WSP delivers sustainable and cost-effective solutions for wastewater, tunnel, modeling, coastal modeling, sanitary sewer evaluation survey, sewer rehab and nationwide sewer design.

Find out what we can do for you.

Metropolitan St. Louis Sewer District's (MSD) Tunnel Construction Management Services: 23-year, $4.7B program to eliminate overflows and reduce pollution.
WEF
Collection Systems 2021:
A Virtual Event

Virtual Event
March 23-25, 2021

Pre-Conference Workshop
March 18, 2021
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Jennifer Welsch
Metropolitan St. Louis Sewer District
Specialty Conference
Committee Chair

Scott Aurit
HDR

Kip Koszewski
HESCO

Gary Moore
Washington University

John Fletcher
Duke's Root Control

Peter Garvey
Dewberry

Walter Graf
Water Research Foundation

Diane Grossenheider
Black & Veatch

Greg Heath
AECOM

Scott Helfrick
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Jennifer Steffens
Xylem

Dan Murray
US EPA

Kristi Steiner
Jacobs

Priya Persaud
Region of Peel

Karyn Stickel
HRC

Maria Sedki
FTCH

Dianne Sumego
DMS Water Solutions

Dave Servidio
Mott MacDonald

Kevin Vander Tuig
Wade Trim

Jim Shelton
Arcadis

Diane Grossenheider

Christy Wilson
Horner & Shifrin, Inc.
WEF is committed to providing a professional, safe, and welcoming environment during its in-person and virtual events for all water professionals and their guests. WEF expects all attendees, speakers, sponsors, media, and other participants to uphold our commitment to diversity and inclusion by helping us provide a positive conference environment for everyone.

WEF has zero-tolerance for any form of discrimination or harassment, including but not limited to sexual harassment by participants or our staff at our meetings. WEF will take any action deemed necessary and appropriate, including immediate removal from the meeting without warning or refund, in response to any incident of unacceptable behavior, and WEF reserves the right to prohibit attendance at any future meeting, virtually or in person.

If you experience harassment or hear of any incidents of unacceptable behavior, WEF asks that you immediately email the WEF Executive Director Walter Marlowe.

**Unacceptable behavior is defined as:**

- Negative comments about race/ethnicity, gender and gender identity, sexual orientation, disability, age, religion, physical appearance, citizenship, or other protected categories
- Unwelcome sexual attention, including inappropriate use of nudity and/or sexual images in public spaces or in presentations
- Threatening, stalking, or endangerment of others
- Any activity meant to cultivate hostility, ad hominem insults or other attacks

**We do not tolerate the following:**

- Disruption of presentations during sessions, exhibitions, or at other events organized by WEF throughout the virtual meeting. All participants must comply with the instructions of the moderator and any WEF virtual event staff.
- Presentations, postings, and messages should not contain promotional materials, special offers, job offers, product announcements, or solicitation for services. WEF reserves the right to remove such messages and potentially ban sources of those solicitations.
- Participants should not copy or take screen shots of any technical presentations, sponsor demonstration, Q&A or any chat room activity that takes place in the virtual space.
REGISTRATION

Online registration can be completed at any time before or during Collection Systems 2021: A Virtual Event by visiting the Registration webpage: https://registration.experientevent.com/ShowWEF215/.

The registration fee includes access to educational content; networking features; and digital conference proceedings. The preconference workshop is optional (not included).

Beginning March 19, conference registrants will receive their username, temporary password, and login instructions from noreply@learn.wef.org. If you registered on or after March 19, your login credentials will be sent to you no later than the next business day (Monday-Friday).

For more information about registration policies, please visit the conference webpage at www.wef.org/collectionsystems and click the “Registration” tab.

CONTINUING EDUCATION

Did you know that WEF provides an easy way for virtual conference participants to receive continuing education (CE) credits? Attendees can now track credits, access transcripts, archived record keeping, and state reporting.

- **For Professional Engineers**: WEF education and training events are accepted in most U.S. states. WEF maintains Provider Status with several state engineering boards, including the Florida Board of Professional Engineers (FBPE) and the New York State Education Department (NYSED).

