

Upcoming Projects

CALIFORNIA

Alameda County, Calif.

New Irvington Tunnel

San Francisco Public Utilities Commission

Constructing a tunnel parallel to the existing Irvington Tunnel, in Alameda County, Calif., will allow the San Francisco Public Utilities Commission to decommission the Irvington Tunnel for inspection and rehabilitation to improve the water delivery reliability. Located between the Calaveras and Hayward Fault Zones, the mixed-face tunnel is made up of inter-bedded layers of sandstone and shale, with several smaller fault zones. Adding more complications, the tunnel offers 700 ft of cover and high hydrostatic head with potential water inflows up to 1,000 gpm.

An 18,200-ft long excavation is proposed with the installation of a 10-ft inside diameter concrete liner. There will also be construction of a new access road to the Irvington Portal and a new Portal within the piping manifold. Additional isolation valves and connections to the Bay Division Pipelines, originating from the Irvington Tunnel site, will also be installed.

The total construction cost for the project is estimated at \$154 million. The bid date has been proposed for March 2009, with an estimated construction start around August 2009.

Berkeley-Orinda, Calif.

The Caldecott Tunnel Project

California Department of Transportation

The Caldecott Tunnel connects Alameda and Contra Costa Counties via State Route 24, and The Caldecott Improvement Project proposes to alleviate traffic congestion along Route 24 by constructing a fourth bore of the Caldecott Tunnel. The goals of the project are to improve mobility for motorists and emergency crews along State Route 24 via the Caldecott tunnels, reduce delays and improve travel times, eliminate the need for daily tunnel lane reversals and merges, enhance safety for the traveling public and Caltrans maintenance workers and respond to Regional Measure 2 and Contra Costa County Measure J.

The project is fully funded with a total production cost estimated at \$420 million. The design phase will be completed in

summer 2008. Construction is planned to begin in the summer of 2009, with a completion in 2013 or 2014. It's proposed that excavation will be completed primarily by roadheader with around-the-clock activity from both sides. If the construction is limited to one side, the project's duration will be increased by 14 months, the cost will be increased by \$45 million and risks for serious delays will increase. A sound-isolating and sound-absorbing temporary wall will need to be built — 1,000 ft long and 35 to 40 ft high.

San Francisco, Calif.

Bay Tunnel

San Francisco Public Utilities Commission

Down by the Bay, the Bay Tunnel Segment of the new Bay Division Pipeline (BDPL) No. 5 will extend 5 miles from Newark. From there, it will cross under the San Francisco Bay and adjacent marshlands, ending in Menlo Park, Calif. Under the San Francisco Bay, it's a mix of sandy and silty clays of the San Antonio Formation, with one 500-ft section through the Franciscan Formation bedrock.

Using a pressurized-face tunnel boring machine, the construction of the 26,200-ft long tunnel will utilize bolted and gasket, pre-cast concrete segment initial lining and the installation of a 9-ft inside diameter welded steel pipe final liner. Two permanent shafts will also be constructed -- one 58-ft in diameter and 129 ft deep and one 28-ft in diameter with a depth of 83 ft. It's proposed that these will be constructed using either slurry wall or caisson methods.

The total construction cost is estimated at \$280 million. The bid date is proposed for August 2008, with an estimated construction start in January 2009.

San Mateo County, Calif.

New Crystal Springs Bypass Tunnel

San Francisco Public Utilities Commission

Beginning from the south and mostly through bedrock contained within the Franciscan Complex, classified as Melange and sandstones, the New Crystal Springs Bypass Tunnel will provide system redundancy for the vulnerable Crystal Springs Bypass Pipeline and improve delivery reliability. The tunnel passes under San Ma-

teo Creek near the north, where potential pre-grouting may be needed to strengthen the creek bed.

The excavation will measure 13-ft in diameter and 4,200-ft long. Installation of initial pre-cast concrete segmental lining will be needed to support the tunnel excavation, in addition to the installation of additional isolation valves, vaults and connections to the existing pipelines and/or tunnel ends. The tunnel will sport an 8-ft inside diameter welded steel pipe (WSP) final liner.

The total construction cost is estimated at \$57 million. The bid date will be set in April 2008, with an estimated construction start in October 2008.

MARYLAND

Prince George's/Montgomery County WSSC Bi-County Tunnel Washington Suburban Sanitary Commission

The study phase of the Bi-County Water Main project was completed in January 2006, and the design phase is continuing through 2007 with the construction phase planned to begin in mid 2008 and last three to four years, into late 2011. The tunnel itself will be approximately 100 to 260 ft below the finished grade, and requires a tunnel boring machine to cut through the bedrock.

Black and Veatch is the prime design engineer, while Jacobs Associates and EA Engineering, Jacobs Engineering, and Hatch Mott MacDonald are on the short list of primary construction management firms. The design engineer will be providing technical review and performing miscellaneous services during construction. The WSSC is in the process of selecting an engineer to provide inspection, quality control and other services during construction. The estimated construction cost is between \$115 million and \$135 million.

LOOKING AHEAD

- **Muni Tunnel**
(San Francisco, Calif.)
- **Las Vegas Outfall**
(Las Vegas, Nev.)
- **University Link**
(Seattle, Wash.)