

PRESIDENT'S MESSAGE

Melissa Barbosa, P.E.



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Hello ASCE Members,

Hello Spring!

A Call for Individual and Project Awards Nominations for the San Bernardino and Riverside area is now open! I highly recommend you nominate yourself or your co-worker or one of your projects! Why? Because **I know you are awesome** and I can't wait to here about all the great things you have been doing!!! There are plenty of categories. The Outstanding Achievement Awards application can be found in this newsletter and is online on our New Website.

The Award winners will be announced at the June 21, 2018 Awards Dinner banquet at the Riverside Convention Center.

Individual and project award winners at the Branch level get promoted up to the LA Section for selection, then to the State Level (Region 9), and potentially to National within the same year in a successive trickle up fashion. This provides a great chance for recognition at many levels.



Recently at California Infrastructure Symposium and California (Region 9) Awards Dinner San Bernardino-Riverside was recognized! It was a great event! We were very excited two projects and two Individuals that were awarded at the San Bernardino Riverside local Branch awards in June made it to the State level (Region 9). Congratulations to City of Lake Elsinore for Outstanding Parks and Recreation Project; Riverside County Transportation Commission for 91 freeway in Corona winning Outstanding Transportation Project;

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PRESIDENT'S MESSAGE

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Dr. Jong-Wha Bai, PE, Ph.D, Professor at California Baptist University for Outstanding ASCE Faculty Advisor and Melissa Barbosa, PE for Outstanding ASCE Branch Officer. Congratulations to all the State recipients. Please see the following link for more information. www.caisregion9.org/2018



Good luck to all the PE exam test takers this April! We will have an ASCE membership booth at the Pomona Fairplex on Friday April 13, 2018 to wish you well on your exam. We will be handing out ASCE seat cushions and lending calculators if you forgot one. After the exam, come by Innovation Brew Works at Cal Poly Pomona. We will cheer you up with some delicious food. Everyone is invited.

With a heavy heart, our dear friend and colleague Joy Welling fell in a tragic climbing accident on March 17, 2018. Joy served on our Younger Member Board for two years. She is a Cal Poly Pomona Alumni. She was an amazing, she knew how to light up a room and put smiles on faces. She was a talented violinist, an accomplished engineer and outdoor adventurer. She was kind, compassionate, generous, humble and funny. We had a great time together at the LA WRYMC conference last year. I will definitely miss her! My prayers go out to her family. Roman Ramos a past board member of our SBR YMF wrote a really nice article in our newsletter paying Tribute to Joy.

The Branch's April Luncheon is a joint event with the Institute of Transportation Engineers (ITE) on April 19, 2018 at the Riverside Convention Center. See the flyer within the newsletter for more information.

Cal Poly Pomona ASCE Student Chapter annual golf tournament is April 27, 2018. The tournament is honoring the late Professor Donald Wells who always set very high standards for faculty to student relationships, and CPP ASCE wants to honor his legacy on this day by continuing the annual golf tournament in his name. The proceeds go directly to the Civil Engineering Department's student-run organizations. The Branch supports this tournament and encourages our members to do the same. For more information on the tournament, visit: <https://www.eventbrite.com/e/2018-cal-poly-pomona-asce-4th-annual-donald-g-wells-alumni-golf-tournament-tickets-41054321581>

Save the Dates!

Are you ready for a Sedona Adventure?! We are ready to see some amazing sites in Sedona Arizona. Let's get social/technical with the Arizona Branch and Younger Members in Sedona Arizona the first weekend in May. See the flyer for more information.

The ASCE Legislative Fly in to Sacramento is May 16, 2018. If you are interested in attending please let me know.

Hope to see you at one of the many events we have planned just for YOU!

Cheers,

Melissa Barbosa, P.E., M.ASCE



In Memory to Joy Welling: An Engineer, an Explorer, and a Loving Friend

By Roman Ramos



A Graduation Picture of Joy at Cal Poly Pomona

Joy Welling was more than a civil engineer in training. She was an adventurer, a source of inspiration, a musician, and a natural at everything she set her mind to. She surrounded herself with fellow engineers, adventurers, musicians, health enthusiasts and consistently lived a life full of purpose. She had a calm yet kind personality and was known for having a positive outlook on life. It is uncanny how her name “Joy” fit her so well. Yet as calm and controlled she appears, she is as extreme as they come. A simple look at her Facebook or Instagram page you will find Joy crossing rivers in pursuit to repel canyons and rock climbing the best spots in California and beyond. Furthermore she loved the outdoors, her violin, drinking a good beer, and doing Acro-yoga.

Joy worked for the City of Los Angeles Bureau of Engineering as a Civil Engineering Associate I. She was well on her way to a promising career in Civil Engineering. She graduated from Cal Poly Pomona with a degree in Civil Engineering with an emphasis in Environmental Engineering in 2015.

