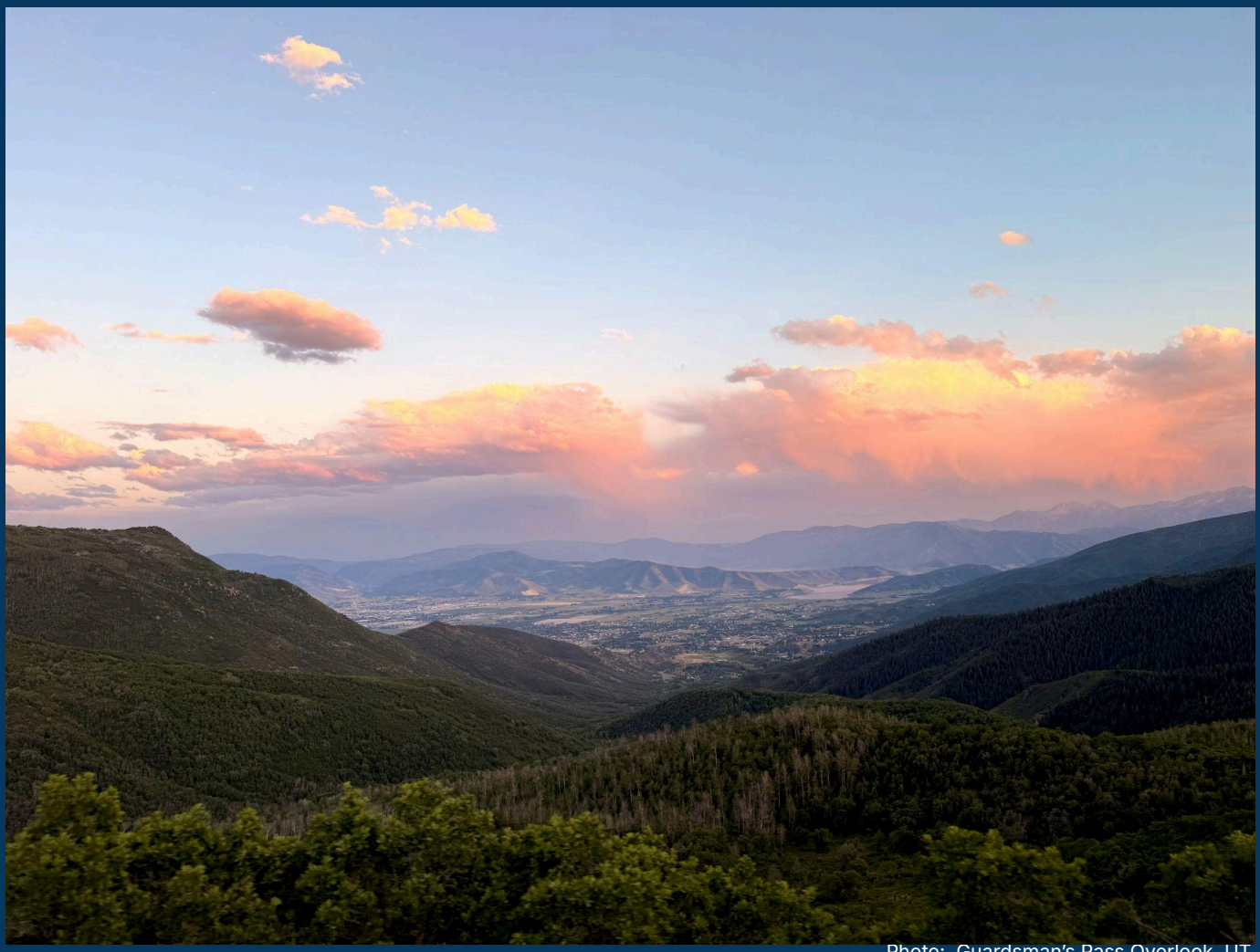

Photo: Guardsman's Pass Overlook, UT

UFSMA

Utah Floodplain & Stormwater Management Association

Utah Floodplain and Stormwater Management Association Welcomes You to the 2026 Annual Utah Floodplain & Stormwater Management Association Conference

September 29 - October 2, 2026
Springhill Suites, Logan, Utah

About UFSMA, Who We Are

The Utah Floodplain and Stormwater Management Association (UFSMA) began as the State Floodplain Management Association in 1993. It started as a small group of State and local floodplain managers who shared common interests in floodplains, environment protection, the National Flood Insurance Program and floodplain mapping. This group met quarterly and held its first annual conference in Spring of 1994.

As the size of this group grew and met there were many discussions regarding stormwater laws and regulations. Floodplains and stormwater are hydrologically connected but managed separately under environmental laws. The Association recognized the intersection between stormwater and floodplain management and added stormwater into their name, officially becoming the Utah Floodplain and Stormwater Management Association. The UFSMA was granted Chapter status by the national organization, Association of State Floodplain Managers (ASFPM).

The UFSMA is over 100 members strong and we have developed a great community for sharing and networking. Membership includes those from local towns, cities, counties, professional engineers, consultants, state government and federal partners. We know each other by name and can call on each other when needed.

OUR MISSION STATEMENT

The purpose of the UFSMA is the following:

1. Promote public awareness of proper floodplain and stormwater management;

2. Promote the education, training, and networking of individuals involved in floodplain and stormwater management;

3. Explore issues pertinent to and necessary for the effective implementation of floodplain and stormwater management matters and support needed changes;

4. Promote communication and cooperation with local, state, and federal agencies involved with floodplain and stormwater management;

5. Develop partnerships with other professional associations, environmental associations, and the development community to further promote proper floodplain and stormwater management; and,

6. Encourage technical assistance and mutual aid between jurisdictions to address floodplain and stormwater and flood disaster needs.



We make civilization possible.

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Program Agenda

Tuesday, September 29th

Time	Topic	Speaker
11:00 AM	**UFSMA Golf Tournament** Birch Creek Golf Course 550 E 100 N, Smithfield, UT Check-in: 11:00 AM First tee time: 11:28 AM 18 holes. Best Ball Scramble. Lunch-to-go included.	
8:30 AM - 12:30 PM	**National Flood Insurance Program 101** This training offers a foundational overview of the National Flood Insurance Program (NFIP), suitable for newcomers to floodplain management or those preparing for the Certified Floodplain Manager (CFM) exam. It covers NFIP history and purpose, floodplain mapping (FIRMs), development regulations, insurance principles, Letters of Map Change (LOMCs), and local official roles. Participants will grasp key NFIP concepts and terminology, focusing on CFM exam knowledge areas.	Tracie Harrison, & McKenzie Ranney, UT Division of Emergency Management
1:00 PM - 5:00 PM	**Determine Base Flood Elevations Workshop** Zone A and AE floodplains are areas on a FEMA Flood Insurance Rate Map (FIRM) studied by approximate or detailed hydrologic/hydraulic methods. Determining the BFE in these areas can be challenging, but guidance and new technology is available to assist in determining a BFE. This training will review and provide guidance on various methods to determine a BFE in a Zone A and AE floodplain. We will include hands-on datasets for use during the training.	Ben Rood, WSP

Time	Topic	Speaker
1:30 PM - 5:00 PM	**Rain on Snow Hydrograph Development** Rain-on-snow events are well documented in temperate regions and, more recently, in Polar regions. During warm winter storms, rain on snow can exceed standard design assumptions by increasing runoff, reducing infiltration, and lowering surface friction. This 4-hour training provides hands-on rain-on-snow analysis, from developing rainfall and rain-on-snow hydrographs for HEC-HMS or HEC-RAS to evaluating runoff with the NRCS Curve Number method, consideration of the Green-Ampt, and Manning's roughness adjustments for hydraulic analysis. Reference resources include the NRCS National Engineering Handbook, The Army Corp of Engineers Engineering Manual, various technical publications by U.S. Army Corp of Engineers Hydrologic Engineering Center, and publications by ASCE and other technical associations (reference material will be provided).	Lance E. Houser, Franson Civil Engineers
7:00 PM - 9:00 PM	**Welcome Reception/ Early Check-In** Please join us for the Welcome Reception. Enjoy complimentary finger foods and drinks.	