- **For Professional Operators**: WEF is pursuing CE credit pre-approval with many state operator licensing boards for Collection Systems 2021: A Virtual Event, including: CA, CO, FL, GA, IL, IN, MI, MO, NJ, NY, OH, OR, PA, TX, VA, WA, and WI.

States’ licensing boards encourage licensees to familiarize themselves with credit policies and requirements, and to verify which events are approved or accepted in their state(s). If you have questions about WEF’s Continuing Education Program, please contact us at csc@wef.org or 1-800-666-0206.

How to get your certificate?

On each session page, you will see content, quiz and certificate options. In order to obtain your certificate, you will need to watch each session video in its entirety (on the content page), respond to attentiveness polls during the video, and pass the associated quiz with a score of 100%.
We would like to thank the following companies for their contributions to the conference and program.

TELEDYNE ISCO
www.teledyne.com
Gold

WSP
www.wsp.com
Silver

HDR
www.hdrinc.com
Registration

CENTRALSQUARE
www.centralsquare.com

Innovyze
www.innovyze.com

Vaughan
www.chopperpumps.com
Ideas transform communities

hdrinc.com
ONLINE PROCEEDINGS

Conference proceedings, consisting of manuscripts for each presentation, have been made available through an online portal. Advance registrants will receive an email with instructions on how to access to the Collection Systems 2021 online proceedings before the end of the conference. Later registrants will receive an email with instructions to access proceedings following the event’s conclusion.

Not attending this year’s Collection Systems Conference? Copies of proceedings may be ordered on Access Water starting March 26th at the member rate of $120 USD/nonmember rate of $150 USD. You may call 1-800-666-0206 or visit www.AccessWater.org to place your order.

SESSIONS AT A GLANCE

<table>
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<th>Session Title</th>
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<tr>
<td>Thursday, March 18</td>
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<tr>
<td>Workshop A</td>
<td>Smart Flow Monitoring and Data Analytics to Drive Effective Sewer System Management (Sold Out)</td>
<td>12:00 PM – 4:00 PM Eastern</td>
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<td>Tuesday, March 23</td>
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<td>1.0 PDHs</td>
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<td>12:00 PM – 12:20 PM Eastern</td>
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<td>Session 02</td>
<td>Flooding Dynamics</td>
<td>1:00 PM – 2:00 PM Eastern</td>
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<td>Company Demo</td>
<td>Vaughan Company</td>
<td>2:00 PM – 2:20 PM Eastern</td>
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<td>Session 03</td>
<td>Rehabilitation</td>
<td>3:00 PM – 4:00 PM Eastern</td>
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<td>Wednesday, March 24</td>
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<td>Session 04</td>
<td>Planning</td>
<td>11:00 AM – 12:00 PM Eastern</td>
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<td>Company Demo</td>
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<td>Session 05</td>
<td>Asset Management</td>
<td>1:00 PM – 2:00 PM Eastern</td>
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<td>Session 06</td>
<td>Wet Weather Issues</td>
<td>3:00 PM – 4:00 PM Eastern</td>
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<td>Infiltration and Inflow</td>
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<td>Session 08</td>
<td>Data &amp; Analytics</td>
<td>1:00 PM – 2:00 PM Eastern</td>
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GENERAL VIRTUAL EVENT INFORMATION

The Collection Systems 2021 Virtual Event will be held online on an interactive platform where you’ll gain access to eight Technical Sessions as well as Company Demos and Networking Opportunities. Technical Sessions will be presented in two ways: Live and Simulated-live (or simu-live) to encourage the most interaction and engagement between speakers and registrants.

**Live sessions** will take you to a Zoom meeting where the speakers and moderators are giving their presentations on screen in real time while you watch. There will be one session each day hosted live on Zoom.

**Simu-live sessions** will be pre-recorded, complete with moderator interaction and questions, and the recordings will be played at the scheduled date and time during the virtual event. Speakers will be present at that time to answer any questions asked by our audience live via chat.

NETWORKING OPPORTUNITIES

We are utilizing Kumospace to allow for casual networking. The space will be open throughout the entire conference, so stop in any time. You can choose from any of the rooms listed and talk with people inside your sound bubble. The closer you get to a group, the louder they become. Some rooms even have music and a chance to fill up a virtual drink. Explore and see what you can do!

