Executive Summary

Financial Analysis

Of The Proposed California High Speed Rail Project

– Part I and Part II of a Report from the authors of –

The Financial Risks of California's Proposed High-Speed Rail Project

See: http://www.cc-hsr.org

June 17, 2011

At least four critical variables make the project to link California's two major metropolises with a high-speed rail system a risky financial proposition for the State and its taxpayers. First, the chances that the project will acquire more than the present $3.6 Billion of "free Federal grants" diminish daily; while the financial success of the Authority's 2009 Business Plan depends on $15 Billion more in federal grants. Second, there is an ever-increasing probability that the costs to construct the Phase One Corridor (Los Angeles/Anaheim to San Francisco) will continue to increase dramatically. Third, the likelihood of California's cash strapped cities and counties contributing $4-5 Billion in grants to the project is zero. Fourth, the operating results projected in the CHSRA's 2009 Business Plan, such as ridership and ticket prices may be very difficult, if not impossible, to achieve. For a project already mired in controversy, more unknowable risks are likely to make private investors 'gun shy' of providing the vast majority of the debt and at risk equity capital now needed for this project.

This analysis measures the impact of the four variables within several financial relationships with private investors and/or operators that are applicable in different "design – build – operate" options. The projected financial results continually show an insufficient Operating Margin to service the debt repayment requirements, and this will result in a $10 Billion to $50 Billion range of cumulative negative cash flows in the sixteen operating years between 2020 and 2035. These will have to be funded via additional taxes, fees, additional State of California debt, or the use of General Funds at the expense of other spending priorities such as education, health, roads, and public safety.

We are grateful to the Community Coalition on High Speed Rail for providing a virtual 'home' for this and our other Briefing Papers, plus our original (October 2010) report *The Financial Risks of California's Proposed High-Speed Rail Project* and our (June 2011) report *A Financial Analysis of California's Proposed High-Speed Rail Project* .

For downloadable copies of this and all our work, visit their website: **http://www.cc-hsr.org/**

The October 2010 Report:

The Financial Risks of California's Proposed High-Speed Rail Project

The June 2011 Report:

A Financial Analysis of California's Proposed High-Speed Rail Project

Briefing Papers to be found at that web site include:

Executive Summary of the October 2010 Financial Risks Report
Dubious Ridership Forecasts Threaten The High-Speed Rail Project
Six Myths Surrounding California's High-Speed Rail Project
A Train To Nowhere But Bankruptcy
Seven Deadly Facts For California's High-Speed Rail Authority
Big Trouble For California's $66Billion Train
Will The High-Speed Train Benefit California's Middle Class?

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Financial Analysis Of The Proposed California High Speed Rail Project

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Part I

Financial Analysis
Of the California High Speed Rail Project

SUMMARY FINANCIAL ANALYSIS

USING THE CHSRA'S DATA ON REVENUES AND EXPENSES, THE SYSTEM WILL NEVER ACHIEVE POSITIVE CASH FLOWS WITHOUT THE ASSUMED FEDERAL GRANTS AND LOWER CONSTRUCTION COSTS

Introduction – Using the CHSRA's 2009 Business Plan as a baseline and incorporating new estimates of both possible future Federal and local grants plus the costs of constructing Phase One, this analysis examines a range of dramatically different financial outcomes for the CHSRA and California's taxpayers. Theses outcomes are expressed in the same terms as that of the CHSRA - cash flows for the project's first sixteen operating years (2020 -2035). The results indicate serious negative consequences for the State of California and its taxpayers (ie. like a large unfunded mandate, it will lead to a reduction of other services or more taxes or debt) unless the CHSRA's most optimistic estimates of construction costs as well as Federal and local grant acquisitions are coupled with the complete attainment of the CHSRA's 2009 Business Plan's operating results. The results simultaneously indicate that most of the returns to the private 'at risk' investments would be poor, if not negative.

The analysis provides, in summary and detailed form, a range of financial outcomes by looking at the outcomes of the best and the worst cases that may occur through 2035. The reader must decide which outcomes appear to be the more likely and must understand the financial consequences of those outcomes. The reader also needs to understand the negative consequences to the State and its taxpayers if other, even less preferable, outcomes occur. Lastly the reader needs to understand what decisions must be made in the near term when faced with this high degree of future uncertainty.

The following Financial Summary, presented in three Sections, provides an overview of the outcomes of these cases for the Phase One project.

Section A. Construction Costs – Like all capital-intensive public works projects, the amount that will be needed to build Phase One, and then a subsequent phase or phases is hotly debated. Additionally, the CHSRA's Phase One estimates suffer from the rightfully deserved stigma that globally nearly all such estimates are significantly below what such large projects ultimately cost to build. Higher construction costs usually magnify the nation's or state's debt and therefore add to taxpayers' burden, since most are financed with public and/or private debt that adds financial servicing costs to the costs of construction.

The CHSRA's 2009 Business Plan's estimated construction costs for the San Francisco to Los Angeles/Anaheim Phase One Corridor are now almost three years old, and were done with very little detailed engineering design. Recent estimates of costs to build the initial sections and segments appear to be at least more than half again as much as the 2009 estimates, making construction costs a critical component in estimating the project's long term financial consequences. A good analogy to the project's present financial status would be a young family that believes they could afford to build a house for $X with promises of help from their rich grandfather. After starting construction, they find they have a serious cash flow problem when the house's estimated cost jumps 50%; they discover the grandfather is living on credit and near bankruptcy, and their new mortgage payment forecasts have skyrocketed.

Keeping the analogy in mind, this analysis looks at two baseline construction costs: 1) the 2009 Business Plan's $43 Billion estimate and 2) projections made by two independent parties in early 2011 that 'bracket' $66 Billion. [View page 8, the first page of the Financial Summary; Section A and the two major columns for the 2009 Plan, on the left side, and the 2011 Projections on the right side].

