

# Case Report 2: High Speed Rail for America



Photo Courtesy of the Federal Railroad Administration

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## **Summary**

High-speed rail is a type of passenger rail transport that runs significantly faster than normal passenger rail. There is not a universal definition for how fast a rail could be to be considered high speed. The European Union employs a standard of 200 km/h (125 mph) and faster. However, over 90 mph (145 km/h) is considered to be the American standard. Also, the speed of rail could be constrained by technical or geographical reasons.

Due to its high speed, high efficiency, low environmental impacts, and its potential economic and social benefits, high-speed rail is very popular in Europe and in some Asian countries. Since the Recovery and Reinvestment Act of 2009 was signed into law by President Obama, high-speed rail became a much more main stream topic to the public. Debate and report on high-speed rail are increasing among the media, the government officials and the public.

In this case study, we reviewed the history and current status of high-speed rail development in America and checked the international experience in Europe and Japan. Then we investigated the impact high-speed rail would have on social, economic, and natural environments. We reviewed the policy issues related to this topic, from the government, the private, as well as the public perspectives. Is the high-speed rail really good for America? After reviewing this case, hopefully you will be able to develop your own opinion.

## Timeline of High Speed Rail Events

Since December 18, 1991, eleven high speed rail corridors have been authorized. Five corridors were authorized under the *Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)* and six were authorized under the *Transportation Equity Act for the 21st Century (TEA-21)*. To date, the U.S. Department of Transportation has designated ten of these corridors and numerous corridor extensions. Some of the designations were specifically mandated by Congress. The corridor designations and extensions (including a clarification of the California corridor) are listed below in chronological order from the initiation of the program on December 18, 1991 to the latest extension approved on July 2nd, 2009 (U.S. DOT, Federal Railroad Administration). Also listed below are the recent occurrences pertaining to high-speed rail that have been set forth by President Obama.

- **December 18, 1991.** *Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) (PL 102-240)* became law. Section 1010 calls for selection of **not more than five** corridors to be designated as high-speed rail corridors.
- **October 15, 1992.** The **Midwest** line, linking Chicago , IL with Detroit , MI , St. Louis MO and Milwaukee WI, was designated to be the first high-speed rail corridor.
- **October 16, 1992.** The **Florida** high-speed rail corridor linking Miami with Orlando and Tampa was designated.
- **October 19, 1992.** The **California** high-speed rail corridor, linking San Diego and Los Angeles with the Bay Area and Sacramento via the San Joaquin Valley, was designated.
- **October 20, 1992.** The **Southeast** high-speed rail corridor, connecting Charlotte, NC, Richmond, VA, and Washington, DC, was designated.
- **October 20, 1992.** The **Pacific Northwest** high-speed rail corridor linking Eugene and Portland, OR with Seattle, WA and Vancouver, BC, Canada, was designated.
- **December 14, 1995.** The **Southeast** corridor was extended from Richmond, VA to Hampton Roads, VA.
- **June 9, 1998.** The *Transportation Equity Act for the 21st Century (TEA-21) (PL 105-178)* became law. Section 1103 (c) authorizes **six** additional corridor designations for a total of eleven.
- **November 18, 1998.** The **Gulf Coast** high-speed rail corridor was designated under the *TEA-21 Act*.
- **December 1, 1998.** The **Southeast** corridor was extended from Charlotte to Greenville , SC to Atlanta , GA to Macon ; and from Raleigh to Columbia , SC and to Savannah , GA and Jacksonville , FL.

- **December 10, 1998.** **Keystone** and **Empire State** corridors were designated under *TEA-21 Act*.
- **December 11, 1998.** Under the *TEA-21 Act*, the **Midwest** High-Speed Rail Corridor (now called the **Chicago Hub** corridor) was extended from Milwaukee, WI to Minneapolis/St. Paul, MN, in the Federal Register. (Vol. 63, No. 238/ page 68500).
- **January 28, 1999.** The **Chicago Hub** corridor was extended to Indianapolis, IN and Cincinnati, OH.
- **October 11, 2000.** Two new high-speed rail corridors were designated for a total of ten and four corridors were extended.
  - Newly designated corridors:
    - **Northern New England** corridor, linking a hub in Boston with (a) Portland/Auburn, Maine and (b) Montreal, P.Q., via New Hampshire and Vermont; and
    - **South Central** corridor linking Dallas/Ft. Worth with (a) Austin and San Antonio, Texas; (b) Oklahoma City and Tulsa, Oklahoma; and (c) Texarkana, Texas/Arkansas, and Little Rock, Arkansas.
  - Approved extensions:
    - **Southeast** corridor from Macon to Jesup, GA;
    - **Gulf Coast** corridor from Birmingham, AL to Atlanta, GA (joining the Southeast and Gulf Coast corridors);
    - **Keystone** corridor from Harrisburg to Pittsburgh, PA;
    - **Chicago Hub** corridor—three extensions:
      - From Chicago to Toledo and Cleveland , OH ;
      - From Indianapolis, IN to Louisville, KY, and
      - Between Cleveland, Columbus, Dayton, and Cincinnati, OH (the '3Cs' corridor);
- **January 19, 2001.** The **Chicago Hub** corridor was extended from St. Louis, MO to Kansas City, MO.
- **December 8, 2004.** *Consolidated Appropriations Act, 2005*, (PL 108-447) became law. Section 154 calls for extension of the **Northern New England** High Speed Rail Corridor from Boston, MA, to Springfield, MA and Albany, NY, and from Springfield, MA, to New Haven, CT.

