



LIGHTING THE EAST SPAN

The new East Span will feature a cutting-edge roadway lighting system that was designed and fabricated specifically for the Bay Bridge. High-performance LED lights will spread a bright, uniform glow across the roadway. The fixtures are positioned to project light in the direction of travel, much like headlights on a car, thereby protecting motorists from glare. While the quality and distribution of light on the road will create a safer driving experience for motorists, the longevity of the lighting system will also increase safety of maintenance workers.

THE LIGHTS AT A GLANCE

- There are 273 light poles on the East Span
- Light poles were fabricated by Valmont Industries, based in Omaha, Neb.
- Poles were designed to visually reflect the aesthetics of the Self-Anchored Suspension Span's faceted main tower
- Light poles range from 23 to 65 feet in height
- Poles vary in weight from 2,500 to 7,500 pounds
- The East Span will have a total of 1,521 light fixtures
 - 400 light fixtures on the Self-Anchored Suspension Span's main cable
 - 1,121 light fixtures along the roadways
- The light fixtures were designed and fabricated by Musco Sports Lighting, based in Oskaloosa, Iowa
- All light fixtures were installed by Bleyco Inc., based in Castro Valley, Calif.
- Light fixtures are oriented to protect motorists from glare
- Placement of fixtures and lights creates an even wash of white light across the roadway to provide safer driving conditions for motorists
- Each light fixture houses 25 to 50 light-emitting diodes (LEDs), for a total of more than 48,000 LEDs in this lighting system
- The LED lights on the new East Span will use about 50 percent less energy than the lights on the existing bridge
- The LEDs will be replaced when they dim to 70 percent light production, which will take 10 to 15 years; fixtures on the current East Span burn out in about two years

The state-of-the-art lights use half the energy of standard lights but will last five to seven times longer. Lights will only need to be replaced every 10 to 15 years, so crews will spend less time working beside traffic during maintenance operations and fewer lane closures will be required to provide the access.

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THE LIGHT POLES were designed by Moffat & Nichol and fabricated by Nebraska-based Valmont Industries, which has fabricated light poles for the Panama Canal and the Dallas Area Rapid Transit. Custom-made light fixtures were designed and fabricated by Iowa-based Musco Sports Lighting, which developed lighting systems for Yankee Stadium and the White House. The lighting design was conceived by Howard Brandston, then later developed to LEDs by Caltrans, Zoon Engineering and Parsons Brinckerhoff, and installed by Bleyco Inc.

The East Span roadway lighting system includes more than 48,000 individual LEDs. Using a large number of individual LEDs with individual optic control allows for greater control over the direction of the light, creating the ability to place more light where it is needed and remove light from where it is not. The design of the light fixtures gives more control over the direction of each LED and the overall light that is produced, which means that light pollution is reduced almost completely. Lighting on the westbound deck will not spill over to the eastbound deck and vice versa. This creates a much safer driving experience for motorists. Each fixture is adjustable and will be set into a position that faces away from oncoming traffic and focuses light directly onto the roadway. This makes for a better-lit road and protects oncoming motorists from glare, increasing safety.

LED lights only need to be changed every 10-15 years, a vast improvement over the fixtures on the original East Span, which are changed about every two years. A longer life span means more money saved by not having to buy as many bulbs or to spend funds on lane closures and maintenance staff.

Not only do the LEDs save money, they also save energy and do not use mercury.

The lighting system will be as aesthetically pleasing as it is functional. The poles and fixtures were designed by collaborative teams including Caltrans engineers and architects to create poles that reflect the look of the Self-Anchored Suspension Span's single tower, with faceted corners on each pentagonal standard and a wide base that tapers as it rises. This will connect the various spans of the bridge with a look of balance and uniformity.

