

Senate Transportation and Housing Committee

Informational Hearing

Toward a World-Class Passenger Rail System in California: Evaluating High-Speed Rail's Potential for Success

Thursday, March 27

1:30 p.m. or upon adjournment of Budget Subcommittee No. 2, Room 112

BACKGROUND PAPER

Introduction

On February 7, 2014, the High-Speed Rail Authority issued its Draft 2014 Business Plan, opening a 60-day public comment period prior to issuing a Final 2014 Business Plan, which it will do by May 1, 2014. This Informational Hearing will review the Draft 2014 Business Plan; consider the potential of this plan to promote the long-term success of the high-speed rail project in the face of current and pending legal, economic and policy challenges; and consider changes or alternative pathways for inclusion in the Final 2014 Business Plan and beyond. This hearing is intended to help guide a high-speed rail project that can be the centerpiece of a world-class passenger rail system in California.

Background

The unprecedented size and complexity of California’s high-speed rail project defines it as a “megaproject,” a class of infrastructure project that, because of its large size and timeline, is subject to changing conditions and circumstances that often require the project to adapt and evolve. In conventional projects, change almost always negatively impacts project success;¹ in megaprojects, some level of change is inevitable. On November 13, 2013, this committee held an Informational Hearing on “Improving Megaproject Outcomes,”² in which general features of megaprojects were investigated, including the eastern span of the Oakland-San Francisco Bay Bridge, and California’s high-speed rail project, the topic of today’s hearing.

California’s high-speed rail project exemplifies the evolutionary nature of megaprojects. From its legislative conception in 1982, to the passage of Proposition 1A in 2008 in which voters approved a nearly \$10 billion bond for construction of an initial segment, to the Draft 2014 Business Plan under consideration today, basic elements of the high-speed rail plan have grown, evolved, and changed. Although the core concept of California’s high-speed rail has steadfastly remained an ultra-efficient rail line connecting the Bay Area, Central Valley, and Southern California, the exact route, planned construction phasing, and interconnectivity with existing passenger rail systems have undergone substantial changes over three decades of project planning. Hearings like today’s offer a crucial opportunity to step back and assess whether the current project direction points toward a successful outcome, or whether change in direction, in a project that by nature must accommodate change, is warranted.

In recognition of the key evolutionary feature of the high-speed rail project, the High-Speed Rail Authority (HSRA) must submit a business plan every two years, giving the HSRA and the Legislature flexibility to respond to shifting budgetary landscapes, emerging engineering and logistical constraints, and evolving state policy and regulation.

Today, the high-speed rail project is at a critical juncture, facing serious and unresolved

¹Ibbs, William, Construction Change: Likelihood, Severity, and Impact on Productivity. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction* 2012.4:67-73.

²How to Save the State Billions: Improving Megaproject Outcomes. Background Paper, California Senate Transportation and Housing Committee, Informational Hearing, November 13, 2013.

legal and fiscal challenges. Lawsuits threaten use of the state’s main funding provision for the project, Proposition 1A, and debate and uncertainty surround discussion of other proposed funding sources, including auction revenues from carbon emission credits under the state’s cap and trade program. As a result of the legal and funding challenges, six years after passage of Proposition 1A, not a single foot of track has been laid, and even the strongest supporters of the high-speed rail project have expressed disappointment at the lack of progress. Public support for the project has eroded, where a majority of voters (54%) would now vote to end the high-speed rail project, according to a January, 2014 survey.³ High-speed rail is experiencing a critical logjam.

From what the committee has learned about megaprojects, periodic serious challenges are the rule rather than the exception. Therefore, the current set of challenges to the high-speed rail project need not be cause for disillusionment, but can be seen as an opportunity for fresh re-evaluation. To overcome the inevitable challenges that attend projects of this size and scope, lessons learned from past megaprojects tell us that there are certain key ingredients in the successful shepherding of megaprojects through difficult times that can threaten to derail them.⁴ These ingredients include a careful, fully vetted definition of performance specifications, which firmly establish and maintain the desired end project objectives and ensure that project ends are not forgotten or compromised by a myopic focus on technical means; flexibility in guiding a project that is subject to changing constraints and circumstances; and an ability to communicate project complexity and change and engage stakeholders.

