A CHEAPER, LESS DISRUPTIVE WAY TO BUILD HIGH SPEED RAIL IN THE CENTRAL VALLEY

HSR Should Serve San Joaquin Cities, Not Destroy Them

By Alan C. Miller and Richard Tolmach

We all know the promise of high speed rail, which promotes central-city revitalization in Europe while simultaneously discouraging sprawl. But Californians have missed an important piece of the picture: the technology was never meant to run through cities at high speeds. Due to noise constraints and prohibitive costs, 200-plus mile per hour trains should not pass through Central Valley cities. Yet their stations need service by the fast trains. How did the Europeans deal with this basic quandry? (For a hint, see map, right).

Speed Without Urban Impacts

In a rational plan dictated by engineering and environmental concerns, the 220 mph main line would never touch urban areas. Most Valley cities would be served by semi-expresses starting their runs on Burlington Northern Santa Fe (BNSF) tracks where state-funded upgrades promise to raise speeds above 100 mph. Then the trains would switch, outside Fresno, Modesto, or Bakersfield to the high speed line for nonstop service to the Bay Area and Los Angeles. Ordinary trains would link all current stations between Bakersfield and Sacramento to the high speed service.

HSR main lines do not belong in the center of urban areas because of their 220 mph top speeds. HSR trains operating above 160 mph produce a sound envelope similar to the one at the end of a runway, clearly not compatible with cities. This envelope reaches as much as 95 decibels near the source at 186 mph.

While some sound-reduction technologies (such as wheel-skirts and sound walls) have proven effective, they will not reduce high speed travel noise to a level compatible with residential or commercial development. Putting HSR through cities at 220 mph is like putting freeways through them, only louder.

CHSRA Vetoes Viable Routes

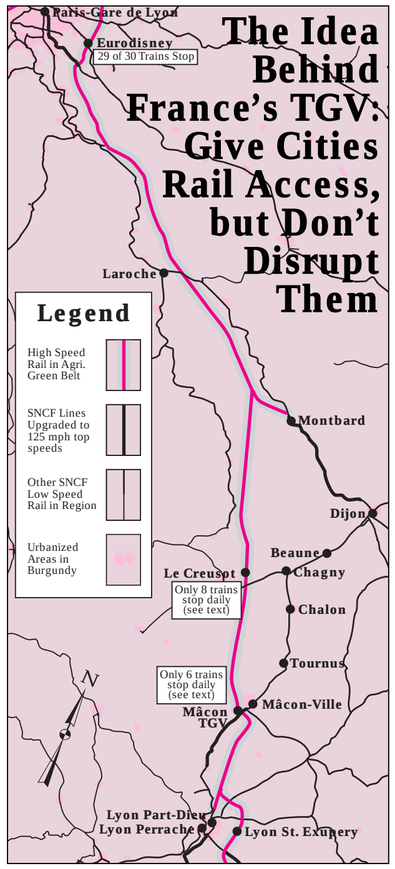
According to Dan Leavitt of the California High Speed Rail Authority (CHSRA), the public wants the 220 mph tracks right through the cities. We doubt this is really the case. Leavitt says focus groups held in the Central Valley indicated opposition to a new right-of-way, but this seems to show that the Authority did not inform them of the consequences. Leavitt also claims that it is difficult to acquire large land parcels, the precise opposite of state agencies' long experience. CHSRA decided to eliminate all route options in the Central Valley except two rather improbable ones: the Union Pacific Railroad right-of-way beside Highway 99 or the Burlington Northern & Santa Fe Railway right-of-way used by the San Joaquins.

Either of these historic routes has more than enough physical constraints to keep high speed trains from ever being implemented. As Amtrak discovered to its chagrin with Acela, existing rail rights-of-way are highly toxic from past dumping and full of very costly obstacles.

Has CHSRA really thought this through? 100-foot wide railroad rights of way are a tight space to even add a light rail line with narrower loading gauge, as Sacramento's Regional Transit knows from its South Line. High speed rail needs more than half the 100-foot width just for the track and poles, even before considering security issues. A long and substantial crash barrier would have to be built to prevent a derailed freight train from the adjacent line from damaging the supports of a structure or falling into the path of a high speed train.

