

## California High Speed Rail Background

By Susan Castner-Paine

Work toward a California high speed rail system began in the 1990s. In 1993, the State Legislature created the California High Speed Rail Commission, charged with designing a high speed rail system to run between Los Angeles and San Francisco and later to extend to San Diego and Sacramento.

The principal task of the Commission was the evaluation of various routes and the selection of one route that would provide service to the largest population centers without increasing sprawl or causing negative environmental impacts. Following years of analysis, comparing all reasonable routes, the Commission selected the Altamont Pass-Highway 580 alignment because it was the primary corridor between the Bay Area and the Central Valley, with large population centers, existing housing and employment, and extreme traffic congestion.

In 1996 the Legislature replaced the Commission with the California High-Speed Rail Authority to continue the work begun by the Commission. In its 2008 Program Level Environmental Impact Report (EIR), the Authority abandoned the Altamont Pass alignment in favor of the Pacheco Pass alignment. The Pacheco Pass alignment runs through the second largest state park and one of the largest protected marshlands in California. It does not have existing housing, employment or traffic congestion. The City of Menlo Park, Town of Atherton and several environmental groups filed a lawsuit challenging the Authority's EIR decision to use the Pacheco Pass alignment between the Central Valley and the San Francisco Bay Area. On August 25, 2009, the court issued a decision invalidating the EIR. As a consequence, the Program Level EIR will have to be revised, recirculated and recertified.

In November 2008 the voters of California passed Proposition 1A, which authorized a \$9.95 billion bond for the planning and construction of a "safe, reliable high-speed passenger train" between the San Francisco Transbay Terminal and Los Angeles Union Station. In addition to the original \$9.95 billion, the CHSRA was authorized to obtain other private and public funding (in the form of federal funding, revenue bonds and local funds). The ultimate cost of the system is currently conservatively estimated at \$35 billion, although higher figures have been mentioned by the CHSRA. An additional \$9 billion to \$9.5 billion is anticipated in debt servicing before the initial \$9.95 billion of bonds are paid off.

The ultimate cost of paying off the total system costs cannot be estimated at this time. Once the San Francisco to Los Angeles segment (Phase 1) is fully funded, remaining revenues, if any, are to be used for the planning and construction of additional segments extending north to Sacramento and south to San Diego and completing infrastructure upgrades and transit infill. Among other provisions, Proposition 1A specified the following design parameters:

- All trains on the system to be electric and capable of sustained operation at 200 miles per hour
- Eight transit corridors with prescribed travel times (31 minutes for the San Francisco-San Jose corridor and two hours and 42 minutes for the San Francisco to Los Angeles corridor)
- A maximum of 24 stations

- Minimization of urban sprawl and impact on the environment (although most urban analysts agree that sprawl around stations on the Pacheco Pass route, as well as in the Central Valley, is inevitable)
- Preservation of wildlife corridors (although the Pacheco Pass route does traverse the above mentioned state park and marsh land)

The CHSRA Alternatives Analysis is scheduled for release in late 2009. The final project EIR/Environmental Impact Statement is scheduled for certification in late fall 2011. Construction is expected to begin in Southern California in 2013. Electrification of the Caltrain corridor is due to be completed in 2015. The full build-out of the San Francisco to Los Angeles corridor is scheduled to be completed by 2030.

### **Advantages and disadvantages of high speed rail**

There are obvious advantages of a high speed rail system. Properly designed and located, the system would redirect commuter, business and tourism traffic from private vehicles and airlines. Not including construction costs, trains use one-third of the energy of planes per passenger mile, one-fifth of the energy of private vehicles and produce no CO<sub>2</sub> emissions. Train travel would relieve the pressure to construct more and more highways. Trains may attract riders to other forms of coordinated mass transit at their hubs. Theoretically, high speed rail would encourage population growth in urban centers and mitigate sprawl. Indisputably, choosing high speed rail transportation over the private vehicle can liberate countless man-hours for rest or productive pursuits.