- **February 2009.** President Obama allocated \$8 billion in stimulus funds toward high-speed rail.
- **April 16, 2009.** The U.S. Department of Transportation submitted a strategic plan for high-speed rail across America.
- **July 2, 2009.** The California High-Speed Rail Corridor was extended to Las Vegas, Nevada.
- **July 10, 2009.** Deadline for all applicants to the Federal Railroad Administration's High-Speed Intercity Passenger Rail Program to submit pre-application document.
- **August 24, 2009.** Deadline for the application to the Federal Railroad Administration's High-Speed Intercity Passenger Rail Program for tracks 1a, 1b, 3, and 4

**October 2, 2009.** Deadline for the application to the Federal Railroad Administration's High-Speed Intercity Passenger Rail Program for track 2.

### **History of U.S. Passenger Rail**

Before train was invented, passengers were moved by rivers, canals and horse drawn coaches in the United States. The efficiency and carrying capacity of railroad overwhelmed the traditional transit modes. The first steam powered train, was introduced in Charleston, South Carolina in 1830. The steam powered train was called the "Best Friend of Charleston". It carried 141 brave passengers for a total of six miles on its maiden run. Short run trains were soon established in Baltimore and in Boston.

The relative speed and ability to travel regardless of the weather made rail travel attractive to travelers and businesses. By 1840, 2,818 miles of track were laid down and by the start of the Civil War 30,000 miles of track had been laid. This increase reflected the increasing federal government loans to railroad companies and the availability of free land grants through which to extend tracks (*Lydia Boyd and Lynn Pritcher 2008*).

Even without government subsidies, 70,000 additional miles of track were laid in the 1880s, linking increasing numbers of towns and cities. Rail travel tripled between 1896 and 1916, and trains carried "95% of all intercity transportation through 1910." (Itzkoff 1985). But the golden days of rail travel were not to last. Train travel peaked in 1920, with an estimated 1.2 billion passengers in that year alone.

As technology developed, the sharp increase of transit fare and the spread of automobile reduced the rail ridership by nearly 20% by the end of 1930. The Great Depression further reduced rail passenger travel and it seemed as if passenger rail had come to an end. In 1934, the inaugural run of the Burlington, Chicago and Quincy's diesel-powered Zephyr train and the Union Pacific Railroad's gasoline-powered M-10,000 brought a new face to train travel. Both trains were an attraction at the Century of Progress Exhibition in Chicago that year. The

trip to the Century of Progress Exhibition was the maiden trip of the Zephyr and the 1,015 mile trip from Denver to Chicago cut the traditional steam engine running time almost in half - from 25  $\frac{3}{4}$  hours to slightly over 13 hours (*Lydia Boyd and Lynn Pritcher 2008*).

Soon the more efficient diesel engines replaced the steam engines. With the support from President Roosevelt's New Deal Program, many railroad companies switched their trains to diesel. By the end of the 1930s there were 90 diesel streamliner trains operating around the country. As a reflection of the great popularity of the new streamliners with the public and increased speed of intercity travel, by 1939 passenger rail travel had increased 38% in six years. The actual number of passengers, however, was still less than half of the numbers in 1920. During World War II, railroad companies were nationalized and were able to get subsidies from the federal government. The years 1942 and 1944 showed record ridership and profits for the railroad companies due to the current war situation. As many companies anticipated that the increase in ridership might be temporary, their delayed production of new trains and inability to capture the post-war boom in travel need directed to the decline of rail passenger travel. The increasing train fare, fast expansion of high way, and government subsidies to the air industry, all reduced the competitiveness of railway travel. Bankruptcies, mergers, and acquisitions of many railroad companies occurred during the second half of the 20th century. By mid 1970, airlines carried 73% of U.S. intercity passenger travel, while railroads carried only about 7%.

However, the creation of the national railway passenger system (Amtrak) in 1971 seemed to be the rebirth of the rail passenger industry. Amtrak provided an alternative mode of travel for U.S. travelers and anticipated being able to aid the reduction of automobile congestion. However, Amtrak did not show an increase in ridership of their system. The overloading of U.S. highways and airlines at the end of the 20th century is providing an increased incentive for further expansion of passenger train service.