In college she was a member of the ASCE Cal Poly Pomona Student Chapter and served as an engineering intern for the San Bernardino Valley Water Conservation District. She followed her father’s footsteps, Kent Welling, who also works for the City of Los Angeles as a Civil Engineer. The father and daughter pair often carpooled together to work. In addition to working for the City, Joy also served two years on the ASCE San Bernardino/Riverside Younger Member Forum as the practitioner adviser for Cal Poly Pomona.



The 2016-2017 SB-Riv YMF Board at the WRYMC in Los Angeles

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In Memory to Joy Welling: An Engineer, an Explorer, and a Loving Friend

By Roman Ramos

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If you were to go on an adventure with Joy it will become very apparent how she was the lady in charge. She knew exactly where the climbing routes were, where to set camp, and coordinated with fellow adventurers trying to meet. She was social, loving and a pleasure to be around. The sudden loss of Joy is shocking and tragedy but let's remember and celebrate her life for all the Joy that she brought to everyone she came across. Let's share the same enthusiasm and generosity that she would in our own unique ways. She inspired so many people to adventure and lead by example to be kind, playful, and positive. Joy welling lived a life full of generosity and purpose and will be missed so much by so many people.

Joy and her brother Steven enjoying their love for climbing



Analysis and Repair of the Oroville Dam

In a state that is known for its constant droughts and fires, the February 2017 incident at the Oroville Dam seems almost unbelievable. To recap: when the lake levels rose to high levels due to large amounts of rain, the dam operators released high flows down the spillway, where the spillway suffered significant damage from undermining and erosion. The dam operators then allowed the water over the emergency spillway, which had no hardscape and it too suffered significant erosion damage. The amount of erosion the emergency spillway suffered caused concerns of failure and the possibility of sending a thirty-foot wall of water downstream. This caused the California Department of Water Resources to evacuate downstream residents. For a more detailed account of the incident, check out the Engineer's Column written last year by Jing Yang and Christopher Quach (which you can find [here](#)).



February 15, 2017, Photo Credit: Dale Kolke, DWR

According to the “Oroville Spillway Incident” [report](#), published by an independent forensic team, “The Oroville Dam spillway incident was caused by a long term systemic failure of the California Department of Water Resources (DWR), regulatory, and general industry practices to recognize and address inherent spillway design and construction weaknesses, poor bedrock quality, and deteriorated service spillway conditions. The incident cannot be reasonably ‘blamed’ mainly on one individual, group, or organization”.

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Engineers Column By: Sarah Lunetta, PE

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The fifty-year-old design was not re-evaluated during the fifty-year life of the dam, despite changes to the dam industry and best practices. The independent forensic team states in the report that the DWR needs to develop their dam safety culture, reduce the emphasis placed on short-term operational considerations, and develop the level of technical expertise of its technical staff.

At the time of construction, cracks were observed above and along the underdrains, with high flows through the under drains. This phenomenon was quickly seen as “normal”, despite necessary and repeated repairs. Although the poor foundation conditions at both spillways was well documented in geology reports, these conditions were not addressed in the original design and construction. Overtime, the cracks, with the repairs, led to progressive deterioration of the concrete and corrosion of the steel rebar, with the slabs losing structural strength and anchor capacity.



Removing Debris, Photo Credit: Sacramento Bee

Some of the recommendations the independent forensic team made to the broader dam community include enhancing each organization’s safety culture, periodic comprehensive reviews of the original design, construction, and performance, qualified technical review of dam appurtenances, and recognizing that compliance with regulatory requirements is not enough sufficient to manage risk and meet dam owner’s legal and ethical responsibilities.

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Engineers Column By: Sarah Lunetta, PE

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2009 Repair of Slab Cracks, Photo Cred: Barbara Arrigoni Mercury Register file photo

In the year since the incident, the Department of Water Resources has completed a massive construction project to repair the dam with a design to prevent further spillway failures. The construction project included reconstruction of the slope behind both spillways, a 1,450ft deep secant pile or cut-off wall, and reconstruction of both the main and emergency spillways. The cost of the repair hit \$870 million as of January 2018. Photos detailing the repair are shown below.

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Engineers Column By: Sarah Lunetta, PE

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Repair Progression, Photo Credit: DWR



Secant Pile or Cutoff Wall, Photo Credit: Ken James, DWR

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Engineers Column By: Sarah Lunetta, PE

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Preparation of the foundation rock, Photo Credit: Ken James, DWR

A couple lessons from this incident include not remaining complacent with past designs and, when faced with repeated repairs, to investigate repeated repair maintenance. While this lesson was taught with a dam, this is a lesson surely all engineers can take away from this incident.

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2018 ASCE DC Legislative Fly-in

By Jing Yang, PE

Our ASCE Sb/R YMF Vice-President **Jing Yang, P.E.** was recently selected to participate in the [Legislative Fly-In Program](#) in Washington, D.C. last month in March. She joined others in briefing sessions on key legislation active in Congress and ASCE's legislative priorities. Attendees were trained on lobbying and influencing elected leaders, and had an opportunity to network with ASCE peers from across the nation. With a rigorous two-day schedule, participants got an inside look at the public policy process, to better understand firsthand how policy is crafted. Learn from Jing about her experience on The Hill.

