WEF Stormwater Summit

Technical Program
(Last updated April 15, 2022)

Hyatt Regency Minneapolis
Minneapolis, Minnesota
June 27-29, 2022

www.wef.org/stormwatersummit
#WEFStormwater

This conference is held by the Water Environment Federation Stormwater Institute (SWI) in cooperation with the Central States Water Environment Association.
Pre-Conference Workshops
(Additional fees apply)

Workshop A: Get To Know the Equity Guide: Measuring & Evaluating Progress Towards Equity in GSI
Monday, June 27, 2022, 8:30 a.m. – 5:00 p.m.

Coordinator: April Mendez, Greenprint Partners
Speakers: Belinda Gardner, Capitol Region Water District; Beatrice Ohene-Okae, DC Department of Energy & Environment; Kasey Armstrong, Green Infrastructure Leadership Exchange; Jalonne White-Newsome, The Kresge Foundation; Sarah Bloom, San Francisco Public Utilities Commission; Kristin Ihncak, Greenprint Partners

8:30 a.m. Opening Remarks, Introductions, Objectives & Definitions, and Activities & Timeline
9:05 a.m. Check in
9:15 a.m. Panel: The State of Equity in GI & How GI Can Advance Equity (Part 1)
10:00 a.m. Break
10:30 a.m. Panel: The State of Equity in GI & How GI Can Advance Equity (Part 2)
11:15 a.m. Applying What We’ve Learned So Far: Pairs & Group Reflection Activity
11:30 a.m. Exploring the Equity Guide & How to Use It to Effect Change
  • Large group activity & discussion: Goals Assessment
  • Regroup, frame up afternoon
12:00 p.m. Break for Lunch
1:30 p.m. Exploring the Equity Guide & How to Use It to Effect Change (con’t)
  • Quick participatory check-in and regroup
  • Presentation: Intro to Plan, Do, Check, Act - How do you use the Guide?
  • Centering Community Module - Guided
  • Demonstration
  • Q&A
3:00 p.m. Break
3:30 p.m. Exploring the Equity Guide & How to Use It to Effect Change (con’t)
  • Framing
  • Small group scenario exercise
  • Present back out to larger group
4:30 p.m. Closing Remarks
5:00 p.m. Workshop Adjourns
Opening General Session
Tuesday, June 28, 2022, 8:30 a.m. - 10:00 a.m.

The opening general session is currently in development. It will feature a presentation from Bill Dean with Poseidon Education titled “Young Voices Advocating for Improved Water Quality in Local Waterways through Education, Action and Policy Change”. The rest of the program will be confirmed soon.

Facility Tour: Walk This Way - Downtown Minneapolis Stormwater Walking Tour

Self-guided tour – Utilize Geotourist App for tour, key stops include:

This self-guided walking tour will include stops at Westminster Presbyterian Church in downtown Minneapolis which installed a stormwater reuse system that uses recycled stormwater for flushing toilets, irrigating onsite vegetation and feeding a decorative fountain along Nicollet Mall. Another stop will take you to the Elliot Park Skate Plaza to see the green infrastructure including bioretention, permeable pavers and includes pollinator habitat. The next stop will take you to the 8th Street Stormwater planters that infiltrate polluted runoff and provide greening in a busy downtown corridor. The last stop will take you to the 4th Street Reconstruction project was reconstructed in 2021, and in addition to adding two-way protected bike facility, the City added 3 bioretention areas and over ½ acre of sustainable landscaping and trees throughout the boulevards. the City incorporated green infrastructure in response to requests from the stakeholders and to demonstrate a commitment to addressing water quality and greening goals on their own projects. On your way back to the conference hotel, you can stroll along the Nicolett Mall which is a 12 block pedestrian and transit way and is the core dining and shopping district in the City of Minneapolis.

Tour Notice: This is an outside walking tour and to best experience the stops you will need to download the Geotourist App on your smart phone (https://geotourist.com/). The tour is approximately 3 miles and may take about an hour just for the walking portion. Participants in this self-guided walking field tour should wear weather appropriate clothing and comfortable walking shoes.
Session 01: Getting a Handle: Planning and Technology for Stormwater Improvements
Tuesday, June 28, 2022, 10:45 a.m. - 12:15 p.m.