## **International Experience**

### **Shinkansen System in Japan**

The high-speed rail system in Japan started operation in 1964 between Tokyo and Osaka, followed by the continuing construction of rails to connect the metropolitan areas of Japan. After privatization in 1987, Japanese National Railways was divided into 6 passenger railway companies and one freight railway company. Most existing Shinkansen lines run through densely populated areas in Japan. Compared with other transit modes, Shinkansen's competitive range lies from 100 to 500 miles. Its fare is more reasonable than air when taking account of access and check in time.

The construction of Shinkansen started in 1959 with a cost of about 380 billion yen. It was mainly financed by issuing bonds in Japan, and loans from the World Bank and the Japanese Government. For the new Shinkansen line expansions, local governments along the line become another financial source. The construction and operation are based on a public-private partnership.

Some important features of Shinkansen need be mentioned. Thanks to the low-weighted rolling stocks, Shenkansen could reach an operational speed up to 186 mph. Due to its high frequency, the line can transfer as many as 291,258 thousand passengers annually. It is worth to note that from its operation in 1964, there has never been a fatal train accident. The sophisticated control system and skillful drivers and operators create high reliability in an accurate time. The streamline design not only increases the speed but also reduces noise. The low emission levels also contribute to the environment.

In conclusion, Shinkansen is an excellent mode of transportation in terms of speed, safety, reliability, density and environmental impact. However, the privatization of the operation has put it into a hard circumstance for financing in future high-speed rail line expansions.

### **TGV (*Train à Grande Vitesse*) System in France**

The TGV network includes 932 miles of high speed lines operated by more than 500 TGV trainsets in France alone. The TGV network also connects France to other countries, with a total of 2500 miles of European high speed line in service to the year 2007 and plans to double the figure to 5000 miles by 2020. To the year 2008, 1.4 billion TGV passengers have been transferred since 1981 without a single casualty, and the number of passengers is still growing. Currently, the annual passengers of the TGV system are about 100 million. There are 680 TGV trains circulating every day, serving 250 stations.

TGV trains could substantially reduce travel time, which make it very successful. Using France as an example, the travel time from Paris to Lyon could be reduced from 4 hours to 1 hour 55 minutes by TGV trains. Also, Paris to Marseilles would be reduced from 4 hours 40 minutes to 3 hours.

The other two key success factors of TGV is that it is a consumer-oriented product and an environmental responsible product (International High-Speed Rail System, 2007). The consumer-oriented but technologically conservative approach enables the TGV service to suite the changing demographics and lifestyle to passengers. For example, seats are now wider with more legroom to accommodate larger passengers. As to the rising number of aging population, more attention is paid to accessibility issues. TGV provides safety, comfort and convenient stations to passengers. Since its opening in 1981, there has not been a casualty. Passengers feel smooth when changing speed from 100 mph to 200 mph. Every station along the line is refurbished or new, with internal connections to other transit modes.

With high energy efficiency and low fuel consumption, TGV trains generate less green house gas emissions. Compared to cars and airplanes, high speed train consumes 0.75 liter of fuel per passenger-km, while cars use 3.3 and airplanes use 7.1. Meanwhile, the precise route alignment design avoids huge earthworks and saves land acquisition costs. For instance, the North Europe line in France runs along the Paris Lille highway. This saves on the cost of acquiring land, as well as the amount of land.

The cost of building a new TGV line today (2007) is approximately \$20 million per mile, far more than the first line built in 1970s. Increases in cost are due to higher environmental protection regulations, such as noise reduction, access, hydrologic precautions, etc.

All the rolling stock of TGV lines are mainly financed by SNCF (Société Nationale des Chemins de fer français) (French National Railway). The first TGV line, Paris Lyon (TGV Southeast) was financed entirely by SNCF. TGV Atlantique line (Paris - Tours) benefited from a State subsidy of 30%. The TGV North line (Paris-Lille) was built without any public subsidy, while the TGV Mediterranean (extension of Southeast) received a subsidy of 10% of total costs. The most important subsidy is the TGV East line (Paris-Strasbourg), which was largely paid – up to 76% - with public funds (National government, EU, and regional cities served).

## **Narrative of the Case**

### **Strategic Transportation Goals**

In the 20<sup>th</sup> century, President Dwight D. Eisenhower had set in motion the building of the interstate highway system. President Eisenhower addressed the transportation challenges that were pressing at the time and provided reliable and effective transportation that connected cities across the United States. The transportation challenges of the 21<sup>st</sup> century are slightly different, a set of strategic transportation goals have been established by the President Barack Obama and the U.S. Department of Transportation to address those challenges for future transportation projects.

- Transportation investment must ensure both safe and efficient transportation. A focus needs to be made on providing the safest movement of goods and people.
- Transportation investment must provide groundwork for economic competitiveness. Transportation efforts should establish a base for ongoing economic growth.
- Transportation investment must encourage energy efficiency and environmental quality. Efforts to establish energy independence and reduce emissions will be reinforced in new transportation efforts.
- Transportation investment must support interconnected, livable communities. Transportation efforts should help to advance the quality of life in communities by providing affordable, convenient, and sustainable options.

