

**CC-HSR PROTEST TO CHSRA PETITION FOR EXEMPTION**

This Protest is made in response to the Petition for Exemption filed by the California High Speed Rail Authority (“CHSRA”). It is made on behalf of the Community Coalition on High-Speed Rail (“CC-HSR”), a grass-roots non-profit citizens organization that works through public advocacy, litigation, and political action to make sure the proposed California High Speed Rail project complies with applicable laws and doesn't adversely affect the economy, environment, or quality of life of California's existing communities.

**I. INTRODUCTION**

The Surface Transportation Board's (Board) task--to determine whether or not to grant a construction exemption to CHSRA--is not the facile exercise that CHSRA would have the Board believe. On the contrary, the task requires an independent and thorough examination into the essential elements of this megaproject, and the extent to which various key elements are inconsistent with national rail policies set forth in section 10101 of Title 49, United States Code.

**II. COMPREHENSIVE “DUE DILIGENCE” IS REQUIRED FOR THIS HUGE, COMPLEX RAIL PROJECT THAT LACKS THE “MARKET DISCIPLINE” OF PRIVATE INVESTMENT**

We believe the public interest requires that CHSRA's petition for an exemption be denied so the Board can conduct the thorough scrutiny under 49 U.S.C. 10901 that is needed to properly evaluate this massive rail megaproject that will construct over 800 miles of high-speed rail lines and is projected to cost between \$68 billion and \$117 billion. This is the largest, most complex rail project ever to come

before the Board, and it has been plagued with numerous problems from its inception.<sup>1</sup> If this gigantic, troubled project does not warrant the scrutiny that is provided by 49 U.S.C. sec. 10901, such lack of action would set a terrible precedent--as it would be hard to imagine any rail construction project for which such statutory scrutiny would be needed.

In considering whether to grant an exemption under section 10502, we urge the Board to take into account that unlike most exemption cases for new construction in which significant private capital is at risk, there is no private capital at risk here--none. It is *all public funds*, initially about \$3.3 billion of federal taxpayer dollars and later \$2.7 billion of state funds. CHSRA concedes that “private-sector capital for construction of the [entire Merced to San Fernando Valley] IOS [Initial Operating Segment] is not available.” (Revised 2012 Business Plan. p. 7-14) This means that all of the remaining \$25 billion needed to complete the IOS is to come from a combination of federal and state funds (ibid.). Thus, CHSRA is counting on substantial sums of additional federal funds. If granted, these will all be at risk, in addition to the \$3.3 billion of federal funds already at risk.

The significance of total absence of private-sector capital cannot be underestimated. *It tells us that the investment community has decided this project is so risky that it would not be prudent to invest in it.* This undeniable fact of economic life was acknowledged by the CHSRA *itself* nearly five years ago when its 2008 Business Plan stated: “The amount of private funding and timing of private sector participation will be a reflection of how risky the private sector perceives this project overall.”<sup>2</sup> And so it is today.

In these circumstances the underlying premise for the deregulation of rail construction is missing in action. See the dissenting opinion of Vice Chairman Mulvey in *Alaska Railroad*

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1 The most comprehensive critique of the California high-speed rail project is the recently released report by the Reason Foundation, *California High Speed Rail: An Updated Due Diligence Report*, authored by Joseph Vranich and Wendell Cox. It is available at [http://reason.org/files/california\\_high\\_speed\\_rail\\_report.pdf](http://reason.org/files/california_high_speed_rail_report.pdf)

2 CHSRA 2008 Business Plan, Nov. 2008, p. 24.

*Corp.*, STB Docket No. 404027EB, Jan. 6, 2010. The “discipline of the marketplace” cannot serve as an adequate substitute for appropriate government oversight of major infrastructure projects without *significant private investment at risk* because that is what provides the fiscal discipline. Without that, enterprise risk is unbound, and taxpayers alone get to pick up the tab when, not surprisingly, things “go south.”

In the absence of the “discipline of the marketplace” on major transportation projects, public agencies have a terrible record of bad planning, incompetent management, and huge cost overruns. An extensive study led by Oxford professor Bent Flyvbjerg on the difference between promises and performance for major transportation projects in Europe, Asia and the United States, summarized typical characteristics of such megaprojects:

- Such projects are inherently risky owing to long planning horizons and complex interfaces.
- Technology and design are often non-standard.
- Decision-making, planning, and management are typically multi-actor processes with conflicting interests.
- Often there is ‘lock in’ or ‘capture’ of a certain project concept at an early stage, leaving analysis of alternatives weak or absent.
- The project scope or ambition level will typically change significantly over time.
- Statistical evidence shows that such unplanned events are often unaccounted for, leaving budget and time contingencies sorely inadequate.
- As a consequence, misinformation about costs, benefits, and risks is the norm throughout project development and decision-making, including in the business case.
- The result is cost overruns and/or benefit shortfalls during project implementation.<sup>3</sup>

Why should this be? Here is an important reason.

