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Alive!

Public Works

A Walk in the Park

There's lots to enjoy with
the stunning refurbishment of
Echo Park Lake,
which is now as functional
as it is beautiful.

— See Page 22 —

Near Echo Park Lake is Julie Allen, Sr. Construction Engineer, Public Works, and manager of the Echo Park Lake refurbishment project.

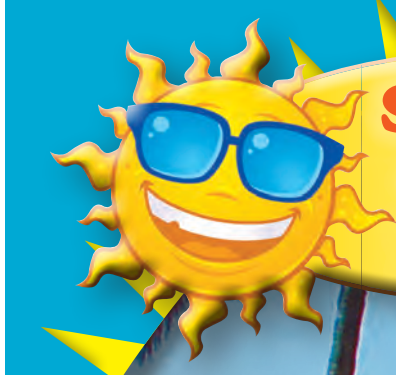
Alive! photo by Tom Hawkins

Summer – in the – City

City Employees Club of Los Angeles
120 West 2nd Street
Los Angeles, CA 90012

Alive! Feature

Summer – in the – City



Echo Park

Public Works

A Walk in the Park Lake

There's lots to enjoy with the stunning refurbishment of Echo Park Lake, which is now as functional as it is beautiful.

Photos by Tom Hawkins, Club photographer; John Burnes, Alive! editor; and courtesy Public Works

The City made headlines more than two years ago when it drained the iconic Echo Park Lake near downtown. The news focused seemingly more on what was found (or not found) at the bottom than for the purpose of the project – to refurbish the lake so that it would function better in LA's water system, and to rejuvenate the surrounding park so that citizens might fully enjoy it again.

The $45 million project, paid with Proposition O funds, is a major success in both regards. Echo Park

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Alive! Feature: A Walk in the Park

Summer – in the – City

Along the Way

The main purpose of the Echo Park Lake refurbishment was to improve its water quality. But the project also focused on beautification.

On June 28, Julie Allen, Sr. Construction Engineer, Public Works, and manager of the Echo Park Lake refurbishment project, took Alive! editor John Burnes on a walk of the now-thriving Echo Park Lake. When you take your walk, here's what to look for.

Echo Park Lake Rehabilitation Project

Details:

Cost
BUDGET: $84.3 million
TOTAL PROJECT COST:
$45 million ($39.3 million under budget)

Funding
PROPOSITION O: $84.3 million
PROPOSITION K: $600,000

Schedule
PREDESIGN/DESIGN/BID & AWARD:
April 2008 – June 2011
CONSTRUCTION:
July 2011 – June 2013

Overview
Project funded by Proposition O, the Clean Water Bond that is helping the City of Los Angeles meet clean water goals. Echo Park Lake is 13 acres in size, and receives storm water from the 770-acre Echo Park-Silver Lake watershed. Echo Park Lake was built in the 1860s as a water supply reservoir. That purpose changed to a detention basin to provide hydraulic relief for the storm drain system. For many years, storm water entering Echo Park Lake was tainted with urban runoff pollution that made in-lake water quality very poor.

Water Quality Improvements
The project's overall objective was to improve in-lake water quality and water that leaves the lake. Water leaving the lake eventually flows into the Los Angeles River near downtown Los Angeles.

Project water quality improvements include:

1. Removal of approximately 40,000 cubic yards of sediment from lake bottom.
2. New lake clay bottom installed to reduce water seepage.
3. Installed two trash separator devices upstream of the lake inlet to remove trash, oil and sediment before storm water enters the lake. Separators are underground at the intersection of Park Avenue and Echo Park Avenue.
4. Constructed four acres of new wetlands. Wetland plants remove nitrogen, phosphorus and other harmful nutrients from the water.
5. Planted 376 Sacred Lotus (Nelumbo nucifera). The lotus plants are blooming once again.

Other special improvements

1. The Lady of the Lake statue was restored to her original location and her hand was repaired.
2. Landscape and park improvements include: lighting, benches, boardwalks, educational signage, porous pavement walking path, rain gardens at lake edge, new landscaping, new grass, a new irrigation system.
3. Approximately 400 existing trees were protected and 150 new trees were planted.