The above transportation goals have been established in order to address current transportation challenges and to promote optimum transportation projects in the future. President Obama proposes to help address the United States transportation challenges by investing in high-speed passenger rail networks of intercity corridors that would connect cities all across America. President Obama's vision builds upon former President Eisenhower's vision of the highway and aviation systems by focusing on energy-efficient and environmentally friendly options (Lahood, 2009).

According to the U.S. Department of Transportation, passenger rail is positioned in a way that allows it to address many of the nation's transportation goals. An efficient use of transportation options can be utilized by using existing road right-of-ways and improving upon existing rail lines for future high-speed rail services. Also, high-speed rail and intercity passenger rail have a very good safety record overall. An enhanced rail system can help serve the needs of national and regional business as well as generate construction and operating jobs. This in turn will provide a foundation for economic growth. When looking at energy-efficiency and environmental concerns, rail has already proven to be a significant contributor in improving both. Future high-speed rail systems would typically use a new cleaner burning diesel or electric power, which would allow rail to further improve environmental quality and energy-efficiency. Lastly, rail has been known to help reduce urban sprawl because it can allow for higher-density growth than either highways or airports. The overall high-speed rail plan introduced by

President Obama would allow for cities all across the United States to be interconnected via designated high-speed rail corridors as well as other passenger rail routes (LaHood, 2009). Figure 1 illustrates the designated high-speed rail corridors and the northeast corridor.

## VISION *for* HIGH-SPEED RAIL *in* AMERICA



LaHood, Ray (2009). "High-Speed Rail Corridor Route Map" U.S. Department of Transportation, Retrieved from <<http://www.fra.dot.gov/Downloads/RRdev/hsrmap-lv.pdf>>

On the surface, high-speed rail has quite a bit of merit and provides numerous benefits to the United States. A closer look reveals some of the potential problems that would be involved with a high-speed rail system. One main concern addresses the cost-effectiveness of high-speed rail systems. Many taxpayers are concerned with how the benefits of the rail system will offset the costs associated with building and maintaining the system. Current rail demand shows that as a whole the citizens of the United States would not be able to support a rail system without the help of federal subsidies, thus not unlike the highway and aviation systems. The concern would be to what extent the government will have to help out the rail system in order to keep it running. President Obama states that there are at least ten major corridors that have potential for economic success in long-term growth and competitiveness. President Obama also states that the decision on the allocation of funds has not been made and that any region can step-up and present a plan to be considered (Obama, 2009). In a related matter with the current economic downturn many states are in unfavorable financial situations and do not have the ability to make capital investments or to take on rail operation expenses. This is a great concern

because states need to come forward with a high-speed rail plan in order to be considered for federal funding (LaHood, 2009).

### Planned High-Speed Rail (HSR) Corridor in the U.S.



Source: U.S. DOT, Federal Railroad Administration

Presently, up to eleven corridors are authorized for designation, of which the U.S. Secretary of Transportation and/or Congress have designated the ten corridors that are shown in green on the map. Of the designated corridors, three were specifically named by Congress in law. The other seven were selected by the U.S. Secretary of Transportation in a competitive process, which in current law involves an evaluation of such factors as projected ridership, public benefits, and anticipated partnership participation of States, localities, and the freight railroads. (U.S. DOT, Federal Railroad Administration)

**Northeast Corridor:** Linking Boston, New York, Washington D.C., and intermediate cities. Amtrak's Northeast Corridor (NEC) main line (shown in a heavy line on the map) is America's most highly-developed rail corridor, having benefited from over \$4 billion in direct Federal funding under the Northeast Corridor Improvement Project that had its roots in the High-Speed Ground Transportation (HSGT) Act of 1965 and the railroad restructuring legislation of the mid-1970s. Development of the NEC began some 27 years prior to the first designations under the ISTEA high-speed rail grade crossing improvement program. By 1992, the NEC had already undergone extensive renewal and upgrading, and was already free of grade crossings south of New York and largely free of them to the north. Thus, there was no reason to "designate" it under what was essentially a grade crossing upgrading program. Accordingly, the NEC main line is not a "designated high-speed rail corridor" and is shown in red in the map.

**California Corridor:** California is pursuing continued improvements to existing passenger rail corridor services and a new high-speed rail (HSR) system. California is developing a new, electrically powered, HSR system of 800 miles serving major population centers from San Francisco and Sacramento to Los Angeles and San Diego. The system would operate at sustained speeds of 220 mph over much of its length on dedicated rights of way except for access to certain urban areas (e.g. San Jose – San Francisco.) Phase 1 involves San Francisco to Los Angeles and Anaheim.



