freight and passenger trains on separate tracks. Separate operations provide the most reliable and fastest passenger service because they eliminate the problems associated with the different track, signal, and operating requirements of passenger and freight operations. America's freight railroads would also be able to operate at maximum efficiency because they would not have to invest in maintenance projects or make operational changes which primarily benefit passenger operations and add little to improving freight movements.

Attempts to run a high-speed passenger operation over existing track in the United States would prove unsuccessful because of track conditions and freight train interference.

As Amtrak President Alan Boyd pointed out in a recent article:

> There is no way we can run adequate passenger service on the existing track network designed to accommodate very heavy freight operations. Yet even if tomorrow Superman should arrive bearing magic wear-proof metals from Krypton, Amtrak could not provide modern passenger service over the freight lines that now exist... because fast passenger trains would inevitably be stacked-up behind the twenty-mile-per-hour freights.

In many cases, the problem of freight train interference results not from a purposeful attempt by private railroads to sabotage passenger rail operations, but as an outgrowth of the present system. Since freight traffic is their main source of revenue, private railroads often give it precedence over passenger operations. In addition, the long length of some freight trains prevents them from pulling onto a siding to allow a passenger train to pass.

The biggest problem associated with the development of a passenger system on separate tracks is acquiring the necessary right of way. A number of options are available. One option is to purchase under-utilized rights of way currently owned by the freight railroads; indeed, every opportunity for consolidation of existing activities and rights of way should be explored and encouraged before new rights of way are sought. Ownership could be transferred to Amtrak, State agencies, or a regional rail authority comprised of a number of neighboring States. Another option is to use, when possible, the median strip or other property connected with the interstate highway system.

Recommendation No. 3: Utilize Advanced Railroad Technology.

The development of a modern, high-speed passenger rail system could be undertaken quickly and easily in the United States because of the availability of proven, advanced technological systems. The passenger railroads in Britain, France, and Japan have already developed and implemented major new advances in railroad technology. These countries and other European nations also conduct continuing research programs which will provide rail technology for the future. The innovations and designs which have been developed in those countries should be transferred to the U.S. passenger railroad system.

Currently, the British, French, and Japanese are in the final stages of testing trains which can travel at speeds higher than any passenger trains operating in the United States, without sacrificing passenger comfort. The French TGV recently set a world speed record of 236 miles per hour. When that train goes into regular service, however, the top operating speed will be 160 miles per hour. The Japanese will soon put into revenue service a modified "Bullet Train" which has reached speeds of 197 miles per hour. Both the Japanese and French trains were designed to operate on new tracks developed specifically for the new high-speed operations. The British APT (Advanced Passenger Train) was designed to travel at a top speed of 160 miles per hour on existing track through the use of an electronically controlled body-tilt system.

The Europeans and Japanese have also made significant advances in the track and signal systems. The Japanese have designed and constructed an advanced track design called "slab track." In this track system, concrete and cement are used in the roadbed in place of ballast. Slab track has been found to reduce maintenance and improve the quality of the ride. According to some railroad authorities, slab track is essential for future high-speed lines. The Japanese have also used concrete in the construction of bridges and viaducts to reduce noise and vibration.

The engineers of trains running at very high speeds must rely on advanced and precise signal systems. The most advanced system is called Automatic Train Control (ATC). Under this system, the trains are operated by means of a single signal inside the cab which indicates the speed at which the trains must run and provides for automatic operation of the trains. When near stations, however, the trains are operated manually.

The West German and Japanese governments are already investing in what may be the trains of tomorrow: magnetic levitation or maglev systems. In these systems, the moving train never touches the track. The train rides on a cushion of air and is propelled by magnetic force. In December of 1979, at the Miyazaki Test Track in southern Japan, a prototype magnetically levitated vehicle reached a speed of 309 miles per hour. The West Germans hope to market magnetically levitated vehicles internationally by 1985.

Recommendation No. 4: Electrify the Rail Lines.

To the extent possible, high-speed passenger trains should be electrically powered. Operating at full capacity, electric trains are the most energy efficient form of transportation in terms of passenger miles per gallon. In addition, the United States could relieve its dependence on foreign energy sources because the electrified railroads could get their electricity from coal, gas, hydro, or nuclear power plants.