Section B. Mixes of Financing – For the State of California there are only two kinds of money. The first is "free money" that never has to be repaid, such as the Federal grants, of which $3.6 Billion has been awarded, and most of which is designated for construction. This kind also includes the $4 Billion to $5 Billion of grants the CHSRA expected from California's counties and cities. The second kind is investments; specifically debt and equity, where the investor could be either a private or public entity. However, both types of investors have reasonable expectations of the principal amount being returned over time, plus some type of periodic or one-time gain, as a "return on the investment" (ROI).

The 2009 Business Plan was based on the State securing a large percentage (42%) of the construction costs as "free" Federal grants. With the changes occurring in Washington, the odds of gaining a minimum of another $15 Billion are declining, while the need increases for additional capital due to rising construction costs. [In the above analogy, it is like learning the 'rich' grandfather is living on credit and near bankruptcy, as the construction cost estimates for the house are going up. Both of these conditions lead to requiring a larger mortgage.] The result is a very real risk of needing much larger amounts of public or private debt and/or equity, all of which have long term costs associated with them. Therefore, this analysis investigates the cash flow consequences between 2020 and 2035 of various mixes of the above types of financing that could be put in place during the 2012 to 2019 construction phase. [View page 8, Section B and the four columns that define at the Best and Worst financial mixes. These mixes will be used for the results, shown on the Financial Summary's second page.]

Section C. Operating Results – The 2009 Business Plan provided projections of riders, ticket prices, revenues, and expenses for the first sixteen years of operations (2020-2035). But there was no 'risk

analysis' of the impact on these projections if their assumptions were incorrect. Additionally, the operating margin's cash flow that is produced in those sixteen years must be used to reduce the impact of servicing the increasing amount of debt and equity that will be needed to finance the construction. The balance of the un-serviced debt, or negative cash flow, then becomes the responsibility of the taxpayers, in terms of higher taxes, or a reduction of other State services, such as education, health, roads, or public safety. This report analyzes various degrees of success – or lack of success – in meeting these operating objectives, and the subsequent impacts on the State and taxpayers if these objectives are not met. [See, on page 9, in Section C of the Financial Summary, the five types of equity, or no equity, financing shown in Sections C1 through C5, and the cumulative cash flow results in 2035, for three different "Operating Plan Results" cases in each Section.]

Conclusions Of This Financial Summary

Section C1 shows that the equity investor with a "Fixed Return" always makes an ROI of 10%. (This ROI is consistent with the 16% after tax yield discussed in the 2009 Business Plan, adjusted for the lack of a return during the 2012 to 2019 construction period.) However, this is always the worst option for California's taxpayers. By 2035 the cumulative cash flow position is just $2 Billion if three conditions prevail: 1) the project is built for $43 Billion (the CHSRA 2009 Plan columns on the left), 2) all $18 Billion in Federal grants of the 2009 Business Plan are obtained (the column Best Case – A, Grants), and 3) the operator attains 100% of the operating results defined in the 2009 Business Plan between 2020 and 2035. (These results are the basis of the financial results shown as Case 1)

Alternatively, if: 1) Phase One costs $66 Billion to construct (the 2011 Projections columns on the right), and if 2) the construction is financed mostly (82%) with private debt and equity (the column Worst Case – C, Private), and if 3) only a 75% attainment (Case 2) of the forecasted ridership revenues and operating costs occur, then the cumulative cash flow results for California's State finances and its taxpayers will be a negative $81 Billion by 2035. If ticket prices are only 75% of Plan, Case 4 shows the cumulative cash flow position falls to a negative $94 Billion. [Case 3 information is available in the various Exhibits.]

Section C2 shows that if the private equity investor is "At Risk", the return to the investor (ROI) ranges from 9% to "less than zero" (not all of the original investment is repaid). [This ROI is shown on the second line of each case.] However, the State and its taxpayer's cash positions improve, ranging from a positive $13 Billion to 'only' a negative $40 Billion by 2035. The possibility of a $13 Billion positive cash flow – on average a little more than $1 Billion per year, or a loss of 'only' $40 Billion – is a relatively better outcome for the State, compared to the fixed return alternative in Section C1. However, private equity investors will most probably reject this option as the ROI is relatively low for such a large and high risk investment, if the construction costs are in the $66 Billion range.

Section C3 shows that if the "At Risk" private equity investor is provided with a 10-year revenue guarantee, the results are between the two extremes of C1 and C2. This might be a more acceptable financing alternative if the private investor is also the operator. However, it may be illegal under Prop 1A and AB 3034.

Sections C4 and C5 show that if all the private or public financing is debt, with either a 30 year or 50 year payback period and there is no private equity, the private or public investor has a small return, and the cumulative negative cash flows for the taxpayers are not much worse that C2. This is possibly one other, somewhat more acceptable alternative.

Finally, if the project's construction cost is $66 Billion and the Federal grants are limited to the existing $3.6 Billion, as shown on the right most column [2011 Projections, Worst Case - C (Private)], all of these possible financing outcomes lead to very large cumulative negative cash flows. This will require billions of dollars per year to service these negative cash flows. This cash requirement will necessarily lead to either reductions in other State spending, (such as in education, health, roads, or safety), additional taxes, withdrawals from the General fund, or additional State of California debt between 2020 and 2035, over and above the Prop 1A Bonds approved in 2008.

To have even a remote chance of not requiring State budget reductions, more State debt, or increased taxes, three conditions must be met (the first two simultaneously between 2011 and 2019): 1) the Phase One project's construction costs must stay within $43 Billion; 2) all of the planned $18 Billion in Federal grants must be obtained; and 3) the 2009 Business Plan operating results must be achieved (100% of ridership, ticket prices, and operating costs) in the sixteen years between 2020 and 2035. [These results are shown on the left-most column, in the top row of each Section.]

