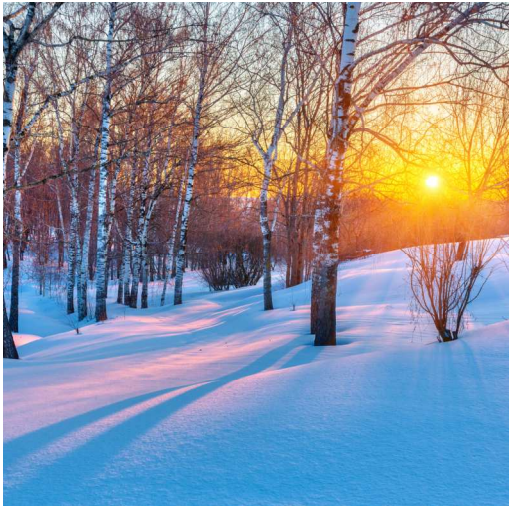


# CIVIL SOURCE

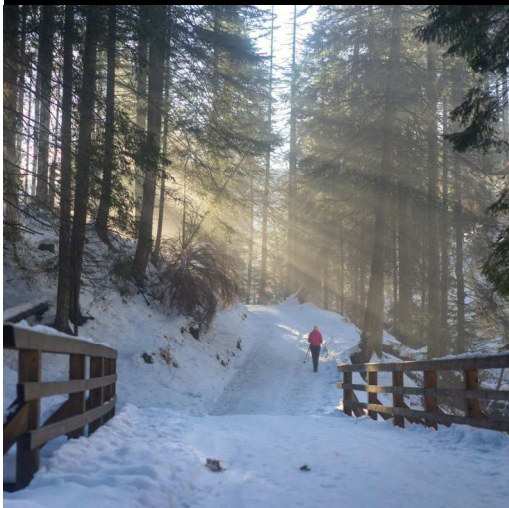
## ASCE UTAH SECTION NEWSLETTER

JANUARY 2022 · ISSUE 1 · VOLUME 4



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### PRESIDENT'S MESSAGE

by Mark Chandler, PE, PG, CFM

Welcome to the new year everyone. 2021 went by really fast for many of us. I hope with the new year we all had some time over the holidays to put catch our breath and get our feet under us. As part of that effort, many people set goals or resolutions, and if you are among them, then that is awesome. I hope that for each of us, in an industry and profession that places so much on experience, some of those goals include our own professional development and learning. I have written many times before about the need for continuing education, and our licensure requires it.

What does all of this have to do with ASCE? Well, there are so many opportunities to fast track our growth, make an impact in the community and our profession, and help others to continue their own growth. As we continue to look for opportunities to grow and improve, there are a number of resources that are available to you thanks to your membership in this Society. There are continuing education classes that count towards your continuing ed requirements. There are committees for several different groups from community giving, to a state infrastructure report card, to our institutes. Each of these groups offer unique opportunities to lead, to develop communication and teamwork skills, to offer insights into the workings of our industry that cannot be had any other way. You can be quickly plugged into a setting where you can interact with other engineers from all over the state, region and even the nation.

These opportunities are open for all members of ASCE. Even beyond the opportunities listed are the leadership opportunities to be involved in your local branch board, or at the section or region level. The State of Utah has a rich heritage and history of ASCE involvement at high levels including several societal presidents. Involvement in ASCE groups can take some time from our already busy schedules, but the value of the training far outweighs those sacrifices. This is typically for two reasons. First, I learn new things that help me be a better engineer. Second, I almost always get to know other great engineers that strengthen my network and my ability to serve those I work with. The relationships I have made in serving in various positions continue to be a benefit to me long after those positions have been left behind. I hope you will all take full advantage of the benefits of your membership and encourage others to join to receive those same benefits. The more of us participate, the stronger we all become. Happy New Year!!



# TECHNICAL ARTICLE: PROVO CITY'S WEST SIDE LEVEE PLAN STUDY

by Mitchell Smith, EIT

In 1983 and 1984, the United States Army Corps of Engineers (USACE) constructed improvements on what had previously been smaller levees along the lower Provo River and Utah Lake as an emergency measure to mitigate historic flooding along the Provo river and Utah lake. Currently those levees are shown providing 1%-annual-chance flood protection to approximately 4 square miles of Provo west of I-15, including the Provo Airport which is currently constructing a new four gate terminal set to open in summer of 2022. The FEMA Flood Insurance Rate Maps (FIRMs) for the area are to be updated and will no longer show base flood protection by the levees due to lack of required documentation for levee certification. FEMA's action could add hundreds of existing residential, civic and commercial structures to the FEMA floodplain.