The energy efficiency of passenger railroads in general is superior to other modes of transportation. On the average, high-speed trains operate at 1.5 to 3 times the efficiency per passenger of the automobile, and 4 times more efficiently than the airplane.

Studies by the Japanese indicate the tremendous potential energy savings that can result from the development of an electric high-speed passenger rail system. In 1977, the Shinkansen carried 124 million passengers and consumed the energy equivalent of 4.4 million barrels of crude oil. Had the Shinkansen passengers made their trips by automobile, they would have used 20.6 million barrels of gasoline, or about 46 million barrels of crude oil. During testimony before Congress in late 1979, the President of the Japanese National Railway, Mr. Fumio Takagi, stated that the Shinkansen system saved the people of Japan more than 40 million barrels of oil in 1977. Today, that savings would amount to about $1.2 billion.

Electrically-powered railroads are also desirable from a business and environmental perspective because they are quieter, cleaner, and more reliable than diesel engines. These factors allow the railroad company to save about 25-30 percent on the costs of operation, including fuel. Compared to the automobile, electric railroads are practically non-polluting. Based on the energy, environmental, and operational benefits of electric railroads, Japan and Europe operate electric trains almost exclusively on their high-speed routes.

Recommendation No. 5: Eliminate Grade Crossings.

In order to allow for high-speed operations and to ensure maximum safety for the rail passengers and the general public, passenger trains should operate over tracks on which there are no grade crossings. High-speed trains which operate on well-maintained track without grade crossings are completely safe. This has been proven on the Shinkansen where over 1.5 billion passengers have been transported since 1964 without a single fatality.

The elimination of grade crossings would also enable trains to operate at higher average speeds and shorter schedules. Many trains are required to reduce their operating speeds when they approach grade crossings located within city limits. By eliminating the possibility of grade crossing accidents, train speeds could safely be increased. Elimination of grade crossings is unavoidably costly, but

must be done to assure the safety and efficiency of our rail transit system.

Recommendation No. 6: Business, Labor, and Government Should Cooperate in Project Planning, Finance and Operations.*

The cooperative efforts of business, labor, and government will be required in all phases of a project of this magnitude and importance. Regardless of how the passenger rail system is financed or operated, the success of the project will depend on the support and coordination of all three parties. Cooperation will be necessary in financing and operating the system, and in obtaining public support for and use of the system.

* Senator William Proxmire states: "While I fully support the goal of revitalizing the passenger rail transportation system, I believe that it can and should be accomplished without the use of Federal funds or subsidies. The Federal Government can play a useful role in helping the planning and coordination of private efforts to achieve this goal."

In obtaining financing for right of way acquisition, grade crossing elimination, track construction, electrification, and car manufacturing, all financial resources should be explored, including both private and public sources. One set of options includes Federal and State government financing. Capital formation and operating costs for transportation systems have been financed by governments through three principal sources: (1) intergovernmental aid, including Federal-State matching funds, (2) publicly offered bond issues, and (3) current tax and non-tax receipts.

The potential demand for high-speed railroads is great enough in heavily-populated corridors in the United States that the project may be a profitable private investment. Therefore, serious consideration should be given to private financing or joint ventures involving public and private sources. The Japanese have already proven that high-speed passenger trains can be profitable. When the President of the Japanese National Railways, Mr. Fumio Takagi, spoke to Members of both Houses of Congress late in 1979, he reported that the Shinkansen system had grossed $3 billion in 1978 with total overall expenses of $1.7 billion. The French government and some private investors have also recognized the potential for profitable service. The French TGV system, which cost $1.5 billion, is self-financed by the French National Railways and by loans floated in France and other countries, including the United States.

Studies of the development of transportation systems during America's period of growth and analyses of future demand also point to potentially profitable high-speed passenger rail systems in America. As previously discussed, rail service will become more attractive in the future as petroleum supplies become more scarce, automobile travel becomes less comfortable due to poor road conditions and reduced vehicle size, and transportation costs increase. At the July 23, 1981, Joint Economic Committee hearing on passenger rail, Harvard Professor of Business, Dr. Albro Martin, testified that, "Every real new innovation in the technique or the art of transporting people in modern times has, in turn, created its own market. It has done that very successfully and, in general, each of these innovations has made money for considerable periods of time." Martin said that the development of a high-speed passenger rail system would provide the same results. At that same Joint Economic Committee hearing, Amtrak President Alan Boyd testified that the preliminary conclusion of a study by Amtrak indicates that high-speed trains can be profitable in this country. Boyd added that, if the study's conclusions proved true, American trains should be able to attract private investment, eliminating the need for any direct Federal operating subsidy for high-speed service.