Recommendation On How To Proceed With This Report

This report is intended to be a reference document which can be used to analyze the impacts of different construction and financing alternatives. It is not designed to be read front to back with sweeping conclusions on the last page. Once the reader is familiar with the overall structure of this Part I and its two page Financial Summary, then Part II, the "Detailed Analysis" on pages 10 to 18, can be used to understand the logic behind the Warren Model, the applicability of the financing alternatives to various "build/operate" options, and several financing examples. These examples should be very helpful.

Part III, "Using The Financial Summary Pages", starting on page 19, provides very detailed explanations of the different Sections of the Financial Summary and the Exhibits that support each Section. The indented paragraphs provide very detailed explanations regarding the Exhibits. Finally, on page 39, Part IV contains all of the Exhibits, and the Appendixes, which apply to the various Sections.

Financial Summary

March 23, 2011

State Cash Flow Implications of Phase 1 Cost to Build, Sources of Funding, and Operating Results
For 2009 CHSRA Plan and 2011 New Cost Estimates
(Page 1 of 2)

	(All $s In Billions) **CHSRA 2009 Plan**			(All $s In Billions) **2011 Projections**		**Comment**
A. – COST TO BUILD						
Cost to Build Phase One, San Francisco to LA/Anaheim	Cost to Build	For 535 Miles		Estimated Increase to	For same 535 miles	Up 60%
Phase 1 Construction Costs	42.60	0.080/mile		66.00	0.123/mile	2009 to 2011
	(See Exhibit 1, Left)			(See Exhibit 1, Right)		
B. – FUNDING SOURCES	**Best Case - A (Grants)**	**Worst Case - C (Private)**		**Best Case - A (Grants)**	**Worst Case - C (Private)**	
Sources and interest rate						
Cal Bonds at 5.9%	9.0	9.0		9.0	9.0	Same
Fed Grants at 0.0%	18.0	3.0		18.0	3.0	Down
Fed Bonds at 5.0%	0.0	0.0		0.0	0.0	
Local Loans at 7.5%	4.5	0.0		4.5	0.0	Down
Private/Public Debt at 6.0% - 30 and 50 years	7.8	21.5		24.2	37.8	Up
Private Equity at 21% (Fixed Return), or 0% (At Risk), or as Debt	3.3	9.2		10.4	16.2	Up
Total	42.6	42.6		66.0	66.0	
	(See Exhibits 2.1 and 2.3)			(See Exhibits 3.1 and 3.3)		

Financial Summary March 23, 2011

State (Taxpayers) Cash Flow Implications of Phase 1 Cost to Build, Sources of Funding, and Operating Results

For 2009 CHSRA Plan and 2011 New Cost Estimates

(Page 2 of 2)

	(All $s In Billions) **CHSRA 2009 Plan**		(All $s In Billions) **2011 Projections**		**Comments**
A. – COST TO BUILD	42.60	0.080/mile	66.00	0.123/mile	
B. – FUNDING SOURCES	**Best Case - A (Grants)**	**Worst Case - C (Private)**	**Best Case - A (Grants)**	**Worst Case - C (Private)**	
Total	42.6	42.6	66.0	66.0	
C. -TAXPAYER'S CUMULATIVE CASH FLOW & INVESTOR'S ROI FOR PERIOD 2020 to 2035	Annual Debt and Equity Service Funding Requirement Ignoring Any Construction Period Interest-Only Charges				
C1 -Fixed Return Equity - See Exhibit 2.1 & 3.1	(2.3)	(4.1)	(5.0)	(6.8)	
Case 1 & 2: 100% - 75% of 2009 Operating Plan	2 - (9)	(28) - (38)	(41) - (51)	(70) - (81)	2035 Cash
Results, Average Annual Margin = $2.4 - $1.8	10%	10%	10%	10%	Pr Eq ROI
Case 4 – 75% of Ridership & Expenses	(22)	(51)	(65)	(94)	(same)
& Ticket prices Down 25%, AAM = $0.9	10%	10%	10%	10%	
	(See Exhibit 2.2)		(See Exhibit 3.2)		
C2 - At Risk Equity - See Exhibit 2.3 & 3.3	(1.6)	(2.2)	(2.8)	(3.4)	
Case 1 & 2: 100% - 75% of 2009 Operating Plan	13 - (2)	3 - (7)	(6) - (17)	(16) - (26)	(same)
Results, Average Annual Margin (AAM) = $2.4 - $1.8	9% - 8%	4% - 1.3%	3.5% - (0.4%)	(3%) - <0%	
Case 4 – 75% of Ridership & Expenses	(11)	(20)	(30)	(40)	(same)
& Ticket prices Down 25%, AAM = $0.9	4%	<0%	<0%	<0%	
	(See Exhibit 2.4)		(See Exhibit 3.4)		
C3 - At Risk Equity with 10 Year Guarantee	(1.6)	(2.2)	(2.8)	(3.4)	
Case 1 & 2: 100% - 75% of 2009 Operating Plan	13 - (7)	3 - (16)	(6) - (26)	(16) - (35)	(same)
Results, Average Annual Margin = $2.4 - $1.8	9% - 11%	4% - 4%	3.5% - 2.6%	(3%) - <0%	
Case 4 – 75% of Ridership & Expenses	(27)	(36)	(46)	(55)	(same)
& Ticket prices Down 25%, AAM = $0.9	13%	4%	3%	(0.2%)	
	(See Exhibit 2.5)		(See Exhibit 3.5)		
C4 - No Equity, All Private/Public Debt 30 years	(1.8)	(2.9)	(3.5)	(4.6)	
Case 1 & 2: 100% - 75% of 2009 Operating Plan	9 - (1)	(7) - (18)	(18) - (29)	(35) - (45)	(same)
Results, Average Annual Margin = $2.4 - $1.8	3.3%	3.3%	3.3%	3.3%	
Case 4 – 75% of Ridership & Expenses	(15)	(31)	(42)	(58)	(same)
& Ticket prices Down 25%, AAM = $0.9	3.3%	3.3%	3.3%	3.3%	
	(See Exhibit 2.5)		(See Exhibit 3.5)		
C5 - No Equity, All Private/Public Debt 50 years	(1.6)	(2.5)	(3.1)	(4.0)	
Case 1 & 2: 100% - 75% of 2009 Operating Plan	13 - 2	(2) - (12)	(11) - (22)	(25) - (36)	(same)
Results, Average Annual Margin = $2.4 - $1.8	2.6%	2.6%	2.6%	2.6%	
Case 4 – 75% of Ridership & Expenses	(11)	(25)	(35)	(49)	(same)
& Ticket prices Down 25%, AAM = $0.9	2.6%	2.6%	2.6%	2.6%	
	(See Exhibit 2.5)		(See Exhibit 3.5)		

