

**REVISITING ISSUES IN
THE OCTOBER 2010 REPORT**

**THE FINANCIAL RISKS OF
CALIFORNIA'S PROPOSED
HIGH-SPEED RAIL PROJECT**

**A Project Consuming \$700,000 Each Working Day
In The Confident Hope Of A Miracle¹**

September 14th 2011

Here is the quotation from the October 2010 Financial Risks Report's cover, with new portions modified by bold typeface.

*"We do not oppose high-speed rail in concept. It seems to work in parts of Europe and Japan and possibly elsewhere; **albeit with deep construction and continuous operating subsidies, illegal under AB3034.** The 2008 Prop1A promise that captured many voters was that the California High-Speed Rail (CHSR) would not cost the taxpayer a penny **more than the \$9Billion approved by Proposition 1A.** After months of work on this report, **six other reports, a complete financial analysis and twenty Notes,** we are forced to conclude that the Authority's promise seems **is** an impossible goal."*

We are grateful to the Community Coalition on High Speed Rail for providing a virtual 'home' for this report and all of our work since late 2010. For downloadable copies of this all the material, visit their website <http://www.cc-hsr.org/>

This compilation includes:

Major Reports:

October 2010 – The Financial Risks of California’s Proposed High Speed Rail Project
October 2010 – plus an Executive Summary
June 2011 – A Financial Analysis Of The Proposed California High-Speed Rail Project
June 2011 – plus an Executive Summary

Briefing Papers:

October 2010 – Dubious Ridership Forecasts
January 2011 – Six Myths Surrounding California’s High-Speed Rail Project
January 2011 – Seven Deadly Facts For California’s High-Speed Rail Authority
February 2011 – A Train To Nowhere But Bankruptcy
March 2011 – Big Trouble For California’s \$66Billion Train
April 2011 – Will The Train Benefit California’s Middle Class

Brief Notes:

Twenty-three one page, single subject papers on various aspects of financial issues related to the proposed high-speed rail system

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We would like to thank both Michael Brownrigg and Alan Bushell whose substantive and editorial comments sharpened our focus and added to our perspectives in this and prior publications.

Summary

The authors' analyses of financial aspects of the proposed California High-Speed Rail project (CHSR) found that without Federal grants to pay nearly all the construction costs, there is no chance of meeting the financial requirements of AB3034 and meet the subsequent promises made to Prop1A voters in 2008.

Among the analyses, there are numerous 'disconnects' between the CHSRA's working assumptions and reality. Some of the more salient are:

	CHSRA's 2009 Financial Plan Assumed	Reality Of Mid-September 2011	Addressed In Section Number
Costs of Building The CHSR System			
Phase One (LA/Anaheim-SF)			
Estimated Annual Ridership (Yr. 2030)	39Million	5-18Million	2.1 & 2.3
Phase One Construction Cost	\$43Billion	≥\$66Billion	1.4
Federal Contribution	\$17-19Billion	\$3.33Billion	4.2.1
Local Gov't Contribution	\$4-5Billion	\$0	1.2
State Of California Matching Bonds	\$9Billion	\$2.77Billion	Figure H
Private Sector Investment	\$10-12Billion	\$0	4.2
Private Sector Requirement to Participate	revenue guarantees	revenue guarantees	1.2
Total Gov't Funding (% of Phase One)	73%	≤10%	Figure I
Gov't Funding Now In Hand (% of Phase One)	73%	<10%	Figure I
Construction Jobs To Be Generated	60,000FTE	8-13,000FTE	3.3.1
Permanent Jobs To Be Generated	450,000	None to 16-40,000	3.3.2
'Entire System' (6 Cities) Construction Cost	\$45Billion	≥\$116Billion	1.5 & 1.6
Paying Off Phase One Construction Debt			
What Revenues Service Construction Debt	Ridership Revenues	Ridership Revenues	2.5
Need for (Illegal) Subsidies	No	Yes	4.1.3
One-way LA-SF competitively-priced ticket	\$105	\$82	2.6.2
One-way LA-SF Ticket will cover OpEx	\$105	≥\$184	2.6.1
Ticket Price per Mile (430Miles)	\$0.24	\$0.43 Europe & Japan	2.6.1
Operating Costs/Mile	\$0.11	≥\$0.43	2.6.1
Average Annual Cash Flow (Phase One)	\$2.4Billion	(\$2.2-\$4.6Billion)	Figure I
30-Year Impact On State of California's Fiscal Condition of Phase One			
Phase One Construction Costs	\$43Billion	\$66Billion	Figure I
Annual Debt Servicing	Not Addressed	\$4.6Billion	Figure I
Cumulative Cash Flow (2020-2050)	+\$72Billion	(\$65-\$137Billion)	Figure J
Increased Debt Burden On State	Not Addressed	28% - 50%	Figure K
Impact On State's Finances-Entire System Built @ \$116B - and No Operating Margin			
Adding CHSR to Annual Debt Servicing Increases State's Debt Servicing	Not addressed	From \$15.3 to \$23.3Billion	Figure K
CHSR Increases Debt Burden On State (w/5.3% growth of General Fund Revenues through 2030)	Not addressed	From 6.6% to 10.0%	Figure K
CHSR Increases Debt Burden On State (w/3.0% growth of General Fund Revenues through 2030)	Not addressed	From 10.3% to 15.7%	Figure K

On the key issues of ridership, construction costs and profitability; these are irreconcilable differences. At times the Authority's assertions have a 'through the looking glass' quality to them. The CHSRA must know their ridership estimates are too high to be believed, and that it's hubris to say "the users of the system pay for the system." It's also blind to ignore that private capital will only come with a 'revenue guarantee' (subsidy), and that around the world high-speed rail systems are built by their national governments, which also generally subsidize operations.

Enthusiasts and corporate beneficiaries will argue the State and Federal Governments should pay the construction costs because the train will bring social benefits. This report does not address the benefits or costs of air quality, congestion, foreign exchange, etc. Those were not the performance metrics of AB3034 and to include them requires another law and another approach to the people of California.

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Preface

Much has changed in the year since 'The Financial Risks of California's Proposed High-Speed Rail Project' was posted on <http://www.cc-hsr.org/>. That document raised questions both about the CHSRA's conclusions, and has been recognized in the financial and general press as a demonstration of the paucity and poor quality of credible financial information provided by the California High Speed Rail Authority's (CHSRA) on the largest-ever proposed project in California.

As well as new issues that have emerged since, this report revisits some of the same, yet unresolved issues about the finances of this megaproject. Among those which provide the context of the present report are:

1. The CHSRA has clung to its unrealistic ridership forecasts. We believe they do so because their financial plan is 'geared' to ridership. That is, both the CHSRA financial plan's operating revenues and expenses are fixed in direct proportion to the number of riders. Fewer riders make their plan require subsidies, or its equal, 'revenue guarantees.'
2. Simultaneously, the Authority's methods both for deriving Operating Costs and Revenues, as well as the actual inputs to their financial model (which shows an operating surplus of cash from the first operating year) are simply unrealistic.
3. Legislative and high-speed rail proponents in the general public still claim high-speed rail systems worldwide are profitable. They aren't. Any semblance of extra cash from operations in Europe or Asia is a mirage of creative public finance accounting. If those systems had to carry their capital costs rather than receiving them as a gift of their nations' treasuries, they would run even deeper in the red.
4. Estimated Phase One (LA-SF) construction costs have increased from \$33Billion in 2008, to \$43Billion in 2009 to \$66Billion or more in early 2011. This completely changes the sources and equations of debt and debt servicing costs from a 2009 estimate of State bonds and private sector monies of about \$19-20Billion to as much as \$54Billion. The estimated cost to build the 'Entire System' is now roughly \$116Billion, nearly three times the costs in 2008's ballot description.
5. The CHSRA continues to spend State General Funds, Prop1A bond and Federal grant monies in the hope that this will stimulate true private participation. It hasn't and won't without revenue guarantees (aka. subsidies). The CHSRA Board has known this from five months before the November 2008 vote on Prop1A when their own consultants, IMG, reported the results of an Authority-commissioned survey.

6. Some within the Authority and Legislature still believe the Federal government will provide the project \$17-19Billion of 'free money' grants, and California's cash-strapped cities and counties would provide another \$4-5Billion. Three years after Proposition 1A, the State has in been awarded \$3.3Billion (not all of which is obligated) in Federal grants for construction and \$0.4Billion for the SF Transbay Terminal. Matching that is the possibility of about \$2.7Billion of Prop1A bonds. Few if any more grants are likely to come from the US Government, as it has a debt crisis of its own. Likewise, it is inconceivable at this time that local governments (many of whom are laying off teachers and public safety personnel) would grant the project 'free' monies.
7. The myth persists that private sector money, either 'at risk' or through Public Private Partnerships (PPPs), will appear after the State and Federal governments build an initial 'proof of concept'. More than twenty years after the State began to invest in the concept, no private money has appeared. Neither the worldwide history of high-speed rail, nor the Authority's financial plans to date have proven there is sufficient profit in the project to overcome the all-too-obvious financial risks. Ask a simple question: "If high-speed rail is so profitable, why did private companies leave the rail business forty years ago and why haven't private investors clamored for the opportunity to build California's system at their risk."
8. The Authority's claims of construction and permanent job creation are grossly inflated and should have been dismissed. However rail proponents and potential beneficiaries have used the good offices of California's engineering and construction unions egregiously. To falsely promise so many jobs to so many workers suffering from the Great Recession was exploiting their misfortune.
9. The statutorily required Peer Review Group, while criticizing the Authority's management of the project, continues to hint – if not advocate – that the project's construction costs should be borne by the State and its taxpayers. That is the way high-speed rail megaprojects are built in Europe and Asia. But California's high-speed rail project's enabling legislation, AB3034 (Galgiani), explicitly eliminates that option. In November 2008 Prop1A California's taxpayers only authorized \$9Billion in General Obligation (GO) Bonds to invest in construction.
10. Construction costs rise relentlessly. In August 2011 the Authority announced that the roughly 180 miles of Central Valley construction could cost \$10-14Billion, 50-100% higher than the 2009 estimates. Those analyses were based on what is referred to as 15% engineering studies completion, and the Authority's data again had not factored in Year of Expenditure (YOE) accounting as required by the Federal Railroad Administration.² This makes the likelihood of further cost increases inevitable.

The 2011 construction cost estimates included herein were made by several individuals and groups during this year. In all cases, the baseline forecasts of sources of funds, as well as the estimates of ridership, construction and operating costs was the CHSRA's 2009 Business Plan. The analyses herein were completed using the 2009 Business Plan as the base case (the 100% Case). Each analysis starts with the 2009 base case (the 100% case). The analyses then varied future events, such as ridership volumes, ticket prices and construction costs to gain an understanding of the range of the future financial results that may occur. This is documented in the Endnotes of this report, and in all cases, these documents can be found at the referenced, online sources.

By definition, the scope of this report is limited. We do not address the 'social costs or benefits' of the proposed project. Indeed, this high-speed rail project may make the engineering, construction, materials, electrification and rolling stock suppliers wealthy. It also might cut our nation's dependence on imported oil, clean the air, and relatively decrease traffic congestion – although the forty-five year presence of Shinkansen in Japan and the thirty year presence of France's TGV seems to have produced few if any of those social benefits.³

But ultimately the project must stand or fall on the basis of accounting principles set forth in Section 2704 08(J) of AB3034 that says the project cannot receive an operating subsidy. Equally important, the Legislature requested, and the voters approved, only \$9Billion to invest in the system's construction. Changing that requires both authorizing a new law and gaining another approval of the voters.

As now must be clear, this report's co-authors have come to realize the failings of the CHSRA's financial analysis and the subsequent shortfall of credible financial conclusions. Here is the cover quotation from the October 2010 Financial Risks report, with new portions modified by bold typeface.

*"We do not oppose high-speed rail in concept. It seems to work in parts of Europe and Japan and possibly elsewhere; **albeit with deep construction and continuous operating subsidies, illegal under AB3034.** The 2008 Prop1A promise that captured many voters was that the California High-Speed Rail (CHSR) would not cost the taxpayer a penny **more than the \$9Billion approved by Proposition 1A.** After months of work on this report, **six other reports, a complete financial analysis and twenty plus Notes,** we are forced to conclude that the Authority's promise seems **is** an impossible goal."*

Shortly before Spain's ill-fated 1588 Armada sailed, a Papal Ambassador told King Felipe II that his plan to invade England must be based on "**the confident hope of a miracle.**" The Ambassador knew the English were not

only better sailors with purpose-designed warships that sailed faster and closer to the wind, but had developed radically new sea-based warfare tactics and weaponry. Felipe ignored the facts.⁴

The Authority's financial plans, even at these early stages of engineering studies, continually veer from the optimistic to the aspirational. To proceed with this proposed project is not only to continue to waste even more than the >\$500Million spent by July 2011; but is to invite a financial tragedy. In this fiscal year (2011-12) the State must be spending over \$700,000 on this project each working day **in the confident hope of a miracle.**

Chapter One

Financing The Construction Of California's Largest-Ever Project

1.0 Overview – As early as September 2008, IMG and Goldman Sachs told the CHSRA Board *"Authority must secure long-term federal source"*⁵ In January 2011, the CHSRA's Ridership Peer Review Panel linked the likelihood of private capital to strong Federal funding; *"Private investment will materialize ...only when our federal government has shown the same level of commitment that the voters of California have"*⁶ On May 2nd 2011 the Independent Peer Review Group said the Authority *"... will soon need assurance of more federal funding."* and *"... private sector funding will be difficult to secure unless the public sector funding is available and reliable.."* On May 11th, the Authority's CEO said that without a Federal commitment, the project would not attract private investors.⁷ And on June 28th, Treasurer Lockyer said: *"I think the federal funding is too speculative,"* and *"I think the likelihood of significant private capital is questionable"* as well as *"Is it prudent to cancel another worthwhile project and sell bonds for rail, given the project's unsettled finances?"*⁸

Thirty-four months after Prop1A, only \$3.3Billion of Federal grants is probably available which could be matched with up to \$2.6Billion California's GO bonds.⁹ Given that the project's designers assumed \$17-\$19Billion of 'free' Federal grants to 'jump start' Phase One of the project, what is the potential for further Federal funds?¹⁰

1.1 Blanket Approval For Six Fiscal Years of Federal Capital Spending On High-Speed Rail Is All But Dead – While the DOT still has some yet un-obligated high-speed rail (HSR) grant funds from the FY2009 ARRA program, this March the President agreed to 'zero out' new HSR funds for the present fiscal year (ending September 30th 2011). Two months later, in addition to giving the project the 'Boondoggle Of The Year' award, the House Budget Committee has vowed to eliminate funding in FY 2012.

Then on May 4th, the Office of the President (OMB) submitted the 'Transportation Opportunities Act' requesting \$37.6Billion over the next six years to build new high-performance rail.¹¹ This is part of President Obama's \$53Billion vision to connect eighty percent of Americans by high-performance rail. Unfortunately for that vision, the submission is in a budget category commonly called Pay-Go. This means the Administration is required to either show where new revenues come from to provide the \$37.6Billion, or where they intend to cut existing programs' spending to fund the vision. No such documentation accompanied the \$37.6Billion request.

1.1.1 The Events And Probable Consequences of September 8th 2011 – Two events occurred on September 8th 2011 with clearly contradicting outcomes for high-speed rail nationally and in California. The President proposed a National Infrastructure Bank (NIB); *"... capitalized with \$10 billion, in order to leverage private and public capital and to invest in a broad range of infrastructure projects, in order to leverage private and public capital."*¹² The Administration's idea might be a

lending bank, an insurance issuer, a grant program or perhaps it will evolve into an infrastructure jobs-related loan program.

While short on details about how the NIB's \$10Billion would be used to leverage private and public capital, the idea of such a federal-level bank is not new. But it appears there is not much support for a NIB in either the House or Senate.¹³ In July, the House Transportation and Infrastructure Committee Chairman denounced it.¹⁴ Also on the same day as the President's announcement, both the House Subcommittee on Rail and the House Appropriations Committee 'zeroed out' all funding for high-speed rail grants, i.e. 'free' money, for the Fiscal Year ending on September 20th 2012.¹⁵

Opposition may be due in part to the fact that the Department of Transportation (DOT) already has two programs to lend to passenger rail programs; one under Railroad Rehabilitation and Improvement Financing Program (RRIF), the other under the Transportation Infrastructure Finance and Innovation Act (TIFIA).¹⁶ These could be funding sources for the CHSRA's project and are documented in their 2009 Business Plan. But as CHSRA noted; "*It is important to note that these sources are loans and will need to be repaid*".¹⁷ Why create another national fund to finance passenger rail?

What will come of the NIB's specific support for the California train is not clear. It is unlikely NIB will be structured as grantor or insurer. That is largely because there is a general criticism of ARRA grants, and specifically ARRA high-speed rail program grants' unimpressive record to create 'shovel-ready' employment. There is also the growing Federal deficit. Handing out more 'free money' without quick and broad political returns is not very popular. California has received consistently less ARRA money each time the grants were dispersed. Also the consequences of a federally protected insurance agency's are vivid. Fannie MAE and Freddie MAC's records in underwriting activities have been disastrous and embarrassing – a memory fresh in the minds of Washington's politicians and the nation's lenders.

The prospects for saving California's project look even worse if the NIB becomes a *de facto* lender. Follow the numbers. Even if the entire \$10Billion of NIB's general 'matching rules' were on a two private dollars-to-one public dollar basis, California cannot be assured of receiving the entire sum. But in the highly unlikely event that CHSRA's project did receive all \$30Billion of our example, this NIB loan would still provide less than half the \$66Billion or more (shown in Section 1.4) needed to build the Phase One. Even adding that to the \$9Billion of Prop 1A funds and \$3Billion of existing federal grants, California would just have \$42Billion available – about two thirds the minimum cost of the Phase One Corridor. Additionally, the large debt servicing required by such a loan might preclude private equity investments, as private investors will see little chance for a gain on their investments (or even a return of the principal) when the operating margins are unlikely to be sufficient to meet the debt obligations.

Finally, private companies are not likely to embrace the idea of borrowing from a Federal bank (NIB, RRIF, TIFA or another) for a project whose returns do not assure profits; or for which the State of California's AB3034 cannot guarantee their returns on investment. Since private companies know both that passenger railroading was abandoned by private companies forty years ago because it wasn't profitable (Section 2.8), and globally high-speed rail systems require subsidies (Section 2.4), they have little incentive to risk their capital on such projects.

While the Federal administration may pursue the idea of high-speed rail in America, and California's Governor retains his enthusiasm for the concept, the likelihood of substantially more 'free money' for California seems to diminish daily. Even if the NIB or the existing TIFIA and RRIF programs provide loans to pursue building a high-speed rail operating segment, the State government will have to borrow heavily. California faces the extremely high probability that the debt service for all these loans cannot be provided by the projected operating margins of the HSR program. That requires a commitment to take on significant public debt, to be paid in large part by additional taxes, in the face of the reality of devaluating education, public safety, other transportation initiatives, research and development and other public investments that will provide leverage for the state's economic growth. In the face of historic evidence of continuing construction cost rises, and unproven and most likely lower-than-forecast ridership and operating margins, that would be a very risky commitment.

1.2 Private 'At Risk' Capital Or Public Private Partnerships (PPPs) Are Unlikely To Fill The Gap – The California high-speed rail project seems to be unique in its approach to financing as it is structured for private capital infusions to build it and private operators to run it. At present the only money to build the Central Valley 'spine' are Federal grants and possibly matching State General Obligation (GO) bonds. For Phase One, three layers of government were supposed to put in only a portion of the capital investment in the form of Federal grants, matching State bond authorization and local government grants to build the project.¹⁸ The hope was that this capital would attract 'at risk' investment or Public Private Partnerships (PPPs). But to date there are no local government grants, no private capital invested, nor serious prospects of either source of funds.

The Authority's Board has known since June 2008 that private sector capital is not interested in 'at risk' investments to build California's high-speed rail project. Investors want a subsidy, even if called a revenue guarantee. Five months before the 2008 Prop1A vote, the CHSRA's own financial consultants, the Infrastructure Management Group (IMG), told the Board that all the operators and equipment manufacturers, and nine out of ten builders, responding to their Requests for Expressions of Interest (RFEI) were reluctant to invest unless a large portion of the capital costs were from governments:¹⁹

"Nearly all RFEI respondents noted that they would be unlikely to commit the resources necessary to participate in a procurement of this magnitude until after strong financial backing for the Project was provided by the public sector."

IMG and Goldman Sachs repeated this message to the CHSRA Board fifteen months later.²⁰ In 2009, with the euphoria of ARRA grants likely, Public Private Partnerships (PPPs) might have been formed to 'lock in' a specific vendor's technology. But the subsequent rejection of ARRA grants by Ohio, Wisconsin and Florida makes losing money to possibly gain THE foothold a very risky business practice. IMG and Goldman Sachs may have spoken more truth than they knew during the September 2009 presentation when they said; *"Due to uncertain demand, this will likely require a **revenue guarantee.**"*²¹ and stressed that *"The Authority's major funding focus should be on **federal grant funding, revenue guarantees** and maximizing tools like **vendor finance.**"*

In mid-2011 the CHSRA hosted a conference in Los Angeles for vendors interested in the project. Although reputedly attended by over a thousand participants, a "survey was not conducted at the April 2011 Industry Forum nor as part of the March 2011 request for expressions of interest. . . Those responses, if submitted, were informal and not a binding part of the procurement process."²² No data on whether private sector interest to invest in the construction or operations of the project seems to have been collected and analyzed as was done in 2008.

A revenue guarantee atop General Obligation bond financing is a recipe for financial disaster. If the promoters had believed in the train's profitability, they could have opted for revenue bond financing. But that would have required investment grade plans and due diligence by potential bond buyers. It is doubtful the Authority's plans could have withstood the scrutiny.

1.3 A Brief Reminder That Construction Costs Are Always Higher Than Projected – A 2003 study of more than 200 large-scale transport projects showed the average cost overrun to be 45%.²³ Some examples:

The Channel tunnel was 80% over original estimates and bankrupted the private companies that were to be its operators.²⁴

Germany's Inter-City Express (ICE) between Cologne and Frankfurt construction costs were 85% higher while the costs to build the Nuremberg-Munich link of ICE were 42% higher.²⁵

Boston's Big Dig, managed by the same Parsons Brinckerhoff presently employed by the CHSRA, cost more than three times its original estimate.

A DOT study concluded the median of total cost overruns for ten rail projects was 61%.²⁶

The yet-unfinished Oakland Bay Bridge is now more than five times its original estimate.

With engineering studies for the Initial Operating Sector (IOS) at only a fifteen percent level, cost increases are nearly assured. But empirical data and practicality often seems lost in unbridled optimism about megaprojects.

History should teach that there is little reason to have confidence in any upper boundary of cost estimates in megaprojects, even when closer to the construction start date. Builders and vendors will not bid on fixed-price contractors because there are too many 'unknown-unknowns.' But they and the optimistic promoters know that once a megaproject is underway, somehow funds must be found to continue. The Bay Bridge is the seminal example of the cycle of cost overrun at each stage being met with more public funds, which don't suffice, re-igniting the cycle to continue. It seems highly risky to open the State's Treasury to a high-speed rail project that today is ten times the Bay Bridge's cost, and which could easily double again in the next three years.