Inlet Structure/New Boardwalk

A major portion of the reconstruction involved the rebuilding of the inlets to include two large hydrodynamic separators, which use gravity and swirl to separate flotsam and trash from the in-rushing storm water. Echo Park Lake is actually a giant reservoir for rain runoff from the Echo Park-Silver Lake watershed. Storm water from the basin is cleaned in the separators before it enters the lake. The new separators, which discharge under the new boardwalk (and interpretive signage) make a huge difference in the cleanliness of the water in the lake.

A brand new outflow structure was also built (not shown here; see the "Before and After" section). This water outlet to the County of Los Angeles storm drain system helps keep the lake at a functional level.

A Walk in the Park

— *Continued from Page 23*

Lake has reopened as a stunning success, in terms of its rebirth as part of the water ecosystem (Clear water! Plant life! Lilies!) and as a park (hundreds of visitors, even on a very warm weekday morning). Stand idle even for a few moments, and a jogger, walker, children's tour, photographer, painter with an easel or a couple walking hand in hand will threaten to run you over. That's how well used the rebuilt park already is.

The new Echo Park Lake is a great place to take your family for an outing this summer, or consider going by yourself for a quiet respite, if you haven't already. For a better idea of what you'll be experiencing, we turned to Julie Allen, Sr. Construction Engineer, Public Works, and manager of the Echo Park Lake refurbishment project. Julie took us on a tour of the handiwork executed by her and all of Public Works. Enjoy!

(*Alive!* featured the rebuilding of the famous Echo Park boathouse in late 2011. As *Alive!* goes to press, Rec and Parks has just re-started boat rentals and concessions out of the Echo Park Lake boathouse. Renting a boat for up to an hour costs $10 for each adult and $5 for teens and kids 17 and under, according to the concessionaire.)

New Growth

The project recreated four acres of wetland cells to reduce the overall nitrogen level in the water, which was inhospitable to plant growth. A UV inhibitor has been added to suppress algae growth. Algae, which feeds off plant food, will also be suppressed when the flora reach maturity and the plant food is reduced.

Each wetland cell (area) is separated underwater by a vinyl sheet wall.

Netting was placed over some of the new vegetation to protect it from migratory waterfowl. Once the vegetation has reached maturity, the netting will be removed.

The Water Lilies

Water lilies were selected for their beauty and ability to remove nutrients from the lake water.

Is it a Water Lily or a Lotus?
The leaves of a Water Lily lie on top of the water; Lotus leaves stand above the water.

The Famous Lotuses

Echo Park Lake was well known as the location of the City's annual Lotus Festival. Unfortunately, all the lotuses had died by 2008. The festival has been suspended for the last three years due to construction. As part of this project, Julie and her crew installed 376 new lotus plants, which bloomed in this, their first year, giving hope to the resurrection of the Lotus Festival next summer.

Retaining Walls and Walkways

New retaining walls of varying styles were installed to provide better separation between the lake and the surrounding topsoil, and to provide a stable and more beautiful setting for the park's many walkways.

The new walkways use porous pavement: Water runoff passes through the crushed aggregate and is channeled to the lake for sustainability and better water management.

The Alive! Interview

'The Water… Was Never Clean Like This'

On June 28, Alive! editor John Burnes sat down with Julie Allen, Sr. Construction Engineer, Public Works, and manager of the Echo Park Lake refurbishment project, 21 years of City service; and Katherine (Katie) Doherty, Civil Engineer Associate III, and Assistant Project Manager, 7 years of City service, to talk about the Echo Park Lake project. The interview took place in a conference room at Public Works/Engineering's headquarters downtown. – Ed.

Alive!: **Julie, thanks for taking us on the tour just a few minutes ago. So tell me a narrative – how did the refurbishment of Echo Park Lake come about?**

JULIE ALLEN: In 2004, the Proposition O Bond Program was approved by the voters of the City of LA, and in 2006, Echo Park Lake was determined to be an impaired water body; it had nitrogen, too much phosphorous and PCBs, and it had lead and copper contamination. It was determined that [these problems] would apply under the Prop O bond program to do a rehabilitation of the lake and improve the water quality.