PART II

DETAILED FINANCIAL ANALYSIS

The Warren Financial Model Highlights What The State And Its Taxpayers Will Bear

The Objective Of The Analysis

The objective is to project the financial consequences of the CHSRA's project for California and its taxpayers. The goal is to understand the cumulative negative or positive cash flows that will occur in the first sixteen years of operation (2020 to 2035), based on different construction cost levels and different forms and mixes of financings that could emerge between 2011 and 2020. Additionally, four different financial cases will be used to vary the degree of operational success between 2020 to 2035. The base case (Case 1) produces, exactly, the results defined in the CHSRA's 2009 Business Plan. Cumulative cash flows will be used to compare the results of the various financial scenarios, because using average annual cash flow results can be misleading. Average annual cash flows can vary significantly year-to-year, from being more negative in the early years of operations to being more positive in the later years of operations.

The Warren Model

Absent basic information from the CHSRA that would be in an investment grade business plan, William Warren, a former executive of several Silicon Valley companies, reviewed and built a surrogate CHSR project Excel-based financial model.

The Warren Model and accompanying explanations of its findings are Appendix B to the "*The Financial Risks of California's Proposed High-Speed Rail Project*", published in October 2010. Both are available online at www.cc-hsr.org. The Model's baseline ridership, revenues, capital, and operating expenses are taken from the CHSRA's 2009 Business Plan for the period 2010 to 2035. This approach shows the potential financial impact of the CHSRA's assumptions before reviewing and varying any of the CHSRA's Business Plan's numbers and then incorporating the two early 2011 Construction Cost Estimates discussed in Section B of the Financial Summary. Like the CHSRA's technique, the Warren Model focuses on when, and how much, cumulative positive or negative cash flow the project will produce.

The CHSRA's Plan model is a very basic cash flow analysis presentation of only one set of projections of financial results during the first sixteen years of operations, starting in 2020. The Warren financial model also incorporates a cash flow analysis model, and part of it replicates the CHSRA operating results. However, part of it expands beyond the CHSRA Plan model to incorporate the financing of the construction of the system. Cash left over, or cash required to achieve break even from operations (revenues less operating expenses), is counted by both models as an Operating Margin, which is referred to as a Surplus (or Deficit) in CHSRA documents. Neither model is a Profit and Loss statement. For example, neither the CHSRA plan nor the Warren Model takes into consideration an annual depreciation charge, and neither is based on accrual accounting practices. Instead, both start a Capital Replacement Fund in the twelfth year of operations to accumulate enough funds to replace the rolling stock starting in the sixteenth through twenty-first years (2035-2040).

To repeat, readers are forewarned that nothing in the CHSRA 2009 Business Plan, nor anything in the documentation accompanying Prop 1A or AB3034, portrays a "Profit" or a "Loss". The CHSRA Plan is only a representation of day to day operational cash flow. For 'apples-to-apples' comparisons, the Warren

Model mirrors this approach, and then goes beyond the CHSRA model to present more of the cumulative effects of the CHSRA's information, and its stated plans, such as financing arrangements put in place from 2011 to 2020.

One could argue that it would be beneficial to have a "Profit or Loss" view of the proposed CHSRA's system. Unfortunately, it would be meaningless. Few, if any, rail systems in the world present themselves financially in this manner, nor are they consistent with generally acceptable accounting practices of the United States. Most rail systems report on their ability to cover their operating costs, to accumulate cash to be used for future expansion, or to forecast how large of a subsidy they will need to support current operations. Very few take into account the previously invested capital that built and operated the rail system since its inception. Additionally, very few take into account the public funds that have been spent constructing the rail system. Most high-speed rail systems were built by their governments, which then put the capital assets into a 'stand alone' agency, which in turn leases track rights and other infrastructure to the operators. Most of such lease arrangements are probably concessionary and in some cases trackage, or "use", charges cannot exceed the operating margins or "profits" of the operator. Finally, most of these public or private construction, or "infrastructure", funds have most probably been written off by various "re-financings, 'haircuts', and repayment re-schedulings". These accounting changes simply write off some, if not the majority, of the value of the debt obligations at some negotiated rate. The result of these "re-financings, etc." methods has been to shift some of the true costs of most of these systems to the national, state, and/or provincial governments; where these costs, usually in the form of debt or securities, are simply buried in the government's general debt. Given the complexity of trying to unravel these entangled arrangements to get to a meaningful comparison, the CHSRA correctly focused on cumulative "cash flows", and therefore the Warren Model starts by taking this same approach as, its first step.