Wednesday, September 30th

Time	Topic	Speaker
7:45 AM	Registration - Breakfast provided in the Lobby (Breakfast available 7:45 AM - 8:30 AM)	
8:00 AM - 8:30 AM	Welcome	

Time	Topic	Speaker
8:30 AM - 10:00 AM	Plenary Session 1 **The Mission of the Utah Water Research Laboratory Applied to Floods and Stormwater** The mission of the UWRL is to conduct collaborative water and environmental research in Utah and throughout the world to advance innovative solutions, promote scientifically informed policy and management decisions, and train tomorrow's leaders. In this presentation, I would summarize the four key pillars of this mission (innovative solutions, informed policy, leadership training, and community engagement) as they apply directly to 1) real-time watershed monitoring (Logan River Observatory), 2) flood risk mapping and post-flood hazard analyses (several project highlights), and 3) Utah water infrastructure (work in the hydraulics bay).	Brian Crookston, UWRL Bethany Neilsen, UWRL
10:00 AM - 10:30 AM	Break (Snack Provided)	
10:30 AM - 11:30 AM	Breakout Session 1 **A1: Carbonville Flooding** In August 2025, the sub-urban rural community of Carbonville, located near Price, Utah, experienced a localized flooding event. While the resulting damages did not meet the threshold for a major disaster declaration, the impact on local infrastructure and private property was notable. Following these events, community stakeholders have prioritized the development of long-term solutions to mitigate future minor flooding. This presentation explores the hydrological factors of the 2025 event and proposes engineering and community-based interventions to enhance local resilience.	Lincoln Irvine, Carbon County

Time	Topic	Speaker
	A2: FEMA Violations FEMA violations can feel like the Big Bad Wolf is coming for you – but they are rarely random. They point to gaps in permitting, process, or program implementation. This session demystifies FEMA violations and focuses on what they actually mean in practice. Here's the good news: FEMA's goal is resolution—not punishment. Successful outcomes require coordination, clear communication, and a practical understanding of expectations.	Jamis Darrow, JUB
	B1: Camera Based Hydrologic Modeling This presentation will synthesize ongoing work at the Utah Water Research Laboratory that uses cameras to detect water and river surfaces, estimate surface velocities, and estimate stream and stormwater discharges. A central application is automated river surface detection, where computer vision and deep learning methods are used to identify water pixels across changing illumination, weather, vegetation, and channel conditions. These measurements can support water level inference, inundation mapping, and flood detection when deployed at bridges, culverts, drainageways, and other critical infrastructure. In parallel, video-based velocimetry methods	Safran Khan, Utah State Razin Bin Issa, Utah State Sajan Neupane, Utah State Jeffery Horsburgh, Utah State Sierra Young, Utah State
	B2: Public Education and Outreach The Davis County and Golden Spike Storm Water Coalitions have been seeing success in their Public Education and Outreach. Programs such as Contractor Training, 4th Grade Education Program and Water Fair are a long standing	Greg Seegmiller, JUB Drew Howard, Centerville City

Time	Topic	Speaker
	traditions for many in these communities due to the hard work and consistent effort of the coalition members and community involvement. We would like to share what's worked for us and glean from others to make it better.	
11:30 AM - 12:30 PM	Breakout Session 2	
	A: Logan River Restoration Trapper Park The Trapper Park River Restoration Project is a unique, public-private collaborative project that transformed a 2-mile stretch of the Logan River. The project included floodplain connectivity improvements, removal of invasive vegetation, replanting, bank stabilization, irrigation diversion replacement, public access improvements, and car, rebar, and concrete debris removal from the river corridor.	Kyler Olsen, Franson Civil Darren Farar, Logan City
	B1: Coupled 1D-2D Stormwater Modeling Traditional stormwater models assume pipes handle 10-year flows and streets safely carry 100-year excess. However, flat, highly impervious areas like Salt Lake City's west side often flood under this assumption. A recent study used a coupled 1D-2D model to explicitly link subsurface pipes with surface flows, accurately simulating pipe surcharge and surface ponding. The results revealed higher flood risks in many corridors than previously assumed, proving that 1D-2D modeling provides a more reliable foundation for infrastructure design and capital planning.	Kayson Shurtz, HAL Jarrad Larsen
	B2: Stormwater Modeling Approaches This presentation provides a consultant's perspective on selecting and applying stormwater modeling tools for urban	Zach Magdol, AE2S Chris Edwards

Time	Topic	Speaker
	systems. Key considerations, including model purpose, level of complexity, data requirements, integration with GIS and other platforms, and long-term maintenance will be discussed. The session will highlight strengths and limitations of commonly used tools such as InfoWorks ICM, AquaTwin Sewer, PCSWMM, CivilGEO suite, XP-SWMM, Storm & Sanitary Analysis, and others, with a focus on urban drainage and surface flooding applications. Attendees will gain practical insights into how to align modeling tools with project needs, avoid over- or under-building models, and improve decision-making for stormwater management, development review, and capital planning.	
12:30 PM - 2:00 PM	Lunch (Provided)	

2:00 PM - 3:00 PM	Breakout Session 3	
	A1: Developing Competitive FEMA Grant Applications This presentation provides a practical overview of the three primary FEMA hazard mitigation grant programs Building Resilient Infrastructure and Communities (BRIC), Flood Mitigation Assistance (FMA), and the Hazard Mitigation Grant Program (HMGP) with a focus on strategies that improve application quality and competitiveness.	Leif Walde, WSP Ben Rood, WSP
	A2: Using Drones To explore how a UAV can be used to support flood modeling efforts and actual flood conditions, this study is underway at the Utah Water Research Laboratory at Utah State University.In particular, we discuss how this UAV data can be used to calibrate and validate a two-dimensional hydraulic model for a historically high flood event with an estimated 80-year return period. We also discuss the advantages of this data when estimating flood hazards and potential consequences.	Ishwar Joshi, Utah State Brian M. Crookston,
	B1: Duchesne River Improvements When we get in a river and start working with hydrology and river hydraulics, we are dealing with probabilities and mother nature. As we all know, it can be very unpredictable. So, how do we know if the project that looked so nice during design and at the completion of construction will stand up to the test of time? Join us as we discuss what worked and what didn't.	Jason Jones, JUB
	B2: Pine Valley Burn Scar Design In June 2025, the Forsyth Fire burned more than 15,600 acres of forested watershed above Pine Valley in Washington County, Utah, destroying	Michael Rasmussen, Jones and DeMille Blaine Chadwick

Time	Topic	Speaker
	homes and dramatically altering the hydrologic response of drainages flowing toward town. Jones & DeMille Engineering (JDE) was retained under the NRCS Emergency Watershed Protection (EWP) program to design measures protecting residences and infrastructure from the post-fire flood and debris flow risk. HEC-HMS hydrologic modeling and 2D HEC-RAS hydraulic modeling were paired to characterize floodplain behavior across the burn scar and pinpoint the reaches and crossings most vulnerable to damage.	
3:00 PM - 4:00 PM	Breakout Session 4 **A: Utah Water Research Lab Tour** The Utah Water Research Laboratory is one of the first and largest university-based water research facilities in the United States with an international reputation for exceptional research, communication, and training of tomorrow's leaders. This tour will be of our Hydraulics Bay (~50,000 ft²) in our original building and a Hydraulics Modeling (~11,000 ft²) space in our second building. We look forward to welcoming you to the UWRL and sharing with you some of the exciting things we are doing to fulfill our mission to Utah.	Brian Crookston
	B1: Adaptive Master-Builder The Emigration Creek and Wasatch Hollow project evolved from a straightforward repair into a dynamic, high-stakes response to rapidly changing conditions. This presentation tells the story of an adaptive design process—where plans were reshaped piece by piece—to highlight lessons learned in flexibility, field-driven	John De Leon, JUB Jason Jones

Time	Topic	Speaker
	decision-making, and assembling resilient solutions under pressure	
	B2: Stormwater Pipe Networks HEC-RAS 7.0 This presentation reviews a project case study from a complex urban drainage network in the DFW area where the pipe-network functionality was used with two-dimensional overland flow. The analysis includes undersized channels, lateral and overland flow, various culvert and bridge crossings, and storm drain trunk lines of varying sizes. Model development, sensitivity analysis, modeling comparisons, key outcomes, and lessons learned will be presented.	Stephen Bolster
4:00 PM	Adjourn, enjoy Logan!	
7:00 PM - 9:00 PM	Hospitality Suites - Hosted by NWPX Geneva and Oldcastle Infrastructure	

Thursday, October 1st

Time	Topic	Speaker
7:45 AM - 8:30 AM	Breakfast provided in the Lobby (Breakfast available 7:45 AM - 8:30 AM)	
8:30 AM - 10:00 AM	Plenary Session 2 **Rain on Snow, the Story of Four Watersheds** Rain-on-snow events are well documented in the Intermountain West. These winter and early spring storms, often called the “Pineapple Express,” are occurring more often and have caused severe flooding. Recent events have resulted in bridge and culvert	Lance Houser, Franson Civil

Time	Topic	Speaker
	failures, canal and flood control channel breaches, and loss of homes.	
10:00 AM - 10:30 AM	Break (Snack Provided)	
10:30 AM - 11:30 AM	Breakout Session 1 **A: 2D Urban Stormwater Modeling** Transitioning from a traditional 1D to a 2D model, new specific lessons and implementation plans were identified. This presentation will discuss the lessons learned in developing a detailed 2D urban stormwater model, including its application in developing a capital improvement plan.	Tucker Jorgensen, Bowen Collins
	A2: Best Available Data: FEMA Requirements This presentation follows the decision-making process of adopting a locally developed model as the best available data, and the engineering judgment required to build pre-existing, existing, and proposed model conditions from it — including developing a new cross section where neither field survey nor LiDAR provided an adequate subsurface profile. Attendees will come away with a framework for navigating no-rise analyses when the effective model isn't an option.	Kade Flake, Jones and DeMille
	B: The Organized SWMP Consor and Hansen, Allen & Luce have developed a comprehensive, structured approach to organizing Storm Water Management Plans (SWMPs) that increases clarity, usability, and compliance. This presentation will outline how these components are integrated to create a streamlined, fully	Chris Thompson, HAL Justin Brewer, Consor