Business Plans in the private sector are produced by men and women who have invested, and will invest, their time, intellectual capital, and normally a

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3 Flyvbjerg, B, “Survival of the unfittest: why the worst infrastructure gets built—and what we can do about it,” *Oxford Review of Economic Policy*, vol. 25, no. 3, 2009, p. 345.  
<http://www.sbs.ox.ac.uk/centres/bt/Documents/UnfittestOXREPHelm3.4PRINT.pdf>

tremendous amount of their personal financial capital into making the future venture a success. For private enterprises that have outside shareholders, there is also a group of committed investors who press to maximize efficiency and opportunity for the business. Unfortunately, for an enterprise like High Speed Rail that aspires to be treated like a business but run by the public sector, what is missing is the lack of a strong personal financial stake in turning a profit. Because of this difference, financial commitments become promises; forecasts become guesses, and statement of facts become estimates. This is due to the consultants and managers having “no skin in the game.” Given this tremendous difference, [public] officials need to take what is told to them, or provided to them in a Business Plan, with a large grain of salt—and to think through . . . the consequences to the State [and Federal government] if the [project] goes ahead but does not meet its proponents' financial assertions and expectations.<sup>4</sup>

A common result of the lack of private investment in major transportation projects is that risk evaluation is not taken seriously; instead what you repeatedly see is facile treatment that rarely deals realistically with enterprise risk. Where, as with the present California high-speed rail plan, there is a history of “high political and organizational pressure,” there are institutional self-destructive forces at work, as explained by professor Flyvbjerg:

[I]n situations with high political and organizational pressure the underestimation of costs and overestimation of benefits is [not] caused by non-intentional technical error or optimism bias. . . . [I]n such situations promoters and forecasters intentionally use the following formula in order to secure approval and funding for their projects:

$$\textit{underestimated costs} + \textit{overestimated benefits} = \textit{funding}$$

Using this formula, and thus ‘showing the project at its best’ as one interviewee said above, results in an *inverted Darwinism, i.e. the survival of the unfittest*. It is

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4 See Enthoven, A., Grindley, W., Warren, W., Bushell, A. & Brownrigg, M., “California High-Speed Rail Authority’s 2012 Draft Business Plan, Assessment: Still Not Investment Grade”, January 2012, page 62, the “Conclusion”. Available at <https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnoxoc3JjYWxpZmZvfGd4OjdhNGNjMmE3NWl4YjIwYjI>

not the best projects that get implemented, but the projects that look best on paper. And the projects that look best on paper are the projects with the largest cost underestimates and benefit overestimates, other things being equal. But the larger the cost underestimate on paper, the greater the cost overrun in practice. And the larger the overestimate of benefits, the greater the benefit shortfall. Therefore the projects that have been made to look best on paper in this manner become the worst, or unfittest, projects in reality, in the sense that *they are the very projects that will encounter most problems during construction and operations in terms of the largest cost overruns, benefit shortfalls, and risks of non-viability. They have been designed like that, as disasters waiting to happen.*<sup>5</sup> (emphasis supplied)

This is no small matter, as very serious fiscal and financial consequences can flow from such “risks of non-viability” and “disasters waiting to happen.” Again, from Professor Flyvbjerg:

[I]t is becoming clear that many such [large infrastructure] projects have strikingly poor performance records in terms of economy, environment and public support. *Cost overruns and lower-than-predicted revenues frequently place project viability at risk and redefine projects that were initially promoted as effective vehicles to economic growth as possible obstacles to such growth. . . .*

The physical and economic scale of today’s megaprojects is such that whole nations may be affected in both the medium and long term by the success or failure of just a single project. As observed by Edward Merrow in a RAND study of megaprojects:

“Such enormous sums of money ride on the success of megaprojects that company balance sheets and even government balance-of-payments accounts can be affected for years by the outcomes ... The success of these projects is so important to their sponsors that firms and even governments can collapse when they fail.”<sup>6</sup> (emphasis supplied)

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5 Flyvbjerg, B., “Survival of the unfittest: why the worst infrastructure gets built—and what we can do about it,” *Oxford Review of Economic Policy*, vol. 25, no. 3, 2009, p. 353.

<http://www.sbs.ox.ac.uk/centres/bt/Documents/UnfittestOXREPHelm3.4PRINT.pdf>

6 Flyvbjerg, B., Bruzelius, N. & Rothengatter, W., *Megaprojects and Risk*. Cambridge U. Press, 2003, pp. 3-4.

<http://catdir.loc.gov/catdir/samples/cam034/2002074193.pdf> In a later article, Professor Flyvbjerg observed: “The UK, France, and Denmark are rich countries and can afford to build financial and economic disasters like this. *But it is*

Under these circumstances, prudence dictates that the Board take the time necessary to conduct a full and fair review of this project to make sure that it is not inconsistent with federal rail policy in any material respect, and that the public interest is adequately protected. Whether that is called “due diligence” or a “hard look” it is essential in this case.

### **III. AN EXEMPTION WOULD BE INCONSISTENT WITH NATIONAL RAIL POLICIES EXPRESSED IN SUBSECTIONS (4) AND (5) OF SECTION 10101**

Our focus here is on the vital economic policies of sub-sections (4) and (5) of section 10101:

(4) to ensure the development and continuation of a sound rail transportation system with effective competition among rail carriers and with other modes, to meet the needs of the public and the national defense;

(5) to foster sound economic conditions in transportation and to ensure effective competition and coordination between rail carriers and other modes;

Thus the Board is charged with examining whether, and to what extent, *CHSRA's proposed rail line and its competitors (including “other modes”)* will meet the needs of the public in a way that will foster sound economic conditions in transportation.

