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WORK ON I-280 IN S.F.

Completed Without a Hitch



Fig. 1 – The Northbound lanes remain closed as workers continue to put the finishing touches on Interstate 280 freeway project in downtown San Francisco, Calif., on Monday Sept. 1, 2014, to ensure that traffic will be back to normal early Tuesday morning on the Northbound lanes of the elevated freeway between downtown San Francisco and Highway 101, which have been closed since Thursday afternoon while workers replaced two hinges. Photo: Michael Macor, The Chronicle

Commute traffic on Interstate 280 in downtown San Francisco was back to normal Tuesday and, to top it off, the brake-riding, steering-wheel-gripping masses are a little safer if another earthquake hits, Caltrans officials said Monday.

Northbound lanes of the elevated freeway between downtown San Francisco and Highway 101 reopened around 9:45 p.m. on Labor Day, more than seven hours ahead of schedule. The highway had been closed since Thursday afternoon while workers replaced two hinges, a complicated process requiring two 60-foot wide, 25-foot-long sections a half mile apart to be completely dismantled and rebuilt.

Joon Kang, the project manager for Caltrans, said the replacement work went without a hitch and the freeway is now fully able to handle the 60,000 commuters who use it on weekdays.

The work went “very smoothly,” Kang said. “It was a very big job. It’s intensive. The foreman over here hasn’t slept for 24 hours.”

The bridge hinge joints are designed to slide and rotate, providing the 6-mile-long concrete structure the flexibility and stability to withstand

an earthquake. Caltrans has replaced two other hinges, at a cost of just under \$1 million per hinge, forcing closures over this year’s Memorial Day and Fourth of July weekends.

Kang said there are many hinges along this stretch of I-280, which was built in 1964, but inspectors have found only four that needed replacing. The Labor Day weekend job was a more intensive undertaking, he said, because two hinges were being replaced in one fell swoop.

The worn-out devices were replaced with hinges that are better designed to handle seismic forces. It was planned long before last month’s Napa earthquake, which caused no damage to the structure, officials said.

“This highway was built back in the 1960s, so it’s been like 50 years,” said Vince Jacala, a Caltrans spokesman. “When you have a highway that’s 50 years old, you have to maintain it.”

The job required workers to demolish the entire 60-foot width of the bridge, leaving 25-foot-long gaps. That required cutting through 5-foot-thick concrete in two places a half mile apart, Kang said. Because of the limited room to work beneath



This project presented us with a lot of unique challenges that were successfully addressed using highly innovative construction techniques





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the elevated freeway, construction crews couldn't work on both hinges simultaneously. They had to remove and replace one hinge, then the other.

The idea was to get the work done over the holiday weekend, when traffic was light, but that meant workers were under a tight deadline. Crews worked 24 hours a day over the four days, with mobile concrete cement mixers standing by with rapid-set concrete.

"It's a very high-tech situation," Kang said. "A conventional concrete pour requires a 28-day cure to achieve full strength so a vehicle can move on it, but we didn't have that time. We used Rapid Set, and it is working beautifully."

Although traffic was slow at times, no major traffic jams were reported. San Francisco Giants fans heeded warnings on Facebook, Twitter and other social media sites and avoided the area or took mass transit to the games at AT&T Park on Friday, Saturday and Sunday.

"It went according to plan," Jacala said. "Word got out, and this weekend a lot of people did take public transportation."

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