Virtually none of the existing railroad overpasses are wide enough to accommodate a new double track line next to the existing one. If the UP route were used, all overpasses all the way up and down Highway 99 would need to be rebuilt and all grade crossings removed and rebuilt as grade separations for four tracks, with extra space betwen freight tracks and HSR.

Building through towns creates even more obstacles, and astronomical costs. Some buildings may have to be removed to accommodate the line. There would be massive demolition and earthmoving. This kind of disruption is as dumb as the idea of a new generation of urban



freeways. This would happen not just in one city but in every city and town betwen Stockton and Bakersfield. If any city sees this as a problem, Leavitt believes that the line could be undergrounded, like a statewide BART project.

Is CHSRA Building "FART"?

Cities would have four track underground stations, according to Leavitt, two tracks for nonstop expresses and two for deceleration and station tracks. According to CHSRA speed profiles, expresses would go through the stations at 220 mph, and would therefore have to be physically separated from the other tracks, to prevent hearing loss in waiting passengers, and to prevent kids or seniors being swept off the platform by an express.

The idea of subway stations throughout the Valley, especially the CHSRA plan for a six-track underground station for Fresno, gives that old joke about "Fresno Area Rapid Transit" new currency. Except this time, they're serious!

Saying you are going to blast through the cities at 220 mph is an obvious way to create opposition and design problems. The CHSRA plan to use existing rights-of-way will produce one of two bad outcomes. Either you get:

1) a system that slows for every city and town and doesn't meet HSR standards–essentially a very long BART system, or

2) a plan so costly it will never be built–but studies of how to build the structures and trenches could be carried out for decades.

One wonders if number 2 is the true plan: perpetual planning and engineering contracts. TRAC aims to see this does not happen.

Let's Use Europe's Experience

It's time for Valley leaders to firmly reject the persistent bad idea floated by CHSRA staff in planning circles: that 220 mph trains must use existing rail corridors. This emotional ploy ignores the purpose of the new line, to bypass the congestion and terminal slowness of the existing rail corridors, to allow rail to effectively compete with highway travel.

We all know that not every train can serve every city, so how about optimizing the CHSRA route plan to fit its business plan? First of all, let's take a look at schedules in CHSRA's 2000 Final Business Plan. The Plan proposes five service levels: express, semi-express, suburban-express, local and regional. Only 37 percent of through trains in this scenario stop in Fresno. It appears that even fewer, about 25 percent, stop in other Valley cities. A practical approach would keep these 100 trains a day that are only going to blitz through at 220 mph on a main line that avoids cities.

Dan McNamara, Vice President of TRAC, points out that the reason the French National Railway could build the original TGV line for $7 million per mile was its design as a bypass to avoid city congestion. Burgundy's cities were spared the disruption of constructing the new rail line, and all the noise, but still got improved rail service, via TGV connections in Dijon and Lyon. "The French realized a new line was the only way to make 186 mph speeds, and also the only affordable route," said McNamara. "It doesn't take a genius to understand that the only way California's line will be affordable is if it is planned to run where it avoids known problems."

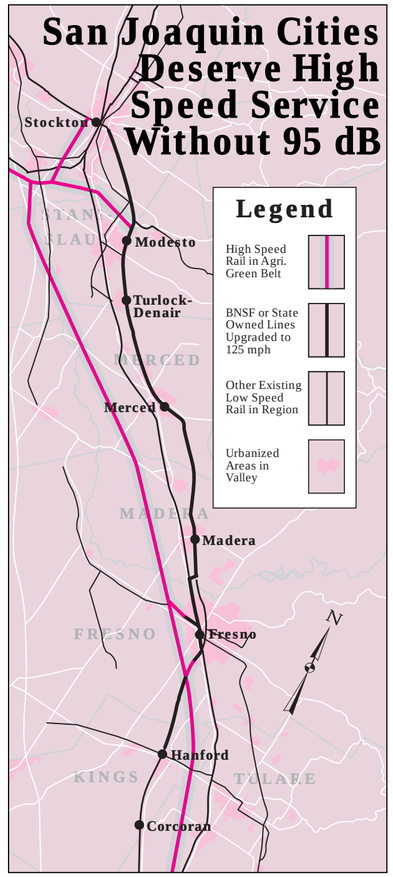
The French have found that high speed rail is very compatible with a variety of agricultural uses, including some of Burgundy's best Grand Cru Chablis vineyards and dairy farms. In the Central Valley, especially where land is being taken out of production or dry farmed because of mineral buildup, the impact of having adjacent nonstop rail service is relatively minimal. A Texas farming delegation which had been critical of a high speed line learned from their European compatriots that even cows ignore the trains after about a month or two.