But there are disadvantages as well. One of the greatest is the enormous cost mentioned above (more than \$44 billion). Additionally, high speed rail diverts funding from investment in intra-regional rail transit. The number of potential passengers who will take an occasional high speed, long distance trip is a small fraction of the number of commuters or travelers who would be motivated to take frequent short trips (less than 60 miles), if a good system of local, inter-city rail system were available. In fact, the frequency of stations served on the high speed rail tracks along the corridor may be great enough to attract riders away from Caltrain service. Moreover, improperly located, high speed rail can cause environmental devastation and rampant undesirable sprawl at great distances from urban centers. Visual blight, noise, vibration and dust pollution in congested areas would be unavoidable.

### **What high speed rail means in the Peninsula corridor**

The Peninsula Caltrain corridor is the only area in the proposed statewide high speed rail plan that runs through the very center of a continuous string of communities with both downtown retail centers and old and established residential neighborhoods. Because of geographic compactness and the frequency of grade crossings, much of the right-of-way will require raised viaducts or berms, if the rail line is built above grade, or trenching or tunneling, if below grade.

Interestingly, high speed trains will not provide service to any Peninsula communities other than the two corridor hubs (one in Millbrae, the second in Palo Alto or Redwood City). Peninsula residents in all other cities will have to take another system to these hubs. Although these communities will be without service, they will not be without high speed tracks. The trains will have steel wheels and run on steel rails. The Caltrain right-of-way, on which Caltrain and high-speed trains will run, falls

within 100 yards of homes and business districts in much of the corridor. In the worst cases, the right-of-way falls on the property line of home and business owners. On the Peninsula, trains are expected to run at speeds up to 120 miles per hour. Service projections for high speed rail are expected to reach a high of 19 to 22 trains per hour (combining both directions) by 2030, while Caltrain projects up to 12 per hour (combining both directions) by 2025. A total of 31 to 34 trains per peak hour translates to one train every 1.7 to 1.9 minutes.<sup>1</sup>

In the case of a raised viaduct or berm alignment, the rail beds would be a minimum of 21 feet high above grade. A scenario that would split the necessary elevation between a raised berm or viaduct and a lowered roadway is a possibility in some areas. A 16-foot sound wall through sensitive areas is envisioned by the Program Level EIR,<sup>2</sup> and 25-foot supports for the catenary wires would be placed on top of the rail bed. Depending upon the number of tracks used on the corridor (four tracks plus temporary shoofly tracks are currently envisioned), the right-of-way would be a minimum of 100 feet wide, expanding to 135 feet at stations.<sup>3</sup> There are also six-track configurations. Because the rail bed would serve freight as well as passenger trains, heavy, frequent stanchions would be required if viaducts rather than berms were used.

In effect, virtually every community within a 40-mile swath (the Peninsula corridor exclusive of industrial areas) would be cut in two if an above-grade alignment prevails. Neighborhood would be separated from neighborhood; residents would be separated from their downtowns. In very tight areas, especially where stations are located, many eminent domain takings are likely. In Palo Alto, for example, 47 percent of those properties adjacent to the corridor would be affected by the minimum 100-foot right-of-way requirement.<sup>4</sup> Additionally, it is probable that there will be very significant loss in property values anywhere within the sight or sound of the system.

Because of the potential severe economic, environmental and social damages of the above-grade alignment, many communities on the corridor are asking that the California High-Speed Rail Authority and Caltrain locate the tracks below grade, either by trenching or tunneling. For these same reasons, other communities are considering the “no-build option,” that would terminate the high speed system in San Jose, with upgrades to the current “Baby Bullet” train that runs between San Francisco to San Jose.

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<sup>1</sup> Timing projections from the ridership and revenue forecasts from CHSRA 2008 Business Plan, <http://www.cahighspeedrail.ca.gov/library/Default.aspx?ItemID=4856> and from Caltrain.

<sup>2</sup> August 25 email communication between John Litzinger and Caltrain San Mateo outreach coordinator Mike Garvey now suggests a four-foot sound wall is being considered for the corridor.

<sup>3</sup> Dimensions for elevated rail bed width and height from the 2008 CHSRA Program Level EIR represent the most likely to be implemented.

<sup>4</sup> Independent analysis by Rita Wespi of Californians Advocating Responsible Rail Design (CARRD) based on Caltrain right-of-way maps, CHSRA EIR documents for the San Jose-San Francisco segment, Google map overlays and CHSRA Alternative Analysis Reports for the Los Angeles-Palmdale and Los Angeles-Anaheim segments.