

Lake Merritt's "Necklace of Lights" Sparkles with Energy Efficient Lighting System

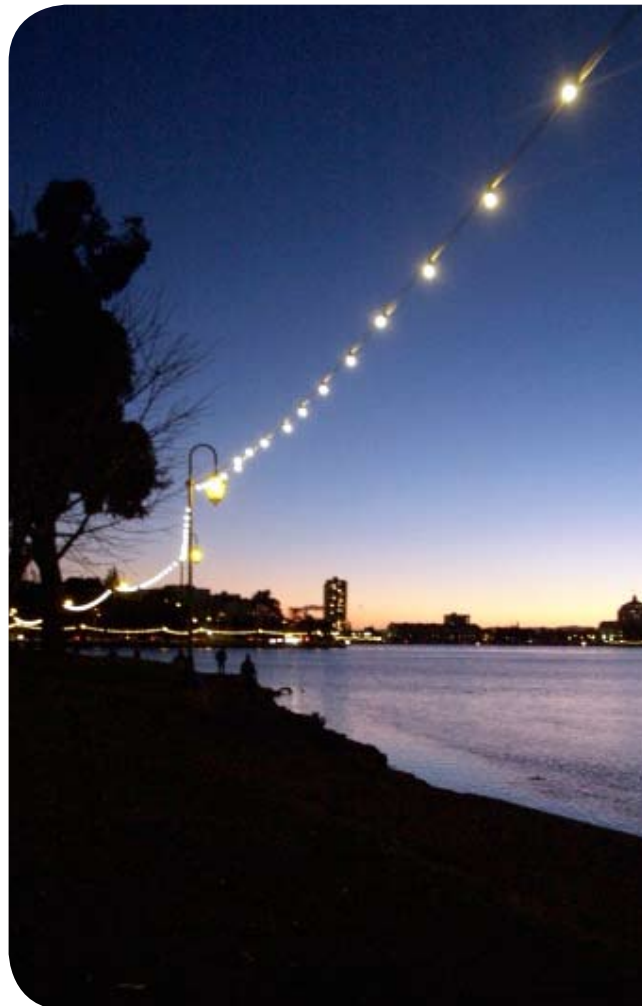
Lake Merritt, known as the "Jewel of Oakland," is a large tidal lagoon that spans 155 acres just east of downtown Oakland, California. Surrounded by parks and neighborhoods, Lake Merritt is a popular attraction for residents and visitors to enjoy boating, sailing and gondola rides. A "Necklace of Lights," featuring 126 lampposts and more than 4,000 light bulbs, encircles 3.4 miles of the shoreline. The lake was first lighted in 1925, but went dark in 1941 to comply with World War II blackout conditions. After a decade-long campaign to relight the lake, the Necklace of Lights was once again illuminated in 1985.

From dusk to dawn, the Necklace of Lights continues to create an inviting atmosphere where thousands of people walk, jog, bike and stroll. But, despite its aesthetic appeal, the lighting technology was outdated and costly to operate and maintain.

Lake Merritt Goes Green

The lights around Lake Merritt include strings of 11-watt incandescent light bulbs suspended from ten-foot lamp poles. Each incandescent bulb is rated to last 3,000 hours and costs approximately \$4.20 per bulb to operate and maintain. While the lighting is intended to accent the lake and surrounding landscape, it also illuminates the area so visitors can enjoy the lake at night. The city of Oakland is responsible for maintaining the lighting system, but with more than 4,000 light bulbs, energy costs continued to rise and routine maintenance was time consuming and expensive.

"It takes a bucket truck to maintain these lamps, and incandescent bulbs need to be changed frequently, demanding time from electricians who maintain street lights and traffic signals," said Scott Wentworth, Energy Engineer, for Oakland's Public Works Agency. "We needed to find a better light source that would last longer and save the city money. Plus, with Oakland's commitment to sustainability, we wanted an energy-efficient lighting source that would also help reduce the amount of greenhouse gas emissions."



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Oakland's Public Works staff worked with Ron Dillen of Pacific Gas and Electric Company (PG&E), the utility provider for the city of Oakland, to research a new lighting system that would meet the city's needs, and mirror the current light levels. They first considered traditional compact fluorescent lamps (CFLs) as an alternative, but decided these would use too much energy and might not perform well outdoors.

"Through our research we discovered cold cathode lamps would be the perfect solution," said Mr. Dillen. "They have all of the energy efficiency benefits of a standard CFL, but last 25,000 hours and are recommended for outdoor applications."

Dillen contacted Alan Moberg, National Accounts Manager for TCP, Inc., an Aurora, Ohio-based lighting manufacturer specializing in energy efficient lighting innovations. TCP offers a variety of cold cathode lamps, including a three-watt lamp that provides a similar color temperature to the previous incandescent system. The Public Works Agency tested other energy efficient lighting products, but all of them produced a color that was too blue and did not meet the aesthetic requirements.

"When we tested TCP's three-watt A-shape cold cathode lamp, we immediately noticed that it cast a brighter light because there was a longer reflection across the lake," said Wentworth. "Previous tests with dimmer lighting products cast much shorter reflections."

A Gem of a Solution

From mid-October to early November 2006, the Oakland Public Works Agency installed the new lighting system. The incandescent lights were replaced in sections, with each section consisting of a string of 25 lamps.

The retrofit project is estimated to save 70,000 kilowatt/hours of electricity each year. That is equivalent to a cost savings of more than \$9,000 annually and enough electricity to power about 11 average homes. Maintenance costs were also significantly reduced by 75%, saving the city an estimated \$4,500 a year. TCP estimates the reduced energy usage will mean about 35 fewer tons of carbon dioxide emitted per year, which will help the city prevent the effects of global warming. Lake Merritt's Necklace of Lights is a shining example of Oakland's sustainability efforts at work, improving the appearance of the lake and bettering the environment for its residents for years to come. ■