(Picture source: U.S. DOT, Federal Railroad Administration)

**Pacific Northwest Corridor:** Designated as a high-speed rail corridor in 1992, this 466-mile route houses Amtrak corridor and long-distance trains, Sounder commuter services in the Seattle region, and the freight trains of the owning railroad companies (Union Pacific and BNSF). Since its 1992 designation, the FHWA and FRA have jointly allocated \$8.395 million for grade crossing improvements on this corridor. Between 1994 and 2007, Washington (with participation from Oregon) invested a total of some \$700 million from all sources to upgrade track and signal systems, renovate stations, and purchase trains to operate on the Pacific Northwest Corridor. Incremental improvements are planned to eventually support 110 mph service with greater frequencies on the Portland–Seattle–Vancouver portion of the corridor. (Picture source: U.S. DOT, Federal Railroad Administration)



**South Central Corridor:** Designated in 2000, the South Central Corridor consists of a hub at Dallas-Fort Worth, Texas, with spokes extending to (a) Oklahoma City and Tulsa to the north, (b) Texarkana, Texas/Arkansas, Little Rock, Arkansas, to the east and northeast, and (c) Austin and San Antonio to the southwest. At present, Amtrak serves these markets with a single long-distance train (the Texas Eagle) and the Oklahoma-sponsored Fort Work-Oklahoma City Heartland Flyer train. Since 2000, the FHWA and FRA have jointly allocated \$2.558 million for grade crossing improvements on the corridor in all three states.



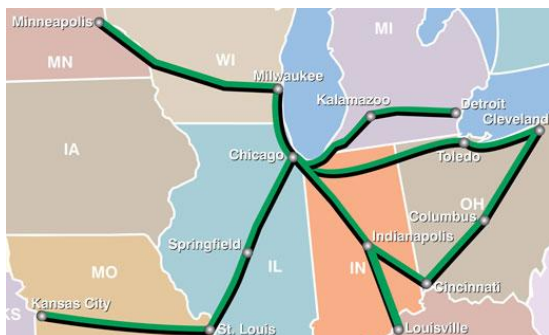
(Picture source: U.S. DOT, Federal Railroad Administration)

**Gulf Coast Corridor:** The designated Gulf Coast Corridor would use New Orleans as its hub, with three spokes reaching (1) Houston, (2) Mobile, and (3) Birmingham and Atlanta. At Atlanta, the Gulf Coast Corridor would connect with the Southeast Corridor to Charlotte, Richmond, Washington, and Northeast Corridor points. At present, no corridor-type intercity rail service operates in this corridor. The FRA has made study



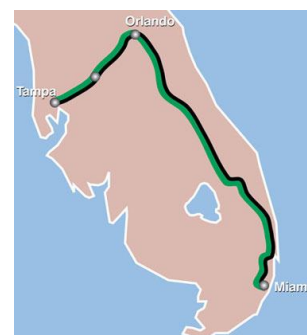
grants to the Southern High-Speed Rail Commission (SHSRC, formerly known as the Southern Rapid Rail Transit Commission), which comprises appointees of the three member states (Louisiana, Mississippi and Alabama). (Picture source: U.S. DOT, Federal Railroad Administration)

**Chicago Hub Network:** The designated Chicago Hub Network includes spokes to St. Louis/Kansas City, Milwaukee/Twin Cities, Detroit, Cleveland, and Cincinnati/Louisville, with a link between Cincinnati and Cleveland via Columbus. Of these, the most highly developed are the three earliest-designated segments: Chicago-Milwaukee, Chicago-St. Louis, and Chicago-Detroit. Significant improvements have occurred or are underway in major components of all three early segments, with operations at 95 mph already possible on Amtrak-owned portions of the Chicago-Detroit route due to an advanced train control system. These three segments, and several more (not “designated”) to such locations as Des Moines/Omaha, Carbondale (IL), Quincy (IL), Green



Bay (WI), and Port Huron (MI), form part of a larger plan advanced by nine Midwestern states—the Midwest Regional Rail Initiative (MWRRI). In 2000, capital costs for the States’ entire MWRRI system were estimated at \$7.7 billion, for a 10-year program to achieve 110 mph service on many of the lines. (Picture source: U.S. DOT, Federal Railroad Administration)

**Florida Corridor:** The designated Florida Corridor links Tampa Bay, Orlando, Miami, and intermediate points. At present, Amtrak serves these markets with long-distance trains only; no short-distance corridor-type intercity services exist. There is a Tri-Rail commuter service over the State-owned, 72-mile railroad between West Palm Beach (Mangonia Park) and Miami (the “Tri-Rail segment”). The State of Florida has attempted more than once to develop the entire designated corridor (or portions of it) to support very high-speed (over 150 mph) intercity rail service, but has not succeeded thus far in doing so. (Picture source: U.S. DOT, Federal Railroad Administration)



**Southeast Corridor:** The designated Southeast High-Speed Rail Corridor consists of a number of segments covering all the South Atlantic States, with through service to and from Northeast Corridor points. North Carolina, Virginia, South Carolina, and Georgia have been collaborating to implement high-speed rail in the designated Southeast Corridor. Plans show that with up to 110 mph speeds, trip times of two hours (Washington-Richmond) and four and one-half hours (Richmond-Charlotte) would be feasible. Two States have created the Virginia-North Carolina Interstate High-Speed Rail Compact to provide authority and legislative oversight for the implementation of HSR. Georgia just completed a

planning study for Charlotte to Atlanta improvements. (Picture source: U.S. DOT, Federal Railroad Administration)