10:45 a.m. Stormwater Capture: Identifying Stormwater Needs Without a (Capital) Plan
Zachary Henderson, Woodard & Curran Inc

11:15 a.m. Minnesota Stormwater Research and Technology Transfer Program - Innovation in Completing Applied Research to Prevent, Minimize, and Mitigate the Impacts from Urban Stormwater Runoff
John Bilotta, University of Minnesota

11:45 a.m. Update on STEPP and ASTM Committee E64 on Stormwater Control Measures
Gregory Williams, StormTrap; Seth Brown; Andy Erickson, St. Anthony Falls Lab; University of Minnesota

12:15 p.m. Session adjourns for luncheon in exhibit hall

Alternate Defining our Water Resources Utility: Stormwater Management & More
Stephanie Fleckenstein, HDR; Pete De Kock, City of Clive; Rachel Conrad

Session 02: Reducing Risks Through Effective Stormwater Asset Management
Tuesday, June 28, 2022, 10:45 a.m. - 12:15 p.m.

10:45 a.m. Thousands of BMPs? How to Best Manage and Prepare for Maintenance
Laura Wehr, AE2S; Kristin Seaman, City of Woodbury

11:15 a.m. Stormwater Risk Assessment in Portland, Oregon
Arnold Engelmann; Heidi Berg, Bureau of Environmental Services

11:45 a.m. Burnsville Minnesota Stormwater Risk Assessment, Resiliency Study, and Twin Lakes Flood Risk Reduction Improvement Project
Amber Lefers, Advanced Engineering and Environmental Services Inc; Justin Klabo

12:15 p.m. Session adjourns for luncheon in exhibit hall

Alternate Prioritizing Stormwater Funding Requirements by Integrating Asset Management and Watershed-Focused Capital Planning
John Aldrich, CDM Smith
Session 03: Minnesota NICE! Governance, Research and Financing for Clean Water Projects in Minnesota
Tuesday, June 28, 2022, 10:45 a.m. – 12:15 p.m.

Coordinator: Mark Doneux, Capitol Region Water District

Minnesota is not only the land of 10,000 lakes but also has abundant resources to govern, research and finance clean water projects. This session will bring together three key elements to improving water quality, through governance, research and financing.

The first presentation will be about governance. Watershed districts are unique to Minnesota and as a local, special-purpose units of government that work to solve and prevent water-related problems. The boundaries of each district follow those of a natural watershed and consist of land in which all water flows to one outlet.

The next presentation will focus on research. The St. Anthony Falls Laboratory (SAFL) is an interdisciplinary fluid mechanics research lab and educational facility under the College of Science and Engineering at the University of Minnesota. SAFL conducts numerous projects looking to quantify the impacts of human actions on water quality and aquatic ecosystems.

This session will end with a discussion about financing. Minnesota voters approved the Clean Water, Land and Legacy Amendment to the constitution to protect drinking water sources; to protect, enhance, and restore wetlands, prairies, forests, and fish, game, and wildlife habitat. The amendment increased the sales and use tax rate by three-eighths of one percent.

A full detailed agenda for this session is coming soon.

Facility Tour: Stormwater Reuse, and LID Too!
Tuesday, June 28, 2022, 1:00 p.m. – 4:30 p.m.
Limit of 50 People
(Additional fees apply)

This tour will visit innovative stormwater management in Saint Paul and Minneapolis. Tour stops include Allianz Field, the new home of the Minnesota United FC Major League Soccer team. See all of the latest innovative stormwater management at and around Allianz Field, where the City of Saint Paul and the United FC have developed landmark clean water infrastructure, which will recycle more than 2 million gallons of rainwater every year. This unique system, the largest and smartest of its kind, will be used to irrigate trees and grass across the site, and to serve future developments around the stadium.

Capitol Region Watershed District’s (CRWD) new office building and see its state-of-the-art rainwater harvest and reuse systems along with LID practices, landscaping and pocket park, all developed on a brownfield site. Towerside Innovation District in Minneapolis. This system collects stormwater from 4 new multi-family housing developments and centrally treats the stormwater runoff in rain gardens that also serve as park-like, publicly accessible spaces.

PPE Notice: Participants in this field tour are required to wear closed-toed shoes; flip flops, sandals, and open-toed shoes are not permitted. Access to the underground treatment vault at Allianz Field will be limited based on the time available at this stop and anticipated number of attendees.
Session 04: Collaboration for Climate Resilience
Tuesday, June 28, 2022, 1:30 p.m. - 4:45 p.m.