Then the Warren Model goes beyond either the CHSRA's model or a May 2009 basic cash flow analysis done by Californians Advocating Responsible Rail Design (CARRD). The Warren Model considers the cash flow implications of various levels of construction costs, various mixes of grants, debt, and equity on the CHSRA's financial performance as well as its impacts on the State of California and its taxpayers. Additionally, it allows for sensitivity analyses on multiple variables; e. g. changes in ticket prices, changes in physical ridership volumes, changes in operating cost levels, annual inflation rates, and interest rates and repayment years of various types of financing.

However, there is a fundamental difference between the CHSRA's 2009 financial plan's point of view and the Warren Model's point of view. While both assume Federal grants do not have to be repaid, the CHSRA model assumes their organization, the CHSRA, is not obligated to service any debt on the project. To the CHSRA, that debt is 'laid off' on some other entity: namely the State of California. To highlight the true total costs of the system, the Warren Model assumes that California's taxpayers will be responsible for paying for any hidden operating subsidy (aka a revenue guarantee), even though AB 3034 prohibits such a subsidy. The Model also assumes taxpayers will be ultimately responsible for paying for the cost of construction by servicing any possible private and public debt, Federal loans or bonds (but not Federal Grants), State of California Prop 1A Bonds, local loans, and retiring equity positions. The magnitude of this responsibility will be to the extent these obligations can not be covered by the CHSRA's operating margins on an annual basis, from 2020 to 2035. For comparison purposes, both of these annual and cumulative cash flow results, for both the CHSRA and for the State of California and its taxpayers, are provided in the Warren Model and are displayed in the Exhibits [in Part IV].

To summarize the point above, the CHSRA model simply reports the annual operating margin (revenues less operating expenses). The Warren Model takes this operating margin, from 2020 to 2035, and applies it to the annual debt and equity servicing that is required to cover (repay with interest) the 2011 to 2019 financing used to construct the system. To the extent the annual debt and equity servicing cash requirements exceed the available operating margin cash flows in 2020 to 2035, this creates a negative cash

requirement (which is, in effect, like a future, long term, unfunded mandate), that the future taxpayers of California will be responsible for, through higher taxes, new debt, or reductions of other spending priorities in the General Fund. It is this negative or positive number which is the critical focus of this report.

Note that in the cash flows for the State of California and its taxpayers the impact of servicing the $9 Billion of the total $10 Billion in Prop 1A Bonds is taken into consideration in the Warren Model in the construction costs. (Only $9 Billion of the $10 Billion is available for construction). These cash flows accumulate to about $10 Billion in negative cash flow between 2020 and 2035. For example, in the Financial Summary discussion on page 6, regarding "At Risk" Equity investments in Section C2, on page 9, the range of the possible taxpayer's position in 2035 was a range from a positive $13 Billion (in the upper left corner) to a negative $40 Billion (in the lower right corner), which includes the impact of about $10 Billion to service the $9 Billion of Prop 1A Bonds over this period. The Warren Model is therefore showing an overall financial impact on the taxpayers; including the cost of servicing the previously approved 2008 Prop 1A Bonds.

Therefore, if the reader believes that the voters agreed that they would be taxed to repay these Prop 1A Bonds, as opposed to believing that the operating cash flows would retire this debt, then the reader should set this $10 Billion cash flow requirement aside (as an assumed agreed-upon tax) and increase the results on the Financial Summary by a positive $10 Billion. Following this reasoning, the results in Section C2, for example, would then range from a positive $23 Billion to a negative $30 Billion.

What Results Are Being Presented?

Two sets of analyses are provided. The first set is consistent with the 2009 Business Plan and assumes $43 Billion for the Phase One construction costs. The second set assumes the 2011 Estimates of $66 Billion for the Phase One construction costs, but with the operating parameters for 2020 to 2035 remaining consistent with the CHSRA's 2009 Business Plan. The two sets are needed because the details caused by the dramatic difference in theses two construction cost estimates are too complex to understand in one analysis. The two sets of results are summarized in the two major columns on pages 8 and 9 of the Part I Financial Summary.

Readers familiar with our previous publications will notice a greatly increased number of financial alternatives. Only one form of financial arrangement with the private investor was presented in earlier publications, including the October 2010 Report *The Financial Risks of California's Proposed High-Speed Rail Project*, and the six subsequent Briefing papers listed on the inside page of this report's cover sheet. This is identified as a "Fixed Return" for the investor. This form was used initially because it is discussed on page 108 of the 2009 Business Plan, where the after-tax private investor's equity internal rate of return was assumed to be 16%. This form of financing is covered in this report in Section C1 of the Financial Summary on page 9.

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As will be discussed in detail below, there are now 4 different forms of financial arrangements to be analyzed. These are presented in Section C of the Financial Summary on page 9, and are:

- The private investor equity investment with a fixed internal rate of return, as mentioned above, and discussed in Section C1 of the Financial Summary.

- The private investor equity being totally at risk, as discussed in Section C2.

- The private investor equity being totally at risk, but with an initially agreed upon 10 year Revenue Guarantee, as discussed in Section C3.

- No private equity investment. All financing done with private or public debt, as discussed in Section C4, for 30 year debt, and Section C5 for 50 year debt.

The reason to add these other forms of financing is that the decisions about what will be the appropriate "Business Model" roles of the State and the private partners, in terms of "design", "build", and "operate" will need to be made during the present, and the near term, fiscal years. These different financial relationships have different levels of applicability and risk to the varying roles for the State, the private investor, and the private operator. It is also possible to put these different financial relationships in the perspective of which favor the State of California more, and which favor the private investor more, especially if the private investor is also the private operator.

