

COLLECTION SYSTEMS CONFERENCE 2023

TECHNICAL PROGRAM

JUNE 27 – 30
KANSAS CITY, MO

 **wef** | Education
& Training
Events

WEF Collection Systems Conference 2023

June 27-30, 2023

**Kansas City Convention Center,
Kansas City, Missouri, USA**

Technical Program

(last updated April 4, 2023)

Pre-conference Workshops

(Additional fees apply)

Workshop A: Smart Infrastructure for Collection Systems: Understanding the Physical, Digital, and Management Systems that can Make Sewers Smart

Tuesday, June 27, 2023

8:30 a.m. – 5:00 p.m.

Coordinator: Kyle Logue

Speakers: Christopher Dinsmore, EBMUD; Elizabeth Aguin, RJN Group Inc.; Ashley Smart, Smart Water Solutions; John Barton, Metropolitan Sewer District of Greater Cincinnati; Christopher Ranck, Black & Veatch; Baxter Vieux, Applied Research Team Inc.

Per the EPA, smart infrastructure can be used to inform operational decisions that ultimately improve the efficiency, reliability, and lifespan of physical assets. By implementing these physical, digital, and management solutions, it is estimated that utilizes for wastewater and water could save up to \$320 billion in capital expenditures and operating expenses. Faced with the increasing costs of regulatory requirements, many utilities will be required to implement new approaches such as smart infrastructure to extend their capital and operational budgets. This workshop will strive to provide attendees with insights needed to reimagine how new and existing data, assets, and technology can be leveraged to improve the efficiency of their systems while preventing sanitary and combined overflows.

Pre-conference Workshops

(Additional fees apply)

Workshop B: The Current State and Future Vision of Capacity Modeling and Asset Management

Tuesday, June 27, 2023

8:30 a.m. – 5:00 p.m.

Coordinator: William McMillan, Jacobs

Speakers: Fazle Rabbi, City of Houston; Eric Harold, Carollo; Ting Lu, Clean Water Services; Reese Johnson, Metropolitan Sewer District of Greater Cincinnati; Sunil Sinha, Virginia Tech; Liu Lu, Iowa State University; James Brescol; Michael Karl, Brown and Caldwell

This workshop is intended to help utilities establish a technological baseline for using hydraulic collection system modeling to identify sewer system capacity and integrate that knowledge with asset management. Therefore, it will help to determine the future vision and path for modeling and asset management, specifically involving big data. It will be a blend of presentations, table discussions, and open sharing. We will start the workshop with facilitators introducing sessions and describing purposes and intended outcomes, and speakers sharing experiences, presenting current achievements, and exploring future visions of modeling and asset management. Brief questions and answers will be facilitated. "Learn and Engage" segments will then be engaged where facilitators will provide direction to attendees on how to further discuss these topics with members of their table, share additional examples, identify important takeaways, summarize findings, develop recommendations, and report out to all attendees.

Opening General Session
Wednesday, June 28, 2023
8:30 a.m. – 10:00 a.m.

- 8:30 a.m. WEF Collection Systems Conference Chair Welcome**
Dan Murray, Specialty Conference Chair
Brian Hess (MWEA), Aaron Witt (KWEA), Local Planning Group Chairs
- 8:35 a.m. WEF Welcome**
Corey Williams, WEF Board of Trustees, SmartCover
- 8:45 a.m. Johnson County, Kansas - Welcome**
Penny Post oak Ferguson, Johnson County Manager
- 8:55 a.m. Negro Leagues Baseball Museum**
Bob Kendrick, President
- 9:55 a.m. WEF CSSC 2023 Destination**
- 10:00 a.m. Session adjourns for networking break in exhibit hall**

Session 01: Inflow and Infiltration
Wednesday, June 28, 2023
10:45 a.m. - 11:45 a.m.

10:45 a.m. Novel Asset Defect and Inflow & Infiltration Identification Techniques Used as Part of SF Bay Consent Decree Sewer Investigations
Christopher Dinsmore, EBMUD; Tracy Heidersbach

11:15 a.m. Reducing the Flow: Combining Traditional and Innovative Sewer Assessment Techniques
Edward Carpenetti, Zachary Smierciak, Black & Veatch; Samantha Flores, Hillsborough County

11:45 a.m. Session adjourns for luncheon in exhibit hall

Alternate Blueprint Columbus - Comprehensive Public and Private I/I Reduction Program Exceeds Target
Hazem Gheith, Arcadis; Fang Cheng, City of Columbus Department of Public Utilities; Qiuli Lu

Tour B: Green Infrastructure Sites in Kansas City's Smart Sewer CSO Program
Wednesday, June 28, 2023
1:00 p.m. – 4:30 p.m.
(Additional fees apply)