1) Tell us about the Legislative Fly-In Program. What were your key takeaways?

This was my first time participating in events relating to government relations. I thought government relations were something we only watched on CNN, but after being exposed to policy making process so closely, I believe that everyone of us can be involved and should be an advocate for what we believe in. Infrastructure funding is a big deal, so we need to establish and keep the relationships going with our elected officials so our voice will not be buried by ten million other issues.



Picture 1: After speaking with Senator (California) Dianne Feinstein's staff, we took a picture in front of her office with the staff. I am the one in lower left.

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2018 ASCE DC Legislative Fly-in

By Jing Yang, PE

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2) What impact does a program like Legislative Fly-In have on our profession as civil engineers?

I learned that engineers are very well respected by the governors, and a lot of times they do need us to provide them with technical support. After the training program, I felt very comfortable to be assertive when I told the governors that I can provide them the technical support for any infrastructure funding bill that needs to be passed. Therefore, the more of us at that are forming relationships with our governors, the higher the chance for civil engineering to gain attention.



Picture 2: We are with our elected official Pete Aguilar (the U.S. Representative for California's 31st Congressional District – San Bernardino County Area). I am the one on the right.

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2018 ASCE DC Legislative Fly-in

By Jing Yang, PE

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3) Why is it important for professionals like yourself to learn about the process of public policy and be engaged in government relations?

As a professional, we accumulated a great amount of technical knowledge over the years in school and on projects. We ought to use our knowledge to inform the government about the consequences resulting from the discrepancies of our current infrastructure and help in the policy-making process. No one else knows the importance of infrastructure better than us. We should all be engaged in government relations and let our voices be heard.

4) We are solutions-oriented as Civil Engineers. We take on the opportunity to “engineer the greater good”. How can we best put this to practice and apply our expertise and problem-solving approach?

I think all of us are problem solvers, but most importantly, I believe we should take the initiative to approach the people that need help solving a problem. We need to demonstrate our abilities to them and present ourselves as dependable partners.



Picture 3: On our way to meet the governors. Second to the right is ASCE Region 9 governor Kenneth H. Rosenfield. I am the one in white jacket.

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2018 ASCE DC Legislative Fly-in

By Jing Yang, PE

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5) What was the highlight of your trip, both professionally and personally?

Professionally, I added government relations to my skillset. The Fly-In program was very well designed. I received training in policy-making process, listened to several speakers including Derek Kan, who is the Under Secretary of Transportation for Policy, networked with other engineers from across the nation, and discussed civil engineering issues with the elected officials. Additionally, one of my biggest highlights was that I got to ride the exclusive subway system under the Capitol which is only 1000 feet long connecting the Russell Senate Office Building to the Capitol! This little tram is not open to the public, but we were taken on an exclusive ride!



Picture 4: Reception at 101 Constitution Roof Terrace hosted by ASCE



State of California ASCE Awards Ceremony



Congratulations to San Bernardino & Riverside individual and project award winners that won at the CA state level (aka ASCE Region 9)

I had such a great time at the California Infrastructure Symposium and Awards Dinner on March 23, 2018 in San Francisco. From the great water track, the CalWater Fix, and dynamic conversations with awesome leaders in the Civil Engineering profession. Thank you Region 9 for putting on such a great event! - Melissa Barbosa, PE

MAY
4-6
2018



ASCE
LOS ANGELES SECTION
San Bernardino-Riverside
Branch
YOUNGER MEMBER FORUM



ASCE JOINT SEDONA ARIZONA TRIP

[Sign Up](#)

Sedona Adventure!

Let's see some amazing sites in Sedona Arizona together! The San Bernardino-Riverside Branch joint with the Phoenix Arizona Branch & Younger Members are looking forward to exploring everything Sedona has to offer.

When: May 4-6, 2018 (Friday - Sunday)

Events Planned: Saturday May 5 - Wine Tasting Tour at 3 Sites or Hike (Day)
Dinner and Star Gazing Social (Night)
Sunday May 6 - Technical Tour Arcosanti

A community of architects and craftsmen looking at alternative ways of urban sprawl. <http://arcosanti.org>

For more info. please contact: Chet Robinson or Melissa Barbosa

If you are interested we booked one Condo that sleeps 8 at Villas of Sedona.

Once 1st condo is filled please book your own hotel accommodations.

Please Coordinate your own Hotel and Travel arrangements - See you there!

WHEN IT'S
OVER, IT'S
OVER!
DON'T
WORRY.
ASCE YMF
STILL LOVES
YOU.



