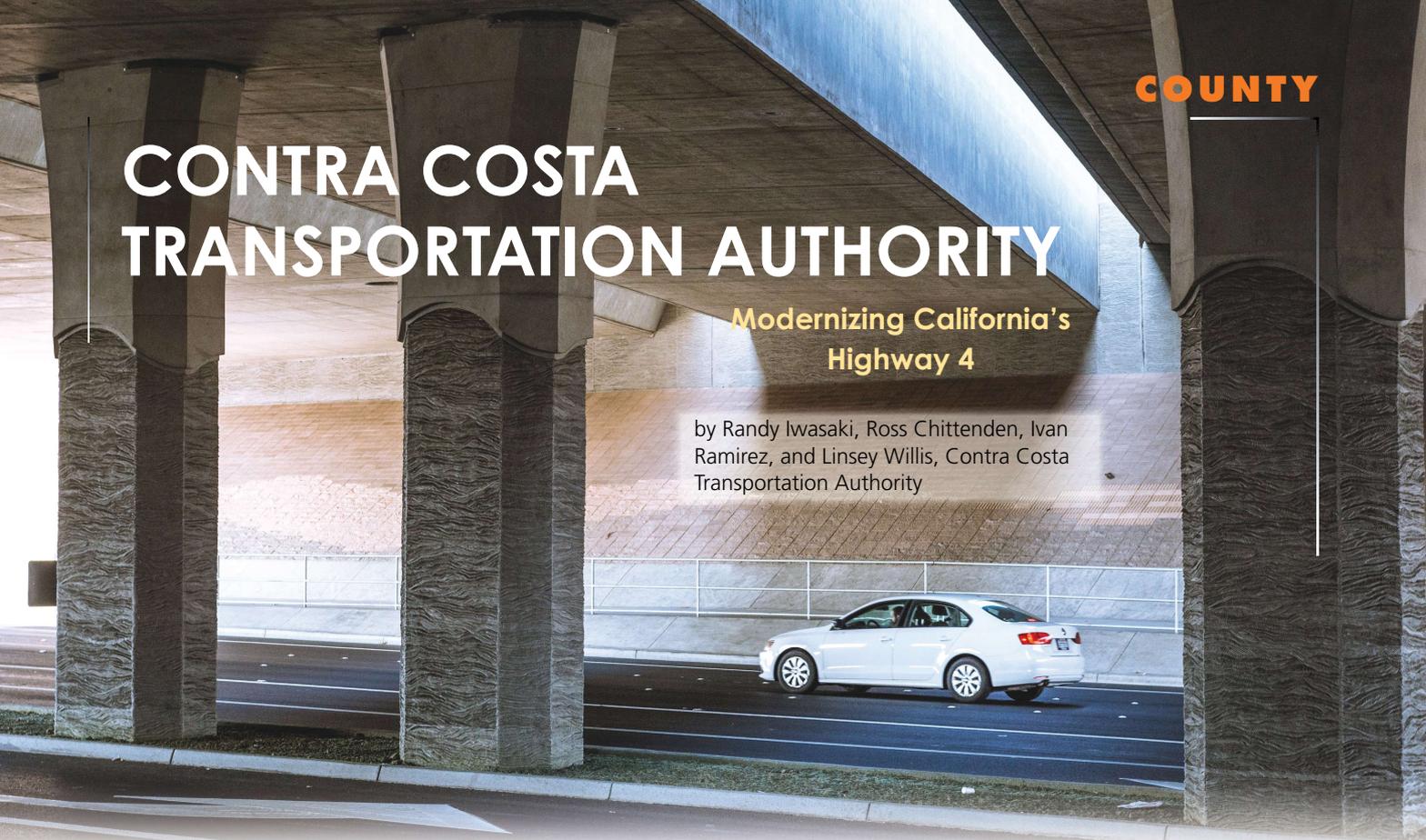


CONTRA COSTA TRANSPORTATION AUTHORITY

Modernizing California's Highway 4

by Randy Iwasaki, Ross Chittenden, Ivan Ramirez, and Linsey Willis, Contra Costa Transportation Authority



Detail of the Highway 4 overcrossing at the Somersville Road intersection in Antioch, Calif. All Photos: Contra Costa Transportation Authority.

The Highway 4 Corridor Project, led by California's Contra Costa Transportation Authority, will expand and modernize Highway 4 to accommodate increased traffic volumes and future construction of commuter rail in the fast-growing eastern portions of Contra Costa County, near San Francisco. The project expands Highway 4 from four to eight lanes between

Loveridge Road in Pittsburg to just west of State Route 160 in Antioch. The project also

- expands the highway from two to four lanes from Lone Tree Way to Balfour Road in Brentwood,
- adds missing connector ramps at the State Route 160/Highway 4 interchange, and
- adds a commuter rail extension from Pittsburg to Antioch (called eBART).

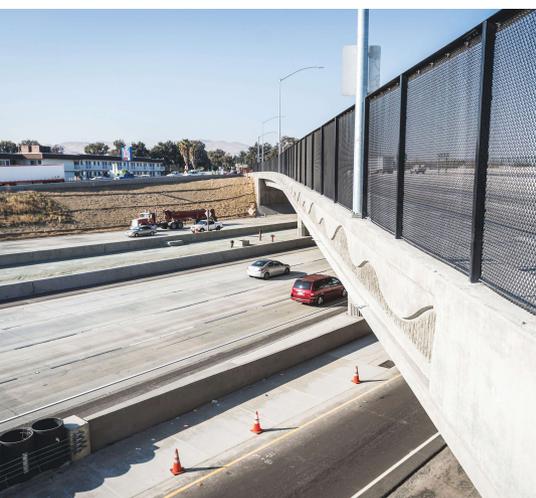
The upgrades to Highway 4 include replacing structures at five interchanges and two other local road crossings. These new bridges have wider lanes, new sidewalks, and smoother exit and entrance ramps to keep traffic flowing. Most bridges in the corridor are cast-in-place, prestressed, reinforced concrete box girder bridges supported on cast-in-drilled-hole concrete piles. All of the bridges are roughly 16 ft above the existing grade-level freeway. To achieve high-quality construction, concrete for the decks and girders for the SR 160/Highway 4 connector ramps is required to have a design compressive strength of 5.0 ksi, while the columns, abutments, and piles have a design compressive strength of 4.0 ksi.

A key challenge of modernizing Highway 4 in eastern Contra Costa County is keeping 250,000 daily trips moving while the work is underway. To address this challenge, a variety of techniques was employed, including careful construction

staging, using precast and preassembled pieces, and performing significant and disruptive work at night time as much as possible. Examples of this include the recent construction of a foundation for the SR 160/Highway 4 connector ramps project. At one point, a 13-ft-diameter, 97-ft-long reinforcing bar cage was lifted into place overnight.

The Contra Costa Transportation Authority is a public agency formed by Contra Costa voters in 1988 to manage the county's transportation sales tax program and provide countywide transportation planning. The Highway 4 Corridor Project is expected to be completed in late 2015, with the eBART line on track to be operational by 2017. The project is funded by Contra Costa County Measure J sales tax, regional bridge toll funds, local government contributions, and state and federal grants. More information can be found at 4eastcounty.org. 

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The Loveridge Road overcrossing at Highway 4 in Pittsburg, Calif. The center median area provides space for commuter rail.