

State rail authority reduces size of future bullet train stations

Ralph Vartabedian, Los Angeles Times, 10-20-16

The California bullet train authority has told its design engineers that the future system would have shorter trains and smaller station platforms, reducing the capacity of individual trains by roughly 50% and potentially the capacity of the entire Los Angeles-to-San Francisco route.

It is the second time that operating parameters have been reduced this year.

In May, the authority's managers decided to cut the maximum operating speed of trains inside tunnels from 220 mph to 200 mph, a result of building tunnels with smaller cross-sections. The authority also cut in half the speed of trains as they merge from station tracks onto the system's main line, a move that would reduce the very long lengths of transition tracks in and around major cities.

As the \$64-billion program has evolved, the state has had to make political compromises that added to the cost of the system and alternatively adopted cutbacks that reduced the overall cost.

William Ibbs, a UC Berkeley civil engineering professor who has consulted on high-speed rail systems around the world, said that trade-offs on cost, schedule and design always occur on such complex projects. High-speed rail in particular, he said, forces governments to make difficult estimates on how much capacity it might need two or three decades in the future.

"It is an inherently risky aspect of high-speed rail," Ibbs said. "The fundamental trade-offs don't change whether you are building a system in Tokyo or the Central Valley of California."

The original plan by high-speed rail designers would have had trains operating at 220 mph over nearly the entire distance from Union Station in Los Angeles to the Transbay Terminal in San Francisco. But the speeds have been reduced in urban areas, inside mountain tunnels and potentially on sharp downhill sections of mountain passages.

The switch to shorter trains was disclosed in a Sept. 7 memo that outlined reductions in the size of future passenger platforms, based on a decision that the high-speed rail system would operate trains of only 10 cars. The previous plan was to operate a "double" train set, which could have up to 20 cars.

The changes are "an efficient use of public funds while still meeting our operational goals and legal requirements, including meeting our projected ridership numbers," rail authority spokeswoman Lisa Marie Alley said in a statement.

Alley said the change would not affect the system capacity, at least as it applies from Los Angeles to San Jose. On that section of the system, the rail authority could operate up to 12 trains an hour, spaced five minutes apart.

But such frequent service is not possible on the tracks from San Jose to San Francisco, which are shared with a commuter rail service. Capacity there could be limited to about four bullet trains an hour at peak times, when business travelers are willing to pay premium fares and trains are likely to be more heavily occupied.

Despite that limitation, the rail authority's long-range passenger projections are not affected by the new changes, Alley said.

Ibbs said the decision to have shorter platforms would constrict future capacity, if the system were to become highly popular in two or three decades. Ibbs noted that the BART system in San Francisco is struggling to find ways to add capacity at peak travel times, when transit cars are jammed.

The rail authority's design is based on using single-level trains, though some European systems use double-deck trains. Those trains are not operated at 220 mph, though they might be in the future, according to some experts.

Under the newest rail authority plan, the station platforms would be reduced from 1,410 feet to 800 feet. Shorter trains also require shorter sections of so-called refuge tracks, on which a train can pull out of the way in the case of a mechanical malfunction or for scheduling reasons. The refuge tracks would also be reduced by an additional 600 feet, meaning a station in a city's downtown could be 1,200 feet shorter than under the previous plan.

That large a reduction in needed urban real estate could have a significant effect on finding available land for a station and the property acquisition cost.

The decision on smaller trains was announced in an Aug. 29 email from Frank Vacca, the chief program manager, to Robert Ball, technical director at the rail consultant Parsons Brinckerhoff. The change is not known to have been publicly discussed or approved by the rail authority board.

"The final decision has been made regarding running double train lengths," Vacca said in the email, which the authority provided to The Times. "We need to get a design change directive out this week that establishes minimum 800 feet as the new requirement for platform lengths, and that the authority will design and operate only single-length trains."