PE BOOTH, HAPPY HOUR & SOCIAL EVENT

FOR MORE INFO ON HOW TO BECOME AN ASCE MEMBER & TO LEARN MORE ABOUT WHAT YOUNGER MEMBERS (YMF) HAS TO OFFER IN YOUR LOCAL AREA CONTACT:

REMI CANDAELE, PE
LA SECTION YMF CHAIR
RCANDAELE@HUITT-ZOLLARS.COM
949.988.5815, EXT. 11193

LOS ANGELES YMF
ORANGE COUNTY YMF
SAN BERNARDINO-RIVERSIDE YMF
SANTA BARBARA/VENTURA YMF
SOUTHERN SAN JOAQUIN YMF
SAN LUIS OBISPO YMF

VISIT WWW.ASCELASECTION.ORG TO
CONNECT TO ALL OF THE YMF'S

DATE: FRIDAY, APRIL 13, 2018

✓ **MEMBERSHIP BOOTH (PICK UP YOUR ASCE GIFT)**

WHERE: POMONA FAIRPLEX

TIME: 6AM - 8AM & 12PM - 1PM

✓ **POST PE EXAM SOCIAL EVENT**

WHERE: INNOVATION BREW WORKS

**3650 W. TEMPLE AVE
POMONA, CA 91768**

TIME: AFTER THE PE EXAM (5-8PM)

COST: FREE

**WHO: EVERYONE IS INVITED... ESPECIALLY
TEST TAKERS**

[Sign Up](#)

FOR MORE INFO, CONTACT CHRISTOPHER QUACH, SB/R YMF
PRESIDENT AT CQUACH.PE@GMAIL.COM OR (951) 214-3128



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I-15 Express Lanes Project Update

**By David Thomas, P.E.,
Toll Program Manager,
Riverside County Transportation Commission**

Join ASCE and ITE for our joint April luncheon as David Thomas with RCTC presents on the I-15 Express Lanes Project.

RCTC, together with its project partners Caltrans and FHWA, are investing \$471 million to improve Interstate 15. The project will add two express lanes to I-15 in both directions, from Cajalco Road to State Route 60, widen bridges and add soundwalls. This design-build project will be built within the existing median and offer multiple entry and exit points to the express lanes.

Date: Thursday, April 19, 2018

Time: 11:30 am to 1:00 pm

Location: Riverside Convention Center

3637 Fifth Street, Riverside CA

Cost: \$35 ASCE Members w/ RSVP

\$30 Government Employees w/ RSVP

\$25 ASCE Life Members & Students w/ RSVP

\$40 Non-Members / Walk-Ins / No RSVP

****Parking is FREE** in the Main Convention Center Lot (enter at 3rd Street and Main Street)**

Deadline: Please reserve by April 16, 2018

Additional Info: Steven Ledbetter, P.E.

(951) 680-0440

sledbetter@tkeengineering.com

Call to Cal Baptist University and Cal Poly Pomona Students!

The ASCE Younger Member Forums (YMF) of the Los Angeles Section (Los Angeles, Orange County, San Joaquin, **San Bernardino/Riverside**, Santa Barbara/Ventura, and San Luis Obispo) have agreed to sponsor **one college student to attend the 2018 ASCE Convention in Denver, Colorado, held Oct. 12-15, 2018**. The recipient will receive up to \$1000 in reimbursement for the cost of registration, flight, and room (all receipts required). After registering, the recipient will be reimbursed for registration and then receive the rest of the \$1000 on the condition of later submitting flight and room receipts and being required to return all \$1000 if the recipient does not attend the Convention. Attending ASCE's Annual Civil Engineering Conference grants you the opportunity to receive points for your Student Chapter Annual Report, not to mention the opportunity to rub elbows with the world's best and brightest engineers!

Please visit <http://2018.asceconvention.org/> for more details.

Listed below are the general requirements for applicants. The applicant must be:

Enrolled in an accredited university (provide proof of enrollment for Fall 2018)

Majoring in Civil Engineering or a related field

An active member of an ASCE Student Chapter

The recipient will be selected based on the following criteria:

50% Written Essay

40% ASCE Involvement

10% Attention to Detail

Essays will be judged for originality, content, structure, and grammar.

Essay question: The 2028 Olympics will bring a large volume of people to Los Angeles. In preparation, how can we best modernize infrastructure in a sustainable way?

Apply
NO LATER than Monday, April 30, 2018

Hike to Mount Baldy (Advanced Hikers Only)

April 29, 2018

For April, we are going to get out of the city and go deeper into the San Gabriel Mountains (and near the eastern LA County border) to Mount San Antonio (Mt Baldy) Loop. This 11 mile Mt Baldy hike brings you to the highest point in LA at 10,064 feet. With about 4000 feet of climbing, it's a tough yet popular hike, and well worth the effort. You can see from the Pacific to the Mojave on a clear day. Be sure to come prepared and ready for a strenuous hike.

This is NOT for beginners.

April 29, 2018 at 7:00am

Mt Baldy Trailhead, 901-993 Falls Rd, Mt Baldy, CA 91759, USA

<https://www.mlab-ymf.org/events/hike-to-mount-baldy-advanced-hikers-only>

Annual Joint LA Section Camping Trip

Jun 22, Fri

Santa Cruz Island

Jun 22 - 24, 2018 at 8:00am - 4:30pm

Santa Cruz Island, Santa Cruz Island, California 93001, USA

Join the LA Section Joint YMF Annual Camping Trip to Santa Cruz Island! Get a unique experience to camp on one of the California Channel Islands and enjoy the peacefulness of the starry nights, beach days, and overall socializing with all the different YMFs!