Who determined that?

JULIE: The State of California.

KATHERINE: Internally, the Dept. of Rec & Parks came up with it, in terms of applying for Prop O funding.

JULIE: The Proposition O Bond Program was passed without specific projects delineated in the bond measure, so at that point they set up a process for different agencies within the City to apply for the funding to do different water quality improvement projects. Generally, Prop O is there for storm water treatment projects or anything that helps clean up the water before it enters the ocean.

And so a lot of these Prop O projects might be underground and might not be all that visible. But this is a pretty visible one.

JULIE: Absolutely. This is one of the two larger projects in the program; the Machado Lake Project is another one. It hasn't gone to construction yet, but they're the two, larger, more visible projects in the program.

Machado Lake, in the Harbor area?

KATHERINE: Yes, in Wilmington.

Katherine what do you think when you got the project or when your team got the project? What's the most important thing you thought you needed to address?

KATHERINE: Well, obviously cleaning up the lake, so cleaning the water before it came into the lake was one of the things that we addressed. Making sure it stays clean while it's in the lake was another thing, and just making sure that we give the community back something that they will be proud of. I think Echo Park Lake was a little deteriorated before we got our hands on it, so I think they are all very proud of it now and trying to keep in clean.

What about you, Julie?

JULIE: Definitely the water quality was the most important component of the project, but you don't want to spend millions of dollars on a project and have it look the same when you're done; you want to be able to get some benefits for the community, something that they can see and visualize.

Did the City agree pretty quickly with Public Works/Engineering, that this was a project worth doing?

JULIE: Absolutely. It was both a water quality benefit as well as the community. The Council Office, Recreation and Parks, who operates the park… everyone was in support of doing this project.

How much maintenance or how much work had been done on the lake, throughout its history?

KATHERINE: It was built in the 1860s as a drinking water reservoir for the City of Los Angeles. Since then, it's transitioned into a storm water reservoir. We don't use it for drinking water anymore. I know that in the 1980s, it was partially dredged and improved for the Olympics; I think they had some boat races there. Other than that, I don't know that any major work had been done on the lake itself until our project came along. They might have added maybe some fish habitat or other little things within the lake, but I think ours is definitely the largest overhaul that it's gotten.

The water that comes into the lake… where does it come from?

KATHERINE: From the Silver Lake and Echo Park watershed; I think it's 770 acres – basically the whole area. Echo Park is the low point, so all of the storm water from that area naturally goes to this point anyway.

So it's every storm drain, every street drain, that comes in that catch basin.

KATHERINE: Exactly.

What major elements were there to this project?

JULIE: The water as it's entering the lake from the storm drain system now travels through newly constructed hydrodynamic separators that remove the trash and debris and sediment out of the water before it enters the lake, so that's on the inflow on the northeast part of the lake. While the lake was drained, we also removed the contaminated sediment out of the bottom of the lake, which improves the water quality. We constructed more than 3,000 feet of concrete retaining walls around the lake edge as well as the riprap slopes and vegetated areas.

We created a berm across the middle of the lake that is submerged so you can't see it. Because the lake was built so long ago in the 1800s, there was no way to determine whether the dam that originally held the lake was built adequately to code, so the new berm provides extra reinforcement. Less water is retained in that dam now, so the submerged berm actually holds the majority of the water behind it.

And what did you make that out of?

JULIE: It was an earthen berm. It has a soil cement covering over it for erosion protection, but it's basically made out of compacted dirt.

We built a new outlet structure, a new pumping system that provides pumps for the recirculation system of the lake, to keep the water flow moving around the lake for water quality benefits; a new aeration facility that provides compressed air throughout the lake to improve the oxygen levels in the lake; a new fountain pump system; four acres of wetlands within the lake that provide water quality benefits by removing the phosphorous and nitrogen out of the water; and about a mile of porous pavement pathways around the lake. We added new landscaping, new irrigation, a rain garden that drains water from the parking lot into a vegetated area so it doesn't drain right into the lake, and about 150 new trees.