This tour is co-sponsored by the Collection Systems Conference and Stormwater Summit. KC Water has completed a variety of Green Infrastructure Projects in its Combined Sewer Area as part of their Smart Sewer Program to meet requirements of the City of Kansas City, Missouri's consent decree to reduce combined sewer overflows. This tour will start with an overlook of the confluence of the Kansas and Missouri Rivers to highlight the overall theme of tour and emphasize that the Green Infrastructure sites visited are designed to improve the health of our River systems. The tour will visit 3 to 4 project sites completed by KC Water that, in addition to achieving reduction of CSO's and improvements to water quality, also serve as community amenities and educational sites for residents and visitors to enjoy.

Session 02: Technologies & Risk Management
Wednesday, June 28, 2023
1:30 p.m. - 4:45 p.m.

- 1:30 p.m. Utilizing Risk Management & Technology for Collection System Resiliency**
Dustin Hill, Chris Ericksen, Luc Robinett, Burns & McDonnell
- 2:00 p.m. Making the Right Choice for Large Diameter Sewer Inspection**
Joshua Tedder, Stephanie Segler, Black & Veatch; Khoa Nguyen, Kansas City Water Services; Leigh Thomas, WGI; Tim Back, TMC Consulting; John Matthews, Louisiana Tech University
- 2:30 p.m. Advancements in Multi-Sensor Inspection (MSI) Technologies**
Jeffrey Griffiths
- 3:00 p.m. Networking break**
- 3:45 p.m. Innovative Machine-Based Pipe Inspection Program Supports Meaningful I/I Reduction for Hillsborough County**
Mike App, Electro Scan Inc
- 4:15 p.m. Asset Management in the Other Kansas City**
Waldo Margheim, Burns & McDonnell; Joseph Barnes, Unified Government Wyandotte County; Stephen Roth, Alfred Benesch & Company
- 4:45 p.m. Session adjourns for networking reception in exhibit hall**

Session 03: Design & Construction
Wednesday, June 28, 2023
1:30 p.m. - 4:45 p.m.

- 1:30 p.m. CSO 032 and Third Street Consolidation Sewer – River Crossing: Under the River, and Through the Levee, to the Siphon Headbox We Go**
David Murray, Arcadis
- 2:00 p.m. Big Approach to Small Diameter Sewer Rehabilitation: Design and Construction of Small Diameter Sewer Rehabilitation Package Projects**
Travis Grohman, Plummer Associates, Inc.; Mary Portillo; Travis Terrell Ramos
- 2:30 p.m. Lining Charlotte’s Main 78” Sewer: 64 Feet Deep, ½-Mile Between Manholes, Bridges Over Roads, Busy Shopping Mall, and 57 MGD**
Aaron Frazier, CHA Consulting, Inc.; Micah Burgess, Charlotte Water
- 3:00 p.m. Networking break**
- 3:45 p.m. How Design and Construction of a Parallel Wet Weather Interceptor Meets Sustainable and Hydraulic Goals**
Jonathan Vorheis, Jacobs; Joshua Garcia, Alissa Lockett, San Antonio Water System
- 4:15 p.m. Saddle Creek RTB – From Concept to Reality**
John Weiland, Wade Trim; Michael Arends, Michael Zelensky, Jake Hansen, City of Omaha Public Works; David White, Wade Trim
- 4:45 p.m. Session adjourns for networking reception in exhibit hall**
- Alternate Reality Capture: Emerging Tools to Meet Your Needs**
Alan Stadler, Wade Trim

Session 04: Smart Water Solutions

Wednesday, June 28, 2023

1:30 p.m. - 4:45 p.m.

- 1:30 p.m. But Will It Work Here? Lessons Learned from Digital Adoption Change Management**
Luis Montestruque, HydroDigital, LLC; Timothy Ruggaber; Reese Johnson, Metropolitan Sewer District of Greater Cincinnati; Eric Horvath, City of South Bend
- 2:00 p.m. Your Crystal Ball – How Cloud-Based SCADA Allows Operators To See The Future – And Avoid Problems**
Mauritz Botha, XiO, Inc.
- 2:30 p.m. Artificial Intelligence and Data Intelligence Advantages for an Enhanced Source Control Monitoring System in Direct Potable Reuse**
Anne-Li Steutel-Marón, Hila Korach Rechtman, Aaron Blatt, Kando
- 3:00 p.m. Networking break**
- 3:45 p.m. Flow Metering – A Powerful Tool to Build Smart Sewer Systems**
Jianfeng Wen, Yanjin Liu, American Water
- 4:15 p.m. Utilities Leverage Smart Sewer Technology to Address Immediate Infrastructure Needs**
Megan Livak, SmartCover; Roland Gutierrez, San Antonio Water System; Jason Bromirski, Charlotte Water; Mark McIntire
- 4:45 p.m. Session adjourns for networking reception in exhibit hall**
- Alternate How Smart Monitoring of Assets in the Field Scales to Every City's Requirements**
Melanie Head, Croy Consultants; Ariel Stern, Ayyeka
- Alternate The Essential Steps to Ensure that Only Valid Flow Meter Data are Used in Sewer Assessments**
Alexandria King, Jim Shelton, Arcadis

