2025 UFSMA Conference Schedule

	Tuesday (11/18)			Wednesday (11/19)		Thursday (11/20)		Friday (11/21)	
				A	B	A	B	A	B
7:45 - 8:30				Registration & Welcome (Breakfast Provided in Lobby)		(Breakfast Provided in Lobby)		(Breakfast Provided in Lobby)	
8:30 - 10:00		**Geomorphology 101 for Floodplain Managers** 8:30 - 10:30 (Mid-morning snack and beverages provided)		**Ethics** Louie Greenwell		**Great Salt Lake Watershed Council** Tim Hawkes		**Building Self-Reliance in a New Era of Floodplain Mapping and Flood Risk Management** Jamie Huff & Becca Croft	
10:00 - 10:30				Break (Snack Provided)		Break (Snack Provided)		Break (Snack Provided)	
10:30 - 11:30	**NFIP 101** 8:30 - 12:30 (Mid-morning snack, lunch, and beverages provided)			**Post-Wildfire Assessment of the Silver King Fire** Ben Rood **Silver King Fire - NRCS EWP** Ricky Anderson, Kade Flake, Mike Rasmussen	**Retention/ Detention Design** Greg Seegmiller **Estimating Impacts of Storm Water Runoff** Jacob Flansberg	**Improved Access to Utah's Digital Flood Risk Data** Holly Strand	**Managing Storm Water near the Great Salt Lake** Kameron Ballentine & Andrew Barney	**Millcreek Watershed Restoration Plan** Cameron Jenkins & Jamie Huff **To Flood or Not to Flood… To Flood! Designing Resilient Bridge Scour Countermeasures in Moab, Utah** Colton Smith **Field Trip Intro** Cameron Jenkins	
11:30 - 12:30				**Preliminary Damage Assessments** Max Johnson	**Running an MS4** Jeanne Riley	**Long-Term Post-Wildfire Flood Mitigation** Kathy Holder and Lucinda Andreani **Recap of 2025 Wildfires** Max Johnson	**MS4 Storm Water Audit - What to Expect** Dana Shuler **MS4 Permits** Panel Discussion	**Field Trip** Pack Creek and Mill Creek, Moab (To-Go Lunch Provided)	
12:30 - 2:00			**Golf Tournament** 11:00 Registration 11:30 Shotgun Start (location)	12:30 - 2:00 (Lunch Provided) feel free to enjoy your lunch inside or outside		12:30 - 2:00 Business Meeting (Lunch Provided)			
2:00 - 3:00	**Letters of Map Change** 1:00 - 5:00 (Lunch and beverages provided)	**GIS for Floodplain Managers** 1:00 - 5:00 (Lunch and beverages provided)		**What's New and Trends in Certification** Louie Greenwell **Alt Delivery Contracts & Floodplain Permitting** Josh Hollon	**Paradigms, Fallacies, and Self Improvement** Jason Allen	**Clipper Wash Erosion Project – Gabion Groynes** Dagoberto Kirkbride **Debris Basin Improvements** John DeLeon	**Benefits of Green Infrastructure** Jesse Clark **Practical Insights from LID Installations** Chris Edwards & Zach Magdol	Conference Concluded See You Next Year Safe Travels	
3:00 - 4:00				**Guidelines for Using 2D Models** Carter Moffitt & Dallen Webster **Mitigation Initiatives & Programs** Kathy Holder	**Don't Flip Your Lid - Storm Water Impacts on the Great Salt Lake** Kayson Shurtz & Lance Nielsen	**Rural Communities Cross Collaboration** Josi Roberts **Grand County Flood Warning Program** Michael McMahon & Keith Weaver	**Floodplain Modelling Influences on Watershed Planning** Ferrin Affleck **Adaptive Level Control Systems** Carter Moffitt		
4:00 - 5:00				Adjourn	Adjourn	Adjourn	Adjourn		
7:00 - 9:00	**Welcome Reception and Early Check-in** (Free, hotel lobby)			**Hospitality Suites** Hosted by NWPX Geneva and Oldcastle Infrastructure		**Hospitality Suites** Hosted by NWPX Geneva and Oldcastle Infrastructure			



Photo: McKenzie Goodenough, Moab, UT, Kane Creek

UFSMA

Utah Floodplain & Stormwater Management Association

Utah Floodplain and Stormwater Management Association Welcomes You to the 2025 Annual Utah Floodplain & Stormwater Management Association Conference

November 18-21, 2025
Element Moab, Moab, 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, November 18th

Time	Topic	Speaker
11:00 AM	**UFSMA Moab Golf Tournament** Moab Golf Club (2705 S. East Bench Road, Moab, UT 84532) Shotgun Start: 11:30 AM 18 holes. Best Ball Scramble	
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 Goodenough, UT Division of Emergency Management
1:00 PM - 5:00 PM	**Letters of Map Change (LOMC) Workshop** This four-hour training provides a comprehensive overview of the FEMA Letter of Map Change (LOMC) process, including LOMAs, LOMR-Fs, and LOMRs. Participants will learn when and how to apply for a LOMC, required data, how to interpret FEMA's determinations, and common pitfalls. The course also covers digital submittals, coordination with local officials, and how LOMCs affect flood insurance and development regulations. This session is valuable for local floodplain administrators, surveyors, engineers, and others involved in managing floodplain changes or preparing applications.	Ben Rood

Time	Topic	Speaker
8:30 AM - 10:30 AM	**Geomorphology for Floodplain Managers Workshop** ● Overview of Geomorphology ● Debris Flows/Landslides ● Soils and Surfaces ● Rivers and Riverine Erosion ● Case Histories	Mike Kellogg, JE Fuller
1:30 PM - 5:00 PM	**GIS Course** Transitioning from paper to digital floodplain mapping is crucial for efficient management, aligning with UDEM's goal of digital flood insurance rate maps (DFIRMs). WSP offers custom training (GIS Basic Skills I & II) to equip participants with skills to interpret and utilize GIS systems in floodplain management and permitting, adhering to FEMA and NFIP standards. Our expert-led workshops provide user-friendly materials and hands-on sessions, showcasing DFIRM and Risk MAP GIS products. Participants will perform coordinated analysis on Utah datasets, enhancing their understanding of available community data.	Utah Division of Emergency Management, WSP
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, November 19th

Time	Topic	Speaker
7:45 AM	Registration - Breakfast provided in the Lobby (Breakfast available 6:30 AM - 8:30 AM)	

Time	Topic	Speaker
8:00 AM - 8:30 AM	Welcome	
8:30 AM - 10:00 AM	Plenary Session 1 **Ethics** This workshop, designed by the Professional Development Committee (PDC), offers ethics training for floodplain managers, covering ethical issues, the CFM Code of Ethics, engineering ethics, and technical decisions in floodplain management. The PDC's ethics workshop for floodplain managers addresses common ethical issues, the CFM Code of Ethics, engineering ethics, and technical aspects of floodplain management programs.	Louie Greenwell, GISP, CFM & Trevor McDonald, PE & Lucas Blake, PLS
10:00 AM - 10:30 AM	Break (Snack Provided)	
10:30 AM - 11:30 AM	Breakout Session 1 **A1: Post-Wildfire Assessment of the Silver King Fire** A comparison between the potential flood after fire risk that resulted from the high burn severity Silver King fire. We will discuss the flood modeling approach for clearwater and debris flow analysis. Then we will show results and comparison of the events and contrast the risk to Marysvale, Utah.	Ben Rood & Andrew Burman
	A2: Silver King Fire - NRCS EWP This presentation shares practical lessons and technical approaches using HEC-RAS, Civil 3D, and NRCS practice standards within budget and timeline constraints.	Ricky Anderson & Kade Flake & Mike Rasmussen
	B1: Retention/ Detention Design	Greg Seegmiller

Time	Topic	Speaker
	B2: Estimating Impacts of Stormwater Runoff This talk is about the Stochastic Empirical Loading and Dilution Model (SELDM), developed by USGS and FHWA, which helps state and local agencies with MS4 permits to quantify the risks and effectiveness of stormwater runoff management.	Jacob Flansburg
11:30 AM - 12:30 PM	Breakout Session 2 **A: Preliminary Damage Assessments** How to conduct PDAs, what information is collected, and where to obtain support during the process. The presentation will be focused on floods.	Max Johnson
	B: Running an MS4 This presentation will review the permit's six minimum control measures and highlight the ways permittees can ensure their program complies with permit requirements.	Jeanne Riley
12:30 PM - 2:00 PM	Lunch (Provided)	

