CASE STUDY

Dublin's "Urban Boardwalk"

Emerald Glen Recreation & Aquatic Complex

City of Dublin
Dublin, CA

Project Open: May 2017

Building Area: 32,000 sqft

Amenities: 2 pools - a sports and natatorium; 4 water slides; 2 high-speed slides; water playground; community room; outdoor park amphitheater

Project Cost: $36 Million

EXECUTIVE SUMMARY

The City of Dublin's civic master plan, developed over two decades ago, included plans and funds to construct an aquatic complex, recreation center, and park amphitheater at Emerald Glen Park. To help turn their vision into reality, the City contracted DAHLIN to design an aquatic and recreation complex that would not only fulfill what had been called for in the civic master plan, but also become a regional draw. Over time, as challenges emerged and evolved, the project has at times been put on hold, downsized and phased, and ultimately, with the help of more favorable macro-environmental conditions, allowed the City to develop the original concept plans and more. Emerald Glen Recreation & Aquatic Complex, also known as *The Wave*, which features an urban take on the turn of the century American coastal boardwalks, opened to the public in May 2017 after much anticipation.

2018 Public Works Project Award
AMERICAN PUBLIC WORKS ASSOCIATION

2017 Excellence in Design, Facility Design
CALIFORNIA PARK & RECREATION SOCIETY

2017 District 3 Award
CALIFORNIA PARK & RECREATION SOCIETY

2017 Best of Aquatics, for Theming
AQUATICS INTERNATIONAL

CHALLENGES

Despite always being a part of the plan, the Emerald Glen Recreation & Aquatic Complex for which DAHLIN was first contracted to design in 2005, has faced many challenges including the *Great Recession*, a severe extended statewide drought, and an interesting roof design challenge, on its journey to construction finally beginning in 2015.

Each of these challenges presented their own obstacles:

With the recession, new development disappeared along with the fees developers pay that help fund the City's capital projects. Furthermore, as a fiscally conservative city, it seemed unwise to start a project of this nature in the midst of the worst economic downturn since the Great Depression when most city aquatic parks are unable to generate sufficient revenue to cover the ongoing operating costs.

While California residents across the state were rationing their personal water use in response to the drought, an aquatic complex that would include water slides and a water playground in addition to pools, seemed an irresponsible use of water in the eyes of the public.

The City wanted the natatorium to be an iconic building that when inside would feel open and light, and as such, requested an elegant roof design without columns dropping into the pool or awkwardly redirected around it.

In addition to these challenges, city residents were frustrated that a project planned and promised so long ago was taking so long to come to fruition.

HOW DAHLIN HELPED

Project Continuity with Changing Variables

While the macro-environmental challenges—the recession and the drought—were beyond the control of any company, DAHLIN guided the City in response to these conditions by providing design alternatives that would control cost, increase opportunities for revenue, and minimize the water usage needs of the complex. As these conditions changed favorably, the City was able to expand the scope of the project to include full build-out of the final phase of the park.Throughout this process, DAHLIN helped city staff maintain the integrity of their vision.

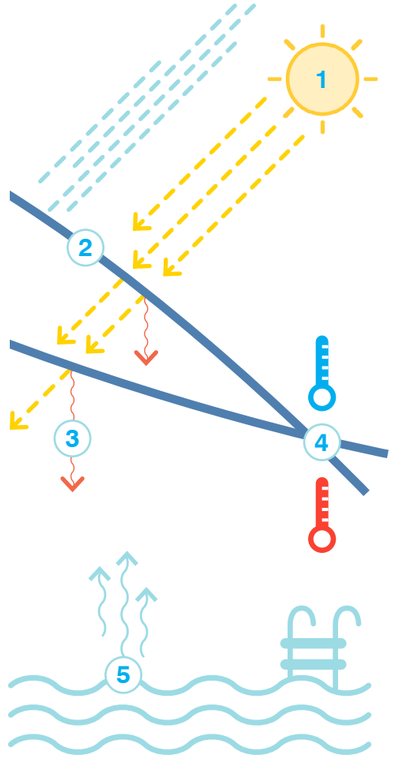
Water-wise Conservation

Based on a comparative water analysis, DAHLIN illustrated that water usage for a pool is actually much lower than for recreational turf fields, as the water loss due to people getting in-and-out and evaporation, is low in contrast to a turf field that needs frequent, generous watering. Recognized as a leader in recycled water usage, over 90 percent of Dublin's municipal operations and outdoor irrigation, uses recycled water following a 2015 project that initiated the conversion of all landscape medians and parks throughout the city from potable (drinking) water to recycled water. In the last few years alone, it has reduced Dublin's potable water usage by 164 million gallons a year. The recreation and aquatic complex also makes use of reclaimed water for landscape needs outside of the pool areas, significantly reducing the amount of potable water usage within the park.

Impactful Design Technology and Aesthetics

In response to the City's request for an elegant roof design for natatorium, DAHLIN designed the roof using an innovative material, ETFE (Ethylene Tetrafluoroethylene). ETFE is only one percent the weight of glass, yet, transmits 95 percent of light. Using ETFE allowed DAHLIN to design a natatorium that would be full of light without columns intruding into the openness of the space. This was the first ETFE ceiling in Northern California and only the second in California overall at the time of completion, behind ARTIC—Anaheim's Regional Transportation Intermodal Center.