1.4 Neither The Central Valley Nor Phase One Is An Exception To The 'Underestimation of Costs' Rule – As late as mid-2011 the CHSRA clung to cost of Phase One being \$43Billion. However in August 2011, with the release of two Environmental Impact Reports (EIRs) for the Central Valley which covered roughly

200 miles in the two EIR documented segments on flat largely cultivated terrain, CEO Van Ark admitted; "We've had cost increases, but I believe the costs are now realistic and fair."²⁷

In early 2011, two analysts using CHSRA data, arrived at essentially equal conclusions concerning Phase One's capital costs. Figure A compares assertions of the Authority with analyses from Californians Advocating Responsible Rail Design (CARRD) and William Warren, a co-author of *The Financial Risks Of California's Proposed High Speed Rail Project*.²⁸ Their

	2009 CHSRA Business Plan ³⁰			CARRD Findings (From CHSRA data) ³¹			Warren Analysis (From CHSRA data)		
	Track Miles	Cost Per Mile (Ms)	Total Capital Costs (Ms)	Track Miles	Cost Per Mile (Ms)	Total Capital Costs (Ms)	Track Miles	Cost Per Mile (Ms)	Total Capital Costs (Ms)
San Francisco – San Jose	50	\$123	\$6,142	50	\$175	\$8,750	50	\$198	\$9,895
San Jose – Merced	124	\$56	\$6,943	124	\$115	\$14,272	124	\$90	\$11,185
Merced – Fresno	65	\$47	\$3,008	65	\$70	\$4,522	65	\$75	\$4,846
Fresno – Bakersfield	131	\$39	\$5,094	131	\$85	\$11,135	131	\$63	\$8,206
Bakersfield – Palmdale	76	\$66	\$4,998	76	\$120	\$9,060	76	\$107	\$8,052
Palmdale – Los Angeles	60	\$127	\$7,645	60	\$160	\$9,600	60	\$205	\$12,316
Los Angeles - Anaheim	30	\$182	\$5,454	30	\$160	\$4,800	30	\$293	\$8,786
Phase One Totals		Total – \$42,594			Total – \$65,449			Total – \$66,595	

estimates a were double the 2008 construction costs and a one-year increase of about sixty percent.²⁹

In May 2011 a Legislative Analyst's Office (LAO) report concluded as did two independent analysts: "If the cost of building the entire

Phase 1 system were to grow as much as the revised HSRA estimate for the 100-mile segment discussed above, construction would cost about \$67 billion."³²

1.4.1 CHSRA's new construction cost data for the Central Valley suggest a redefinition of the 'Train To Nowhere' – The original Central Valley 'The Train To Nowhere' title, given in November 2010 by Congressman Dennis Cardoza (D-CA) is a misnomer.³³ There was no rolling stock, electrification, or new signaling or systems in the December 2010 CHSRA budget for that first construction portion between Borden and Corcoran.

(YOE = Year of Expenditure)	CHSRA 2008 Plan	CHSRA 2009 Plan (YOE \$s)	CARRD January 2011 (YOE \$s)	Warren January 2011 (YOE \$s)	CHSRA 2011 EIR (YOE \$s)	Cost Increase Over 2008 Plan	Cost Increase Over 2009 Plan
Estimated Construction Costs	\$6.9B	\$8.1B	\$15.6B	\$13B	\$11-16B	46-105%	39-95%
Miles To Build	175	196	196	196	201		
Costs per mile	\$39M	\$41M	\$79M	\$66M	\$57-\$80M		

In the August 2011 Draft Environmental Impact Report filings, the Authority said the construction and other infrastructure costs for the Central Valley portions had

increased to \$10-\$14Billion, up to twice the costs of three years before.³⁴ Once these estimates are adjusted to Year of Expenditure (YOE) dollars, they are in the range of \$11.50 to \$16Billion. Those CHSRA per mile costs, shown in Figure B, are now in the same range and 'bracketed' by the analyses of CARRD and William Warren from in early 2011 – an average of \$73Million per mile.³⁵

How far can the tracks go if they are built just to carry Amtrak traffic? Reducing the new estimates by 15-17% to remove the costs for electrification, control systems, associated overhead, etc. (costs not directly related to land acquisition, construction labor and materials) makes the CHSRA's cost \$48-\$67Million per mile.

Assuming the Authority receives even the currently unobligated Federal grants, CHSRA will have about \$5.9Billion of Federal and State monies to spend on track-related issues only. That will allow about 88-122 miles of track to be laid. There are about 65 miles from Merced to Fresno, and about 131 miles from Fresno to Bakersfield. If the Authority starts construction in Bakersfield and heads northward, the builders will probably run out of money before arriving at Fresno. If they start in Merced and go southward, they will probably run out of money 30-50 miles south of Fresno on their way to Bakersfield. Since they will be unable to connect the largest two cities in the Central Valley, the Authority is in the process of planning a more costly version of The Train To Nowhere.³⁶

1.4.2 If the average of the CHSRA's Central Valley construction cost increases is correct, it supports the analyses of Phase One by CARRD and William Warren – Both analyses used financial data sets they obtained from the public record in the first months of 2011. Using the track mileage figures, also from public records, they made their conclusions about Phase One. Both believe their estimates to be conservative, meaning on the low side, because of the lower eminent domain costs, the absence of tunneling in the Valley, and because in later construction, they will need to work in existing urban rail corridors.³⁷

1.5 What Was Meant By The 'Entire System' – Even voters who read the ballot descriptions could have been confused by what was meant by the 'Entire System'? One Official Ballot description's authors took the 'entire system' to mean destinations of ". . . the major metropolitan areas of San Francisco, Sacramento, through the Central Valley, into Los Angeles, Orange County, the Inland Empire (San Bernardino and Riverside Counties), and San Diego."³⁸ In another Official Ballot description, voters were told that six of California's cities were to be linked by the project, somehow excluding Oakland although it is on system maps, described in official Proposition 1A materials, and listed in AB3034?³⁹

Promises about six served cities somehow morphed into a Phase One by the November 2008 Business Plan, linking only San Francisco and Los Angeles, but adding Anaheim, which was not mentioned on either Prop 1 or Prop 1A ballot descriptions.⁴⁰ But neither the Legislature, the then-Governor, the then-Secretary of State, or then-Attorney General (both of whom certified the ballot's accuracy) caught those changes. Or if they did, none said anything publicly about the changes.⁴¹

If within fifteen months Phase One costs have increased at least by half, what are CHSRA's prospects for staying near their estimates when Central Valley construction supposedly begins in another twelve months? And what chance does the Authority have to be anywhere near what voters were told: "*The Authority estimated in 2006 that the total cost to develop and construct the **entire high-speed rail system would be about \$45 billion.***" (expressed in 2006 dollars).⁴²

1.6 What It Might Cost To Build The 'Entire System'? – One of the two official ballot descriptions promised: "After construction of the San Francisco to Los Angeles segment is fully funded, any remaining bond funds may then be used to plan and construct any of the following additional segments."⁴³ The other ballot description lists the costs for the 'entire system' (in 2006 dollars) at \$45Billion.⁴⁴

When the Authority finally submitted its two-months late business plan after the November 2008 election, the price for LA/Anaheim to San Francisco, was quoted as \$33Billion, three-fourths of what two years before had been the cost of building the 'entire system'.⁴⁵ A year later Phase One construction cost was nearly \$43Billion, roughly equal to the 'Entire System' estimate.⁴⁶ The present \$66 Billion Phase One estimate is half again as much as the 'Entire System' was to have cost in 2006.

'Entire System' (from one Ballot description and CHSRA's Business Plans)	Est. miles per segment	Capital costs per mile (\$Ms)	Cost in YOE (\$Bs)
LA/Anaheim to SF Transbay Terminal	535	\$124 (avg.)	\$66.6Bs
Additional cities to be served			
1.LA-Riverside	56	\$209	\$11.73
2.Riverside-SD	101	\$97	\$9.76
3.Anaheim-Irvine	10	\$290	\$2.90
4.SJ-Oakland	42	\$193	\$8.12
5.Oakland-Stockton	75	\$97	\$7.25
6.Merced Sacramento	117	\$81	\$9.42
Totals for additional cities	401	\$123 (avg.)	\$49.18
Build-Out Of Entire Promised CA High-Speed Rail System	936	\$124avg.	\$115.78

In late 2011, what are "the total costs to develop and construct the entire high-speed rail system" as promised 2008's Prop1A voters to be \$45B?⁴⁷ Figure C, while generous to the Authority since the new segment estimates exclude inflation that will occur before these segments would be built, are stunning.⁴⁸

One analyst, William Warren, found that, if the project proceeds to full term,

Californians aren't facing a \$45Billion construction bill. They face paying around \$116Billion to build the 'Entire System' promise. This is two and one-half times the \$45Billion in the Prop1A ballot description that voters approved in 2008.

1.7 Conclusions On Construction Costs And Funding – Nearly three years after Prop1A, and less than a year before construction is scheduled to start in the relatively-easy-to-build-in Central Valley, construction costs are already twice the 2008 estimate. And since the engineering estimates are only at the 15% level of confidence, and per mile costs have already risen over fifty percent since 2009, construction costs on any portion of the project are only likely to escalate further.

There is no reliable source of where over three-fourths of the construction funds for Phase One will come from since no 'at risk' private money has come or is likely to come to the project without a subsidy or its surrogate, a revenue guarantee. Section 2704.08 (J) of AB3034 forbids this type of government guarantee. Today the only visible source is State debt in the form of Revenue Bonds or General Obligation Bonds, which could be issued to fund the construction costs, with the debt being paid back over the next thirty years from revenues collected by the State and possibly by the train's operating margins.

No Public Private Partnership, private debt nor equity investment will remove the burden to pay much more for any portion the system's construction. Investors will not accept the risk of 'maybe recovering tens of billions of dollars.' It doesn't matter whether construction is funded with private debt, private equity, or State debt. The train's annual operating margins are inadequate to service repayment of State or private debt. Operating margins are also likely to be inadequate to provide a reasonable return on private equity.

Therefore the 'gap' between future operating margins and future repayment obligations ultimately can only be resolved one way. Californians' individual and corporate taxes must make up the 'gap'. While some officials may be tempted to raise taxes to pay off the train's construction debt, the legal consequences will be to negate the 2008 promise to the taxpayers of "no new taxes".

Today, there is only some government funding to build some track in the Central Valley. There is little chance of gaining a long-term commitment of new Federal monies for high-speed rail until at least the close of 2017; a year after even a possibly re-elected Obama Administration leaves office.

With the near certainty of a gap in desperately-needed Federal grants of at least eight times what Phase One of the project has been awarded so far, it seems prudent to cut the State's losses until there is a clear demonstration of both full financial resources for construction – as well as proof of the system's operating financial sustainability. With highly questionable prospects for Federal grants or private 'at risk' construction funds, but the certainty that costs will continue to increase, the logic for continuing the largest project in California's history is highly questionable.

CHAPTER TWO

Riders, Subsidies, Operating Margins and the Role of Private Operators – Underlying Parameters That Shape the Project’s Financial Sustainability

2.0 Overview - It’s important to remember that every variable in both the operating costs and revenue equation of the CHSRA’s 2009 financial plan is proportional to the number of riders. If ridership increases, so do revenues and expenses. Lower the forecasted ridership and this reverses both variables. The formula for financial success appears to be to keep the number of riders high enough to make the assumptions about revenues give positive operating results.

Without mentioning the possible inaccuracies of the approach and data used to construct the Authority’s 2009’s operating outcomes for 2020-2036, the underlying data on ridership, revenues and expenses has to be defensible if not incontestable. This chapter reviews those variables.

2.1 Ridership Forecasts: Changes Since Late 2010 – Reasonable ridership forecasts are crucial to financial credibility. This Achilles Heel to the project’s financial sustainability has not disappeared or declined in importance. Nor have the challenges to the Cambridge Systematics’ assertions in CHSRA’s 2009 Business Plan of 41 Million riders in 2035 been resolved. Through the offices of its project manager Parsons Brinkerhoff (PB), the Authority has spent, or plans to spend about \$5 Million on additional ridership modeling, again largely by Cambridge Systematics (CSI).⁴⁹

2.1.1 The CHSRA’s ridership peer panel reversed itself and seems to agree with CSI – In late 2010 the CHSRA, again through Parsons Brinkerhoff, awarded a thirty month, sole source contract to five economics, engineering and transportation experts to provide a comprehensive, in-depth review of the models used to estimate ridership and revenue and the forecasts derived from them.⁵⁰ Reporting directly to the CEO of the CHSRA, the Ridership Peer Review Panel contract will cost about \$460,000.⁵¹

Although the Panel is not independent of the CHSRA, in late July 2011 the Panel joined prior critics of the CSI model such as UC Berkeley’s ITS, Smart Mobility and Californians Advocating Responsible Rail Design (CARRD).⁵² In its first report the Panel cited several weaknesses in CSI’s model and methods.⁵³

"The Panel found several instances of incomplete or outdated information in the documentation, or could not locate such if it did exist." This refers to eight missing data variables such as levels of ridership on competing services, levels of airport congestion and fare levels used by CSI.

*". . . the frequencies (passenger boardings) in San Francisco (8 million residents) in full build-out of 12 trains per hour are comparable to Tokyo, with 30 million residents). The Panel questioned whether such assumptions are realistic, and what the effect of lower levels of service (decreased frequency) on ridership would be."*⁵⁴

"The model assumes a rather passive response by air carriers, but the history of U.S. air deregulation suggests that air carriers in fact react strongly to changes in

their competitive environment."

Among the Panel's recommendations was ". . . *that any use of the model include some steps to make the demand forecasts more conservative, especially in forecasts for financial (investment and risk) analysis.*" and for CSI to make "*Comparisons of forecasted ridership to actual ridership on HSR systems in other parts of the world;*"⁵⁵

The Peers' comment about airline competition could be applied to the US. The February 2011 Amtrak monthly performance report found airlines do change their pricing strategies to compete.⁵⁶ It recognized a fall-off in passengers between Boston and Philadelphia "*due to the entrance of Southwest Airlines into this market last June.*"⁵⁷ The distance between those cities' centers is roughly 300 miles – an optimal distance for high-speed trains to compete: yet more potential passengers chose air travel.

Then in September 2011, that Panel seemed to reverse much of its earlier critiques and praise CSI.⁵⁸ While the panel said they ". . . *support the work that CS has undertaken to date for model improvement*" and believe ". . . *additional data and analyses provided to us by CS, has led us to determine that these issues are not critical to current applications of the model*" they still do not endorse the ridership forecast numbers produced by Cambridge Systematics. Further clarification is needed on what this Peer Review Panel believes.

2.2 A Brief History On Fewer-Than-Forecasted Riders – In 2008 the California High Speed Rail Authority (CHSRA) asserted there would be over 90 Million riders annually on the LA to SF route.⁵⁹ Their 2009 forecast reduced it to 39 Million riders in 2030, while increasing the fares.⁶⁰ This more than a sixty percent decrease was challenged by, among others, a 2010 Senate-commissioned study by UC Berkeley's Institute For Transportation Studies (ITS).⁶¹ Even the lower 2009 CHSRA projection was accused of inflating some stations' boardings, artificially increasing revenues, justifying specific routes and therefore financial credibility.⁶²

Worldwide, there are consistently far fewer riders than ridership forecasts. In their seminal 2003 study, Megaprojects And Risk, the authors stress: ". . . *(rail) forecasts were overestimated on the average by 65%.*"⁶³ Some other examples:

In 1992 Eurostar forecasted "*15 million passengers per annum in 1995 and growing*". In 2009 Eurostar carried 9.2 million passengers, 60% of that forecast.⁶⁴

A US DOT study found that rail ridership was only 39% of forecasts.⁶⁵

Bay Area Rapid Transit's (BART) forecast for the SFO airport was for initial (2003) daily ridership of 39,500 – and 68,600 by 2010. The opening year daily ridership averaged 16,500, 42% of projections. Daily ridership in 2009 was still less than 17,000, only 25% of the 2010 projection.⁶⁶

The World Bank's 2010 high-speed rail report concluded that, "*High-speed projects have rarely met the full ridership forecasts asserted by their promoters . . .*"⁶⁷

The Authority never gave ranges of estimates, nor confidence levels for their numbers, something computer models generally indicate as a matter of course. Insisting that there is only one ridership number for the public to consume – whether 100 million or 39 million – does not amplify CHSRA's numbers' credibility.

2.3 How Many Riders Will There Be Between 2030 and 2040? – Using the USA’s cousin to high-speed rail, Acela, as a surrogate, and attracting the same 11% of California’s 46.6Million residents in 2030 that Acela did in 2009, the CHSRA train would carry about 5Million riders, about one-eighth of CHSRA’s Phase One forecasted 39Million riders for 2030.⁶⁸ With only that ridership, operating losses are guaranteed.

In July 2011, Amtrak’s Vice-President for High Speed Rail opined that an enhanced Acela service would attract 18Million passengers on the NE Corridor when it opened.⁶⁹ This official claimed the market catchment area for the enhanced Acela is presently 50Million, less than ten percent more than the 46.4Million the Census Bureau forecasts for California in 2030.⁷⁰ Acela has the NE Corridor’s very good links to urban transit, its higher population density and its 150-year history of train travel. How does the CHSRA expect to capture more than twice the ridership, in just the Phase One Corridor between LA and SF that Acela expects to have with roughly the same market catchment area?

This perspective and real world experience in the US, casts significant doubt on CHSRA’s Phase One’s ridership forecasts and therefore its ability to create an operating surplus in LA-SF corridor. Since those operating surpluses were to have built the ‘Entire System’, that too seems questionable.⁷¹

Additionally, from the point of view of the six cities of the Entire System, the early 2011 independent estimates for the additional construction costs and additional average annual operating margins are 75% more than the Phase One projections.⁷² Therefore, it is reasonable to forecast an additional 75% growth in ridership, to support the growth in the operating margins. This would increase the Phase One annual ridership from 39-40Million to about 70Million passengers per year, to support the Entire System’s revenues and operating margins. Therefore, sometime between 2035 and 2040, annual ridership of the Entire System would be about 70Million, compared to a California population projection of about 50Million.

At that point, the population of California would be approximately equal today’s Northeast (NE) Corridor population. As discussed above, today’s Acela ridership is about 5Million passengers per year; and despite its history Amtrak believes it can grow the NE Corridor ridership to 18Million passengers per year through a major investment and upgrade plan. Is it possible the CHSRA Entire System can attract about 70Million passengers per year, more than three times the ridership in the NE Corridor? If this is not reasonable, then the CHSRA’s Phase One ridership forecast of about 40Million passengers is also not reasonable.

2.4 High-Speed Rail’s Need For Subsidies (Revenue Guarantees) – Section 2704. 08(J) of AB3034 requires that California’s high-speed rail operations not require an operating subsidy. This was stipulated to before the Bill’s passage three months before voters approved Prop1A. Annual operations must at least breakeven or have positive cash flow.

The Authority’s 2009 financial analysis says “. . . *the initial San Francisco-to-Anaheim portion of the project is expected to generate significant operating surpluses even after accounting for operations and maintenance costs and renewal and replacement reserves.*”⁷³ Specifically, the CHSRA expected its operating surplus, (operating margin) to be \$370Million its first operating year, increasing to \$1.5Billion by the third year of

running the train.⁷⁴

In June 2011 the CHSRA's Board Chairman called the Wall Street Journal "foolish" for questioning the wisdom of the California project.⁷⁵ Chair Umberg repeated proponents' mantra that high-speed rail systems around the world are profitable. During legislative hearings in the same month, Assembly Member Cathleen Galgiani (sponsor of AB3034) said "*The high-speed rail system in France runs with a profit margin of 25 percent and the one in Japan at 50 percent.*"⁷⁶ It's not clear where Mr. Umberg or Ms. Galgiani got their information, but both might ask the Authority's staff why, if high-speed rails systems are profitable, does the Authority's 2009 Business Plan ask for a "revenue guarantee" (aka subsidy) five times.⁷⁷

2.4.1 All high-speed rail systems in the world require subsidies – At least six independent studies, experts and union officials agree:

A 2004 study documented Acela's losses at only \$51 Million; but those losses were 'covered' by an annual Congressional subsidy of nearly \$1 Billion for Amtrak.⁷⁸

In April 2008, Amtrak's Inspector General said; "*European Passenger Train Operations operate at a financial loss and consequently require significant Public Subsidies.*"⁷⁹ The study of six European nations' operations showed their annual rail subsidies to average \$42 billion. This ranged from Germany's high of nearly \$23 Billion annually to Denmark's low of \$900 Million. On average between 1996 and 2006, about \$26 billion of the \$42 Billion annual subsidies were on the operators' balance sheets: nearly \$16 Billion was off-balance sheet accounting.⁸⁰

In May of 2009 Iñaki Barrón de Angoitia, Director of High-Speed Rail at the International Union of Railways (IUR), said, "*Only two routes in the world — between Tokyo and Osaka, and between Paris and Lyon — have broken even.*"⁸¹ One would assume the Director's job includes promoting high-speed rail, so for him to speak frankly about the subsidized systems speaks volumes. Although the IUR Director General objected to this quote (addressed in Section 2.4.3) being "taken out of context", Angoitia's statement stands.

In December 2009 the US Congressional Research Service (CRS) said of high-speed rail: "*Typically, governments have paid the construction costs, and in many cases have subsidized the operating costs as well.*"⁸²

In July 2010 a World Bank report cautioned that governments planning high-speed rail systems: ". . . *should also contemplate the near-certainty of copious and continuing budget support for the debt.*"⁸³

In May 2011 the AFL-CIO's Transportation Trades Department, said; "*There is no high-speed passenger rail system in the world that operates without significant government assistance,*" . . . *Private sector companies simply cannot make a profit without federal support.*"⁸⁴

2.4.2 How financial legerdemain creates 'Phantom Profits' for high-speed rail operators – The Chairman of the CHSRA's Board, and AB3034's sponsor might want to review a 2007 Congressional hearing to find out how proponents justify claims of high-speed rail's profitability.⁸⁵ Three systems' operators outlined how their governments build the infrastructure, then 'bury' the costs in general accounts or turn over discounted infrastructure to public agencies or 'private' operators that are actually government-controlled agencies.

2.4.2.1 The approach to financing construction and operations in France – In 1997 the state-owned railway company, Société Nationale

des Chemins de fer Français (SNCF), transferred the national rail infrastructure assets to the Réseau Ferré de France (RFF), a non-operating state-controlled finance agency. SNCF still operates the nation's rail system, including the Train à Grande Vitesse (TGV).

The French State grants SNCF \$2-\$3Billion annually for "*tariff and public service contributions, concessionary fares and various other services*" and pays a retirement supplement to SNCF "*which is not shown on SNCF's income statement.*"⁸⁶ Since the French Government appoints twelve of the eighteen Directors of both SNCF and RFF, the Board has the latitude to not only grant the operator what it needs, but also to move monies between what are essentially government agencies' accounts to make SNCF appear to be profitable.