Time	Topic	Speaker
2:00 PM - 3:00 PM	Breakout Session 3 **A1: What's New and Trends in Certification** Training & Technology Programs. Topics for discussion include the new digital CFM badging initiative, micro-credentialing opportunities, a new CFM exam, required ethics credits at CFM renewal, and new floodplain management course offerings, including mutual aid and substantial damage estimator.	Louie Greenwell
	A2: Alternative Delivery Contracts & Floodplain Permitting This presentation highlights successful alternative delivery projects where floodplain manager engagement and permitting were crucial for design, timelines, and overall project success.	Josh Hollon
	B: Paradigms, Fallacies, and Self Improvement The presentation will discuss how to overcome limiting factors such as traditions, expectations, and personal hubris to recognize and realize the true value of every opportunity.	Jason Allen

Time	Topic	Speaker
3:00 PM - 4:00 PM	Breakout Session 4 **A1: Guidelines for Using 2D Models** This presentation covers best practices, regulatory considerations, and technical workflows for 2D HEC-RAS models, focusing on "no-rise" evaluations and FEMA-compliant submittals.	Carter Moffitt & Dallen Webster
	A2: Mitigation Initiatives & Programs The presentation will cover Utah's current mitigation initiatives, highlighting key programs and strategies across the state. It will also discuss the evolving landscape of federal mitigation programs, including recent changes, upcoming shifts, and their implications for state and local hazard mitigation efforts.	Kathy Holder
	B: Don't Flip Your Lid - Storm Water Impacts on the Great Salt Lake Recent concerns about GSL water levels due to drought and diversions have increased interest in stormwater management, including low-impact development (LID).	Kayson Shurtz & Lance Nielsen
4:00 PM	Enjoy Moab!	
7:00 PM - 9:00 PM	Hospitality Suites - Hosted by NWPX Geneva and Oldcastle Infrastructure	

Thursday, November 20th

Time	Topic	Speaker
7:45 AM - 8:30 AM	Breakfast provided in the Lobby (Breakfast available 6:30 AM - 8:30 AM)	

Time	Topic	Speaker
8:30 AM - 10:00 AM	Plenary Session 2 **Great Salt Lake Watershed Council** An address on the "state of the Lake," covering the current conditions, trends, and the consequences of the Great Salt Lake's continued decline. Also discuss public and private initiatives to protect and restore the Lake, focusing on recent developments.	Tim Hawkes
10:00 AM - 10:30 AM	Break (Snack Provided)	
10:30 AM - 11:30 AM	Breakout Session 1 **A: Improved Access to Utah's Digital Flood Risk Data** The Utah Division of Emergency Management (DEM) is helping communities understand and use flood risk data.	Holly Strand
	B: Managing Storm Water near the Great Salt Lake This presentation will address the challenges and strategies for managing stormwater in this unique system, which is characterized by high groundwater, minimal slope, and its proximity to the Great Salt Lake.	Kameron Ballentine & Andrew Barney
11:30 AM - 11:30 AM	Breakout Session 2 **A1: Long-Term Post-Wildfire Flood Mitigation** The Coconino County Flood Control District initiated post-wildfire flood mitigation for the 2022 Pipeline Fire, leveraging past experience and partnering with experts to model flood risk.The Utah Post Wildfire Mitigation Team also offers a "One Stop Shop" to assist communities with assessing and	Kathy Holder & Lucinda Andreani

Time	Topic	Speaker
	mitigating post-wildfire cascading events like flooding and debris flows.	
	A2: Recap of 2025 Wildfires A description managing the process from an EOC level will be discussed, as well as lessons learned along the way. The presentation also includes details related to post-fire flooding, burn scars, and debris flows.	Max Johnson
	B1: MS4 Storm Water Audit - What to Expect Are you an MS4 that hasn't been audited yet? Find out what to expect when, not if, you get audited, and tips on making your audit go as smoothly as possible.	Dana Shuler
	B2: MS4 Permits - Panel Discussion Hear from a panel of professionals as they share tips and ideas for implementing the municipality's Storm Water Management Plan.	Panel and moderator
12:30 PM - 2:00 PM	Business Meeting (Lunch Provided)	
2:00 PM - 3:00 PM	Breakout Session 3 **A1: Clipper Wash Erosion Project - Gabion Groynes** The banks of Clipper Wash in Dewey, Arizona, experienced significant erosion, threatening nearby roads and residential areas. Groynes are structures that extend from the riverbank to deflect currents, reduce erosion, and stabilize the channel.	Dagoberto Kirkbride
	A2: Debris Basin Improvements Two debris basins in Utah County struggle with control structures that fail to capture debris effectively, leading to	John DeLeon

Time	Topic	Speaker
	frequent engagement of emergency spillways.	
	B1: Benefits of Green Infrastructure This presentation will highlight the often-overlooked social and economic benefits of GSI, such as equitable services and mitigating urban heat effects.	Jesse Clark
	B2: What Worked and What Didn't: Practical Insights from LID Installations Low-impact development (LID) and green infrastructure (GI) are increasingly important in stormwater design. This presentation will cover practical applications of LID and GI in new construction and retrofit projects, highlighting considerations such as space constraints, infiltration conditions, long-term maintenance, and coordination with other site infrastructure. Real-world examples will illustrate lessons learned and key takeaways for successful LID implementation.	Chris Edwards & Zach Magdol
3:00 PM - 4:00 PM	<u>Breakout Session 4</u> **A1: Rural Communities Cross Collaboration** This case study emphasizes the importance of early engagement, updated information, and cross-sector collaboration for emergency management professionals and communities with increased flood risk, demonstrating how community-driven initiatives can succeed when aligned with floodplain management and public safety.	Josi Roberts

Time	Topic	Speaker
	A2: Grand County Flood Warning Program	Michael McMahon & Keith Weaver, PE
	B1: How Major Trends in Floodplain Modeling are Influencing Regional Watershed Management and Planning This presentation will familiarize watershed management professionals with these terms and explain how they support watershed management.	Ferrin Affleck
	B2: Adaptive Level Control Systems This presentation will explore ALCS technologies, applications, case studies, future prospects, and benefits for Utah, demonstrating how they can modernize stormwater systems and foster climate-resilient communities.	Carter Moffitt
4:00 PM	Enjoy Moab!	
7:00 PM - 9:00 PM	Hospitality Suites - Hosted by NWPX Geneva and Oldcastle Infrastructure	