Such a perspective would be helpful when the negotiations begin in earnest. This chart may help clarify the possible roles:

Financial Relationships Analyzed in This Report		**Possibly Applicable Financial Relationship For This Mix Of "Design and Build" and "Operate" Roles**				
		Design and Build Role →	**State**	**State**	**Private**	**Relationship Favors**
Section	**Private Equity Investor**	**Operator Role →**	**State**	**Private**	**Private**	**One Party or Other**
C1	Fixed Equity Return		Yes, as only Private Investor	Yes	Yes	Private Investor
C2	At Risk Equity		Yes, as only Private Investor	Yes	Yes	State
C3	At Risk Equity with Guarantee		No	Yes	Yes	"In the middle"
C4 & C5	All Debt, 30 or 50 years		Yes, as only Private Investor	Yes	Yes	"In the middle"

The chart summarizes several points:

- Even if the State remains as the Operator, there is still a role for the private investor, except the case described as C3 would not be applicable.

- If the private investor is also the private operator, all the relationships discussed in C1 through C5 are applicable.

- Two of these relationships tend to favor one party or the other.

    - The private investor will want C1, the Fixed Equity Return, as it minimizes risk, and guarantees a good Return on Investment (ROI), which in this analysis is 10%.

    - The State will want C2, the At Risk Equity, as it shifts the risks to the private investors and reduces the cumulative negative cash flow the State will have between 2020 and 2035.

- Two of these relationships are "in the middle", as they appear to be at a mid-point that reduces the extreme negative and positive consequences of C1 and C2 for both the State and the investor.

    - C3, the At Risk Equity with a Guarantee option improves the ROI to the private investor, but not as high as the C1 option. However, it reduces the cumulative negative cash flow

consequences to the State. The problem with this option is that Section 2704.08 (J) of AB 3034 may preclude this option, with its guarantee, from being an alternative.

- C4 and C5, the All Debt options, also improve the ROI to the private investor, but these returns are not as high as the C1 option. However, they reduce the negative cumulative cash flow consequences to the State. C4 and C5 may be preferable to C3, as they avoid the issuing of a guarantee that would appear to conflict with AB 3034. It is also simpler to project the cash flow requirements, as they are a simple 30 or 50 year repayment schedule of the construction cost principle and interest.

The Logic Behind The Model And The Analysis

Before exploring the details, it may be valuable to understand the logic behind the financial projections. The challenge is to think about the decisions that need to be made in the short term, based on data that is available in the short term. Then one must think about the future consequences of those decisions based on events and conditions that cannot be forecasted today with a high degree of certainty. Decision makers with different personal risk profiles, given different perspectives of the possible impacts of the yet-unknown events and their consequences will either:

1) seek to minimize future negative impacts,
2) find that the benefits of their decisions probably outweigh the possible negative impacts, or
3) seek some balance between the two extremes.

Therefore, a reasonable future looking plan must give a range of future financial results, based on some variation of marketplace results expected in the future, so decision makers can assess this range of financial uncertainties that can be compared to their overall objectives and levels of risk.

Two near term sets of information, the construction costs and the forms of financing that construction, will shape the high speed rail program's long term financial consequences. But the results of these decisions will not become apparent until after 2020. Only when the system is once in operation will the realities of the market determine the important parameters of ridership volumes, ticket prices, and operating costs. By 2020 the critical construction and financing decisions will already have been made, the system will be in place, and operational decisions will influence short term operating results. But a range of overall financial consequences will already have been determined by decisions that are made in the next few months or years. These consequences are displayed by the range of cumulative cash flows and ROI's shown in one cell defined, by one of the columns in the Financial Summary, and one of the five Sections, C1 to C5.

A Simple Example

A simple example, which is used in the Financial Summary, shows these parameters in action. Some would call it a "worst case" set of events. First, assume the cost to build the San Francisco to Los Angeles/Anaheim corridor turns out to be $66 Billion, and no more than the existing roughly $3 Billion in Federal grants is ever to be awarded to California. This means that about $63 Billion must be raised through some mix of public and private debt and equity. Assume the financing is all debt, since fixed return equity is always more expensive to service than debt. This debt will be composed of the $9 Billion of Prop 1A Bonds, and $54 Billion in private or public (we shall call this the State of California Construction Bonds) debt. Both are 30 year bonds with the Prop 1A Bonds sold at a 5.9% interest rate, and the private or public California Construction Bonds sold at a 6% interest rate. This is an example of the aforementioned two near-term sets of data that will affect the program's outcome (the cost of construction and how it is to be financed). (Note that "at risk" equity is also assumed to be more expensive than debt, as it must appear to the potential private investor to have a higher ROI than debt financing, otherwise the private investor would not consider taking the equity risk.)

Once the Phase One Corridor is built, this $63 Billion has to be serviced under the above-mentioned terms. The annual payment to retire the $63 Billion in debt, over 30 years, and provide the interest payments to the bond holders is $4.6 Billion per year.

Once the Corridor is in operation in 2020, revenues need to be collected, and operating expenses paid. Hopefully there will be a positive Operating Margin. The only forecasts of an Operating Margin are from the CHSRA's 2009 Business Plan. The Plan shows an average Operating Margin of $2.4 Billion/year. This $2.4 Billion/year will be produced only if the Authority achieves all (100%) of their operating projections (such as revenues, expenses, and margins) over the sixteen years, 2020 to 2035. This means that between 2020 and 2035 the CHSRA's Operating Margin (net revenues, after paying operating costs) is projected to deliver to the State of California an average of $2.4 Billion per year.

The Problem

The problem becomes immediately apparent. The annual cost to service the construction debt, $4.6 Billion per year, exceeds the average $2.4 Billion net cash flowing in annually from operations. (The CHSRA's Business Plan and consequently the Warren Model end in the year 2035; however subsequent years will exhibit similar problems.) Therefore, the State of California will somehow have to provide an average of about $2.2 Billion per year for at least these sixteen years. This leads to a cumulative total of $35 Billion, by 2035, just to service the debt incurred to build the Phase One Corridor that can not be completely serviced by the insufficient Operating Margin cash flows. The funds needed to service this cash requirement, which is like an unfunded mandate, will have to come annually from increased taxes, or from diverting available funds from other General Fund priorities such as education, health, roads, or public safety. Or the State could annually issue additional new General Obligation (GO) debt, temporarily postponing raising taxes or diverting funds to retire the construction debt.