A presentation given in Oregon in 2011 on a planned France-Spain high-speed rail link, showed that public funding was 54% of the total, more than the high for the US Federal government's assumed 43% grant ('free' money) in CHSRA's 2008 Business Plan.⁸⁷

2.4.2.2 The approach to financing construction and operations in Japan – The national government pays two-thirds, and the proximate local prefecture(s) one-third of the costs of building new Shinkansen lines. The relevant 'private' Japan Railway (JR) operator then pays a usage fee to the government.⁸⁸ Additionally: "***The annual Federal subsidy for the Shinkansen in 2006 was . . . a little less than \$1.3Billion, and the local government subsidy was . . . \$633Million.***"⁸⁹ With four of the JRs still being government-owned, the other three could receive concessionary usage fees. The government annually grants the 'private' JRs another \$2Billion for operations. These subsidies certainly indicate the Shinkansen is not profitable by any generally accepted accounting practices.

2.4.2.3 The approach to financing construction and operations in Spain – RENFE, the national rail carrier and operator (RENFE-Operadora) of the high-speed network is a government organization, controlled by Spain's Public Works Ministry (Fomento).⁹⁰ As of 2007, before the Madrid-Barcelona line, RENFE had allocated \$55Billion for construction of high-speed lines and another \$1.8Billion annually for operations and maintenance. With the national government funding construction and subsidizing operations, Spain's high-speed rail system can hardly be considered private or profitable.

Spain's testimony was complemented during a high-speed rail conference in mid-2011. The Ministry of Development's (Fomento) presentation showed that Spain's government contributed 41% in capital grants and 'contributions' and the European Union another 18%; three-fifths of the costs to build the system. The remainder is both on and off-balance sheet debt from undisclosed sources, with only 6% of the resources being generated from the operator's (RENFE) operating margin.⁹¹ That presentation also notes that "*Capital costs [are] heavily supported by public funds.*"⁹² While in June 2011 Spanish representatives met in California with both the Authority and attendees at a San Francisco conference, nothing publically seems to have said about the system's profits.⁹³

Section 2704.08(J) of AB3034 (Galgiani) disallows the proposed California system an operating subsidy. This seems to be a very wise provision, given that some of Spain's recent routes have extremely low ridership – only nine passengers daily on the Toledo-Cuenca-Albacete route.⁹⁴ The probability of governments' legerdemain in building and operating European and Japanese systems is very high and substantiated in the above analysis. Governments in Europe and Japan have had decades of making these systems look profitable, when they actually depend on central government policies and largesse.

2.4.3 The International Union of Railways' (IUR) official perspective on high-speed rail's construction, subsidies and 'profitability' – In February 2011 the IUR's Director General (DG) overrode an earlier statement by his own Director of High-Speed Rail, claiming the latter's remarks were taken out of context. However, the DG's letter to CHSRA CEO van Ark reinforced the points made above in the testimonies at the US Congress by high-speed rail operators. The DG's letter and accompanying memorandum said:⁹⁵

*" . . . **the public authorities/society generally bear the costs** of investing in new infrastructure, constructing and maintaining the infrastructure and related equipment such as safety, control-command and signaling, etc." (emphasis added)*

Economic calculations for infrastructure projects in Europe include all the socioeconomic benefits of future rail infrastructure and its contribution to society . . . "

When evaluating such projects, economic calculations by European banks (e.g. the European Investment Bank) also systematically include the contribution of future rail infrastructure to improving citizens' lives."

To summarize, all high-speed rail projects developed in Europe have to be considered profitable as a system (combining profitability for the operating company and profitability for society to which the state-owned rail infrastructure belongs)."

The letter-memo goes on to point out that the Japanese Government builds the infrastructure then *" . . . transfers ownership to the rail operating company . . . "*

To anyone familiar with AB3034, these are powerful *a priori* confirmations of the California system's need for subsidies. The DG can be forgiven for not knowing the uniqueness of AB3034, nor the finance mixes of the CHSRA's two subsequent business plans (2008 and 2009). In both those plans, Federal grants were supposed to be 42-43% of construction costs, and the State of California's portion (22-28%) was funded through bonds that required paying off investors. Fiscally strapped local governments were somehow supposed to give the project 7-9% of 'free money' grants for construction.

Even in the best of CHSRA's plans, private capital was to provide about 25% of the construction finance. As of late 2011, because construction costs have increased dramatically, and Federal grants haven't made up the difference, private capital must now provide about 75% of Phase One's \$66Billion construction cost.

Unsubsidized private operators will run such systems only if there is profit to be made. The DG's only reference to profitability says *"Generally speaking Operating Costs can be covered by fare box revenues making the operations of HS an attractive proposition for private investors . . ."*⁹⁶ That declaration would have been stronger had it been accompanied by actual examples of income statements, balance sheets, statements

of cash flow and sources and uses of funds data. Simply saying that both society and the operating company profit from high-speed rail will not convince 'at risk' lenders.

California's approach to high-speed rail financing is very different from that of Europe or Japan's national governments building the infrastructure then creating a government agency to own that asset and a private operator to run the system. But, as outlined in Section 3.3, in mid-2011, the CHSRA and one of its peer review groups advocated for the project's performance to be measured more like the European and Asian systems; ie. by their contributions to society – as defined by 'top-down' governments – rather than what Californians said should be the financial accounting principles. That is neither the law nor what voters supported in 2008.

Finally, if the Congressional testimonies of JNR and RENFE representatives as shown above in Subsection 2.4.2 are to be believed, high-speed rail operators in Japan and Spain still require direct operating subsidies. As also testified to, the Government of France grants the SNCF \$2-3Billion annually. It seems the TGV isn't profitable either in the sense that if it were profitable, the system would be able to pay down its construction debt and not depend annually on government monies.

2.5 California's Legislature Clearly Intended The Train's Operator To Service Construction Debt – In 2008, California's Legislature knew the approximate costs and had the required votes to have simply passed a law allocating all the funds needed for the high-speed train's capital development.⁹⁷ The two-thirds majority vote on AB3034 proved that.

Supposedly the world's eighth largest economy could build a system like those already in similar or smaller economies such as France, Italy, South Korea or Spain.⁹⁸ The booming economy could also provide the wherewithal to finance any future shortfalls. But even in those heady days the Legislature didn't say something like, "we're going to build this and here's the funds to do it." Instead, they said; "let Californians decide whether to put \$9Billion into building this project."

Rail proponents 'signed off' on the commitment; hence claims of "no new taxes" and the "users will pay for the system" on the ballot.⁹⁹ Prop1A was not an unlimited 'free money' grant to the CHSRA, nor an 'open checkbook' to the State's funds. Instead, it said that the State's advance of up to \$9Billion would be repaid by the principal and interest on the bonds authorized to help build the system, but only if that were first matched by Federal or private dollars.

While the Authority may have early on assumed some other entity would service the construction debt, AB3034, Prop1A and the Authority's subsequent business plans made clear the State's maximum obligation for construction was \$9Billion.¹⁰⁰

*"Revenues of the authority, generated by operations of the high-speed train system above and beyond operating and maintenance costs and financing obligations, including, but not limited to, **support of revenue bonds**, as determined by the authority, **shall be used for construction, expansion, improvement, replacement, and rehabilitation of the high-speed train system.**"¹⁰¹ (emphasis added)*

CHSRA's 2009 Plan reiterated these AB3034 arguments and added that unpaid capital costs become part of operating expenses, as in any businesses' sustainable practices.

*"The ridership of a high-speed train system, the revenue it brings in, and its operations costs are all interconnected. Balancing the three elements determines **the viability of the system as a business enterprise.**" (emphasis added)¹⁰²*

California's self-induced, chronic budget deficit has in the past been 'papered over' by unrealistic assumptions (higher than reasonable revenues and lower than reality expenses) and financial gimmicks. This has brought the State to the point of consistently having the lowest, or the second lowest bond rating among US states. The present Governor knows the problem and promised not to postpone solving the problem. For a project even where proponents claimed to voters in 2008 that " *the users of the system pay for the system*" the notion that the State of California difficult fiscal position would absorb the construction costs would seem strange.¹⁰³ Excluding debt servicing from the operator's liabilities violates AB3034.¹⁰⁴

2.6 Operating Margins Are Central To Whether The Train Can Pay Off Construction Debt Annually And At Least Break Even – Operating margins are operating revenues less expenses. They drive the equation of whether there is enough cash left at the end of an operating year to reflect a surplus or create negative cash flows. Confidence in whether a financial plan demonstrates one condition or another depend on the underlying aspects of what constitutes a revenue stream and what gets counted as operating expenses. This is a look at the veracity of those elements of operating margins.

2.6.1 CHSRA's ridership forecasted fares need to be higher to create enough revenue to break even – In 2008 California's voters were promised they could travel from LA to SF " . . . for about \$50 a person."¹⁰⁵ By 2009 the one-way fare had doubled to \$105.¹⁰⁶ The driving distance between LA and SF is roughly 430 miles. The estimated 2008 ticket price per mile was \$0.12 per passenger mile; the 2009 ticket price \$0.24 per passenger mile.

What do subsidized European, Japanese systems, and their US high-speed rail's cousin (Acela), charge travelers for the one-way, least expensive class of travel on major segments? And what would the LA to SF least expensive class, high-speed rail

ticket price be if those segments' rates were applied?¹⁰⁷

EXISTING HIGH-SPEED RAIL SYSTEM SEGMENTS ¹⁰⁸	From/ To	To/ From	Miles Center to Center	One Way Lowest Adult Fare (\$US)	Lowest Adult Fare per passenger mile	A Similar CHSRA LA-SF Fare Would Therefore Be
Italy – Trenitalia	Rome	Milan	362	\$122	\$0.34	\$145
France – TGV	Paris	Lyon	289	\$115	\$0.40	\$171
Spain – AVE ¹⁰⁹	Madrid	Barcelona	383	\$153	\$0.40	\$172
USA – Acela	Boston	WDC	449	\$196	\$0.44	\$188
Germany – ICE	Berlin	Frankfurt	339	\$168	\$0.50	\$213
Japan-Shinkansen	Tokyo	Osaka	343	\$170	\$0.50	\$213
EXISTING HIGH-SPEED RAIL AVERAGE PRICE PER PASSENGER MILE AND A COMPARABLE CHSRA LA-SF TICKET PRICE					\$0.43	\$184
AS PLANNED BY THE CALIFORNIA HIGH-SPEED RAIL AUTHORITY (CHSRA)						
CHSRA 2008 Plan	LA	SF	430	\$55 est.	\$0.12	na
CHSRA 2009 Plan	LA	SF	430	\$105 est.	\$0.24	na

Figure D shows that, using the average of those existing systems' rates (\$0.43/mile), the least expensive, one-way, LA to SF ticket would cost about \$184.¹¹⁰ This is more than three times the price

promised to voters in 2008, and almost twice (175%) the price in the CHSRA's 2009 Plan. If CHSRA is to meet the Legislature's statutory requirement and keep its promises to 2008's voters about no operating subsidies, no new taxes and only "users

of the system pay for the system”, then the CHSRA’s ticket fares must be higher – probably much higher.¹¹¹

Since the average per mile passenger ticket price of the six established system routes is \$0.43/mile (the five that are truly high-speed rail systems plus Acela), and all these systems are subsidized; their operating costs must be at least \$0.44/mile. How can the CHSRA price their tickets at just slightly more than half (\$0.24/mile) of the actual average of \$0.43/mile rate and still claim to produce an operating margin (surplus)?¹¹²

With the CHSRA’s stated operating margin of about fifty percent (an expense to revenue ratio of 50%), that \$0.24/mile makes the CHSRA’s operating cost per passenger mile about \$0.11.¹¹³ This is about one fourth of the actual costs per mile worldwide, estimated being at least \$.44/mile. If true, CHSRA projects an unreasonably low comparative rate of operating costs, and therefore their estimated fares do not stand up to scrutiny.¹¹⁴ Nor do they even compare well with the subsidized high-speed rail fares or estimated operating costs in Europe and Japan.

2.6.2 CHSRA’s ridership forecasts depend on displacing auto trips, but its 2009 announced fares will exclude middle income and working families; lowering potential revenues – Instead of taking the train at CHSRA’s announced one way fare of \$105 per person, suppose a family were to drive that 430 miles between the state’s major metropolises. If the IRS standard deduction for business use of an auto reflects complete costs of operating a car, the total cost would be about \$215.¹¹⁵ That would put an automobile round-trip at \$430, including all the costs of owning the auto; that is, fuel, taxes, insurance, amortization, etc. Only counting gasoline costs at \$4.50/gallon, the round trip would cost about \$200; less with a hybrid. Four rail tickets at the CHSRA’s 2009 roundtrip LA-SF price are twice as much as the total cost of driving and four times the gasoline costs.

Assuming for the moment that Europe and Japan’s high-speed trains at least break even (which they don’t by any accepted accounting system) the per mile rate would make a one-way SF to LA ticket cost about \$184. Therefore, if the CHSRA’s assumed private operator must charge enough to perhaps break even, four tickets for a LA-SF round trip would cost at least \$1,472.

California’s 2009 gross median household income was \$42,548.¹¹⁶ Reality says that for a middle class household to ride the train LA-SF would cost them about 4% of their annual pre-tax income. CHSRA’s 2009 ticket prices probably exclude middle-income households. A more realistic ticket price definitely excludes them.¹¹⁷

CHSRA is faced with a classic marketing problem. A clear understanding of the train’s operating costs argues that prices must be higher than CHSRA has published and used for planning. Conversely, the example above shows that a realistic price will lose a lot of potential passengers. The example above is confirmed by a Pricing Analysis completed in July, 2010, which shows that ticket prices must be dropped from the CHSRA’s currently promulgated level in order to hold the market share and the ridership levels that they expected.¹¹⁸ CHSRA is in a very difficult situation.

2.6.3 CHSRA’s train won’t capture substantial revenue from airline passengers either – Unless the train’s ticket price decreases, putting it in peril of needing an operating subsidy, not many passengers (and particularly families) are likely to abandon the airlines. In 2009, the CHSRA’s ticket pricing assumption was

83% of their computed average airfare.¹¹⁹ Excluding the tautology that eighty-three percent of a price is always better than one hundred percent of a price, what's behind the CHSRA internally computed claim of a \$105 one-way, high-speed rail ticket compared to their internally computed one-way airline ticket average of \$126?

Their at-the-counter average airline ticket price for LAX-SFO was \$132, but competition makes the price drop quickly to \$79 if purchased four weeks in advance.¹²⁰ The weighted average of LAX-SFO airfares was \$99. Eighty three percent of that is \$82; twenty-two percent below the \$105 price in CHSRA's 2009 Plan.¹²¹ If the train charged that ticket price, the train's operating margin is dramatically reduced, as on-average ticket holders, even customers from the auto travel market, would only pay this lower-than-2009 assumed price.

Based on CHSRA's 2009 Business Plan, a middle class family of four would pay \$840 for a high-speed LA-SF round trip. It's fairly safe to assume they will be looking for the cheapest transport to Disneyland or San Francisco's cable cars. By searching a month in advance, each could get \$79 tickets to both air destinations, or \$632 round trip; saving 25% or more.

Also, airlines have more pricing flexibility and 'sticking power' than does a single route railroad. If the airlines predict they'll lose market share, they'll cut prices between the cities on the train's routes. This happened to Acela between Boston and Philadelphia when Southwest Airlines entered the market.¹²² While Southwest, United, American, Virgin and three other intra-state carriers can compensate by maintaining prices or raising prices in other routes throughout the US, the train's ticket prices would have to drop to stay competitive. But along with that decrease in fare, revenues will drop and the system then needs an operating subsidy.

The CHSRA needs to understand that seven highly competitive airlines will not let the train take away many passengers. After decades of yield management analysis and pricing; they know how to cross-subsidize routes. The OECD recognizes that: "*Low-cost carriers might respond to the emergence of a high-speed rail alternative . . .*"¹²³ They will move aggressively to show budget-conscious families and business passengers how to use their services at prices lower than the capital-intensive railroad could muster. This is a lesson already learned by China's high-speed railway and Acela in the USA.¹²⁴ The CHSRA did not incorporate inevitable airfare competition into their ticket-pricing model.

2.7 Observations on Deficiencies Of CHSRA's Operating Expenses As Part Of Operating Margins – After reviewing the Authority's 2009 universally under-documented Business Plan's material on operating expenses, several observations warrant repeating.

To accept the CHSRA's operating cost projections would be in spite of a prior Federal Railroad Administration's observation: "*The operating cost per seat mile from the FRA study for the California corridor (2006\$) is approximately 40 % higher than the CHSRA's projections.*"¹²⁵

When calculating costs, the CHSRA used 3% as the "*same average rate of inflation*" for their operating costs, such as labor, electrical power, health care, fuel and security costs. Many of their variable costs grow faster than 3%, understating realistic future costs.¹²⁶

There is not one word in the Plan that acknowledges fixed versus variable operating costs.¹²⁷

Investors in new businesses expect to be presented with detailed line item operating statements on a quarterly basis for five years forward and annual statements for subsequent years. None were presented.¹²⁸

The 2009 Plan contained no risk management strategy, murkily noting that; *"the risk would be mitigated by policies that continue to draw people to reside in California and encourage high-speed rail as an alternative mode of transportation."*¹²⁹

The 2009 Plan says that in the first ". . . 13 years, operating costs are projected to be essentially flat. ." This assumes that all costs from 2023 through 2035 will be almost constant and all have the same average rate of inflation, counter to past experience. Medical insurance, labor and electricity will be major cost items, and no business operator has been able to successfully stabilize these for that long.

The Plan (Page 82) says: *"Insurance is assumed to be handled by the Authority and the state in the initial phase through an owner-controlled program (OCIP)."* The operator will have assets that will need to be insured, even if self insured; and there are costs associated with that which need to be revealed. CHSRA assumed some entity other than the train's operator pays the property, casualty and liability insurance, putting those burdens on the State and its taxpayers.¹³⁰

Despite CHSRA forecasting fifteen consecutive years of substantial operating surpluses, there is no discussion of any tax provision with respect to such surpluses. Also, contrary to best practices, the CHSRA treats all expenses as variable when many are clearly fixed expenses.

Finally, a decade after the 9-11 terrorists' attacks, security issues should be 'top of mind' for a high-profile target like the train. Yet nothing is mentioned in the 2009 Business Plan that addresses the costs of protecting passengers on this target from either on-board or proximity attacks such as in a station or along the right of way. What is the CHSRA's plan and what will be the capital and operating costs for securing the 100 miles of the Central Valley, the 400 miles of Phase One, or the 800 miles of the 'Entire System'? Who will pay?

2.8 The Potential Of 'At Risk' Private Capital For Operating The Train –

Because there was no profit to be made, by the close of the 1970s US private sector rail operators had abandoned passenger rail for freight services. Amtrak, supposedly a public-private corporation, was founded to fill the passenger rail gap.¹³¹

Amtrak's history has proven the wisdom of the former private passenger rail carriers. Amtrak has consumed over \$40Billion in federal operating and capital subsidies since it was created in 1971 – over \$1Billion/year.¹³² Private 'at-risk' capital is not interested in investing in passenger rail because there is no profit in it. In May 2011, the ranking Democrat on the Congressional Transportation Committee said;

"Private companies did not want to run passenger rail service back then and I am not convinced they want to do it now... two years ago, DOT issued a request for proposals for private companies to develop high-speed rail . . . Not one single proposal was submitted by the private sector for developing high-speed rail on the Northeast Corridor."¹³³

And the Republican-controlled House Budget Committee followed up with:

"High-speed rail and other new intercity projects should be pursued only if they can be established as self-supporting commercial services." ¹³⁴

Nor is private capital interested in investing 'at risk' capital to operate California's high-speed rail project. Investors want a subsidy, even if called a revenue guarantee. IMG and Goldman Sachs repeated this message to CHSRA's Board in September 2009.¹³⁵

"Private appetite for ridership risk is limited without revenue guarantees or until ridership proven."¹³⁶

*"Potential for substantial **non-recourse** [ie. at risk] **financing is likely be limited** to the Anaheim-San Francisco section, based on forecast of operating surplus"*

"Few sections generate enough operating surplus to justify private investment on a non-recourse basis"

2.9 Conclusions On Operating Parameters – The Authority clings to its ridership forecasts that ten years into its operations on Phase One (2030) it will have 39 Million paying customers. It does this despite serious challenges from outside-the-CHSRA experts, despite historical evidence of 'ridership overshoot' that computer modeling consistently brings, and despite skepticism from the Legislature and the public.

All high-speed rail systems in the world require subsidies. Operators, experts and Congressional testimony have documented that existing systems are funded from national treasuries for social purposes, then operations are subsidized through government ministries' budgets – albeit some operators carry private company names. Even the Director General of the International Union of Railways attested to this model while denying the subsidies and claiming such systems are profitable.

The systems get built because their national governments, not their voters, declare they will be built. No example was found where voters were asked whether they wanted such a project or asked whether they would pay a fixed amount of the construction costs. That makes the proposed California system unique both because the state's voters limited their exposure to \$9 Billion and because they demanded and received assurances *that "the users of the system pay for the system"*.¹³⁷ Any other model of financing California's train requires new legislation and a return to the voters.

Because revenues and expenses in the CHSRA's financial model are intimately tied to ridership forecasts their operating assumptions need to be comprehensive and clearly stated. They aren't. Not only do there seem to be missing operating expense variables and faulty accounting assumptions; but the procedures used to calculate the train's ticket prices versus the costs of driving or flying are highly suspect. Until a more detailed and acceptable presentation of ridership, expenses and costs is forthcoming, the 2009 Business Plan's operating variables should be considered inadequate for investment grade consideration.

No private 'at risk' money is likely to view either the Authority's 2009 revenue or the expense assumptions as either sufficient or adequately documented enough to warrant being called investment grade. A realistic business or financial plan must include answers to at least the questions posed in this report's Appendix A.

CHAPTER THREE

RIGOROUS FINANCIAL DECISION MAKING MUST OVERRIDE IDEALISTIC ENTHUSIASM

3.0 Overview – Over the past year, as public support has waned for California’s high-speed project and State budgets for education, parks and social services were cut, proponents have voiced several arguments for why California needs a high-speed train and why the project should continue. The following assertions for high-speed rail – about emulating others, its social benefits (including jobs), and ‘subsidies for all transport’ – are among the most frequently mentioned.

3.1 High-Speed Rail Is Glamorous And We Must Have It Because Others Have It – No one will deny that high-speed rail carries cache. The image of Shinkansen at speed in front of Mount Fuji, or the TGV accelerating through France’s lush landscape bring happy memories to those who have seen or been fortunate to be on them. It’s a provocative concept backed by some advanced technologies serving millions of passengers yearly. More than half of California’s voters certainly thought so in 2008.

But the concept carries a cost to build and operate. As the IUR’s Director General and its Director of High-Speed Rail have pointed out, the existing systems’ construction costs are borne by national governments; that is, the taxpayers.¹³⁸ For their own particular reasons, some governments chose to subsidize their system’s construction; and to varying degrees, operations of their high-speed rail networks.

Those governments may not call having their government building a system’s infrastructure, then not requiring the operator pay the unpaid capital costs a subsidy, but businesses around the world would. The intention of California’s Legislature, agreed to by the CHSRA’s 2009 business plan, was that the operator(s) would carry the burden of paying down residual construction and infrastructure debt. As enticing as the image is, the California system has to financially sustain itself without a subsidy. It must also do this in today’s slow growth economy as well as in better economic times. With the mountains of debt all levels of government have taken on, choices must be made about what public expenditures will be most productive and how they should be paid for.