We encourage you to join this platform after technical sessions and company demos to continue the conversation.

**Scavenger Hunt**  
**Wednesday, March 24, 2:00 PM – 3:00 PM Eastern**

Join the Collection Systems Conference Scavenger Hunt! We want to mix up your day a bit with something fun. The hunt will take place in the same networking space you will have access to all week. You need to find all four clues to complete this challenge. Receive your first clue in room “Scavenger Hunt Starts Here”. When you figure out the answer to the clue, provide the answer to the person holding the next clue in one of the other rooms. Each person with a clue will be named "I have Clue #X", so make sure you check all the rooms to find them! You have to go in order to get them all!

Winner gets a $20 gift card to Amazon.
PRE-CONFERENCE WORKSHOP

Smart Flow Monitoring and Data Analytics to Drive Effective Sewer System Management
Thursday, March 18, 2021
12:00 PM - 3:30 PM Eastern – Live

SOLD OUT

This workshop is intended to offer participants an opportunity to learn about or expand your knowledge of advancements in flow monitoring and data analytics to support effective management of wastewater collection systems and continuous digital transformation. This workshop will be hosted via Zoom and include a diverse group of speakers and interactive break-out groups.

12:00 PM Welcome and Prelude: Flow Monitoring and Data Analytics
Srini Vallabhaneni, Kansas City Water, MO

12:10 PM Interactive Session 1
Topic: What are your prevailing practices for flow monitoring and data analytics?
Srini Vallabhaneni, Kansas City Water; Hatem El-Sayegh, Barge Design Solutions

12:30 PM Case Study 1
James Kauffman, Metropolitan St. Louis Sewer District, MO

1:00 PM Break

1:10 PM Technology Forum - Prevailing technologies/practices/trends
Kevin Enfinger, ADS; Jim Caruso, Hach; Rick Dey, Teledyne

2:25 PM Interactive Session 2
Topic: Frame future of smart sewer sensor networks and data analytics to drive effective sewer systems management and digital transformation
Srini Vallabhaneni, Kansas City Water; Hatem El-Sayegh, Barge Design Solutions

2:50 PM Case Study 2
Tracey Heidersbach, East Bay Municipal Utility District, CA

3:20 PM Closing Thoughts from Panelists

3:30 PM Workshop adjourns

Please Note: this workshop will not be recorded, so make sure you can join live before you register.
FIX IT BEFORE IT MAKES THE 5 O’CLOCK NEWS

DON’T LET THIS HAPPEN TO YOU
With the aging infrastructure utility teams face today, the deck is stacked against you. To make matters worse, your budget and time won’t allow you to fix everything. However, when a crisis strikes you will wish you had fixed it a month, a week, or even a day sooner.

INTRODUCING INFOASSET PLANNER
Using the power of Cityworks AMS to drive InfoAsset Planner by Innovyze, you can better respond to aging infrastructure by fixing it before it breaks. Giving you a 3 to 1 advantage in saving money.
Session 01: Innovation
Tuesday, March 23, 2021
11:00 AM - 12:00 PM Eastern – Live

Moderators: Walter Graf, Water Research Foundation; Priya Persaud, Region of Peel

11:00 AM  Houston’s Effective Approach in Tracking and Preventing SSOs using Web-based Dynamic GIS and Power BI.
Fazle Rabbi, Aby Varghese, Houston Public Works

11:20 AM  Turbocharged Engines of Two Resilient Collection Systems
Annette Duron, San Antonio Water System; Michael Mosier, City of Arlington; Paris Neofotistos, SmartCover

11:40 AM  Implementation of Model Predictive Control for the Sewer System in Kolding, Denmark
Nikolaj Mølbye, Kruger; Camilla Ravn, Thomas Faarbaek, BlueKolding; Mark Drake, Laurent Monier, Veolia

Company Demo

12:00 PM  Teledyne ISCO: Sneak Peek from Teledyne ISCO
Sponsoring companies demonstrate the latest products, resources and problem-solvers with live chat Q&A.