Quite a bit, then!

KATHERINE: I guess so!

Cultural Landmark

How important is the lake to the city of LA and the people of LA?

KATHERINE: I think it's pretty important, especially to the Echo Park community. At the grand opening, you could tell; there were probably 1,000 people who showed up that day. They were so excited that it's back. We know that it's been used in films before; I heard that it was used to film some scenes of *Gilligan's Island* and some movies, too. It's a City of Los Angeles historic

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Summer – in the – City

Aeration and Double Fountains

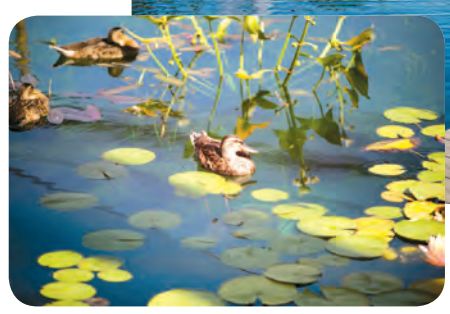
New water pumps were installed to provide better power for the tall fountains, iconic features of the lake that were refurbished. In addition, the pumps are also used to add air (aerate) gently into the lake from under its surface, to increase its level of oxygen. The aeration can be seen bubbling up at various points in the lake.

The Lady of the Lake

Among the lake's most iconic images is this statue, meant to represent the City's patron saint, the Queen of the Angels, but it has long since been known as the Lady of the Lake. The statue spent several recent years on the lake's eastern shore, but for the renovation it has returned to its original location, where it was first placed in 1934.

Water Clarity

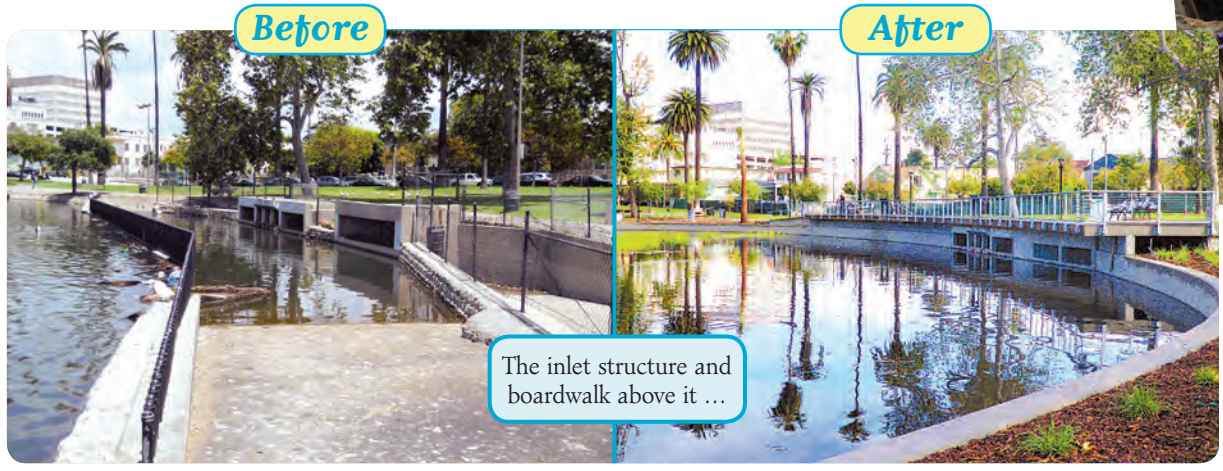
Julie Allen reports that park users often comment on the new clarity of the water. The clarity is a function of most of the new features of the lake – the hydrodynamic separators, the UV inhibitors reducing algae growth, and aeration.



Along the Way

Before and After

Here are images showing some of the work that went into the rehabilitation project. Engineers used a material called Bentonite to protect the lakebed from leakage/seepage.