The construction and operation of a high-speed passenger rail system would, however, involve the taking of substantial initial risk by private business. One way in which the public and private sectors can cooperate in

gaining the confidence in the project needed to obtain private financing is through government loan guarantees. Federal loan guarantees could be available for projects where a corridor development plan was considered economically viable by the Secretary of Transportation. In this way, routes would only be constructed in corridors where the foreseeable traffic could generate enough revenues to repay the loan. This type of financing arrangement would not require the expenditure of any Federal funds.

Cooperative efforts between business and labor will also be necessary in order to negotiate fair and equitable labor contracts for the workers involved in the construction and operation of the system. Federal, State, and local governments should also work closely with industry officials to avoid unnecessary and excessive regulations.

Recommendation No. 7: Appoint a Rail Corridor Development Expediter in the Executive Office of the President.

The President should appoint a Rail Corridor Development Expediter to be responsible for notifying the President and the Congress of any administrative, legislative, or financial problems, so that remedial action could be promptly taken. The Expediter should also serve as the coordinator of activities involving business, labor and government. The Rail Corridor Development Expediter should be located in the Executive Office of the President in order to ensure that problems will be responded to quickly and at the appropriate level of authority. Placing the Expediter in the Executive Office would also demonstrate, to the

public and those directly involved in the project, the national importance assigned to the development of a high-speed passenger rail system.

Recommendation No. 8: Promote Domestic Jobs and Production.

The development of a high-speed passenger railroad system in the United States should, whenever possible and consistent with our international obligations, employ American workers and domestic means of production. The construction and operation of the rail system by American business and labor would add impetus to the Nation's reindustrialization program. The railroad project would not only create a new major industry, fostering new employment and business opportunities, but would also help to revitalize the areas served by the high-speed trains.

The beneficial economic effect of the development of a high-speed railroad system is tremendous. The construction of a 247 mile stretch of Shinkansen meant thousands of jobs for Japanese industry and workers. The civil engineering and track work for the project required the work of 219 frime contractors, 500 subcontractors, and 550 manufacturing companies. Even more firms were involved in electrical work for the project. In this phase of development, 346 primary contractors, 500 subcontractors, and 1,500 manufacturers participated. The manufacturing of rolling stock utilized the additional efforts of 23 primary contractors and 500 subcontractors. When complete, the project had consumed 286 million cubic feet of concrete, 2.45 million tons of cement,

279 million cubic feet of aggregate, 580,000 tons of steel and iron, and 8,930,000 kilowatt hours of electricity.

The development of an American high-speed passenger rail system could have an effect on the U.S. economy similar to the Japanese experience. The opportunity exists to create a new rail technology industry and promote growth in the energy production and basic industry sectors of the United States. There would be an infusion of capital into depressed industries and technology transfers to many parts of the economy. Now that much of the Nation's highway construction is complete, the highway construction industry's talents and capabilities could be used in grading, building bridges, pouring concrete, and building fences and stations for a new rail transportation system. In his July 23, 1981 testimony before the Joint Economic Committee, Mr. James Snyder, Legislative Chairman of the Brotherhood of Railway and Labor Executives, estimated that the development of a national high-speed rail system would result in the creation of 60,000 new jobs.

In his July 23, 1981, Joint Economic Committee testimony, ORTA Executive Director Robert Casey estimated that the proposed 15 year, 547 mile construction project will require 46,000 work years of jobs, involving more than 8,000 direct employees. Considering the multiplier effect, job creation will swell to 150,000 work years. The total construction cost of $5.7 billion could result in $20 billion in total economic impact on the State's economy. After the project is completed, 2,700 permanent employees

will be needed to run the system. It is quite possible that this level of activity could be duplicated in 20 corridors throughout the United States.