1:30 p.m.  The Final Phase - Completing the Norwaldo Neighborhood Green Infrastructure Project  
            Robert Page, HNTB Corporation

2:00 p.m.  A Park with Purpose: Improving Water Quality and Enhancing a Valued Community Space in a Disadvantaged Community  
            Brenda Ponton, Woodard & Curran

2:30 p.m.  Pilot Facility-Level Climate Change Adaptation Assessment for Little Indian Creek  
            Kristen Navaroli, Chris Dorney, Justin Lennon, Michael Flood, Rawlings Miller, Eleeja Shrestha, Timothy Grose, Annika Ragsdale, WSP USA

3:00 p.m.  Networking break

3:45 p.m.  Engineering for Changing Rainfall in Southeast Michigan  
            Daniel Christian, Tetra Tech Inc; Kelly Karl, Rachael Barlock, Semcog

4:15 p.m.  Navigating a series of “No’s” to successfully implement green infrastructure (GI) in a city without requirements: Establishing Sustainable Landscaping  
            Allison Bell, HDR; Katie Kowalczyk, City of Minneapolis

4:45 p.m.  Session adjourns for networking reception in exhibit hall

Alternate: Balancing Roadways with Vegetated Systems: Seeking Resilient Stormwater Management in a Linear Environment to meet MS4 Requirements  
            Brenda Macke, Kylie Wyatt, Burns & McDonnell
Session 05: Engaging the Public
Tuesday, June 28, 2022, 1:30 p.m. - 3:00 p.m.

1:30 p.m.  Mill Creek Greenway: Using Green Solutions to Build Bridges Within a Community
Leslie Schehl, Larry Falkin, Deb Leonard, Metropolitan Sewer District of Greater Cincinnati

2:00 p.m.  Urban Retrofits: Stormwater retrofit plan for Minneapolis and what our first project
did to incorporate paid learning lab jobs training into infrastructure projects
Katie Kowalczyk, City of Minneapolis; Allison Bell, HDR

2:30 p.m.  Stormwater Solutions (whether green or gray) - Collaboration and Integration are Key
Grace LeRose, Patrick Bradley, William Boston, Jennifer Clarke, Howard Glenn, City of Richmond

4:45 p.m.  Session adjourns for networking break

Alternate:  Adopt-a-Drain: A Burgeoning National Movement to Protect Waterways and
Prevent Localized Flooding Using Best Practices in Environmental Psychology and
Social Marketing
Jana Larson, Hamline University; Susan Harper, City of Seattle Public Utilities
Session 06: Rainfall to Results Version 2.0 - Charting the Future of Stormwater at WEF
Tuesday, June 28, 2022, 1:30 p.m. – 3:00 p.m.

Coordinator: Scott Taylor, Michael Baker International

The WEF Stormwater Institute developed the publication Rainfall to Results in 2015 to serve as a policy, position and vision document providing a framework to describe how the MS4 stormwater program may be integrated into the WEF One Water concept and comply with state and federal clean water laws. The original publication described the goal of sustainable stormwater management through the implementation of seven overarching principles, each interdependent to achieve clean water goals.

Rainfall to Results was envisioned to be a dynamic publication, updated periodically to reflect changes in regulation, the environment and society. In 2021, the Advisory Committee of the WEF Stormwater Institute determined that the original publication should be updated to reflect current challenges. Some of the drivers of this update include climate change, environmental justice, emerging contaminants and public awareness of the deficiencies of the nation's stormwater infrastructure. The 2022 publication of Rainfall to Results describes WEF's vision for the stormwater program. A new chapter has been added on resiliency and there is an updated focus on integrating stormwater into the urban water cycle, promoting reuse, augmenting water supply, and improving the functions and value of surface waters.

This session provides an overview of the changes to Rainfall to Results and describes the fundamental changes to the stormwater program vision of the WEF Stormwater Institute. Attendees will be provided with an overview of the eight fundamental principles describing the vision as well as the recommended actions underpinning its implementation.

A full detailed agenda for this session is coming soon.

Session 07: National Municipal and Green Infrastructure Awards: Highlighting Success and Innovation in Stormwater
Tuesday, June 28, 2022, 3:45 p.m. - 4:45 p.m.