Time	Topic	Speaker
	compliant SWMP that is both practical for implementation and defensible for regulatory review.	
11:30 AM - 11:30 AM	Breakout Session 2 **A: St. George EWP Project: Reducing Flood Risk in Urban Areas** This presentation summarizes the City of St. George's implementation of multiple NRCS Emergency Watershed Protection (EWP) projects following a highly localized and intense storm event on August 23, 2020. This details four major projects.	Clint Merrell, Bowen Collins
	B: Culvert Designs in Arid Environments Environmental activism, litigation, and a federal injunction in the Pacific Northwest have resulted in a multi-billion dollar effort to increase the size of hundreds of culverts for fish passage. While the purpose of these culvert replacements are primarily for environmental reasons, the larger hydraulic openings had unintended benefits of improving sediment performance and reducing maintenance and repair needs. This is in stark contrast with the typical culvert design approach that optimizes hydraulics in order to achieve the smallest, and cheapest, opening possible.	Darren Hinton, NHC
12:30 PM - 2:00 PM	Business Meeting (Lunch Provided)	
2:00 PM - 3:00 PM	Breakout Session 3 **A1: Different Perspectives on Resilience** As extreme weather trends reshape flood risk landscapes and development pressures escalate, floodplain	Joe DeMarco, WSP

Time	Topic	Speaker
	management professionals face unprecedented challenges that demand innovative, interdisciplinary solutions. This session is dedicated to exploring resilience from multiple viewpoints to empower attendees as they navigate evolving career pathways	
	A2: Logan River Restudy and Restoration Flood events in Logan, Utah, in 2010 raised concerns about the accuracy of regulatory floodplains depicted on the effective Flood Insurance Rate Maps (FIRMs). In response, J-U-B Engineers was commissioned to conduct a comprehensive restudy of flood hazards throughout Logan City.	Jamis Darrow, JUB
	B1: Virgin River Levee The Horrocks and AtkinsRealis project team are working together to design and permit a new flood protection levee along the ever-meandering Virgin River, spanning a mile long from Arizona into Nevada.	Katie Jones, Horrocks
	B2: Orem 1600 N Project The 1600 North project in Orem is under construction now. They are building a series of infiltration ponds. We designed that project and can give a short talk about how we incorporated LID practices, benefits, and challenges.	Cathy Romero, METHODS
2:00 PM - 5:00 PM	**Water River Observatory Tour** The Logan River Observatory (LRO) tour will introduce participants to Utah State University's long-running hydrologic monitoring network spanning the Logan River watershed from its mountain headwaters down through the valley.	Beth Neilson, UWRL

Time	Topic	Speaker
	Participants will visit active data collection sites, including streamflow gaging stations, water quality sensors, and climate stations positioned throughout Logan Canyon and the Cache Valley, which continuously track discharge, temperature, water chemistry, snowpack, and groundwater exchanges.	
3:00 PM - 4:00 PM	Breakout Session 4 **A: Ask Anything! Floodplain Mapping and Management Panel** Please come join us, the floodplain mapping/ GIS manager and state floodplain manager have open discussions and ask anything. Hear other program updates. **B: Buckley Draw Debris Flow** Provo City experienced a wildfire followed by an intense rainstorm in late summer of 2025. This presentation discusses the risks of this type of flooding, response and cleanup and lessons learned.	Jamie Huff, DEM Tracie Harrison, DEM Jacob O'Bryant and Tommy Scherbel, Provo City
4:00 PM	Adjourn, enjoy Logan!	
7:00 PM - 9:00 PM	Hospitality Suites - Hosted by NWPX Geneva and Oldcastle Infrastructure	

Friday, October 2nd

Time	Topic	Speaker
7:45 AM - 8:30 AM	Breakfast provided in the Lobby (Breakfast available 7:45 AM - 8:30 AM)	

Time	Topic	Speaker
8:30 AM - 10:00 AM	Plenary Session 3 **Risk to Resilience Designing and Delivering Debris Basins** After the Israel Canyon debris flow, the City of Saratoga Springs began an aggressive program to assess risk, design solutions, procure funding, and construct debris basins. Our presentation shares the strategies and resources we used in that process as well as the outcomes and protection that has been afforded to the city.	Joshua Prettyman, Horrocks Jeremy Lapin, Saratoga Springs
10:00 AM - 10:30 AM	Break (Snack Provided)	
10:30 AM - 11:30 AM	Plenary Session 4 **Field Trip Intro** Ongoing restoration efforts seek to preserve the Logan River's ecological value while enhancing its resilience for future generations. Logan City Engineer will share the vision and long-term investments for restoring the river.	Darren Farar, Logan City Engineer
11:30 AM - 2:00 PM	To-Go Boxed Lunch (Provided) Field Trip - Logan River Walk	

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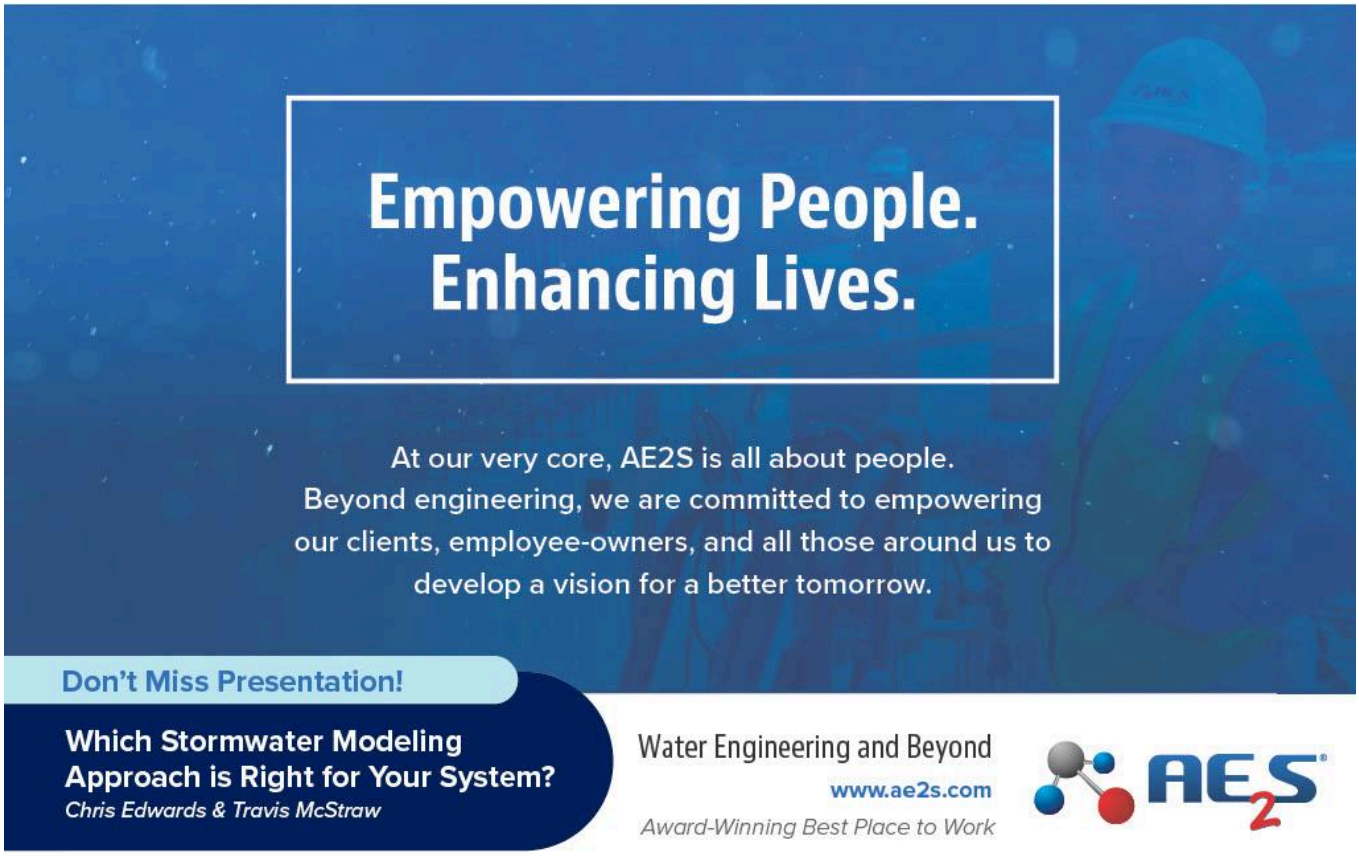
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Presentation Information

Wednesday, September 30, 2026

Plenary Session 1: The Mission of the Utah Water Research Laboratory Applied to Floods and Stormwater

The Utah Water Research Laboratory (UWRL) has a 60-year legacy of addressing critical water and environmental challenges for Utah and beyond including the intermountain west and even globally. This session highlights the mission of the UWRL and how its four core pillars serve our State by conducting collaborative water and environmental research to 1) advance innovative solutions, 2) promote scientifically informed policy and management decisions, 3) train tomorrow's leaders, and 4) community engagement. Drs. Neilson and Crookston will provide several highlights focused on real-time watershed monitoring and the Logan River Observatory, flood risk mapping and post-flood hazard analyses, and the role of water infrastructure in managing flood risk with various project highlights from recent physical models that were built and studied in the UWRL hydraulic bays. This presentation is directly linked to the UWRL Tour and the Logan River Observatory Tours included in the conference schedule.

