Caldecott Tunnel Fourth Bore Project
Contra Costa Transportation Authority / CALTRANS

Location: Oakland, California

Date: 2009 - 2013

Structure: Two-Lane Highway Tunnel

Length: 3,389 feet (1,033 meters)

Cross-Section: 49 feet (15 meters) Wide at Springline

Geology: Moraga Formation (Volcanic Rocks), Orinda Formation (Sandstone, Siltstone, Mudstone, and Conglomerate), Claremont Formation (Chert, Shale, and Sandstone), Sobrante Formation (Sandstone and Shale)

Cost: Approximately $ 260 Million

Client: Parsons Brinckerhoff Construction Management Services

Owner: Contra Costa Transportation Authority / CALTRANS

Figure 1. Existing West Portal of the 3rd bore and new 4th bore.

Caldecott Tunnel Improvement Construction Management Services:

The existing Caldecott Tunnel consists of three two-lane tunnels that connect Alameda and Contra Costa counties via State Route 24 (SR-24). In order to reduce traffic congestion and delays, the project includes the construction of a fourth tunnel with seven cross passages to the existing Third Bore, using Sequential Excavation Methods / New Austrian Tunneling Method (SEM / NATM).

Excavation primarily includes the use of roadheaders and controlled blasting as needed. Tunnel ground support in the challenging geology consists of fiber reinforced shotcrete, lattice girders, different types of rock bolts, face bolts, and different types of spilling as pre-support and pipe canopies in the portal areas. After completion of the excavation, a waterproofing membrane will be installed, followed by a cast-in-place reinforced concrete final lining.

The California Department of Transportation (CALTRANS) leads the construction management team on site. Gall Zeidler Consultants (GZ) was responsible for the construction management of the SEM / NATM section and supported the team with technical expertise and inspection services.
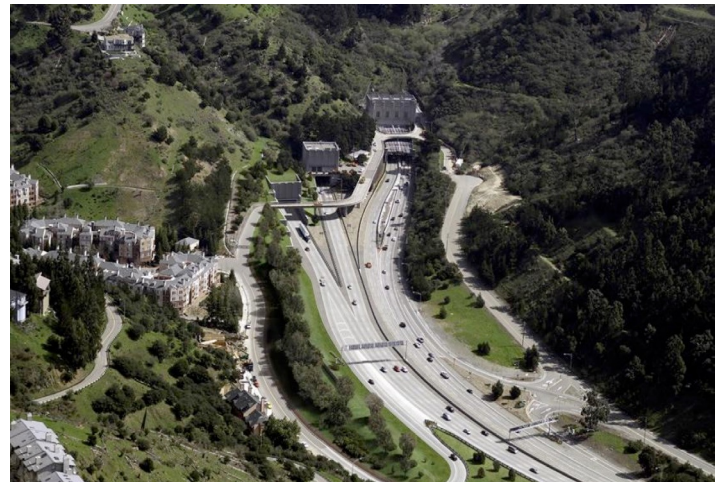

Figure 2. Existing portals of the 1st, 2nd, and 3rd bore, and simulation of the new 4th bore – from right to left. (Courtesy of CALTRANS)