The inlet structure and boardwalk above it …

Wetland cell 1, with its retaining wall …

photo Martin Cox 2012

This shows the outfall structure under construction. This section gives access to the County of Los Angeles' water system.

The lakebed …

Opening Day!

The City held a grand re-opening party for the community on June 15. Here are a few images from the event.

Thanks, Prop O!

The Echo Park Lake refurbishment project was funded by Proposition O, a funding source to address LA's water needs.

In November 2004, City voters passed Prop O - Clean Water Bond, authorizing $500 million of general obligation bonds for projects to protect public health and the environment by cleaning pollution, including bacteria and trash, in the City's watercourses, rivers, lakes, beaches, and ocean. These projects assist the City in meeting federal Clean Water Act requirements. Proposition O – Clean Water Bond also funds improvements to protect water quality, provide flood protection, increase water conservation, provide habitat protection, and create open space. The bonds allow the City to purchase property and improve municipal properties for projects that:

- Protect rivers, lakes, beaches, and the ocean;
- Conserve and protect drinking water, and other water sources;
- Reduce flooding and use neighborhood parks to decrease polluted runoff; and
- Capture, clean up, and reuse storm water.

Here's a full list of the 33 Proposition O-funded projects:

PROPOSITION O
Completed Projects:

Catch Basin Inserts and Covers (Phases 1 and 2)
Cesar Chavez Groundwater Improvement
Echo Park Lake Rehabilitation
Grand Boulevard Tree Wells
Hansen Dam Wetlands Restoration
Imperial Highway Sunken Median
Inner Cabrillo Beach Bacterial Water Quality Improvement
Los Angeles Zoo Parking Lot
Mar Vista Recreation Center Improvements
Oros Green Street
Peck Park Canyon Enhancement
Penmar Water Quality Improvement Project (Phase 1)
Santa Monica Bay Low-Flow Diversion Upgrades (Packages 1, 2 and 4)
South Los Angeles Wetlands Park
Westminster Dog Park
Westside Park Rainwater Irrigation Project

PROPOSITION O
Projects in Construction Phase:

Albion Dairy Park Land Acquisition, Demolition and Remediation
Catch Basin Opening Screen Covers (Phase 3)
Santa Monica Bay Low-Flow Diversion Upgrade (Coastal Interceptor Relief Sewer – Package 3)
Rosecrans Recreation Center Storm Water Enhancements
Temescal Canyon Park Storm water Enhancements (Phase 1)
Wilmington Drain Rehabilitation
Elmer Avenue Phase II: Elmer Paseo
Glenoaks-Sunland Storm Water Capture

PROPOSITION O
Projects in Planning/Design Phase:

Machado Lake Ecosystem Rehabilitation
Penmar Water Quality Improvement Project (Phase 2)
Strathern Wetlands Park
Taylor Yard River Park Land Acquisition
Temescal Canyon Park Storm Water Enhancements (Phase 2)
Westchester Storm Water Improvement

Things to Do

Echo Park Lake and its surrounding recreation centers offer plenty of options for your summer fun. Here are just a few things you can do:

Echo Park Lake
— 751 Echo Park Ave.

Activities:

- Walking
- Running
- Pedal Boating (rentals only)
- Picnicking
- Biking
- Children's play area
- Photography
- Fishing
- *Note:* Swimming in the lake is *not allowed*. Swimmers should use the nearby rec centers.

Echo Park Recreation Center
— 1632 Bellevue Ave.

Amenities:

- Barbecue pits
- Baseball diamond (lighted)
- Basketball courts (lighted/indoor/outdoor)
- Children's play area
- Indoor gym (without weights)
- Picnic tables
- Seasonal pool (outdoor/unheated)
- Soccer field (lighted)
- Tennis courts (lighted)

Echo Park Deep Pool
— 1419 Colton St.

Amenities/services:

- Year-round pool (indoor, heated)
- Lifeguard training
- Swim lessons
- Water exercise
- Weight training
- Springboard diving teams
- Swim teams

Alive! Feature: A Walk in the Park

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The Alive! Interview


Julie Allen.