Bethany Neilson, PhD is a professor of Civil and Environmental Engineering at Utah State University and Director of the Utah Water Research Laboratory. As director, she leads the UWRL in advancing interdisciplinary water research, fostering collaboration among faculty, students, and diverse state and federal partners to address critical challenges in water management, quality, and infrastructure. Her specific expertise and research focuses on water resources management, hydrology, and environmental systems, with an emphasis on understanding and improving water availability and quality across diverse landscapes.

Brian Crookston, PhD, PE is an Associate Professor at Utah State University focused on water sustainability and resiliency including hydraulic structures, fluvial hydraulics, and flooding. He conducts research at the Utah Water Research Laboratory with an emphasis on spillways, scour and erosion, flooding, surface hydrology, and public safety. Prior to joining USU in 2018 he worked for 7 years as a dam engineer where he worked on over 300 flood studies of various kinds and dam rehabilitation projects.

Breakout Session 1:

A1: **Carbonville Flooding & Damages;** In August 2025, the sub-urban rural community of Carbonville, located near Price, Utah, experienced a localized

flooding event. While the resulting damages did not meet the threshold for a major disaster declaration, the impact on local infrastructure and private property was notable. Primary damages included the upheaval of irrigation piping and the inundation of several residential basements and garages. Following these events, community stakeholders have prioritized the development of long-term solutions to mitigate future minor flooding. This presentation explores the hydrological factors of the 2025 event and proposes engineering and community-based interventions to enhance local resilience.

Lincoln Irvine, Carbon County is a registered Professional Engineer in Utah, Oklahoma, and California, and a nationally Certified Floodplain Manager (ASFPM). He holds a Bachelor of Science in Civil Engineering from the University of Utah.

With over 20 years of experience spanning public sector leadership and consulting, Lincoln specializes in civil engineering design, floodplain management, and transportation infrastructure. He previously served as Chairman of the Board of Directors for the Oklahoma Floodplain Managers Association. As the Carbon County Engineer, he leverages 18 years of consulting expertise—delivering storm drain hydraulic modeling, NRCS-funded initiatives, roadway and culvert design, and flood mitigation infrastructure planning. Lincoln brings firsthand experience with major flood events and a rigorous, practical approach to designing resilient systems that protect communities.

A2: **The Big Bad Wolf and You: FEMA Violations Are Not as Scary as They Seem:** FEMA violations can feel like the Big Bad Wolf is coming for you – but they are rarely random. They point to gaps in permitting, process, or program implementation. This session demystifies FEMA violations and focuses on what they actually mean in practice.

Here's the good news: FEMA's goal is resolution—not punishment. Successful outcomes require coordination, clear communication, and a practical understanding of expectations.

By the end of this session, attendees will understand:

- How FEMA violations occur - and what they actually mean
- What happens after a violation is issued (who is involved, how long it takes, and how the process unfolds)
- How to resolve a violation effectively
- What happens if a violation is ignored, including potential enforcement actions, impacts to NFIP participation, CRS implications, and community risk.

Presented by Jamis Darrow and John DeLeon of J-U-B Engineers (who have guided others back into compliance), this session will use real-world

examples to provide practical insight for floodplain professionals —so you know what to expect and don't lose sleep if the wolf comes-a-knocking.

Who Should Attend?
Anyone involved in ensuring compliance with NFIP requirements. If you review, issue, develop, submit or even think about floodplain development permits – this session is for you.

Jamis Darrow, JUB is a Program Manager and Professional Engineer with more than 22 years of experience delivering stormwater infrastructure, watershed planning, floodplain management, and drainage improvement projects throughout Colorado, Wyoming, Utah, and Nevada. His expertise includes hydrologic and hydraulic modeling, storm sewer and flood control infrastructure design, floodplain and FEMA compliance, watershed master planning, channel restoration, and stakeholder coordination. Jamis has contributed to more than 20 FEMA CLOMR, LOMR, and PMR submittals, and has successfully assisted numerous communities in navigating complex floodplain regulations and resolving violation letters. Jamis is a Certified Floodplain Manager and has served for 4 years on the Larimer County Flood Review Board.

John DeLeon, JUB

B1: **Camera-Based Hydrologic Monitoring for Flood, Streamflow, and Stormwater Applications;** Camera-based monitoring systems offer significant yet underutilized potential for floodplain, streamflow, and stormwater management by transforming imagery and video into actionable hydrologic information. Low-cost RGB cameras can provide non-contact observations of river stage, water extent, surface velocity, and stormwater discharge, offering a scalable complement to traditional sensors that may be costly, difficult to maintain, or vulnerable during high-flow events. This presentation will synthesize ongoing work at the Utah Water Research Laboratory that uses cameras to detect water and river surfaces, estimate surface velocities, and estimate stream and stormwater discharges. A central application is automated river surface detection, where computer vision and deep learning methods are used to identify water pixels across changing illumination, weather, vegetation, and channel conditions. These measurements can support water level inference, inundation mapping, and flood detection when deployed at bridges, culverts, drainageways, and other critical infrastructure. In parallel, video-based velocimetry methods estimate surface flow velocity from visible water-surface motion, allowing discharge to be computed when paired with channel geometry, water-surface extent, or estimated stage. These approaches are particularly promising for event-based monitoring, rapid flood assessment, and at locations where conventional gauging is impractical. The presentation will also connect these stream and river applications to recent work on camera-based stormwater discharge estimation, highlighting how optical measurements can be adapted

to urban drainage systems where flows are intermittent, flashy, and difficult to capture with traditional instrumentation. Together, these applications demonstrate a broader framework for visual, non-contact hydrologic monitoring.

Safran Khan is a PhD candidate and Research Assistant in Civil and Environmental Engineering at Utah State University and the Utah Water Research Laboratory. His research focuses on artificial intelligence, computer vision, and camera based monitoring for water resources applications, including river water level, surface velocity, and discharge estimation.

Razin Bin Issa, Sajan Neupane, Jeffery Horsburgh, Sierra Young - USU

B2: Public Education and Outreach (MCM-1) – What's working in DCSWC and GSSWC; The Davis County and Golden Spike Storm Water Coalitions have been seeing success in their Public Education and Outreach. Programs such as Contractor Training, 4th Grade Education Program and Water Fair are long standing traditions for many in these communities due to the hard work and consistent effort of the coalition members and community involvement. We would like to share what's worked for us and glean from others to make it better.

Greg Seegmiller, JUB has 37 years of experience in municipal design projects. He has served for many years as the Consulting City, District, and County Engineer for many communities in Northern Utah. He is currently the Consulting City Engineer for Woods Cross City, and District Engineer for Bona Vista Water Company. He has been the Project Manager for the design and construction of several large multimillion dollar projects in these and other communities.
Mr. Seegmiller has always enjoyed the variety of challenges provided in Municipal Engineering including water, sewer, storm drain, streets and other surprises. He has presented at many conferences in the western states including APWA, AWWA, PNCWA, UCEA, ASCE, RWAU and other training sessions.
Greg and his Family enjoy Hiking, Biking, Hunting, Fishing, Camping, Soccer and any other outdoor activities. He and his wife recently biked the Hiawatha Trail...up hill!

Drew Howard is the Stormwater Coordinator for Centerville City Public Works, where he oversees the Stormwater Management Plan.
Drew is a graduate from the University of Utah and has spent a majority of his career moving in and out of stormwater across multiple industries, most recently in municipal local government.
Over the last six years specifically, Drew has become more acutely involved in stormwater management and their impacts on surrounding communities through organizations such as the Davis County Stormwater Coalition, as

well as volunteering for sub-committees that participate in contractor trainings and working to help sponsor and promote workshops that address watersheds and stormwater impacts along the Wasatch Front.