To do this the Board must look not only to the present and the past, but also to the next few decades when the CHSRA projects that Phase 1 of the megaproject will be completed, i. e., by 2029.<sup>7</sup> Alternatively, the Board may look to completion of the segment that CHSRA calls its Bay-to-Basin HSR segment (San Jose to the San Fernando Valley) which CHSRA estimates will be completed by 2026.<sup>8</sup>

The problem, and it is a big one, is that *during this same time period* a game-changing “disruptive

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*important to understand that countries do not become rich by doing so. They do so when they have become rich.”* (emphasis supplied). Flyvbjerg, B, “Survival of the unfittest: why the worst infrastructure gets built—and what we can do about it,” *Oxford Review of Economic Policy*, vol. 25, no. 3, 2009, p. 348.  
<http://www.sbs.ox.ac.uk/centres/bt/Documents/UnfittestOXREPHelm3.4PRINT.pdf>

<sup>7</sup> CHSRA Revised 2012 Business Plan (Revised Business Plan) Exhibit. ES-3

<sup>8</sup> Ibid. By 2022 CHSRA optimistically expects to have HSR trains running from Merced to the San Fernando Valley. Ibid. This will require traversing the challenging Tehachapi mountains and securing an additional \$38 billion in funding. No small feat in either case.

technology” is highly likely to be implemented in California (and elsewhere) that will dramatically alter the travel choices of potential CHSRA passengers—totally vitiating CHSRA's critical ridership projections. This “disruptive technology” is the self-driving car that is being actively developed by Google and numerous automobile manufacturers.

**As will be shown, this fast-moving, disruptive technology will make it extremely difficult for California high-speed rail, as planned, to compete effectively in the critical competition for inter-regional California passengers, predictably resulting in the antithesis of an economically sound rail transportation system based on high-speed rail.**

With its head in the sand, CHSRA has failed to evaluate the likely impact of the self-driving car on the ridership and economics--as well as the environmental consequences<sup>9</sup>--of the California high-speed train megaproject. Despite numerous articles and reports that would alert any serious transportation planner,<sup>10</sup> as far as CHSRA is concerned it is as if this critical phenomenon simply doesn't exist.

But self-driving cars definitely exist and are currently being tested in Nevada and California: Google's self-driving cars have already traveled 700,000km (435,000 miles) under autonomous control without incident.<sup>11</sup> (To view a 3-minute video of a Google self-driving car in action in a California suburb, [click here](#).) Most car makers are also developing self-driving features incrementally,

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9 Where, as here, “the ridership projections are also inflated, [this] will diminish the projected CO2 reduction benefits of HSR even further.” *Blue Sky Consulting Group*, Oct. 16, 2012, (“*Blue Sky Report*”) Oct. 16, 2012, p. 7, see also pp. 9, 10. Exh. A to the Declaration of Wendell Cox, available at <https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnoxoc3JjYWxpZmZyfGd4OjczNDE4ZTcxMTdiM2E2NTU>

10 See, e.g., KPMG & Center for Automotive Research, *Self-driving cars: The next revolution*, 2012 (“It could also bring the end to battles over the need for (and cost of) high-speed trains. Self-driving vehicles with the ability to “platoon” —perhaps in special express lanes— might provide a more flexible and less costly alternative.” p.26 [http://www.cargroup.org/assets/files/self\\_driving\\_cars.pdf](http://www.cargroup.org/assets/files/self_driving_cars.pdf); Singularity University, *Can High-Speed Rail Compete With Self-Driven Cars and All the Technology of the Future?*, 2012 (“California planners and the CHSR authority need to do an analysis of the HSR operating in a world of 2030s technology and sprawl, not today's.”) <http://singularityhub.com/2012/09/04/can-high-speed-rail-compete-with-self-driven-cars-and-all-the-technology-of-the-future/> .

11 *The Economist*, “How does a self-driving car work?”, Apr. 29, 2013. <http://www.economist.com/blogs/economist-explains/2013/04/economist-explains-how-self-driving-car-works-driverless>

including General Motors, Ford, BMW, Audi, Honda, Toyota, Volkswagen, Volvo, and Continental AG.<sup>12</sup> Last August the USDOT announced: “Nearly 3,000 cars, trucks and buses equipped with 'connected' Wi-Fi technology to enable vehicles and infrastructure to 'talk' to each other in real time to help avoid crashes and improve traffic flow will begin traversing Ann Arbor’s streets today as part of a year-long safety pilot project by the U.S. Department of Transportation”--being conducted by the University of Michigan's Transportation Research Institute.<sup>13</sup> Related studies are being conducted by others, including Oxford University,<sup>14</sup> and the European Sartre Project.<sup>15</sup>

Estimates vary as to when self-driving cars will be available. Google engineers say that technology for a fully autonomous, self-driving car is "more like five years away."<sup>16</sup> That's when Google expects to be able to market its technology. Between now and then certain legal liability and regulatory issues are being resolved in states like California, Nevada, and Florida that have passed laws permitting self-driving cars (typically now requiring a driver present). There now seems to be a general consensus that autonomous self-driving cars will be available by 2020-2025.<sup>17</sup> This time-frame is several years before true high-speed rail *may* become available in California. By then, California high-speed rail would be in danger of being perceived by its target market as yesterday's news. Anyone

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12 Ibid. *Wall Street Journal*, “No drivers, many roads”, Sep. 24, 2012.