3.2 We Need High-Speed Rail To Catch Up And Keep Up With This Technology – There is no US-produced high-speed rail technology. Vendors such as Alstom, Bombardier, Siemens and others have been actively pointing that out in Washington and Sacramento. Their Chinese counterparts, having ‘absorbed and improved’ those vendors’ technologies, are ‘in the game’ also.¹³⁹ Witness not only then-Governor Schwartzeneger’s adulation of China’s rapidly built system, and his MOU with the Ministry of Railways for technical assistance. However, China’s showcase train has suffered several accidents, most tragically in July 2011, as well as widespread technical failures.¹⁴⁰ Nonetheless, in August 2011, three of California’s Legislators visited China at that government’s expense.¹⁴¹

Nations or their regions specialize and develop leads in a technology because of their particular circumstances. The convergence of more than a hundred years of rail transport in nations with higher population densities and shorter distances between major metropolitan areas brought about Shinkansen (1964), the TGV (1981) and their European and Asian successors. High-speed rail may have made sense in those domestic markets, but in the thirty years since the TGV started few other markets have found either the technology or the costs a 'fit' with their circumstances.¹⁴² Certainly Taiwan's bankrupt system didn't fit and China's star performance has come under deep scrutiny since the recent accident.¹⁴³

Likewise, as discussed earlier in this report, in certain places in Europe and Asia high-speed rail was a national (not a provincial or State) financial commitment to build the systems and still involves considerable annual subsidies. Few places have the economic resources to contemplate the adoption of high-speed rail technology, and by and large the potential customer base has not been convinced of the benefits of such transport systems above the systems' costs. In the parlance of technospeak, the diffusion of this innovation has been extremely slow.

California is not the sole proprietor of high technology; but no nation or place has a comparable volume or lead in state-of-art information technology, biosciences, social media, the Internet and its applications. Largely because of the momentum of Silicon Valley, California has unassailable credentials in what its technical and venture capital support community brings to the market – without 'free' money or sustained subsidies. That isn't true in Europe and only partially so in Asia.

Remember that the technology vendors' motives aren't charitable. Corporations like Alstom, Bombardier, Kawasaki Heavy Industries and Siemens; and government organizations like SNCF, JNR and China Southern are in California to sell their wares. They will not worry about the State's fiscal position after they get paid. Their enthusiasm for high-speed rail is also driven by their belief that whichever one 'wins' California at whatever price, or whether their good technology or bad, transferred or not – will 'lock in' the remainder of the USA to their technical specifications. Forever.

3.3 We Must Have High-Speed Rail Because It Provides Social Benefits – AB3034 outlined the proposed project's potential social benefits:

*" . . . provide Californians a safe, convenient, affordable, and reliable alternative to driving and high gas prices; to provide good-paying jobs and improve California's economy while reducing air pollution, global warming greenhouse gases, and our dependence on foreign oil, shall \$9.95 billion in bonds be issued to establish a clean, efficient [sic] high-speed train service."*¹⁴⁴

That \$9.95Billion is the extent to which voters chose to spend on construction, not the down payment on starting the system that will provide such social benefits.

3.3.1 Supporters now want to justify the project by only counting the social benefits – In July 2011 one of the Peer Review groups concurred that it is the operator who is supposed to pay the infrastructure costs. Then they strongly suggested the operator is unlikely to be able to service the capital costs of construction debt. Consequently they set out to enshrine such social benefits as the project's financial metrics:

*"More critically, the approach implies, but does not state explicitly, that a significant part, perhaps all, of the **Authority's infrastructure investment***

will not be recovered from the operator(s). If this is correct, then the Authority's measurement of public benefits should be fully developed and carefully reviewed in order to justify the net public outlay.¹⁴⁵

By urging changes in the way the project's parameters are measured, the Independent Peer Review Group appears to have overstepped its mandate in AB3034. The law says those Peers are to analyze the appropriateness and accuracy of the authority's financial assumptions and the viability of their funding plan for each corridor.¹⁴⁶ In AB3034, the Legislature did not impanel the Peers to suggest measuring public benefits "***to justify the net public outlay***". Did the Peers unilaterally change the Legislature's mandate?

3.3.2 How do social benefits reconcile with AB3034 and Prop 1A? –

Californians bought into the concept of high-speed rail because the promise was that "*the users of the system pay for the system.*" Social benefits were secondary and are not the standard by which the project's financial success was and is to be measured. Those proposing to measure the project's performance by the social goods' dimensions know that and they know the following:

The method to measure social benefits is by defining and weighting the possible impacts of selected variables for a project using benefit-cost analysis. There is considerable room for subjective interpretation in this method by which variables get chosen and which are more, or less, important than others.

A proper benefit-cost analysis must also consider alternative uses of the resources, mainly money. For example, those seeking to measure whether the social benefits of a high-speed train outweigh the benefits of equal investments in other projects or institutions must enumerate the trade-offs for the resources. That includes the income and taxes lost by displaced businesses and devalued property in the routes' proximity. Benefit-cost analysis is not a one-dimensional method blind to other uses of the capital.

California's Legislature and Executive wrestle daily with balancing a wide variety of social needs against fixed or fewer resources. For example, California's primary, secondary and university systems all face budget cuts, decades after proving their key role in the state's economic growth and prosperity. Other important social 'goods' such as the state's roads, highways and airports; its dams, canals and water distribution infrastructure are also being neglected and will require many billions of dollars to maintain during the same decade the proposed train will be built. The State also has unfunded pension liabilities measured in the hundreds of billions of dollars, a statutory requirement that cannot be ignored.

To correctly evaluate social benefits, the high-speed train project must show that its social benefits far outweigh the social benefits of these other on-going social institutions on a comparable investment basis. In effect, the high speed train project must show that it will contribute more social benefits than the alternative investments that could be made with the \$240Billion (or more) commitment the State must make to build the entire high-speed rail system as promised the voters and outlined in Section 4.3.2. It is not sufficient to say the social benefits are greater than a project's cost. Instead the State's investments and social benefits must be measured comparatively for all the activities and institutions that are competing for the same precious resource, the State's investment funds.

3.3.3 The 'Change The Rules' movement is a dangerous trend –The 'change the rules' message became more public at the August 2011 CHSRA Board meeting. The presentation by the CEO was not about how the train's operations were going to meet AB3034's strictures of finance. It clearly focused on using benefit-cost analysis. CHSRA's CEO Van Ark seemed confident that benefits will outweigh costs:

*"Discounted public benefits over the extended life of the investment are expected to be well above the discounted costs"*¹⁴⁷

The effort to change the project's metrics closely reflects Transportation Secretary Ray LaHood's advocacy for different financial standards in transit projects to increase the 'livability' of urban areas, as articulated in his January 2010 announcement.

*"The old way of doing things just doesn't value what people want . . . Unfortunately, FTA's flagship programs use cost and performance requirements that are too narrow to allow for weighing these livability factors."*¹⁴⁸ (emphasis added)

Without addressing the contradictions in the Secretary's vision, or how CHSRA's CEO could be so assured the benefits will outweigh the costs before the analysis is prepared, this argument is specious to the 2008 definitions of how the project is to be measured.

Three arguments need to be addressed by those proposing to "to justify the net public outlay." First, if as CHSRA Board Chairman Tom Umberg says, all high-speed rail systems are profitable, then why does CHSRA's 2009 Business Plan petition for 'revenue guarantees' (aka subsidies) five times?¹⁴⁹ Second, if the Board has confidence the project could meet the AB3034 definitions of financial sustainability, why does its financial plan need a superfluous and costly benefit-cost analysis prepared by its financial analysts?

Third, why do the rules governing the high-speed rail project's performance need to be "fully developed" three years after AB3034 and Prop1A? Is the CHSRA implicitly admitting the project can no longer be justified on the basis by which it was presented to the Legislature and public and must now find refuge in an unauthorized measure of its performance?

In 2008 the Legislature debated and voters chose what they thought was a fully developed set of rules. That is what is in AB3034 and the ballot descriptions of Prop 1A. Having social benefits govern the project's performance is a very different proposition, requiring a return to the voters to change the project's metrics through new law.

It would be 'icing on the cake' if these social benefits were to be achieved and these benefits were greater than the social benefits to be achieved if the same financial resources were invested in alternative programs. But AB3034 takes precedence, and it stipulated the train may not operate with a subsidy. Subsequently Prop1A's ballot description stated "no new taxes" and the "users will pay for the system."¹⁵⁰ Only after the train meets the statutory requirements of unsubsidized financial sustainability can it address social benefits. To do otherwise is to tread a slippery slope into never-ending subsidies for this and other 'favored' projects.

3.3.4 We must have high-speed rail because it will provide the social benefit of construction jobs – California’s construction workers have been hard-hit by the Great Recession. Nationwide construction employment is where it was in 1996, and the industry’s 17% unemployment rate is probably exceeded by California’s higher rate.¹⁵¹ Accurate construction jobs forecasts for the project are vitally important not to just construction workers: investors and taxpayers need to know prior to beginning whether they will be ‘on the hook’ to pay down any debt incurred building the project.

In 2008 the CHSRA said “*Experts calculate about 160,000 job years will be needed to construct the high-speed train . . .*”¹⁵² A year later the CHSRA’s 2009 Plan claimed the LA-SF project would create; “. . . *the equivalent of 600,000 full time, one-year construction jobs over the course of its construction.*”¹⁵³ How can the CHSRA’s experts’ 2009 forecast be nearly four times their prior year’s forecast? What kinds of experts change their minds so quickly?

It’s important to gain some perspective on what other experts say:

Bureau of Labor Statistics’ (BLS) methods for computing jobs per dollar of construction are that for every \$1Million spent, three full time equivalent (FTE) construction job years are created. This results in 129,000 job years or about 13,000 FTEs over the decade of constructing the SF-LA portion. The CHSRA’s forecast is fourteen job years per \$1Million (600,000 job years divided by \$43Billion of construction costs); five times the BLS standards.

Californians Advocating Responsible Rail Design (CARRD) found that “*Over the 10 years that planning and construction are expected to last, this would mean about 7,500 more Californians at work each year.*”¹⁵⁴ Even assuming that most of the construction materials were California-produced, CARRD concluded the total to be 10,000-12,000 FTE construction jobs for the LA-SF project.

Independent economist, Claire Starry, using the California Department of Labor’s methods, concluded that between 8,000 and 11,000 FTE jobs would be created building the LA to SF Phase One over ten years.¹⁵⁵

These estimates – 8,000 to 13,000 – bracket a range of forecasted FTE construction jobs by independent experts using nationally accepted BLS methods. How can CHSRA’s 2009 forecast of five to seven times or more than those numbers – 60,000-FTEs over the decade of design and construction – differ so widely from the standards?¹⁵⁶ And how can the CHSRA’s recent announcement that Phase One will create 800,00-900,000 jobs be treated with any credibility?¹⁵⁷

Relate the independent experts’ estimates to near-future issues in the Central Valley. Since the CHSRA has only about \$5.9Billion of Federal and State funds available, this amounts to about 14% of the \$43Billion that was the basis of the 8,000 to 13,000 FTE jobs over a 10 year building period. Therefore the Central Valley ‘Initial Construction Segment’ will employ from 1,300 to 1,800 construction workers for the next 10 years.

Time has shown the Authority’s job projections were not ‘shovel ready’ jobs in 2010 when the first American Reinvestment and Recovery Act funds (ARRA) were awarded. Construction workers have not seen many, if any jobs in the nearly three years since Prop1A and the seventeen months since the Federal Railroad Administration first granted ARRA (Stimulus Funds) ‘free’ grants to the CHSRA.

The only significant number jobs provided by the CHSRA to date are those of a few State employees and over 600 full-time equivalent (FTE) consultants. For California's fiscal year ending June 30, 2011 they cost the State \$221 Million, about \$1 Million per working day, at an average of \$350,000 per FTE per year. The present fiscal year's \$155 Million budget means the working day average expense is down to \$705,000.¹⁵⁸ If the project proceeds throughout fiscal year 2011-12, the State will have spent over \$650 Million on the few employees and many consultants.

3.3.5 We must have high-speed rail because it will provide the social benefit of permanent jobs for Californians – No one would disagree with the assertion that new and permanent jobs are important; but they are not assured by the train. In 2008, California's High-Speed Rail Authority (CHSRA) said "*Experts calculate . . . more than 320,000 permanent jobs will result by 2030.*"¹⁵⁹ A year later the CHSRA's 2009 Plan claimed the LA-SF project would create 450,000 permanent jobs – forty percent greater than 2008.¹⁶⁰ Why again did CHSRA's experts come to such different conclusions within a year? ¹⁶¹ As a benchmark, the CHSRA's 2009 Plan shows the train creating nearly twice as many jobs as the State Government's roughly 230,000 active full time employees.¹⁶²

Exploring what might be a realistic range of permanent jobs created by the train highlights some startling differences with CHSRA's forecasts. Multipliers developed for California by the US Department of Commerce are an accurate and traceable reflection of the high-speed rail system's resultant permanent employment potential within California.¹⁶³ CHSRA's 2025 estimated operating expenses for the Phase One train from LA/Anaheim to San Francisco were given as \$1.63 Billion.¹⁶⁴ Using this figure and the RIMS II Multipliers, an independent economist concluded that five years into Phase One's operations the train would create a maximum of 16,000 - 40,000 annual permanent jobs.¹⁶⁵

No matter how large or small, the CHSRA's forecasts skew any perspective on the social benefits of high-speed rail's permanent jobs. The Authority's forecast does not include jobs displaced from other transportation industries. The 2009 ridership forecast is based on the high-speed rail system capturing passengers from California's air and auto transportation passenger marketplaces. If that happens, it will decrease employment in those marketplaces. There is no CHSRA forecast that shows a net increase in the number of total passengers traveling, because of the existence of the train system. Their approach is a replacement strategy, sharing the current job workload and future job and passenger growth over three transportation industries, air, auto, and rail; as opposed to only air and auto.

At best, the rail-based jobs would only displace some airline and auto market workers, but if the rail's administration is more efficient than those marketplaces, it is possible the train will create a net loss of jobs in California. While a 2010 CHSRA brochure estimates about 4,500 jobs 'inside' the operator, it's unclear from that source where the other ninety-nine percent of outside-the-operator jobs will come from or when.¹⁶⁶

3.3.6 We need high-speed rail because more public transport for middle and working class riders is good – US public transit, that is subways, trams, buses and regional rail, is heavily subsidized. On average, 'fare box' collections represent about 39% of operating costs meaning taxpayers cover over 60% of the operating costs.¹⁶⁷ Proponents might argue something like "most transit

riders earn low and moderate incomes; therefore high-speed rail should be able to offer an intercity transport alternative to auto ownership.”

Two facts mitigate against that line of reasoning. First, by law, California’s proposed high-speed rail system cannot subsidize ticket costs at all; much less 60% or more to cover the system’s capital and operating expenses.

But more importantly, the personal economics don’t work for a high-speed rail journey. As explained in Section 2.6.2, even if the CHSRA’s 2009 one-way fare between Los Angeles and San Francisco is \$105, that’s more than the cost of gasoline for a single individual driving; even with gasoline at \$4.50 per gallon. And when the average per passenger mile ticket price of subsidized European and Japanese high-speed rail systems is translated into a \$0.43/mile ticket price for the LA-SF journey, the minimum fare should be about \$184. A four person middle class household would spend about \$1,472, or about 4% of their annual pre-tax income, to ride the train from LA to SF. Using the Internal Revenue Service standard deductions, the train’s tickets would be nearly six times the full costs of driving, and an individual or family would still have to rent a car upon arriving.¹⁶⁸ The net conclusion is the train is either for the wealthy or those whose rides are on expense accounts. Its ticket prices are not designed for California’s middle and working class.

3.3.7 We subsidize other transport systems; therefore we should subsidize high-speed rail because of its social benefits – Other forms of public transport in the US receive infrastructure-oriented, and often operating subsidies. Public transport enthusiasts argue that the interstate highway system not only started small in the mid-West, but also was built with full Federal funding. Why then can’t high-speed rail start a pilot in California’s Central Valley and work its way to the two megapolises over a decade, a generation or longer?

That might work if the Federal government had the wherewithal and commitment to focus its strengths on a single project. But President Obama’s goal of connecting four-fifths of Americans through high-speed rail ended up spreading the resources over many states and projects.¹⁶⁹ Those construction grants were also intended as seed capital to attract private resources. But two stumbling blocks to the rationale immediately appeared. Not only were the monies solely for construction and not operations, but the Administration’s nationwide high-speed rail system budget was \$53Billion, a sum not even equal to the costs of building the LA to SF corridor.¹⁷⁰

However, it is the prospect of continual negative operating margins that should be in Californian’s focus. Amtrak’s 40-year history of more than a \$1Billion a year for operating (as well as capital) subsidies makes Congress wonder when the bleeding will stop. Congressional support for high-speed rail waned further when Amtrak’s Inspector General testified that European systems require a \$42Billion annual operating subsidy.¹⁷¹ Worldwide there is no evidence of positive operating margins.

Figure E DOT on Public Transport Subsidies ¹⁷²	
Transport Mode And (Subsidy) per 1,000 passenger miles	
Autos, Pickups & Vans	\$2
Intercity Rail	(\$186)
Public Transit	(\$118)
Commercial Aviation	(\$5)
Intercity Buses	(\$4)

High-speed rail enthusiasts will argue that tax incentives for the oil and automotive industries constitute subsidies. Perhaps, but as Figure E shows, highway transport actually more than pays its way due to gasoline taxes. In effect autos, pickups and vans cross-subsidize other transport forms.

The most costly transport system to the public treasury is intercity rail, the least costly intercity buses. Plus, the attractiveness of

the bus is clear when comparing bus and rail fares on the same route. For example, a simple web search indicates that, for the convenience of saving one hour of transit time, the Acela Express passenger pays nearly five times the price of a Bolt Bus ticket from mid-town Manhattan to Union Station in Washington.¹⁷³

The 'subsidize-one-subsidize all' is a seductive argument since bridges, ports and airports, and rail projects have subsidies and create social benefits. But it's a false analogy. The legal contract between the Legislature and Californians under AB3034 and Prop1A people for California's high-speed rail stipulated for neither a capital nor an operating subsidy. If the State's Legislature wanted to subsidize all the construction or even a portion of operations, it would have said so in 2008. It didn't.

3.4 High-Speed Rail Must Be Built Because The Costs of Doing Nothing About Congestion Will Be Higher If We Wait – The CHSRA and proponents' argue that the cost of doing nothing about California's highway and airport congestion is at least \$100Billion.¹⁷⁴ But high-speed rail won't solve the problem where traffic congestion is heaviest; within the San Francisco Bay Area and the Los Angeles Basin on the major traffic arteries. High-speed rail between these population centers does nothing to relieve that traffic congestion. Ironically, those European nations with high-speed rail and populations concentrated in high-density cities have higher auto traffic congestion than the US.¹⁷⁵ California's train could add to that. Most passengers will likely need to rent an auto after arriving, since CHSRA assumes that about three-fourths of the train's riders will come from the auto marketplace.¹⁷⁶

Second, California already has a safe, reliable, affordable, easily expandable, north-south, inter-city passenger public transport system – seven competing airlines and nine airports. It is impossible to ignore their ability to put seats on those routes when demand increases, while air traffic can be easily expanded using larger aircraft. Conversely, in economic downturns the operating companies can and do revert efficiently to smaller aircraft. That is flexibility that uses existing public capital investments to respond to different market conditions, and with which the proposed fixed rail system cannot compete financially.

Third, the California high-speed rail project is narrowly defined in its scope and financial performance metrics. It did not set out to solve intra-metropolitan areas' traffic congestion. It set out to build an inter-city passenger train that was not to cost the taxpayers more than the \$9Billion in bond authorization. The State can only match these funds with private and Federal funds to spend on construction. Whether the argument about doing nothing is correct or specious, the project as it exists requires Californians to subsidize only up to \$9Billion of its construction costs; nothing more for its construction and nothing at all for its operations.

3.5 We Should Build High-Speed Rail To Capture The Free Federal Monies – Bringing Federal monies back to the state is a time-honored role for elected officials; particularly if it doesn't have to be repaid. The 2009 Plan's \$17-19Billion in grants was about 42% of the \$43Billion construction cost equation. While not as perfect as having the Federal government pay 100% of the construction like in Europe, it seemed like a serious gift. But with at least a \$66Billion construction bill for Phase One, and only \$3.3Billion of Federal grants available, is it a gift or a curse?

Reality says that to build Phase One, the in-hand Federal grants are about 5% of the total costs. For a 'free' \$3.3Billion, the State will have to borrow \$63Billion or more when construction costs increase (including Prop1A bonds). The source of the loans could be some combination of private investors, foreign government agencies, private citizens or corporations who buy California bonds, or it could be the Federal agencies that loan funds to state agencies. The only difference in all these choices is the interest rate, the repayment period, and the security arrangements that are demanded. Borrowing that amount (or more) commits the State to pay back a total of \$137Billion in principal and interest over 30 years. That means for every \$1 of 'free' Federal money, the State of California must commit to pay back \$46 to the financiers.¹⁷⁷

Even assuming the train's ticket revenues are equal to the operating costs, repaying that much debt creates a very large hole in the State's General Fund. Unless the Federal government steps in to pay that \$63Billion with grants (not loans), the State's only source of money is debt, and the only source to service that debt is the taxpayer.

It gets even worse if the State proceeds to build the Entire System. Although construction after Phase One was to have come from the train's operating surplus, the Phase One \$66Billion price tag has negated that; with every potential operating margin (surplus) dollar going to pay down Phase One's construction debt.

To build the Entire System, the State would have to borrow a total of \$110Billion of the estimated cost of \$116Billion to build the Entire System. The State would then be committed to paying back the lenders a total of \$240Billion over 30 years. Assuming there is an additional Federal grant of \$3Billion, every 'free' Federal dollar costs the State \$40 in principal and interest repayments.

These calculations, detailed in Section 4.3, spawn the inevitable conclusion that California's taxpayers will be the only source from which to obtain the monies to pay back the lenders their bonds' principal and interest that cannot be paid from the train's operating margins. Those 'free' Federal grants don't seem to be so free.

3.6 Conclusions Regarding The Enthusiasm Surrounding California's Proposed High-Speed Rail Project – Perhaps California will be without high-speed rail until the concept proves to Legislators in Sacramento and Washington to be financially sustainable by paying for its construction and operations without subsidies. Proponents may then take the initiative to pour many of billions of dollars into building and operating a different California system. But considering California's fiscal deficits in both good and bad economic conditions, it's not clear where those billions will come from.¹⁷⁸ Even that effort could become yet another national prestige symbol like the supersonic Concorde, a great concept but an extravagant commercial disaster.

If the full \$17-19Billion of Federal grants had appeared and construction cost had materialized as projected (\$43Billion for Phase One), and the CHSRA's projection of meeting 100% of their Operating Plan objectives were credible, the operating results might have been good. Then taxpayer subsidies for servicing construction debts would not have been necessary. However construction estimates rose and substantially more 'free' Federal money is most unlikely. In this reality, significant taxpayer subsidies are certain to be necessary if the project continues.

