

HNTB's High-Speed Read

A series of white papers on what it will take to develop a high-speed rail program in the United States.

EDUCATING AMERICA ABOUT HIGH-SPEED RAIL:

What it is, where it would operate, why we need it and how it could be funded.

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AMERICA REIGNITES INTEREST IN HIGH-SPEED RAIL

The United States has not taken a quantum leap in mobility since the 1950s, when the nation united to realize President Dwight Eisenhower's grand vision of an Interstate Highway System. Focused on our dashboards, we backed out of our driveways and never really looked to the future ... until now.

Idling in congestion and stung by 2008's fuel prices, many Americans have come to the same conclusion: Man cannot live by tread alone.

Eager for transportation solutions, the American public has embraced the Obama administration's commitment to increase federal funding for public transit, especially high-speed rail, a mode of transportation that will save us time and money — and help protect the environment. We see in it what our parents and grandparents saw in the Interstate Highway System: a high-value investment that will continue to pay off 20, 50, even 100 years from now.

Just how serious are we about high-speed rail? Consider:

- Combining the money in the 2009 American Recovery and Reinvestment Act and President Barack Obama's proposed fiscal 2010 budget, the United States could spend \$13 billion dollars in the next five years on high-speed rail development.
- More than half of Americans (54 percent) would choose modern high-speed trains over automobiles (33 percent) and air travel (13 percent) if fares and travel times were about the same, according to a 2009 HNTB Corporation survey.

America needs a balanced transportation system that offers the right modes of transportation infrastructure to support economic growth and personal mobility. High-speed rail is the missing ingredient. Without it, the whole network is less effective.

But what exactly is high-speed rail? Is it the same as a bullet train? Where would these trains run? And, why has it suddenly become so important? More to the point: Building a nationwide network of high-speed rail lines would be an epic undertaking. Where will the money come from in this economic climate?

This white paper, the first in a series about developing a U.S. high-speed rail program, attempts to answer those basic policy questions.

WHAT IS HIGH-SPEED RAIL?

One train travels between Madison, Wis., and Chicago at a maximum speed of 110 mph. Another train travels between Los Angeles and San Francisco at a maximum speed of 220 mph. Which train is a high-speed train? Answer: Both. The United States has many definitions of high-speed rail. Most agree that it consists of passenger trains best suited for trips of 100 to 500 miles. Beyond that, opinions differ:

U.S. Department of Transportation

In the "Vision for High-Speed Rail in America" strategic plan released April 2009, the Federal Railroad Administration provides a broad market-based definition of high-speed and conventional intercity rail:

HSR-EXPRESS	HSR-REGIONAL	EMERGING-HSR	CONVENTIONAL RAIL
Frequent, express service between major population centers 200-600 miles apart, with few intermediate stops. Top speeds of at least 150 mph on completely grade-separated, dedicated rights-of-way. Intended to relieve air and highway capacity constraints.	Relatively frequent service between major and moderate population centers 100-500 miles apart, with some intermediate stops. Top speeds of 110-150 mph, grade-separated, with some dedicated and some shared track. Intended to relieve highway and, to some extent, air capacity constraints.	Developing corridors of 100-500 miles, with strong potential for future high-speed rail regional and/or express service. Top speeds of 90-110 mph on primarily shared track, with advance grade crossing protection or separation. Intended to develop the passenger rail market and provide some relief to other modes.	Traditional intercity passenger rail services of more than 100 miles with one to 12 daily trips; may or may not have strong potential for future high-speed rail service. Top speeds as high as 90 mph, generally on shared track. Intended to provide travel options and to build the passenger rail market for further developments in the future.