13 NHTSA, “DOT Launches Largest-Ever Road Test of Connected Vehicle Crash Avoidance Technology” Aug. 21, 2013. <http://www.nhtsa.gov/About+NHTSA/Press+Releases/DOT+Launches+Largest-Ever+Road+Test+of+Connected+Vehicle+Crash+Avoidance+Technology>

14 *The Guardian*, “New self-driving car system tested on UK roads”, Feb. 14, 2013 <http://www.guardian.co.uk/technology/2013/feb/14/self-driving-car-system-uk>

15 *AutoSpeed*, “Vehicle platooning – coming soon to a highway near you”, Apr. 2, 2013, [http://www.autospeed.com/cms/A\\_112997/article.html](http://www.autospeed.com/cms/A_112997/article.html)

16 *USA Today*, “Self-driving cars aren't too far off” Apr. 10, 2013, <http://www.usatoday.com/story/money/cars/2013/04/10/self-driving-cars/2071607/>

17 *Fox News*, “Former General Motors R&D chief says self-driving cars will be on sale by 2020,” Apr. 10, 2013, <http://www.foxnews.com/leisure/2012/04/10/former-general-motors-rd-chief-says-self-driving-cars-will-be-on-sale-by-2020/#ixzz2S4BVaomN>; *Wall Street Journal*, “Get Ready: Driverless Cars Should Go Mainstream by 2025,” Apr. 18, 2013, <http://online.wsj.com/article/SB20001424127887324763404578428703494303658.html>. The most pessimistic estimate came from a spokesman for the Insurance Information Institute—a very slow-moving industry—who predicts it will take 15 to 20 years for truly autonomous vehicles to populate U.S. roads. *Automotive News*, “Google, regulators at odds over timing of self-driving cars”, Jan. 6, 2013. <http://www.autonews.com/apps/pbcs.dll/article?AID=/20130206/OEM11/302069778/google-regulators-at-odds-over-timing-of-self-driving-cars#axzz2S0P3CgmJ>.

who lives in or near Silicon Valley knows all too well how rapidly modern technology can accelerate the forces of capitalism's "Creative Destruction."<sup>18</sup>

To sum up, very few persons familiar with both self-driving cars and California high-speed rail would be willing to bet that the first CHSRA high-speed trains will be traveling from Merced to the San Fernando Valley *before* fully autonomous self-driving cars are running up and down Interstate 5 between the San Francisco Bay Area and Los Angeles. Due to lack of adequate funding the former may not happen for multiple decades (if ever), and the latter is as close to a sure thing as there is in today's world.

CHSRA's head-in-the-sand attitude is typical of a 'legacy' business that becomes 'blindsided' by a disruptive technology--with disastrous financial consequences. (The "failed company" graveyard is full of them.) For CHSRA this is likely to prove a fatal mistake in light of CHSRA's very heavy reliance in its Revised 2012 Business Plan on its ability to convince Californians to switch from driving automobiles to riding its high-speed trains and then having to board regional rail to enter the state's largest metropolises.

CHSRA's entire case for economic and environmental success is predicated on its optimistic ridership projections which are primarily based on attracting *existing automobile users* to high-speed rail. This flies in the face of the experience of high-speed rail in Europe. In Spain, only 16% of high-speed rail passengers switched from cars to high-speed trains, and the experience in France (11%) is even lower.<sup>19</sup> Yet CHSRA implausibly projects that 73% of its passengers will be persons who

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18 Joseph Schumpeter, *Capitalism, Socialism, and Democracy*, 3d ed.. New York, 1950. It is the "process of industrial mutation . . . that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. *This process of Creative Destruction is the essential fact about capitalism.* It is what capitalism consists in and what every capitalist concern has got to live in."

<http://langlois.uconn.edu/Creative%20destruction.htm>

19 Vranich, J. & Cox, W., *California High-Speed Rail: An Updated Due Diligence Report*, Reason Foundation, 2013, ("Updated Due Diligence Report") pp. 16-17, Fig. 6, [http://reason.org/files/california\\_high\\_speed\\_rail\\_report.pdf](http://reason.org/files/california_high_speed_rail_report.pdf); Additional data for France is in the *Blue Sky Report*, supra, pp. 9-10, table 3.

previously made similar trips by automobile.<sup>20</sup> Back in the real world:

“[I]f the European automobile passenger attraction experience were applied to the [CHSRA] California forecasts, ridership would be substantially lower, even assuming the likely unattainable higher CHSRA speeds. Ridership would be 64% lower.”<sup>21</sup>

This would constitute a drastic reduction in estimated ridership from 21.1 million/year to 7.6 million/year in the 2035 time period.<sup>22</sup> Thus, CHSRA is highly vulnerable to anything that makes inter-regional automobile travel more attractive, and that is what self-driving cars will provide.