Acknowledging these changes is the first step to avoiding a major financial problem for California and its taxpayers.¹⁷⁹

The CHSRA is on the horns of a dilemma about high-speed rail's finance:

If the real costs of building and operating the system are to be borne by the riders as the 2008 ballot promised, ticket prices would have to be 50-100% (or more) higher than CHSRA's 2009 Plan cited. And this assumes the 2009 Operating Plan objectives are met. But, as discussed earlier in Section 2.6.2, CHSRA's planned ticket prices are currently not competitive with the airline and auto driving markets, so passenger volumes will drop rapidly.

But if the real costs of building and operating the system are somehow to be borne by the taxpayers, California's annual personal tax collections, currently about \$45Billion to \$50Billion per year might have to increase 5% to 10%, for the next 30 years to service debt resulting from only the construction costs of the entire system. If the system or any section of the system runs an annual operating deficit, then the tax increase, albeit illegal in the first place, would have to increase even further.

Those who might wish to change the project's financial performance metrics cannot be monotonic about high-speed rail's benefits while neglecting the state's other social needs. California's university system has been the bedrock of the state's ability to both 'spin' new technology-based businesses and attract a wide range of industries and high-paying jobs that are grounded in new technologies. Immigrants to California have stayed because its education opportunities were unparalleled and their efforts have in turn continued the virtuous cycle of education-investment-and revenues. Similarly the state's ability to farm for the world depends on well maintained and ample water infrastructure. Both these engines of the state's growth are not only being neglected; they are being downgraded at a crucial moment when their contribution to the state's economic well-being is jeopardized. Meanwhile spending for the train continues with the prospect of deeply indebting the State for an unproven concept for California.

The dream of high-speed rail in California must first meet the cold-eyed financial rigor of proving it is commercially feasible. Under AB3034 and Prop1A's promises, it has to do that whether in a boom time like 2008 or during the Great Recession. As yet, there is not proof, or even a convincing argument from the CHSRA that it can pay off its construction debt from its operating margins; and there is certainly no latitude in the present law to gain any further obligation above the \$9Billion that was agreed to by Californians.

CHAPTER FOUR

The Possible Consequences of Putting Enthusiasm Above Rigorous Financial Planning

4.0 Overview – This is where ‘the rubber meets the road’ with evidence of the real costs of building and servicing the unpaid construction debt for four portions of the proposed system. The working assumptions are:

- 1) All baseline forecasts of the sources of funds, as well as estimates of ridership, construction and operating costs, and ticket prices are from the CHSRA’s 2009 Business Plan. That includes accepting the Authority’s 39Million riders in 2030, although challenged by outside-the-CHSRA experts. The analyses in this Section were completed ‘on top of’ the 2009 Business Plan baseline (called the 100% case) to understand the long-term financial consequences of variations in critical construction and operating parameters.
- 2) Construction costs have increased by over 50% for all portions; making the Phase One (SF-LA/Anaheim) construction cost at least \$66Billion, and the construction costs for the ‘Entire System’ around \$116Billion
- 3) Neither the State nor its taxpayers assume the liability to pay more than the already promised \$9Billion of construction costs, while there is certainty construction costs will go higher.

We show these in a risk analysis form; using up to four distinct cases for each of four construction quotations; the Central Valley [see Section 4.1], Sylmar to San Jose [see Section 4.1], Phase One of both 2009 and 2011[see 4.2 and 4.3.1], and the ‘Entire System’ [see 4.3 and 4.4]). The specific cases, which highlight various degrees of financial risks of operational performance, are:

a) A case where the operator or CHSRA meets all of the estimated operating margin (revenues minus expenses) as laid out in the CHSRA’s 2009 Business Plan between 2030 and 2035 (the 100% Case).

b) A case where the operator, whether by their own mistakes or macroeconomic conditions, is unable to achieve more than three-fourths (75%) of the 2009 Plan’s operating margin targets. As explained earlier, ridership, ticket prices and expenses move in unison in the CHSRA model and this is one case of what happens with a ‘downside’ assumption.

c) A special case where there is none or some operating margin. Specifically, there is no revenue forthcoming in the Central Valley project [see 4.1]; then three-fourths of the ridership and ticket prices and operating costs of the 2009 Plan for the Sylmar to San Jose pre-Phase One alternative [see 4.1].

d) A case where there is no operating margin; therefore nothing to offset the costs of servicing the construction debts for the particular portion being analyzed.

Note that none of these cases endorse the CHSRA’s poorly defined operating costs, its approach to ticket price calculations, nor its insistence on 39Million riders annually by 2030. While the case wherein revenues only equal expenses produces the worst

operating financial results, in no manner should this be considered the worst possible case. High-speed rail history around the world shows that governments must continually provide operating subsidies to their systems and California's train is unlikely to be different. Solely for analytical purposes, the following cases show the financial brinksmanship the project is creating.

4.1 The Costs Of Building And Servicing The Debt On The Proposed Central Valley Portion And The Sylmar-to-San Jose Portion – The CHSRA will start construction in the Central Valley.¹⁸⁰ It faces with two major changes that have emerged over the past two years: 1) construction costs increased over 50%; and 2) the decreased availability of 'free' Federal money. It has also been recommended to consider the initial termination of Phase One at Sylmar in the LA Basin and south of San Francisco at San Jose and that section is analyzed.

4.1.1 New costs per mile for The Central Valley – The CHSRA 2009 Business Plan contained a set of construction costs for each of the seven segments that make up Phase One (San Francisco to Los Angeles/Anaheim). The total of these costs were \$43Billion in YOE (Year of Expenditure) dollars. When in late 2010, the CHSRA Board presented where they were going to build their first portions, it became apparent that the costs per mile were much higher, about 50% higher than the 2009 Plan.¹⁸¹

Then the August 2011 CHSRA Environmental Impact Reports (EIRs) gave seven alternative cost structures for both the Merced to Fresno portion and twenty-four alternatives for the Fresno to Bakersfield portions.¹⁸² Averaging the estimates in each of the EIRs results in cost of \$59Million/mile, based on the number of miles shown.

Figure F					
Merced to Bakersfield – Estimated Construction Costs per Mile					
(Millions \$)					
	11/2008 2008\$\$	11/2009 YOESs	08/2011 2010\$\$	08/2011 YOESs	01/2011 YOESs
CHSRA Estimates	\$40	\$41	\$59	\$67	na
Independent Estimates	na	na	na	na	\$73

But, as Figure F shows, these EIR numbers were in 2010 dollars, not the YOE (Year of Expenditure) dollars as required by the Federal Railroad Administration. Distributing the 2010 dollars of spending over a bell-shaped

curve covering five years; then inflating the yearly spending by the CHSRA-specified inflation rate of 3%, leads to the CHSRA's \$11.8Billion (in 2010 dollars) increasing to \$13.5Billion in YOE dollars. This is \$67Million/mile. These are still based on fifteen percent Engineering Design level projections, and likely to increase. But CHSRA's estimates are now within ten percent of the average (\$73M/mile) of the early 2011 analyses by CARRD and William Warren based on YOE dollars shown in Figure A.¹⁸³

4.1.2 How many miles can the existing funds build in the Central Valley? – The CHSRA has about \$5.9Billion for Central Valley construction.¹⁸⁴ Probably this total will not increase by much if at all before construction is required to start in September 2012. The projected cost per mile will determine the number of miles that can be built. These miles are being described by the CHSRA as their 'Initial Construction Section' (ICS). Note that it is a section, not a 'Segment', a crucial legal distinction.¹⁸⁵ Once the CHSRA has a certified EIR for the 87 miles of track between Merced and Fresno, and a certified EIR for the 114 miles of track from Fresno to Bakersfield, they will have just over two hundred EIR-certified miles of right of way.¹⁸⁶ At that point they need to select the location for the ICS of between 80 to 105 miles of track within that EIR-certified right of way.¹⁸⁷

The CHSRA will need to choose between two different purposes for and therefore types of construction as they plan the ICS construction cycle. One choice, identified as 'HSR Ready' in Figure G, means that the entire distance is ready to receive and operate high-speed rail train sets. In HSR Ready, the tracks will need to be electrified and installed in such a way as to support high speed, low weight train-sets, and have a high-speed rail (HSR) positive train control system installed. The second choice, identified in Figure G as 'Amtrak Ready', means that the entire distance is ready to receive and operate traditional Amtrak passenger trains. Tracks do not need to be electrified, nor need a HSR positive train control system. But the tracks must be installed in such a way as to support lower speed but heavier train sets, possibly including freight trains.

	11/2008 2008\$Bs	11/2009 YOESs	08/2011 2010\$Bs	08/2011 YOESs	01/2011 YOESs
HSR Ready	149	143	100	88	81
Amtrak Ready	191	183	120	105	96

Figure G shows the number of miles that can be built with the available \$5.9Billion. The money available to build 'HSR Ready' track has declined from 143 miles in the 2009 Plan to 88 miles *vis a vis* CHSRA's two August 2011 EIRs. The

two independent, early 2011 estimates indicate about 81 miles for the 'HSR Ready' solution.¹⁸⁸ The 'Amtrak Ready' row in Figure G shows the number of miles that can be built with the available \$5.9Billion has declined from 191 miles in the 2009 Plan to 105 miles in the August 2011 EIRs; with the independent analysts' estimates being about 96 miles.

Therefore the miles that can be built with the available funds range between 88 and 105. It seems possible to connect Merced to Fresno, about 87 miles of track. But given the limited funds and the track mile distances, it is unlikely that the 'Initial Construction Section' will connect Fresno to Bakersfield – about 114 track miles. Whether connecting Fresno to Merced will legally qualify as a useable Segment as per AB 3034, to allow use of Prop 1A funds, remains to be seen.

4.1.3 Financial results for the first two Central Valley portions – Two proposals have been made for building the first portions of the system.¹⁹¹ The Central Valley column in Figure H shows the

	Central Valley ¹⁸⁹	Sylmar to San Jose ¹⁹⁰
Costs To Build	\$5.9B	\$43B
Less Federal Grants	\$3B	\$3B
Debt Required	\$2.9B	\$40B
Less Prop1A Bonds	\$2.9B	\$9B
Construction Debt (Private or Public)	\$0B	\$31B
Annual Debt Servicing Requirement	(\$0.2B)	(\$2.9B)
Impacts On Taxpayers Of Pre-Phase One Cash Flows (2020-2035) (Cases based on the Average Annual Operating Margin in 2009 Plan)		
75% of Operating Margin	\$0.0B	\$1.8B
Annual Cash Shortfall	(\$0.2B)	(\$1.1B)
Cumulative Negative Cash Flows	(\$3.2B)	(\$18B)
Some Operating Margin	\$0.0B	\$0.9B
Annual Cash Shortfall	(\$0.2B)	(\$2.0B)
Cumulative Negative Cash Flows	(\$3.2B)	(\$31B)
No Operating Margin	\$0.0B	\$0.0B
Annual Cash Shortfall	(\$0.2B)	(\$2.9B)
Cumulative Negative Cash Flows	(\$3.2B)	(\$46B)

CHSRA projected cost of about \$5.9B to build about 100 miles of track somewhere between Bakersfield and Merced, called the 'Initial Construction Segment'. Assuming it is to be built to be 'Amtrak Ready, this excludes train sets, electrification, and systems, therefore no revenue. This also assumes that most of the yet un-obligated funds of \$0.9Billion become obligated, bringing the total of Federal grants to \$3.3Billion.¹⁹² Prop 1A matching bonds will be in the range of \$2.6-\$2.9Billion which will require an annual debt service of about \$0.2Billion per year, or about an accumulated negative cash flow of \$3.2Billion by 2035. If the track is only

used for Amtrak service, there is no known expectation that passenger traffic will increase. Therefore there are no additional revenues to help pay off this debt. If Amtrak were not to use this section, within a year, there is a legal obligation to repay the FRA the \$3.3Billion of ARRA/FY10 grants.¹⁹³

Connecting Sylmar to San Jose as a pre-Phase One was proposed by CARRD in early 2011.¹⁹⁴ This eliminates expensive segments in the LA Basin and the SF Peninsula. The projected construction cost is about \$43Billion.¹⁹⁵ The primary disadvantage of this idea is that passengers will need to use existing regional transit lines to get to downtown Los Angeles or San Francisco. Estimates show that about a quarter of the passengers will be lost due to stopping short of the metropolises' downtowns. Consequently operating margins will decline from \$2.4Billion to about \$1.8Billion in the 75% of Operating Margin Case. If ticket revenues also decrease so that riders can purchase regional/local transit tickets, the operating margin may drop to \$0.9Billion. If the Operating margin is zero, the annual cash shortfall will be \$2.9Billion, accumulating to a negative \$46Billion by 2035.

Neither of the Pre-Phase One options is financially justified. These early efforts might be reasonable if Phase One could be shown to be financially feasible, but Notes #16 and #17 show that isn't possible.¹⁹⁶ The State would be forced to pay or guarantee (subsidize) the debt servicing for construction costs under any plausible operating scenario of building in the Central Valley or Sylmar to San Jose. This would be illegal.

4.2 Phase One's Construction Costs, Operating Margins and Accumulated Debt Over the Projects' First Sixteen Years Now Show Negative Results – A

financial comparison of the 2009 Business Plan and the early 2011 estimates for Phase One shows a third important change. In addition to construction costs increases and the decreasing availability of 'free' Federal money, none of the expected \$10-12Billion of private sector investment has appeared. As Figure I shows, these changes create annual debt repayment requirements that nearly always exceed the CHSRA's estimated operating margins (revenue less operating expenses) between 2020 and 2035. The State would be forced to pay or subsidize the debt servicing for construction costs under any plausible operating scenario.¹⁹⁷

4.2.1 The 100% Operating Margin Case (The Baseline Case) – This case, directly from the CHSRA's 2009 Business Plan for the Phase One Corridor (LA to SF), is always the baseline case in that it adheres to the Authority's published

Figure I
ANALYSIS OF BUILDING, FINANCING & OPERATING PHASE ONE
Construction In \$Billions for Phase One (LA-SF)

	2009	2011
Costs To Build Phase One	\$43B ¹⁹⁶	\$66B ¹⁹⁹
Less Federal Grants	\$18B ²⁰⁰	\$3B
Debt Required	\$25B	\$63B
Less Prop 1A Bonds ²⁰¹	\$9B	\$9B
Construction Debt (Private or Public)	\$16B	\$54B
Annual Debt Servicing Requirement	(\$1.8B)	(\$4.6B)
Impacts On Taxpayers Of Phase One Cash Flows (2020-2035) (Cases based on the Average Annual Operating Margin in 2009 Plan)		
100% of Operating Margin ²⁰²	\$2.4B	\$2.4B
Annual Cash Excess (Shortfall)	\$0.6B	(\$2.2B)
Cumulative Negative Cash Flows	\$9.0B	(\$35B)
Some Operating Margin ²⁰³	\$0.9B	\$0.9B
Annual Cash Shortfall	(\$0.9B)	(\$3.7B)
Cumulative Negative Cash Flows	(\$15B)	(\$58B)
No Operating Margin ²⁰⁴	\$0.0B	\$0.0B
Annual Cash Shortfall	(\$1.8B)	(\$4.6B)
Cumulative Negative Cash Flows	(\$29B)	(\$74B)

forecasts on riders, revenues and expenses, despite serious questions of their veracity.

The '2009 column' of Figure I shows that if the annual debt servicing for \$43Billion of construction was \$1.8Billion, and the train's operations achieved the \$2.4Billion Annual Average Operating margin as the CHSRA asserted, the construction debt could be serviced from the first year, and \$9Billion of cash accumulated for extensions.²⁰⁵ As Figure I's 2011 column shows, those results disappear if Federal grants don't exceed

the current \$3.3Billion and construction costs \$66Billion (or more).

4.2.2 The Some Operating Margin Case - If the average fall-off of riders, ticket prices, and costs over the train's first sixteen years (2020-2035) is only 25% less than CHSRA's 2009 Plan, the annual cash shortfall for a Sylmar-San Jose

section's \$43Billion construction bill would be \$0.9Billion, adding \$15Billion to the State's debt. Assume the 2011 costs of at least \$66B and the State (aka taxpayers) would have to provide \$3.7Billion yearly to service the debt. That accumulates to a negative \$58Billion by 2035.

4.2.3 The No Operating Margin Case – Assuming at least a \$66Billion cost to build, if the train's revenues only equal operating costs, the annual cash shortfall is \$4.6Billion for servicing construction debt; accumulating to a negative \$74Billion by 2035.

Since building Phase One with 2009's estimate of \$43Billion is highly improbable, and the prospects for additional Federal grants have greatly diminished, this Figure I's case is moot. The reality is a \$66Billion (or more) construction bill that has a cumulative negative cash flow between (\$35) Billion to (\$74) Billion by 2035. If this debt is incurred, it must be paid out of General Funds via additional taxes or a reduction in other spending areas. Since predicting long-term future operating results is problematic, the decision to proceed to build Phase One would exhibit a willingness to accept very negative financial results.

4.3 The Costs of Building, Financing and Operating Both Phase One And The 'Entire System' Over Thirty Years – The 2009 CHSRA Business Plan, which covered only the first sixteen years of operations (2020-2035), focused on the construction and operation of Phase One, but not the repaying all construction costs over the first sixteen years of the train's operations.

But Prop 1A and AB3034 authorized the CHSRA to plan to build and operate the Entire System connecting six cities.²⁰⁶ This analysis provides a preliminary view of the financial ramifications of building the Entire System. Importantly, it also reflects the complete, thirty-year repayment period, financial impacts.²⁰⁷

Figure J
ANALYSIS OF BUILDING, FINANCING & OPERATING
PHASE ONE AND THE 'ENTIRE SYSTEM'
Construction In \$Billions

	Phase One	'Entire System
Cost To Build	\$66B²⁰⁰⁸	\$116B²⁰⁰⁹
Less Federal Grants	\$3B	\$6B
Debt Required	\$63B	\$110B
Less Prop1A Bonds ²¹⁰	\$9B	\$9B
Construction Debt (Private or Public)	\$54B	\$101B
Annual Debt Servicing Requirement	(\$4.6B)	(\$8.0B)
Impacts On Taxpayers Of Phase One Cash Flows (2020-2035) (Cases based on the Average Annual Operating Margin in 2009 Plan)		
100% of Operating Margin	\$2.4B	\$4.2B
Annual Shortfall	(\$2.2B)	(\$3.8B)
Cumulative Negative Cash Flow By 2055	(\$65B)	(\$114B)
Some Operating Margin	\$0.9B	\$1.6B
Annual Cash Shortfall	(\$3.7B)	(\$6.4B)
Cumulative Negative Cash Flow By 2055	(\$110B)	(\$193B)
No Operating Margin	\$0.0B	\$0.0B
Annual Cash Shortfall	(\$4.6B)	(\$8.0B)
Cumulative Negative Cash Flow By 2055	(\$137B)	(\$240B)

4.3.1 Results for Phase One – Based on 2011's estimate of at least \$66Billion construction cost and only in-hand Federal grants, this column in Figure J provides the same annual financial information as above. Here the cumulative negative cash flow grows from \$65Billion in the 100% Case to \$137Billion in the No Operating Margin Case as Operating Margins drop from about \$2.4Billion to zero per year

4.3.2 Results for the 'Entire System' – Early 2011 estimates of the cost to build the Entire System were \$116Billion; about 75% more than just the Phase One cost and nearly three times the 2008 CHSRA estimate of \$45Billion. As Figure J shows, even assuming

an additional \$3Billion of Federal grants still requires borrowing about \$110Billion, increasing the annual debt service cost by about \$8Billion.

Assuming that operations for the 'Entire System' start in 2025, five years after Phase One, and revenues, costs and operating margins increase by the same 75%; the operator's \$2.4Billion Average Annual Operating margin in the 2009 Plan will grow to \$4.2Billion.²¹¹ Even results from the 100% Case show that the Operating margin will

not cover the entire debt-servicing requirement, leading to a thirty-five year cumulative negative cash flow of \$114Billion. In the No Operating Margin Case, the cumulative negative cash flow grows to \$240B. These obligations remain after counting any operating margin. Some source, namely California’s corporate and individual taxpayers, must service that obligation.

Using the complete thirty-year payback period, the cumulative negative cash flows for Phase One double to about \$137Billion in the No Operating Margin Case.²¹² Completion of the ‘Entire System’ leads to cumulative negative cash flows of \$114Billion – \$240Billion.²¹³ Proceeding to build Phase One is highly questionable; but planning to build the ‘Entire System’ exhibits extremely risky behavior.

4.4 The Impact of Servicing Construction Debt From Building The ‘Entire System’ On The State of California’s Future Debt Servicing – The inability of the high-speed rail’s operating margins to produce sufficient cash to service the construction debt (interest and principal repayments) will likely require additional State debt. This would lead to the State’s debt servicing obligations exceeding 10% to 16% of General Fund Revenues over the next twenty years unless revenues (taxes and fees) are significantly increased.²¹⁴

The State’s Treasurer and the Legislative Analyst’s Office (LAO) periodically make long-term forecasts of the State’s debt servicing obligations as a percent of the General Fund’s projected revenues. The last forecast was completed in late 2009.²¹⁵ It included the impact of the Prop1A debt servicing obligations, but did not address the impact of additional construction debt having to be serviced from the General Fund. Estimates now show there are insufficient operating margins in the HSR program to cover all of the debt servicing obligations of the construction debt.²¹⁶

Figure K shows the magnitude of the problem. In Section (A) the ‘Current Estimate’ row shows the Treasurer’s and the LAO’s forecast of all debt servicing as \$15.3Billion in 2030.²¹⁷ If the ‘Entire System’ (all 6 cities) of the high-speed rail program

Figure K Impacts On The General Fund From Debt Servicing The Construction Debt Of California’s High-Speed Rail Project			
Budget Year - FY	2010	2020	2030
(A) Debt Service - in \$Billions			
Current Estimate	\$6.8B	\$11.7B	\$15.3B
Plus HSR at 100% Plan	\$6.8B	\$15.9B	\$19.1B
Plus HSR at no Op Mar	\$6.8B	\$16.3B	\$23.3B
(B) Debt Service, % of General Fund Revenues, (Assumes Treasurer’s 5.3% annual growth rate)			
Current Estimate	7.8%	8.0%	6.6%
Plus HSR at 100% Plan	7.8%	11.0%	8.2%
Plus HSR at no Op Mar	7.8%	11.2%	10.0%
(C) Debt Service, % of General Fund Revenues (Assumes a lower, 3.0% annual growth rate)			
Current Estimate	7.8%	10.3%	10.3%
Plus HSR at 100% Plan	7.8%	14.0%	12.9%
Plus HSR at no Op Mar	7.8%	14.3%	15.7%

achieves 100% of its operating margins, there will be \$3.8Billion in additional debt service obligations that cannot be covered by its operating margins, raising the State’s annual obligation in 2030 to \$19.1Billion. If the high-speed rail program has no operating margins to contribute to servicing construction debt, the State’s obligation will increase to \$23.3Billion per year.

