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April 19, 2018

Draft 2018 Business Plan
California High Speed Rail Authority
770 L Street, Suite 620 MS-1
Sacramento, CA 95814

RE: Draft 2018 HSR Business Plan Comment Letter

To Whom It May Concern:

The Town of Atherton and the Atherton Rail Committee have reviewed the High Speed Rail Authority's Draft 2018 Business Plan and believe that the ridership, revenue, and schedule assumptions in the Business Plan are overly optimistic, the costs and challenges under estimated, and that the Authority will not be able to meet the requirements of Proposition 1A. Several of the optimistic claims within the body of the Business Plan are contradicted by the more detailed information contained within the Appendices. Some of the significant issues are summarized below.

1. AB3034, Proposition 1A

On Page 15, the Plan states, "The California High Speed Rail Authority remains committed to the Proposition 1A mission to connect California with a new high-speed passenger rail service and to delivering it through a phased implementation strategy."

AB 3034, 2409 b states, "Maximum non-stop service travel times for each corridor shall not exceed;

- (1) San Francisco – Los Angeles Union Station 2 hours 40 minutes
- (2) San Francisco-San Jose 30 minutes"

The Operating Plan on pages A-1 and A-2 lists the following travel times for high speed rail:

San Francisco-Los Angeles Union Station 3 hours 31 minutes
San Francisco-San Jose 63 minutes

It does not appear that the high speed train will approach a speed of 200 mph, a requirement of AB3034. The highest average speed over the segment from Fresno to Bakersfield would be 149 mph, and the average speed between San Francisco and Los Angeles would be 95.7 mph.

AB3034 also requires a detailed funding plan for each operable segment and that all sources of funds and the time of their receipt be specified before work can be initiated on any segment. Page 15 of the Plan states that the funding shortfall for the Silicon Valley to Central Valley (presumed to be San Jose to Shafter) is approximately equal to the cost to complete the tunnels through the Pacheco Pass, by far the most expensive piece of the work. The funding for this work is heavily dependent on Cap-and-Trade money from the quarterly actions. The amounts of these funds are inconsistently reported throughout the Plan. Page 37, Exhibit 3.3, lists the Cap-and-Trade proceeds from the most recent 11 quarterly actions allocated to the Authority. These total approximately \$1.218 Billion. On page 37, the Plan states that the Authority has already received \$1.618 Billion in Cap-and-Trade, including a special grant. Per Exhibit 3.3, the average annual (measured to August) allocation to the Authority has been approximately \$330 Million. The plan assumes an annual allocation of \$700 Million, up from \$500 Million in the 2016 Business Plan. It seems unlikely that future Cap-and-Trade funds will increase this substantially such that they can provide the needed funds to complete the Valley to Valley segment.

2. Right of Way Acquisition

The Plan admits to problems in acquiring Right of Way for the first construction segments and claims that the acquisition process has been revised to avoid future problems. The Authority has not acquired any Right of Way for their early construction segment from San Jose to Gilroy. The Authority states that it is negotiating with the Union Pacific Railroad to use part of its San Jose-Gilroy Right of Way. The acquisition of this Right of Way will be both time consuming and costly, and it is not clear that these costs and time considerations are adequately addressed in the report.

3. Community Benefits

a. Job Creation

The Plan takes great credit for providing a large number of new jobs in the Central Valley and of offering short commute times that would stimulate new housing in Gilroy and Fresno, and perhaps other communities.

The intent of the project is not job creation and at this time of near full employment is not necessarily measurable and cannot be considered as a community benefit.

b. New Residential Development

The Plan suggests that with the completion of the Valley to Valley operable segment, the travel time between Fresno residences and Silicon Valley jobs will be reduced to one hour from a today's three-hour drive. This easier access together with lower housing costs would presumably provide a basis for large new residential developments in and around Fresno. This presumption fails on two counts:

1. The High Speed Rail travel time listed on Page A-1 of the of the supporting Ridership and Revenue Forecasting document shows a travel time of 82 minutes between Fresno and San Jose, not 60 minutes as shown in Exhibit 1.3 of the Plan.
2. Page 1 of the Plan states "A shortened commute, made possible by high-speed rail, will open up an affordable housing market for those working in the Bay Area." This is prefaced by statements regarding the median rent for a two-bedroom apartment in San Francisco being \$4,200 per month, while rent in Kings County is approximately \$900 per month, implying that a commuter from Kings County would save \$3,300 per month in rent. With the proposed High Speed Rail fare between San Jose and Fresno being \$66 each way, as shown on Page 2-5 of the supporting Ridership and Revenue Forecasting document, the savings would be offset by at a cost of \$2,800 in rail fares to San Jose. This will cause the many potential commuters to think carefully about the relative desirability of living in each location. Therefore, it is unlikely that there will be significant development or migration in the Valley area related to employment in Silicon Valley.