As CHSRA's former chairman, Quentin Kopp (the “father of California high-speed rail”) testified, unless the CHSRA can achieve its projected high levels of ridership it will not be able to avoid an operating subsidy which is prohibited by California law.<sup>23</sup> But if the attraction to high-speed rail of drivers from cars equals that of Europe, CHSRA's operating subsidies are projected to be \$124 million per year.<sup>24</sup>

Faced with lower than projected ridership, for CHSRA to raise its fares to avoid an operating subsidy would make it even less competitive with airline and automobile travel, leading to a downward financial spiral.<sup>25</sup>

Accurate ridership and revenue projections are crucial to the financial success of any high speed rail project. . . . Should ridership projections be too high, revenue will be lower and financial losses can occur, with taxpayers picking up the tab.<sup>26</sup>

CHSRA's plans to persuade California drivers to switch to its high-speed rail trains for inter-

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20 *Updated Due Diligence Report*, supra, pp. 16-17, Fig. 6.

21 *Updated Due Diligence Report*, supra, p. 21, table 2, Fig. 8.

22 Ibid.

23 See Declaration of Quentin Kopp, March 2013, para. 18 at p. 11 available at

<https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnoxoc3JjYWxpZmZyfGd4OjRiMzU4NGRiZGVjNjEzNjY>

24 *Updated Due Diligence Report*, supra, p. 23, Table 3. [This and other declarations cited herein can be downloaded from <https://www.sites.google.com/site/hsrcalifr/home/5-2-declarations-for-litigation> ]

25 “[T]he California transportation marketplace is too competitive to allow for dramatically higher HSR prices, without resulting in dramatically lower HSR passenger volumes.” Declaration of William Warren, Mar. 2013, para. 12 at p. 8; see also para. 12 at pp. 8, 12, para. 11 at p. 14 available at

<https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnoxoc3JjYWxpZmZyfGd4OjFkNzBjYmU5MGYwZTkYyjk>

26 *Updated Due Diligence*, supra, p. 11.

regional travel fail to take into account the strong (some say excessive) attachment that Californians have to their personal automobiles, the auto-oriented, low-density development that characterizes most of the populated areas of California, and the very limited public transit options that are available in California (other than a few places including San Francisco.) As a result, even without self-driving cars, high-speed rail is at a competitive disadvantage in California:

High speed rail does not effectively compete with cars. Door-to-door travel times can be faster on high speed rail for longer trips [over 300-400 miles], but people who take longer trips by car have air travel options in larger markets. However, most such travel is by car. Costs are a principal driver of this. The perceived cost of driving is far less than the cost of a high speed rail fare. The car's cost advantage is increased by its advantage of door-to-door travel, so there is no need to arrange transportation from the high speed rail station to the final destination. Often, it will be necessary to pay parking costs at one end of a high speed rail trip and renting a car at the other end. These costs are avoided by car travel. Finally, the high speed rail cost disadvantage compared to automobiles would be even higher where more than one person is traveling by car, thereby sharing the cost of operating the vehicle (compared with each person having to buy a ticket for the train).<sup>27</sup>

For many, if not most, airline and rail passengers in California, renting a car at their destination (a significant expense) is a practical necessity. High-speed rail's touted appeal—traveling rapidly from city center to city center—is not a particularly good fit for trips to the spread-out Los Angeles area or the Bay Area outside downtown San Francisco or San Jose (e.g. Apple, Chevron, Facebook, Genentech, Google, Hewlett-Packard, Lawrence Livermore National Laboratory, NASA, Safeway, Sand Hill Road, SRI International, Stanford University, Tesla, University of California-Berkeley, YouTube, etc.)<sup>28</sup>

It is easy to see how self-driving cars threaten the viability of the California high-speed rail project

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<sup>27</sup> *Updated Due Diligence*, supra., at p. 18.

<sup>28</sup> In 2010 the City of Palo Alto formally rejected CHSRA's request that it consider having a high-speed rail station. [http://www.mercurynews.com/california-high-speed-rail/ci\\_16435465?nclick\\_check=1](http://www.mercurynews.com/california-high-speed-rail/ci_16435465?nclick_check=1)

by offering an even more attractive alternative than driving presently provides. Here's how a typical Californian described the difference that he perceived between a self-driving car trip and a high-speed rail trip from San Francisco to Los Angeles:

The trip to LA from SF would only be moderately faster via high-speed rail than by [self-driving] car—by the time you crank in the time you need to spend driving to the train station, parking, waiting a bit, stopping at stations along the way, and then getting to your destination in the LA area. High-speed rail would be way more expensive, especially once you incorporate the fuel savings from platooning, and making cars driverless would free travelers to do in cars what they do in trains.<sup>29</sup>

Moreover, many of CHSRA's own estimates and projections are inflated, inaccurate or based on outdated data.<sup>30</sup> Thus, the most recent CHSRA ridership projections are all based on field surveys of potential riders from 2005, long before self-driving cars were a realistic option.<sup>31</sup> But in the ensuing eight years, things have changed dramatically, and they will continue to do so.

When CHSRA's unrealistic ridership projections fail to materialize, leading to the need for an operating subsidy that is legally impermissible,<sup>32</sup> the predictable result will be a “stranded investment” or a huge, ongoing “rescue” cost to federal and/or state taxpayers at a time when such an expenditure could well be a budget-buster.<sup>33</sup>

At this stage of the Board’s proceedings we need not establish definitively that self-driving cars

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29 *Forbes*, “Fasten Your Seatbelts: Google's Driverless Car Is Worth Trillions (Part 1), Jan. 22. 2013, comment of carrollpaulb, <http://www.forbes.com/sites/chunkamui/2013/01/22/fasten-your-seatbelts-googles-driverless-car-is-worth-trillions/>

30 *Updated Due Diligence Report*, supra.

