T E S T I M O N Y

High-Speed Rail for the Northeast Corridor

Testimony of Carlos Bonilla and Robert W. Poole, Jr.
Reason Foundation

Testimony of Carlos Bonilla and Robert W. Poole, Jr.
Reason Foundation

Before the Committee on House Transportation and Infrastructure committee
U.S. House of Representatives, 26 May, 2011

House Majority Committee Members	**House Minority Committee Members**
Scott Garrett, NJ, Chairman	Maxine Waters, CA, Ranking Member
David Schweikert, AZ, Vice Chairman	Gary Ackerman, NY
Peter King, NY	Brad Sherman, CA
Edward Royce, CA	Rubén Hinojosa, TX
Frank Lucas, OK	Stephen Lynch, MA
Donald Manzullo, IL	Brad Miller, NC
Judy Biggert, IL	Carolyn Maloney, NY
Jeb Hensarling, TX	Gwen Moore, WI
Randy Neugebauer, TX	Ed Perlmutter, CO
John Campbell, CA	Joe Donnelly, IN
Kenny Marchant, TX	Andre Carson, IN
Thaddeus McCotter, MI	Jim Himes, CT
Kevin McCarthy,CA	Gary Peters, MI
Stevan Pearce, NM	Al Green, TX
Bill Posey, FL	Keith Ellison, MN
Michael G. Fitzpatrick, PA	
Nan A. S. Hayworth, NY	
Robert Hurt, VA	
Michael G. Grimm, NY	
Steve Stivers, OH	

Reason Foundation

High-Speed Rail for the Northeast Corridor

Testimony of Carlos Bonilla and Robert W. Poole, Jr.
Reason Foundation

House Transportation & Infrastructure Committee
Rayburn House Office Building

May 26, 2011

Reason Foundation
3415 S. Sepulveda Blvd., Suite 400
Los Angeles, CA 90034
310-391-2245

http://reason.org

Introduction

I am **Carlos Bonilla**. I am a former Special Assistant for Economic Policy to President George W. Bush where, among other responsibilities, I held the aviation and labor portfolios, including extensive work on Railway Labor Act and pension issues. I am a partner in an aviation analysis firm, Airline Forecasts. I have an MA in economics from Georgetown University. Today I am representing the Reason Foundation, where I am an Adjunct Fellow. My recent work on *High Speed Rail* was first published by the American Action Forum, where I am an Outside Expert.

My coauthor of this testimony is **Robert Poole**, Director of Transportation Policy at the Reason Foundation. He has advised the US DOT Office of the Secretary, the Federal Highway Administration, the Federal Transit Administration, and the state DOTs of California, Florida, Georgia, Indiana, Texas, Utah, Virginia, and Washington State. He wrote the first book on privatization of government services (*Cutting Back City Hall*, Universe Books, 1980). For the past 20 years he has specialized in transportation policy, including toll finance, congestion pricing, and public-private partnerships. He received his B.S. and M.S. in engineering from MIT and did graduate work in operations research at NYU.

Success Factors for High-Speed Rail

There is a general consensus among transportation researchers about where high-speed rail (HSR) has the best chance of success. A report from the World Bank in 2010 concludes that the most promising corridors would share the following characteristics:[1]

- Already host to (conventional) trunk rail service that demonstrates high demand for passenger rail service (or if there is no rail service, evidencing serious congestion in the corridor's air and auto modes);

- Major city-pairs separated by more than 100 km. (62 miles) and less than 750 km. (465 miles);
- Potential for 30 million passengers per year (in developed countries);
- Strong willingness to pay for the time savings offered; and
- High interconnectivity to other modes (e.g., urban transit).

These criteria have been referred to positively in recent reports from the Congressional Research Service2 and the Government Accountability Office.[3]

A detailed report on potential U.S. HSR corridors accepted most of the World Bank guidelines. America 2050 evaluated 27,000 city pairs, using an index of potential success factors that it sought to quantify, so as to rank 100 possible city pairs as to their suitability for HSR.[4] Their principal criteria were as follows:

- Large metro area population;
- Distance of between 100 and 500 miles, with 250 miles ranked highest;
- Existing metro-area transit systems, including regional rail, commuter rail, and local transit networks;
- High metro-area GDP and GDP per capita;
- High levels of auto congestion, as measured by the Travel Time Index;
- Metro areas located within a mega-region.