Positioned at the street's corner, the highly visible natatorium serves as the gateway to the aquatic complex and is its iconic design element. It features a pillowed, semi-transparent ETFE roof that arches over the natatorium, turning towards the ground with a scalloped edge, representing the frothy white cap of a breaking wave. From within the natatorium, the barrel shaped roof that gives the wave its shape, is a nod to the iconic barrel roofs of the turn of the century boardwalks. At night, LED lighting on the natatorium roof creates a visual excitement inspired by the lights that lit up boardwalk rides and games in the evening.



ETFE Roof Design: How It Works

ETFE (Ethylene Tetrafluoroethylene) is a durable, transparent polymer which transmits light and provides insulation at only 1/100th the weight of glass. Its lightweight membrane is stretched across the Natatorium's reduced structural framework of long spanning trusses. ETFE film is quickly becoming the material of choice for structures that dictate design impact and presence. Some of its properties and benefits include:

1. High light transmission while reducing solar heat gain
2. Solar reflection and high durability under environmental exposure
3. Reduces UV radiation absorption
4. Increased thermal performance and natural ventilation by roof arc
5. Reduces evaporation of pool water

Recyclable and sustainable material contributes to global energy efficiency of the Natatorium

The same artistic prudence is carried out throughout the project even in the smallest of details and finishes. Rather than a clichéd copy of Americana, it takes the concept and moves it forward by integrating elements from turn of the century coastal architecture into contemporary materials and technology to create an urban water oasis. Aquatic patterns—curvilinear in shape, form and texture—are thematically integrated into the design of every surface and element to represent everything from water droplets to submarine portholes, bubbles, waves, ripples, and water splash. Large tiled mosaics and photographic mural panels aesthetically dress up ancillary spaces like outdoor showers and bathrooms. Colorful bright finishes over contemporary architectural forms, accentuate the thematic waterpark branding and environmental graphic design of the aquatic complex. The articulation of the design extends to the landscaping elements with a stamped boardwalk sidewalk that runs through the facility from the entrance to the aquatics deck, throwback lampposts flanked by wave walls, and starfish shaped benches. The children's splash zone features boardwalk themed water play structures with a lifeguard, surfboards, seabird, and signpost pointing the way to well-known local surfing hotspots.

THE WAVE

Facilities Program and Plan

1. **Reception / Administration**
2. **The Wave Natatorium**
   Swim School
   Lap Swimming / Water Walking
   Water Aerobics
   Natatorium Viewing Room
3. **Community Room**
4. **Outdoor Park Amphitheater**
5. **Splash Zone**
   Interactive water play structure
6. **Slide Tower**
   4 water slides, 2 high-speed slides
7. **Sports Pool**
   Outdoor sports competition and athletic training pool
8. **Future Recreation & Concessions Building**

- B — Boardwalk / Concessions
- C — Cabanas *(rentals)*
- P — Group Picnic Areas *(rentals)*
- L — Lockers *(rentals)*
- M — Pool Operations / Maintenance
- R — Restrooms / Showers
- P — Parking

Revenue Generating Tactics and Economic Benefits

DAHLIN also worked with city staff to design the facility with revenue opportunities in mind. Both the community room and pool deck are designed to host events, which could take place after six when the pool closes to the public.

Amenities, such as firepits on the pool deck, provide a resort-like experience that will appeal to the corporate giants of the San Francisco Bay Area. There will also be picnic and shade rentals, facility rentals, and locker storage fees to provide further opportunities for revenue in addition to year-round swim lessons and water exercise classes offered in the indoor pool.

RESULTS AND FUTURE PLANS

As a result of DAHLIN's design, the Emerald Glen Aquatic & Recreation Complex, a boardwalk-style waterpark anchored by its iconic natatorium with its cutting-edge structural system, will be a regional draw with six water slides, two pools, a water playground for children, and an outdoor park amphitheater. This level of regional presence will expand the revenue potential of the complex in entrance, class, and rental fees and sales tax revenue from visitors patronizing local restaurants and shops. The attention to revenue opportunities during the design process has ensured that the City of Dublin will have a better opportunity to recover a much larger percent of staffing for maintenance and programming costs than most city aquatic complexes can hope to achieve.

It is LEED Gold, and may achieve Gold status depending upon the final construction credits. The sustainability of the design not only ensures a wise use of limited natural resources, such as water, it also will reduce the ongoing operational utility costs associated with the actual structures.

Sustainable Design

On track to reach LEED Gold certification, there are many energy-and water-conserving features to ensure efficient facility operations in addition to the sustainable features achieved below:

- **Solar energy to heat the water in the Natatorium pool**
- **ETFE roof design**
- **High-efficiency LED lighting throughout the facility**
- **Variable speed motors for the pool water circulation equipment**
- **Stormwater filtering system**
- **Drought-tolerant landscaping with a state-of-the-art irrigation system**
- **Low flow fixtures to minimize potable water use**
- **Infrastructure for up to 10 electric vehicle charging stations**

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