Greenbelts-Not Greenfield Stops

Another myth floating around government circles is that high speed through agricultural lands would induce sprawl by creating 'greenfield' stations far outside city limits. The theory is that all stations would be built 10 miles from town in the middle of rich farmlands. Since people would want to live near the station, the reasoning goes, Valley cities would spread out with single family houses destroying farmland.

The legislation which creates high speed rail should include a land-use element which strictly forbids the building of stations along the HSR mainline in perpetuity. Land adjacent to the main line is ideally suited as an agricultural preserve, and it is worthwhile to fund this preservation with a specific set-aside. This would produce a greenbelt to protect the line, isolate people from the sound envelope, and prevent sprawl. The mistake California made with building up to the edges of airports should not be repeated with HSR.

Lest anyone use the discussion on noise as evidence to oppose high speed rail in the Bay Area or LA Basin, a caution is required. The 95 decibel sound envelope is only created by air pressure when the trains are near top speed (over about 160 mph). At 125 mph, the maximum speed at which HSR trains will travel through the urban zones of LA or the Bay



Area, HSR trains are actually quieter than a conventional passenger train at 80 mph or a freight train at 45 mph.

Make Use of Rail Investments

High speed rail cannot live in a vacuum, and ignore the hundreds of millions of dollars Caltrans has invested in San Joaquin tracks. Unfortunately, CHSRA has not articulated a vision as to how conventional San Joaquin trains would connect with high speed rail.

The dot chart below shows one plausible way of integrating five north-south routes to provide high speed travel between Los Angeles, the Bay Area, and Sacramento, without neglecting or damaging Central Valley cities along the way.

San Joaquin conventional service will continue to play a major role in feeding passengers to the high speed rail system. We show this happening in two different ways: conventional trains meet HSR trains at common stations in major Valley cities, and HSR equipment itself runs on sections of the San Joaquin line. The final shape of the solution depends on a 'meeting of the minds' between the Federal Railroad Administra-tion and equipment manufacturers over crashworthiness standards .

In either scenario, conventional rail will be brought up to FRA Class VII standards, allowing 125 mph operation. With 125 mph top speeds, and a Fresno midpoint hub, access times from San Joaquin stations to the nearest high speed transfer station would be a matter of minutes.

Main Line & Downtown, Too

The right rail plan for Fresno, to spur city-core renewal, corporate investment, and a vital pedestrian-oriented core requires that it be the hub station of the network. Luckily, Fresno happens to have the right geography for this role.

In this scenario, about 80 trains daily would stop in Fresno at a new intermodal terminal at the former SP station to exchange passengers. Like a hub airport, this station would perform the function of connecting all major California cities without trains making too many intermediate stops. Most trains would zip past Fresno miles to the west at 220mph, stirring up a few aphids, but disturbing no humans.

The Fresno loop can be viewed as an interstate highway business loop. Just as drivers with business in the town can take the offramp, trains with passengers to transfer can take the loop. Several miles north of Fresno, southbound HSR trains would curve off the main line and join the planned joint Union Pacific / BNSF main line (see map left). After a brief stop, trains would accelerate back to 125 until outside the Fresno city limits, where they would regain 220 mph on the HSR main line to the south.

Fresno, as a midway connection point, allows Madera, Merced, Hanford and Corcoran easy high speed access. Similarly, branches of the high speed line would give Modesto, Stockton, Sacramento and Merced direct high speed service. The overall level of rail service to every Valley city would improve, without major negative impacts.