Breakout Session 2:

A: **Logan River Restoration at Trapper Park;** The Trapper Park River Restoration Project is a unique, public-private collaborative project that transformed a 2-mile stretch of the Logan River. The project included floodplain connectivity improvements, removal of invasive vegetation, replanting, bank stabilization, irrigation diversion replacement, public access improvements, and car, rebar, and concrete debris removal from the river corridor. Despite complex environmental and permitting requirements, the project team delivered long-term improvements that will benefit both the river and the community for years to come.

Darren Farar, Logan City began working as a Civil Engineering Technician in 1998. After graduating with a bachelors in Civil Engineering from Utah State University in 2001, he soon found himself practicing as a Professional Engineer in the Phoenix Metro area. After nearly 20 years of working for various municipalities and consulting engineering firms in Arizona and having earned a Masters of Business Administration from Arizona State University in 2012, he returned to Utah in 2021. Darren spent an enjoyable year working as the City Engineer for Nibley City before accepting the same position at the City of Logan. Darren first became a certified floodplain manager in 2009.

Kyler Olsen (P.E., CFM), Franson Engineers graduated from Utah State University in Civil Engineering with a minor in Communication in the famous year of 2020. During his schooling, he spent several summers performing geotechnical explorations, soils testing, construction management, and water resource modeling. He earned his master's degree at USU in Hydrology and Water Resources while employed as the culinary water operator for the small town of Trenton, UT. Kyler began working as a consulting engineer with Franson Civil Engineers in 2022, obtained his P.E. license in 2024, and became a Certified Floodplain Manager in 2025. Kyler enjoys problem solving and engineering design. He is a responsive and detail-oriented engineer with a passion for improving water resource planning and management. When he's not at work, he can be found hiking, backpacking, skiing or woodworking- and in the fall, running a small mobile apple cider pressing business with his wife and two little helpers.

B1: **1D Stormwater Models Are Optimists: Coupled 1D–2D Stormwater Modeling Is a Reality Check;** It is commonly assumed in stormwater modeling that the 10-year flows are conveyed by the pipes and any excess flows up to a 100-year event can be safely conveyed along surface streets once pipe capacity is exceeded. Salt Lake City's west side includes high impervious areas and relatively flat slopes. This combination has produced a

drainage system where excess stormwater is often difficult to manage and often results in flooding. A study in this area using a coupled 1D–2D modeling approach that links subsurface pipe networks with 2D surface flow highlighted the utility of this type of modeling approach.

Unlike traditional 1D models, the coupled framework simulates pipe surcharge, surface routing, ponding, and re-entry—providing a more complete representation of system behavior during 10-year and 100-year storm events. Results show that while some areas perform as assumed, many corridors experience deeper ponding, uncontrolled flow paths, and increased flood risk.

By explicitly modeling the interaction between pipes and streets, this approach moves beyond assumption—confirming where surface conveyance works and identifying where it does not—supporting more reliable design and capital planning to address deficiencies.

Kayson Shurtz P.E., Water Resources Engineer, Hansen, Allen, & Luce. Kayson is an Associate with Hansen, Allen, and Luce. He specializes in applying computer models to help solve water resource related problems. His main area of expertise includes hydrologic and hydraulic modeling studies, water distribution system modeling, reservoir operations modeling, storm drain design, flood control, and master planning. He enjoys being in the outdoors and supporting his five children in their various activities.

B2: **Which Stormwater Modeling Approach is Right for Your System?;** Urban stormwater modeling tools have evolved rapidly in recent years, offering expanded capabilities for flood prediction, development review, regulatory compliance, and long-term system planning. However, not all modeling platforms are created equal. The “right” solution depends heavily on a community’s goals, available data, staff expertise, and how frequently the model will be used.

With evolving regulatory landscape and flood risk, and major changes in software development, many communities are re-evaluating their stormwater modeling approach. From fully integrated 1D/2D hydraulic models to more streamlined GIS-based tools, the range of available options can be both powerful and overwhelming.

This presentation provides a consultant’s perspective on selecting and applying stormwater modeling tools for urban systems. Key considerations, including model purpose, level of complexity, data requirements, integration with GIS and other platforms, and long-term maintenance will be discussed. The session will highlight strengths and limitations of commonly used tools such as InfoWorks ICM, AquaTwin Sewer, PCSWMM, CivilGEO suite, XP-SWMM, Storm & Sanitary Analysis, and others, with a focus on urban drainage and surface flooding applications.

Attendees will gain practical insights into how to align modeling tools with project needs, avoid over- or under-building models, and improve decision-making for stormwater management, development review, and capital planning.

Zach Magdol, Chris Edwards; AE2S

Breakout Session 3:

A1: **B.R.I.C. & H.M.G.P. Grants Developing Competitive FEMA Grant Applications: Lessons for BRIC, FMA, and HMGP;** This presentation provides a practical overview of the three primary FEMA hazard mitigation grant programs Building Resilient Infrastructure and Communities (BRIC), Flood Mitigation Assistance (FMA), and the Hazard Mitigation Grant Program (HMGP) with a focus on strategies that improve application quality and competitiveness. Drawing on multi-year experience reviewing grant subapplications, the session highlights recurring weaknesses that reduce scores, delay review, or lead to non-selection, including incomplete documentation, weak problem statements, insufficient demonstration of technical feasibility, and inadequate benefit-cost analysis. Although each program has distinct eligibility pathways and funding contexts, successful applications consistently pair a clear risk-reduction narrative with well-developed scopes, realistic budgets, and documentation aligned with FEMA requirements.

The presentation will compare how BRIC, FMA, and HMGP differ in timing, eligibility, and review dynamics, while emphasizing the common elements that strengthen any mitigation grant request. Particular attention will be given to flood-related projects, coordination between applicants and reviewers, and methods for reducing avoidable back-and-forth during review. Attendees will leave with a clearer understanding of how to frame resilient projects, anticipate common reviewer concerns, and assemble stronger subapplications that are more likely to advance efficiently through FEMA's evaluation process.

Leif Walde, WSP

Ben Rood, WSP specializes in surface water hydrology and hydraulics engineering. He has a passion for hydraulic modeling of rivers, storm drains, and bridge scour. Ben has assisted in many public infrastructure projects including roadway bridges, debris basins, channel restoration, levee rehabilitation and storm drain systems. Ben's favorite vacation destination is boating at Lake Powell.

A2: **Using Drones to Observe Flood Conditions and Collect Low-Cost High-Resolution River Corridor Data;** Flooding periodically occurs along the

Logan River, impacting some residents in Cache Valley. To explore how a UAV can be used to support flood modeling efforts and actual flood conditions, this study is underway at the Utah Water Research Laboratory at Utah State University. In this research, we use a UAV platform equipped with a two-return LiDAR sensor and a multi-spectral camera to collect high-resolution geospatial and spectral data from the Blacksmith Fork and Logan Rivers. These relatively low-cost sensors provided detailed topographic, hydraulic, water quality and surface information that can support a wide range of river management applications, including habitat restoration, floodplain mapping, geomorphic assessment, and post-flood monitoring. In particular, we discuss how this UAV data can be used to calibrate and validate a two-dimensional hydraulic model for a historically high flood event with an estimated 80-year return period. We also discuss the advantages of this data when estimating flood hazards and potential consequences.

Ishwar Joshi, Brian Crookston, USU

B1: **Back to the Future - Duchesne River Improvements, Then and Now;** When we get in a river and start working with hydrology and river hydraulics, we are dealing with probabilities and mother nature. As we all know, it can be very unpredictable. So, how do we know if the project that looked so nice during design and at the completion of construction will stand up to the test of time?

In 2012, due to some major flooding events in 2011, our team undertook a project to stabilize a section of the stream bank north of Duchesne City before the river had a chance to undercut an important highway bridge.

In 2014 we shared the project and design process, including construction and the immediate results. Now 12 years later, we will take a look at how the project is holding up – what worked, what didn't?

Join us as we take a trip back in time to review the assumptions, process, and design approach at the project inception, and then move forward to today with a comprehensive look at the viability of our design approach and what hydrology and mother nature had to say about what we did.

Jason Jones, JUB

B2: **Designing for the Burn Scar: Post-Wildfire Flood and Debris Flow Mitigation in Pine Valley, Utah;** In June 2025, the Forsyth Fire burned more than 15,600 acres of forested watershed above Pine Valley in Washington County, Utah, destroying homes and dramatically altering the hydrologic response of drainages flowing toward town. Jones & DeMille Engineering (JDE) was retained under the NRCS Emergency Watershed Protection (EWP) program to design measures protecting residences and infrastructure from

the post-fire flood and debris flow risk. HEC-HMS hydrologic modeling and 2D HEC-RAS hydraulic modeling were paired to characterize floodplain behavior across the burn scar and pinpoint the reaches and crossings most vulnerable to damage. Design measures included water and sediment control basins (WASCOBs), channel armoring, upsized culverts, and earthen berms. During design, a high-intensity rainfall event produced significant debris flows through the project area. Drone imagery of the event showed strong agreement with 2D HEC-RAS inundation patterns, providing an unplanned but valuable validation of the model. This presentation walks through the project from burn-scar hydrology through final design and offers practical lessons for engineers and floodplain managers working in other post-fire Utah communities.

