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Caldecott Tunnel excavation finished

Michael Cabanatuan

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Construction crews work inside the fourth bore of the Caldecott Tunnel in Oakland. The work began in 2010 and is on budget and on schedule, with the bore expected to open in late 2013. Photo: Paul Chinn, The Chronicle / SF



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Most of the digging is done on the fourth bore of the Caldecott Tunnel but drivers will have to wait until late 2013 - often in a long, slow merge - before they can speed from Orinda to Oakland through the new tunnel.

Construction crews finished excavating the 3,389-foot-long bore late Wednesday night. But before they can put away all the digging equipment, they need to remove some areas of claylike soil that tend to absorb water and swell, creating wavy pavement, and replace it with layers of gravel and concrete.

For the rest of this year, workers will finish installing waterproofing, a double dose of rebar and a smooth final concrete coating to

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form the walls of the tunnel. Working from the east portal in Oakland and moving west, they use a huge arch-shaped machine that spans the 41-foot-wide bore and pours and shapes the 15-inch thick tunnel walls about 50 feet at a time.

Once that work is done, crews need to install the electrical, drainage and ventilation systems, including 19 jet fans, hang the porcelain-coated steel panels that will cover the walls, and build the sidewalk and two-lane concrete roadway.

"This marks an important milestone," said Ivy Morrison, a fourth bore project spokeswoman. "But we have a lot of work to do."

Work on the project, which started in January 2010, is about 70 percent complete, on schedule and on budget - sort of. Caltrans originally estimated the cost of digging the fourth bore at \$420 million but bids came in lower than expected, and the price tag fell to \$390 million. But after contractor Tutor-Saliba ran into unexpected soil conditions, the cost rose to \$402 million.

But now the big arch-shaped hole through the Oakland hills is completed. On the east end, where tunneling crews just finished excavating the bench, the lower half of the bore, it's a big rounded hole covered with a rough coating of sprayed concrete. On the west end, however, the smooth gray final coating has been applied, and it's not difficult to envision cars zooming through. The final lining has been applied to about a third of the fourth bore.

"You get a really good sense of what it will look like on the west side of the tunnel," Morrison said. "It doesn't look like a mining project anymore. It looks like a tunnel. On the east side, though, it still does look like a mining project."

The road-header, a huge device with a giant spinning ball covered with spikes, has been retired from the fourth bore project and sits in a parking lot on the east end. More traditional construction equipment is now being employed, and soon, Morrison notes, the fourth bore will make the transition to a traditional road-building project.

Drivers have longed for a new tunnel almost since the third bore was opened in 1964, about the time Highway 24 became a freeway. Caltrans struggles to handle four lanes of traffic with its three two-lane bores by shifting the direction of the center bore to handle the heaviest load. But the Caldecott is often overwhelmed, and drivers stuck with the single bore are often forced to sit in long lines, creeping toward the tunnel and waiting to merge into two lanes.

Soon, at least some of the waiting will be over, and drivers will cruise westbound without giving a thought to the long effort and hard work involved in getting the fourth bore built.

"One of the cool things about this project," said Elpidio Perez, a Caltrans engineer, "is that when it's done, I can say, 'Yeah, I worked on it.'"

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