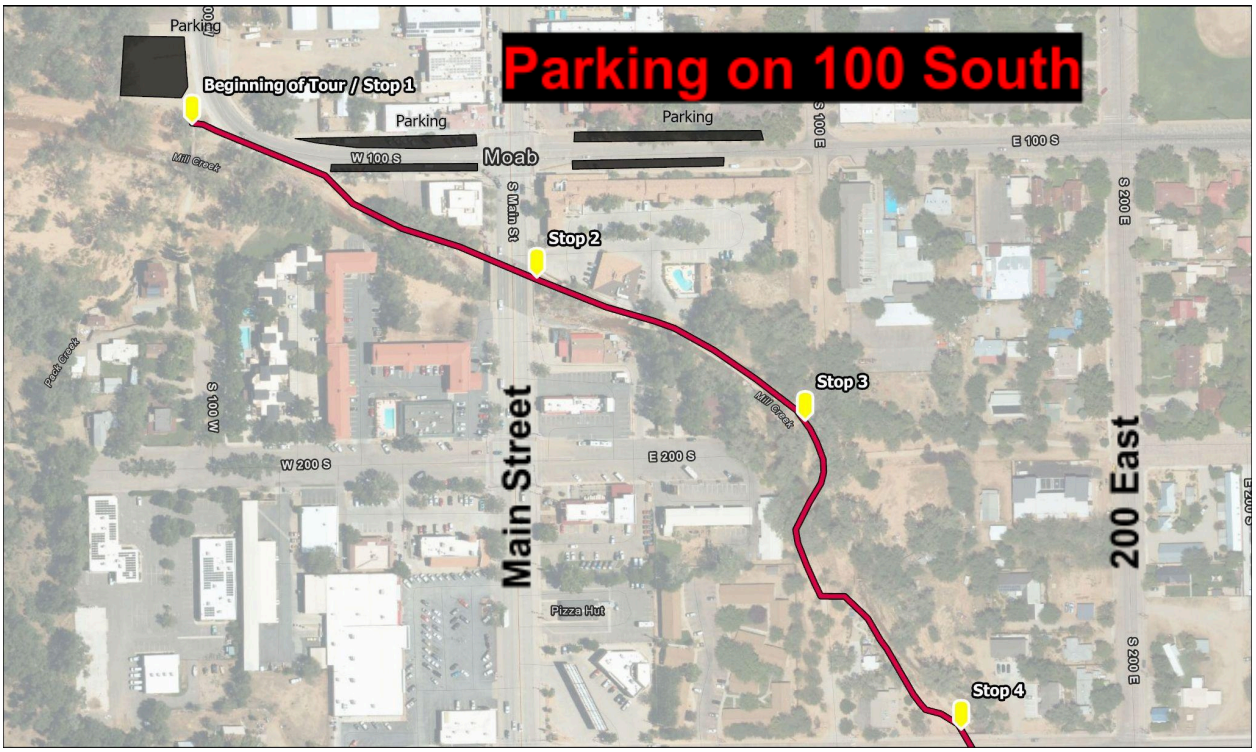
Friday, November 21st

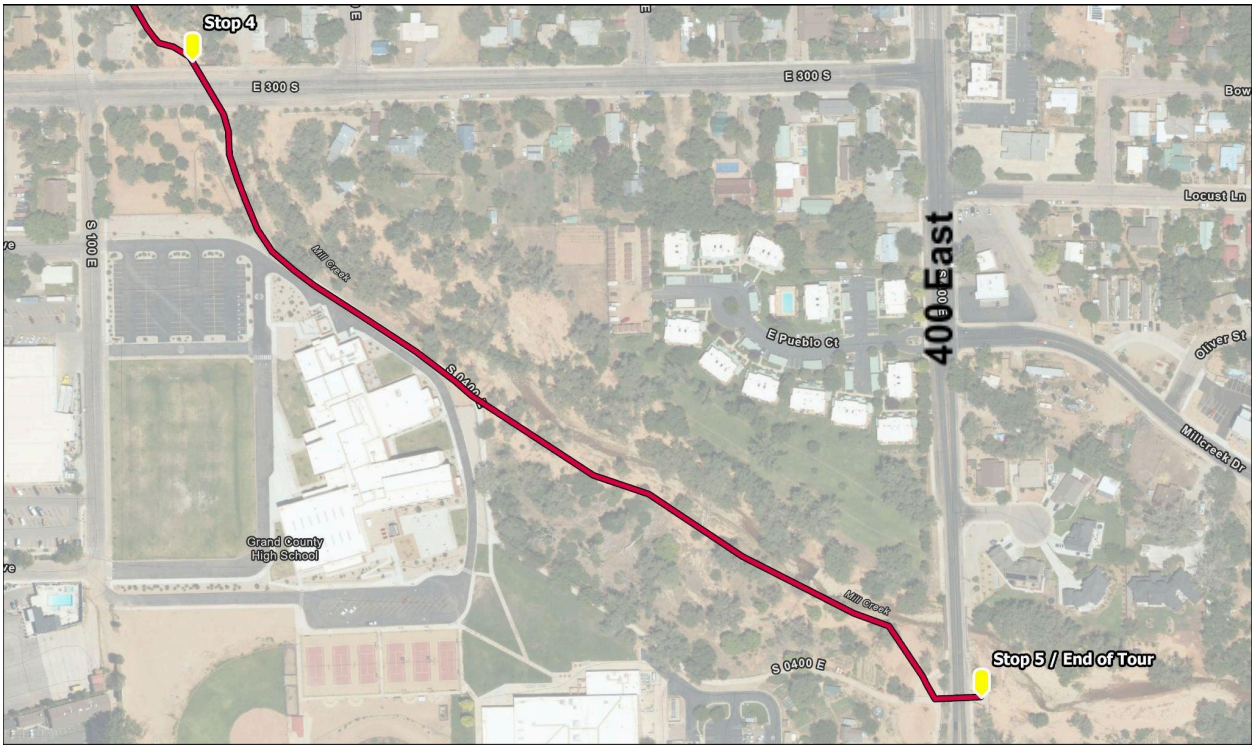
Time	Topic	Speaker
7:45 AM - 8:30 AM	Breakfast provided in the Lobby (Breakfast available 6:30 AM - 8:30 AM)	
8:30 AM - 10:00 AM	Plenary Session 3 **Building Self-Reliance in a New Era of Floodplain Mapping and Flood Risk Management** With federal flood risk management programs becoming uncertain, this	Jamie Huff, CFM DEM & Becca Croft, Atkins Realis

Time	Topic	Speaker
	session encourages communities to proactively plan for self-reliance. It will discuss how to maintain essential functions like hazard mapping and mitigation, and what technical, institutional, or financial capabilities are needed for a resilient, locally driven approach.	
10:00 AM - 10:30 AM	Break (Snack Provided)	
10:30 AM - 11:30 AM	Plenary Session 4 **Millcreek Watershed Restoration Plan** Moab City has recently experienced multiple large cloudburst events in the nearby La Sal Mountains that produced flash floods within Mill Creek. These events carried debris and sediment beyond the channel banks, causing significant damage along the creek corridor. As part of this study a plan was developed to restore the channel while safely conveying floodwaters to the Colorado River.	Cameron Jenkins PE, CFM, BC&A & Jamie Huff, CFM DEM
	To Flood or Not to Flood.. To Flood! Designing Resilient Bridge Scour Countermeasures in Moab, Utah Riverbank and bridge scour pose significant threats to infrastructure in Moab, Utah, due to the region's sandstone landscape and rapid runoff during intense rainfall. This presentation outlines the design, construction, modeling, and implementation outcomes of scour countermeasures at the 400 East crossings over Mill and Pack Creeks.	Colton Smith, PE, CFM, J-U-B Engineers
11:30 AM - 2:00 PM	To-GO Lunch (Provided) Field Trip - Pack Creek and Mill Creek	

Drive Safe and See You Next Year!

Field Trip Location/Stops







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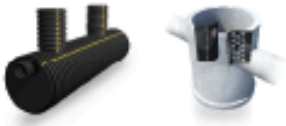
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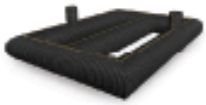
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Presentation Information

Wednesday, November 19, 2025

Plenary Session 1:

Ethics; Many professions have mandatory ethics training requirements for their licensed professionals. In an effort to offer ethics training for floodplain managers, the Professional Development Committee (PDC) has designed this workshop to promote ethical behaviors and enhance our profession. The workshop will review ethical issues often encountered in the floodplain management profession and will be applicable to engineers, floodplain managers, surveyors and others involved in the floodplain management profession. The course will explain and review both the Certified Floodplain Manager (CFM) Code of Ethics and the fundamental principles and canons of engineering ethics. The course will also include discussions on technical decisions regarding floodplain modeling, mapping and administering a community's regulatory floodplain management program.

OBJECTIVES: At the conclusion of this workshop, attendees will be able to:

- Understand the importance of having a professional Code of Ethics as a floodplain manager;
- Understand how ethics impact the day to day activities of floodplain managers and engineers;
- Recognize situations that could cause ethical dilemmas to arise
- Consider ethical situations from multiple perspectives (i.e. engineer, developer, realtor, homeowner)
- Utilize best practices to avoid and navigate various ethical dilemmas as well as tips to maintain professional integrity

Louie Greenwell, GISP, CFM

Louie began his career over 30 years ago and currently serves as the Certification, Training, and Technology Director for ASFPM. With a background in GIS, Louie has managed complex technology implementation projects at many levels of federal, state and local government. His passion for professional development and continuing education led him to ASFPM where he served as a volunteer and President for the Certification Board of Regents (CBOR). He now provides leadership for the national CFM® Program, training initiatives, and is leading various efforts to modernize and

integrate ASFPM's technology platforms. He also serves in a coordination role for the Flood Mitigation Certification Program.