[http://events.r20.constantcontact.com/register/event?
oeidk=a07ef627y42949913e2&llr=geh6ppmab](http://events.r20.constantcontact.com/register/event?oeidk=a07ef627y42949913e2&llr=geh6ppmab)

ASCE SB/R YMF TECHNICAL TOUR

FRIDAY — APRIL 13, 2018

7:45 AM — 10:00 AM

**LOCATION: LOMA LINDA UNIVERSITY
CHILDREN'S HOSPITAL
11234 ANDERSON ST
LOMA LINDA, CA 92354**



Loma Linda University Hospital - The first tower in the US seismically designed for both horizontal and vertical movement! Loma Linda Health, JTech HCM, and ARUP will be presenting on & conducting a technical tour of the new \$1.4B hospital construction project and the brand new pedestrian bridge connecting the hospital to the parking garage.

For any question contact Eric Aubry: Eric.Aubry@hdrinc.com
SB-Riv YMF Technical Tour Advisor

REGISTER NOW

ASCE
LOS ANGELES SECTION
San Bernardino-Riverside
Branch
YOUNGER MEMBER FORUM

ASCE SBR CANDIDATE AWARDS NOMINATIONS FORM

These awards recognize individuals who best exemplify the civil engineering profession. The nominees shall be worthy of acknowledgement through their exemplary professional conduct, reputation, achievement, and contribution to the image of the civil engineer.

Candidates will be evaluated based on the following criteria:

- education and professional qualifications,
- degrees held,
- projects completed,
- patents, publications, presentations, and teachings,
- society affiliations, and offices held,
- leadership skills, and professional conduct,
- reputation of service, character, and integrity,
- contribution to the image of the civil engineer through community service, volunteer work, and public education,
- honors and awards.

Each nominee must be an ASCE National member and a member of the San Bernardino & Riverside Counties Branch. The nominee must work and/or reside within the boundaries of the Branch for a minimum of 18 months prior to the award.

All applications for the candidate awards shall include the following: completed award program entry form, description of how the individual meets the above listed criteria, resume or biography (one-page limit), at least two color photographs of the candidate, copies of newspaper or journal articles and other supporting information, if applicable.

Nominations Due by May 11, 2018

Award Winners Notified by May 25, 2018

Awards Banquet on June 21, 2018

For Questions Contact: Steven Ledbetter, Past-President, 951.680.0440 or

sledbetter@tkeengineering.com

[Candidate Award Nomination Form and Additional Information](#)

ASCE SBR PROJECT AWARDS NOMINATIONS FORM

These awards recognize the engineering efforts of both government organizations and private sector consultants in the completion of outstanding civil engineering projects. This award is intended to recognize projects that further advance the field of civil engineering through innovative concepts, research, and materials. Some of the criteria that can be used may include innovative approaches to funding, the use of advanced technologies and materials, and the immensity of the project.

Projects will be evaluated based on the following criteria:

- innovative design and/or construction benefit to the community,
- project complexity and/or challenges,
- impact on physical environment,
- unique operation or maintenance, and
- aesthetics.

Any civil engineering project currently in use and completed within the previous 18 months is eligible. The project must be located within the boundaries of the San Bernardino & Riverside Counties Branch.

All applications for the Project Awards shall include the following: Project Category, Name of Project, Project Location (Must be within San Bernardino & Riverside Counties), Project Description, Justify how this Project stands out among others and why its worthy of an award, Special relationships generated, obstacles overcome, and accolades received, Name and email address of all persons or teams involved, Provide additional information and any other documentation you feel will benefit the Review Committee's understanding of the details of your Project, Project Owner Information, Project Engineer of Record, Any clarifying information you desire the Committee to review, Project Photos (Limited to 5), and Project Sponsor Information.

Nominations Due by May 11, 2018

Award Winners Notified by May 25, 2018

Awards Banquet on June 21, 2018

For Questions Contact: Steven Ledbetter, Past-President, 951.680.0440 or sledbetter@tkeengineering.com

[Project Award Nomination Form and Additional Information](#)

ASCE SB/R Branch and YMF Scholarship Application 2018

The American Society of Civil Engineers San Bernardino-Riverside Counties Branch and the Younger Member Forum (YMF) are offering the following scholarships and award to California State Polytechnic University, Pomona (CPP) and California Baptist University (CBU) civil engineering students for the 2018-2019 academic year:

one (1) \$2,000 scholarship,
two (2) \$1,000 scholarships,
one (1) \$500 scholarship and,
one (1) \$500 scholarship for "Outstanding Freshman"

The scholarships will be awarded to the recipients during the San Bernardino-Riverside Counties Branch Awards Luncheon/Dinner in June 2018. The actual amount of the award will be given as a check to the recipients after proof of enrollment for the upcoming Quarter/Semester is provided to the Branch/YMF Treasurer.

The application must be received electronically by Monday, May 7, 2018 at 11:59PM to be considered. Application questions if any are to be emailed to ASCE SB/R YMF

Board Member Jannet Loera at jannetloegtz@gmail.com.