The Provo levee system consists of lakeside and riverside levees. The lakeside levee is 5-½ miles in length and acts as a flood protection barrier to Utah Lake and Provo Bay waters. The Provo River levee system follows along the north and south sides of the Provo River from I-15 to Lakeshore Drive and provide flood protection to residential areas adjacent to the river.

Provo City and a team with CRS Engineers partnered to study the levees and to develop plan alternatives for Provo's City Council to consider. Our report documented the existing conditions of the levees; presented alternatives for rehabilitating the levees for accreditation; and created recommendations for moving forward with a preferred alternative.

The project team performed an assessment of the existing levees to evaluate whether the levee system meets the requirements of 44 CFR §65.10 – Mapping of Areas Protected by Levee Systems and to document any deficiencies that exist. Deficiencies in Freeboard, Closures, Embankment Protection and Stability, Interior Drainage, Vegetation Management and Right-of Way Encroachment were identified for both the riverside and lakeside levees that render the levees not certifiable in their current state. Since the levees are not certifiable in their present condition, a rehabilitation project would be necessary to change the FEMA floodplain mapping and insurance requirements for the west part of the City.

Many levee embankment options were considered including sheet piles, secant piles, cutoff walls, inverted T-walls, box culverts, reconstruction in place, and setback levees. Due to cost considerations, environmental and community impacts as well as construction risks, the preferred alternative for levee certification would be a traditional earthen embankment, constructed either in-situ or relocated behind the existing levee. An inverted T-wall may also be a viable alternative in areas where it is desirable to reduce the width of the levee cross section and settlement risks are low such as along segments of the riverside levees. A proposed certifiable embankment cross section was developed with landside side-slopes of 2:1 and waterside side-slopes of 3:1. The height would be set at three feet above the 1% annual-chance water surface elevation (WSE) with a crest that is 12 feet wide.

A Benefit-Cost Analysis (BCA) was created to compare the various reconstruction alternatives. It compared the cost of flood insurance and potential flood damages against the cost to construct and rehabilitate the levees. The results of the concept -level BCA is a Benefit-Cost Ratio (BCR) greater than 1.0 for all three alternatives. The benefits of avoiding private flood insurance costs and gaining property protection outweigh the public cost amount for levee improvements based on the preliminary analysis and engineering performed.

Three levee rehabilitation alternatives were compared with respect to the major criteria important to Provo City: Affordability, Flood risk protection/FEMA certifiability, Environmental, Recreational Quality and Minimization of private property acquisition. Ultimately the alternative that balanced setback distances from the river and property acquisition was recommended over options that held extremes for those mentioned criteria. However, it may be discovered later that environmental permitting constraints could cause larger setbacks to be more feasible.

The full report and study were present to the Provo City council, who directed the team to gather more information and possibly reevaluate the hydraulic analysis that determined the flood discharges that lead to the proposed FEMA FIRMs. The project is on-going.

## REFERENCES

1. Bowen Collins & Associates. Provo City Storm Drain Master Plan. January 2019.
2. Gerhart Cole. Technical Memorandum: Provo City West Side Levees Geotechnical Engineering Evaluation, Job No. 20-1278. December 11, 2020.
3. Provo City, 2009. Utah Lake Dike, Brief History. January 29. 4 pp.
4. United States Army Corps of Engineers (USACE), 1983. News Release. Sacramento District. April 18. 3 pp.
5. United States Army Corps of Engineers (USACE). Levee Owner's Manual for Non-Federal Flood Control Works: The Rehabilitation and Inspection Program, Public Law 84-99. March 2006.
6. United States Army Corps of Engineers (USACE). EP 1110-2-18: Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures. May 1, 2019.
7. State Stream Alteration Program Fact Sheet SA-1, Second Edition. Utah Division of Water Rights.
8. Provo River LAMP Study, Utah County, UT by AECOM for FEMA, July 11, 2019



# YOUNGER MEMBER FORUM

by Taylor Q. Hall, PE

The YMF chapter is working on putting together the PE review courses for the Spring. We are working with the University of Utah ASCE Student Chapter next week with their resume workshop. Be on the lookout for tiptop resumes to hit the industry soon. In addition, we have the following national events going on.