Breakout Session 1:

A1: **Post-Wildfire Assessment of the Silver King Fire;** The Silver King Fire began on July 5th, 2024and burned for over two weeks in the Fishlake National Forest in Central Utah, burning a total of 18,266 acres. WSP was hired to conduct a post-wildfire flood and debris flow analysis by the Utah Department of Emergency Management (UDEM). The primary goal of this study was to provide post-fire flood and debris flow maps for each watershed, focusing on the Town of Marysvale where most of the critical infrastructure resides. WSP used a 2-dimensional rain on mesh modeling approach using area average rainfall depths from NOAA Atlas 14 to simulate different recurrence interval events. Infiltration was calculated using spatially varied, pre-fire infiltration rates, which were obtained utilizing a proprietary GIS tool that converts satellite imagery into landcover. The flow rates that this produced were checked against the USGS regression equations for the region, and the infiltration parameters were calibrated accordingly. Using maps provided from the Burned Area Emergency Response (BAER) Team, WSP increased the spatially varied infiltration data based on the burn severity to account for the wildfire induced changes in the soil characteristics. Utilizing the hydrology from the post-fire model, debris flow runout and volumes were estimated. WSP prescribed a range of sediment concentration, yield stress, and dynamic viscosity to demonstrate the potential hazard of various debris flow events. The team used the results to develop preliminary mitigation designs to protect important infrastructure. The information produced by WSP is currently being used by the Town of Marysvale and local engineering consultants to develop mitigation designs.

Ben Rood, 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.

Andrew Burman, is a Water Resource Engineer in WSP's Water Resources service line in the Salt Lake City office. He has over 6 years of experience in the areas of watershed and urban hydrology and hydraulics (H&H), statistical frequency analyses, and geographical information systems (GIS). Experience has played a key role in projects related to Digital Flood Insurance Rate Map (DFIRM) development, urban water supply, dam breach analysis, storm drainage and sewer analysis/design. Andrew has a Master

of Science degree from the University of Washington (Civil Engineering – Hydrology and Hydrodynamics); a Bachelor of Science Degree (Civil Engineering) from Colorado School of Mines. He is a registered Professional Engineer in Utah and Certified Floodplain Manager.

A2: **Silver King Fire - NRCS EWP;** In the aftermath of the Silver King Fire near Marysvale, Utah, our team was tasked with designing Emergency Watershed Protection (EWP) measures to mitigate post-fire flood and debris hazards. This presentation shares practical lessons and technical approaches applied throughout the watershed—from steep mountain drainages through the town—using HEC-RAS, Civil 3D, and NRCS practice standards, all within tight budget, timeline, and easement constraints. Key improvements included channel cleaning and armoring to protect infrastructure, low water crossings designed for steep slopes and high flows, and Water and Sediment Control Basins (WASCOBs) to intercept debris in critical drainages. Narrow, perched channels extended throughout the project area, making hydraulic modeling essential—not just for analysis, but to directly inform design decisions. We'll highlight how raster-based hydraulic outputs guided rock sizing, how iterative collaboration helped address LiDAR limitations, and how model results were translated into practical, constructible solutions. Design decisions were shaped by real-world constraints, not ideal conditions. Whether you're a consultant, agency representative, or local engineer, this presentation offers insights into applying hydraulic modeling to solve complex design problems under post-fire emergency conditions.

Ricky Anderson, PE, CFM Ricky is a water resources engineer, project manager, and team leader at Jones and DeMille Engineering. The focus of his 15-years in consulting has been on surface water type projects including flood control, stormwater, irrigation, dams, hydraulic structures, etc. Ricky and his team provide technical support for his company, being the hub for all things hydrology and hydraulic modeling and analysis. Ricky graduated with a master's degree in hydraulics from Utah State University. While attending USU, he worked for four years at the Utah Water Research Laboratory building and tested hydraulic models – which led to his thesis research on Piano Key Weirs. On a personal note, Ricky is a family man and enjoys bluegrass guitar and fly fishing.

Kade Flake, PE, CFM 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.

Mike Rasmussen, PE, CFM Mike graduated from Utah State University with a master's degree in Civil Engineering. His master's thesis was to utilize computational fluid dynamics (3D modeling) to solve a complex hydraulics problem. Mike is a water resources engineer at Jones and DeMille Engineering with 3 years of experience in flood protection projects. His expertise includes water engineering analysis and design of flood control facilities with an emphasis on hydrology and hydraulic modeling. In his free time, Mike enjoys riding dirt bikes, fishing, hiking, and spending time with his family.

B1: Retention/ Detention Design;

Greg Seegmiller,

B2: Estimating Impacts of Storm Water Runoff; Many state and local agencies hold municipal separate storm sewer system (MS4) permits issued by the Utah Division of Water Quality that authorize the discharge of stormwater from a specified area to Waters of the State. The agencies that hold MS4 permits must use long-term stormwater management practices to mirror pre-development run-of-river conditions and improve water quality. They must also comply with all total maximum daily load (TMDL) requirements that have been implemented for receiving water bodies. The Stochastic Empirical Loading and Dilution Model (SELDM) was developed by the United States Geological Survey (USGS) and the Federal Highway Administration (FHWA) to help quantify the risk of adverse effects of stormwater runoff on receiving waters, the potential need for mitigation measures or best management practices, and the potential effectiveness of such management measures for reducing these risks. SELDM is calibrated using representative hydrological and water-quality input statistics for the upstream basin, highway site, water body, and precipitation patterns and uses Monte Carlo simulations to develop a range of potential impacts based on these statistics. While the model was built to simulate stormwater runoff from roadways, it can be adapted to simulate stormwater pollutant concentrations from almost any type of developed site. For MS4 permittees that discharge to impaired water bodies, the model can be used to determine compliance with an existing waste load allocation. This presentation will cover the development of a SELDM model and discuss various analysis applications to assist state and local agencies that hold MS4 permits comply with their MS4 permit requirements.

Jacob Flansberg, PE, CFM Jacob earned his Bachelor of Science degree in Civil Engineering from Brigham Young University in 2016 and is a licensed

professional engineer (PE) in the state of Utah and a certified floodplain manager (CFM) through the Association of State Floodplain Managers (ASFPM). He has 9 years of civil engineering experience, including water quality modeling and monitoring, hydrology, hydraulics, floodplain management, and engineering design. In his spare time, Jacob enjoys spending time with his wife and 1-year-old son and participating in outdoor activities of all kinds.

Breakout Session 2:

A: **Preliminary Damage Assessments;** This breakout session will support the process of conducting preliminary damage assessments (PDAs) after a disaster and delve into the intricacies involved with different types of flooding in Utah. How to conduct PDAs, what information is collected, and where to obtain support during the process. The presentation will be focused on floods.

Max Johnson, Max serves as the Recovery Section Manager for the State of Utah, Division of Emergency Management, overseeing the Public Assistance and Individual Assistance programs, while supporting other DEM sections, several related state agencies and numerous other community recovery programs. He also prepares and supports communities to maintain and enhance their ability to conduct preliminary damage assessments and understand PA and IA grant rules and regulations. He previously served as the State's Individual Assistance Officer and Recovery Program Manager. Max has over twenty years of experience in the planning field in a variety of ancillary roles including management, transportation, long-range and current planning duties with a focus toward resilience and implementation, current planning duties and responsibilities, hillside and rural development, and supporting local emergency managers and emergency operation centers. He holds his Professional Certification from the American Institute of Certified Planners (AICP). Max has a Masters of Public Administration from Southern Utah University, with an emphasis in State and Local Government, and a Bachelor degree in Urban Planning from the University of Utah.

Max served as the Professional Development and Ethics Officer for the APAs Utah Chapter for several years, including Chair of the Wasatch Front Regional Council's Technical Advisory Committee. He has written several articles for the "Utah Planner," a monthly newsletter published by the Utah Chapter of the American Planning Association, and has served on numerous committees from a variety of communities. Additionally, Max performed duties as the Deputy State Coordinating Officer for Utah's most recent flooding disaster, DR-4752-UT, and was activated as the Resilience Manager for the SEOC during the 2025 Wildfires.

B: **Running an MS4;** Utah's MS4 permit is a multifaceted approach to controlling stormwater pollution within the state's urbanized areas. This presentation will review the permit's six minimum control measures and highlight the ways permittees can ensure their program complies with permit requirements.

Jeanne Riley, is an environmental engineer and the manager of the Utah DWQ General Permitting Section which regulates the state's Construction, Industrial and Municipal stormwater programs. Prior to her position as a regulator, Jeanne spent 15 years as an environmental consultant, where she assisted private and public sector clients comply with their permit requirements and implement water quality improvement projects.

Breakout Session 3:

A1: **What's New and Trends in Certification;** ASFPM is constantly looking for ways to improve and modernize the Certification, Training & Technology Programs. Topics for discussion include, the new digital CFM badging initiative, micro-credentialing opportunities, a new CFM exam, required ethics credits at CFM renewal, and new floodplain management course offerings including mutual aid and substantial damage estimator. Attendees will understand the road ahead for ASFPM's certification, training & technology programs.

