

# Golden Gate Bridge

1937



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As states struggled financially to rebuild highways after World War I, tolling became a way to finance large-scale projects, such as the Golden Gate Bridge. By issuing bonds, a toll authority received funds from investors who would be repaid, with interest, from toll receipts.

*Golden Gate Bridge,  
San Francisco.*

The Golden Gate Bridge and Highway District, authorized by an act of the California Legislature, was incorporated in 1928 as the official entity to design, construct, and finance the Golden Gate Bridge. In 1932, President Herbert C. Hoover signed legislation creating the Reconstruction Finance Corporation, allocating a half-billion dollars for loans to banks, corporations, and state governments. The Golden Gate Bridge was constructed using a \$35 million bond, well below early construction estimates of up to \$100 million, due to ingenuity on the part of chief engineer Joseph Strauss and his team. The bond issue was supported by San Francisco-based Bank of America.

Construction began in 1933 and was completed in 1937. The bridge was completed ahead of schedule and \$1.3 million under budget. At the time of its opening, at 4,200 feet, the Golden Gate Bridge had the longest suspension bridge main span in the world. The bridge's two main towers each rise 746 feet above the water and are strung with 80,000 miles of cable.

The Golden Gate Bridge is a historical landmark and has carried well over two billion vehicles since opening to traffic. In 1994, the American Society of Civil Engineers (ASCE) declared the Golden Gate Bridge one of the "Seven Wonders of the United States."

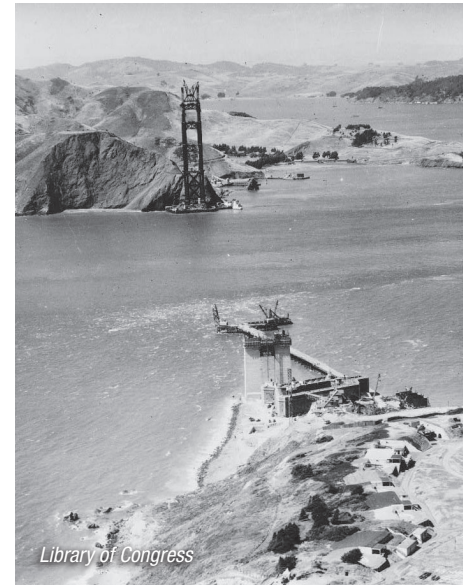


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*Circa 1934 photo (left) of pylon construction on the south shore.*

*1934 photo (above) of Golden Gate Bridge under construction.*

## Quick Facts

- The War Department owned the land on both sides of the strait and had to authorize the construction of the bridge.
- Because of the hazardous construction conditions, chief engineer Joseph Strauss instituted several rigorous safety measures not commonly used at the time. These included use of hard hats, glare-free goggles, special hand and face cream to protect against the wind, and special diets to help fight dizziness.
- A safety net that stretched end to end under the bridge was also installed. The 19 workers who fell during the construction of the bridge and were saved by the net called themselves the Half-Way-to-Hell Club.
- Eleven men (10 in one incident alone when a scaffold fell and tore through the safety net) lost their lives during the construction of the Golden Gate Bridge.
- The two towers supporting the central span extend 700 feet into the sky and over 100 feet beneath the bay. The length of the suspension spans, including main and side spans, is 1.2 miles. When the bridge opened in 1937, the weight of the bridge, along with its anchorages and approaches, was 894,500 tons.
- The last of the construction bonds was retired in 1971, with \$35 million in principal and nearly \$39 million in interest being paid entirely from bridge tolls.
- For the bridge's 50th anniversary celebration on May 24, 1987, officials expected 50,000 people to show up. Instead, 800,000 people showed up with an estimated 300,000 crowding the bridge deck, causing a reported deflection of its roadway of 7 to 10 feet at the midspan, and the normally convex shape of the bridge deck to flatten. The 17 mph winds blowing across San Francisco Bay caused the bridge to sway side to side. Fortunately, the bridge deck was designed to move 15 feet vertically and 27 feet from side to side.
- Charles Seim, a former Caltrans Bridge Engineer, was reported to have said he knew the 50th anniversary crowd was exceeding design loads, but he was not worried because even at the maximum design load of 5,700 pounds per foot, the stress in the cables was only 40 percent of their yielding stress.

## Reference and Additional Information

<http://www.goldenstatebridge.org/>  
[http://goldenstatebridge.org/research/documents/researchpaper\\_50th.pdf](http://goldenstatebridge.org/research/documents/researchpaper_50th.pdf)

<https://www.fhwa.dot.gov/infrastructure/2bridges.cfm>