Michael Rasmussen, Blaine Chadwick, Jones & DeMille

Breakout Session 4:

A: **Utah Water Research Laboratory Tour;** Tickets required - you can purchase a ticket at the registration table. All ticket holders meet out front of the conference center to board a bus. Water lab tour duration will be about 1 hour. The bus will return to the conference center at the end.

The Utah Water Research Laboratory is one of the first and largest university-based water research facilities in the United States with an international reputation for exceptional research, communication, and training of tomorrow's leaders. This tour will be of our Hydraulics Bay (~50,000 ft²) in our original building and a Hydraulics Modeling (~11,000 ft²) space in our second building. These combined spaces provide state-of-the-art facilities for full- and large-scale hydraulic research and projects focused on water infrastructure, flooding, stormwater, and rivers. Attendees may see any active or recently completed studies that may include:

- Large-scale pump station, dam, spillway, diversion structure, and flow intake physical models
- Research flumes on open channel flows focused on flood conditions, water-structure interaction, and complex processes including sedimentation, local scour, driftwood, and ice
- Pipeline and valve performance tests and flow meter calibrations,
- Storm system capacity tests

This is a popular tour at Utah State University, enjoyed by many including notable leaders, administrators, engineers and scientists. We look forward to welcoming you to the UWRL and sharing with you some of the exciting things we are doing to fulfill our mission to Utah.

B1: **Adaptive Master-Builder: Emigration Creek and Wasatch Hollow;** Like a master builder adapting mid-design, the Emigration Creek and Wasatch

Hollow project evolved from a straightforward repair into a dynamic, high-stakes response to rapidly changing conditions. What began as an effort to stabilize eroding creek banks and rehabilitate a failing outfall system quickly escalated after a flood event threatened nearby homes, infrastructure, and access.

Faced with steep slopes, unstable soils, inefficient basin outfall configurations, and deteriorating infrastructure conditions—including a partially collapsed corrugated metal pipe—the project team continuously reworked the "build," extending the outlet downstream, navigating tight spatial constraints, and selecting innovative solutions such as CIPP rehabilitation, a compact USBR energy dissipation structure, additional outfall monitoring features, and added gate flood control features. Each step required balancing hydraulic performance, constructability, and real-world field surprises.

Complicating the effort were evolving permitting requirements (late-stage federal coordination under emergency classification), accommodating the design of an emergency spillway to meet moderate hazard dam requirements, and coordination with over-extended agencies. Despite these challenges, the team successfully designed the project, stabilized the channel, satisfied stakeholders, and mitigated long-term erosion risks.

This presentation tells the story of an adaptive design process—where plans were reshaped piece by piece—to highlight lessons learned in flexibility, field-driven decision-making, and assembling resilient solutions under pressure. Everything is awesome!

John De Leon, JUB is a licensed professional engineer and certified floodplain manager who got his master's in civil engineering from BYU. He's had a few side quests across different areas of civil engineering, but his current hyperfixation is hydrologic and hydraulic modeling, storm drain design, floodplain mapping, and construction management. Outside of work, you can usually catch him attempting to stay active, battling an ever-growing backlog of home and church quests, and wondering if AI is about to absolutely cook the engineering profession and (if you couldn't tell) speed-running Gen Z terminology.

B2: **Going Underground: Stormwater Pipe Networks in HEC-RAS 7.0;** Urban areas require robust engineering tools to model and mitigate complex flooding. The release of HEC-RAS versions 6.6, 6.7 beta, and 7.0 with integrated pipe-network capabilities now allows engineers to combine subsurface drainage systems with two-dimensional overland flow hydrodynamic modeling within a single, widely available platform. This presentation reviews a project case study from a complex urban drainage network in the DFW area where the pipe-network functionality was used with two-dimensional overland flow. The analysis includes undersized channels,

lateral and overland flow, various culvert and bridge crossings, and storm drain trunk lines of varying sizes. Model development, sensitivity analysis, modeling comparisons, key outcomes, and lessons learned will be presented.

Dan Jones P.E., MS, CFM Dan brings more than a decade of hydrologic and hydraulic modeling, floodplain management, and stormwater master planning, along with Letters of Map Change, drainage studies, and permit reviews. He joined Bolster Engineering in 2025. Much of his experience has helped Utah communities understand and manage their flood risk. He is the engineer you call when the standard approach does not fit.

Stephen Bolster P.E., MS, CFM graduated from BYU in 2012 and founded Bolster Engineering in 2022. He focuses on assisting municipalities and private entities to solve the problems this room knows well: complex drainage, flood risk, and hazard mitigation. His work has him supporting communities in Utah, Texas, and nationally. His outside time has him thinking about watershed hydrology and hydraulics, whether that's mountain biking, canyoneering, or fly fishing. He loves getting his feet wet in the places that we represent in our models.



Thursday, October 1, 2026

Plenary Session 2:

Rain-on-Snow, the story of Four Watersheds; Rain-on-snow events are well documented in the Intermountain West. These winter and early spring storms, often called the “Pineapple Express,” are occurring more often and have caused severe flooding. Recent events have resulted in bridge and culvert failures, canal and flood control channel breaches, and loss of homes. The 2005 event alone caused an estimated 200–300 million in damage, with about 90% occurring in Washington County and the rest in Cache and Box Elder Counties. Similar events in 2011, 2017, and 2023 also caused millions of dollars in damage. The most significant historic event was the 1983 flooding, which followed a wet fall, saturated soil, record snowfall, a cool late spring, and then rapid warming with heavy rain on snow. Together, those conditions caused about $630 million in damage in Utah (about $2 billion in 2026 dollars).

Design Considerations

Flood-frequency analyses based on stream-gauge records can capture these peak flows—but only if the gauges survive the event, which many did not in 1983. Even so, rain on snow is rarely used as a primary design criterion. This paper summarizes evaluations of four watersheds where rain-on-snow was included in 30% design for flood-control infrastructure such as dams, flood-control channels, culverts, and bridges under the NRCS PL-566 planning process. These watersheds range from Cache Valley in the north to Millard County in the south. The paper compares the analysis results of rain-on-snow runoff with summer runoff and typical snowmelt conditions, outlines the evaluation process, and discusses the sensitivity of key variables.

Recommendations

This paper does not present original research. Instead, it provides practical guidance and tools for design implementation. While not every project can justify developing independent design hydrographs, this paper provides interim guidance based on completed studies, recommends additional coordinated investigation, and shares rain-on-snow resources for those who cannot attend Tuesday’s training session. (This assumes the 4-hour training option discussed with Trevor is selected.)

Lance Houser, P.E., M. EWRI, Franson Civil

Breakout Session 1:

A1: **Lessons from 2D Urban Stormwater Modeling in Cody Wyoming;** Bowen, Collins & Associates and the City of Cody Wyoming recently completed a detailed 2D stormwater model of the entire City including all City pipes and inlets. By transitioning from a traditional 1D or conceptual representation of the Citywide runoff response, new specific lessons and implementation plans were identified. This presentation will discuss the lessons learned in developing a detailed 2D urban stormwater model, including its application in developing a capital improvement plan.

Tucker Jorgensen, Bowen Collins

A2: **Best Available Data: Navigating FEMA Requirements with a Non-Effective Hydraulic Model;** When high-flow events in 2024 eroded the west bank of the Jordan River and undercut the adjacent Jordan River Parkway Trail, Riverton City needed a permitted solution — and fast. The project site sits within a SFHA Zone AE floodway, meaning any proposed streambank stabilization required a no-rise analysis before construction could begin. The catch: the current effective FEMA model is a 1992 HEC-2 that proved inoperable, leaving the project team without a standard starting point. This presentation follows the decision-making process of adopting a locally developed model as the best available data, and the engineering judgment required to build pre-existing, existing, and proposed model conditions from it — including developing a new cross section where neither field survey nor LiDAR provided an adequate subsurface profile. The proposed streambank stabilization, featuring riprap revetment and stream barbs, serves as the visual and regulatory backdrop for what is ultimately a case study in practical hydraulic modeling. Attendees will come away with a framework for navigating no-rise analyses when the effective model isn't an option.

Kade Flake, Jones & DeMille, Kade holds a master's degree in Civil Engineering from Utah State University. His master's thesis analyzed the relationship of energy dissipation between labyrinth weirs and stepped chute spillways. Kade is a Project Engineer at Jones and DeMille Engineering, where he specializes in hydraulics and water resources engineering. Kade's four years of work experience has included open channel flow analysis, stormwater design, dam breach analysis, emergency watershed protection, floodplain mapping, and rural water and wastewater conveyance system design. When not at work, Kade is often building or fixing something, away visiting family, or helping on the farm.