Technology-based definitions

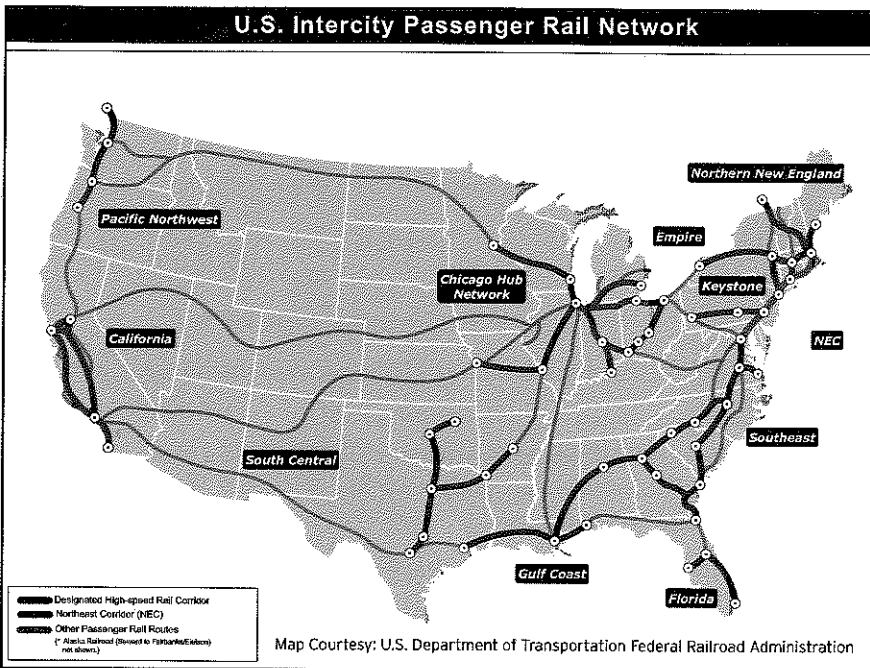
There are two types of high-speed rail technology: Steel wheel and steel rail systems or magnetic levitation systems. China has the only maglev train in operation and there are twelve mature steel-wheel high speed rail services operating at speeds in excess of 180 mph in Europe and Asia.

WHERE WOULD HIGH-SPEED RAIL OPERATE?

America took the first official step toward a high-speed rail future when Congress approved the development of 11 national high-speed corridors in 28 states in 1996 (see illustration).

So far, more than 80 companies and state departments of transportation have responded to the FRA's request for expressions of interest to develop high-speed rail corridors. Rep. John Mica, the senior Republican on the House Transportation and Infrastructure Committee, called the response "overwhelming" and "remarkable given the current state of the economy."

It's another indication of just how serious a prospect high-speed rail has become.



The first U.S. systems

Florida and Texas had advanced their programs quite far before both state governors, by popular vote, shelved the concepts in the early 2000s. Since then, the stimulus package funding has reignited interest and these programs may be revived.

Governors of five Midwestern states recently wrote to Secretary of Transportation Ray LaHood to promote three corridors: Chicago-Milwaukee-Madison-Minneapolis/St. Paul; Chicago-St. Louis; and Chicago-Detroit-Pontiac. Several states, including Illinois, Wisconsin and Michigan, have shovel-ready projects that may qualify for the first round of stimulus grants, including work to upgrade existing infrastructure and signal systems.

California's effort has received overwhelming popular support. With strong leadership from Gov. Arnold Schwarzenegger and state lawmakers, voters approved \$9.95 billion in bond funding to help construct a high-speed rail system. It is the only corridor to have a certified program-level environmental clearance and, at the writing of this paper, was completing its project-level environmental clearance.

WHY IS HIGH-SPEED RAIL SUDDENLY SO IMPORTANT?

Many high-speed rail proponents stop just short of sounding like an infomercial: Don't wait! Act now! Limited-time offer. But the urgency is real. A rare and open window of opportunity for U.S. high-speed rail exists right now. We may never see another alignment of need and opportunity like this in our lifetime:

Voter approval. Elections in 2008 saw voters approve 23 of 32 public transit-related measures and authorize more than \$75 billion in transportation expenditures.

