Switching to the Future Track:  
An Essay On California High-Speed Rail

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California’s High Speed Rail (CHSR) is on the way, maybe. Governor Jerry Brown calls it “a bold idea...it’s taking technology and imagination and reshaping our future." But the voters who approved Proposition 1A, the initial bond funding for CHSR seem to have soured on it due to construction costs ballooning and uncertainty about it ever getting out of the Central Valley.

A number of critical reviews of the initial assumptions behind CHSR, including one by this author, raise further doubts as to the economic and social viability of the system. These issues include an original estimate of a $40B price tag, revised to $118B, and then lowered to $68B, an alternative to fossil fuel burning cars as Californians rush towards electric and hybrid vehicles, a 220 mph transportation system, now possibly slowed by urban interfaces, economic growth inducing infrastructure resulting in 450K new jobs, and revenue and ridership estimates based on existing foreign high speed rail lines which replaced older dense-demand low speed rail lines.

In spite of these and other serious critiques and calls for a new vote on CHSR, it appears likely that the first segment in the San Joaquin Valley will be built. But will it be, as some have suggested, a fast train that only provides an alternative to auto

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1 Interview prior to Governor Brown's trip to China, April 4, 2013.  
3 www.hsr.ca.gov  
www.hsr.ca.gov
travel on CA99? Jerry Brown’s courtship of Chinese investors not withstanding, the private funding for the completion of the system is not on the horizon as investors shy away from a project seen as financially risky. Without it, only government funding—not likely in these days of lean budgets—can ensure the completion of the system as currently contemplated.

This essay asks a different question of CHSR. Namely, is there a way to reconstitute the plan without significantly altering the original vision such that it will be attractive to private investors and become what its proponents have always argued, a game-changer for California? I argue the answer to the question is absolutely, and that the problem is not that CHSR is too big and too ambitious. Rather the problems with CHSR as currently constituted are large and the solutions proposed thus far are too small and not ambitious enough. Specifically, we ought to be looking at transportation infrastructure synergies as they apply to the 21st Century and if we do, CHSR can snatch victory from the jaws of defeat.

**High-Speed Rail and Other Major Transportation Infrastructure Projects**

The rationale for high-speed rail is twofold. The first is congestion. California’s population is forecast by the CA Department of Finance to be 46 million by 20358. The movement of people and goods is critical to a vibrant economy. The transportation corridors currently in place are insufficient to accommodate a larger and growing population and increased economic activity. The solutions outlined in Governor Brown’s 2012 State of the State address are high-speed rail, expanded airports, and new freeways. His assertion, and that of many supporters of CHSR is that rail is the most cost effective way to increase transportation bandwith9.

The second rationale is the economic development inducing aspect of “bold investments” in transportation infrastructure. In U.S. economic history, the canals of the early 19th Century, the transcontinental and trunk railroads of the mid to late 19th Century and the Interstate Highway System in the mid-20th Century are pointed to as examples of the power of large transportation projects. There is no doubt that those infrastructure projects facilitated economic growth. But are they the appropriate analogs for CHSR? The answer, it turns out, is no. Each of the previously cited projects moved both people and goods and dramatically lowered transportation costs. CHSR will only move people and is priced to be competitive with other modes of transportation, but not priced to blow them out of the water.

Despite seemingly good reasons for CHSR, private investors, the key to the completion of the system, are taking a wait and see approach10. The first segment of

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8 [http://www.dof.ca.gov/research/demographic/reports/projections/P-1/]  
CHSR is to be between Fresno and Bakersfield. There are reasonable doubts that the demand for travel between the two stations will be significant. That will leave CHSR in an operating deficit. The doubts stem from the relatively low level of business and personal travel between the cities, particularly within walking or a short cab ride from the high-speed rail stations. Automobile travel between the cities is relatively easy and has the added benefit of flexibility in both time and destination. Moreover, the travel time between any pair of cities along the line by auto is not burdensome. From the beginning, private investors have viewed CHSR as too risky and the initial segment is not likely to ease those concerns. Lacking obvious financing CHSR has revised their plans by extending the time-to-build, and creating a blended rather than dedicated high-speed rail system.

**California’s Other 21st Century Transportation Problem**

The second major transportation problem in California is in the air. California styles itself as the Gateway to the Pacific due to its advantageous location on the Pacific Rim, its dynamic tech industry, and its ethnic connections to all of the other Pacific Rim Countries. This has certainly been true over the past 20 years as trade and travel between the growing Pacific Rim countries and California has exploded.