### Keystone Corridor:

*East of Harrisburg:* Sharing some of the operating characteristics of the Northeast Corridor (NEC) main line, the Amtrak-owned and -operated Philadelphia–Harrisburg segment (104 miles) is a mature passenger corridor, with frequent intercity trains (14 round trips per average workday, most of which operate on the NEC beyond Philadelphia to New York) and commuter trains for part of the route near Philadelphia. Amtrak is planning additional improvements. Speed on the line is now up to 110 mph. Station improvements and new construction are being pursued at Lancaster and Elizabethtown.



*West of Harrisburg:* In contrast, with Amtrak's portion of the Keystone Corridor, the segment between Harrisburg and Pittsburgh is a heavy-duty freight railroad with only one passenger train round trip per day, the Pennsylvanian (New York–Pittsburgh), over its mountainous topography. (Picture source: U.S. DOT, Federal Railroad Administration)

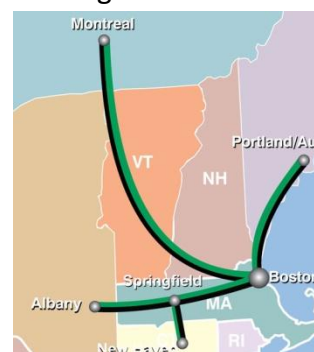
**Empire Corridor:** Designated in 1998, the Empire Corridor extends 462 miles from New York



City through the Hudson Valley to Albany/Rensselaer and west across the spine of New York to Buffalo. Since its 1998 designation, the FHWA and FRA have jointly allocated \$3.4 million for grade crossing improvements on this corridor, primarily on the Hudson Line between New York and Albany. In addition, the State has funded infrastructure improvements on the Hudson Line, enabling

passenger trains to operate at speeds up to 110 mph over portions of this 141-mile segment of the corridor. (Picture source: U.S. DOT, Federal Railroad Administration)

**Northern New England Corridor:** With Boston as its hub, the Northern New England Corridor would serve destinations in Maine, Massachusetts, Connecticut, New Hampshire, Vermont, and the Canadian province of Quebec. The corridor currently includes routes from Boston to (a) Portland, Maine; (b) Montreal, Canada; and (c) Albany, New York, via Springfield, Massachusetts, with an extension from Springfield to New Haven, Connecticut. Frequent passenger service currently links Boston with Portland, and New Haven with Springfield. Less-frequent service connects Boston with Springfield and Albany; there are no passenger trains today between Boston and Montreal. The States of New Hampshire and Maine have worked with the host Pan Am Railways (formerly Guilford Railroad) to upgrade the Boston - Portland line over which Amtrak's Downeaster operates. (Picture source: U.S. DOT, Federal Railroad Administration)



## **Policy Issues**

Until 2008, the policies associated with intercity passenger rail focused mainly on institutional policy regarding Amtrak. With the passage of key legislation, a new framework has been established for intercity passenger rail development. The main implications of the following policies are based on the funding of high-speed and intercity passenger rail systems.

- The FY 2008 Appropriation Act (IPR)
- The Rail Safety Improvement Act of 2008 (RSIA)
- The Passenger Rail Investment and Improvement Act of 2008 (PRIA)
- The American Recovery and Reinvestment Act of 2009 (ARIA)