Session 05: Manholes
Thursday, June 29, 2023
8:30 a.m. - 10:00 a.m.

- 8:30 a.m. Clean Smarter, Not Harder: FreeFlowH20**
Jacob Mueller, Alexander Palmatier, HDR
- 9:00 a.m. Structural Manhole Rehabilitation - When it is Needed and How to Make it Happen**
Jeff Maier, Garver
- 9:30 a.m. Manhole Inspection and Rehabilitation, ASCE Manuals and Reports on Engineering Practice No. 92 (MOP 92), 3rd Edition**
Mark Wade, BlueWater Solutions Group, Inc.
- 10:00 a.m. Session adjourns for networking break**

Session 06: Trenchless Technologies

Thursday, June 29, 2023

8:30 a.m. - 10:00 a.m.

8:30 a.m. Challenges and Lessons Learned of Horizontal Directional Drills in South Florida

Arnelio Alfonso, A&P Consulting Transportation Engineers, Corp.; David Mancini, Jr, DMSI; Julian Gomez, CHA Consulting; Roberto Lamazares, DMSI

9:00 a.m. Rock Run Rehab: Joliet's Large Diameter Cured-in-Place Sewer Solution

Catherine Morley, RJN Group Inc; Owen Dean; Randy Belanger, Alex Rossebo, Visu-Sewer Inc

9:30 a.m. Trenchless Technology Leveraged to Rehabilitate Trunk Sewer

Jennifer Glynn, Justin Kraetsch, Woodard & Curran

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

Session 07: Interceptors & Tunnels
Thursday, June 29, 2023
8:30 a.m. - 10:00 a.m.

8:30 a.m. The Perils of Interceptor Surcharging: Unintended Consequences of In-Line Storage
James Shelton, Arcadis; Andrew Peters, Evansville Water and Sewer Utility

9:00 a.m. Mitigating Geysers in Deep Sewer Tunnels
Edward Bradfuhrer, GHD; Jeff Shiner, Metropolitan Saint Louis Sewer District;
Mark Woodthorpe, GHD

9:30 a.m. Horizontal Directional Drilling of a New 18-in Siphon Sewer under the Licking River
Sean O'Rourke, Hazen and Sawyer

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

Session 08: CMOM
Thursday, June 29, 2023
10:45 a.m. - 11:45 a.m.

- 10:45 a.m. Proactive CMOM: Richardson's Holistic Approach to Collection System Assessment and Asset Management**
Mazen Kawasmi, Stephen Johnson, Freese and Nichols, Inc.; Christina Hickey, City of Richardson; Liliana Contreras, Freese and Nichols, Inc.
- 11:15 a.m. Automated Capacity Evaluation For Sanitary Sewers Using API For ICM Model, Data-Lake, Web-GIS, and Microsoft Power Platform**
William Kuehne, Ardurra; Fazle Rabbi, City of Houston
- 11:45 a.m. Session adjourns for luncheon in exhibit hall**

Session 09: Diversity, Equity, and Inclusion
Thursday, June 29, 2023
10:45 a.m. - 11:45 a.m.

More information about this session is coming soon.

Session 10: Smart Sewers Knock Out SSO in Chattanooga, TN
Thursday, June 29, 2023
10:45 a.m. - 11:45 a.m.

Speakers: Xavier Pedoux, Jacobs; Mark Heinzer, City of Chattanooga

Chattanooga owns and operates more than 1,300 miles of combined and sanitary sewers. During heavy rain events, these systems may discharge untreated sewage into the Tennessee River, its tributaries and sometimes onto City streets. The City is engaged in a wet weather Consent Decree Program to mitigate these sanitary sewer overflows (SSO), protect public health and the environment, and support economic development. This multi-phase, multi-year effort called Clear Chattanooga involves major capital and operational improvements to the 230 MGD capacity Moccasin Bend Wastewater Treatment Plant (WWTP) and the wastewater collection system including pipe rehabilitation, upgrades to the 8 Combined Sewer Overflow Treatment Facilities (CSOTF) and 79 pump station, and construction of 100 MG of new wet weather storage facilities called Equalization (EQ) Stations.