Using the scores developed in this study, America 2050's most promising corridor (scored at 100) was New York-Washington. Of its top 10 corridors between city-pairs, six of the ten were in the Northeast Corridor.

Amtrak's NEC proposal

In 2010 Amtrak laid out its vision for High Speed Rail in the Northeast Corridor (NEC).[5] At the time it estimated that development of HSR on the NEC alone would cost $117 billion (in 2010 dollars).

A review of the Amtrak proposal shows that the system envisioned would never come close to repaying its costs. As forecast by Amtrak, the fully built High Speed Rail in the Northeast Corridor (HSR-NEC) would have annual revenues of $2.533 billion. Operating and maintenance costs would come to $1.605 billion yielding an operating profit of $928 million. But fully amortizing the construction costs (over 30 years at an interest rate of 4.5 percent—roughly the rate on 30 year Treasury debt) adds an additional $7.2 billion in annual costs. The HSR-NEC therefore is designed with a built-in loss of $6.25 billion per year.

To put this in perspective, Amtrak envisions 17.7 million passengers a year, yielding an average fare of $143 per trip. Each of these trips would have a built-in subsidy of $353 per passenger. That passenger subsidy is calculated from the debt service cost on the initial construction less the projected operating profit and assumes that the operating profit is returned to the Treasury. If, as Amtrak argues for, the operating profit is retained for investment in additional high speed rail, the subsidy rises to $406 per passenger.

A sensitivity analysis shows that additional fiscal dangers exist in this proposal. If Operating and Maintenance Costs are only 5 percent higher than forecast, the operating profit of $928 million disappears and becomes an annual operating loss of $757 million. A combination of 20 percent higher costs, 20 percent lower revenue (if, for example, airlines competitively reduce fares to retain traffic) coupled with the construction subsidy creates a system with a built-in loss of $14 billion a year.

Forecasts for the costs and revenues associated with transportation project are notoriously optimistic. In 2008 The

Department of Transportation analyzed 21 transit projects (including commuter rail, light rail, heavy rail, and bus rapid transit) and found that, on average, their costs exceeded early estimates by 40 percent. Similarly, a subset of 18 projects showed that on average actual ridership was only 61 percent of what was forecast when the project was envisioned. Only two projects (both light rail) met or exceeded their ridership forecasts.[6]

Given this bleak financial analysis, it should come as no surprise that three states—Wisconsin, Ohio and most recently Florida—have already rejected the high speed rail funding put forward by the Administration earlier this year. The Washington Post on May 18th characterized California's use of federal funding for its HSR project as a scandal. The current model (the one embraced by Amtrak), characterized by a large upfront capital investment by the federal government which is then turned over to Amtrak, is clearly one that is not achievable given the current fiscal realities.

Some Cautions on Economic Development

Advocates for HSR often point to the benefits to the economy as a whole from investment in these projects. These claims deserve to be carefully reviewed.

The previously cited World Bank report points out that introducing HSR "will inevitably affect the overall performance of a country's transport system," but that its effects on regional economic development "are the hardest effects to predict and quantify." Hence, "the overall developmental benefits of high-speed rail can neither be presupposed nor dismissed out of hand," but should be analyzed via careful cost-benefit analysis in each case.

A special report on HSR commissioned by the OECD's International Transport Forum concluded that "[The] high proportion of fixed and sunk costs, indivisibilities, long life, and asset specificity make this public investment risky, with a very

wide range of values for the average cost per passenger trip. . . . Even in the case of particularly favorable conditions, the net present value of HSR investment has to be compared with other 'do something' alternatives [such] as road or airport pricing and/or investment, upgrading of conventional trains, etc."[7]

Two Barcelona-based transport economists released a study in 2010 offering policy-makers lessons from the HSR experiences of Europe and Japan.[8] Among them were the following:

- HSR does not generate net new economic activity, nor does it attract new firms and investment to a country, but does help to consolidate and promote ongoing economic activities in large cities.
- HSR may put medium-size cities at a disadvantage, due to shifting some economic activities to larger (hub) cities.
- Political pressures (e.g., for additional station stops or route extensions to lower-traffic points) often lead to higher costs and reduced benefits.
- It is difficult to justify HSR in corridors where first-year demand is below 8 to 10 million annual passengers.