Section (B) displays these projections the same way the LAO displays future obligations, as a percent of the projected General Fund revenues. The current General Fund revenue projection from

the Treasurer’s Office is based on an annual revenue growth rate of 5.3%. The three rows in Section (B) show the projected debt servicing obligations as a percent of these revenue projections. However, if the State’s revenues grow more slowly, say 3% annually, debt servicing obligations as a percent of General Fund revenues will be much higher, as shown in Section (C).

If the worst case’s conditions materialize; that is if State revenues only grow by 3% annually, and the HSR program fails to contribute any operating margin to pay off

the construction debt, the total State's debt service could be in the range of 15% to 16% annually of General Fund revenues within 10 to 15 years. Of this obligation, the impact of the high-speed rail program will be about one third of the total annual obligation. Since servicing the State's debt is constitutionally its primary obligation, it will be very difficult to fund other State priorities such as education, safety or other transportation initiatives without higher revenues to reduce the debt load created by the inability of the 'Entire System' to service all of its construction cost debts.

4.5 Conclusions Regarding The Fiscal Impacts Of Building The Entire System Or Portions Of The Entire System

– In August 2011, the Authority admitted that construction costs have increased dramatically since 2009. They verified that their cost per mile increases were based on only finishing fifteen percent of the engineering studies. But they failed to admit they had yet to factor in Year of Expenditure (YOE) based inflators – a Federal Railroad Administration requirement they also forgot to account for in 2008. Both of these facts, and the relative ease of building in the Central Valley versus urban areas or mountainous terrain, are omens that more cost per mile increases are likely.

The fact of higher mileage costs drives the estimates of higher costs per segment, which drives the costs of servicing the debt from monies that must be borrowed to pay the differences between what the Authority has and what it needs to build any section or segment.

Consider for a moment that this report has assumed for purposes of analysis, but not stipulated to, the worst case being that the train's operations 'break even' financially. That is, revenues from day-to-day operations equal operating expenses. Without adding more to the State's burden that would occur if operating expenses exceed revenues, this report's results are stark reminders of the risks being taken to even begin construction in the Central Valley.

The clear financial conclusion, based on the new cost data, is that all sections, segments, corridors or the Entire System lose money annually and accumulate debt that the State, and therefore its taxpayers, would be required to cover. In detail:

The Central Valley Initial Construction Segment – With no new passengers and therefore no new revenue forthcoming, building in the Central Valley will incur nothing but debt servicing costs – at \$0.2Billion per year accumulating to a negative (\$3.2Billion) over its first sixteen years of operations.

The Phase One Corridor (LA/Anaheim – SF) – Even if operations fully achieve their promises of 2009 (the 100% case), the accumulated negative cash flow in the first sixteen years is (\$35Billion). If operations only break even, that climbs to a negative (\$74Billion).

The Entire System – At \$116 Billion to build, this six-city 800-mile behemoth has the potential over thirty years of debt-based financing to create a cumulative negative cash flow accumulation of (\$114Billion) to (\$240Billion).

These results indicate how financially catastrophic this project could be. Given the official, but now-seemly optimistic 5.3% annual growth of General Fund revenues over the next twenty years, the train alone could increase the share of the State's income going to service long-term debt from 6.6% of 10%.

If slow economic growth continues, and California's General Fund revenues only grow at 3% per year, the train alone can increase debt servicing from 10% to 16% of General Fund revenues – more than a fifty percent increase for one project alone. Or to put this rise in obligations in perspective, the train could easily increase the State's debt by more than the combination of every existing bridge, highway, port or airport's debt today.

CHAPTER FIVE

Hard Lessons From Addressing The Realities of Finance

After spending over a half-billion dollars on various types of studies, the CHSRA has yet to produce a financing plan that would be acceptable to private investors although more than three-fourths of its Phase One construction money must come from that source. As the Authority progresses towards producing the 2009 Plan's successor in October 2011 or early 2012, the Authority and their consultants will learn a few hard lessons.

Accepting, as has been done reluctantly throughout this report as the Baseline Case (the 100% Case), that the Authority's ridership, revenue and operating expense figures are credible – despite every disinterested professional's serious and sustained challenge to each assumption – five lessons their financial planners will learn are:

1. All other high-speed rail systems in the world are subsidized. The California project is *sui generis*, unique in its characteristics in that the law prohibits an operating subsidy and its founding legislation will not allow the construction costs above \$9Billion to be passed to the taxpayers as done in Europe and Asia.
2. The project will never receive the \$17-19Billion of 'free' Federal money as required in the 2009 Plan. Nor is the present roughly \$3.3Billion for Federal grants likely to grow substantially, even assuming the un-obligated \$0.93Billion does become obligated. Nor will local governments give the CHSRA \$4-5Billion of grants. State bonds and Federal monies may finance about 100 track miles in the Central Valley, but that is likely to be a waste.
3. Once the real costs of building a mile of track and equipping it with high-speed rail technology passed the 2008-estimated cost per mile, the ability to operate even at a financial break-even level was compromised. By early 2011, the fact that per mile costs had escalated to about \$73Million per mile made Phase One's cost \$66Billion or more. There is virtually no way the project can borrow the difference, service the debt on that difference, and break even.
4. Borrowing and servicing \$63Billion to finance Phase One, the only possible corridor that might have paid its way under the best of financing and operating circumstances, would obligate the State to \$65-\$137Billion of debt service.

To build the entire six-city system noted in 2008 as \$45Billion,,but now estimated to be \$116Billion, will require the State taking on debt of about \$110Billion, and will obligate the State to \$114-\$240Billion of debt service. Unless the train's operations dramatically exceed the CHSRA's 2009 projected operating results, there is no form of private debt (or equity) that will reduce the State's exposure because there is not enough operating margin to cover servicing all of the construction debt. A dramatic increase in operating margins is extremely remote.

5. The appetite for between \$63-\$110Billion of new California bond debt to support the same type of project that around the world is subsidized, and for which the Federal government seems to be equivocating, has diminished since 2008. Private lenders, who remember the bankruptcies of US passenger railroads forty years ago, will not step forward with 'at risk' capital to build or operate the California train. The Authority has known this since June 2008.

Proponents will say this report is shortsighted – or worse. Advocating for fiscal rectitude and fact-based decisions in the midst of the Great Recession thwarts the aims of true believers and the corporate beneficiaries' salesmen. However, the project's financial plans, as available to the public, leave a great deal to be desired. Counting on one hundred million, or thirty nine million riders paying twice or more than they would pay to drive or fly to make the project's finances appear to work was hubris. To link revenues and expenses to move in lock step with ridership numbers, or assume the State government will pay insurance costs is not rigorous financial planning, and would never withstand investment grade due diligence.

Some argue that the project, as constituted under AB3034 had a chance if California and the US economy were 'doing better.' But it really doesn't matter whether the economy is doing fine or poorly. The financial sustainability demand, as required by the enabling law (AB3034) couldn't be met in the 'boom' time of 2007, and can't be met today.

5.1 Free Money Is Far From Free – California, as the largest single recipient of Federal grants for high-speed rail, has struck a bargain with the devil. For the 'free' \$3Billion federal dollars for the Central Valley initial operating section, California's treasury commits to spend a total of about \$7Billion in principal and interest over 30 years to finance that Central Valley section.

It gets worse. Suppose the State were somehow able use its 'free' \$3Billion federal dollars and all \$9Billion of its bonds to build the \$66Billion Phase One. It would still have to borrow about an additional \$54Billion. That formula means the State would have to commit to paying about \$137Billion in principal and interest on 30-year bonds at 6% interest. However, if over the next 30 years the CHSRA meets its 2009 operating plan projections, only about half (about \$65Billion) of the obligation would have to be born by the taxpayers. That would reduce the ratio downward from \$46 to get \$1 of free Federal money, to about \$22 that will be paid for each \$1 of free money.

The notion of paying \$46 or \$22 per dollar for 'free' Federal money doesn't seem like wise or prudent fiscal policy for a state with chronic deficits.

5.2 The Costs Of Creating Short-Term Construction Jobs Will Live Far Beyond Their Existence – While Governor Brown's administration is committed to creating jobs in California, the proposed high-speed rail project doesn't seem to create a sound or sustainable 'jobs' program.²¹⁸

In fact, California may be creating the world's most expensive construction jobs program. Using reliable and accepted Bureau of Labor Statistics' (BLS) methods for job creation, the 2009 CHSRA estimate of \$43Billion for Phase One construction

suggested up to 13,000 construction jobs would have been created, each year for 10 years.²¹⁹ Each job-year would cost about \$330,000, in terms of payments made by the State for the construction services during the 2012 to 2021 time period. Since construction and job-year costs march in lockstep, the BLS methods suggest about 20,000 construction job-years would be created in a \$66Billion construction project, each costing about the same \$330,000.²²⁰

However, the State would have to finance these jobs by borrowing \$63Billion and repaying \$137Billion of principal and interest over 30 years. Even if the train's operations were able to break even annually, a dubious prospect if high-speed rail history is studied, each job-year created for Phase One would require a debt service of about \$685,000 paid out over a 30-year period.²²¹ Additional jobs, created for the Entire System, would require about the same debt service per job year, about \$685,000 paid out over a 30-year period.

If the Governor wishes to see this high-speed rail jobs program from the point of view of corporations who pay California's State taxes to create the jobs, perhaps he should consider that the state corporate income tax is already in the nation's top quartile, and the highest in the western US.²²² Even if the median effective State tax rate on companies is only 5%, that's 5% more that company must earn to help pay for short-term high-speed rail construction jobs. Corporations raise the specter of leaving California because of the cost of doing business in the state. Creating a jobs program with expensive jobs doesn't seem to be the path to the state's prosperity or a fiscally strong California.

5.3 CHSRA's Management And Governance Are Only Part Of The Problem –

The California High-Speed Rail Authority may not have always been well managed, or managed six hundred consultants well, or managed to be careful in using its budget. The State Auditor and Inspector General have given ample evidence to those failings.²²³ The CHSRA's Board may not always have exercised good governance, and the Independent Peer Review Group did not always act as if its mission was to judge the project's planning, engineering and finance to meet the strictures of AB3034.

But there is nothing the Authority, its Board or Peers could do to suppress the inevitable cost rises that all megaproject agencies come to discover sooner or later. Better governance or pursuing a philosophy of 'doing it right' might have helped or hindered, but only at the margins. Nothing could have altered the need for more construction money; and nothing can change the mathematics of servicing the ballooning debt caused by the combination of higher construction costs and stagnant Federal grants.

The Legislature wants to tighten the governance rules for the Authority and the Governor has said he is to be more actively engaged in the project.²²⁴ But those changes won't make much if any difference to the construction costs; or more importantly to the cost of servicing the debt on any section or segment of the project. The financial markets will give the State this message sooner or later. But active leadership, focused on the State's fiscal wellbeing, could save the State and its taxpayers many millions, if not billions of dollars that otherwise will be wasted before that message becomes public.

At this point, spending the State's precious revenues, when every indicator is that this project will not meet the financial performance metrics of AB3034, and spending over \$700,00 per working day is an exercise **in the confident hope of a miracle.**

**Appendix A –
A Special Note For California’s Legislators On Financial Rigor
Expected Of The CHSRA’s 2011 Business Plan**

On October 14th the CHSRA is to submit a draft business plan that in November 2010 their Peer Review Group and four Senate leaders, demanded address the following issues.

1. What are both the business models for the proposed project and what alternatives does CHSRA have if there aren’t sufficient resources (money) for their model of choice?

2. What steps will the Authority take with the Federal and local governments to implement their model of choice?

3. How does the Authority intend to fill the funding gap that exists and what happens if that gap cannot be closed?

4. What is the Authority doing to increase confidence in its highly criticized ridership forecasts?

5. How can the expectation of revenue guarantees be reconciled with Section 2704.08(J) of AB3034 prohibiting subsidies?

6. What are the financial risks of the project, how are they quantified, mitigated and allocated among the investors?

Additionally, the State’s Senators and Assembly Members in oversight committees on policy and budgets should be asking the following parameters of the Authority in the forthcoming 2011 Business Plan and Financial Plan:

7. What financial methods and processes does the Authority use to produce its financial forecasts? [Prior methods of calculating finances have never been revealed. Taxpayers must be given the material to perform a due diligence on the largest project ever proposed in the state.]

8. What is the range of risk scenarios, both financial and operational, that may impede the Authority’s ability to repay any debt above the \$9Billion approved by the voters in 2008; and what are realistic contingency plans for each of those risk scenarios.

9. Does the financial plan conform to GAAP and international accounting standards for investment grade decisions? [The Legislature would expect not only clear statements of the sources and uses of revenues, but also detailed statements of operating and capital expenses. Such investment grade data should be included for the Phase One Corridor in detail, and for the Entire System, in less detail]

10. What are the ranges of construction costs, by segment, for the Phase One Corridor from LA to SF and to the other cities identified in Prop 1A?? [Current 2011 estimated costs for the first section between Borden and the suburbs of Bakersfield are much higher than the CHSRA’s 2009 Business Plan estimates on an “apples to apples’ basis.]

11. What are the ranges of the mixes and costs of financing this range of construction costs?

12. What is the range of the annual ridership forecasts (passenger volumes) for the cities included in the Phase One Corridor from LA to SF, and for the extensions to the other cities identified in Prop 1A?

13. What is the range of the ticket prices to be achieved at these levels of passenger volumes? Are these prices competitive to the airlines and automobile marketplaces? [Note the strategy for the CHSRA is a "replacement market" strategy. That is, riders will be created by taking passengers from the existing and the future growth of the airlines and the automobile market place. It is not a strategy of generating net new passengers within California.]

14. Which expenses are considered fixed, and which are variable and where are these to be accounted for? There is no mention of this in prior plans.

15. What is the range of the operating costs and equipment maintenance and replacement at these levels of passenger volumes?

16. What are the annual cash flows that will result from these different operating scenarios for the Phase One Corridor from LA to SF, as well as for the extensions to the other cities identified in Prop 1A as part of the 'Entire System'?

17. How is construction debt and equity investment to be serviced, by whom and at what interest rates, terms and conditions? How are borrowings for operations accounted for and at what interest rates, terms and conditions?

18. What are the annual cash flows that will result from these different financial scenarios?

19. How many of these scenarios will require a State subsidy and for how long and for how much?

20. Who are the candidates other than the Federal government and local governments to provide the alternatives sources of finances and under what terms and conditions?

21. How much profit will be made by private debt and equity investors if the State is required to provide subsidies? Will the private investors be "at risk", or will these profits be guaranteed?

22. What inflation rates are assigned to both capital and labor expenses, how do they differ, and how do those rates reflect historical evidence?

23. What entity is to prepay the casualty, property, life and health insurance premiums during both construction and operations?

24. How will insurance for capital assets, general liability and property damage be managed and expenses?

25. What will be considered assets of the operating entity or how will depreciation or write off of capital equipment, software and systems be accounted for?

26. How are the physical safety and security of capital assets, rights of way, physical assets such as stations, trackage, tunnels, bridges passengers and baggage managed and accounted for in the financial plan?

27. What methods will be used for accounting for inventories and their distribution and use?

28. How are State and Federal taxes handled on both operating income and capital investment schedules?

29. Does the periodicity of reporting (by quarter or semester) and the forecast horizon (5 or 10 years) meet investment grade standards?

30. How are legal fees for contracts, regulatory affairs, finance procurement and management, lawsuits such as those concerning eminent domain, environmental law challenges to be paid and what is the size of the annual budgets for these legal services?

31. What are the assumed terms of accounts receivable and payable and what impacts do those have on cash flows?

32. Who are the likely contractors to build and operate the train, what are their experiences and qualifications, and where will the main manufacturing value be added (vs. final assembly of already manufactured sub systems and components)

33. What is the intended contract structure (e.g. one prime contractor for the whole job or sub contracts for construction of tracks, etc.)

34. How much financial risk will the contractors assume (e.g. fixed price, cost plus or incentive contracts)? Who shares in any possible cost over-runs, and what incentives do the contractors have to avoid low-balling followed by cost increases.

35. Are there any thresholds before or during construction that would lead to a decision to terminate the project (e.g. if the initial bids come in at twice the estimated costs, would CHSRA propose nevertheless to continue?)

36. If there are construction cost overruns, by whom and how would they be financed?

37. What portion of every dollar that is spent on building the project will end up being spent for materials and services procured in California, the USA and offshore?

As a guardian of the fiscal position of California, you should demand nothing less than full and direct answers to at least these questions. There is too much at stake for the State's future to do less.

REFERENCE NOTES

- ¹ Credit is due for this phrase to author Neil Hanson, whose book *In The Confident Hope Of A Miracle* was published by Vintage Books, a division of Random House Inc, September 2005.
- ² The Authority attributed the rise of construction costs on Phase One, from \$33Billion in November 2008 to \$43Billion one year later to be the result of having to conform to Federal Railroad Administration (FRA) accounting practices. The CHSRA had worked closely with the FRA for over a decade at that point. However, to have 'forgotten' to use YOY-based data in their 2011 Central Valley estimates can hardly be attributed to lack of knowledge of FRA accounting requirements.
- ³ A UC Berkeley report found the carbon reduction to be negligible. See: Kosinski, Andrew, *Analysis of High-Speed Rail's Potential to Reduce CO2 Emissions for Transportation in the United States*; November 15 2010. Schipper *Impacts of High Speed Rail - Session 118.pdf*. Also see: Mikhail Chester¹ and Arpad Horvath *Life-cycle assessment of high-speed rail: the case of California Department of Civil and Environmental Engineering, University of California, Berkeley*; 6 January 2010 at <http://iopscience.iop.org/1748-9326/5/1/014003/fulltext>. Concerning the claim that high-speed rail will reduce auto ownership, see: <http://www.heritage.org/search?query=Urban+Transportation+Policy+Requires+Factual+Foundations>
- ⁴ Op. Cit Neil Hanson, *In The Confident Hope Of A Miracle*
- ⁵ See: Infrastructure Management Group and Goldman Sachs; California High-Speed Rail Authority Board Financing Workshop; September 3, 2009; pg. 8. Found at: <http://www.google.com/search?q=California+High-Speed+Rail+Authority++Board+Financing+Workshop++September+3%2C+2009&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a>
- ⁶ Ridership Peer Review Panel: First Meeting January 10, 2011, page 5. Found at: http://www.google.com/search?q=2011_01_10_Ridership_Peer_Review_first_meeting1.pdf&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a
- ⁷ See: CHSRA's CEO Roelof Van Ark; CA Assembly hearing on high-speed rail; May 11th 2011, minute fifty-nine of YouTube recording.
- ⁸ *State Treasurer worries about bullet train's finances*; California Watch, June 28, 2011; at <http://californiawatch.org/dailyreport/state-treasurer-worries-about-bullet-train-s-finances-11126>
- ⁹ The Federal grant amount assumes that about \$0.9Billion of awarded, but not yet obligated, Federal grants eventually become obligated to the CHSRA. See: See: CHSRA *UPDATE ON BUSINESS PLAN AND FUNDING PLAN*; CHSR Board Presentation Sacramento, CA August 25, 2011; pgs 5-7. <http://www.cahighspeedrail.ca.gov/assets/0/152/232/294/5752a7a8-506b-40d0-bee0-0b10fc7f06d6.pdf>
- ¹⁰ California High Speed Rail Authority, Report to the Legislature, December 2009; page 93
- ¹¹ For the award see: <http://budget.house.gov/News/DocumentSingle.aspx?DocumentID=247848>. For the OMB submittal, see: Section 24602 (a), Network Development Program; Transportation Opportunities Act; pg. 12. This six-year capital budget covers FY2012 through 2017. See: <http://www.google.com/search?q=Transportation+Opportunities+Act&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a>
- ¹² See: Fact Sheet; The American Jobs Act; Establishing A National Infrastructure Bank. Found at <http://www.whitehouse.gov/the-press-office/2011/09/08/fact-sheet-american-jobs-act>
- ¹³ Neither Senator Barbara Boxer nor Representative John Mica's bills on infrastructure development carry provisions for such a federal bank.
- ¹⁴ For denouncement of the NIB idea see: States will have more flexibility Without A National Infrastructure Bank; Roll Call, July 21 2011. Found at http://www.rollcall.com/features/Transportation-2011_Policy-Briefing/policy_briefings/John-Mica-National-Infrastructure-Bank-207562-1.html
- ¹⁵ For the Subcommittee's actions see: Railway Age: <http://www.railwayage.com/breaking-news/initial-amtrak-fy12-numbers-floated-3475.html> For the Appropriation Committee's actions see: "California bullet train funding slashed by House panel" September 8 2011; found at: <http://www.latimes.com/news/local/>
- ¹⁶ Both programs are administered by the DOT's Federal Railroad Administration (FRA)
- ¹⁷ CHSRA 2009 Business Plan, pages 96 and 97.
- ¹⁸ For a description of the 2008 mixes of construction finances, see: California High-Speed Train, Business Plan, November 2008; pg. 21. For that estimated \$33Billion construction cost, the Federal government was to provide \$12-16Billion in grants (36%-48%). The State was to provide \$9Billion (27%); local governments \$2-3Billion (6-9%) and public-private partnerships (PPPs) \$6.5-7.5Billion (20%-23%). By 2009 the construction costs had risen to \$43Billion and the financing sources proportions had changed slightly. The same State bonds were 22%, Federal grants were to be \$17-19Billion (40-24%), local grants of \$4-5Billion (8-9%) and private debt was to be \$10-12Billion (25-27%). For 2009 numbers see HSRA *Report To The Legislature*; December 2009; pg. 93.
- ¹⁹ See: Report of Responses to the Request for Expressions of Interest For Private Participation in the Development of A High-Speed Train System in California by the Infrastructure Management Group (IMG) to

the California High-Speed Rail Authority Board Financing Workshop, dated October 2008; page 2 of 17. The presentation was given in June 2008 “A presentation summarizing the results of the RFEI was made before the Authority Board of Directors on June 11, 2008 “ The printed report issued in October 2008.

²⁰ See: Infrastructure Management Group and Goldman Sachs, September 3, 2009. There seems to be some considerable ‘disconnect’ between the Authority’s work and their financial consultants. For example, less than three months before the CHSRA released its 2009 business plan, their consultants seemed to still believe the project would cost \$33Billion (page 7).

²¹ Ibid

²² Email from Rachel Wall, CHSRA Press Secretary to William Grindley dated August 11th 2011.

²³ Flyvbjerg, Bent; Bruzelius, Nils and Rothengatter, Werner: Megaprojects And Risk, An Anatomy of Ambition; Cambridge University Press, 2003

²⁴ Op Cit Flyvbjerg, Bent; et al pg. 12

²⁵ Ibid pg. 40-41

²⁶ Pickrell, Don: *Urban Rail Transit Projects: Forecast Versus Actual Ridership and Costs* (Washington, DC: US Department of Transportation, Urban Mass Transportation Administration, 1990).