31 See Declaration of William Grindley, March 2013, para. 54 at p. 36, para. 56 at p. 37, and para. 57 at p. 38, available at <https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxoc3JjYWxpZmZyfGd4OjJiZTE4ZmExNTA4OGU1NTM>

32 California Streets & Highways Code, secs. 2704.08 (c)(2)(J) and 2704.08(d)(20(D)).

33 The California State Treasurer's Weekly Briefing dated May 6, 2013 stated: “*GAO sees state/local budget troubles continuing through 2060* – Those who thought state and local governments were starting to climb out of the recession’s rubble should think again, according to an April 29 report from the GAO. Overall, state and local government budgets will be plagued with operating deficits through 2060, the report said, with negative balances increasing from less than 1 percent of U.S. GDP to almost 4 percent of GDP in 2060. . . . To dramatize the fiscal challenge facing state and local governments, the report said that to maintain budgetary balance with a cuts-only approach the public sector would have to reduce spending by 14.2 percent every year through 2060.” p. 10. The full GAO report is available at <http://www.gao.gov/assets/660/654255.pdf>

will have the negative impact on California high-speed rail travel and economic prospects that is indicated. After all, there are numerous forces and imponderables at play. Rather, it is enough to show that for CHSRA, a sufficient risk of enterprise failure looms dangerously. That risk cannot be disregarded until there is an independent evaluation of the likely impact of alternative technologies (including self-driving cars) on the ridership, revenues and subsidy economics of California high-speed rail.<sup>34</sup> Absent that, trying to determine whether California's high-speed rail system, as planned, is or is not consistent with national rail policies would necessarily be incomplete, and potentially erroneous. As such, it should not be considered qualified for an exemption.

#### **IV. AN EXEMPTION WOULD BE INCONSISTENT WITH NATIONAL RAIL POLICY EXPRESSED IN SUBSECTION (14) OF SECTION 10101**

Subsection (14) of section 10101 establishes a national rail policy “*to encourage and promote energy conservation.*” CHSRA claims that its high-speed rail system, once fully implemented decades later, will promote energy conservation compared to automobiles and airplanes. But CHSRA's energy claims, like many of its other claims, are inflated and exaggerated, and may never be realized. The energy consumption of self-driving cars will surely be much improved over existing automobiles. No one has evaluated the likely energy consumption of California's high-speed rail system compared to an autonomous self-driving car system. Yet it is the relative energy conservation of each system *as a whole* that is important.

One of the main advantages of automated driving will be the huge increase in the capacity of highways to handle traffic.

Cooperative self-driving cars could nearly triple the capacity of our highways, says a new study [from Columbia University] on the potential

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<sup>34</sup> If the STB is not in a position to conduct such an evaluation, the Institute for Transportation Studies (ITS) at the University of California-Berkeley would be a logical candidate as it is independent, presumably has the expertise, and is already familiar with CHSRA's ridership projections. It was the institution selected by the California Legislature to make an independent evaluation of the CHSRA's ridership projections. See Brownstone, D., Hansen, M., & Madanat, S., *Final Report*, June 30, 2010, Institute of Transportation Studies, University of California-Berkeley, <http://www.its.berkeley.edu/publications/UCB/2010/RR/UCB-ITS-RR-2010-1.pdf>

benefits of autonomous vehicles. By working together, cars can travel far more efficiently than if they act on their own. . . . [Professor] Tientrakool's paper looks at the difference in efficiency between when autonomous vehicles don't communicate and when they act as a team. She concludes that cars simply managing their own speed would increase efficiency by an appreciable 43 percent, but if they were working together, that number jumps to a staggering 273 percent.<sup>35</sup>

Because efficiency will improve so dramatically, traffic capacity can increase exponentially *without building additional lanes or roadways*.<sup>36</sup> Research indicates that platooning of vehicles could increase highway lane capacity by up to 500 percent.<sup>37</sup>

“Even a 10 percent reduction in need for infrastructure investment—a conservative estimate relative to such a dramatic change in needs—would result in savings of \$7.5 billion per year, or \$75 billion per decade compared to current infrastructure expenditures.”<sup>38</sup> Such infrastructure savings could be used to fund modification of an important interstate highway, such as I-5, to provide an express lane in each direction for high-speed self-driving cars traveling in platoons at regulated speeds of 100 mph or even 150 mph. The latter could reduce the self-driving car's travel time between San Francisco and Los Angeles to about 3 hours—not that different from the time CHSRA hopes its high-speed trains may achieve by 2030.