B: **The Organized SWMP;** Consor and Hansen, Allen & Luce have developed a comprehensive, structured approach to organizing Storm Water Management Plans (SWMPs) that increases clarity, usability, and compliance.

Their method begins by integrating the full UPDES permit directly into the SWMP, clearly linking each permit requirement to the specific processes used to achieve compliance. These processes are then compiled into an Annual Tasks Calendar, a checklist-driven framework to ensure all permit obligations are consistently met.

Each task within the calendar is cross-referenced to:

- The SWMP
- A Standard Operating Procedures (SOP) Manual
- A Forms and Tools Library
- A Stormwater Design and BMP Manual

These resources provide clear guidance on how each task is implemented and documented.

This presentation will outline how these components are integrated to create a streamlined, fully compliant SWMP that is both practical for implementation and defensible for regulatory review.

Chris Thompson, Hansen, Allen & Luce: Chris grew up in Washington and Utah and attended school at Brigham Young University. He loves traveling and being with his family. He has over 30 years of experience in design, planning studies and project management. He is a senior project manager at Hansen, Allen & Luce Engineering.

Justin Brewer, Consor

Breakout Session 2:

A: **St. George EWP Project: Reducing Flood Risks to the City's Urban Areas;** This presentation summarizes the City of St. George's implementation of multiple NRCS Emergency Watershed Protection (EWP) projects following a highly localized and intense storm event on August 23, 2020, which produced up to 4.4 inches of rainfall in approximately two hours in parts of the watershed—an event exceeding a 1000-year return interval in some locations. It provides an overview of the NRCS EWP program, including funding structure, eligibility criteria, and sponsor responsibilities, and demonstrates how federal-local partnerships enabled rapid recovery and mitigation efforts to reduce future flood risk. The presentation details four major projects completed between 2022 and 2025—Virgin River bank stabilization, Red Hills, North Industrial Park, and South Industrial Park debris basins, and the Middleton floodwall—highlighting key hydrologic analyses, design challenges, regulatory coordination, and innovative engineering solutions such as controlled outlet structures, debris basin spillways, and flood diversion systems. Collectively, these projects represent an integrated approach to mitigating flood hazards in rapidly developing urban areas, resulting in over $6 million in construction improvements that enhance

watershed resilience, protect infrastructure, and reduce risks to life and property.

Clint Merrill, Bowen Collins, attended Brigham Young University and graduated with a Master of Science in Civil and Environmental Engineering, emphasizing in water resources in 2009. Since then, he has worked throughout Utah, Colorado, and California on a variety of heavy civil projects including roadways, railroads, storm drain systems, water distribution systems, and large flood control structures. He is currently a Project Manager and Principal Engineer at Bowen Collins and Associates. He lives in St. George, Utah with his wife Jessica, and his 3 children. When he's not at work, you'll find him renovating his home, 3D printing, or pretending to be a decent drone photographer.

B: **Culvert Design in Arid Environments;** Environmental activism, litigation, and a federal injunction in the Pacific Northwest have resulted in a multi-billion dollar effort to increase the size of hundreds of culverts for fish passage. While the purpose of these culvert replacements are primarily for environmental reasons, the larger hydraulic openings had unintended benefits of improving sediment performance and reducing maintenance and repair needs. This is in stark contrast with the typical culvert design approach that optimizes hydraulics in order to achieve the smallest, and cheapest, opening possible.

In some cases, the aim to use the smallest possible hydraulic opening for culvert design works well and no adverse consequences are experienced. But in others, notably systems where sediment and debris loads are significant as is typical in arid regions, this hydraulic design approach fails spectacularly and requires either costly ongoing maintenance or significantly increases risk of failure and corresponding loss of life and property. This presentation looks at the rationale for increasing the minimum hydraulic opening for culverts in arid regions and why guidance should be enacted that encourages engineers to account for sediment and debris in their designs. Practical methods for designing culverts in arid regions are also presented as potential approaches for engineers and government agencies that want to see reduced life cycle costs and better project performance.

Darren Hinton is a principal engineer at Northwest Hydraulic Consultants with 20 years of professional experience. He holds a B.S. and M.S. in Civil and Environmental Engineering from USU and a Ph.D. in Civil and Environmental Engineering from BYU. Darren’s early career was spent in his hometown of St. George. After joining NHC, he moved to the Seattle area to manage one of the company’s physical hydraulics laboratory, a position he held until 2017 when he moved back to Utah and continued to work remotely for NHC. With a background in hydraulic modeling, bedload transport, and river engineering, Darren specializes in designing hydraulic structures, fish passage features, and bank stabilization. He is active in his church and

enjoys spending time with his family, especially hiking, birding, camping, and reading.

Breakout Session 3:

Tour: **Water River Observatory Tour** Tickets required - you can purchase a ticket at the registration table. All ticket holders meet out front of the conference center to board a bus. Water lab tour duration will be about 2 hours. The bus will return to the conference center at the end.

The Logan River Observatory (LRO) tour will introduce participants to Utah State University's long-running hydrologic monitoring network spanning the Logan River watershed from its mountain headwaters down through the valley. Participants will visit active data collection sites, including streamflow gaging stations, water quality sensors, and climate stations positioned throughout Logan Canyon and the Cache Valley, which continuously track discharge, temperature, water chemistry, snowpack, and groundwater exchanges. Along the way, a tour guide will explain key questions the LRO is designed to answer, such as how karst aquifer springs sustain summer river flows, how snowmelt translates to streamflow, and how urban development and agricultural diversions affect water quality. The tour highlights how this data can be used to inform local and statewide water management decisions, while also serving as a hands-on learning experience for students, policymakers, and the broader community.

Beth Neilson, UWRL

A1: **Enhancing Professional Skills: Breaking Down Different Perspectives on Resilience;** As extreme weather trends reshape flood risk landscapes and development pressures escalate, floodplain management professionals face unprecedented challenges that demand innovative, interdisciplinary solutions. This session is dedicated to exploring resilience from multiple viewpoints to empower attendees as they navigate evolving career pathways. By examining how resilience is defined and applied across diverse disciplines, ranging from structural engineering to rock climbing, we will uncover both common threads and unique distinctions between definitions. These insights will foster a deeper, more nuanced understanding of resilience, including practical approaches for measuring, cultivating, and applying it within professional and community contexts. Attendees will leave equipped with actionable considerations to enhance their day-to-day implementation of projects and programs that incorporate resilience. The presentation will also spotlight a curated set of reading materials for attendees to continue exploring this topic long after the session ends.

Joe DeMarco, WSP, is a lead consultant with 10+ years of experience in environmental/resiliency planning, compliance, and program management, with a portfolio of past projects covering nearly every State and U.S.

Territory for work involving buildings, transportation, water infrastructure, and land management. Across these notable projects, he has completed sufficient National Environmental Policy Act (NEPA) analyses; helped secure permits and oversee mitigation measure implementation; performed multi-hazard resilience planning exercises; developed agency-wide policy and trained personnel; and conducted environmental due diligence and compliance audits. Throughout his career, he has strengthened client relationships, managed risks, refined planning and permitting approaches, overseen subcontractors, and ensured deliverables exceed expectations.

A2: **Logan River Restudy & Restoration;** Flood events in Logan, Utah, in 2010 raised concerns about the accuracy of regulatory floodplains depicted on the effective Flood Insurance Rate Maps (FIRMs). In response, J-U-B Engineers was commissioned to conduct a comprehensive restudy of flood hazards throughout Logan City.

During May and June 2011, the Logan River experienced prolonged snowmelt flooding, with peak flows approaching a 25-year event and elevated discharges sustained for nearly two months. Preliminary hydraulic modeling supported the City's flood response during this period. Following the event, widespread channel instability and damage prompted multiple stream restoration efforts.

Subsequent to construction of stream restoration projects, the study culminated in the development and submittal of a Letter of Map Revision (LOMR) to FEMA, reestablishing flood hazard mapping across the community.

In this presentation, Jamis Darrow of J-U-B Engineers will highlight key modeling and design efforts, including:

- Development of initial floodplain mapping
- Flood response and recovery efforts
- Use of the 2011 flood event for model calibration
- Geomorphic assessments and sediment transport analyses
- Design and implementation of multiple river restoration projects
- Final floodplain mapping and LOMR submittal

Jamis Darrow, JUB Engineers, is a Program Manager and Professional Engineer with more than 22 years of experience delivering stormwater infrastructure, watershed planning, floodplain management, and drainage improvement projects throughout Colorado, Wyoming, Utah, and Nevada. His expertise includes hydrologic and hydraulic modeling, storm sewer and flood control infrastructure design, floodplain and FEMA compliance, watershed master planning, channel restoration, and stakeholder coordination. Jamis has contributed to more than 20 FEMA CLOMR, LOMR, and PMR submittals, and has successfully assisted numerous communities in navigating complex floodplain regulations and resolving violation letters. Jamis is a Certified

Floodplain Manager and has served for 4 years on the Larimer County Flood Review Board.