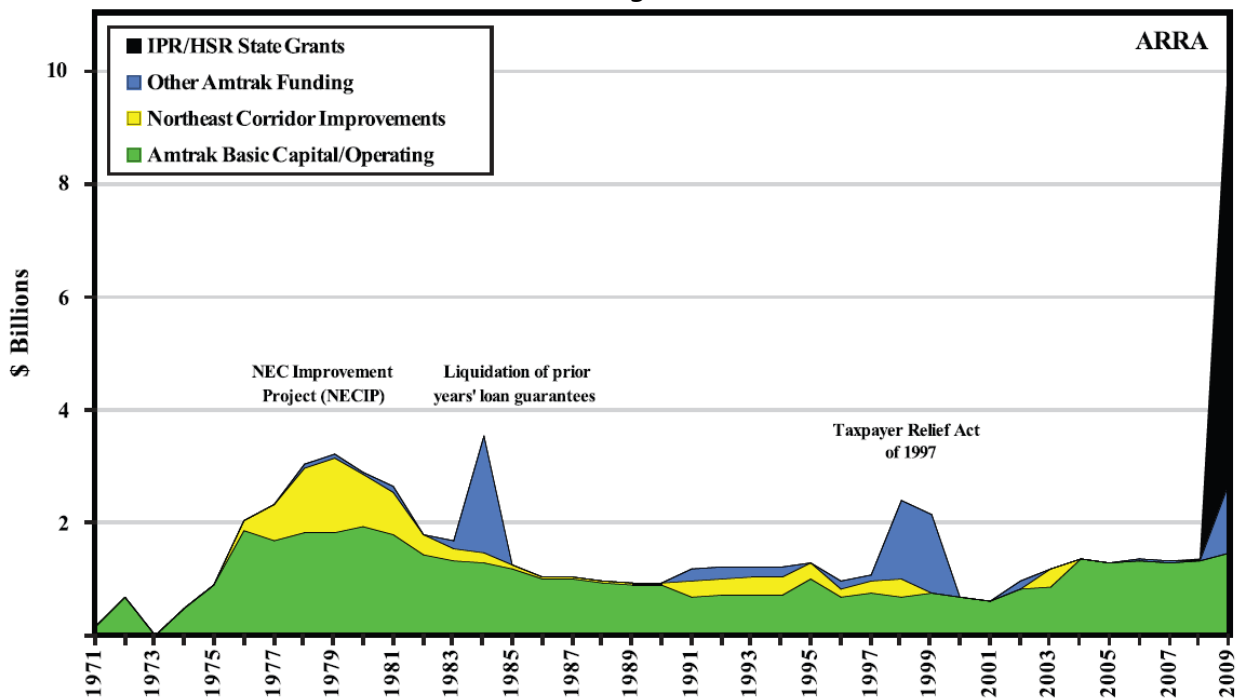
The addition of the IPR State Grant Program addresses the policy issue concerning states being able to financially make capital investments on rail corridor planning by allotting capital assistance to the states. This considerably changed the direction for intercity passenger rail development and allowed federal funding to be made available to states on a competitive basis (LaHood, 2009).

The Rail Safety Improvement Act of 2008 (RSIA) addresses the safety policy issues regarding intercity passenger rail. Under this act the Federal Railroad Administration's safety programs were reauthorized from an intercity passenger rail perspective. Safety regulations were increased by requiring implementation of Positive Train Control (PTC) systems on every intercity rail or commuter rail main line (LaHood, 2009).

The addition of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) was quite substantial and provides for additional funding programs for high-speed and intercity passenger rail improvement efforts. Under this act, three additional grant programs were established to help aid the cost of capital improvements that relate to Intercity Passenger Rail services. The new programs are called: Intercity Passenger Rail Service Corridor Capital Assistance program, High-Speed Rail Corridor Development program, and Congestion Grants program (LaHood, 2009).

The American Recovery and Reinvestment Act of 2009 is an economic stimulus package aimed to invest in America's future. The act has been utilized as a means for development of improved intercity passenger rail service. President Obama has allotted \$8 billion in high-speed rail and intercity passenger rail funding. This funding represents the first appropriations provided by the PRIIA grant programs and shows the federal governments commitment in becoming a substantial partner in rail investment. However, the funding only represents a down payment for what is a long-term rail development strategy. In addition to the \$8 billion, President Obama has proposed an ongoing investment of \$1 billion per year for 5 years in high-speed rail funding (LaHood, 2009). Figure 2 shows the federal funding for intercity passenger rail from 1971-2009.

Figure 2



LaHood, Ray (2009). "Vision for High-Speed Rail in America." U.S. Department of Transportation, Retrieved from <<http://www.fra.dot.gov/Downloads/Final%20FRA%20HSR%20Strat%20Plan.pdf>>

The above policy issues relate mainly to the funding aspect behind high-speed and intercity passenger rail development. Aside from funding, there are numerous other important policy issues that need to be addressed before high-speed rail systems can be put into place. First off, the current railroad system needs to be examined. With an influx of capital investment to privately owned railroad lines for expanding and improving the passenger services on those lines, partnerships will be needed between states and private railroads. Agreements between both states and railroads are needed to ensure that investments will accomplish their intended purposes (LaHood, 2009).

Another partnership that needs to be considered is one between different states. Multi-state partnerships will be needed in order to plan, fund, build, and operate high-speed rail corridors that cross over state boundaries. Cooperating agreements will need to be made concerning political and administrative entities within the states involved (LaHood, 2009). This issue relates closely to the issue of high-speed rail corridors that cross over international boundary lines. The projected intercity passenger rail network depicts at least two crossings from the United States into Canada. A partnership will need to be made between the involved U.S. States and Canada (Bascom, 2003).

## **An Economic Analysis**

Before the implementation of a new transportation system a rigorous cost benefit analysis (CBA) should be completed and completed in an unbiased fashion. In order to perform this assessment many criteria need to be taken into consideration. These criteria should include both measures of private costs, social costs, private benefits, and social benefits. The total capital cost, cost of operation, population served, time spent in system, travel times, and cost per passenger-kilometer traveled (pkt), can be modeled empirically and monetarily. Whereas parameters such as projected accidents, congestion, noise, and air pollution, require monetary value assignment based on the models used. This section of the case study will present two scenarios involving High Speed Rail in America. The first scenario involves the improvement of the only existing HSR line in America, the Northeast Corridor (NEC). The second scenario involves the construction of a HSR line in the California Corridor. Both analyses will rely upon studies conducted on both scenarios.