Katherine Doherty.

monument. You can really tell that the community appreciates it. The Mayor-Elect [Eric Garcetti] is having his pre-inaugural event there.

Were you surprised when you shut it down, that there so much attention paid to it? Were you expecting that?

JULIE: The community wasn't happy about losing the park, and they wanted us to do the construction as quickly as we possibly could. We had a very accelerated schedule to do all the lake improvements during one dry season so that the storm drain system didn't flood all of the work we were doing in the middle of it. For the amount of work that had to be done, the two-year construction duration was a very accelerated schedule. We left holes in the some of the green fencing around the lake, and there were people always poking in watching the progress. There was a Webcam up on the site. We had a lot of eyes on the project, and a lot of people very anxious to have the park reopened.

Do you think most people were interested because of the usability of the running paths and things like that, more than the technical water filtration?

JULIE: I think that's correct; they were more interested in using the park. But I've noticed in a lot of the blogs and comments they're saying, "The water is so clean; it was never clean like this; it was brown and mucky and full of trash." So even though that maybe wasn't their focus, they've definitely noticed it and appreciated it.

You have to like that; it's nice that someone notices your work like that.

JULIE: Absolutely.

Especially the more complex parts of your work.

JULIE: Right.

Proposition O

Let's talk about Prop O; what it was, what is its benefit, why is it such a good thing, and how were you delivering the results of it back to the City of LA? People might not be familiar with it. They voted for it back in 2004, but they're not aware of all of the amazing things that it's producing. As a civil servant, you're taking the funds and the resources that the citizens give you and you're returning them in beautiful ways.

JULIE: It was a $500 million bond that was approved by the voters overwhelmingly, one of the highest voting approvals of all the bond measures that the City of LA has had. The goal of it was to clean up water quality throughout the City, to improve the water quality in rivers, lakes, and ultimately the ocean. The program consists of multiple different types of projects; some of them take water out of the storm drain system and put it into the sewer system for treatment before it's released to the ocean; they call it low flow diversion programs. Where they take the carwash water or over sprinklering or whatever else ends up in the storm drain when it's not raining, and they take that water and make sure it's treated before it goes directly to the ocean.

We have projects that take water from the storm drain system, hold it in a tank on site during large storm events; these are projects right near the ocean, so instead of it flowing right out to the ocean during a huge storm event, we'll store it in a tank and slowly filter it back into the sewer system. Katie's managing two projects that reuse that storm water for irrigation instead of wasting it, to offset potable water use for irrigation. It'll provide irrigation for parks and golf courses. We also have projects that take water out of the storm drain, treat it, and then filter it back into the storm drain, or use it for subterranean park irrigation. Generally it's a way to take water that is already contaminated from the storm drain system and find a way to treat it or clean it so that ultimately the ocean doesn't receive all the contaminants anymore.

A lot of what Prop O is paying for is infrastructure for the future. Is that safe to say?

JULIE: It's a sustainable system; the goal is to be a long-term. The projects that we're building will stay in place for as long as their useful life is. Maybe we'll need to have some upgrades over time, but generally we're building infrastructure to have continuous, ongoing, permanent improvements to clean the water before it goes into the ocean.

Were we overdue for a lot of water treatment upgrades? Was the City of LA in need of this?

JULIE: Yes. There really is no other system of treating storm water; there was nothing in place. The City and many other municipal agencies have always just found ways to do flood control, so the goal was to get water out to the ocean so it doesn't flood properties. All of the systems have been in place to provide conveyance systems to get storm water to the ocean. This is really the first big program or big push to clean the water before it gets to the ocean, so nothing or very little had really been done in the past because funding just wasn't made available. It wasn't part of any City service to provide treatment for the water, so beaches had been getting bad grades; people were told to stay out of the water after it rained. This was a huge step forward to making that happen.

So Echo Park Lake is not only beautiful, it's functional.

JULIE: Absolutely.

Was the first goal to make it functional and then the second goal to make it beautiful, or was it combination of both?