To help resolve the array of issues confronting the high-speed rail project and promote a pathway to success, this hearing considers three key questions, the answers to which it is hoped will help to decide whether now is a time to stay the course, or to adapt and change. This informational hearing will consider the following questions:

1. What does a “world-class passenger rail system” in California look like? In megaproject parlance, what are the appropriate performance specifications, and have they been defined correctly in the high-speed rail project?

³Probolsky Research, *CA Statewide Voter Survey – Report on Results*. www.probolskyresearch.com/wp-content/uploads/2014/02/Probolsky-Research-CA-Statewide-Voter-Survey-Report-on-Results.pdf

⁴Flyvbjerg, Bent, *Megaprojects and Risk: An Anatomy of Ambition*, Cambridge Univ. Press, New York 2003, p. 15-16.

2. Does the HSRA's Draft 2014 Business Plan provide a roadmap to success according to the performance specifications defined for it, and does it demonstrate progress toward meeting them?
3. Are there alternative pathways, plans, and/or procedures toward a high-speed rail system that succeeds as a world-class passenger rail system?

Performance Specifications for a World-Class Passenger Rail System

While there are surely many definitions of a world-class passenger rail system, some common elements include convenience, efficiency, and cost effectiveness that together compete favorably with other travel modes. Moreover, a world-class passenger rail system is one that accounts not only for how riders travel between rail stations, but that ultimately allows efficient and cost-effective travel between real-life points of origin and final destinations, like homes and business destinations. A project performance specification should reflect this overall set of factors that determine travel mode choice, or else it risks undermining its ability to compete. The key performance specifications for high-speed rail, as specified by law (AB 3034, [Galgiani], Chapter 267, Statutes of 2008), are minimum travel times between stations, including that high-speed rail travel between Los Angeles Union Station and the TransBay Terminal in San Francisco should achieve a travel time of 2 hours and 40 minutes. HSRA has used this specification as a basis for forecasting travel mode choice and ridership relative to the choice of other travel options based on their costs and travel times. No fare requirement or guidelines were prescribed among high-speed rail performance specifications, and although \$950M (or 10%) of Proposition 1A bonds were to support interconnectivity and enhancement with existing “bookend” rail systems, the bond act prescribes no performance specifications for the overall benefits in time or cost that would attend improvements to existing rail systems for typical travelers using them to interconnect with high-speed rail.⁵

A question to consider is whether a more comprehensive set of performance specifications would benefit the High-Speed Rail Business Plan, one that includes the rail

⁵[High-Speed Rail Connectivity and Bookends](http://www.hsr.ca.gov/docs/newsroom/fact%20sheets/High-Speed%20Rail%20Connectivity%20and%20bookends.pdf). California High-Speed Rail Authority. May 2013. Available at www.hsr.ca.gov/docs/newsroom/fact%20sheets/High-Speed%20Rail%20Connectivity%20and%20bookends.pdf

network as a whole and its connectivity to actual points of origination and departure. From a traveler's point of view, such a performance specification would simply amount to the requirement that trips using high-speed rail should generally be at least as competitive in time and/or cost as other choices that could be compared using tools that real travelers use every day, like the directions feature on Google Maps or transit agency trip planner tools.

Does the Draft 2014 Business Plan Contain Ingredients for Success?

Successful megaprojects are characterized by effectiveness in six key areas:⁶ performance specifications; leadership; governance structure; risk management; transparency; and stakeholder engagement. These elements interrelate; for example, project performance specifications that gain consensus and lasting support are developed through effective leadership that oversees a transparent process and sustained stakeholder engagement.