²⁷ See: Calif. High-Speed Rail Costs Soar, MercuryNews.com. Adam Weintraub, Associated Press; August 8 2011: found at http://www.mercurynews.com/news/cj_18644657

²⁸ *The Financial Risks of California’s Proposed High-Speed Rail Project*, and subsequent Briefing Papers and Brief Notes can be found at the Community Coalition on High-Speed Rail site; <http://www.cc-hsr.org/>

²⁹ See Californians Advocating Responsible Rail Design (CARRD) – Capital Cost Estimate; February 2011 at <http://www.calhsr.com/uncategorized/what-will-high-speed-rail-cost/> and *Financial Analysis of Proposed California High Speed Rail Project Report*, Exhibit 1 and Appendix A and B, June 2011, and Briefing Notes #16, #17, #20, and #21, August 2011. Available at <http://www.cc-hsr.org/>

³⁰ The 2008 and 2009 CHSRA Business Plans’ construction costs differ. The 2008 projection, \$33 Billion, was done in 2008 dollars. The CHSRA’s 2009, \$43 Billion, includes inflation, as required by the Federal Railroad Administration (FRA). The two independent 2011 estimates were done consistent with the 2009 Business Plan’s Year of Expenditure (YOE) dollars. Totals include train equipment, about \$3.3 Billion.

³¹ CARRD’s full analysis is at <http://www.calhsr.com/uncategorized/what-will-high-speed-rail-cost/>

³² See: *High-Speed Rail Is at a Critical Juncture*, Mac Taylor and Eric Thronson, Office of the Legislative Analyst, May 10, 2011; pg. 12 www.lao.ca.gov/reports/.../high_speed_rail/high_speed_rail_051011.pdf

³³ Whether the monies to be spent on the ‘Train to Nowhere’ meet the legal strictures of AB3034 or what exactly the CHSRA plans to do with whatever is built are still open questions. A PDF file of the letter from Congressman Dennis Cardoza (D-CA) to Secretary LaHood and FRA Administrator Joseph Szabo of November 30 2010 can be found at <http://cardoza.house.gov/index.cfm?sectionid=87&itemid=701>

³⁴ The two EIR filings are for Merced to Fresno and Fresno to Bakersfield. Both PDF files are available at <http://www.cahighspeedrail.ca.gov/>. The first URL is <http://www.cahighspeedrail.ca.gov/draft-eir-m-f.aspx> The second is <http://www.cahighspeedrail.ca.gov/draft-eir-f-b.aspx>

³⁵ For a detailed explanation of the methodologies used by the two analysts, see: *Financial Analysis of Proposed California High Speed Rail Project Report*, Exhibit 1 and Appendix A and B, June 2011, and Note #16, #17, and #20, August 2011. All available at <http://www.cc-hsr.org/>

³⁶ See Note #21, August 2011. Available at <http://www.cc-hsr.org/>

³⁷ See *Financial Analysis of Proposed California High Speed Rail Project Report*, Exhibit 1 and Appendix A and B, June 2011, and Briefing Notes #16, and #17, August 2011. Available at <http://www.cc-hsr.org/>

³⁸ November 2008 Official Voter Information Guide, page 5 top of left column in section titled Analysis by Legislative Analyst <http://www.voterguide.sos.ca.gov/past/2008/general/pdf-guide/suppl-complete-guide.pdf#prop1a>. This one is printed in black and white only.

³⁹ There were two certified Official Voter Information Guides. This one was printed in color. See page 1. The six cities mentioned were: San Diego, Los Angeles, Fresno, San Jose, San Francisco and Sacramento. Somehow Oakland disappeared from that list. See:

<http://www.voterguide.sos.ca.gov/past/2008/general/argu-rebut/argu-rebutt1a.htm>.

⁴⁰ How was it that Anaheim, the state’s tenth largest city, got put in ahead of the sixth and eighth largest cities, Sacramento and Oakland respectively, that were put on voters’ ballot descriptions? See: <http://www.citypopulation.de/USA-California.html>

⁴¹ The Certificate of Correctness prepared by and certified by Secretary of State Debra Bowen says (pg. 2) “This **Supplemental Official Voter Information Guide** contains titles and summaries prepared by Attorney General Edmund G. Brown Jr. . . .” See: <http://primary2008.sos.ca.gov/voterguide/>

⁴² See: www.voterguide.sos.ca.gov/past/2008/general/.../argu-rebutt1a.htm. This one was printed in color.

⁴³ Op Cit Official Voter Information Guide for Prop 1A (in color), page 1 (<http://www.voterguide.sos.ca.gov/past/2008/general/argu-rebut/argu-rebutt1a.htm>.) lists Fresno. While Sacramento and San Diego are listed as destinations, there’s no mention of Fresno, which was not listed in the earlier, certified Official Ballot Description for Proposition 1. However the other Official Voter Information

Guide for Proposition 1, certified by Secretary of State of State of California doesn't mention Fresno. To source the PDF file with this Guide, go to the URL <http://www.voterguide.sos.ca.gov/past/2008/general/pdf-guide/suppl-complete-guide.pdf#prop1a>

⁴⁴ Op Cit [PDF] Supplemental Voter Information Guide.

<http://www.voterguide.sos.ca.gov/past/2008/general/pdf-guide/suppl-complete-guide.pdf#prop1a>

⁴⁵ AB3034, SECTION 1. Section 185033 was added to the Public Utilities Code, to read: "185033. *The authority shall prepare, publish, and submit to the Legislature, not later than September 1, 2008, a revised business plan*"

⁴⁶ The CHSRA claims that most of the differences were the Federal Railroad Administration's (FRA) demand that expenses and revenues be expressed in Year of Expenditure (YOE) dollars. It is difficult to understand why the Authority didn't know the YOE standard was required in 2008 since they had been working the FRA for over a decade at that point.

⁴⁷ Op Cit November 2008 Official Voter Information Guide, page 5 top of left column in section titled Analysis by Legislative Analyst <http://www.voterguide.sos.ca.gov/past/2008/general/pdf-guide/suppl-complete-guide.pdf#prop1a>. This one is printed in black and white.

⁴⁸ See *Financial Analysis of Proposed California High Speed Rail Project Report*, Exhibit 1 and Appendix A and B, June 2011, and Briefing Notes #16, and #17, August 2011. Available at <http://www.cc-hsr.org/>

⁴⁹ The amount listed is \$4,880,000. See page 29 of *Ridership Peer Review Panel, First Meeting, January 10, 2011*, Sacramento CA. Found at <http://ebookbrowse.com/2011-01-10-ridership-peer-review-first-meeting-pdf-d79418701>

⁵⁰ Ibid The five experts are: Frank Koppelman, PhD, Professor Emeritus of Civil Engineering, Northwestern University (chair); Kay W. Axhausen, Dr.Ing Professor, Institute for Transport Planning and Systems, ETH, Zurich (Swiss Federal Institute of Technology Zurich); Billy Charlton, San Francisco County Transportation Authority; Eric Miller, PhD, Professor, Department of Civil Engineering and Director, Cities Centre, University of Toronto; Kenneth A. Small, PhD, Professor Emeritus, Department of Economics, UC Irvine.

⁵¹ Source: email from Nicholas Brand to Jeff Mikles of March 19th 2011 (12:08pm) "Assuming \$250/hr for each of them the cost would be \$131,600 for 10/11, \$460,600 for all three years." This email is part of a response to a public records request by Californians Advocating Responsible Rail Design (CARRD)

⁵² See: *The Financial Risks Of California's Proposed High Speed Rail Project*, October 2010; pages 48-51. Found at <http://www.cc-hsr.org/>

⁵³ FINAL REPORT of the Independent Peer Review of the California High-Speed Rail Ridership and Revenue Forecasting Process: Findings and Recommendations from the January-March, 2011 Review Period; July 22, 2011

⁵⁴ In 2009, the combined populations of San Francisco, Marin, Contra Costa, Alameda, Sacramento, and San Joaquin counties were 5.8Million. Assuming that total grows to 8Million on 2035, the CHSRA model double counts the populations of all of those counties except San Francisco and Marin in order to arrive at their boardings numbers. Effectively CSI used the populations of the four other counties to inflate San Francisco boardings assuming that riders would drive as far away as from eastern Sacramento County to use the train. Such a drive would pass over US Highway 5, the main north-south artery At best this is a dubious assumptions.

⁵⁵ Op Cit FINAL REPORT of the Independent Peer Review

⁵⁶ See: Amtrak Monthly Performance Report for February 2011: dated April 15th 2011; pg. A- 3.1. A pdf file found at:

<http://www.google.com/search?q=Acela+trends+between+Boston+and+Philadelphia+continued+to+be+down+significantly+in+February+due+to+the+entrance+of+Southwest+Airlines+into+this+market+last+June.%E2%80%9D+&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a>

⁵⁷ Ibid. The entire quote is: "Acela trends between Boston and Philadelphia continued to be down significantly in February due to the entrance of Southwest Airlines into this market last June."

⁵⁸ See: Independent Peer Review of the California High-Speed Rail Ridership and Revenue Forecasting Process; Findings and Recommendations from April-July 2011 Review Period; August 1, 2011. Found at: <http://fulltextreports.com/2011/08/04/independent-peer-review-of-the-california-high-speed-rail-ridership-and-revenue-forecasting-process/>

⁵⁹ 2008 California High-Speed Train BUSINESS PLAN, November 2008; pg 7.

⁶⁰ California High-Speed Rail Authority (CHSRA): *Report to the Legislature*; December 2009; page 73

⁶¹ Samer Madanat; Director, UC ITS Berkeley; found at

http://www.berkeley.edu/news/media/releases/2010/07/01_high_speed_rail.shtml and CARRD Ridership Comments; April 26, 2010 at <http://www.calhsr.com/>

⁶² Both the 2009 San Francisco and Anaheim boardings include, that is, 'double count' passengers from Oakland and San Diego where stations are supposed to be constructed in later phases. This is acknowledged in: Bay Area to Central Valley High-Speed Train: Revised FINAL Program Environmental Impact Report; Volume 2: Response to Comments; August 2010, California High-Speed Rail Authority Page

1082. Found at <http://www.cahighspeedrail.ca.gov/assets/0/152/198/082f1fb0-c589-4719-88e7-99ef392cce91.pdf>.

⁶³ Op Cit Flyvbjerg, Bent; et al. *Megaprojects And Risk*; pg. 26.

⁶⁴ Op Cit Flyvbjerg et al. for both the Eurostar quote at pg. 22

⁶⁵ Op Cit page 25 for the DOT citation

⁶⁶ See: <http://www.sfexaminer.com/local/BARTs-price-of-expansion-98637079.html#ixzz0ytA2t9EL>

⁶⁷ See: Paul Amos, Dick Bullock and Jitendra Sondhi; World Bank Report No 55856; July 2010; pg.14. See: www-wds.worldbank.org/.../558560WP0Box341SR1v08121jul101final.pdf.

⁶⁸ The 11% is the ridership rate, which equals annual passengers divided by area population. Acela attracts about 11% of the 28Million nearby residents along its route or roughly 4.8Million riders. Source: Table in "Amtrak Fiscal Year 2009" Oct. 2008-Sept. 2009. For population data see: <http://www.city-data.com/forum/general-u-s/468856-census-bureaus-2030-population-projections-50-a.html>

⁶⁹ "Full-Speed Ahead" by Al Engel, VP High-Speed Rail; appears on pg.10 of the July/August 2011 issue of *All Aboard*. Also see: <http://www.arrive-digital.com/arrive/20110708#pg10>

⁷⁰ See: <http://www.city-data.com/forum/general-u-s/468856-census-bureaus-2030-population-projections-50-a.html>

⁷¹ Op Cit *Report to the Legislature*; December 2009; page 82

⁷² Briefing Note #17, August 2011. Available at www.cc-hsr.org

⁷³ Op Cit *Report to the Legislature*; December 2009; page 92

⁷⁴ Op Cit *Report to the Legislature*; December 2009; page 82

⁷⁵ See: *Wall Street Journal* Letters, June 6, 2011 "Central Valley Start Is Ideal for Fast California Trains" by Thomas J. Umberg, *Chairman, California High-Speed Rail Authority*. Mr. Umberg's letter was in response to a *WSJ* editorial of 31 May 2011 entitled "Off the California Rails".

⁷⁶ Assembly Member Galgiani said this during June 2nd 2011 hearings on AB145 in response to Assembly Member Diane Harkey's criticism of the Bill. See: http://www.smdailyjournal.com/article_preview.php?type=bnews&id=160156&title=Assembly%20acts%20to%20end%20independent%20rail%20authority&eddate=

⁷⁷ California High-Speed Rail Authority "Report to the Legislature; December 2009; pgs 101-108.

⁷⁸ Amtrak Reform Council; *An Action Plan for the Restructuring and Rationalization of the National Intercity Rail Passenger System; Report to Congress*; February 2002; page 96

⁷⁹ See: Amtrak, Office of the Inspector General: EVALUATION REPORT E-08-02 Public Funding Levels of European Passenger Railroads: April 22, 2008

⁸⁰ *ibid.* page 4.

⁸¹ Spain's High-Speed Rail Offers Guideposts For U.S." *NY Times*, May 29, 2009

⁸² Op Cit See: Peterman, Frittelli, and Mallett, W.; CRS; pg.1.

⁸³ Op Cit "High-Speed Rail: Fast Track to Economic Development?" World Bank Report No 55856.

⁸⁴ Statement of Edward Wytkind, president of the AFL-CIO's Transportation Trades Department concerning the proposal to privatize ACELA in the NE Corridor. See: <http://dc.streetsblog.org/2011/05/27/gop-proposal-to-privatize-amtrak-meets-resistance/>

⁸⁵ See: International High-Speed Rail Systems: a Hearing before the Subcommittee on Railroads, Pipelines and Hazardous Materials of the Committee on Transportation and Infrastructure, House of Representatives; April 18, 2007. http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_house_hearings&docid=f:34799.pdf.

⁸⁶ *Ibid* pgs 5-6.

⁸⁷ See: 'Spain-France High Speed Rail Link' Actividades de Construccion Y Servicios; presented at the LCEDIR conference in Seattle Washington, July 27th 2011. Found at: <http://ltgov.wa.gov/LCEDIR/2011/HSR/03LafuentelridiumPres.pdf>

⁸⁸ Four of the seven JR operating companies, JR Hokkaido, JR Shikoku, JR Kyushu and JR Freight, are still owned by Japan's government. See: <http://www.facebook.com/pages/Japan-Railways-Group/108300505858185>

⁸⁹ Op Cit Hearing; page 10

⁹⁰ Op Cit Hearing; pgs 10-11

⁹¹ See: "High-speed Rail in Spain and economic development" by Juan Lema, Ministry of Development (Ministerio de Fomento) of Spain, presented at the LCEDIR conference in Seattle Washington, July 27th 2011. Found at: <http://ltgov.wa.gov/LCEDIR/2011/HSR/110727-PresentationSpainHSR-Seattle.pdf>

⁹² *Ibid*

⁹³ See: <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2011/05/30/BUCT1JL12J.DTL>. The conference was on June 3rd at the Fairmont Hotel in San Francisco. In this paen to the virtues of Spain's high-speed rail, the author mentions the "386 mile ride on the Madrid-Barcelona AVE (approximately \$165 one-way)." That works out to \$0.424 per mile, almost exactly the average of the four European high-speed rail systems' subsidized ticket prices analyzed in Section 2.6. Taking that per mile ticket price and multiplying it by 430

miles between SF-LA's city-centers would make the one-way California price \$182. That's 73% higher than CHSRA's 2009 one-way price of \$105 and only two dollars less than Figure D's average subsidized price.

⁹⁴ "El AVE directo Toledo-Cuenca-Albacete tenía únicamente 9 viajeros al día" in *El Mundo*. Found at <http://www.elmundo.es/elmundo/2011/06/27/economia/1309185725.html> Also see: Telegraph; 'Spain cuts high-speed ghost train' 30 August 2011. Found at:

<http://www.telegraph.co.uk/news/worldnews/europe/spain/8603392/Spain-cuts-high-speed-ghost-train.html>

⁹⁵ Letter to CHSRA CEO Roelof van Ark from Msr. Jean-Pierre Loubinoux, Director General of the International Union of Railways, dated 8 February 2011. Of note is the apology for a late answer to Mr. van Ark's letter and accusations of bias probably directed at the same authors of this report and October 2010's report, *The Financial Risks Of California's Proposed High-Speed Rail Project*. Letter is found at <http://www.calhsr.com/wp-content/uploads/2010/02/IUR-Officials-Letter-to-CHSRA-CEO.pdf>

⁹⁶ Ibid (No page numbers are given in DG Loubinoux's letter)

⁹⁷ By 2000 the system's capital costs were known to be \$37Billion. See: UC Berkeley, Institute of Governmental Studies cites \$37Billion, at:

http://igs.berkeley.edu/library/research/quickhelp/policy/infrastructure/high_speed_rail.html The CHSRA's 2006 study showed that the 'entire system' of 800 miles to six terminal points would cost \$45Billion, so Phase One (LA to San Francisco) would be about \$20Billion. To source the PDF file citing the \$45Billion in the Certified Ballot Description, first go to the URL below, then download "[PDF] Supplemental Voter Information Guide" then see page 5.

<http://www.google.com/search?q=http%3A%2F%2Fwww.voterguide.sos.ca.gov%2Fpast%2F2008%2Fgeneral%2Fanalysis%2Fprop1...&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a> Shortly after Prop1A, the CHSRA estimated Phase One at \$33Billion.

⁹⁸ For the comparative sizes of economies, see: http://en.wikipedia.org/wiki/Economy_of_California

⁹⁹ See: Official Voter Information Guide. See: <http://www.voterguide.sos.ca.gov/past/2008/general/argu-rebut/argu-rebutt1a.htm>

¹⁰⁰ The Authority's Year 2000 technical paper that assumed the State and not the Authority would service construction debt put the construction costs at \$34Billion. See: PDF of Business Technical Plan Studies at: http://www.cahighspeedrail.ca.gov/CHSRTemplate_STDwoBannerwsearch.aspx?pageid=9114. Also see: California High-Speed Train, Business Plan, November 2008; pg. 20. For that \$33Billion construction cost, the State was to provide 27% of Phase One. In the 2009 Business Plan, the \$9Billion shrinks to 21% of the \$43Billion Phase One capital costs.

¹⁰¹ See: AB3034, High-Speed Passenger Train Financing Program Section 2704.04. (a) (5)

¹⁰² See: California High-Speed Rail Authority; Report to the Legislature, December 2009; page 3.

¹⁰³ The Official Voter Information Guide of the Tuesday, November 4, 2008 California General Election:

<http://www.voterguide.sos.ca.gov/past/2008/general/argu-rebut/argu-rebutt1a.htm>

¹⁰⁴ To date the Authority has not responded to a February 2010 demand to clarify the distinction between a subsidy and a revenue guarantee and reiterated by State Senator Joe Simitian in a Senate Transportation Committee hearing of 5 May 2011.

¹⁰⁵ See: The Official Voter Information Guide at <http://www.voterguide.sos.ca.gov/past/2008/general/argu-rebut/argu-rebutt1a.htm> (pg. 1)

¹⁰⁶ California High-Speed Rail Authority "Report to the Legislature; December 2009; pg. 65, Table B, pg. 70.

¹⁰⁷ On the issue of high-speed rails' subsidies, see Note #6 and Note #10. Found at <http://www.cc-hsr.org/>

¹⁰⁸ Distances between European and US city pairs are from Google Maps, taking their city center to city center driving distances as representative of track miles. Ticket prices for European systems are from Rail Europe; <http://www.raileurope.com/index.html>. Prices are at an exchange rate of US\$=0.69Euros. Distance and price (\$US=80.9 Yen) for Shinkansen are from East Japan Railway Company; at <http://www.jreast.co.jp/e/charge/index.asp>. Also see Briefing Note 14, available at www.cc-hsr.org

¹⁰⁹ In Andrew Ross' sfgate article of May 31st 2011 (<http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2011/05/30/BUCT1JL12J.DTL>) the author mentions the "386 mile ride on the Madrid-Barcelona AVE (approximately \$165 one-way)." That works out to \$0.424 per mile, almost exactly the average of the four European high-speed rail systems' subsidized ticket prices. Taking that per mile ticket price and multiplying it by 430 miles city-center to city-center from SF to LA would make the one-way California price \$182. That's 73% higher than CHSRA's 2009 price of \$105 one way.

¹¹⁰ see Briefing Note 14, available at www.cc-hsr.org

¹¹¹ Section 2704.08(J) says the high-speed train cannot have an operating subsidy. Also see: Op. Cit see Official Voter Information Guide says (pg 1) that the system will relieve congestion "without raising taxes" and Op. Cit Official Voter Information Guide (pg.2) that says the "users of the system pay for the system"

¹¹² Op Cit See: Report to the Legislature; December 2009; page 82, Table J.

¹¹³ Derived from dividing the average operating cost by the average revenue in Table J, page 82 of Report to the Legislature; December 2009

¹¹⁴ The CHSRA has also stated that operating costs are less than half revenues; therefore, the per mile operating costs are roughly \$0.11 per mile. Also see Briefing Note 15, available at www.cc-hsr.org

¹¹⁵ The 2009 optional business mileage deduction, used for comparison to the Authority's stated fare, was 50.5 cents per mile for business miles driven. At 407 miles SF-Anaheim; the deduction is \$205.50. See: <http://www.savingtoinvest.com/2009/12/2010-vs-2009-standard-mileage-rate-tax.html>

¹¹⁶ Median household income decreased in the prior two years; 3.4% in current dollars, and an average of 4% for 2008 and 2009 in constant dollars. See: http://www.dof.ca.gov/HTML/FS_DATA/LatestEconData/FS_Income.htm

¹¹⁷ A realistic price would have tickets reflect the true capital and operating costs. Section 2704.08(J) of AB3034 says the train cannot receive an operating subsidy from the Federal or State governments; therefore must at least break even financially.

¹¹⁸ See: *The Financial Risks of California's Proposed High Speed Rail Project Report*, Appendix A, October 2010, Available at <http://www.cc-hsr.org/>

¹¹⁹ This may be because CHSRA shifted to a higher price, lower ridership volume strategy.

¹²⁰ William Warren analyzed competitors' web-based airfares between two pairs of the metropolises' airports over the five weeks prior to an assumed trip, and concluded CHSRA's base ticket prices should be 20-25% lower than the prices shown in the CHSRA's 2009 Business Plan. See: Appendix A to *The Financial Risks Of California's Proposed High-Speed Rail Project*, October 2010; especially Tables called 'Average Airfares' and 'Air Market'. Found at <http://www.cc-hsr.org/>. Unless otherwise noted, neither the CHSRA, nor the Warren-based prices include taxes and fees. Warren used Southwest Airlines' fares for primary modeling price sensitivities, but also found other airlines' (United, Virgin America, AA) fares followed suit.

¹²¹ By comparison, where there are few competitors, such as for San Jose to Anaheim (SJC-SNA) the weighted average of these tickets is \$118, not LAX-SFO's price of \$99. Clearly with less competition airline prices are higher.

¹²² Op Cit Amtrak Monthly Performance Report for February 2011

¹²³ OECD and International Transport Forum: JOINT TRANSPORT RESEARCH CENTRE Round Table, 2-3 October 2008, Paris; Discussion Paper No. 2009-7; *Competitive Interaction between Airports, Airlines and High-Speed Rail*: May 2009, pg. 14

¹²⁴ Op Cit Global Times, 2 August 2011. It notes The Oriental Morning Post See: <http://www.globaltimes.cn/>. On Acela, and Op Cit Amtrak Monthly Performance Report for February 2011: dated April 15th 2011.