But such an advantage could be lost. California has two *bona fide* international airports, LAX and SFO. LAX, is by far the most likely portal, but in spite of a multi-billion dollar building program is far from a 21st Century airport. It is not going to be superior to Dallas(DFW), or Denver(DIA) after the renovations are complete. DIA has ample room to expand to six additional runways, is building a multifunctional terminal with direct commuter rail to downtown and DFW is building its 8th runway and putting DART commuter light rail directly into the airport. LAX cannot move one runway 300’ to increase safety and landing capacity for large aircraft. Moreover, to use public transportation to get into town weary travelers will transfer onto a people mover to connect with an off airport MTA rail station.

California should be as concerned with Denver and Dallas attempting to capture international business travel and the concomitant economic development as it is about the diversion of sea transport through the Panama Canal. But when it comes to airport capacity and quality enhancements, California does not seem to have a “Panama Canal” fright. The modernization of LAX, important as it is, is insufficient for the next 50 years. Getting to and from the airport, making connections, moving

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through security, customs, and immigration are all issues for the traveling public today and will remain so. To modernize LAX into a 21st Century Airport is possible, but every proposal thus far, from moving the North Runway, to a Central Check-In terminal have been rapidly shot down. Simply put, it is not going to happen.

There is no energy elsewhere for an international airport to serve California in the 21st Century. The State seems willing to let international travelers go to other parts of the U.S. and then, if they need to be in California as part of their trip, make connections from one of the inland hubs. SFO is basically capacity constrained, has frequent weather related delays, and has no plans for expansion. Regional airports around the state with decent transportation to the principal destinations of travelers and the ability and will to expand do not exist. The best option would have been for El Toro to replace John Wayne Airport in Orange County, but the voters preferred the Grand Park instead15.

Making CHSR a Game Changer

Here is where thinking bolder and more ambitious come in. There is one airport in the State strategically located with the physical capability of being a world-class 21st Century international airport, with community support, and which would be a game changer for CHSR. I will argue in the rest of this essay, that Palmdale Airport combined with CHSR’s current plan, with a few modifications, will do what the aforementioned major infrastructure projects of past centuries did; significantly lower the cost of moving goods and services such that it induces economic development and propels the California economy forward for the balance of the Century.

First, let’s look at logistics. The current map of CHSR lines runs close to the Palmdale Airport. Since not a spade of desert sand has been turned, there is no reason why it could not run right into the terminal of the new California Palmdale International Gateway (CPIG). Were it to do so, then passengers from Asia and Europe arriving in California could go directly onto the train (as in Hong Kong(HKIA), Kuala Lumpur(KLIA), Seoul(IIA) and Beijing(BCIA))16. According to the CHSR website, southbound passengers will arrive at Union Station in approximately one hour. Passengers arriving at the competing LAX would need to secure a taxi and should expect at least one hour transit to downtown. But the difference would be the convenience, the improved airport experience and the additional amenities of the train. Moreover, as with HKIA, KLIA, and BCIA,

15 Indeed one of the arguments made in favor of CHSR is “Air flights between the Los Angeles and San Francisco Metropolitan Areas—the busiest short-haul market in the U.S.—are the most delayed in the Country...” California High-Speed Rail Program Revised 2012 Business Plan, April 2012. http://www.hsr.ca.gov/docs/about/business_plans/BPlan_2012ExecSum.pdf
16 KLIA links to klia ekspres a high speed rail system while BCIA uses a light rail system which is now operating at capacity.
passengers coming into CPIG could have tickets that combine air and rail or remote check in facilities at CHSR terminals.

For northbound passengers transit to the Trans-Bay Terminal in San Francisco would be no more than 1 hour 40 minutes and to San Jose the transit time would be less\(^\text{17}\). Compared to the potential weather delays at SFO, and the experience, or lack thereof, of a tired international traveler getting through SFO and onto their final destination on BART, CPIG/CHSR is highly competitive.

Furthermore, and this is important, travelers into California can use Palmdale as a base of operations with a train ride to LA, then on to San Jose and back to CPIG for their outbound flight. Though the managers of other airports will not like it, CPIG will take traffic away from LAX and SFO and from DFW, ORD, and DIA. So, this additional capacity is not just moving traffic around the state, it is lowering costs and moving business into the state.

Crucial to the proposal is for CHSR Authority to set up a business park and aircraft maintenance facility in the land surrounding the airport. Between the free cash flow of a successful airport and the profit from leasing additional land to businesses wishing to locate near a hub airport, CPIG can generate revenues that by itself could cover any shortfalls in the CHSR system were they to occur. Such synergies lower the risk to investors and will make CHSR much more attractive to the private sector.