Scholarship Nomination Form and Additional Information

MODERNIZING THE SYSTEM: CALIFORNIA WATERFIX – STAGED PROJECT IMPLEMENTATION

Overview

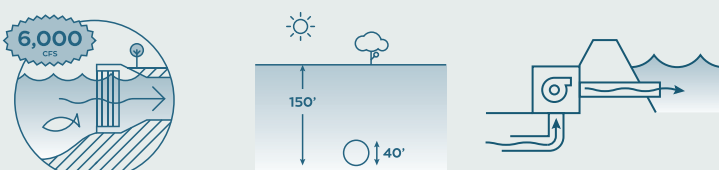
About 30 percent of the water that is used by Southern California homes and businesses flows through the Sacramento-San Joaquin Delta.

But aging infrastructure and the declining health of the Delta ecosystem threaten the reliable delivery of water supplies to Southern California and much of the state.

California WaterFix will improve the state's water system by constructing new, state-of-the-art facilities that can secure more reliable water supplies, improve water quality, respond to climate change risks and improve Delta ecosystem conditions.

Infrastructure Upgrades

STAGE ONE




Two new intakes, each with a capacity of 3,000 cfs, located on the Sacramento River, closer to high quality water and away from critical habitats.

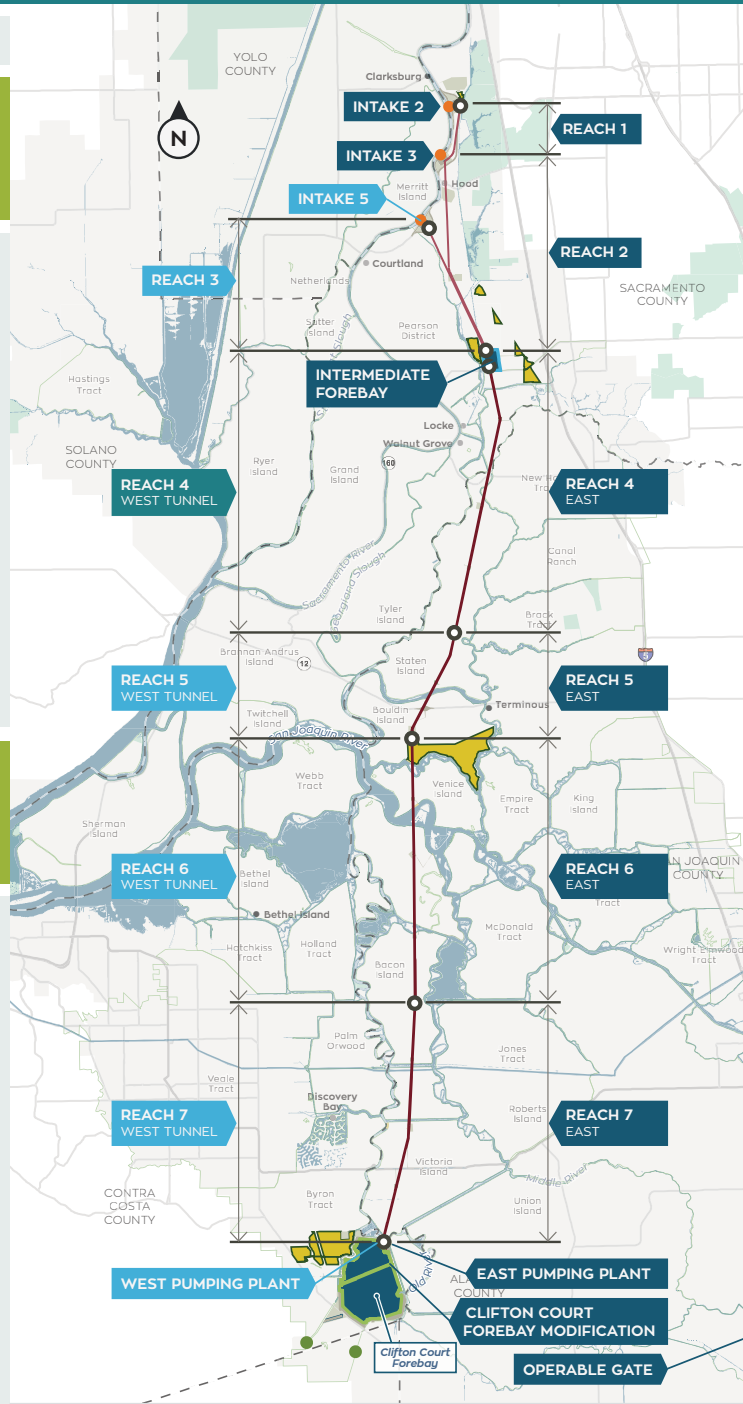
One main tunnel up to 150' below ground designed to protect California's water supplies from sea level rise, earthquakes, floods and levee failure.

A pumping plant to lift water into Clifton Court Forebay.

STAGE TWO



Addition of one new intake with a capacity of 3,000 cfs, a second main tunnel, and a second pumping plant.