¹²⁵ Cox, Wendell; Vranich, Joseph and; Moore, Adrian: *The California High-Speed Rail Proposal: A Due Diligence Report*: Reason Foundation; Policy Study 370; September 2008; pg. 49.

¹²⁶ See Brief Note #3, found at <http://www.cc-hsr.org/>

¹²⁷ Op Cit – Bushell, pg. 1

¹²⁸ Ibid Bushell, pg. 2

¹²⁹ Julian, Liam: *The Trouble with High-Speed Rail; Policy Review*, March 24th 2010; at <http://www.hoover.org/publications/policy-review/article/5296> s

¹³⁰ These and other observations on the quality of CHSRA's operating cost calculations are found both in Appendix C to *The Financial Risks Of California's Proposed HSR Project* and Notes #3 and # 12 by the same authors. See: <http://www.cc-hsr.org/>

¹³¹ Amtrak's (AMTX) was created by the Rail Passenger Service Act of 1970, and is the National Railroad Passenger Corporation. The US Government owns all of the preferred stock.

¹³² A 2004 DOT survey found passenger rail the most subsidized transportation mode. Amtrak subsidies per 1,000 passenger miles were \$210; automobiles were \$1.79. See: US DOT Bureau of Transportation Statistics, "Federal Subsidies to Passenger Transportation," December 2004, p. 25

¹³³ Congressman Nick Rahall (D-WV) speaking at a May 2011 Congressional Transportation Committee hearing on the NE corridor. See: <http://dc.streetsblog.org/2011/05/27/gop-proposal-to-privatize-amtrak-meets-resistance/>

¹³⁴ Ibid.

¹³⁵ Op Cit Infrastructure Management Group and Goldman Sachs: September 3 2009

¹³⁶ Ibid. pg. 8

¹³⁷ See: *The Official Voter Information Guide of the Tuesday, November 4, 2008 California General Election*; printed in color <http://www.voterguide.sos.ca.gov/past/2008/general/argu-rebut/argu-rebutt1a.htm>

¹³⁸ Op Cit Letter from Msr. Jean-Pierre Loubinoux, Director General of the International Union of Railways, to CHSRA CEO Roelof van Ark dated 8 February 2011. Found at <http://www.calhsr.com/wp-content/uploads/2010/02/IUR-Officials-Letter-to-CHSRA-CEO.pdf> and for Iñaki Barrón de Angoiti, Director of the IUR's High-Speed Rail saying the systems are subsidized, see: *Spain's High-Speed Rail Offers Guideposts For U.S.* *NY Times*, May 29, 2009

¹³⁹ 'Blindfolds and Bullet Trains' by Gu Yongqiang and Cao Haili August 18th 2011; *Caixin Weekly* at <http://li82-18.members.linode.com/caixin-online-china%E2%80%99s-blindfolds-and-bullet-trains> The report says that China demanded the bidders to transfer technology, and the cash-strapped winner, Alstom,

agreed to transfer seven core technologies in 2004. By 2007 the Ministry of Rail announced that China had reached world-class status in the manufacture of high-speed rail technology.

¹⁴⁰ Ibid "In early July [2011] trains on the newly opened Beijing-Shanghai lie died on the tracks four out of five days due to power interruptions"

¹⁴¹ On Schwartzenegger's MOU with China's Ministry of Railways see: *China Daily*, September 14th 2009; "Chinese Trains On California Tracks" found at http://www.chinadaily.com.cn/business/2010-09/14/content_11298981.htm. For the visit of three southern California Legislators to China see: Los Angeles Times; "California lawmakers travel to China to study high-speed rail" August 1st 2011. Found at <http://latimesblogs.latimes.com/california-politics/2011/08/california-lawmakers-travel-to-china-to-study-high-speed-rail.html>

¹⁴² The 1980s adoption of high-speed rail in France was when auto ownership equaled that of the USA in the 1940s; in Japan the Shinkansen lines were built when auto ownership equaled that of the USA in the 1920s. See: Japan's National Railways in the 20th Century; Ryohei Kakumoto. A PDF found at: <http://www.google.com/search?q=Japan%27s+National+Railways+in+the+20th+Century+Ryohei+Kakumoto&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a>

¹⁴³ By February 2009, the Taiwan government had to take over the Taiwan High Speed Rail Corporation (THSRC). See: <http://nectar.northampton.ac.uk/2969/>. Taiwan's per capita income ranks 19th in the world. See: http://en.wikipedia.org/wiki/Economy_of_Taiwan

¹⁴⁴ See: Section 11 (c) of AB3034 for the quotation. California already has a safe reliable, etc. air travel system connecting nine airports in the state's north and south. One might consider also its education system as a better way to create economic development than the short-term, public works' low-paying construction jobs will ever provide. And the ability of the train to off set CO2 emissions is under serious challenge by scholars at UC Berkeley. See: Kosinski et al. High Speed Rail and CO2. TRB 2011

<http://www.google.com/search?q=Kosinski+et+al.+High+Speed+Rail+and+CO2.+TRB+2011&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a>

¹⁴⁵ See: Peer Review Group Report, 1 July 2011, pg. 3. Find at: http://smdailyjournal.com/article_preview.php?id=162672&title=Report:%20High-speed%20rail%20project%20facing%20serious%20concerns

¹⁴⁶ AB3034 says "SEC. 2. Section 185035 is added to the Public Utilities Code, to read: 185035. (a) The authority shall establish an independent peer review group for the purpose of reviewing the planning, engineering, financing, and other elements of the authority's plans and **issuing an analysis of appropriateness and accuracy of the authority's assumptions and an analysis of the viability of the authority's financing plan, including the funding plan for each corridor required pursuant to subdivision (b) of Section 2704.08 of the Streets and Highways Code.**" (emphasis added)

¹⁴⁷ Op Cit See: CHSR Board Presentation Sacramento, CA August 25, 2011; pgs 5-7. Found at: <http://www.cahighspeedrail.ca.gov/assets/0/152/232/294/5752a7a8-506b-40d0-bee0-0b10fc7f06d6.pdf>

¹⁴⁸ See: January 2010 'Announcement of new Federal Transit Authority funding guidelines". Found at: <http://www.houstontomorrow.org/commentary/story/ray-lahood1/>

¹⁴⁹ Op Cit *Wall Street Journal* Letters, June 6, 2011 "Central Valley Start Is Ideal for Fast California Trains"

¹⁵⁰ Section 2704.08(J) says no operating subsidy. The Official Voter Information Guide says, "no new taxes" and "the users pay for the system." See: <http://www.voterguide.sos.ca.gov/past/2008/general/argu-rebut/argu-rebut1a.htm>

¹⁵¹ See: "Construction unemployment in the US Near a 14 Year Low"; Engineering News Record; October 8th 2010. Found at

http://california.construction.com/california_construction_news/2010/1008_USconstructionemployment.asp

¹⁵² See: California High-Speed Rail Authority CHSRA; California High-Speed Train Business Plan; November 2008; pg.12.

¹⁵³ Op Cit HSRA *Report To The Legislature*; December 2009; pg. 110.

¹⁵⁴ Source: "Factcheck on Jobs" – a pdf file, December 2009; by Elizabeth Alexis, Californians Advocating Responsible Rail Design (CARRD). <http://www.calhsr.com/>

¹⁵⁵ Claire Starry, PhD, is the President of TDS Economics, focused on transportation economics. Credited with more than 25 publications. Dr. Starry was a co-author of ridership forecasts for Spain's high-speed rail system while at Stanford Research Institute.

¹⁵⁶ On August 25th 2011, CHSRA CEO van Ark said that building the project's first phase would create 800-900,000 temporary jobs. If the same ten years of construction assumption is used as in the 600,000 job assertion, that means 80,000-90,000 FTEs. Like the prior claim, this too is beyond serious consideration. See: <http://www.bizjournals.com/sanjose/news/2011/08/25/state-funds-eyed-for-high-speed-rail.html>

¹⁵⁷ See: State bond funds eyed for high-speed rail; David Goll; Silicon Valley/San Jose Business Journal; August 25 2011. "Van Ark also said Thursday the updated plan projects from 800,000 to 900,000 temporary jobs will be generated by the first phase of construction." Found at: <http://www.bizjournals.com/sanjose/news/2011/08/25/state-funds-eyed-for-high-speed-rail.html>

¹⁵⁸ In the fiscal year 2010-11 the CHSRA spent \$220Million. This averages at \$1Million per working day of 220 working days per year. The State's FY2011-12 budget for the CHSRA is \$155Million. Dividing that by 220 yields \$705 per working day. Roughly 71Million is for contract services for purchasing Right Of Ways; \$9Million is for contract design work, and \$52Million for contract services for overall program management. See: http://lao.ca.gov/reports/2011/bud/spend_plan/spend_plan_081211.pdf

¹⁵⁹ Op Cit California High-Speed Rail Authority CHSRA; California High-Speed Train Business Plan; November 2008; pg.12.

¹⁶⁰ Op Cit HSR Report To The Legislature; December 2009; pg. 110.

¹⁶¹ A possible explanation is the CHSRA's 2008 experts estimated 320,000 'permanent' jobs only for the eleven years (2020-2030) used in the 2008 Plan; while in 2009 they estimated 450,000 'permanent' jobs for only the sixteen years (2020-2035) used in operations' calculations. Dividing each estimated number of jobs by each assumed years (11 and 16) yields 29,000 and 28,000 'permanent' jobs. This would put the CHSRA estimates in the mid-range of the RIMS II-based estimate of 16,000-40,000 jobs. However, there is no reference to this calculation in either CHSRA Business Plan, and the numbers given in both could be misconstrued to represent a vastly greater estimate than the CHSRA wished to convey.

¹⁶² The total active State of California employees stood at 232,149 in July 2011. See: http://www.sco.ca.gov/ppsd_empinfo_demo.html It is also hard to believe the project will create 3% of California's workforce, which stands about 16Million. For total employment in the state see: Source: Bureau of Labor Statistics: <http://www.deptofnumbers.com/unemployment/california>. If CHSRA meant 'permanent' to be jobs created over a 40-year life of the project, the creation of permanent job is miniscule; only one-tenth of one percent.

¹⁶³ RIMS II Multipliers are a nationally accepted method used to calculate permanent jobs for such a transportation megaproject. They capture the full range of jobs, not just those created by the high-speed rail system's operator. The RIMS II multipliers are widely used in economic impact studies. Other studies might use IMPLAN or REMI from private companies, but these too are based on Department of Commerce input output tables. Department of Commerce, Bureau of Economic Analysis. Regional Multipliers: A Users Handbook for the Regional Input-Output Modeling System (RIMS II), 3rd Edition; March 1997. At <http://www.bea.gov/scb/pdf/regional/perinc/meth/rims2.pdf>,

¹⁶⁴ Op Cit See: HSR Report To The Legislature; December 2009; pg. 82, Table J. This is in Year Of Expenditure (YOE) dollars.

¹⁶⁵ The higher estimate is based on RMS II multipliers for interurban rail and highway transportation services multipliers. The lower RMS II-based estimate uses only railroads and related services multipliers. Other estimates, such as those used by Public Interest Research Group (PIRG), use transit multipliers. But RMS multipliers are preferred because transit systems require far more drivers and on-board personnel than a 400-800 seat high-speed train.

¹⁶⁶ See: CHSRA: Jobs_FactSheet_051910.pdf and

<http://www.cahighspeedrail.ca.gov/assets/0/152/159/0150b8aa-a61b-4aeb-9c18-6223d8fe429f.pdf>

¹⁶⁷ A recent analysis of the ratio of fares to operating costs for twenty-seven US transit agencies found that Austin's system provided only 9%, while Washington's WMATA recovered nearly 62% of its operating costs from the fare box. Los Angeles's LACMTA recovered only 30% while San Francisco's BART recovered 45% and Caltrain 41% of their operating costs from tickets, See: <http://www.ntdprogram.gov/ntdprogram/data.htm> http://en.wikipedia.org/wiki/Farebox_recovery_ratio

¹⁶⁸ Op Cit See: <http://www.savingtoinvest.com/2009/12/2010-vs-2009-standard-mileage-rate-tax.html>

¹⁶⁹ "Within 25 years, our goal is to give 80 percent of Americans access to high-speed rail." *The text of President Obama's State of the Union address, as released by the White House*; January 25, 2011; found at <http://www.npr.org/2011/01/26/133224933/transcript-obamas-state-of-union-address>

¹⁷⁰ See: Vice President Biden Announces Six-Year Plan to Build National High-Speed Rail Network, February 08, 2011. Found at <http://www.whitehouse.gov/the-press-office/2011/02/08/vice-president-biden-announces-six-year-plan-build-national-high-speed-r>

¹⁷¹ In April 2008, Amtrak's Inspector General said; "When all revenues and expenses for the entire passenger train system are taken into consideration, European Passenger Train Operations operate at a financial loss and consequently require significant Public Subsidies." This ranged from Germany's high of nearly \$23 billion annually to Denmark's low of \$900 million. See: Amtrak, Office of the Inspector General: EVALUATION REPORT E-08-02 Public Funding Levels of European Passenger Railroads April 22, 2008

¹⁷² US Department of Transportation; Bureau of Transportation Statistics; Federal Subsidies To Passenger Transportation; December 2004; page. 4. All sums re-based to Year 2000 \$s.

http://www.bts.gov/publications/federal_subsidies_to_passenger_transportation/ To calculate the actual subsidy, or lack of in the case of autos, pickups and vans, download the Excel table found at http://www.bts.gov/publications/federal_subsidies_to_passenger_transportation/html/figure_02.html

¹⁷³ The least expensive one-way Bolt Bus daytime ticket between New York City (25th and 8th) and Union Station in Washington DC booked two weeks in advance on August 11, 2011 was \$17.00. The elapsed time

was four and a half hours (8:30am to 1:00pm). See: <https://www.boltbus.com/default.aspx>. The least expensive Acela Express daytime ticket from Penn Station (NYC) to Union Station booked two weeks in advance was \$78.00 and took three hours and twenty minutes (7:05am to 10:25am). See: <http://tickets.amtrak.com/itd/amtrak>.

¹⁷⁴ The HIGHLIGHTS OF CALIFORNIA HIGH-SPEED TRAIN PROJECT EIR/EIS (page 1) of August 2011 cites a 2004 report called California High Speed Train Program Environmental Impact Report/Environmental Impact Statement Capital and Operation and Maintenance Costs, prepared for the California High Speed Rail Authority and the US Department of Transportation Federal Railroad Administration. January 2004. Pgs 4-5, and Appendices A through D. The Engineering News Record cost indices of August 2004, 2010 and 2011 were used to update the 2003 estimates to 2011.

¹⁷⁵ INRIX, an international provider of traffic information in 208 metropolitan area prepared a report that concluded “annual peak hour congestion delay in the United States is roughly one-third that of Europe. The rate of France was somewhat less than twice the rate of the US and rates in Luxembourg, the United Kingdom, Germany and the Netherlands were three times as high.” All of these have high-speed rail systems. See: http://www.deplacementspros.com/Paris-dans-le-top-3-mondial-des-bouchons-routiers_a9205.html

¹⁷⁶ See: <http://www.newgeography.com/content/002169-united-states-less-congestion-europe-inrix>

¹⁷⁷ The State would initially borrow \$63Billion to receive \$3Billion in ‘free Federal money, for a ratio of \$21 of debt for every 1\$ of ‘free’ money. The principal and interest repayment, of the \$63Billion in debt, amounts to \$137Billion, at 6% over 30 years. This is a ratio of \$46 of debt repayments for every 1\$ of ‘free’ money.

¹⁷⁸ California has increased its long-term debt obligations every year since 1999. During 2007-2008, at the height of the asset boom preceding the Great Recession, the State’s long term debt increased 39% that one year from \$41.3Billion to \$57.8Billion. See: <http://www.geldpress.com/2008/10/californias-exploding-debt-problem/>

¹⁷⁹ *Financial Analysis of Proposed California High Speed Rail Project Report*, pages 4 to 7 and Financial Summary, pg 8-9, June 2011, and Briefing Notes #16, #17, and #19, August 2011. At www.cc-hsr.org

¹⁸⁰ CHSRA, Board Meeting Materials, Oct. 29, 2010 – Agenda Item 3; Dec. 2, 2010 – Agenda Item 3

¹⁸¹ CHSRA Board Meeting Reports and Minutes, December 10, 2010

¹⁸² CHSRA EIR for Merced to Fresno, August 2011, page S23 and CHSRA EIR for Fresno to Bakersfield, August 2011, page S23

¹⁸³ *Financial Analysis Report*, Exhibit 1 and Appendix A and B, June 2011, and Briefing Notes #16, #17, #18 and #20, August 2011. All available at www.cc-hsr.org

¹⁸⁴ See: Brief Note #21 and #18. Found at www.cc-hsr.org

¹⁸⁵ A useable segment, as defined by AB3034, is a portion of a corridor that includes at least two stations.

¹⁸⁶ There are about 170 miles between Merced and Bakersfield, but the 201 miles of HSR track distances includes some track to the north of Merced and some track to the west of Merced, in the direction of San Jose.

¹⁸⁷ CHSRA Board Meeting Reports and Minutes, December 10, 2010

¹⁸⁸ See: Big Trouble For California’s \$66Billion Train, March 2011, Figure 1, page 4, and Brief Note #21. Found at <http://www.cc-hsr.org/>

¹⁹¹ See: Brief Note #18, available at www.cc-hsr.org

¹⁹² FRA List of Obligated HSR Grant Awards, as of August 8, 2011, at <http://www.fra.dot.gov/rpd/HSIPR/ProjectFunding.aspx>

¹⁹³ CHSRA, FRA Grant/Cooperative Agreement, Dec. 22, 2010, Section 14 and 15, page 8. The legal consequences are not addressed here.

¹⁹⁴ *The Financial Analysis of the Proposed CHSR Project*, June 2011, pgs. 17 and 18, “CARRD’s Recommendation” at www.cc-hsr.org

¹⁹⁵ Ibid pgs. 39 to 41, Exhibit 1, “Construction Estimates” and Appendix A and B, pages 54 to 58, at www.cc-hsr.org

¹⁹⁶ Brief Notes #16 and #17 explain why the Phase One (LA-SF) is not financially feasible. See: www.cc-hsr.org

¹⁹⁷ See Note # 16 at: <http://www.cc-hsr.org/>

¹⁹⁸ *HSRA Report To The Legislature*; December 2009; page 93; Funding Sources Summary

¹⁹⁹ See: *The Financial Analysis of the Proposed CHSR Project*, June 2011, pgs. 8,-9 and 14. See at www.cc-hsr.org. The CHSRA’s August, 2011 Central Valley EIR average cost per mile, which when converted to YOY \$s, equals the cost per mile for these segments, as in *Financial Analysis*, in Exhibit 1.

²⁰⁰ *Op Cit Report To The Legislature*; December 2009

²⁰¹ Ibid

²⁰² Ibid

²⁰³ See: *The Financial Analysis*; June 2011

²⁰⁴ Ibid

²⁰⁵ AB3034 states that the annual operating margins are to be used for expansion of the system to Oakland, Sacramento, Riverside and San Diego.

²⁰⁶ Prop1A ballot descriptions and AB3034 refers to the six-city system (with terminations in Los Angeles, Irvine, San Diego, San Francisco, Oakland, and Sacramento) as the 'entire system' whose construction was estimated at about \$45Billion.

²⁰⁷ See Note # 17 at: <http://www.cc-hsr.org/>

²⁰⁸ See: *The Financial Analysis of the Proposed CHSR Project*, June 2011, pgs. 8,-9, and 14 at www.cc-hsr.org. The (a) CHSRA's August, 2011 Central Valley EIR average cost per mile, which when converted to YOY \$s, equals the cost per mile for these segments, as in *Financial Analysis*, in Exhibit 1.

²⁰⁹ See: *The Financial Analysis of the Proposed CHSR Project*, June 2011, Exhibit 1: Appendix A & B, pages 39 and 54 to 58, at <http://www.cc-hsr.org/>

²¹⁰ HSRA Report To The Legislature; December 2009; page 93, "Funding Sources Summary"

²¹¹ This assumption means that additional miles of track will create additional Revenues per mile and Operating Expenses per mile as in Phase One.

²¹² In Note #17 the baseline is the CHSRA's first sixteen years of repayment, extended out to the full 30 years of a debt obligation. See at: <http://www.cc-hsr.org/>

²¹³ See Note # 17 at: <http://www.cc-hsr.org/>

²¹⁴ See Note # 19 at: <http://www.cc-hsr.org/>

²¹⁵ Treasurer's Office *Debt Affordability Report*; October 2009, pages 7 and 8. See: <http://www.treasurer.ca.gov/publications/2009dar.pdf> Also, LAO, *Informational Hearing on Debt Service*, December 2009, page 3. See: http://www.lao.ca.gov/handouts/FO/2009/Debt_Service_121409.pdf

²¹⁶ *Financial Analysis Report*, June 2011, and Briefing Notes #16 and #17, August 2011. All available at www.cc-hsr.org

²¹⁷ See: Bonds Already Sold, plus Authorized But Not Yet Sold, plus Projected Future Authorizations (excluding high-speed rail).

²¹⁸ In mid-2011, Lieutenant Governor Gavin Newsom led a delegation to Texas, a state without a corporate tax but with impressive job creation. See: 'Gov. Jerry Brown appoints jobs czar'; Los Angeles Times; [August 18, 2011](#) By Michael J. Mishak. "Former Bank of America executive Michael E. Rossi will be an unpaid go-between for businesses, labor leaders and the administration, and will "streamline and invigorate the state's economic development infrastructure"

²¹⁹ See Briefing Note #4. Available at www.cc-hsr.org

²²⁰ The increase in construction costs from \$43Billion to \$66Billion is 53%. Therefore a 53% increase in the number of jobs, increases the number of jobs from about 13,000 to about 20,000. Dividing the construction costs of \$66Billion by (20,000 Full Time Equivalent jobs multiplied by 10 years for each job) equals \$330,000 per job created. (\$66Billion/200,000 job years = \$0.33Million per job year.)

²²¹ Borrowing \$63Billion (The cost of construction of \$66Billion less the \$3Billion currently available 'free' Federal grants = \$63Billion) and committing to pay back \$137Billion in interest and principal on Phase One means each job-year cost to the State is \$685,000. (\$137Billion/200,000 job-years equals \$0.685Million per job year.) Also see Briefing Note #16. Available at www.cc-hsr.org

²²² 'See: California Begs Texas for Job-Creating Recipe With Growth Trading Places'; Bloomberg News Service. Found at: <http://www.bloomberg.com/news/2011-04-14/california-begs-texas-for-job-recipe-with-growth-trading-places.html>. California's top corporate tax rate at 8.84% is eleventh highest in the US states' rankings. See: www.taxadmin.org/fta/rate/corp_inc.pdf

²²³ Elaine M. Howle and Doug Cordiner, Chief Deputy State Auditor; California State Auditor Bureau of State Audits; Report 2009-106; April 29, 2010. Public Letter.

²²⁴ Jerry Brown calls for high-speed rail to move forward; Capitol Alert, August 17 2011. Found at <http://blogs.sacbee.com/capitolalertlatest/2011/08/jerry-brown-calls-for-high-spe.html>