4. Cap-and-Trade Funds

According to the Plan, future High Speed Rail financing will depend heavily on access to large amounts of money from Cap-and-Trade actions, both for meeting current expenditures and as guarantees and payments for large capital loans which are negotiated to provide early access to sufficient money to keep the project going according to plan. As noted above, the 2018 Draft Business Plan increases the Cap-and-Trade revenues to the Authority from \$500 Million in the 2016 Business Plan to \$750 Million per year. The average annual allocation has been approximately \$330 Million per year. There is no evidence to support the assertion that Cap-and Trade will continue yielding the amounts of money received to date, let alone increase so dramatically. The companies that provide the Cap-and-Trade funds are under strong financial pressure to clean up their operations rather than to continue paying large sums to the government. Additionally, future administrations may change the allocation of Cap and Trade funds away from the Authority. Thus, the expectations for the future must be that Cap-and-Trade funds will decline and cannot be depended on to provide the asserted level of collateral for long term loans.

5. Short Segment Operation

Page ii of the Chief Executive Officer's letter states that the Authority will initially complete two short segments: one from San Jose to Gilroy and the other one from Shafter to Bakersfield. These two segments are to provide for testing and early operation. It is unlikely that the Gilroy through San Jose to San Francisco service will attract many riders. It will operate high speed trains over tracks also used by Caltrain's commuter service. In order to handle the train traffic and to minimize interference, all trains, both high speed and commuter, will have to operate at the same maximum speed. That maximum speed is limited to 79 mph because no improvements will have been made to the Caltrain tracks. If Caltrain's Baby Bullet trains have the same number of intermediate stops as the high speed trains, travel times for the two services will differ by less than three minutes. The high speed trains will undoubtedly be more comfortable than the Caltrain trains, but the fare for the high speed trains will be \$26 each way, according to page 2-5 of the Ridership and Revenue Forecasting document, while the maximum Caltrain fare is \$15. After initial exploratory rides, it is doubtful that the high speed trains would capture many riders, certainly not enough to cover the operating costs.

6. Pacheco Pass Route

Plan page 40 summarizes the cost to construct the high speed infrastructure between San Jose and Madera, as follows:

Segment	Length, mi	Cost \$M	Cost \$M/mi
San Jose-Gilroy	29.7	\$3,217	\$108.3
Gilroy-Carlucchi Road	35	\$10,249	\$292.8
Carlucchi Road-Madera	64.6	\$2,392	\$37

The Gilroy to Carlucchi Road segment includes passage through or over the Pacheco Pass. This segment requires either a long tunnel or expensive construction up and down mountain passes with several short tunnels and a great deal of earth movement. In view of the terrain and potential seismic problems, a tunnel could easily cost as much as \$2 Billion per mile. The surface route would be cheaper but would likely exceed the amount budgeted. In as much as no route has yet been selected, it is unclear that a sufficient contingency was applied to this segment.

7. Environmental Impact Reports (EIR)

Plan page 82 gives the scheduled completion dates for the different environmental impact reports. The San Jose to Merced EIR is scheduled for completion in 2019. In view of the lack of a decision about Pacheco Pass this seems to be an overly optimistic date. The same can be said about the Bakersfield to Palmdale EIR which is also scheduled to be completed in 2019. This segment must cross over or through the Tehachapi Mountains. Thus far, no route over or through these mountains has been determined.

8. Greenhouse Gas Reduction

The Draft Business Plan contains repeated references to the expected reductions in California's greenhouse gas (GHG) emissions as a result of the construction and continuing operation of the high speed train. Exhibit 1.6 on p. 10 quantifies the expected reduction as from 64.9 million metric tons (MMt) of CO₂ over 50 years to 84.1 MMt over 50 years. While these values are not well explained, it appears that the lower figure is associated with the Phase 1 rail lines and the higher figure includes the full system with the Phase 2 expansion.

It is not explained how these values were arrived at, but it is also stated that they are equivalent to the removal of 360,000 passenger cars per year. EPA provides an estimate of 4.7 metric tons (Mt) of CO₂ per passenger car per year for cars with gasoline engines [1]. 4.7 Mt/car-year times 360,000 cars times 50 years gives 84.6 MMt which is consistent with their upper estimate. This suggests that their estimate of GHG emission reduction may be tied to their ridership estimate which is then converted into an estimate of fewer passenger miles in cars. However, this omits a number of other considerations; specifically:

1. While the number of cars on the road may be somewhat reduced with the availability of HSR, in the future (far less than 50 years), a significant fraction of these cars will not be gasoline fueled. CO₂ emissions from hybrid electric (such as the Prius), plug-in hybrids (such as the Chevrolet Volt) or all-electric (such as the Tesla) emit far less CO₂. EPA estimates are 1.6 Mt/year for Prius-like vehicles and 1. Mt/year for all-electric (accounting for emissions from the source of the electricity). Estimates of the fraction of such vehicles on the California roads in future years are widely varying but Bloomberg [2] estimate for 2040 is 25% so over a 50 year period starting with the completion of HSR, an estimate of 40% might not be unreasonable. This would reduce the "50 year totals" to about 40 MMt for Phase 1 and 50 MMt for the expanded (Phase 2) system. The other reductions would have taken place without HSR and the HSR contribution would diminish as time goes on. Additionally, the estimate does not take into account the increasing fuel economy standards and required emission reduction in gasoline fueled vehicles over the 50 year period.
2. The construction of the rail line will generate significant GHG emissions over the course of construction. No well-supported, citable estimates of the amount of CO₂ emitted during rail road construction were found in a brief search. However, estimates do exist for highway construction [3]. These range from 3,234 Mt/km for "freeways" to 794 Mt.km for "national roads". Assuming an intermediate value of, 2,000 Mt/km for a rail line, the 800 mile HSR Phase 1 plan would emit approximately 2.6 MMt or the equivalent of about two years of their estimated savings.

These arguments are not really critical to either the benefits or drawbacks of HSR. However, they may be relevant in two ways.

1. They serve as an example of the unsupported nature of claims made in the Draft 2018 Plan and, given the prior history of inaccurate forecasts by the Authority, they may lend credibility to other criticisms
2. Their Exhibits 3.7, 3.11 and others indicate that a major fraction of their anticipated funding is from the Cap-and-Trade funds. To the extent that the justification for using those funds is tied to the Authority's claim of being a significant contributor to meeting California's GHG goals, which is disputable.

9. Ridership Forecasts

The Plan has described in detail those entities that have examined its ridership model and given stamps of approval. Econometric models are extremely complex and contain a large number of variables to describe traveler behavior and values for making modal selections. Even so, the product of the model is at best an estimate. It is possible to apply a few tests to determine the credibility of the product of the model.

Travel Times

Page A-1 of the Ridership and Revenue Forecasting document lists travel times for high speed trains and for feeder buses. As already mentioned, the high speed rail travel times are very long, indicating speeds above 100 mph only for the Fresno-Bakersfield segment. The feeder bus times are also surprising. In particular, both the north and south feeder schedules show the same travel times for peak hour and off peak travel. There is no allowance for any congestion on rush hour streets and highways, a major factor in both Sacramento and Southern California.

10. Operating Profit

Beginning in 2029, the Plan proposes that farebox and other revenue will sufficiently exceed operating and maintenance costs to produce a sizeable profit. This profit would presumably accrue to the Authority and could be used to finance the balance of Phase 1 and the extensions to Sacramento and San Diego. Since the Authority has already hired a system operator for advice and later operation of the High Speed Rail System, the profit would have to be shared with the operator. Hence the proposed numbers would need to be reduced. The 2029 surplus is estimated at \$135 Million, growing to \$1,065 Million by 2033. This performance would be in stark contrast to all other high speed rail systems throughout the world. Of more than 69 worldwide high speed rail systems, only two are able to operate without operating subsidies: Tokyo-Osaka, Japan, with 53 years of operation and Paris-Lyon, France, with 37 years of operation. Additionally, it is important to note that most transit systems operate at a deficit. This implies that the ridership

estimates are much too large or the operating and maintenance costs are much too low, or both.

In summary, it is unlikely that the project will be able to meet the service requirements outlined in AB3034, Proposition 1A, that the funding availability, ridership, revenue estimates, and community benefits are overly optimistic, and the project costs and delivery time table are significantly underestimated.

These comments are consistent with Legislative Analyst's Office that there are significant uncertainties regarding funding to complete the project, and that a full funding plan is needed.

Sincerely,

Cary West
Mayor

cc: Assembly Committee on Transportation, Hon. Jim Frazier, Chair

References

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2. Electric Vehicles to be 35% of Global New Car Sales by 2040", Bloomberg Energy Finance, March, 2016. (available at <https://insideevs.com/bloomberg-new-energy-finance-electric-vehicles-to-be-35-of-global-new-car-sales-by-2040/>)
3. Introduction to Greenhouse Gas Emissions in Road Construction and Rehabilitation, The World Bank, November, 2010, (available at <http://siteresources.worldbank.org/INTEAPASTAE/Resources/GHG-ExecSummary.pdf>)
4. O'Toole, Randal, "Does Rail Transit Save Energy or Reduce CO2 Emissions?" Date unknown. (available at <http://americandreamcoalition.org/pollution/RailEnergy&GHGs.pdf>)