Louie Greenwell, GISP, CFM, Louie began his career over 30 years ago and currently serves as the Certification, Training, and Technology Director for ASFPM. With a background in GIS, Louie has managed complex technology implementation projects at many levels of federal, state and local government. His passion for professional development and continuing education led him to ASFPM where he served as a volunteer and President for the Certification Board of Regents (CBOR). He now provides leadership for the national CFM® Program, training initiatives, and is leading various efforts to modernize and integrate ASFPM's technology platforms. He also serves in a coordination role for the Flood Mitigation Certification Program.

A2: **Alternative Delivery Contracts & Floodplain Permitting;** Kiewit has delivered alternative delivery projects across the county, working with numerous floodplain administrators while successfully executing local and FEMA floodplain permitting requirements. Although each project permitting process may differ, we've identified beneficial project coordination approaches, common challenges, and alternative delivery permitting timelines that have supported our projects. We have found alternative delivery projects tend to be more successful using an inclusive team approach which includes early coordination and collaboration with local Floodplain Administrators. Alternative Delivery projects (Design-Build, Progressive Design-Build, CMGC) alter the typical tasks and schedules for

local floodplain administrators. For Alternative Delivery projects floodplain administrators will be asked to serve in a project coordination and collaboration role instead of just a permit review and approval role. These new roles require involvement much earlier in the project life cycle. Additional Alternative Delivery project support from the Floodplain Administrator can include: Attendance at project stakeholder meetings Retrieval and transmittal of FEMA Effective models or best available, existing condition models Informing project team of adjacent, future development Providing opinions and guidance on conceptual or preliminary designs Establishing permit submittal requirements and approval timelines Design deviation reviews and approval This presentation will focus on examples of successful Alternative Delivery projects where floodplain manager engagement, and floodplain permitting played a key role in design, permit timelines, and the overall success of the project.

Josh Hollon, PE, CFM

B: **Paradigms, Fallacies, and Self Improvement;** Everyone loves an underdog story. A person or team who, by conventional wisdom, defies the odds to accomplish something great. But what if conventional wisdom is wrong? What if the very things that make us label them an underdog, actually makes them the favorite? Too many times we allow our myopic view and understanding to script a story, and we are shocked when it doesn't play out the way we planned. In this presentation we will discuss how to overcome traditions, expectations, and our own hubris to find the true value of every opportunity.

Jason Allen, PE is an engineer who likes to talk. I know that defies conventional wisdom, but that's what this presentation is all about. Jason also loves an underdog story, because he believes that in many cases, what some would consider our weaknesses, can be turned into our greatest strengths.

Breakout Session 4:

A1: **Guidelines for Using 2D Models;** Two-dimensional (2D) hydraulic modeling is increasingly being adopted for floodplain and floodway analyses. However, regulatory acceptance and implementation of 2D models remain inconsistent across FEMA regions and local jurisdictions. This presentation provides an overview of best practices, regulatory considerations, and technical workflows for floodplain and floodway analyses using 2D HEC-RAS models, with a focus on "no-rise" evaluations and FEMA-compliant submittals. This presentation will help participants assess the applicability of 2D modeling for floodplain analyses and how to justify its use in planning and permitting. Attendees will gain insight into the

capabilities of 1D versus 2D models and FEMA's current guidance on 2D modeling. Real-world case studies will illustrate how 2D models can be used for floodplain and floodway delineation. It will also provide suggestions for addressing challenges like model calibration and reporting results. Participants will leave with an understanding of challenges associated with adapting 2D models to the FEMA regulatory framework and practical tools to apply 2D models to floodplain and floodway analyses.

Carter Moffitt, is a water resources engineer at Barr Engineering Co. with experience in civil and water resources engineering and design. His project work includes stormwater management system design and planning, hydrologic and hydraulic analysis, open channel and pipe flow design, and water quality assessments. Carter prepares 1D and 2D hydraulic models for floodplain development permits as well as hydraulic structure design.

Dallen Webster, is a water resources engineer at Barr Engineering Co. whose experience includes stormwater management planning, hydraulic modeling for river remediation design, assessing and monitoring water quality, and conducting watershed district development reviews. At Barr, Dallen supports flood control and stormwater management projects in the Intermountain West, Southwest, and Midwest regions.

A2: **Mitigation Initiatives & Programs;** The presentation will cover Utah's current mitigation initiatives, highlighting key programs and strategies being implemented across the state. Furthermore, it will delve into the evolving landscape of federal mitigation programs, discussing recent changes, upcoming shifts, and their implications for state and local hazard mitigation efforts. The aim is to provide UFSMA members with an overview of both local achievements and the critical federal context influencing mitigation planning, projects, actions and implementation in Utah.

Kathy Holder, CFM is Utah's State Hazard Mitigation Officer, as well as the Mitigation Section Manager for the Utah Division of Emergency Management. She leads Utah's Post Wildfire Mitigation Team and Utah's State Hazard Mitigation Team. Kathy Holder served as a member of the National Wildland Fire Mitigation and Management Commission. She held the seat representing State Hazard Mitigation. She served as the State Floodplain Manager/National Flood Insurance Coordinator for the State of Utah before her current position. She is a Certified Floodplain Manager with 16 years of experience in Emergency Management. Kathy has worked on several presidentially declared disasters in recovery and held the position of the Deputy State Coordinating Officer for Public Assistance for two of Utah's presidentially declared disasters. In the past Kathy held a position on the board of the Utah Floodplain and Stormwater Management Association (UFSMA) for 7 years. She holds degrees in Master of Business Administration, Bachelor of Public Administration, and General Science. She

has taught at the University level for over 11 years. Kathy engages in educating Utah communities, government agencies, private nonprofits, and citizens on regulations, permitting, building codes, mitigation, and recovery.

B: **Don't Flip Your Lid - Storm Water Impacts on the Great Salt Lake;** Precipitation (snow, rain) is the only way that water comes to the Great Salt Lake (GSL). Evapotranspiration (ET) is the only way in which the GSL loses water. Recent concerns regarding water levels in the Great Salt Lake due to drought and water diversions has generated a lot of interest into stormwater management techniques. Current stormwater practices include the implementation of low impact development (LID). LID implementation in Utah is most commonly designed to capture and infiltrate the 80th percentile storm event. In this presentation we explore the various surface and subsurface pathways that stormwater takes to arrive at the GSL and the consequences of these paths.

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.

Lance Nielson, P.E. , Senior Principal, Hansen, Allen, & Luce For the past 25 years, Lance has specialized in groundwater resource investigation, analysis, and design. He has performed numerous hydrogeologic evaluations for aquifer characterization including development of new 3dimensional groundwater models, regional and local recharge vs discharge evaluations, and managed aquifer recharge evaluations. He is passionate about groundwater, loves engineering, and is completely devoted to his family.

Thursday, November 20, 2025

Plenary Session 2:

Great Salt Lake Watershed Council; will provide something of a "state of the Lake" address, including current conditions, trends, and what's at stake if Great Salt Lake continues to decline. He will provide an overview of public and private efforts to protect and restore the Lake, paying particular attention to recent developments. His goal is to cut through the chatter with information based on best-available science and real world perspectives that reflect nearly a decade of working with various stakeholders to try and

solve a pressing—and extraordinarily challenging—issue about how we use and manage water in an arid state.

Tim Hawkes, is a business, legal, and policy expert focused on Great Salt Lake. He holds a law degree from Columbia University and has worked in water law and policy for more than 20 years. During eight years as a state legislator, he sponsored important bills on water conservation and Great Salt Lake. Professionally, Tim serves as Chairman of the GSL Brine Shrimp Cooperative and a Senior Advisor to the College of Science at the University of Utah. He also participates in a range of Great Salt Lake-related forums. He Chairs the Great Salt Lake Advisory Council, founded the Great Salt Lake Business Council, and serves on various Boards including Great Salt Lake Rising and the Great Salt Lake Watershed Enhancement Trust.

Breakout Session 1:

A: **Improved Access to Utah's Digital Flood Risk Data;** The Division of Emergency Management (DEM) in Utah's Department of Public Safety has been exploring ways to help Utah communities understand and make use of flood risk data products in their planning and zoning activities. In this talk, we will present DEM's more recent tools for viewing and disseminating data: 1) Utah's Flood Hazard Atlas provides easy access to downloadable National Flood Hazard Layer data, visualization of data, and a description of available flood risk information in nontechnical language; 2) A new webpage on alluvial fans provides offers data access and mitigation information; 3) Web pages for Physical Map Revision projects contain relevant maps and data access created during the mapping process. 4) DEM is currently working on a method to display and disseminate high resolution raster datasets such as Water Surface Elevation and Flood Depth during a 1 % annual chance flood.