JULIE: I think functional was the primary goal because the water quality benefits were critical, and that's the Proposition O Bond Program is for – water quality. That's the key thing, but in doing so, we were able to provide aesthetic and recreational benefits, a better fish habitat and a better ecological habitat.

Challenges

What were the special challenges?

JULIE: Well, the sediment at the bottom of the lake was difficult to work with.

Because it was so thick?

JULIE: Yes. It was viscous like pudding. And we had to do all the work before it rained again and ruined all the work that we had done. We had to do it during the dry season because there was nowhere else to store the storm water if it had rained.

Were you surprised by the bottom? Adding that clay-like substance, was that something you improvised?

JULIE: The Bentonite material that we added was part of the design. The challenge that we didn't expect is how long it would take to dry out the sediment, and so we added a material called quicklime. We thought we would need some of it to stabilize the bottom, but we ended up needing more than we thought and more time for mixing it around and aerating it to get it to dry out enough to stabilize it.

Was the lake leaking?

JULIE: There was some water loss out of the lake, over time. There was never an actual measurement of how much, but it appeared that they were adding more water than they thought would be needed for evaporation, so the old lake never had a concrete bottom or anything like that. It likely was seeping; I wouldn't really call it leaking so much as slowly seeping through the bottom that was there before.

Leadership

Are there other cities in the United States following your lead in refurbishing an urban lake?

JULIE: I don't know how common urban lakes are around the country; most lakes you see are in mountain environments. They don't receive a whole lot of urban runoff, so it may be somewhat unique in that respect, but as far as the treatment components and what we're doing to treat the water before it goes into the lake, I think other communities will take notice of it.

Two of the best-known parts of Echo Park Lake are the bridge and the boathouse. Were they parts of this project?

JULIE: The bridge was existing, and all we did was protect it in place, so it was not part of the project other than to make sure we protected it and to make sure it wasn't damaged during construction.

The boathouse was upgraded during this project, but not by this project; it happened to be concurrent, and I think you interviewed Ohaji Abdallah, who was the Project Manager from Public Works/Engineering. Our staff that did the construction management for the Proposition O project also did the construction management for that project; Marlon Calderon was the Construction Manager for both projects at the same time and the construction was done by our General Services Department staff.

What other City departments were involved in this project?

KATHERINE: In this project it was primarily different bureaus within the Department of Public Works – the Bureau of Engineering, the Bureau of Sanitation, the Bureau of Contract Administration. Rec and Parks was certainly involved; we wanted to make sure that we gave them a park that they were able to take care of afterwards.

We got different building permits from Building and Safety, and the DWP has been out on site for the recycled water lines that we put in. There is no recycled water at the site now, but the pipes are fully ready if a recycled line were ever to come to the area. The park is fully prepared to take recycled water for irrigation.

All of our construction was done by a contractor. All of our design was done by a design consultant.

How long will your work continue on this project?

KATHERINE: Our work continues... there are still a couple of little construction things that are being closed out right now, so we're going to work on that. The closeout of the project usually takes about six months, and then we hand it over to Rec and Parks and Sanitation to maintain.

Do you go back and check on it every once in a while?

JULIE: We have a process in place to make sure that all the systems are functioning properly; we work jointly with the Bureau of Sanitation and Rec and Parks to make sure that the water quality treatment systems are functioning property, to make sure we're monitoring the water quality, to make sure that everything we constructed is still functional and to see if we need to do any modifications. That will be an ongoing process for about three years, to make sure everything's working well and that the plants are thriving.

Both of us actually work on the Machado Lake Project. The design is about complete, and we're going to be advertising the project for construction in the next month or two.

Is that about the same size as this?

JULIE: It's larger; this project actually had an $84 million budget total with design and construction, but we're delivering it for far less than that; probably about $45 million, a big savings. We were able to save some costs during design and then we took advantage fortunately of the downturn in economy and got some really good construction bids. We were able to save a lot of money, and so that will be used for doing new projects down the road that can be built with the Proposition O funds.