MAP LEGEND

Stage One	Clifton Court Forebay	Tunnel Shaft	Operable Gate
Stage	Reusable Tunnel Material Area	Intake	County Lines
Forebay Overflow	Tunnel Route	Existing CVP and SWP pumps	

Staged Project Implementation Plan



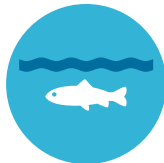
Metropolitan and other State Water Project contractors have expressed their support for the project. However, the majority of federal Central Valley Project contractors and U.S. Bureau of Reclamation officials have informed the state there are issues to be resolved before they can make a commitment to participate in the project.

The Brown Administration plans to implement construction of California WaterFix in stages, if necessary. The State Water Project contractors and Central Valley Project contractors that are prepared to invest at this time will proceed with the first stage to build two intake facilities and one tunnel. A third intake and second tunnel would follow in a later stage to eventually bring the project to its full capacity.

Project Benefits



SEISMIC RESILIENCY



PROTECT FISH



CLIMATE ADAPTATION



WATER RELIABILITY



RESTORE NATURAL FLOW PATTERNS



IMPROVED WATER QUALITY

Implementation Plan

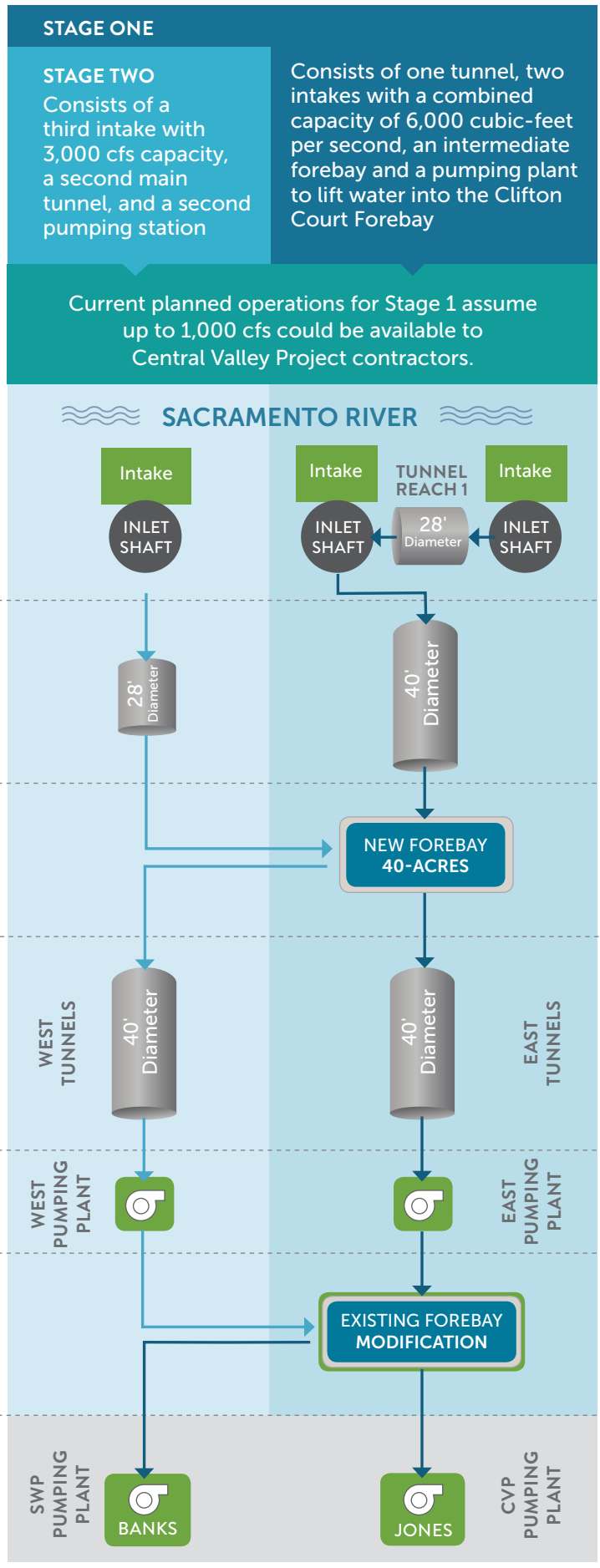


Chart courtesy CA Dept. of Water Resources

Project Cost



The estimated cost for the construction of Stage One is \$11.1 billion, about two-thirds the cost of the full project.

CAPITAL COSTS		
	FULL PROJECT	STAGE ONE
Environmental Mitigation	\$ 401 M	\$ 377 M
Conveyance System	\$ 16.33 B	\$ 10.7 B
Overall Cost	\$ 16.7 B	\$ 11.1 B

ANNUAL COSTS (CAPITAL AND O&M)	
State Water Project Share	\$526 M
Metropolitan Share	\$249 M
Metropolitan Rate Impact	1.1% ANNUAL INCREASE (over 15 years)

Anticipated cost increases for California WaterFix have been incorporated into Metropolitan's 10-year financial forecast. Annual costs reflect maximum share for the State Water Project and Metropolitan.