Session 02: Flooding Dynamics
Tuesday, March 23, 2021
1:00 PM - 2:00 PM Eastern – Simu-Live

Moderators: Kevin Vander Tuig, Wade Trim; Walter Graf, Water Research Foundation

1:00 PM  Rising Lake Michigan Water Level Leads to 70 MGD Emergency Pump Station
Allen Williams, Donohue & Associates

1:20 PM  Adapting Collection System Infrastructure to Changing Flood Vulnerabilities - Southeastern Massachusetts Case Studies
Anastasia Rudenko, Marc Drainville, GHD

1:40 PM  How One Community Is Using Radar Rainfall to Reduce Overflows and Basement Flooding While Enabling Real-Time Control of Its Wastewater System
Baxter Vieux, Vieux & Associates Inc; Michael Faye, Region of Peel
**Company Demo**

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<tr>
<td>2:00 PM</td>
<td>Vaughan Company: Vaughan Chopper Pump Recirculation Family &amp; the New Sewage</td>
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Sponsoring companies demonstrate the latest products, resources and problem-solvers with live chat Q&A.

**Session 03: Rehabilitation**  
**Tuesday, March 23, 2021**  
**3:00 PM - 4:00 PM Eastern – Simu-Live**

**Moderators:**  
Scott Aurit, HDR Inc.; Kristi Steiner, Jacobs

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<td>3:00 PM</td>
<td>In-Place Emergency Rehabilitation of Northwest Interceptor In Urban Conditions</td>
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<td>Mini Panicker, Biren Saparia, GLWA; Sara Kucharek, Joseph Alberts, Fritz Klinger, FK Engineering Associates; Karen Ridgway, Applied Science, Inc.; Steve Zadjel, Inland Waters Pollution Control</td>
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<td>3:20 PM</td>
<td>CIPP in Paradise — Large Diameter Gravity Interceptor Sewer Rehabilitation by Lining with UV Cured-in-Place Pipe</td>
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<td>Amanda Dobbs, Michael Burgett, Gresham Smith; Kenneth Rekdahl, Dueñas, Camacho and Associates; Ronald Abraham, Ken Stewart, Gresham Smith</td>
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<td>3:40 PM</td>
<td>Inside the Fence: Assessing and Remediating 60+ Year Old Critical Plant Piping</td>
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<td>Daniel Rodriguez, Black &amp; Veatch</td>
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Session 04: Planning  
Wednesday, March 24, 2021  
11:00 AM - 12:00 PM Eastern –Simu-Live

Moderators: Dianne Sumego, DMS Water Solutions; Karyn Stickel, HRC

11:00 AM Modern Master Planning in South Florida: Resilience and Condition Assessment Considerations for Regional Wastewater Transmission  
Jeremy Seiden, Broward County Water and Wastewater Services; Amanda Schwerman, Christopher Ranck, Brian Ball, Amanda Zarazua, Black & Veatch

11:20 AM ReNewark: How Newark's Sewer Project Revitalized a Community  
Tim Schutz, Hazen and Sawyer; Roger Loomis, City of Newark, OH; Stephanie Weagraff, Arcadis

11:40 AM Design Considerations and Deep Tunnel Construction on the Reedy River Basin Sewer Tunnel Project in Greenville, SC  
Jason Gillespie, Renewable Water Resources; Stephen O'Connell, Horry Parker, Black & Veatch

Company Demo

12:00 PM CentralSquare Technologies: CentralSquare Enterprise Asset Management Overview  
Sponsoring companies demonstrate the latest products, resources and problem-solvers with live chat Q&A.

Session 05: Asset Management  
Wednesday, March 24, 2021  
1:00 PM - 2:00 PM Eastern –Simu-Live

Moderators: Karyn Stickel, HRC; Peter Garvey, Dewberry

1:00 PM Don't Give Up When Things Get Tough to Perform Your Critical Force Main Inspections  
Celine Hyer, Harrison Steed, Arcadis

1:20 PM Enhanced Monitoring and Infrastructure Management of Sewers and Anaerobic Biodigesters Using Innovative Fiber Optic-Based Sensor Systems  
Bruno Rente, Matthias Fabian, City, University of London; Louisa Vorreiter, Jerry Sunarho, Heriberto Bustamante, Sydney Water; Tong Sun, Kenneth Grattan, City, University of London