## January

### **ASCE Younger Members Week – Virtual but Connected**

**January 24-28, 2022 /Save the dates!**

*Hosted by the Committee on Student Members; Elyssa Dixon P.E., M.ASCE, Chair and Jose Aguilar, P.E., M.ASCE Past Chair*

Last year was the first ever YM Week and it was a big hit! January's daily programming will bring new sessions, new speakers, and more time to network. Start times will vary per day to accommodate all regions. Students and Younger Members are encouraged to attend. Registration will open soon. Watch for announcements.

## February

### **Virtual Multi-regional Leadership Conference (Virtual MRLC)**

**February 9-11, 2022**

*Hosted by the Leader Training Committee; Aaron Frits, P.E., M.ASCE Chair, and Melissa Wheeler Black, M.ASCE, Vice Chair/ MRLC Lead*

This virtual conference, held in person most years, but virtually during the pandemic, includes sessions on ASCE resources, leadership training and ethics, discussions of best practices, as well as networking opportunities with your peers and Society Leaders. The virtual format will enable ASCE leaders again this year to meet safely and engage with a much larger audience than we would at an in-person MRLC, with leaders from all Regions, Sections, Branches, Institute Chapters, Younger Member Groups, and Student Chapters. There is something here for everyone!

Please use this link to register for the event: [2022 Multi-Region Leadership Conference Registration](#). This Collaborate event page will include everything you need to know to attend the event, including:

- Zoom link for the sessions on all 3 days
- Event Agenda (please note that the agenda will be updated, so be sure to check it as we get closer to the event)
- Information about applying for a Foundation Grant
- Information about a Pre-College outreach special event (please note that this will be updated as we get closer to the event)

Once you register, you will be added as a member to the MRLC community page, where we'll be posting updates as we get closer to the event and you can ask questions as well: [2022 Multi-Region Leadership Community Page](#)

Due to the MRLC conference being moved to virtual this year, we will be moving our in person WRYMC event to July, 2022. This event will be hosted in Park City and will be hosted in conjunction with CYM.

### **Doubletree by Hilton Park City - The Yarrow!**

Dates: July 8-10, 2022

More information will follow for the WRYMC event.

## **CENTRAL UTAH BRANCH**

By: Mitchell Smith, EIT

The Central Utah Branch did not meet in December; Hope everyone had an enjoyable and healthy holiday season. Our January luncheon has been moved to virtual only. It will be at 12pm on Thursday the 20th hosted thru Microsoft Teams. Brad Clawson from ClowardH2O will present on their unique projects around the world.

For future luncheons, if any members of the branch would like the opportunity to present one of their projects, or would like to recommend a friend to present, please reach out to me, mitsmith@provo.org. Thanks.

We are looking forward to February's Engineering Week events with UVU and BYU. Our liaisons to our student chapters are Ben Willardson for UVU (ben.willardson@uvu.edu) and Shaun Hilton for BYU (shaun@cuwcd.com).

The Central Utah Branch partnered with the Utah Food Bank to host a virtual food drive through the holidays. Across both years we were able to donate \$1630. All donations were greatly appreciated.



## **WASATCH FRONT BRANCH**

By Britton Tveten, PE

Wasatch Front Branch will be having Michael Smith come speak to us on January 21 with a Legislative Update at Westech Engineering. We also have two E-week activities planned to present to the 5th graders at Escalante Elementary and Parkview Elementary schools. We are looking forward to a great new year with some prospective tours and great speakers.

## **UTAH GEO-INSTITUTE (G-I) CHAPTER**

by Brian Peterson, PE & Ryan Maw, PE

As we settle into the new year, we wanted to share the following update:

The Omicron variant has disrupted our plans to hold an event at the beginning of the year, but we look forward to the opportunity to gather with our members in the near future. We are currently working on plans for events in the spring, and will provide an update as soon as the evolving Covid situation is more clear.

We would like to ask our members to let us know of topics or upcoming events of interest as we plan for 2022. Thanks again for your continued support.

## SOUTHERN UTAH BRANCH

By: Clinton Merrell, PE, CFM

I hope everyone had a safe and happy Thanksgiving, Christmas and New Years! We held our Southern Utah Branch Annual Christmas Banquet on December 7th and had a great turn out. We had around 40 people in attendance which is almost double our usual attendance. We challenged each other's knowledge of Christmas trivia. Kelvin Smith (Civil Science) took home the grand prize of a \$50 gift card to Texas Roadhouse for coming out on top of our trivia game. Everyone participated in the game and took home a gift from the branch. We had good food and better company.