The Draft 2014 Business Plan speaks to several of these elements. In response to suggestions in the California High-Speed Rail Peer Review Group's consideration of the 2012 Business Plan, the HSRA enhanced governance, staffing, organizational structure and capacity, and appointed a Program Risk Manager. This hearing may consider, with the aid of expert panelists, the details of these developments and assess their potential effectiveness.

The Draft 2014 Business Plan contains fewer specifics on outreach and stakeholder engagement; and while transparency of the HSRA proceedings can be considered very high in terms of availability of information, public notice, and open meetings, the project website and resources do not appear to communicate project developments effectively to the public at large, affecting an 'opaque transparency'. For example, the HSRA's website home page currently lists seven news items pertaining to research or business aspects of the project, but none that are directed toward an average citizen and potential user of high-speed rail. There is no FAQ page, and no basic information on how much a fare might cost or how a trip might actually be planned.

Finally, as described in the preceding section, a performance specification approach is a hallmark of successful megaproject outcomes. The high-speed rail project to date does not seem

⁶How to Save the State Billions: Improving Megaproject Outcomes. P. 8-12.

to have developed a robust set of performance specifications, using a “planning process focused on defining and building public consensus around the range of performance-based goals and objectives.”⁷ Prescribing minimum travel times between high-speed rail terminals does not by itself engage the public at large, because these travel times lack relevance to the real travel decisions people would make, for example, from their home to a place of business.

While fare guidelines are not a formal part of the high-speed rail performance specifications, quantitative consideration of fares in the Draft 2014 Business Plan⁸ indicates a bias toward considering the choices of travelers for which air travel is a viable option, most likely business people who can afford to put a premium on time over price. The Draft 2014 Business Plan forecasts future ridership and fare box revenues on scenarios in which the fares compete favorably with airfares. These fare considerations implicitly leave out Central Valley riders for whom flights are not likely to be a suitable alternative.

Moreover, the performance specifications as stated do not acknowledge the tradeoffs that people of different means make when deciding travel mode. A college student traveling from the Bay Area to Los Angeles may prioritize low cost over time, while a business person may prioritize short travel time over cost. By simulating a single cost performance specification and highlighting only the fastest time for travel (180 minutes, at 83% comparable airfare), this basic tradeoff is underappreciated.

Comparing Modes: Trip Choice Performance Specification

Three of the key ingredients for success of a megaproject – transparency, stakeholder engagement, and a performance specification approach – could be met using a “trip choice performance specification” that invites public participation, and becomes an avenue to garner public support. Two complementary approaches could be used that both (a) engage the public and (b) build data that allows for an iterative planning process to determine likely ridership and priority investments in the bookends and beyond.

⁷How to Save the State Billions: Improving Megaproject Outcomes. P. 9.

⁸Values obtained from personal communication with HSRA staff, and 2014 Business Plan Ridership and Revenue Technical Memorandum. www.hsr.ca.gov/docs/about/business_plans/BPlan_2014drft_Ridership_Revenue.pdf

First, a mechanism for public engagement includes a simple web-based trip planning tool, built as a stand-alone application, and as an option into the Google Maps directions platform. People could decide whether they would choose a High-Speed Rail option were it available, and if not, what combination of travel time, cost, or convenience barriers would need to be overcome. These data could be collected and used to improve the planning process, especially in determining which rail projects within the bookends would provide the most benefits to the most number and diversity of users. Table 1 compares and demonstrates the ease with which public input and stakeholder engagement could be generated using a travel planning tool.

