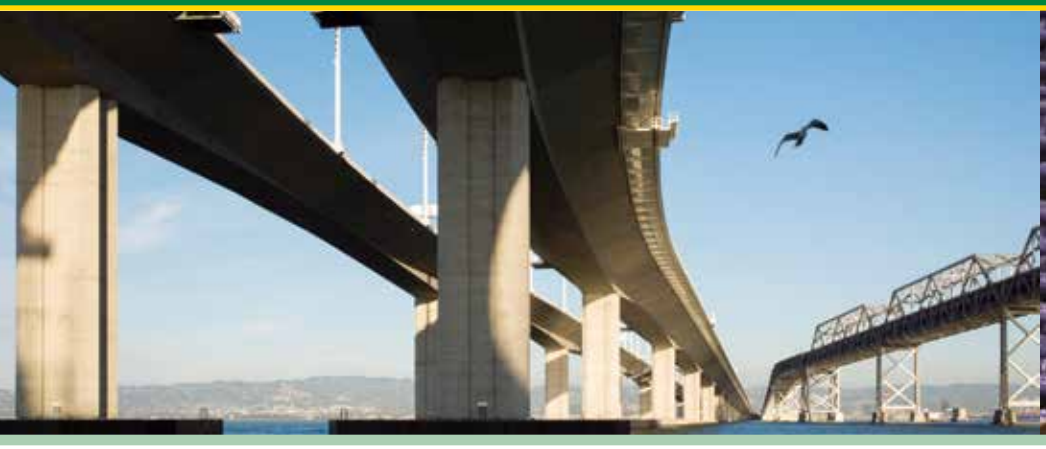
San Francisco-Oakland Bay Skyway Bridge

San Francisco, CA



Eastern Span Replacement of the San Francisco-Oakland Bay Bridge Skyway Now Open

The new Eastern Span replacement of the San Francisco-Oakland Bay Bridge Skyway opened in September 2013 at a cost of $6.3 billion, and is designed to last at least 150 years.

The New Eastern Span contains 5 lanes on each of two parallel decks, with 10 ft shoulders. These decks are made from 452 precast concrete sections, placed on piers that range in height from 45 to 115 feet. The pier tables, which are cast-in-place at the project site, are erected on top of enormous pier columns, containing epoxy-coated reinforcing steel. Piles measuring eight and a half feet in diameter are driven deep into the bay's soil and sediment — up to 300 feet below the water's surface. Unlike the original wooden pilings, which extend from 85 to 200 feet, the new steel piles reach as much as 300 feet below the water's surface to anchor in stable soils. The new structure uses 30,000 ton of reinforcing steel. All reinforcing steel below a line 7 m (23 ft) above sea level is epoxy-coated to resist corrosion.

History of the San Francisco-Oakland Bay Bridge Skyway

The original San Francisco-Oakland Bay Bridge was built in 1936 and was the largest and most expensive bridge of its time. The original Western Span, comprised of two suspension bridges, allowed easy passage for the Navy and merchant ships sailing to and from San Francisco. The Eastern Span connects Yerba Buena Island (YBI) and Oakland's shore. Connecting the Eastern and Western Spans at YBI is the world's largest-diameter bore tunnel, at 76-feet-wide and as tall as a four-story building. At the time, the West Span's center anchorage was taller than any building in San Francisco.

In its first year, the bridge served nine million vehicles, far exceeding expectations. By 1950, it was serving 29 million vehicles. By 1958, the bridge's lower deck was reconfigured to cease carrying trains, and was transformed into its current configuration, with both upper and lower decks open only to vehicular traffic.

Following the Loma Prieta Earthquake, which caused major damage on a section of the Eastern Span, the bridge underwent a seismic retrofit. More than 280,000 vehicles that cross the bridge each day.

Team

Owner:
California Department of Transportation

Designer:
T.Y. Lin / Moffat & Nichol (a Joint Venture)

Engineer:
Parsons

General Contractor:
Kiewit / FCI / Mason (KFM)

Design Criteria:
– 150 year design life.

– Able to withstand future earthquakes.

– Provide post-earthquake "lifeline" service.

– Include 10 traffic lanes, five in each direction, with two standard 10-foot shoulders in each direction.

– Accommodate the possibility of future light rail service.

Total Project Cost:
$1.04 billion

Total Size:
LENGTH: 1.2 miles

Photography:
T.Y. Lin

3.bp.blogspot.com