Our next luncheon will be on January 25th at noon at the new Ivins City Hall. Tom Jorgensen (Ivins City Assistant Public Works Director) will present on the design and construction of the new building and give us a tour of the new facility.

We are planning on holding our annual joint conference with Southern Utah branch of APWA. Attendance will be in person this year. The conference is tentatively scheduled for March 9, 10 and 11 at the St. George Courtyard Marriott. We will have presentations on the 9th and 10th, and then our annual golf tournament (Copper Rock) and pickleball tournament (Little Valley Courts) on the 2nd. If you want to present, please reach out to me at [asce.southern.utah@gmail.com](mailto:asce.southern.utah@gmail.com). We will send out more details through our typical luncheon mailing list. If you don't usually get those emails and want to be added to that mailing list, email us at the same address.



## SEI UPDATE

By: Conrad Guymon, PE, SE

There are a few SEI Events to add to your calendars and new publications coming. Most significantly, ASCE 7-22 is scheduled for release in December 2021. Updates include relying on digital data for most of tJoin us at Structures Congress 2022 in Atlanta! There's something for everyone from our keynote speakers, six special sessions, and a robust technical program. Register and learn more today. <https://www.structurescongress.org/registration>

A new version of ASCE 7 is available. Learn more about the updates through the ASCE standards series. The first session is on February 10th and is free with your ASCE membership. Register here. <https://collaborate.asce.org/integratedstructures/sei-standards>

# BUILDING THE NEXT GENERATION OF CIVIL ENGINEERING JOBS

## ASCE CAREER CONNECTIONS

President Biden recently signed the Infrastructure Investment and Jobs Act into law and this five-year, \$1.2 trillion package marks the country's largest investment in infrastructure in nearly a century. It is certainly good news for the U.S. civil engineering industry – skilled workers will be needed to complete the many projects across the country that are sure to follow.

People who are looking to be part of that jobs boom – whether as an employer strengthening their teams or a jobseeker searching for a new role – need to have exposure to where the top candidates are applying, or those who want to get access to the best opportunities in the civil engineering sector.

Introducing ASCE Career Connections: the one hub that has it all for employers and jobseekers alike.

With its top-quality career center, the ASCE will be the lifelong career partner of its members, connecting them with their next career move and fostering real loyalty. Career Connections goes beyond jobs and truly become a full-career service, enabling its audience to gain even more value from their membership to the association.

Career Connections offers a range of powerful features that offer a solid job-seeking experience.

Candidates can search for jobs in specific specialties, such as Architectural Engineering, Construction Engineering, Environmental Engineering to name but a few. Regions or cities can be selected to highlight jobs in those locations. Featured employers are front and center.

Need to drill down (pun intended) even more? Refine the job search to type of position, contract or organization. A job alert can then be created to e-mail those to interested people as they are posted so candidates never miss their next potential opportunity.

People can search for specific employers and also read about the civil engineering industry and related topics via well-researched articles, reports, webinars and other content in the Career Resources section.

ASCE Career Connections has all this in one place, so you'll never need to use another job-seeking resource again. The insight, knowledge, expertise and – more importantly, jobs – are all in one online destination, 24/7 on any connected device.

It's like having a personal recruitment consultant in your pocket. A blueprint for your career in civil engineering. So, get in there early and stand out from your competition. Visit ASCE Career Connections today and find your next opportunity or candidate in the civil engineering industry.