B1: **Virgin River Levee Project: Navigating a Flood of Design Challenges and Regulatory Requirements;** The Horrocks and AtkinsRealis project team are working together to design and permit a new flood protection levee along the ever-meandering Virgin River, spanning a mile long from Arizona into Nevada. This project is challenging from a technical design perspective as well as meeting regulatory requirements. A few of the agencies involved include Mojave County (AZ), Clark County (NV), State Lands, Dam Safety, BLM, USACE, and FEMA. Horrocks will share the challenges, successes and lessons learned from this ambitious project.

Katie Jones, Horrocks, earned both a BS and ME in Civil Engineering from Utah State University. She is a project manager and drainage practice lead at Horrocks, where she has led a wide range of drainage projects involving hydraulic modeling, hydrology, permitting, flood hazard mapping, FEMA flood map revisions, storm drain conveyance design, levee design and compliance, and post-fire flood and debris analysis. She also provides drainage design support for rail and site development projects and has served on the UFSMA board over the past year.

B2: **1600 North project in Orem;** The 1600 North project in Orem is under construction now. They are building a series of infiltration ponds. We designed that project and can give a short talk about how we incorporated LID practices, benefits, and challenges.

Cathy Romero, METHODs Consulting: Cathy's experience is in drainage design including hydrology, storm drain design, sustainable development, water quality, canal structures, inverted siphons, detention facilities, bridge scour analysis, permitting, erosion control, compliance with MS4, and addressing localized urban drainage problems. She has been actively involved in the design, management, and advertising of many projects for over 30 years.

Breakout Session 4:

A: **Ask Anything! Floodplain Mapping and Management Panel;** Panel Discussion and open session for questions on the spot and candid answers from state officials on floodplain mapping and management.

Jamie Huff, Utah, is the Hazard Mapping & Risk Analysis Section Manager where she manages activities for the Floodplain Mapping and Geospatial Resource (GIS) programs for DEM. With over 20 years in her career, she has served several roles at the federal and state level working with the National Flood Insurance Program (NFIP) and flood mapping programs in some capacity. Most recently, as the Risk MAP (Floodplain Mapping) Program Manager for Utah

DEM where she managed state-wide flood risk and floodplain mapping activities within Utah. Jamie received her Bachelor of Science degree in Geography from the University of Utah and is a Certified Floodplain Manager (CFM).

Tracie Harrison, Utah State Floodplain Manager

B: **Buckley Draw Debris Flow;** Provo City experienced a wildfire followed by an intense rainstorm in late summer of 2025. This presentation discusses the risks of this type of flooding, response and cleanup and lessons learned. Note: this presentation also occurred at the APWA stormwater conference in August.

Jacob O'Bryant, Provo City, has 20 years of experience as a civil engineer in both the public and private sectors. He has extensive experience in storm drain system design, 2-D floodplain modeling, culvert analysis and design, master planning, highway program management, and water resources.

At the time of the debris flow, Jacob served as head Stormwater Engineer where he was directly involved in responding to and evaluating the impacts of the event. He is a licensed professional engineer and a certified floodplain manager. Jacob recently transferred to Provo City's Water Resources group, where he works on culinary water and wastewater systems.

Outside of work, Jacob is a father of five and enjoys motorcycles, dirt biking, camping, gardening, and playing guitar. He is also trying to learn how to golf—with mixed results.

Thomas (Tommy) Scherbel, Provo City, is a Professional Engineer and Certified Floodplain Manager with nearly 10 years of experience with stormwater systems and hydrology, among other civil engineering/development experience. He currently serves as the Floodplain Manager for Provo City, where he manages the City's floodplain program and works on capital projects to improve the stormwater system throughout Provo.

Tommy enjoys spending time with his wife and four kids, playing basketball, and playing video games.

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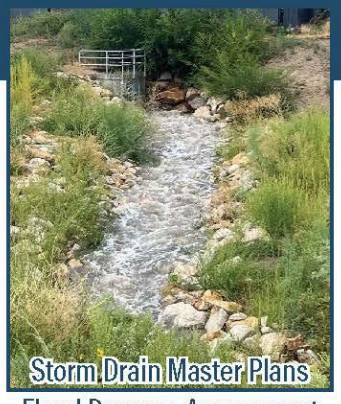
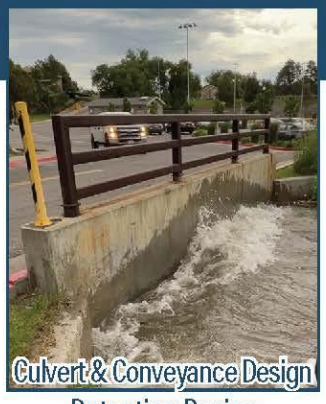
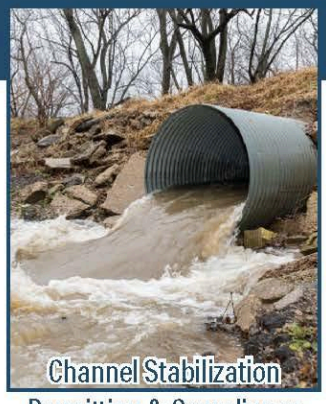
Floodplain Delineation
PMP/PMF Analysis



Flood Damage Assessment
Water Quality Management



Detention Basins
Flood Control Structures



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Friday, October 2, 2026

Plenary Session 3:

Risk to Resilience: Designing and Delivering Debris Basins; After the Israel Canyon debris flow, the City of Saratoga Springs began an aggressive program to assess risk, design solutions, procure funding, and construct debris basins. Our presentation shares the strategies and resources we used in that process as well as the outcomes and protection that has been afforded to the city.

Joshua Prettyman, Horrocks/ Saratoga Springs

Jeremy Lapin, Saratoga Springs

Plenary Session 4:

Field Trip Introduction; The Logan River is a defining natural feature of Cache Valley, shaping the region's ecology, economy, and community for generations. Originating in the Bear River Mountains, the river provides critical water resources, supports diverse wildlife habitat, and offers year-round recreational opportunities. As Logan has grown, balancing the needs of a thriving community with the health of the river has become an increasingly important priority. Ongoing restoration efforts seek to preserve the river's ecological value while enhancing its resilience for future generations.

Over the past several decades, Logan City and its partners have worked to improve river function through habitat restoration, streambank stabilization, floodplain enhancement, and improved watershed management practices. These projects are designed to reduce erosion, improve water quality, support fisheries and wildlife, and lessen flood risks throughout the corridor. The result is a healthier, more sustainable river system that continues to serve as both a community asset and an environmental treasure. Darren Farar, Logan City Engineer, will provide perspective on the vision and long-term investments that have guided these restoration efforts.

Darren Farar, Logan City

Colton Smith, has experience in hydrologic and hydraulic modeling and water resources engineering. This includes site runoff modeling, culvert analysis, watershed Risk Map studies, FEMA floodplain mapping, flood protection, watershed planning, master planning, and stream stabilization. He enjoys working on projects that include planning, modeling, design, and construction management. Outside of work, he enjoys playing sports, hiking, relaxing, and playing video games.



Points of Interest Along the Logan River

Horrocks.

WATER RESOURCES

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- Water Rights

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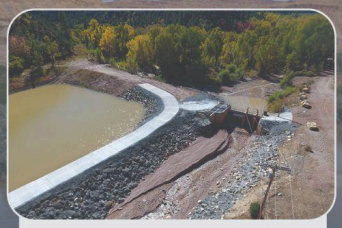
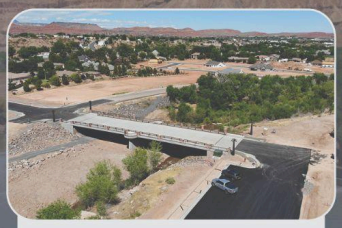


Detention & Retention Facilities
Drainage Conveyance
Strom Drain Master Plans



Channel Stabilization
Flood Management
River Erosion Hazard Plans
Water Pollution Protection

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Denis D. Stuhff Award of Excellence



The award is named in memory of Denis Stuhff, who served as a Senior Hydraulic Engineer for UDOT for 20 years. Denis was known for his encyclopedic knowledge of structures, hydraulics, and environmental engineering, as well as his deep love of history. He exemplified excellence in everything he did.

His commitment to ethical behavior and his passion for hydrology and helping people saved the State of Utah millions in tax dollars. Denis was a valued teacher, mentor, and dear friend to many, and we honor his legacy by presenting this award in his name.

The Denis D. Stuhff Award of Excellence is presented at the Association Conference each year. This award recognizes an individual or team that has demonstrated extraordinary achievement or a notably high standard of success in a floodplain or stormwater management project.

CONFERENCE SURVEY

Please offer feedback using this survey: https://forms.gle/uFgFHx1R3BWPHiEq7