The presence of a new transportation system would also revitalize the local economies in the region served by the trains. At 30 public meetings throughout the country held by Amtrak to discuss the potential for high-speed rail corridors, public officials and other community members spoke enthusiastically about the economic benefits that development of the corridors could have. Those community views are summarized in the April, 1981 Amtrak "Emerging Corridor" report. Speakers at the San Diego meeting, for example, stressed that the existing rail service between San Diego and Los Angeles has become vital to the economic well-being of the entire area. Many of the participants at the meeting expressed the conviction that renewed rail passenger service would encourage the growth of business and reinvestment in downtown areas, and would greatly increase tourism, in addition to meeting daily business commuter needs.

The construction and operation of a high-speed passenger rail system could play a vital role in reversing America's economic decline. In his July 23, 1981 testimony, Dr. Albro Martin, from the Harvard Graduate School of Business, told the Members of the Joint Economic Committee that a high-speed rail system will cause a better America to emerge by the end of the century:

> ...because such is the fabulous history of the building of the American railroad system. In the older, settled part of the Nation, the first railroads quickly created the industrial and commercial world that was the pride of most Americans until quite recently, and the envy of the rest of the world... Only with high-speed ground transportation can we create the environment and free up the resources necessary to build super-modern America."*

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* Because of deadline considerations, Senator Lloyd Bentsen was not able to take part in the preparation of this study and hence is unable to join it.

SUPPLEMENTARY VIEWS OF

REPRESENTATIVE GILLIS W. LONG

With a few specific reservations set out below, I endorse the findings and general thrust of this report.

I am especially pleased by the Committee's call for a balanced transportation policy, promoting the most efficient and economical modes for each given region or locality. I am further heartened by the Report's recognition that the weaknesses apparent in the national transportation network represent a national problem, and, as such, require the cooperative efforts of business, labor, and Federal and local governments to find feasible remedies.

In that the Report sets out to address passenger rail issues, I am disappointed that the problems faced by 85 million Americans living in small towns and rural areas are given virtually no consideration.

The deterioration of all forms of rural transportation has been well documented, and provoked a long-overdue Federal response in the nature of President Carter's 1979 rural transportation initiatives. The needs outlined at that time are just as critical today. Rural and small town Americans are experiencing growing social and economic isolation from their fellow citizens as public transit systems decline, roads deteriorate, rail branch lines are abandoned, commuter air service disappears, and the costs of gasoline rise.

Meanwhile, many such communities in the Sunbelt states are simultaneously facing the increased pressures of absorbing new industry and population under the strains of an already inadequate social infrastructure.

Changing population and commercial settlement patterns, especially in the new growth areas of the South and West, require that we adopt a flexible transportation policy responsive to differing requirements and differing potentials for transportation.

My specific reservations regarding this Report's recommendations include the following:

1. High-speed rail systems, especially those modeled on foreign examples, are largely inappropriate for the vast majority of American communities. Unlike Japan, France, and Britain, the United States does not enjoy the relative luxury (in transportation terms) of a compact territory with densely populated cities. Thus, the Report's conclusions are of little value for rural areas, or even for small towns in between large cities. Any attempt to include such towns in a high-speed system would necessarily defeat its primary purpose.

2. The "economically viable" criterion for determining Federal financing priorities inherently favors high-density urban transit systems over essential rural systems. As the Report itself states, "routes would only be constructed in corridors where the foreseeable traffic could generate enough revenues to repay the loan." While this sounds appealing on its face, we must remember that much vital commerce in this Nation, both freight and passenger, travels through rural areas, and to smaller communities. Small town access to the nationwide network must be given serious weight in any plan for Federal financial support for passenger rail.

3. I oppose the creation of a special Rail Corridor Development Expediter in the Executive Branch. As the title implies, this person would represent only a segment of the transportation constituencies in this country--the urban corridor segment. It is

better to retain advocacy for transportation policy in the Department of Transportation where all regions are represented, and where any specific plans which do emerge will hopefully be part of a larger, integrated national policy.

4. The Report's recommendation of the elimination of all grade crossings may make sense when viewed solely from the perspective of enhancing high-speed rail service. However, I am concerned that too little attention has been given to the impact on local communities of such a requirement, both in terms of new construction and the disruption of existing patterns of commerce and traffic.