In addition to energy savings resulting from the higher capacity of roads and highways, there are at least two other means by which energy consumption can be reduced as a result of the use of self-

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35 NBC News, [Robot cars could increase highway efficiency 273 percent: Study](#), 2012. See also Shladover, S. *Highway Capacity Increases From Automated Driving*, California PATH, July 25, 2012, <https://docs.google.com/file/d/1QEEogRPad6GdijKzxhb9ApnMINszTDGGZn2YTpzbdAOE5teZH2QB17bYiW3S/edit?pli=1>

36 KPMG & Center For Automotive Research, *Self-driving cars: The next revolution*, 2012, p. 26. [http://www.cargroup.org/assets/files/self\\_driving\\_cars.pdf](http://www.cargroup.org/assets/files/self_driving_cars.pdf)

37 Fernandez, P., & Nunes, U., “Platooning With IVC-Enabled Autonomous Vehicles: Strategies to Mitigate Communication Delays, Improve Safety and Traffic Flow”, *IEEE Transactions on Intelligent Transportation Systems*, vol. 13, no. 1, March 2012.

38 KPMG & Center For Automotive Research, *Self-driving cars: The next revolution*, 2012, p. 26. [http://www.cargroup.org/assets/files/self\\_driving\\_cars.pdf](http://www.cargroup.org/assets/files/self_driving_cars.pdf)

driving cars:

A transportation system composed of self-driving vehicles would decrease energy consumption in at least three primary ways: more efficient driving; lighter, more fuel-efficient vehicles; and efficient infrastructure. The energy policy and geopolitical implications could be profound.<sup>39</sup>

The benefits of lighter, more fuel-efficient vehicles is self-explanatory (a 20% reduction in weight corresponds to a 20% increase in efficiency). With respect to the more efficient driving of self-driving cars:

- In an autonomous vehicle transportation system, vehicles will navigate far more efficiently than current human operators do. The inefficiency of human-driven vehicles leads to considerable congestion at high traffic volumes and frequent traffic jams. [both very wasteful of energy]
- Even the most fuel-conscious human drivers could not match the fuel efficiency of autonomous cars communicating instantaneously and continuously within a connected and controlled infrastructure. Platooning alone, which would reduce the effective drag coefficient on following vehicles, could reduce highway fuel use by up to 20 percent (just as “drafting” behind the lead allows cyclists to reduce their exertion).<sup>40</sup>

In view of the major improvements in energy efficiency that will accompany the use of self-driving cars, no valid determination can now be made as to the relative energy savings between California high-speed rail and a self-driving car system. That requires an independent life-cycle, cost-benefit comparative analysis. If the comparative advantage favors the self-driving car system, then it would be inconsistent with national rail policy to grant the exemption.

#### **V. AN EXEMPTION WOULD BE INCONSISTENT WITH NATIONAL RAIL POLICY EXPRESSED IN SUBSECTION (8) OF SECTION 10101**

Subsection (8) of Section 10101 establishes a national rail policy “*to operate transportation*

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39 Id. at p. 31.

40 Ibid.

*facilities and equipment without detriment to the public health and safety.”* The application of this policy to high-speed rail operations must be re-evaluated in light of recent events, namely, (1) the terrorist bomb plot against the Canadian train that runs between Toronto and New York, and (2) the Boston Marathon terrorist bombing that resulted in the shutdown of all Amtrak trains entering or leaving Boston.

History teaches that over the years the bombings of trains and train stations have been a recurrent tactic of anarchists, rebels, resistance fighters, and terrorists. Now that terrorists are shifting to “softer” targets, we can reasonably expect an increased focus on this threat to the public health and safety. High-speed trains will undoubtedly be an attractive target for terrorists because of the destruction, deaths and crippling injuries that would result from the derailment of a high-speed train, and the world-wide publicity that would ensue. (Consider the media treatment of the wreck of China's high-speed train.)

We recognize that the Federal Railroad Administration and the Transportation Security Administration have primary jurisdiction over rail safety, but the above-quoted statutory provision requires the Board to analyze it in the context of a request for an exemption. At a minimum, this requires the Board to analyze the probable economic effects of heightened security on high-speed rail and the effects this will have on the “other modes” that will compete with it, namely airlines and self-driving cars.

The most probable change in security, both short-term and long-term, is that high-speed train passengers will experience a similar level of security checks that now exist on airplane flights. This will definitely include the examination/screening of luggage and carry-ons to exclude the presence of explosives. There will also be secure areas limited to bona fide passengers within high-speed train stations. As true now at Madrid's Oatcha station and both entryways to the EuroStar, there may be a need for a personal search of individual passengers if, as appears likely, there is a risk of suicide

bombers wearing vests containing dangerous explosives and shrapnel, or even carrying some form of chemical or biological weapons. (Recall the 1995 sarin gas attack in the Tokyo subway.)

Thus, it seems apparent that there will be security checks for high-speed rail passengers and their luggage before they board, and these will result in a requirement that they arrive early—adding an uncertain time element to the trip. In addition, the presence of such security will send a message to potential passengers that there is an ever-present threat of a terrorist attack--just like on an airline flight. This fear will be particularly important during high-speed rail's introductory period in the United States when increasing ridership is critical.

Airlines: The addition of security checks for high-speed rail passengers will benefit airlines serving the California market as this will, to a greater or lesser extent, serve to equalize the only time-saving advantage that high-speed rail promoters have counted on.

Automobiles: Similarly, security checks for high-speed rail passengers will make the driving alternative, including the use self-driving cars, more attractive—further reducing the likelihood that CHSRA can ever meet its projected ridership.