Holly Strand, CFM, is a Communications Specialist for the Floodplain Management Program in Utah's Division of Emergency Management. A geographer by training, Holly received her master's degree in geography from the University of Colorado in Boulder. She has worked as a science communications/GIS specialist for World Wildlife Fund, Utah State University, and the Utah Department of Natural Resources. She loves writing, editing, photography, making maps and videos. Along with McKenzie Goodenough, she is the webmaster and content creator for floodhazards.utah.gov.

B: **Managing Storm Water near the Great Salt Lake;** The City Drain is a major stormwater conveyance facility located just west of the Jordan River in Salt Lake City, discharging into the Great Salt Lake. Originally constructed in 1911, the facility has a relatively flat longitudinal slope and functions as both

a long, linear detention basin and an open channel. This unique facility presents challenges for stormwater management due to the natural limitations of the area. This presentation will focus on the specific challenges and strategies associated with managing stormwater in a system characterized by high groundwater, minimal slope, and proximity to the Great Salt Lake.

Kameron Ballentine, graduated from Utah State University with a B.S. and M.S. in Civil Engineering, and is a Professional Engineer and a CFM. He has extensive experience in Master Planning, hydrologic modeling, hydraulic modeling, and detailed design, and has worked on a variety of flood control and storm water projects.

Andrew Barney, PE, CFM graduated from Brigham Young University with a B.S. and Utah State University with a M.E. in Civil Engineering. He is a Professional Engineer and CFM. He has significant experience with hydrologic and hydraulic modeling, with a heavy focus on dam failure analyses and floodplain studies. He currently works as a project engineer for Salt Lake County Flood Control.

Breakout Session 2:

A1: **Long-Term Post-Wildfire Flood Mitigation;** Coconino County Flood Control District's mitigation of post-wildfire flooding following the 2022 Pipeline Fire began even before the fire was extinguished. Armed with experience from the 2010 Schultz Fire and the 2019 Museum Fire, the District partnered with JE Fuller Hydrology and Geomorphology to begin modeling flood risk using Soil Burn Severity data from the earliest Burned Area Emergency Response (BAER) Assessments. These models demonstrated significant flood risk from severely burned watersheds where peak discharge rates had increased 10 to 31 times above pre-wildfire conditions. Understanding the need for public safety infrastructure, the District launched an aggressive campaign to attract state and federal funds. By working closely with Congressional and State leadership, the District secured over $120 million in federal funding and over $10 million in State funding. Simultaneously, the District then partnered with Natural Channel Design Engineering and Civiltec Engineering to engineer post-wildfire flood mitigation systems for the impacted watersheds. These systems integrated watershed restoration techniques with flood mitigation infrastructure. This integration is key, as the watershed restoration measures reduce the downstream loads of sediment and debris that would otherwise obstruct flood mitigation infrastructure. Each integrated system stretches miles across national forest and private properties—which posed another challenge in itself. The need to access private property in order to deliver the Pipeline Flood Area mitigation systems meant that the District and its partners had to obtain

drainage easements by donation and thus had to navigate an emotionally-charged landscape of constituents. Doing so required extensive communication, negotiation, and case-by-case approaches to the needs of individual property owners. Even considering the complexities of this process, the District was able to deliver monumental-scale infrastructure in all nine watersheds in just over 2 years from the receipt of its funding. This presentation concludes with success stories from Utah's Post Wildfire Mitigation Team. Wildfires can be devastating for homeowners and communities. Utah's Post Wildfire Mitigation Team assists communities affected by wildfires by serving as a "One Stop Shop." The team brings together state, federal, and nonprofit partners to provide resources and information. Their goal is to help impacted communities assess and mitigate post-wildfire cascading events, such as flooding and debris flows. Kathy will share the team's services and provide examples of communities they have assisted.

Kathy Holder, is Utah’s State Hazard Mitigation Officer, as well as the Mitigation Section Manager for the Utah Division of Emergency Management. She leads Utah’s Post Wildfire Mitigation Team and Utah’s State Hazard Mitigation Team. Kathy Holder served as a member of the National Wildland Fire Mitigation and Management Commission. She held the seat representing State Hazard Mitigation. She served as the State Floodplain Manager/National Flood Insurance Coordinator for the State of Utah before her current position. She is a Certified Floodplain Manager with 16 years of experience in Emergency Management. Kathy has worked on several presidentially declared disasters in recovery and held the position of the Deputy State Coordinating Officer for Public Assistance for two of Utah’s presidentially declared disasters. In the past Kathy held a position on the board of the Utah Floodplain and Stormwater Management Association (UFSMA) for 7 years. She holds degrees in Master of Business Administration, Bachelor of Public Administration, and General Science. She has taught at the University level for over 11 years. Kathy engages in educating Utah communities, government agencies, private nonprofits, and citizens on regulations, permitting, building codes, mitigation, and recovery.

Lucinda Andreani, has extensive experience having led major flood mitigation efforts after three wildfires since 2010. Most recently, after the 2022 Pipeline Fire caused severe and repetitive post-wildfire flooding across nine watersheds north of Flagstaff in Coconino County, the Coconino County Flood Control District worked to engineer innovative watershed restoration and flood mitigation infrastructure—but this technical challenge was only half the battle. This presentation covers how the District creatively addressed engineering challenges, navigated the political landscape to secure over $130 million in state and federal grants, negotiated social dynamics to finalize land agreements with hundreds of property owners, and ultimately restored watershed function, delivered life-changing public safety infrastructure, and championed their

community's recovery from a devastating wildfire.

A2: **Recap of 2025 Wildfires;** This breakout session will provide an overview of how the 2025 wildfire season began, how it progressed and steps moving forward. A description managing the process from an EOC level will be discussed, as well as lessons learned along the way. The presentation also includes details related to post-fire flooding, burn scars, and debris flows.

Max Johnson, MPA, AICP, Max serves as the Recovery Section Manager for the State of Utah, Division of Emergency Management, overseeing the Public Assistance and Individual Assistance programs, while supporting other DEM sections, several related state agencies and numerous other community recovery programs. He also prepares and supports communities to maintain and enhance their ability to conduct preliminary damage assessments and understand PA and IA grant rules and regulations. He previously served as the State's Individual Assistance Officer and Recovery Program Manager. Max has over twenty years of experience in the planning field in a variety of ancillary roles including management, transportation, long-range and current planning duties with a focus toward resilience and implementation, current planning duties and responsibilities, hillside and rural development, and supporting local emergency managers and emergency operation centers. He holds his Professional Certification from the American Institute of Certified Planners (AICP). Max has a Masters of Public Administration from Southern Utah University, with an emphasis in State and Local Government, and a Bachelor degree in Urban Planning from the University of Utah.

Max served as the Professional Development and Ethics Officer for the APAs Utah Chapter for several years, including Chair of the Wasatch Front Regional Council's Technical Advisory Committee. He has written several articles for the "Utah Planner," a monthly newsletter published by the Utah Chapter of the American Planning Association, and has served on numerous committees from a variety of communities. Additionally, Max performed duties as the Deputy State Coordinating Officer for Utah's most recent flooding disaster, DR-4752-UT, and was activated as the Resilience Manager for the SEOC during the 2025 Wildfires.

B1: **MS4 Storm Water Audit - What to Expect;** Are you an MS4 that hasn't been audited yet? Find out what to expect when, not if, you get audited, and tips on making your audit go as smoothly as possible.

Dana Shuler, Dana is a senior engineer at Jones & Associates. She serves as the City Engineer for Pleasant View and Honeyville cities, as well as the floodplain administrator for Morgan and South Weber cities. After graduating from Texas A&M University, she worked at a municipal

engineering firm in Texas before moving to Utah in 2006. Dana is a licensed engineer in Utah and Texas and is a CFM.

B2: **MS4 Permits - Panel Discussion;** Hear from a panel of professionals as they share tips and ideas for implementing the municipality's Storm Water Management Plan.

