

Bridge Deck Grooving

Leonard P. Zakim Bunker Hill Bridge

"the cable-stayed bridge"

Cost: \$100 million



With its graceful lines and 270-foot towers, the Leonard P. Zakim Bunker Hill Bridge fuses Boston's future with its historic past. Swiss bridge designer Christian Menn conceived the bridge to reflect, with its inverted Y-shaped towers, the shape of the Bunker Hill Monument in neighboring Charlestown. In addition to the Battle of Bunker Hill, the bridge is also dedicated to the life of civil rights activist Lenny Zakim. It serves as a permanent memorial to a man who bridged many gaps.

The bridge, at 1,432 feet long, emerges from the underground Central Artery near the Fleet Center at Causeway Street, crossing the river to make connections with both I-93 and Route 1. It is designed to carry 10 lanes of traffic; eight lanes passing through the legs of the twin towers and two cantilevered on the east side. The cantilever portion, which will accommodate northbound traffic from the Sumner Tunnel and the North End, will provide the bridge's unique, asymmetrical design. Girders, floor beams and two planes of cables support the bridge's 745-foot-long, 183-foot-wide main span. Steel floor beams, which support the main span, are extended out to support the cantilevered lanes.

The back spans on the land side of the towers -- which measure 267 feet on the downtown side, and 420 feet on the Charlestown side -- are supported by single planes of cables. Using a one-plane cable design used on the south back span allowed traffic flow to continue on the existing I-93 connection to Leverett Circle during construction.

The new Leonard P. Zakim Bunker Hill Bridge is the only one of its kind ever built. In addition to being the widest cable-stayed bridge in the world, the bridge is the first "hybrid" cable-stayed bridge in the United States, using both steel and concrete in its frame. The main span consists of a steel box girder and steel floor beams, while the back spans contain post-tensioned concrete.

The bridges were built within a busy transportation corridor that already houses the Massachusetts Bay Transit Authority's (MBTA) Commuter Rail and Orange Line. In order to avoid impact to the Orange Line and its ventilation building, the legs of the bridge's concrete towers are truncated in at a 55-degree angle and straddle the MBTA tracks as they surface from the Orange Line tunnel in Charlestown



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