**Region Governor Activities**

**GOVERNORS 7**

**9** REGION 8 BOARD COMMITTEES

- AWARDS
- NOMINATIONS
- SOCIAL
- STUDENT
- COMMUNICATIONS
- FINANCE
- MEMBERSHIP
- CANADA OUTREACH
- CONFERENCES

<https://regions.asce.org/region8/>

**2** REGION BOARD FACE TO FACE MEETINGS  
 REGION 8 BOARD TELECONFERENCES **12**

**2** REGION 8 ASSEMBLY FACE TO FACE MEETINGS

**+70** ANNUAL GOVERNOR VISITS TO THE REGION'S GEOGRAPHIC SECTIONS & BRANCHES

**REGION 8 STRUCTURE**

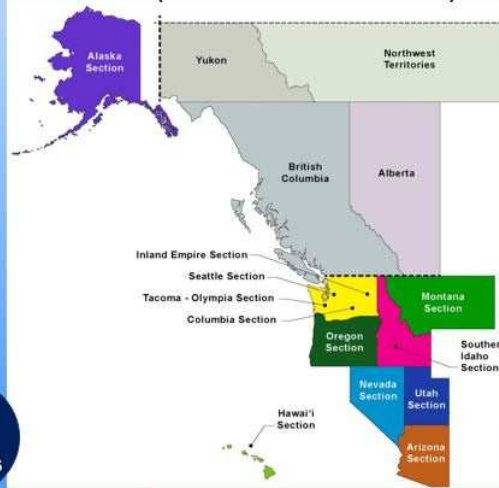


**REGION 8 ASCE**  
AMERICAN SOCIETY OF CIVIL ENGINEERS

#Region8isGreat

**"HELP YOU MATTER MORE AND ENABLE YOU TO MAKE A BIGGER DIFFERENCE"**

**REGION 8 (USA & WESTERN CANADA)**



**2** STUDENT CONFERENCES  
 PACIFIC NORTHWEST STUDENT CONFERENCE SYMPOSIUM  
 UNIVERSITY OF BRITISH COLUMBIA  
 (April 28-30, 2022)

INTERMOUNTAIN SOUTHWEST STUDENT CONFERENCE SYMPOSIUM  
 UNIVERSITY OF NEVADA - LAS VEGAS  
 (Dates TBD)

**UPCOMING REGION 8 EVENTS**

- Winter Region 8 Board of Governors Meeting, Salt Lake City, UT, Feb 3, 2022
- Winter Region 8 Assembly Meeting, Salt Lake City, UT, Feb 4 and 5, 2022
- Workshop of Section, Branch, & Institute Leaders, Virtual, Feb 9 to 11, 2022
- Workshop for Student Chapter Leaders - Held with 2022 Student Conference Symposia - Dates Vary
- Western Regional Younger Member Council, Salt Lake City, UT (Summer 2022)
- Fall Region 8 Board of Governors Meeting, Walla Walla, WA, Aug 18, 2022
- Fall Region 8 Assembly Meeting, Walla Walla, WA, Aug 19 and 20, 2022
- 2023 MRLC for Regions 8 & 9, Orange County CA (January or February 2023)

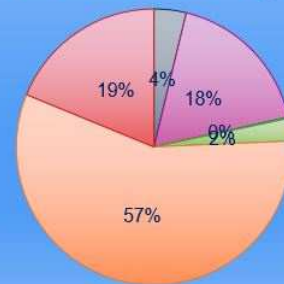
**REGION 8**

**INFRASTRUCTURE REPORT CARDS**

- 2017 Alaska
- 2018 Nevada
- 2020 Arizona
- 2019 Oregon
- 2019 Hawaii
- 2020 Utah
- 2018 Idaho
- 2019 Washington
- 2018 Montana

VISIT <https://www.infrastructurereportcard.org/state-by-state-infrastructure/> FOR MORE INFO