1:40 PM Factors that Influence the Formation and Surface Adhesion of Fat, Oil, and Grease (FOG) Deposits  
Samrin Kusum, Mohammad Pour-Ghaz, Joel Ducoste, North Carolina State University

*Wednesday, March 24 schedule cont. on next page*
Session 06: Wet Weather Issues
Wednesday, March 24, 2021
3:00 PM - 4:00 PM Eastern – Live

Moderators: Dan Murray, EPA; Greg Heath, AECOM

3:00 PM  SSO Consenting and Design Storm Selection Based on Continuous Simulation of 25-Year Historical Rainfall
Joel Wilson, WCS Engineering; Tyler McMillan, Christchurch City Council

3:20 PM  Assessing Climate Change’s Impact on the Size of CSO Facilities in King County (WA)
Robert Swarner, Bruce Crawford, Brian Phillips, Homero Flores, Elizabeth Clark, Liaqat Khan, Hal Mullis, King County Wastewater Treatment Division

3:40 PM  Jefferson County's Story of Applying Asset Management Principles to Optimize its O&M Program and Achieve Significant SSO Reduction
David Denard, Daniel White, Jefferson County; John Evans, Blue Cypress Consulting
Session 07: Infiltration & Inflow
Thursday, March 25, 2021
11:00 AM - 12:00 PM Eastern – Simu-Live

Moderators: Peter Garvey, Dewberry; Dianne Sumego, DMS Water Solutions

11:00 AM  Modeling Rainfall Runoff Responses with Antecedent Moisture Effects
   Robert Czachorski, OHM Advisors

11:20 AM  Investigating I/I into a Collection System with a Network of 87 Pump Stations Using
   SCADA Data
   Patrick Flynn, Cameron Marra, Stantec

11:40 AM  Addressing Spokane’s Wet Weather Challenges with Real-Time Controls
   Marcia Davis, Beryl Fredrickson, City of Spokane; Santtu Winter, Jacobs

Session 08: Data & Analytics
Thursday, March 25, 2021
1:00 PM - 2:00 PM Eastern – Live

Moderators: Diane Grossenheider, Black & Veatch; Jennifer Welsch, Metropolitan St. Louis Water District

1:00 PM  Real-time Assessment of the GLWA’s Regional Operating Plan Using Digital Twin Technology
   Zachary Eichenwald, Greg McGrath, CDM Smith; Joe Birchi, Betty Thomas, Biren Saparia, Sherri Gee, Great Lakes Water Authority

1:20 PM  Holistic Wet Weather Management Combining Machine Learning, Treatment Plant Optimization, and Predicting Collection System Influent Flow Hydrographs
   Katya Bilyk, Hazen and Sawyer; Erika Bailey, Raleigh Water

1:40 PM  Best Practice of Intelligent Algorithms to Optimize and Prioritize Capital Investments and Asset Rehabilitation for Jefferson County, AL
   Joel Wilson, Sasa Tomic, David Garcia, WCS Engineering; Stephen King, Hazen and Sawyer; Daniel White, Jefferson County
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<tr>
<th>Name</th>
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<td>Joel Wilson</td>
<td>WCS Engineering</td>
<td>Speaker Session 06</td>
</tr>
<tr>
<td>Santtu Winter</td>
<td>Jacobs</td>
<td>Speaker Session 07</td>
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UPCOMING WEF EDUCATION & TRAINING EVENTS

Odors and Air Pollutants 2021: A Virtual Event
Registration is open now!
April 20-22, 2021
www.wef.org/odorsair

Residuals and Biosolids 2021: A Virtual Event
Registration is open now!
May 11-13, 2021
www.wef.org/residualsbiosolids

Innovations in Process Engineering 2021: A Virtual Event
June 9-10 and 15-16, 2021
www.wef.org/processengineering

Stormwater Summit 2021: A Virtual Event
June 22-23, 2021
www.wef.org/stormwatersummit

AWWA/WEF Utility Management Conference 2021
Atlanta, GA
August 3-6, 2021
www.wef.org/utilitymanagement

WEFTEC 2021
McCormick Place, Chicago, IL and Online
October 16-20, 2021
www.weftec.org

Save the Date for 2022
Collection Systems Conference 2022
Detroit, MI
April 19-22, 2022
www.wef.org/Collectionsystems