



**VACC Recent Key Projects:**  
**Bypass Tunnel Construction**  
**Real-time Noise & Vibration Monitoring**  
**New Crystal Springs Bypass Tunnel**  
**Unincorporated San Mateo County, CA**

**Owner**  
 SFPUC (Water System Improvement Program)

**Contractor**  
 Shank/Balfour Beatty

**Project Value / Duration**  
 \$95M / Dec. 2008 ~ Sep. 2009

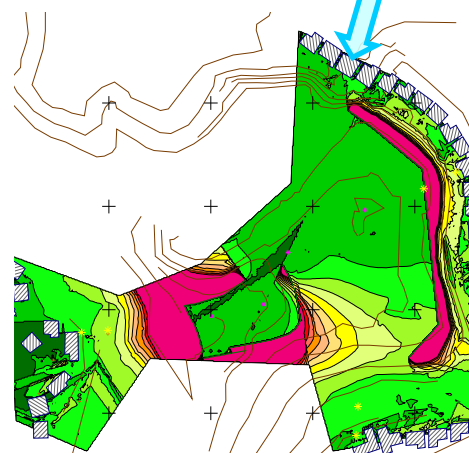
**Total Tunnel Length**  
 4,200 feet

**VACC Project Scope**  
 Construction Noise  
 Construction Vibration  
 Real-time monitoring / alerts

The San Francisco Public Utilities Commission (SFPUC) awarded Shank/Balfour Beatty the construction contract for the New Crystal Springs Bypass Tunnel project. The 4,200 foot long pipeline is one of 85 projects in the SFPUC’s \$4.3 billion Water System Improvement Program.

The project requires excavation with a tunnel boring machine (TBM). Surface blasting is needed to establish shafts on either end of the tunnel; spoils are handled at an on-site Muck Area at the southern end of the tunnel.

The contractor asked us to develop a plan for controlling and monitoring **construction noise and vibration** based on the SFPUC specifications and the Environment Impact Report (EIR). Our scope includes predicting construction noise and vibration impact on nearby residences; developing the monitoring plan; implementing measurement systems to monitor and report noise and vibration levels; and generating weekly monitoring reports.



Real-time monitoring and alarms are required to protect the neighborhood. One challenge for noise control is topology: the residential areas are at higher elevation than the site, compromising the effectiveness of noise walls.

Abiding by the SFPUC specifications, we are developing a unique remote monitoring system that could measure both vibration and noise levels (including air overpressure for blasting). Work is scheduled for completion in 2011.