An additional consideration is that the bombing of a high-speed rail line is likely to knock out the system for an indefinite period, depending on how much damage is done to the right-of-way--especially if a bridge, viaduct or tunnel is damaged or destroyed. In contrast, the transportation networks of both airlines and automobiles, including self-driving cars, are highly flexible and resilient because traffic on their systems can be readily re-routed. That is not the case with California high-speed rail because there are no redundant routes between any pair of major cities. In other words, every California high-speed rail segment is a vulnerable “single point of failure” of two tracks only yards apart.

There will undoubtedly need to be 24-hour security monitoring of hundreds of miles of high-speed rail tracks to protect public health and safety. This may be accomplished with a mixture of available

means (e.g., surveillance cameras, patrols, sensors, drones, etc.), but such high level of security will not come cheaply. The increased costs will be significant (but are not taken into account in CHSRA's calculations), further weakening the high-speed trains' competitive position vis-a-vis airlines and automobiles.

Here, as elsewhere, there needs to be a careful evaluation by the Board of the likely impact on CHSRA's revenues and costs resulting from the material changes in the security situation needed to protect public health and safety. These need to be evaluated in order to determine whether California high-speed rail, as presently planned, is a viable project that warrants the enterprise risks that are now apparent. If it is not, granting CHSRA an exemption without a thorough review would unnecessarily put billions of taxpayer funds at risk and would be inconsistent of national rail policies expressed in section 10101.

## **VI. CONCLUSION**

CHSRA's suggestion that Board review of the California high-speed rail system be limited to its relatively limited initial construction section is totally inappropriate. No one contends that unused tracks in the Central Valley, or running some Amtrak San Joaquin trains on this section for an indefinite period, could justify the \$6 billion that will be spent by the federal and state governments. Only CHSRA's planned use of this section for the initial use of high-speed rail trains from Merced to the San Fernando Valley (the IOS) could be claimed to justify such a huge public expenditure—and even that is a stretch. Both logically and as a practical matter, the proposed IOS would be the least geographical scope of review that could be appropriate. But it makes more sense for the Board to review the entire Phase 1 scope of the project, i.e., from Anaheim to the San Francisco Transbay terminal (in which \$400 million of ARRA funds have already been invested as part of this project).

The common thread of this Protest centers on the critical need for realistic risk evaluation which, in the absence of private capital investment, has not taken place. Unless something changes, it will not

take place to the detriment of an economically sound rail transportation system in California, and the undue risk of billions of federal taxpayer dollars. As professor Flyvbjerg observed:

[I]t is untenable to continue to act as if risk does not exist or to underestimate risk in a field as costly and consequential as megaproject development. . . . [W]here facts are uncertain, decision-stakes high and values in dispute, risk assessment must be at the heart of decision making.<sup>41</sup>

CHSRA's overly optimistic ridership projections and unrealistic cost projections need to be analyzed in light of the important changes discussed above. Because when the CHSRA ridership projections fall far short of what is required and its projected costs start to balloon, the system is headed for failure—whether in the form of a “stranded investment” or a federal/state “bailout” costing untold billions of taxpayer dollars for an unworthy project (the “survival of the unfittest” that professor Flyvbjerg aptly described).

Accordingly, we respectfully request that the Board :

1. Deny CHSRA's petition for exemption,
2. Direct CHSRA to apply for permission under section 10901 to construct the proposed new rail lines,
3. Conduct such hearings as are needed, including appropriate discovery proceedings, and
4. If necessary, seek an injunction forbidding any construction until the Board has concluded its proceedings under section 10901.

While this process may take longer than CHSRA desires, it has only itself to blame for its predicament because it made the conscious decision to disregard the need for STB clearance for construction of this megaproject until it was required to do so—despite knowing of this legal requirement as early as 2009 and promising then to address it in a timely manner.<sup>42</sup>

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41 Flyvbjerg et al., *Megaprojects and Risk*, supra at p.6

42 “CHSRA will address potential jurisdiction of the Surface Transportation Board (STB) over any aspect(s) of the HST

In response to a similar CHSRA request for urgency, California Senator Joesph Simitian, in the course of a California Senate subcommittee hearing, stated that while he understood the agency's desire for urgency, "It is my judgment, it is more important to get it done right, than to be timely and wrong. . . . I understand the dollars are significant but they pale in comparison to the tens of billions of dollars that could be misspent if we make bad decisions."<sup>43</sup> This is as true today as it was then.

Dated: May 7, 2013

Respectfully submitted,



James R. Janz

President,

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### CERTIFICATE OF SERVICE

I certify under penalty of perjury that I have this day served copies of this document upon all parties of record in this proceeding by first class or express mail. Dated: May 7, 2013



James R. Janz, President CC-HSR

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project and work to ensure timely completion of all prospective regulatory oversight responsibilities consistent with the project delivery schedule." CHSRA's Application for Track 2-Corridor Programs of the Federal Railroad Administration's High-Speed Intercity Passenger Rail (HSIPR) Program, p. 23, submitted Oct. 1, 2009.

<sup>43</sup> See *Examiner. Com*, "California High Speed Rail Budget Request – State Senate Subcommittee on Finance – Part 2" Apr. 15, 2010, <http://www.examiner.com/article/california-high-speed-rail-budget-request-state-senate-subcommittee-on-finance-part-2>