Increasing demand for alternative transportation. Growing congestion and record-high gas prices caused transit ridership to hit a 52-year high in 2008.

Rise of the green movement. High-speed trains are an efficient, reliable and sustainable transportation option. They reduce air pollution by decreasing congestion and delays.

The push for greater energy independence. High-speed trains use about one-third the energy of air travel and one-fifth the energy of cars. The difference would cut California's dependency on foreign oil by more than 12 million barrels per year — the equivalent of removing more than 1 million cars from its roads annually by providing an attractive, affordable and highly reliable option to travelers who would have otherwise used less sustainable options such as traveling by private auto or air.

Jobs, Jobs, Jobs. A high-speed rail program will create thousands of critically needed local jobs now and in the future. And, should U.S. high-speed rail become successful, the need for rail cars could create a new manufacturing and production base in this country. The jobs associated with the development, operation and manufacturing of high-speed rail are prime U.S.-based jobs that will not be off-shored.

Global competitiveness. Twelve countries have mature high-speed rail systems and another eight, including Mexico, Russia and Argentina, are building or planning systems. The existing systems have allowed their respective countries to reduce greenhouse gas emissions and enjoy the greater economic dominance that comes from moving people and products more effectively.

HOW WOULD WE FUND A HIGH-SPEED RAIL PROGRAM?

To be successful, high-speed rail needs a secure, permanent funding source. The \$13 billion in funding through the stimulus plan and the administration's budget proposal will not be enough to construct all or even some of the 10 designated corridors. Two pieces of legislation expected this year or next could become that funding source:

- The next federal transportation authorization bill, due Oct. 1, 2009.
- The Clean, Low-Emission, Affordable, New Transportation Efficiency Act (CLEAN-TEA). The bill would take 10 percent of the revenue from a future cap-and-trade climate program and use it to finance planning and implementation of environmentally friendly transportation projects.

States and local governments will be essential partners with the federal government to achieve the benefits of high-speed rail. For example, California voters recently passed a bond funding initiative for high-speed rail. Multiple states have dedicated funds for progressing planning and preliminary engineering efforts. Some corridors also are exploring opportunities presented by forming public-private partnerships.

ADDING PERSPECTIVE

This white paper has addressed some of the most basic policy questions surrounding a U.S. high-speed rail program.

The United States is poised to significantly transform the way Americans travel and commute. High-speed rail provides a new mode of transportation that is right for our time.

It will not be the first grand vision this country has fulfilled. We responded to President Eisenhower's call to build a national network of highways more than 50 years ago. That system propelled the United States to unparalleled economic prosperity. We still are reaping the benefits. In another 50 years, we could be saying the same about high-speed rail.

WATCH FOR NEXT INSTALLMENT OF HNTB'S HIGH-SPEED READ: "PREVENTING COLLISIONS WITH POSITIVE TRAIN CONTROL"

ADDITIONAL RESOURCES

For more information about high-speed rail, consult the following:

Peter Gertler, ACIP, HNTB Corporation
High-Speed Rail Services Chair
(510) 587-8648; pgertler@hntb.com

American Public Transportation Association's High-Speed and Intercity Rail Committee
www.apta.com/about/committees/intcity/

California High-Speed Rail Authority
www.cahighspeedrail.ca.gov

Federal Railroad Administration
www.fra.dot.gov/us/content/31

Federal Transit Administration
www.fta.dot.gov

Florida High-Speed Rail
www.floridahighspeedrail.org

France's TGV Official U.S. Web site
www.raileurope.com/train-faq/european-trains/tgv/index.html

HNTB America THINKS Survey
www.hntb.com/news/GetNewsRelease.do?co=4&newsid=372#

Japan's Shinkansen High-Speed Rail System
www.japanrail.com/JR_shinkansen.html

Midwest High-Speed Rail Association
www.midwesthsr.org

The Southeast High-Speed Rail Corridor
www.sehsr.org

Virginians for High-Speed Rail
www.vhsr.com

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