

# Public Works Financing

**Published monthly since 1988**  
**by William G. Reinhardt, editor**  
**Westfield, NJ**

**PWFinance.net**  
**[PWFinance@aol.com](mailto:PWFinance@aol.com)**

**Reprinted from April 2009**

## **Transportation Policy Review**

### **The High-Speed Rail Fantasy**

**By Robert W. Poole Jr., Director of Transportation Studies, Reason Foundation**

On April 16th, President Obama touted his administration's plan to put \$13 billion in federal funding into high-speed rail corridors around the country, holding out the promise of reduced travel times, less congestion, reduced emissions, and, of course, the creation of jobs. Many people in the PPP infrastructure community have been cheered by this new program, seeing the potential for making money while improving U.S. transportation. My task in this column is to offer you a dose of reality.

My thoughts in this piece reflect several decades of transportation research, all of which leads me to be skeptical of high-speed rail. I report these findings with some dismay, since I am a life-long rail fan who's gone out of his way to ride the rails on four continents (as well as being a life-long model railroader). But the task of a transportation researcher is to report what is true, not what he wishes were true.

Let's begin by getting clear on what is meant by "high-speed rail." In the United States, this term means anything in excess of 110 mph. The only U.S. train that goes (briefly) faster than that is Amtrak's Acela service on the Northeast Corridor route; all other current Amtrak lines have a top speed of 79 mph. Nearly all of the 10 corridor proposals in contention for a piece of the federal \$13 billion are planning upgrades of existing passenger service to get to 110 mph.

As unambitious as those projects may sound, they are more than capable of absorbing most or all of the \$13 billion. These corridors serve a mix of freight and passenger trains, with the former tending to be very long and operating at speeds that seldom exceed 60 mph. To enable 110-mph passenger trains to operate on these tracks will require major upgrades to signaling systems and the addition of passing sidings. And if priority is given to an expanded number of passenger trains, that means the freight trains will spend even more time than they do now

stopped on mile-long (or longer) sidings.

And that conflict between freight and passenger service is one of the little-noticed problems with what really should be called “moderate-speed rail.” You can optimize a rail network for freight or for passenger service, but not for both. The current US rail network is optimized for freight, and as a result, rail’s share of U.S. freight ton-miles is about 40%. By contrast, Europe’s network is optimized for passenger trains, and as a result, rail’s share of freight ton-miles is only 10-15%. Wendell Cox has crunched the numbers and estimated that the carbon-intensity of goods movement is about 25% higher in Europe than in the USA.

True high-speed rail is represented by the bullet trains in Japan, France, Spain, and Germany, with speeds of 150-200 mph. Those relatively few routes are built, of necessity, on exclusive rights of way—with wider curves, shallower grades, and full grade separation. That makes their cost much higher than the moderate-speed rail featured in (most of) the Obama plan. A table in a recent GAO report on the subject (GAO-09-317) shows the construction cost of recent overseas high-speed rail lines in 2008 dollars. Except for an outlier in Japan that cost \$143 million/mile, they averaged \$51 million per mile to construct (i.e., these figures do not include the vehicles). Thus, a 300-mile system would cost \$15.3 billion.

Despite various claims to the contrary, GAO found that “In each of the countries we visited, the central government paid the up-front construction costs of their country’s high-speed rail lines, and did so with no expectation that its investment would be recouped through ticket revenues.” Thus, claims about “profits” that appear in the media refer only to operating profits—and even those appear to occur on only some of these lines. In the U.K., for instance, The Economist reports that in 2007 the British government subsidized the operating costs of UK rail operators to the tune of \$6.6 billion. The new high-speed rail line that opened in Taiwan in 2007 lost \$1.5 billion in its first year of operation. University of Paris transport economist Remy Prud’Homme estimates that overall, passenger rail service in the EU-15 receives about \$100 billion in subsidies each year.

The only one of the 10 U.S. corridors with an actual high-speed rail (as opposed to moderate-speed) plan in place is California. The California High Speed Rail Authority (CHSRA) expects to raise about one-third of the capital cost of this very ambitious project from private investors. Anyone interested in considering such an investment should go to the Reason Foundation website and download the “due diligence” report that was released last September. ([www.reason.org/news/show/1003044.html](http://www.reason.org/news/show/1003044.html)).

Researchers Wendell Cox and Joseph Vranich review the reasonableness of CHSRA’s numbers—the construction cost (significantly under-stated), ridership (completely unbelievable, by comparison either with the far denser Northeast Corridor or overseas systems), travel times, mode share, etc. Of particular note is the CHSRA’s now-abandoned claim that the rail system would reduce CO2 emissions sufficient to meet “almost 50%” of the state’s goal. In fact, the California Air Resources Board found the true figure to be about 1.5%. And the cost per ton of achieving even that miniscule change would range from a low of \$1,949 to a high of \$10,302. The widely accepted benchmark for cost-effective CO2 reduction is \$50/ton.

I take no joy in reporting all this, but I do so in hopes of reducing the damage to the U.S. economy from pouring (ultimately) hundreds of billions of dollars into rail projects that don't do what people hope and expect them to do. One of the first lessons of Economics 101 is that because resources are always limited, if you spend \$300 billion on X, it's not available to spend on Y. Putting huge sums into projects whose benefits are far less than their costs is not a recipe for prosperity but for the opposite: making the country poorer.

In the near term, the initial \$8 billion has already been approved as part of the federal stimulus bill. The remaining \$5 billion is proposed by the administration as an annual sum over each of the next five years, and will likely be approved as part of the next federal surface transportation reauthorization bill. Will there be significant PPP opportunities from this \$13 billion?

To the extent that there are large construction projects, the use of design-build would reduce the risk of schedule slips and cost overruns. But since none of Amtrak's current low- or moderate-speed routes even covers operating and maintenance costs from passenger fares, any profit potential from design-build-operate contracts looks highly speculative to me. There might be potential in some cases to adapt the model used by the state of Victoria, Australia, under which tram and commuter rail services in Melbourne are being operated and upgraded under medium-term contracts for which bidders competed on the basis of which firm proposed less operating subsidy while meeting a set of performance metrics.

That's a far cry from the vision of a new era of bullet trains developed with substantial private investment in their multi-billion-dollar capital costs, with a return on investment derived from passenger fares. That, I'm afraid, will remain a fantasy. ■