3:45 p.m. National Municipal and Green Infrastructure Awards: Highlighting Success and Innovation in Stormwater
Andrew Smith, Black & Veatch

4:45 p.m. Session adjourns for networking break
Congress has funded EPA to conduct a new Clean Water Needs Survey (CWNS) in 2022. EPA last conducted a CWNS in 2012. The CWNS is the only effort to quantify the capital needs for the public stormwater sector nationwide, focused on projects to meet the goals of the Clean Water Act. The 2012 CWNS stormwater data collection, though, was flawed. 15 states reported no stormwater needs data. 16 states reported stormwater needs less than $100 million each. Only four states reported about 65% of the total stormwater needs for the U.S.

As long as the quantified needs for the stormwater sector are significantly underreported in the CWNS, stormwater will never get the focus or funding it merits from Congress. Improving the stormwater data in the CWNS is a vital step forward for the public stormwater sector.

EPA has indicated that they wish to improve the stormwater data collection for the 2022 CWNS. They are putting significant effort into this goal. This presentation is part of that initiative and an important outreach effort to inform and guide local stormwater programs in their data submittals for the 2022 CWNS and coordinate this data collection with the states.

This session will provide the perspectives of the major actors in the CWNS process: EPA, the states that report the data to EPA, and the local stormwater programs that submit information about their stormwater projects. The stormwater project information will be in different formats and have different elements compared to the typical project information for drinking water and wastewater projects. This session will present the range of data that can and should be generated by local stormwater programs, including innovative and unique formats. It will address issues related to the types of project documentation that will be accepted by EPA.

A full detailed agenda for this session is coming soon.
Facility Tour: Down at the Lab – St Anthony Falls Lab (SAFL)
Wednesday, June 29, 2022, 8:30 a.m. – 11:00 a.m.
Limit of 50 People
(Additional fees apply)

The St. Anthony Falls Laboratory (SAFL) is a unique interdisciplinary fluid mechanics research and educational facility on the bank of the Mississippi River. Within the College of Science and Engineering at the University of Minnesota, we are engineers and scientists who collaborate across disciplines to solve fluids-related problems in the Earth-surface environment. Founded in 1938, SAFL takes advantage of its unique location in downtown Minneapolis adjacent to the St. Anthony Falls - the largest waterfall on the Mississippi River - by diverting up to 300 cfs (cubic feet per second) of river water through the building for use in our research and experiments. In the realm of stormwater management, SAFL has completed third party testing of stormwater treatment & retention devices, discharge and velocity meters, pumps, erosion control countermeasures, sample analysis, and many others. A tour through this historic facility will showcase current research projects as well as the range of experimental facilities available for use by researchers and SAFL collaborators.

Accessibility Notice: Tour route adjustments are needed to accommodate guests with mobility restrictions. Please indicate any such restrictions when you register.  PPE Notice: Participants in this field tour are required to wear closed-toed shoes; flip flops, sandals, and open-toed shoes are not permitted.
Session 09: New Approaches in Water Quality  
Wednesday, June 29, 2022, 8:30 a.m. - 10:00 a.m.

8:30 a.m. A Novel Modeling Framework for Predicting Water Quality Results Based on Storm Parameters in Northeastern Los Angeles County  
Jinshu Li, Gurjot Kohli, Darin Son, Stantec; Julie Carver, City of Pomona; Jonathan Abelson, Stantec

9:00 a.m. Innovative Methods to Select and Implement Green Infrastructure Improvements within large watershed areas — A case study of GI planning and design within four sub-watersheds in DC’s Anacostia Watershed.  
Nirali Desai, Michael Moscariello, Arcadis US Inc; Jo-Elle Burgard, District Department of Transportation

9:30 a.m. Prediction of Stormwater Pond TP Removal Performance by Limnological Investigation and Rapid Field Assessment Methods  
David Austin, Roger Scharf, Jacobs

10:00 a.m. Session adjourns for networking break

Alternate: Pond Treatment with Spent Lime to Control Sediment Phosphorus Release  
Greg Wilson, Barr Engineering Company

Session 10: Developing a Plan? Keep Your Watershed in Mind  
Wednesday, June 29, 2022, 8:30 a.m. - 10:00 a.m.