Breakout Session 3:

A1: **Clipper Wash Erosion Project - Gabion Groynes;** The banks of Clipper Wash near Dewey, Arizona, had experienced significant erosion, bringing the new bank limits dangerously close to adjacent roads and residential areas. With the monsoon season approaching, protection measures were urgently needed. The Yavapai County Flood Control District, in coordination with FEMA and Lyon Engineering, evaluated various solutions to address the erosion and restore the bank to its original limits. After considering several alternatives—including retaining walls and conventional bank protection—a gabion groyne system was selected as the preferred solution. Groynes are finger-like structures that extend from a riverbank into the flow of water. They work by deflecting currents away from vulnerable banks, thereby reducing erosion and helping to reestablish a more stable and desirable channel alignment. The outer ends of the groynes were designed to define the new bank line. Over time, sediment naturally deposited between the groynes, eventually covering the structures and blending them into the surrounding landscape. Each groyne was constructed using gabions and Reno mattresses filled with 4″ to 8″ rock. A non-woven geotextile fabric was installed between the gabions and the native soil to enhance filtration, prevent soil migration, and add erosion protection. Gabions with Polimac® coating were selected due to their superior resistance to corrosion, abrasion from sediment transport, and moisture—making them ideal for long-term durability in hydraulic applications.

Dagoberto Kirkbride, is a Technical Sales Engineer with Maccaferri, specializing in hydraulic and geotechnical solutions across the Western U.S. With a background in civil engineering and over a decade of experience in infrastructure and environmental protection, Dagoberto supports public and private sector clients with innovative approaches to bank stabilization, erosion control, and flood mitigation. His focus includes the use of engineered systems such as gabions, Reno mattresses, and mechanically stabilized earth structures for resilient, sustainable hydraulic works.

A2: **Debris Basin Improvements;** Two of the debris basins in Utah County have control structures that struggle to capture debris while still allowing adequate flow to pass through auxiliary spillways. Their emergency

spillways are being engaged more often than necessary because of this debris. Maintenance personnel do not have the ability to clear the debris from the trash racks while there is water in the basin, nor do they have a convenient way to remotely monitor the basin at night. They also must operate the gates on the control structure by hand. These shortcomings have resulted in high flows, full basins, and concerns with overtopping. Our project addresses these shortcomings with debris and sediment removal, improved maintenance access, floating boom debris barriers, additional reinforced concrete structures with slanted trash racks for improved cleaning performance, lighting and camera installation, motorized gate actuators, and telemetry.

John DeLeon, is a licensed professional engineer and a certified floodplain manager. He received his master's in civil engineering from BYU. While he has dabbled in various areas of civil engineering, his focus for the past few years has been floodplain mapping, well source protection, hydrologic studies, utility design, and construction management. In his free time, he enjoys eradicating world hunger, solving world peace, and eliminating the national debt. But he is terrible at all those things. So instead, he likes hanging out with his family and completing tasks on his never-ending to do lists.

B1: **Benefits of Green Infrastructure;** Many municipalities have embraced the use of green stormwater infrastructure (GSI) to help meet regulatory MS4 requirements, however countless urban development projects do not trigger a post-construction stormwater requirement due to regulatory size and/or impervious area thresholds. When considered cumulatively, these projects that "fly below" the regulation of stormwater management can add up to hundreds (or thousands) of acres of impervious area that does not have even the most basic level of water quality treatment - which can significantly increase peak flow runoff and flood hazards. This presentation will uncover the lesser known, stacked benefits GSI provides from a social and economic perspective, including equitable services and urban heat effects. We will also explore concepts from 4 guidance documents that enable city staff and developers to integrate various stormwater control measures (SCMs) that balance stormwater volume control and runoff mitigation with site design flexibility.

Jesse Clark, A landscape architect and the founder of Stream Landscape Architecture + Planning, Jesse Clark is a strong advocate in the advancement of resilient design for natural systems in the urban public realm. He has over twenty years of experience leading complex green infrastructure projects from planning, design development, and outreach, through construction implementation.
Jesse's approach to planning and designing urban infrastructure systems includes innovative green stormwater infrastructure and "green streets",

multi-modal transportation, streams/waterways, parks/open spaces, and environmental mitigation. Jesse has also co-authored 4 Green Infrastructure Guidance Documents, including Denver's award-winning Green Continuum Streets Guidelines.

B2: **What Worked and What Didn't: Practical Insights from LID Installations;** Low-impact development (LID) and green infrastructure (GI) strategies continue to gain importance in stormwater design. Drawing from experience across multiple states, this presentation will discuss practical applications of LID and GI techniques in both new construction and retrofit projects. Important considerations will be highlighted, such as space constraints, infiltration conditions, long-term maintenance, and coordination with other site infrastructure. Through real-world examples, we'll share lessons learned and key takeaways for successfully implementing LID practices in a variety of project settings.

Chris Edwards, is a Project Engineer at AE2S with over 4 years of water resources engineering experience, including hydrologic and hydraulic analysis, stormwater modeling, and stormwater design. He holds a bachelor's and master's degree in civil and environmental engineering from Brigham Young University.

Zach Magdol, is the Water Resources Practice Leader at AE2S and has worked in the water and water resources industry for 15 years, with extensive experience in water quality, water supply, stormwater, and floodplain modeling projects. He holds a bachelor's degree in environmental engineering from the University of New Hampshire and a master's degree in civil and environmental engineering from the University of Utah.

Breakout Session 4:

A1: **Rural Communities Cross Collaboration;** The Touchet River runs directly through the city of Waitsburg, WA and has been mapped as part of the National Flood Insurance Program (NFIP). Historic flooding, some as recent as 2020, has led to increased perception and care around development in the community within mapped floodplain boundaries. The Waitsburg Parks and Recreation District, in collaboration with the nonprofit organization Rural Youth Enrichment Services (RYES) and Friends of the Waitsburg Pool (FotP), has been working to plan, design, and construct a new community pool to replace the current, 100-year-old facility. The local stakeholders have been working with civil, environmental, and hydraulic consultants to evaluate and determine the most viable site for the project within the city. The presentation will highlight the two-dimensional hydraulic modeling completed for the Touchet River to assess the feasibility of the proposed pool site and highlight the coordination efforts utilized to garner buy-in from

the local community and federal agencies at-large. For emergency management professionals and communities with increased flood risk, this case study underscores the importance of early engagement, updated information, and cross-sector collaboration when evaluating projects in vulnerable areas. Attendees will gain insights into how community-driven initiatives can succeed when aligned with floodplain management and a shared commitment to public safety.

Josi Roberts, is a Professional Engineer and Certified Floodplain Manager specializing in hydrologic and hydraulic analysis for flood studies, no-rise certifications, and FEMA Letters of Map Revision. With eight years of experience, she has worked on a range of water resources projects across the South and Midwest, and more recently in Idaho, Utah, and Washington. She applies her expertise in hydraulic modeling software and GIS tools to perform hydrologic calculations, one- and two-dimensional hydraulic modeling, scour analysis, and drainage studies. Josi is passionate about using technical solutions to support resilient infrastructure and informed floodplain management decisions. Outside of work, Josi enjoys spending time with her family outdoors while camping, hiking, and skiing.

A2: **Grand County Flood Warning Program;** This session presents a case study on the Grand County Flood Warning Plan—a forward-thinking initiative combining HEC-RAS 2D ensemble modeling, Quantitative Precipitation Forecast (QPF) data, and Esri-based dashboards to enhance flood preparedness in southeastern Utah. The project team is developing and implementing a dynamic flood warning system that integrates probabilistic storm forecasts with real-time GIS visualizations, allowing emergency managers to monitor evolving flood threats and respond with targeted alerts. The system links ensemble outputs from Mill Creek and Castle Valley with QPF data to create flood impact layers and custom alerts. A real-time dashboard provides critical performance indicators like forecasted rainfall intensity, flood thresholds, and at-risk infrastructure. The presentation will explore key design considerations such as SaaS vs. on-premises hosting, Esri licensing strategy, and stakeholder training for operational use. Lessons learned and replicability for other communities will also be discussed.
Ideal Audience:

- Floodplain administrators
- Emergency management professionals
- City and county engineers
- GIS analysts and system architects
- Water resource planners and stormwater managers

Michael McMahon, Michael McMahon is the Senior Vice President of Climate Science and Resiliency at Consor Engineers, with over 30 years of experience as a dedicated climate scientist and program manager. His

career has focused on understanding and communicating the complex interactions of the land–water–atmosphere nexus. Michael brings specific expertise in risk communication, bridging the social, environmental, and economic dimensions of climate resilience.