Approximate average household cost of California WaterFix within the MWD Service Area

STAGED PROJECT
LESS THAN **\$2.40**
PER MONTH

Assumes 4% interest rate, based on 6.2 million households and residential sector paying 70 percent of costs.

Metropolitan's Investment



Last fall, Metropolitan's Board of Directors voted by a 3-1 margin to support its 26% share of the full \$16.7 billion project representing an investment of \$4.3 billion. The estimated household impact was \$1.90 per month.

Metropolitan's estimated share of the first stage of the project is up to 47% or \$5.2 billion, with an approximate average increase in household cost in Metropolitan's service area of \$2.40 or less per month, depending on the level of participation by CVP contractors.

The increased investment for Metropolitan results in additional water supply benefits, estimated at about 70,000 acre-feet on average, enough for about 200,000 homes for a year.



SECURING CLEAN WATER SUPPLIES

STAGE ONE **4.76 MILLION**

ACRE-FEET ON AVERAGE ANNUALLY

Enough to supply more than 11 million households with water for one year

Staged Project Overview



	April 2018 Proposed MWD Board Action
Capacity	1 tunnel, 6,000 cubic-feet/second
Participant Composition	Full participation by SWP and some CVP contractors
Total Project Cost Percent/Cost of MWD Share	\$11.1 billion Up to 47% = \$5.2 billion or less, depending on the level of participation by CVP contractors
Additional Water Supply Reliability for MWD	~ 70,000 acre-feet (est.)

Next Steps



Metropolitan's Board of Directors will be asked to express support to participate in the first stage of California WaterFix, authorize the General Manager to form the Joint Powers Authority for the design and construction of the project, negotiate water transfer agreements, and appropriate funding for the study, review, planning and other preconstruction capital costs.

The state will finalize work on the remaining permits and complete a supplemental environmental review so that work can begin on the project.

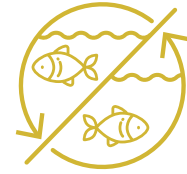
State and federal agencies will continue negotiations with CVP contractors to advance the second stage and complete the full 9,000-cfs twin tunnel project.

ABOUT METROPOLITAN

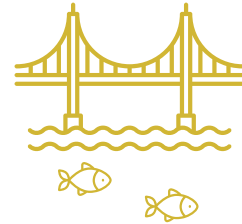
The Metropolitan Water District of Southern California is a state-established cooperative of 26 member agencies – cities and public water agencies – that serve nearly 19 million people in six counties. Metropolitan imports water from the Colorado River and Northern California to supplement local supplies and helps its members develop increased water conservation, recycling, storage and other resource management programs.

4/4/18

OPERATIONAL AND ENVIRONMENTAL BENEFITS



Reinstate a more natural direction of river flows in the south Delta, minimizing reverse flows.



Protect against saltwater intrusion.



Safeguard against vulnerabilities that threaten water reliability such as earthquake risk and climate change.

OUR MISSION

The mission of the Metropolitan Water District of Southern California is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.



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ASCE San Bernardino Riverside Board of Directors

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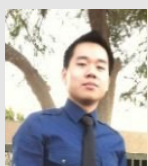
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WEBSANBRIBRA

Employment Opportunities

Be sure to check out the career opportunities at ASCE's Career page at <http://asce-sbriv.org/job-dashboard/careers/>

Calendar of Upcoming ASCE Events

April 13, 2018	PE Booth, Happy Hour & Social Event, Pomona Fairplex
April 13, 2018	ASCE SB/R YMF Technical Tour, Loma Linda University Children's Hospital
April 19, 2018	ASCE SBR Branch Luncheon—I-15 Express Lanes Project Update, Riverside Convention Center
April 29, 2018	Hike to Mount Baldy (Advanced Hikers Only)
May 4-6, 2018	SCE Joint Sedona Arizona Trip
June 22, 2018	LA Section Joint YMF Annual Camping Trip
	ASCE SB/R Candidate, Project, and Scholarship Nominations due by May 11
	College Student Attendance Application for the 2018 ASCE Convention: No Later than Monday, April 30, 2018

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Types of Membership and Annual Dues (National)

Students: FREE

Associate Member: \$50 per year of Baccalaureate degree and first year after, then incremental increases to \$225 over five years.

Member: \$225

Affiliate: \$225

Section (Branch) Dues: \$55

National ASCE student membership is now FREE! Those who have chapters or clubs still must be a member of them before joining National. Log onto <http://www.asce.org/join/> fill out the short application or call 1-800-548-ASCE (2723) and instantly become a member of ASCE.

Online membership renewal is available! Go to <http://www.asce.org/membership-communities/> You will need your membership number. All payments must be made with a major credit card. An e-receipt is transmitted to the member upon completion of the transaction.

Newsletter Information

Publisher:

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Identification Statement:

ASCE San Bernardino - Riverside Counties Branch

Newsletter is published monthly.

Subscription Rate: \$55 (included in section dues)

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Professional Directory: \$250 per business card (10 issues)

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