

Is your dream candidate
about to bolt? p.26

The Bay Watch
is on p.38

New heights for
Higbee p.42

LIGHTFAIR
Review p.46

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Free Flowing

A new kind of river rolls through Anaheim

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Go With The Flow

After water was ruled out, a river of light now dazzles guests at the Anaheim Convention Center

BY DIANA VENTIMIGLIA

The Anaheim Convention Center Grand Plaza is a 168,000 sq ft adult playground equipped with alfresco dining, concerts, receptions, exhibitions and more. The Grand Plaza represents an enormous transformation of the guest experience at the convention center and its surrounding hotels. A former throughway for taxis and buses, the roadway has been converted into a large pedestrian mall of more than 1,400 ft long and 120 ft wide.

After several workshops with stakeholders including the Convention Center, the City of Anaheim, the Anaheim Hilton and the Anaheim Marriott, lighting design consultancy StudioK1, Irvine, CA, working with landscape architectural firm RJM, developed a theme for unifying the plaza. "We came up with a 'River of Light' concept, grounded by large fountains on either end of the plaza," explains Peter Maradudin, studio director of StudioK1. The river was originally intended to be a water feature extending the 600-plus ft between the fountains, representing the Santa Ana River around which the City of Anaheim was founded. The Mountain Fountain represents the San Gabriel Mountains, and as the water moves west it reaches the Ocean Fountain, representing the Pacific Ocean. After some analysis, however, the river water feature was deemed too expensive and unwieldy.

"When we realized we couldn't execute our original concept, I proposed creating a kinetic light artwork that would simulate the flow of water and the sparkle of sunlight playing on its surface," says Maradudin. "With the right controls, I knew it could be programmed to do anything." With the help of lighting designer Kaitlin LeSage Crawford, also of StudioK1, a landscape of light was created that flows organically from one fountain to the other. The entire lighting design provided energy efficiency without skimping on quality. LEDs were used throughout the project—from the pedestrian poles to the floodlights. The entire installation uses less than 16,000 watts of light, or approximately .1-W per sq ft.

PARTING THE SEAS

The simulated river is composed of about 300 ingrade fixtures (Targetti/Poulsen) of two different sizes. Each was laid out in a random pattern within a blue highlighted "river" stained into the concrete. "The fixtures were chosen due to their high drive-over rating, integral drivers, tri-color LED chips and modular, easy to maintain construction," says Maradudin. "We had the lenses frosted with a wave pattern anti-slip feature on the top of the lenses." The tri-color LED chips were essential to the success of the project, as instead of seeing red, green and blue trying to mix together on each lens, each lens is the color already mixed.

The River of Light continues on to the Ocean Fountain which rises before the Convention Center.
Opposite: The 60-ft monument greets guests.



ANAHEIM CONVENTION CENTER



The River of Light wends its way over 600 ft from the Mountain Fountain in the distance through an arbor structure at the center of the Plaza. The concourse of palm trees is lighted by LED fixtures on tree rings that also provide base illumination for pedestrians.

For 25 minutes of each half hour, the river has a pattern that mimics the flow of water with sunlight sparkling off the surface. This is done with variations of blue, with white light flashing randomly throughout. The effect was created using a video file, which is part of the programming software. At each half hour, there is a five-minute show that uses a wider range of color and movement. During the 25 minute "quiescent" section of the programming, the ocean fountain and its jets are low, with blue and white coloration. During the more active shows, the fountain also changes color dramatically, with the jets controlled by the lighting system, allowing for dramatic changes in fountain jet height.

Adorned with the words "Anaheim Convention Center," the 60-ft monument at the entrance to the plaza also changes color, but within a very tight palette range (magenta through purple to dark blue), and it transitions slowly, so as not to distract vehicular traffic or detract

from the movement of the river. The monument is lighted from within by seven high-powered Philips Color Kinetics RGB LED fixtures. Each is 295 watts, with a wide optic in the lower lens and a narrow optic in the upper lens to get all the way to the top of the monument.

CONTINUING MOVEMENT

There were several other layers of light to consider for the project: pedestrian lighting, landscape lighting and lighting for the benches and steps to name a few. There are 151 palm trees and 60 orange trees surrounding the plaza. To light the palm trees, Maradudin's team used tree-ring mounted LED bullets—two pointing up into the palm canopy and two pointing down to light the pedestrian walkways. Each bullet is 15 watts.

The existing fixtures lighting the pedestrian pathways were Poulsen Albertslund metal halide. "We felt we should be consis-



The Ocean Fountain's jets change color during the daily light shows.

tent with that look in the new plaza, but update the technology to LED, as we wanted to have the potential to turn the lights off and on instantly for special events and for special moments within the River of Light programming," explains Maradudin. The new fixtures are 117 watts, as opposed to over 160 watts for the metal halide version, for a 38 percent decrease in energy use. Since the tree-ring mounted LED fixtures were already on the palms, Maradudin's team decided to use those to light the bulk of the plaza. The Anaheim police requested 2 fc, average, for pedestrian areas, so StudioK1 had to meet that requirement.

Lighting under the benches and under the fountain steps proved to be more of a challenge. "We used fixtures from iLight under the benches, which was our original specification for the steps at the Ocean Fountain, as well," says Maradudin. "The City of Anaheim, however, was concerned about the low-voltage lighting in the foun-



Low-voltage, LED linear fixtures light benches.

tain steps, which was less than 10 ft from the water." To light the steps, LED linear fixtures with an IP rating of 68 were used. The Q-Tran transformers were placed in the enclosures in order to meet the requirements.

Fountain lighting fell to the water feature designer, but StudioK1 organized the control of the fixtures, which are RGB LED. The entire project is controlled by an ETC Mosaic DMX control system with three universes of DMX and over 1,500 channels to control all of the ingrade fixtures of the River of Light, the two fountains and their jets, and the entry monument. The controller also triggers relay panels to turn on and off the pedestrian, roadway and landscape lighting. ■

METRICS THAT MATTER

Anaheim Grand Plaza

Watts per sq ft: 0.1 (complies with ASHRAE/IESNA 90.1 2010)

Illuminance Level: approximately 2 fc

Fixture Types: 10 (plaza); 2 (parking area)

THE DESIGNERS



Peter Maradudin, IALD, Member IES (2006), is the studio director at StudioK1, Irvine, CA. Kaitlin LeSage Crawford, Associate IALD, LC, Member IES (2010), is a lighting designer with StudioK1.