8:30 a.m. Watershed Master Planning Tools to Support National Flood Insurance Program and Community Rating System Goals for Lowering Insurance Premiums for At-Risk Communities  
Daniel Meeroff, Florida Atlantic University; Fred Bloetscher, PUMPS Inc; Hongbo Su, Florida Atlantic University; Eva Suarez, Palm Beach State College; Yan Yong, Florida Atlantic University; Tucker Hindle, AECOM; Jared Weaver, City of Marathon

9:00 a.m. Developing and Deploying a One-Water Planning Approach for the Cambie Corridor  
Brian Busiek, Herrera Environmental Consultants

9:30 a.m. Triple Bottom Line Evaluation of Stormwater, Watershed, and Wastewater Opportunities to Support Springfield's Integrated Plan  
David Carani, Lacey Hirschvogel, John Christiansen, HDR; Saki Urushidani, City of Springfield

10:00 a.m. Session adjourns for networking break
**Session 11:** Stormwater Modeling, Monitoring, and Maintenance  
Wednesday, June 29, 2022, 8:30 a.m. - 12:15 p.m.

8:30 a.m. Use of 1D/2D Modeling and Innovative Tools to Optimize Watershed Based CIP Planning Efforts  
Mary Whitehead, Arcadis; Alicia Lanier, City of Fayetteville, NC

9:00 a.m. Does Mesh Resolution Matter? The Importance in 2D Modeling  
Ryan Brown, Innovyze

9:30 a.m. Sensoring Permeable Pavement to Document Performance and Crediting  
Aaron Fisher, Ernest Maier; Joseph Diekfuss; Doug Buch, PaveDrain

10:00 a.m. Networking break

10:45 a.m. An Automated Open-Channel Deficiency Rating Classification Model Based on Machine Learning in Los Angeles County  
Jinshu Li, Darin Son, Gurjot Kohli, Jonathan Abelson, Stantec; Abdul Haikal, Los Angeles County Public Works

11:15 a.m. New Manual of Practice Overview: Operations & Maintenance of Stormwater Control Measures  
Fernando Pasquel, Arcadis; Anwer Ahmed; Ed Othmer, Stantec

11:45 a.m. Are Stormwater Ponds Polluting Downstream Water Bodies?  
Poornima Natarajan, Vinicius Taguchi, Jacques Finlay, Ben Janke, University of Minnesota; John Gulliver

12:15 p.m. Session adjourns for luncheon in exhibit hall

Alternate Sizing of Stormwater Control Measures for Resiliency - The Four Rs  
Gregory Williams, StormTrap

**Session 12:** Great Green Stuff in Program Development  
Wednesday, June 29, 2022, 10:45 a.m. - 12:15 p.m.

10:45 a.m. Controlling the Source: Identifying Impactful, Cost-Effective Projects using Overflow Reduction Efficiencies and Opportunity Identification Processes  
Andrew Potts; Tim Prevost, Alcosan; Leah Rominger, Jacobs; Julia Spicher, Alcosan

11:15 a.m. Policy Basis for Incentivizing Green Infrastructure Implementation in the City of Seattle through Partnerships  
Dustin Atchison; Santtu Winter, Jacobs; Brian Mickelson, Tracy Tackett, Shanti Colwell, Dave LaClergue, Seattle Public Utilities

11:45 a.m. Green Infrastructure Guidance: Making LID in the Right-of-Way Standard Practice  
Matthew Moore, WSP

12:15 p.m. Session adjourns for luncheon in exhibit hall
Session 13:  Case Studies in Comprehensive Stormwater Planning  
Wednesday, June 29, 2022, 10:45 a.m. - 12:15 p.m.

10:45 a.m.  District Stormwater for a New Community: From Planning to Construction  
Nathan Campeau, Barr Engineering Co.; Bob Fossum, Capital Region Watershed District

11:15 a.m.  Long-Term Creation of Nature Based Integrated Stormwater Management Systems  
Barbara Barnes, Nitin Katiyar, HDR

11:45 a.m.  English Coulee Water Quality Renewal Plan  
Amber Lefers, Advanced Engineering and Environmental Services Inc

12:15 p.m.  Session adjourns for luncheon in exhibit hall

Alternate  Stormwater Forecasting — A New Indicator to Manage Basin-Scale Urban Runoff Volume  
Katherine Atteberry, Atlanta Regional Commission; David Bell, Rashi Gurney, Jacobs

Session 14:  Latest in Hydrology and Hydraulics  
Wednesday, June 29, 2022, 1:30 p.m. - 4:45 p.m.