Finally, economist David Levinson last year produced an excellent survey article, "Economic Development Impacts of High-Speed Rail."[9] Since there is not much real empirical evidence on this question itself, he first surveyed the more-extensive research on urban rail systems and economic development. Most studies find some increased land values near stations but negative land-value impacts alongside the tracks between stations. What little research there is on HSR and economic development yields contradictory findings—some studies find little impact and others find somewhat more. But several studies do agree with the Barcelona research finding that HSR tends to shift economic activity to the major hub cities, possibly at the expense of cities along the way (which one researcher called a "tunnel effect" for the places in between).

Government Rail Subsidies in Europe

Before we can discuss Europe's experience with public-private partnerships (PPPs) for HSR, it is important first to understand that all European rail service is subsidized, though the extent of this subsidization is often concealed. In 2008 Amtrak's Inspector General released a report documenting the extent of such subsidies.[10] In most countries, passenger train operating companies are separate from the infrastructure (track and signals) company. The train operating company (TOC) must pay fees to the Infrastructure Manager (IM) to use the track. The TOC counts as "revenues" not only what it receives in passenger fares but also its annual government funding. From this total of revenue, it pays operating and maintenance costs, including the fees it is charged by the IM. Most European TOCs report an overall profit, without disclosing the large fraction of their revenue that comes from the government.

In addition to operating subsidies, leading EU governments also provide "off-balance sheet" funding to TOCs to cover things like pension costs, debt service, restructuring costs, and previous capital investments. For the six TOCs covered in the IG's study,[11] these off-balance sheet payments averaged $15.8 billion per year—but do not show up in the TOCs' financial statements.

For the six TOCs in the study, reported 2006 operating profits ranged from $.46 to $6.27 per train mile. But after adjusting those numbers for the government subsidies to each company (both on-books and off-books), the Amtrak IG study showed that all six made losses, ranging from $15.05 per train mile to $36.78 per train mile.

Moreover, although the Infrastructure Manager (IM) companies charge the TOCs for each train they run, those charges do not cover the IMs' full costs. The IMs likewise receive government subsidies, ranging from $88 per track mile to $685 per track mile, with an average value of $261.

HSR Public-Private Partnerships in Europe

In recent years a number of new HSR lines in Europe have been developed via long-term PPP arrangements. What is being "privatized" in these arrangements is the design, construction, operation, and maintenance of the infrastructure, which is then made available to whichever TOCs the government allows to operate on that infrastructure. So we are talking here mostly about privatizing the infrastructure—the track, stations, and any associated property.

Nearly all these PPP concessions are financed based on "availability payments." Under this model, the government commits to making annual payments to the concession company over the life of the agreement (which may be 30 to 50 years). Based on that contractual commitment, the company is able to issue long-term bonds and arrange other financing to cover the capital costs of designing and building the rail infrastructure. In most cases, the government also pays directly for a significant fraction of the capital costs (which means that what the company has to finance is only, say, half the total capital investment). This kind of structure is consistent with the general European practice of government subsidizing both the rail infrastructure managers (the IMs) and the TOCs.

An example is the current procurement in Spain for the $8.2 billion line between Olmedo and Ourense in Galicia.[12] The government will provide half the project cost ($4.1 billion). Another $3.1 billion will come from debt provided by a consortium of commercial banks and the European Investment Bank. The winning company is expected to put in the remaining $1 billion as equity. Once the line is built, the company will receive availability payments from the government, out of which it must pay debt service and (it hopes) make a return on its equity investment. Thus, the company's revenues are guaranteed for the 30-year

concession period. It hopes to make a profit by controlling both construction costs and operating & maintenance costs.

