Riders stepping off the high-speed trains expected in the future will be arriving in downtown San Francisco at a revamped Transbay Terminal.

The decision Thursday to make the new Transbay Transit Center the high-speed transit hub destination in The City was a coup for San Francisco, which plans to overhaul the terminal and redevelop the area surrounding the station into a mix of housing and commercial and office use, including skyscrapers.

The California High-Speed Rail Authority, which is tasked with overseeing the entire rail project, rolled forward with the Transbay location during its Thursday meeting after being assured that the site could handle the required amount of traffic.

Under Proposition 1B, a $9.95 billion bond measure passed by voters in November 2008, the Transbay Transit Center — a sprawling complex set to be built at Mission and First streets — was identified as the preferred terminus of the high-speed rail line, which is slated to one day take passengers from Los Angeles to San Francisco in just more than 2½ hours.

However, after seeing the initial design layout of the terminus, members of the California High-Speed Rail Authority began questioning the handling capacity of the Transbay Transit Center, and plans were set to investigate other solutions, notably at Beale and Harrison streets.

While the design of the Transbay Transit Center has a smaller-than-preferred boarding platform and turning curve radius, it does not pose any safety problems, and engineers will be able to work with the setup to allow high-speed rail passage, authority program director Tony Daniels said.

After Daniels’ testimony, the authority board agreed to waive some of the design criteria regarding the boarding platform and turning radius, paving the way for high-speed rail at Transbay Transit Center. Final approval of the project is not expected until 2011.

Emilio Cruz — a program manager with the Transbay Joint Powers Authority, a city agency in charge of developing the station — said that construction on the new project is set to begin this summer, an undertaking that will create 45,000 jobs.

Also on Thursday, the High-Speed Rail Authority board of directors approved a preliminary analysis of the planned rail route from San Jose to San Francisco, a document that recommends a second stop in The City at the existing Caltrain station on Fourth and King streets. By approving that plan, the board of directors essentially eliminated the Beale Street proposal for a high-speed rail terminus.
Plans to move the high-speed rail route from San Jose to San Francisco through the Peninsula advanced on Thursday, a maneuver that will help Caltrain, which is struggling with a $30 million projected deficit.

The California High-Speed Rail Authority approved a preliminary alternatives analysis of the Peninsula route, which includes potential stops at Mountain View, Palo Alto and Redwood City, and a likely stop at Millbrae.

By approving the preliminary analysis of the route, the authority continued with plans to share a right-of-way with Caltrain — a situation expected to generate millions of dollars for the struggling regional commuter rail. By sharing a passage with the high-speed rail line, Caltrain is hoping to receive $516 million in federal funding (set aside for high-speed rail programs) for the agency’s $1.2 billion electrification project.

The proposed high-speed rail route along the Peninsula has been controversial, with many communities in San Mateo and Santa Clara counties voicing opposition to proposed elevated rail viaducts.

The latest route analysis did not specifically identify how high-speed rail would pass through each town, although it did lay out what options are feasible. In many areas, multiple designs — elevated aerial viaducts, at-grade structures, open trenches and tunnels — were still being considered.