1:30 p.m.  Monitoring Nature-Based Solutions from Space: Assessing the Influence of Urban Greenness and Green Stormwater Infrastructure on Watershed Hydrology with Satellite Remote Sensing  
Gary Conley, 2NDNATURE; Nicole Beck; Robert McDonald, The Nature Conservancy

2:00 p.m.  Restoring Predevelopment Hydrology with Smart Stormwater Controls in Aiken, South Carolina  
Jason Hetrick, McCormick Taylor; Dayton Marchese, OptiRTC, Inc

2:30 p.m.  Leveraging Artificial Intelligence to Support Advanced Impervious Surface Data Extractions  
Brandon Palin, Ecopia

3:00 p.m.  Networking break

3:45 p.m.  Innovative Stormwater Data Collection- Lawrence, KS  
Aaron Jones, Trekk Design Group, LLC; Lucas Gillen; Matt Bond, City of Lawrence, Kansas

4:15 p.m.  Creating Smart Stormwater Solutions in a Digital World  
Andrew Sauer, Burns & McDonnell; Matt Bond, City of Lawrence, Kansas; Mitchell Goedeken, Burns & McDonnell

4:45 p.m.  Conference adjourns

Alternate  Building Urban Stormwater Resiliency by Incorporating Global Climate Change Projections to Local Runoff Modeling  
Tyler Nodine, Gary Conley, Catherine Riihimaki, 2ndNature; Nicole Beck
Session 15:  There’s an App for That: Technology Applications for Storm Water Utility Formation, Management, and Outreach
Wednesday, June 29, 2022, 1:30 p.m. – 3:00 p.m.

Coordinator: Julie Beth Hinds, Birchline Planning LLC
Presenters: Roger Babcock, University of Hawaii; Lauren Roth Venu, 3RWater, Inc.; Laurens D Van Der Tak, Jacobs

This session will highlight ways in which a suite of technologies, including land use scenario planning software and mobile applications, can benefit communities that are seeking to establish a fee-based storm water program (i.e., storm water utility), to enhance customer service, to improve billing and data management, and to promote the use of financial incentives (i.e., storm water fee credits) to expand green infrastructure and other storm water BMP use by customers. The recent and ongoing experience of the City and County of Honolulu will be used to highlight how technology applications are being used to support implementation of a new utility; presenters also will highlight recent applications from other communities with older utility programs.

While the outcome of Honolulu’s path towards a fee-based utility is yet to be finalized, the process has highlighted important opportunities for applying technology in ways that increase the transparency, efficiency, and reach of a fee-based storm water program. As older storm water utilities re-assess the efficacy of ERU-based fees and credit programs, or modernize GIS systems, the potential benefits of applying and integrating multiple technologies can stretch from initial feasibility analysis to enhancing ongoing billing systems and customer experiences.

A full detailed agenda for this session is coming soon.

Session 16:  Leveraging GIS
Wednesday, June 29, 2022, 3:45 p.m. - 4:45 p.m.

3:45 p.m.  Green Infrastructure Siting Using Robust Efficient Procedure
Khaled Abdo, Arcadis; Hazem Gheith

4:15 p.m.  Digital Data Collection for Storm Water Inspections
Amber Shows, GHD

4:45 p.m.  Conference adjourns

Alternate  Technology in Stormwater Data Collection and Analysis
Michael Yost, Apex Companies, LLC
Session 17: Diversity, Equity, and Inclusion
Wednesday, June 29, 2022, 1:30 p.m. – 3:00 p.m.

More information about this session is coming soon.

Session 18: From National to Local Perspectives on Environmental Justice and Climate Resilience
Wednesday, June 29, 2022, 3:45 p.m. – 4:45 p.m.

Coordinators: Nancy Ellwood, retired from CDM Smith; JB Hinds, Birchline Planning LLC; Bianca Pinto, WEF

This session aims to provide an overview of the environmental justice initiatives at a national and local level, especially focusing on urban flooding and climate resilience. It will be a (1) hour panel discussion with three panelists presenting and opening the floor for discussions and questions.