At Consor, he is leading the development of a Climate Change and Resiliency Program designed to support regulatory compliance and infrastructure adaptation through decision-support guidance. By integrating climate science into engineering design, Michael and Consor's team of atmospheric scientists help clients plan for resilience through scientifically defensible and cost-efficient long-term capital strategies.

Keith Weaver, PE Keith Weaver is a Senior Water Resources Engineer at Consor Engineers with over 20 years of experience specializing in hydrologic and hydraulic modeling across a wide range of scales, from small watersheds to large river basins. His expertise includes design of flood management elements, floodplain analysis and mapping, and dam breach simulation. Keith is highly proficient in GIS-based data processing and visualization, supporting both technical analysis and presentation quality mapping.

He has extensive experience with industry standard modeling tools including HEC-HMS, HEC-RAS, HEC-SSP, and ArcGIS, and has been a key team member on numerous flood management and floodplain mapping projects throughout the U.S., including projects in Alaska and Hawaii. Keith's practical approach to integrating geospatial analysis with hydraulic modeling makes him a trusted resource in advancing data-driven water resources solutions.

B1: **How Major Trends in Floodplain Modelling are Influencing Regional Watershed Management and Planning;** The field of floodplain management is constantly evolving. This presentation will identify some of the major trends in floodplain management and describe how they are influencing regional watershed management. These trends include FEMA's Risk Rating 2.0, FEMA's Base Level Engineering, two-dimensional (2D) modeling, pluvial modeling, and probabilistic modeling. Watershed management professionals who have heard these "buzz words" may not fully grasp their meaning. This presentation will increase their familiarity with these terms and enhance their understanding of how these trends can support watershed management. FEMA's implementation of Risk Rating 2.0 will positively influence regional watershed management activities by providing more granular data about flood risk that can be used to improve community planning, prioritizing, and design of projects. Other floodplain management trends that are influencing regional watershed management include Base Level Engineering, 2D modeling, pluvial modeling, and probabilistic modeling. Watershed modeling professionals have embraced these tools in

recent years and their prevalence is expected to increase.

Ferrin Affleck, is a civil engineer with over 20 years of experience working in flood control and water resources. Currently, he works for AtkinsRéalis overseeing all Risk MAP production for FEMA Regions 8, 9 and 10 under the STARR II Joint Venture, and is supporting Utah DEM in the Greater Sevier study. He enjoys watching movies with his family, serving his neighborhood community, and doing pretty much anything outside.

B2: **Adaptive Level Control Systems;** With Utah facing rapid population growth and urbanization, climate change, and aging stormwater infrastructure, stormwater and floodplain managers are experiencing significant system capacity and operational challenges. Municipalities and other entities may find replacing existing infrastructure to be infeasible due to space limitations within developed areas, funding constraints, extended planning and construction timelines, and regulatory obstacles. Adaptive Level Control Systems (ALCS) provide a cost-effective solution that can be retrofitted to existing stormwater infrastructure or integrated into new projects, providing enhanced flood resilience, improved water quality, and better land use management compared to traditional passive systems. ALCS are an emerging smart infrastructure that integrates hydrology and hydraulics with real-time monitoring and automated control. These systems use sensor networks to track flow rates, water levels, and water quality parameters, while also incorporating weather forecasting. When connected across multiple sites, ALCS can operate as an interconnected stormwater management system, providing regional-scale benefits for flood risk reduction and water quality improvements through the operation of automated controls such as pumps, valves, and other outlets. This presentation will explore the current state of ALCS technologies, their applications, case-studies from academic and real-word implementation, future prospects, and potential benefits for Utah. Attendees will learn ALCS can be adopted to modernize stormwater systems and support the development of climate-resilient communities across Utah.

Carter Moffitt, is a water resources engineer at Barr Engineering Co. with experience in civil and water resources engineering and design. His project work includes stormwater management system design & planning, hydrologic and hydraulic analysis, open channel and pipe flow design, and water quality assessments. He is currently researching Adaptive Level Control Systems (ALCS).

Friday, November 21, 2025

Plenary Session 3:

Building Self-Reliance in a New Era of Floodplain Mapping and Flood Risk Management; As the future of federal flood risk management programs grows more uncertain, communities may need to rethink how they manage flood risk. This session explores the potential impacts of reduced or discontinued federal programs—like the National Flood Insurance Program (NFIP)—on local and state floodplain management systems. In this session, we will examine how current programs support essential functions like hazard mapping, regulatory enforcement, mitigation planning, and insurance. Through a series of practical questions, we'll explore how jurisdictions might continue these efforts independently: What would change if federal programs went away? Are local leaders prepared to fill those gaps? What new capabilities—technical, institutional, or financial—would be needed to maintain momentum? Rather than predicting policy shifts, this session encourages proactive thinking. Participants will discuss areas of vulnerability, consider adaptive strategies, and begin outlining what a more self-reliant approach to flood risk management could look like—one that's resilient, locally driven, and prepared for change.

Jamie Huff, 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).

Becca Croft, has over 30 years of professional experience leading cross-functional initiatives and driving strategic outcomes while fostering supportive, highly effective working environments. A trusted floodplain management subject matter expert and team leader, she has collaborated across multiple industries to deliver program support, technical assistance, public outreach, mapping services, and specialized training nationwide on topics related to the National Flood Insurance Program (NFIP), the Community Rating System (CRS), and Risk MAP. As a former elected official and local floodplain manager, she has a unique perspective of the communication and training needs of local communities and works with federal and state partners to develop outreach strategies that meet the goals of Risk MAP at the federal, state, and local level. In 2021, Becca sold her home, gave away everything in it, and began traveling full-time in her motorhome, visiting family, friends, and fellow floodies. She traveled to 48 states in the first year.

Plenary Session 4:

Millcreek Watershed Restoration Plan; Moab City has recently experienced

multiple large cloudburst events in the nearby La Sal Mountains that produced flash floods within Mill Creek. These events carried debris and sediment beyond the channel banks, causing significant damage along the creek corridor. To assist Moab City and Grand County, the Utah Division of Emergency Management and Bowen Collins & Associates (BC&A) evaluated existing conditions and developed a plan to restore the channel while safely conveying floodwaters to the Colorado River.

As part of this study, BC&A developed a detailed two-dimensional hydraulic model of Mill Creek using new survey data and existing studies to identify deficiencies and evaluate potential mitigation measures. Alternatives included constructing a debris basin in the canyon, replacing undersized crossings, and implementing property buyouts to create a floodplain "green zone." The study emphasized the need for a comprehensive, full-channel approach to flood mitigation, as isolated improvements can inadvertently increase downstream or upstream flooding.

Cameron Jenkins, Cameron has over 16 years of water resources engineering experience including H&H modeling, storm drain master plans, Monte Carlo analysis, dam break modeling, sediment transport modeling, stream restoration, and FEMA Letter of Map Revision (CLOMR/LOMR) studies. He has developed 1D and 2D hydrologic and hydraulic models for urban and undeveloped areas, detailed floodplain mapping, bridge scour, and channel design using an array of numerical software and is proficient in using GIS for data processing and floodplain mapping.

Jamie Huff, 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).

To Flood or Not to Flood.. To Flood! Designing Resilient Bridge Scour Countermeasures in Moab, Utah; Riverbank and bridge scour present significant challenges to the structural integrity of bridge abutments and foundations in Moab, Utah—a region characterized by its unique sandstone landscape. The impervious nature of the sandstone within the watershed contributes to rapid surface runoff during intense rainfall events, leading to frequent flooding and severe scour at stream channels and transportation crossings. Notably, major flood events occurred on Mill and Pack Creeks on August 20 and 22, 2022, followed by record-breaking flows on June 21, June

27, and August 23, 2024. Theses a major storm event caused widespread flooding throughout Moab City and extensive scour damage at multiple roadway and pedestrian crossings. This presentation details the completed design and construction of scour countermeasures at the 400 East crossings over Mill and Pack Creeks. The project utilized SRH-2D hydraulic modeling to evaluate flow conditions and inform the design of riprap and other protective measures. We will present the modeling approach, design methodology, and implementation outcomes, highlighting how data-driven analysis supported resilient infrastructure solutions in a geomorphologically sensitive environment.

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.

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Hansen, Allen & Luce, Inc. (HAL) is a Utah corporation with headquarters in South Jordan, Utah. HAL is a local water resources engineering firm that has been in business for fifty years. HAL currently has 78 employees, with an average of 68 professional staff over the past five years. HAL has 34 Professional Engineers on staff, all licensed to practice in Utah.



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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.