Seeing The Possible Consequences

This Financial Analysis report follows the money trail. The money is tracked from raising the construction financing, through the construction expenditures, then through the years of repaying the cost of construction during the years of revenue producing operations. The primary focus is on the State and the taxpayers as they are ultimately responsible for the repayment of this construction financing. [The above example is taken from page 9, in the right most column of the second page of the Part I Financial Summary. This column shows the results for $66 Billion of construction costs and the Worst Case of Financing Mix (minimal grants, mostly debt and equity). Note that in the row for Section C4 (No Equity, All Debt – 30 years), Case 1 is a negative $35 Billion.]

Case 1 - Accomplishing 100% of CHSRA's 2009 Business Plan Operating Objectives

Looking at Section C4, which analyzes "No Equity, All Debt, 30 years" financing, one sees the "(35)" in the right most column, which means that a cumulative negative cash flow of $35 Billion will have to be faced by the State by the end of 2035. And this is if the Authority actually achieves the "Case 1" projections of 100% attainment of their 2009 Business Plan operating revenues and expenses for the sixteen years, 2020 to 2035. The cumulative negative $35 Billion divided by the sixteen years equals the annual average negative $2.2 Billion cash flow.

Case 4 - Considering Other Consequences, Such As A Worst Case Operating Result Example

This "Case 1" projection is based on complete, 100%, attainment of the CHSRA's 2009 Business Plan revenues and expense numbers. It is also necessary to view the consequences of only a partial attainment of these revenue and expense projections, since it is impossible to accurately predict what these outcomes

and results will actually be between 2020 and 2035. Therefore, a worst cast example also needs to be examined. This "Case 4" is based on a 25% drop in the number of riders, an equivalent reduction in operating expenses, and a 25% reduction in average ticket prices. Looking again at Section C4, in the Case 4 row, in the same column, ones sees a "(58)" which means that a cumulative negative cash flow of $58 Billion will have accumulated for the State to deal with by the end of 2035. A cumulative negative $58 Billion over the sixteen years (2020 -2035) equals an average annual negative cash flow of $3.6 Billion per year. Note the ROI for the "all debt" investor is just 3.3%, as shown on the second line, just below the Cash Flow value.

Here then is the range of future consequences that the person making decisions today or in the near future, must deal with. In summary in this example, with the cost of construction know to be $66 Billion, the mix of financing known to be in column C, mostly "Private", and the Section C4 "All Debt/No Equity" financing in place, the long term cumulative cash flows in 2035 will be in the range from a negative $35 Billion to a negative $58 Billion. The risk adverse person will tend to focus on the possible negative $58 Billion in 2035 (Case 4), and this person may not be willing to accept the consequences to the State of an average annual negative cash flow of $3.6 Billion affecting the General Fund every year from 2020 to 2035.

Conversely, the person who sees great social benefits from high speed rail programs will tend to focus on the negative $35 Billion in 2035 (Case 1). They will also note that the voters on Prop 1A already agreed to fund the repayment of the $9 Billion in Prop 1A Bonds, which is about $10 Billion of this $35 Billion in cumulative negative cash flow. Therefore, this second person will believe the only downside is the balance of $25 Billion in cumulative negative cash flow, which averages "just" $1.6 Billion per year, affecting the General Fund spending allocations, new debt levels, or new tax rates between 2020 and 2035.

How Does The State Go Forward?

At this point it is not clear whether voter approval will be required for the State to enter into new funding agreements. These may be to accept private equity, borrow private debt, or issue Construction Bonds, between 2011 and 2019. The uncertainty increases if there is a high probability that some of the repayment cash flow requirements will adversely affect General Fund spending allocations, new debt financings, or new tax levels between 2020 and 2035. The level of collateral and security that is negotiated in the next few years, in such a debt agreement, may determine the answer to the question of whether voter approval of the agreement will be required. For example, if the debt is to be secured by the CHSRA's right of way, lands, tracks and structures, trains and facilities, such an arrangement may require voter approval.

Because this analysis' intent is to compare various financial options over the first sixteen operating years (2020-2035) of the 2009 Business Plan, the most reasonable comparison is the cumulative cash flow position at the end of 2035. Therefore, understanding the range of consequences for the example above is critical:

1) a negative $35 Billion by 2035 if the operating results are at 100% of the 2009 Plan, and
2) a negative $58 Billion by 2035 if the operating results are at 75% (three-fourths) of the 2009 Plan.

For California's taxpayers in the 2020 to 2035 time period, there is no way to avoid the very negative consequences of either of these strikingly different sets of future operating circumstances and results, unless the State of California defaults on its obligations sometime between 2020 and 2035.

Caution When Using Average Annual Cash Flows

While the analysis of this example allows exploration of the average annual negative impact on the State of California, it is also important to remember this negative $2.2 Billion per year (Case 1) is an average

annual number. Importantly the Model shows that for this example, in the first few years, the annual negative cash flows vary from $2.4 to $4.2 Billion per year (higher than the average), because early years' ridership is estimated to be lower than the average of the sixteen years, but the annual debt servicing is constant over the sixteen years. Conversely, at the end of the sixteen years, the annual negative cash flows are in the range of $1.5 to $1.8 Billion per year (lower than the average), because the ridership is projected to be then higher than the average, but the annual debt service remains constant. Therefore, one should use the average annual number carefully, when trying to measure the near term or late term cash flow impacts of operations. The early years of negative cash flows will be worse than average; the later years will be better.