There's Something About Water

Are you proud of this project?

JULIE: Absolutely. Just seeing the people out there and seeing them enjoy the park and seeing them enjoy how clean the water is; that's very rewarding. Seeing people write about how happy they are to have the beautiful park back and how wonderful it is to the community it's great.

What should people look for when they're looking at the water?

JULIE: Well in the past, it was very murky; it was brownish in color. It had a lot of algae. Some of the contaminants you can't see; the lead and copper that were in there before, you can't see that, so you wouldn't know. But just having more clarity in the water – we're able to take out a lot of the sediment so it's not murky and cloudy, and to have a nice clear bluer color rather than the brown murky color that was there before – that's what we would look for.

Katherine, when you look at the water, what do you think?

KATHERINE: There's certainly less trash now, and I'm not sure if that's because the park hasn't been open for very long or what, but there's certainly less, because we have those hydrodynamic separators. Before the water gets to the lake you can tell that there's a lot less debris in the water, and you can see when you walk around the lake you can see little bubbles coming up in certain places.

We saw them, yes.

KATHERINE: That's our aeration system. It's nice to know that the water's moving around; it's not just sitting there and it's actually got some oxygen being put into it too. You kind of get the feeling that it's cleaner, just by seeing that.

What made you want to do water engineering?

KATHERINE: Water's always been sort of my focus throughout school, and it's always been my interest. I don't know what attracts me to it, but the science behind it is very interesting. Everybody uses it – it's just so much a part of everybody's daily life. I worked in our wastewater section for a while, too, in the sewer system, and I always found it fascinating that we're able to take sewage and treat it and put it out into the ocean and it was completely healthy for the wildlife out there; it's pretty incredible that we are able to do that with something that's, you know, disgusting. It's always been very fascinating to me.

They used to just let it out into the ocean [untreated] and problem solved; nobody ever looked at it after that. But now we have primary and secondary treatment; it even gets sent over for tertiary treatment so that it can be reused for sprinklers and different non-potable uses. Just the fact that technology has advanced so far that we're able to do that, I think is great.

Thank you for your interview and your tour. I appreciate it.

JULIE: We appreciate that you took the time to focus on the story; I think it's a great project. ■

Those Who Made It Happen

These City Employees made the Echo Park Lake rehabilitation project happen:

Council District 13

Alejandra Marroquin, *Lead Field Deputy*
Oliver DelGado, *Support Field Deputy*
Diego de la Garza, *Media Director*

Contractor *(Consultants to the City)*

Sia Daghighian, *President of Ford E.C.*
Arash Daghighian, *Project Manager*

Construction Management

Marlon Calderon, *Public Works/Engineering*
Alvaro Prada, *Public Works/Engineering*
Waleed Azar, *Consultant*

Inspectors

Frank Rinaldi, *Principal Inspector, Public Works/Contract Administration*
Jesse Mitchell, *Lead Inspector, Public Works/Contract Administration*
Eddy Santos, *Inspector, Public Works/Contract Administration*
Pat Graham, Inspector, *Public Works/Contract Administration*
Carl Baker, Inspector, *Public Works/Contract Administration*

Recreation and Parks

Michael Shull, *Assistant General Manager*
Andrea Epstein, *Communications*
Ramon Barajas, *Superintendent of Operations*
Javier Solis, *Sr. Park Maintenance Supervisor*
Mark Jackson, *Park Maintenance Supervisor*

Public Affairs

Henry Ong, *Public Information Director, Public Works*
Jimmy Tokeshi, *Public Information Officer, Public Works*

Sanitation

Adel Hagekhalil, *Assistant Director, Public Works/Sanitation*
Shahram Kharaghani, *Watershed Protection Program Manager*, *Public Works/Sanitation*

Proposition O Team

Ken Redd, *Deputy City Engineer, Public Works*
Kendrick Okuda, *Program Manager, Public Works*
Julie Allen, Project Manager, *Public Works*
Alfred Mata, *former (previous) Project Manager, Public Works*
Katherine Doherty, *Project Engineer, Public Works*