Two recent projects have been financed somewhat more like toll roads. One is the French TGV route from Tours to Bordeaux[13] and the other is the Perpignan-Figueras line linking the French and Spanish HSR lines via a tunnel beneath the Pyrenees.[14] In both cases, government is again providing approximately half the project cost (which totals $9.6 billion in the first case and $1.4 billion in the second). The other half is financed by a combination of debt and equity, in an 80%-20% ratio. In both of these cases, the revenue will come from fees paid to the infrastructure company by TOCs. Thus, in these two projects the infrastructure companies are taking on traffic risk, rather than relying on guaranteed annual payments from the government.

Proponents point out that this latter kind of structure, as in toll road concession deals, provides incentives to the parties in several important ways:

- It aligns the incentives of government, construction contractor, investors, and the infrastructure operator, all of whom have a stake in the economic success of the venture.
- It makes "value engineering" especially important, to find innovative design solutions that deliver high performance at lower cost.
- It requires the design and construction to be focused on maximizing traffic, since the infrastructure company's revenue depends on the amount of traffic (which means it will open the tracks to service by more than one TOC).
- It also focuses the team on winning local support.

This is a relatively new model. The French-Spanish cross-border concession was signed in 2004 and the project was completed in 2009, but these are still early days in terms of traffic and revenue. The much larger French project is nearing the financing stage as this is written.

Suggested PPP approach for the NEC

It is widely acknowledged that only two of the world's HSR lines may be recovering their capital costs as well as their operating and maintenance costs from farebox revenues: the first Japanese line from Tokyo to Osaka and the first TGV line in France, from Paris to Lyon. All subsequent HSR lines worldwide have involved significant government subsidy of their capital costs, including the two PPP concession projects noted above in which the principal source of revenue to the Infrastructure Manager company is payments by the various TOCs for use of the infrastructure.

It is conceivable that the NEC, as the best U.S. candidate for HSR, could be a self-supporting project. But the overall global HSR experience cautions against assuming that this will be the case. The challenge is to figure out how to harness the incentives provided by a PPP approach to at least minimize the degree of taxpayer subsidy required.

There is no obvious way to fund the grandiose project outlined by Amtrak, and as we have noted previously, there is no conceivable way a $117 billion investment could be recouped from passenger fares. Part of the reason for the Amtrak plan's huge cost was its assumption of mostly new right of way with curves no sharper than a three-mile radius, and much new station construction, as well as a somewhat arbitrary 220 mph top speed. What is needed is outside-the-box thinking that asks and answers the question: how much is enough? In other words, how much of an improvement in trip times is worth investing in? Would adding HSR express trackage in the existing Amtrak-owned right of way be "good enough"—together with other physical and policy changes—to attract significant new ridership? And how much would NEC rail travelers pay for various reductions in trip time?

One reason Amtrak's current Acela rolling stock was so costly is that it had to meet Federal Railroad Administration safety standards for operating on tracks shared with freight railroads.

That precluded use of off-the-shelf European tilt trains that could have achieved higher speeds on existing curve radii of the NEC right of way, especially if they had exclusive HSR tracks.

Assuming Congress decides to separate the NEC from Amtrak in order to revamp it via a long-term PPP, a useful first step would be to issue to the private sector a Request for Information (RFI). Interested potential developer/operators would be asked to spell out what they think it would take to make possible a viable business model for HSR in the NEC. The RFI should make it clear that Congress is willing to start with a clean sheet of paper, potentially exempting the NEC from many of the conditions that lead to Amtrak's current high cost structure. Among the factors that might make a considerable difference in developing a commercial business plan could be:

- No specific high-speed requirement, leaving that to be determined as part of the business plan;
- Freedom to define stations served (and not served) without political interference;
- Exemption from Buy America provisions, to permit acquisition of commercial, off-the-shelf rolling stock from abroad;
- Labor-management relations built on the premise that compensation must be based on the profitability of the enterprise (and could include profit-sharing if the operation can be made profitable). There are obvious trade-offs between traditional work rules and operating costs that could make a real difference in whether profitability is achieved;
- Serious review by the federal government of how existing policies and regulations either foster or hinder the goal of successful HSR, from construction on through operations.

Some of these may not be considered obstacles by the private sector, but others might make a large difference in devising a viable commercial business model for NEC HSR operations.