Despite these reservations, I commend the Report for its willingness to draw on the experiences of other systems in an attempt to find solutions to the very real problems afflicting urban transportation. I trust the Committee will pursue this line of inquiry through further hearings and reports on the range of transportation issues and challenges confronting our country.

For these, and the reasons given above, I endorse this Report.

ADDITIONAL VIEWS OF REPRESENTATIVES

CLARENCE J. BROWN

AND

JOHN H. ROUSSELOT

We support efforts to increase investment in our transportation infrastructure. Obviously improved passenger transportation can add to the comfort and leisure time of traveling Americans. The benefits of improved transportation are potentially more far reaching, however. High-speed transportation provides busy and highly productive people with additional time to be used in producing goods and services. Perhaps more important, a good freight transportation system can lower the costs of distributing goods, making American business more competitive in the world economy. Thus any efforts to improve passenger transportation should not lose sight of the vital importance of freight transport to the American economy as well.

In this connection, we think the scope of this Report is too narrow: increased investment in our transportation system should not be confined to passenger rail service alone. Freight transportation should receive equal concern. But more than that, rail transport should be weighed in light of an overall transportation system. For example, the Report quite correctly mentions the deterioration in our interstate highway system, and it seems to us equally desirable to improve this form of transportation capital

that has carried a far greater number of passengers in recent years than the railroads. Many Americans live in areas with relatively low population densities for which no form of high-speed rail transit is likely to be economically viable. Even in highly populated states like Ohio and California, the highway system is likely to remain a prominent transportation mode even if a high-speed rail system were implemented. Therefore, we must address the problem of our deteriorating highways. Anyone who has traveled on the expressways of Britain, France, Germany or Japan knows that even where superior rail transportation exists, a large volume of traffic is still carried by automobile.

Along the same lines, the large size of the United States makes airplane transportation far more sensible than rail transport for long distance travel, unlike in such small, densely populated countries as Britain and Japan where all trips are for relatively short distances. Consequently, improvements in airports and related forms of aviation capital are important to future expansion of our total transportation stock. We are not saying that we should not seriously explore the possibility of a high-speed rail network: what we are saying is that we should not limit our policy initiatives exclusively to this one form of transport.

Too often the Federal Government has subsidized well intentioned programs that make little sense on a cost-benefit basis. Before committing ourselves to a costly

high-speed transport system financed in part with public funds, we must seek more evidence that passenger demand for an improved rail system is likely to be of sufficient magnitude that the investment can be made without a massive sustained raid on the Federal Treasury. We need more statistical evidence relating to the experience of nations such as Japan and France that are pursuing high-speed rail transportation programs. We need to find out more definitively if a superior rail passenger system can ever hope to be financially viable in this country and, if so, where?

In this connection, we note that the Federal Government's experience in attempting to improve rail service to this point has not been terribly encouraging. Americans traveled far fewer passenger miles by rail in 1980 than in 1965, despite the fact that in 1980 we spent $823 million subsidizing Amtrak, whereas in 1965, we spent nothing. To be sure, any new initiatives in passenger rail transport must be imaginative and innovative. Also they should be based on a realistic evaluation of passenger demand as well as operating and capital costs. We are not opposed to passenger rail improvements and believe they probably have a place in the much needed revitalization of America. At the same time, however, we hope we do not lose sight of economic realities.

The eighth recommendation of the Committee's report suggests that one of the benefits of a high-speed rail system is that jobs will be created. Even since the WPA

days of the thirties, the argument has been advanced that we can reduce unemployment through more Federal public works spendings. Despite increasingly large doses of this medicine, the unemployment "disease" never seems to be cured. Moreover, the argument that a new rail transportation system will create jobs can be made with regard to virtually any form of government spending. The building of highways, airports and water shipping docks creates jobs, too. The decision to build or not to build an improved rail transportation system should concentrate on the long-run contribution that such a system can make to America's economic growth, not to any questionable, short-run effects that such a program might have on employment.

Despite our concerns about some of the specifics of the recommendations in the Report, we strongly agree with the basic premise underlying it and previous reports of the Committee, namely that we must seek to increase our rate of economic growth by raising productivity and increasing the creation of new resources. Utilizing new forms of technology to improve rail transportation is vital to this task, and this Report outlines one proposal that deserves our serious consideration as we start on the path towards economic recovery and revitalization.

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