According to the Federal Railroad Administration (FRA), the benefits from improvement of the Northeast Corridor would exceed the expenditures required to implement it. In the report released in 2008, the FRA determined that “The \$14.0 billion investment needed to achieve passenger rail travel times of 3-hours between Boston and New York and 2 1/2-hours between New York and Washington would produce a net present value benefit of \$16.3 billion in 2006 dollars” (FRA, 2008). The FRA expanded by saying further decreases in travel time would result in even higher revenues, according to the demand modeling conducted. The study attributed the slowed travel times to “the condition of the infrastructure, its capacity constraints, and competing demands for the use of the infrastructure by freight and commuter trains” (FRA, 2008). The paper indicates that the investment in the improvement of an already existing infrastructure can produce returns. However, the report never divulged the total capital cost of the HSR project. The second case will provide further investigation.

California politicians, primarily due to highway congestion, and pollution, have expressed support of a HSR system in their state. A study was conducted on the possibility of implementing a HSR system in the California Corridor. This study assessed the costs and benefits of such a system and compared it to the current or alternative modes. The full cost model explained in the report incorporated the following parameters: Infrastructure costs, Carrier costs, User money costs, User travel time costs, User delay costs, and Social costs (Levinson et al., 1996). By incorporating demand forecasts, the paper concluded that “high-speed rail is significantly more costly than expanding existing air service, and marginally more expensive than auto travel” (Levinson et al., 1996). The estimates of the study suggested that a subsidy of \$590,100,000 per year would be required for the proposed HSR system to be competitive with air transportation (Levinson et al., 1996). The construction would also certainly require subsidies which could be allotted from the American Recovery and Reinvestment Act of 2009. However, the research suggested that “high-speed rail is better positioned to serve shorter distance markets where it competes with auto travel than longer distance markets where it substitutes for air” (Levinson et al., 1996). Population density

certainly plays a role in whether or not HSR could be economically viable in a corridor. This type of analysis should be conducted prior to implementation in a given corridor.

## **Implementation**

In order for a project to be implemented, a set of criteria need to be met to ensure the project will achieve certain standards set out by the federal government. The project needs to be able to achieve public benefit. The project needs to contribute to economic recovery, advance the strategic transportation goals, and further other high-speed rail goals. Also, the project will be assessed in its ability to address critical success factors. Financial plans to cover costs, commitments from key stakeholders, and procedures for managing the project all need to be addressed (LaHood, 2009).

An implementation process has been established for selecting projects to be funded by the American Recovery and Reinvestment Act. First off, to be considered for funding the project needs to be able to start immediately with all preliminary work completed or perhaps require very little preliminary work regarding engineering estimates and construction plans. Corridor development programs are set to develop entire segments or phases of a corridor and are implemented the same as smaller projects. The corridor programs must complete the preliminary work required of the project in order to be considered for funding. If there are remaining funds left over once the preliminary project selection process is complete, a second selection process will be conducted with revised versions of previously submitted plans (LaHood, 2009).

## **List of Actors**

High-speed rail across America is a very broad, high arching plan that affects numerous entities all over the United States. The following represents the list of actors involved in the case of high-speed rail across America that have an impact or influence on the case.

**Federal Government:** The federal government is in support of the case for high-speed rail across America. President Obama's administration, along with the U.S. Department of Transportation developed the strategic plan for high-speed rail. The Federal Railroad Administration has and will play an integral role in the planning of these systems on a large scale. As the national passenger line, Amtrack will also play a role in the transition.

**State Governments:** The involvement of the state governments includes all the states that are designated to receive high-speed rail corridors. The state DOTs will undoubtedly play a large role in the planning and implementation of the rail within their state.

**Local Governments:** Local governments could be called upon for the operation of the system within their region.

Canadian Government: Canada's involvement in the case for high-speed rail across America exists in two locations that a rail system would cross international boundary lines from the U.S. to Canada. Agreements will need to be made between the two countries regarding the locations of the rail lines, the policy issues incorporated with crossing international boundary, along with numerous other issues that could arise.

Airline Owners: Since High Speed Rail will serve as a substitute from some airline routes, there the airline industry will contend for that demand.

Business Owners: A HSR station near a business will certainly bring business. Should new projects planned around a station be taxed toward the development of that system?

Public: Recently the public has gotten involved in the debate since it has appeared in the national spotlight. Public scoping meetings and other community meetings have been used to gauge the public's opinion on High Speed Rail.

**Discussion Questions**

Do you think high speed rail is part of a viable solution to America's transportation problems?

Should government agencies implement plans in regions where HSR may not be economically feasible?

How do you think the public will react to this new mode once in place?

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