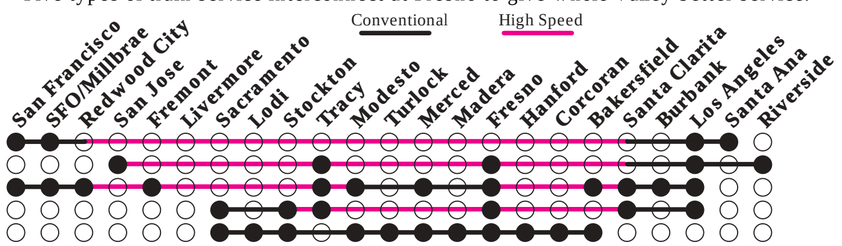
Study Proper Alternatives

An environmental study of infeasible alternatives is inherently wasteful of time and financial resources. By moving ahead with environmental work while the project concept is still half-baked, the CHSRA has made a classic and fateful mistake that stands a good chance of setting California high speed rail back by a another decade.

At this juncture, it is valuable to look at what caused CHSRA to get the alternatives so wrong. The most cogent explanation is that CHSRA's inadequate staff, lacking engineering or railroad experience, has been unable to control a contractor with dual conflicts of interest: bigger airport projects and bigger highway projects which both would be threatened by successful high speed rail.

A Quieter Way to Connect Valley Cities

Five types of train service interconnect at Fresno to give whole Valley better service.



HIGH SPEED RAIL POLICIES

ADOPTED BY THE BOARD OF DIRECTORS OF THE TRAIN RIDERS ASSOCIATION OF CALIFORNIA APRIL 2002

A. California High-Speed Rail [CHSR] must be integrated and compatible with conventional passenger rail services and the equipment built to standards that allow this.

B. CHSR network needs to be composed of portions of upgraded conventional routes plus the High-Speed Rail [HSR] main line. The upgraded segments must be part of the overall HSR plan and clearly stated as part of the HSR initiative. HSR operation on these segments should be in cooperation with conventional rail agencies that will also benefit from the upgrades.

C. 200mph-plus service must be achieved over the vast majority of the route (Santa Clarita to Redwood City if via Altamont or Santa Clarita to just-outside San Jose for other routes). This is necessary to obtain a 2 1/2 hour San Francisco-Los Angeles travel time, financial feasibility and congestion relief.

D. The Central Valley HSR mainline must be capable of sustained 220mph operation and built west of Highway 99 well outside of urban areas.

E. 200mph+ service creates sound envelopes incompatible with urban areas. 200mph-plus main-line right-of-way CANNOT pass through populated areas. Trains that serve major Central Valley cities need to diverge from the HSR mainline on parallel connector tracks that serve downtown stations.

F. The HSR legislation must include the following strict land-use restrictions:

- **No stops on the 220mph mainline.**
- **Stops only in center-cities on diverging city 'local routes'.**
- **Land along the HSR mainline will retain permanent agricultural green belt zoning.**

G. Support the CHSR Authority plan to start HSR at Irvine (south end) to serve Orange County and to build the LA-San Diego HSR route inland via Riverside and Escondido.

H. The HSR mainline southern mountain crossing should be via the direct Bakersfield-LA 'Grapevine' route in the proximity of I-5.

I. Monies for the overall CHSR project should include funds for an upgraded line from Santa Clarita to Palmdale that would meet HSR specifications and thus allow for extension of the line to Bakersfield or Las Vegas.

J. The CHSR Authority should consider service to the Sacramento Stockton-Modesto area in the initial phase of HSR and select the Bay Area-Central Valley alignment that serves these cities best.

K. The CHSR Authority must select the most cost-effective and versatile route for a San Francisco Bay Area to Central Valley crossing and re-examine the Altamont/Hetch-Hetchy alignment as a candidate route.

L. If the CHSR Authority selects a Central Valley to Bay Area alignment via Panoche, Pacheco, or 'Diablo Range' routes then it must include crossing San Francisco Bay at San Francisco to serve the population of the East Bay and the I-80 corridor and upgrade the Capitol Corridor to HSR standards to Sacramento.

M. Both San Jose and San Francisco require their own direct express service to Los Angeles. San Jose is best served by a route plan that makes it a northern California terminal on an equal footing with San Francisco and Sacramento.

N. CHSR should not be built as a typical public works project, but put to competitive bids as a turnkey project to designbuild/ operate consortiums with a history of HSR success. These could be private-public partnerships.