Second, complementing public engagement and data collection from a trip choice performance specification could be a HSRA-directed analysis that uses the same Monte Carlo sampling approach it used in its ridership models to evaluate thousands of origin-destination pairs across the Bay Area / Central Valley / Southern California region, and uses the same basic tool to compare travel time and cost metrics as illustrated in Table 1. This would enable the HSRA to develop a robust, spatially explicit, global performance specification that meaningfully relates to the actual decision process that travelers make every day, and can be shared with the public. Crowd-sourced data collection and public research participation has a long history.⁹

Table 1. Travel Mode Comparison. *Costs and travel times of hypothetical one-way trips between the Los Angeles Basin and the Bay Area or Merced. Cost and time values are averages based on three randomly chosen origin and destination locations within the specified service areas, and estimates of current prices for gasoline, flights, Amtrak, and high-speed rail travel times with fares set at 83% of comparable airfares.*

Trip	Driving (25/50 mpg)	Flying	Amtrak	High-Speed Rail (peak)	High-Speed Rail (off-peak)
L.A. area – Bay area	\$116 / \$58 6.9 hours	\$244 3.6 hours	\$112 13.5 hours	\$212 5.2 hours	\$212 5.9 hours
L.A. area – Merced	\$94 / \$47 5.9 hours	\$275 5.4 hours	\$148 5 hours	\$207 4.1 hours	\$207 4.1 hours

⁹Muller, Michael J., and Sarah Kuhn. "Participatory design." *Communications of the ACM* 36.6 (1993): 24-28.

Table 1 illustrates that, with a cost-competitive scenario for high-speed rail fares with airfares in the 2014 Business Plan (83% of the corresponding airfare), high-speed rail could not currently compete on a time-by-cost metric (\$-hrs) with driving (in the case of a single-occupant vehicle, no less; two or more carpoolers would render other modes by a factor of two or more, even less cost competitive, and increasing fuel economy adds further cost competition).

The examples shown in Table 1 are not intended to demonstrate that high-speed rail cannot be a viable travel option, but to illustrate how a consideration of global performance specifications can aid in determining where the “weak links” in the total travel chain exist, and therefore what levels of investment are needed, and where, in optimizing travel times and costs for entire trips across the high-speed rail service areas.

This project would greatly benefit from a concerted effort to re-engage with the public and develop sustained public support. According to Adam Probolsky, the pollster who conducted the most recent opinion poll (January 2014) on high-speed rail, “a poor outreach effort has slowly undermined public support.”¹⁰ Public participation in developing a trip choice performance specification may go a long way toward reviving public support.

Conclusions

Today’s hearing and the Draft 2014 Business Plan benefit from understanding the dynamic nature of megaprojects in general, and the developmental history of California’s high-speed rail project specifically, because it reminds stakeholders of the need to continually think freshly and creatively about how to nurture an organically developing megaproject, the largest project of its kind in the California and the nation.

In order for the high-speed rail project to accrue the environmental benefits it envisions and for which its proposed funding depends, it must achieve healthy ridership. Attracting ridership in turn depends on concerted public outreach and engagement that helps people to see this project as a real project rather than a distant dream. One way this can be achieved is by involving the public in a process by which the very performance specifications that they would use to decide travel mode becomes feedback to inform the planning process.

¹⁰www.calnewsroom.com/2014/02/12/californians-strongly-against-high-speed-rail-new-poll-finds/#sthash.3wPjOCCT.dpuf

That not a single foot of track has been laid can be seen as a failure of this project, or as an opportunity to move forward on building a world-class passenger rail system with a maximum degree of flexibility to engage all stakeholders. Change in tack is not only possible at this moment, but practicable. A premise of these proceedings, based on the committee's previous consideration of megaprojects, is that an unwavering vision of a world-class passenger rail system can best be fulfilled by maintaining flexibility in considering the means by which we achieve the ends we desire.

Questions for Consideration:

1. What does a world-class passenger rail system in California look like? Does the Draft 2014 Business Plan contribute to such a vision?
2. Are the improvements in governance, organization, and risk management described in the Draft 2014 Business Plan effective and sufficient for the size and scope of this project?
3. Is there a need for more transparency, public outreach, and/or stakeholder engagement? What initiatives or mechanisms might increase public awareness and support of this project?
4. Are high-speed rail's performance specifications adequately defined for likely future riders in recognition of the way travelers make travel mode choices?
5. What is the status of the current legal and fiscal challenges to the high-speed rail project?