In order for potential developer/operators to take the RFI seriously enough to put significant effort into developing responses, it would be wise for Congress to take the prior step of separating the NEC organizationally from Amtrak, enabling it to operate as a self-contained business during the interim period before the corridor was leased to a winning bidder. Such a move would increase the transparency of Amtrak's financial reports which currently blend the NEC with all other operations, making it difficult for parties interested in the RFI to accurately gauge the risks and rewards of entering into a PPP.

One key question that should be explored in the RFI would be whether the private sector would be most interested in simply revamping, operating, and maintaining the infrastructure (as in the two recent European PPP projects described previously) or whether they would prefer to develop HSR and other services as a vertically integrated (infrastructure plus train operations) business.

The responses to the RFI would provide valuable feedback as to what the private sector thinks is feasible. That would enable the government to develop a request for proposals (RFP), inviting qualified teams to respond with specific proposals for how they would transform the NEC. Bidders would have to commit to maintaining access for existing commuter and freight services operated by other rail providers on the NEC right of way, but they would be free to propose changes in all passenger services currently offered by Amtrak in the NEC, so as to allow for an array of local, express, and HSR express services.

As general guidelines for the RFP, we suggest the following:

- Offer a long-term/concession of the NEC right of way, with or without train operations (depending on responses to the RFI);
- Permit multiple Train Operating Companies to provide services on the revamped NEC right of way, if that is preferred by potential bidders for the infrastructure;

- Teams would compete on the least amount of federal capital subsidy requested, to achieve what the RFP calls for;
- No operating subsidies would be offered; the business model must be based on self-supporting operations recovering operating and maintenance costs and the non-federal portion of capital;
- Only companies or teams of companies that had previously submitted their qualifications and made it onto an approved "short list" would be invited to submit proposals in response to the RFP.

These provisions are drawn from current best practices in applying PPP principles and private finance to the provision of HSR infrastructure globally. We commend them to the Committee's attention.

ENDNOTES

1. John Scales, et al., "High-Speed Rail: The Fast Track to Economic Development?" The World Bank, report no. 55856, July 2010.
2. David Randall Peterman, et al., "High Speed Rail (HSR) in the United States," Congressional Research Service, 7-5700, R40973, December 8, 2009.
3. Government Accountability Office, "High Speed Passenger Rail: Future Development Will Depend on Addressing Financial and Other Challenges and Establishing a Clear Federal Rols," GAO-09-317, Washington, DC, March 2009.
4. Yoav Hagler and Petra Todorovich, "Where High Speed Rail Works Best," *America 2050*, [date, etc.]
5. "A Vision for High-Speed Rail in the Northeast Corridor." Amtrak, September 2010
6. "The Predicted and Actual Impacts of new Starts Projects – 2007: Capital Cost and Ridership," US Department of Transportation, Federal Transit Administration. The three excluded projects did not include ridership forecasts.
7. Gines de Rus, "The Economic Effects of High Speed Rail Investment," Discussion Paper No. 2008-16, revised, OECD International Transport Forum, October 2008.
8. Daniel Albalate and Germa Bel, "High-Speed Rail: Lessons for Policy-Makers from Experiences Abroad," University of Barcelona, 2010 (www.ub.edu/irea/working_papers/2010/201003.pdf)
9. David Levinson, "Economic Development Impacts of High-Speed Rail," University of Minnesota Dept. of Civil Engineering, May 27, 2010 (http://nexus.umn.edu/Papers/EconomicDevelopmentImpactsofHSR.pdf)
10. Amtrak Office of the Inspector General, "Public Funding Levels of European Passenger Railroads," *Evaluation Report E-08-02*, April 22, 2008.
11. Austria, Denmark, France, Germany, Spain, and the United Kingdom

12. Bill Reinhardt, “Spain Bids $8.2 Billion High-Speed Rail,” *Public Works Financing*, January 2011.

13. Bill Reinhardt, “French Rapid Rail Concession to Include Ridership Risk,” *Public Works Financing*, April 2010.

14. Angus Leslie Melville, “The Train in Spain,” *Inspiratia*, May 2011 (www.inspiratia.com).

Reason Foundation
3415 Sepulveda Blvd., Suite 400
Los Angeles, CA 90034