But, it won’t need to use the free cash thrown off by the airport and business park because the arrivals at CPIG will generate additional traffic on the CHSR system. Arriving in Palmdale and renting a car to go to Los Angeles or the Bay Area defeats the purpose of using CPIG. Simply the convenience of CHSR at Palmdale moves airline passengers into high-speed rail passengers. KLJA, a much smaller airport than CPIG would be, generates 4 million passengers on Kliaekspress each year\(^\text{18}\).

In 2012 the volume of international travel at LAX and SFO was 26.5 million travelers\(^\text{19}\). If CPIG were to garner only 20% of these passengers that would amount to 5 million additional riders per year. This does not count the growth in demand due to population and economic growth between now and 2025 nor does it include domestic air travel. The CHSR Authority Business Plan as revised 2012 estimates ridership to be 5.8 million on the low side and 10.5 million on the high side. The addition of traffic from Palmdale means that the Business Plan estimates can be very wrong, much more so than the critics assert, and the Plan still pencils out. Once again, a reduction in the risk associated with the business plan forecasts is an important element in attracting the requisite private investment to complete the project.

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\(^{17}\) [www.hsr.ca.gov](http://www.hsr.ca.gov)

\(^{18}\) [www.kliaekspress.com](http://www.kliaekspress.com)

Building a world-class 21st Century Airport is expensive and this would add to the estimated $68B CHSR capital expenditure. As it turns out, it would not add significant cost and the cost-benefit ratio would easily be less than one. Recent new airports in Kuala Lumpur, Beijing, Seoul and Denver have had cost in the range of $5B to $10B\textsuperscript{20}. Since land is inexpensive in Palmdale, these estimates are probably in the ballpark. Suppose the entire project came in at $12B. This would represent only 15% of the capital cost of the combined system and would generate 38% of the revenue traffic using the estimates above.

Aside from the synergistic benefits of combining a new world-class airport with a new world-class high-speed rail system, there are additional economic growth-inducing benefits. International business executives coming to California to visit their design or R&D centers would have easy access to the cities of the San Joaquin Valley. This reduces both the time and cost of incorporating business travel to and from a factory in Visalia or Fresno or other Central Valley cities into other business travel. And here is another game changer. Locating multiple sites for a company in California and taking advantage of the differential cost and workforce skills between coastal and inland cities now may make economic sense. This is precisely the kind of significant reduction in cost attributed to the Interstate Highway System, The Trunk Freight Rail System and other bold transportation investments.

**Looking to the future**

Finally, the new high-speed rail system and the airport proposed here have to be forward-looking. The current century will see changes more rapid and incredible than ever before. One of those will be space travel. The current race for commercial space travel playing out in California and elsewhere will result in a new age of transportation. California's Mojave Spaceport is one of the competitors\textsuperscript{21}. As space travel becomes increasingly in demand, the most convenient, most strategically located, and most connected to the world will be the winner. California is competing with New Mexico, Florida and elsewhere to be the launch pad. The final competitive advantage for California could well be the ease with which customers from all over the world can get to the Mojave Spaceport. The proposed CHSR line from Bakersfield to Palmdale runs close to the Mojave Spaceport. With a little engineering it could run right into the terminal. This could trump what is planned elsewhere in the world and if so, would once again push California into the leader spot as we move into the future.

\textsuperscript{20} DIA costs $4.8B in 1995, KLIA $3.5B in 1998, BCIA $5B in 2004, and HKIA and IIC which involved creating an artificial islands at $20B in 1998 and $5B in 2001 respectively.

California High Speed Rail is in trouble. Another ballot on it and the body politic may well vote its demise. Solving the problem of finding private sector investors is critical and yet, the business plan has not generated any significant enthusiasm absent unlikely government guarantees. Wait-and-see is not a good strategy for a system that is only funded for an initial segment from Fresno to Bakersfield. What will be seen by investors will be a losing proposition and not a place to bet on the future. California’s position as the gateway to the Pacific Rim is also in jeopardy. Inland airports with space to expand and a desire to attract international business are moving forward to challenge California’s international airports. But with a limited ability to expand at California’s existing airports, the responses to this competition are likely less than required to stave off the challenge. In this essay I have proposed not going smaller to meet the critics of CHSR, but going bigger. Solve both problems at once, attract private sector investors, build CHSR more rapidly than in the current plan and change the game for the rest of the Century. A modern high-speed rail system linking the State’s population centers, a world class 21st Century Airport and even the world’s gateway to space are the bold visions that are the stuff of the California Dream.