Securing the Bridge for Earthquakes

The three-phase, $388 million seismic retrofit construction project that began in late 1997 is designed to make the Golden Gate Bridge capable of withstanding a maximum credible earthquake of 8.3 magnitude. Funding this extensive project remains the primary focal point of the District, as the structural integrity of the Bridge is our number one priority.

When the first construction phase winds up in December 2001, at a cost of $71 million, the five individual spans of the Bridge’s 1,080-foot-long north approach viaduct will be linked together to move as one during an earthquake. Below the viaduct span are five new support towers that are 10 times stronger than the original support towers, sitting on new foundations that are larger and more stalwart. Also, new expansion joints and isolation bearings have been installed to dissipate earthquake energy more effectively.

Phase two construction, designed to safeguard the south approach viaduct, started in June 2001. The $157 million project will include retrofitting the Fort Point arch, south approach viaduct, and south anchorage. Federal and state funds will finance the work, which will be completed in late 2004.

The $160 million third construction phase will retrofit the main span and we are preparing to go to bid as soon as funding is identified.

Customer Convenience Takes the Lead

When the Golden Gate Bridge initiated FasTrak electronic toll collection service on July 13, 2000, customers rapidly embraced its convenience. FasTrak allows customers to prepay an account and then pay tolls electronically, without having to stop, using a small electronic transponder mounted on the inside of their vehicle windshield. FasTrak is accepted on the Golden Gate Bridge as well as the other Bay Area bridges operated by the California Department of Transportation (Caltrans) and several toll facilities in southern California.

By September 2000, after just three months, 20 percent of traffic was using FasTrak and the first toll lane dedicated to FasTrak users only was opened. Dedicated FasTrak only lanes are capable of processing up to 1,200 customers an hour, twice the rate of a staffed toll lane. By February 2001, the FasTrak market share had grown to 35 percent with 66,000 transponders issued. By the end of the first year, over 83,000 transponders had been issued and four FasTrak only toll lanes were available for the morning commute.

The public’s overwhelming acceptance of FasTrak has all but eliminated the morning backups, giving commuters an extra 15 to 20 minutes every day. While the savings gained through FasTrak offset the costs to install and operate the new technology, the rapid FasTrak growth, with its 33 cent toll discount, created a negative impact on toll revenue. Prior to FasTrak, 35 percent of toll transactions were made with discount tickets. Once the FasTrak market share surpassed 35 percent, toll revenue was lost for every additional discount crossing. Following a public hearing process, the $2.67 discount toll was eliminated on July 1, 2001 and the FasTrak toll rate for two-axle vehicles set at $3.00. This has not dampened enthusiasm for FasTrak, which continues to gain new customers at the rate of about 1,000 per month.

Bridge Painter John Rodriguez, February 2001 Employee of the Month, is not only a skilled painter but lends a helping hand to others in need.

Bridge Officer Gloria Alcantar, September 2000 Employee of the Month, greets customers with a smile made easier by FasTrak.
Retensioning of Tie-Down Cable Bolts – A First

For 64 years, the Bridge’s two 7,650-foot-long main cables have been draped over the massive steel saddles at the top of each 746-foot-tall tower supporting the entire Bridge structure. Being one of the most critical structural elements of the Bridge, the main cables are inspected regularly to ensure their continued structural integrity.

This year, for the first time since construction of the Bridge was completed in 1937, the huge bolts on the main cable tie-down castings were retensioned. The cable tie-downs, located in the massive concrete pylons at the ends of the suspension span, hold the main cables in a fixed position to prevent vertical motion where the suspended span meets the approach viaducts. Proper functioning of the tie-downs depends on the clamping force of the cable bands, which in turn is dependent on adequate cable band bolt tension. In all, 256 bolts, 2-1/8 inches in diameter and 3 feet long, were hydraulically retensioned to their original specification of 92,000 pounds and bolts that had corroded over time were replaced. This project was completed by District work forces.

District forces also completed cleaning and painting of the main cables under the roadway from the tie-down pylons to the anchor blocks, pioneering the use of a new high-tech coating system. As a result of the District paint crew’s success with this new coating system, it will be used for the complete recoating of the main cables above the roadway, which is scheduled to begin in 2002.

Public Safety Railing

Ensuring the safety of the Golden Gate Bridge for motorists, pedestrians, and cyclists alike is vital. To this end, a safety railing is now being fabricated and will be installed between the roadway and sidewalks on both sides of the Bridge. The 4-1/2-foot-high railing is carefully designed so it will not adversely affect the historic architecture of the Bridge, obscure its famous views, or impact its wind stability. The $5.1 million contract was awarded in August 2001 with installation scheduled for 2002.

Doyle Drive Planning

When the Golden Gate Bridge opened in 1937, Doyle Drive was a new elevated roadway over San Francisco’s Presidio and specially built to provide access between the Bridge and the streets of San Francisco. Doyle Drive is owned and operated by Caltrans. Today, in an effort to improve traffic safety, the San Francisco County Transportation Authority (SFCTA) is coordinating the Doyle Drive Environmental and Design Study. This study examines the environmental impact of several alternatives to improve the 1.5-mile-long roadway, which include options to widen the roadway by replacement or to create long or short replacement tunnels. The District is working with Caltrans and SFCTA to ensure the final alternative design is coordinated with operation of the Bridge and its approaches. The next step is completion of a Draft Environmental Impact Statement in spring 2002, which will detail the design alternatives and their impacts.

Administrative Receptionist

Margo DeCook, August 2000 Employee of the Month, excels as the District’s friendly ambassador, giving a warm welcome to everyone entering the Toll Plaza Administration Building.

Electrician George Galvan, June 2001 Employee of the Month, goes out of his way to assist coworkers in solving auto, electrical and mechanical problems at the Bridge.