**REGION 8 MEMBERSHIP 13,500+**



- MEMBER
- ASSOCIATE
- DISTINGUISHED
- FELLOW
- STUDENT

**ASCE UTAH 2020-2021 SECTION AND BRANCH LEADERSHIP**



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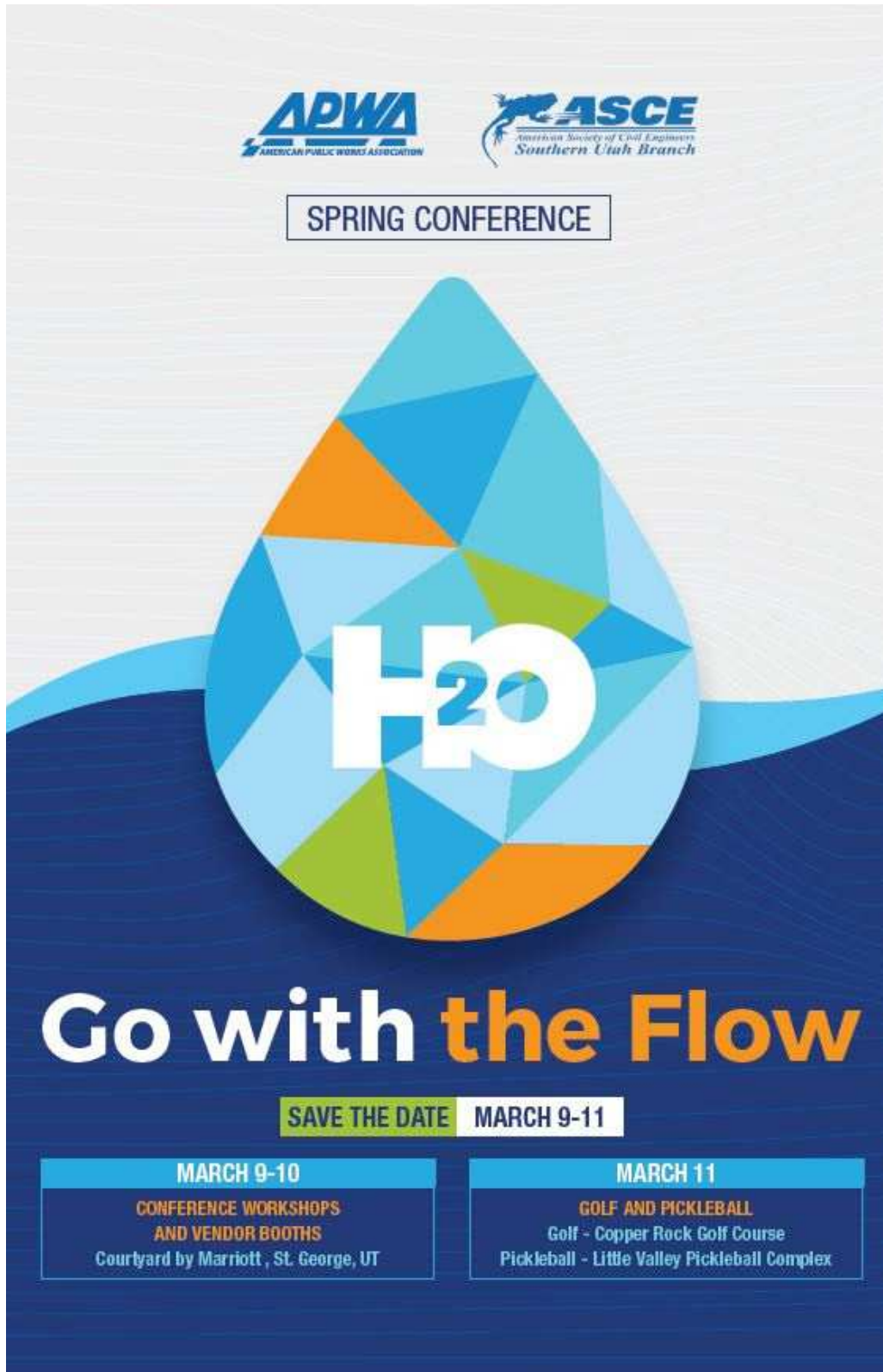


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## ANNOUNCEMENTS

The Utah City Engineer's Association is hosting a "Day on the Hill" February 23rd at 11:30am. Michael Fazio has asked ASCE Utah (along with APWA) to cosponsor. Information and registration link is here: <https://www.ucea.net/2022/01/12/2022-day-on-the-hill/>



The poster features a central graphic of a water drop composed of various shades of blue, green, and orange triangles. Inside the drop, the text "H2O" is written in a large, white, sans-serif font. Above the drop, the logos for APWA (American Public Works Association) and ASCE (American Society of Civil Engineers, Southern Utah Branch) are displayed. Below the drop, the main title "Go with the Flow" is written in a large, bold, white and orange font. A "SAVE THE DATE" banner indicates the dates "MARCH 9-11". At the bottom, two boxes provide details for the event: "MARCH 9-10" for "CONFERENCE WORKSHOPS AND VENDOR BOOTHS" at the Courtyard by Marriott in St. George, UT; and "MARCH 11" for "GOLF AND PICKLEBALL" activities at the Copper Rock Golf Course and Little Valley Pickleball Complex.

**APWA**  
AMERICAN PUBLIC WORKS ASSOCIATION

**ASCE**  
American Society of Civil Engineers  
Southern Utah Branch

SPRING CONFERENCE

**H<sub>2</sub>O**

**Go with the Flow**

**SAVE THE DATE** MARCH 9-11

**MARCH 9-10**  
CONFERENCE WORKSHOPS  
AND VENDOR BOOTHS  
Courtyard by Marriott, St. George, UT

**MARCH 11**  
GOLF AND PICKLEBALL  
Golf - Copper Rock Golf Course  
Pickleball - Little Valley Pickleball Complex