An Example Of A Lower Cost Initial Construction Alternative

Given this discussion of the use of "All Debt" based financing, it may be helpful to consider another alternative to lower the initial construction costs and thereby reduce the risk to the initial Phase One Corridor from Anaheim/Los Angeles to San Francisco.

CARRD's Recommendation

In February, 2011, Californians Advocating Responsible Rail Design (CARRD) suggested that initially the Corridor run from Sylmar at the north end of the Los Angeles Basin to San Jose at the south end of the San Francisco Peninsula. The rational of this recommendation was that while ridership is increasing, local commuter rail systems (such as LA Metro in Southern California, and BART and Caltrain in Northern California) could be used to move passengers inside the metropolitan areas.

CARRD's new cost estimates to build the initial HSR corridor between Sylmar and San Jose are shown on Exhibit 1, page 1 of 3, of this report (far right hand corner of the Construction Cost Estimates spreadsheet). CARRD projects that the costs between these two cities would be about $43 Billion. Their conclusions used the same analysis that led CARRD to estimate in early 2011 that the San Francisco to Los Angeles/Anaheim construction costs at $66 Billion.

Financial Analysis Results Of The CARRD Alternative

The Financial Summary pages show a set of columns for the CHSRA 2009 Plan construction cost that were estimated at $43 Billion for the Los Angeles/Anaheim to San Francisco Corridor. Since the CARRD estimate for Sylmar to San Jose is coincidentally equal in total costs (about $ 43 Billion), these columns on the second page of the Financial Summary can also be used to examine the financial consequences of CARRD's proposal.

As discussed previously, since the 'All Debt' option discussed in Section C4 provides a reasonable "Middle of the Road" set of projections that balances the financial objectives of the State with the financial objectives of the private investor (see page 13), the CARRD recommendation will be reviewed in the light of Section C4 of the Financial Summary. Since the primary reason to consider this recommendation would be due to the lack of capital to build out the entire Los Angeles to San Francisco Phase One Corridor, as mandated in Prop 1A, the focus should be on Column C in the Financial Summary, the "Worst Case" in the CHSRA's 2009 Plan. As discussed above, this column is based on a mix of financing with only $3 Billion of the planned $17 Billion to $19 Billion of Federal Grants being available. Row C4 is based on the balance of the financing method being all debt, the lowest cost of reasonably acceptable financing.

Case 1 – Results If All of the CHSRA's 2009 Operating Results Could Be Achieved

The Summary shows that for Case 1 in row C4 and Column C of the CHSRA 2009 Plan the taxpayer's

cumulative cash flow by 2035 will be (7), a negative $7 Billion. This means that even if every one of the 2009 Operating Plan results for riders and revenues were achieved (as shown as Case 1) the cash shortfall to service the annual debt payments plus cover operating expenses over the sixteen years of 2020-2035 would be a cumulative negative $7 Billion.

Case 2 – Results If Passenger Ridership Drops 25%

Since passengers in and out of the two metropolitan areas would not have the speed and convenience of direct service to downtown Los Angeles and downtown San Francisco, it seems reasonable to assume that the physical ridership results might be at least 25% less than the CHSRA's 2009 Los Angeles/Anaheim to San Francisco Corridor estimates. This would mean 25% fewer passengers but with the same ticket prices, as well as operating costs being 25% lower than in the 2009 Business Plan. This set of conditions is shown as Case 2. It is in the same cell of the Summary, and Case 2 shows an (18), or a cumulative negative cash flow of $18 Billion by 2035. This means that if no more free Federal grants for construction are raised for the Sylmar to San Jose Corridor, the negative cumulative cash flow between 2020 and 2035 would accumulate to about a negative $18 Billion by 2035. On average, this would be about $1.1 Billion per year that would also have to be serviced out of the General Fund, additional taxes, or additional debt. But, the smaller the drop in passenger volumes, the smaller the cumulative negative cash flow.

Even setting aside the cost of servicing the Prop 1A Bonds, which will be about $10 Billion between 2020 and 2035, the net cumulative negative cost to the taxpayers would still be about $8 Billion over these sixteen years. On average, this would be about $0.5 Billion per year that would also have to be serviced out of the General Fund, additional taxes, or additional debt.

Case 4 – Results If Ticket Prices Also Drop 25%

The Case 2 operating numbers will probably not be attained because, in addition to the above-noted drop in ridership, the average ticket prices will also decrease, since passengers will have to buy additional commuter tickets inside the LA Basin and in Northern California to reach the HSR end points. It is also reasonable to assume that the airlines will also engage in ticket price wars with the HSR system. Finally, ridership to and from the CARRD end-points is likely to be lower given middle-class budget assessments of the presently stated one way ticket of $105 between Los Angeles and San Francisco. Case 4 results are more likely than Case 2, as Case 4 is based on a 25% reduction in the CHSRA 2009 Plan average ticket prices, as well as the reductions shown in Case 2 (the 25% drop in passenger volumes and the 25% drop in operating costs). (Case 3, which is an intermediate set of financial conditions, is not discussed in the Financial Summary, but is available in the detailed analysis and all of the Exhibits.)

The cumulative negative cash flow between 2020 and 2035 for Case 4 are a negative $31 Billion. This is an additional $21 Billion added to the $10 Billion to service the Prop 1A debt between 2020 and 2035. This $21 Billion would be an average of $1.3 Billion per year, ignoring the cost to service the Prop 1A Bonds, more in the earlier years, less in the later years. The total of $31 Billion would be, on average, about $1.9 Billion per year, including the cost to service the Prop 1A Bonds.

While not perfect, CARRD's suggested option reduces the financial risks to the State.

Note

For Part III, and Part IV which includes all of the Exhibits and Appendixes, please refer to a copy of the complete report. This report, as well as our other documents, is available at: www.cc-hsr.org