This experience could help utilities understand the benefits, tools available, approach, challenges, and lessons learnt of implementing Smart Sewers, and visualize results with real-time data. This Chattanooga experience will hopefully be something they will learn from and apply to maximize the use of their sewer system and protect the environment, public health and safety.

Session 11: Pressure Systems
Thursday, June 29, 2023
1:30 p.m. - 4:45 p.m.

- 1:30 p.m. Asset Management Building Blocks – System-wide Lift Station Condition Assessment and Risk Profile Development**
Emily Holtzclaw, Jacobs; Stephen Andersen, George Parizek, City of Omaha Public Works; Matthew Crowley, Jacobs
- 2:00 p.m. How To Inspect Critical Force Mains**
Jacqueline Corey
- 2:30 p.m. Awakening the Sleeping Giant...Inspection of the 66-inch/96-inch Anacostia Force Main Gravity Sewer in Washington DC**
Sonia Oton, Mott MacDonald; Pono Hanson, Brown and Caldwell; Bisrat Abebe
- 3:00 p.m. Networking break**
- 3:45 p.m. Isolation and Condition Assessment of the 36-inch Effingham Interceptor Force Main**
Marina Doyle, RK&K; Harry Hardy, HRSD; Michael Gaffney
- 4:15 p.m. Force Main Pressure Monitoring Technology Provides Cost-Saving Data to Extend Asset Life at Western Lake Superior Sanitary District**
Dianne Mathews, Western Lake Superior Sanitary District; Nicole Kaiser, Alex Forbes, Syrinix Inc
- 4:45 p.m. Session adjourns**
- Alternate Ultrasonic Invasion USA: What Owners and Operators are Learning and How to Apply this 'Proven Technology' to Better Understand and Manage Pressure Pipe Applications**
Chris McDowell, CPM Pipelines; Jimmy Didehbani, City of Grapevine

**Session 12: An In-depth Discussion of the 3rd Edition of WEF's Manual of Practice FD-
Design of Wastewater and Stormwater Pump Stations**

Thursday, June 29, 2023

1:30 p.m. – 3:00 p.m.

Coordinator: Rob Otey, Freese & Nichols

Speakers: Mazen Kawasami, Jeremy Dixon, Jared Barber, Charles Kucherka, Clay Herndon, Jeff Hensley, Alan Hutson, Freese & Nichols

The purpose of this session is to provide updated technical information on the design of wastewater and stormwater pumping stations. WEF has recently published an updated edition (2022) of the FD-4 manual. The previous edition was published in 1993. During the editing process of the FD-4 manual, it became apparent that there is a wealth of information that needs to be disseminated in a concise format to the design engineer. The topics presented in this session are also provided in the manual, which is geared towards the experienced engineer. By attending this session, the attendees will be introduced to the following topics and the latest technologies to better increase their technical knowledge:

- Station Capacity
- Station Configuration & Design
- Pumping Systems
- Piping Systems
- Electrical Design
- Instrumentation & Control Systems
- Appurtenances

Tour A: SSO Wet Weather Control – Treatment & Storage
Thursday, June 29, 2023
1:30 p.m. - 4:30 p.m.
(Additional fees apply)

There are multiple tools in the “toolbox” for managing wet weather flows in Separate Sanitary Sewer systems. This tour features two different types of facilities for managing wet weather flows that provide increased levels of service and protection from sanitary sewer overflows (SSOs). This tour also features two large utilities, one in Missouri and one in Kansas serving customers in the Kansas City metro area. The first stop is at a large extraneous flow storage basin in the Little Blue Valley Sewer District on the Missouri side of the state line. The second stop features a state-of-the-art wet weather treatment facility located at the recently completed Tomahawk Wastewater Treatment Facility in Johnson County, Kansas.

Session 13: Leveraging Sensors, Data and Digital to Address Modern Collection System Challenges

Thursday, June 29, 2023

1:30 p.m. - 4:45 p.m.

Coordinator: Steve Green, Stanley Group

Speakers: Matt Huddleston, Stanley Group; Corey Williams, Smart Cover Systems; Ira Speer, City of Olathe, KS; Pablo Calabuig, GOAIGUA, INC.

The session will address the concept of a digital and climate change strategy to be used in the master planning of collection systems. Elements include a climate action plan, deployment of sensors, data historians and dashboards, digital twins and artificial intelligence and machine learning(AI/ML) tools. The session will also address best practices of implementing a digital roadmap that integrates with the wastewater master plan. Attendees will leave the session understanding how to start their digital journey with climate change and digital technologies factored in.

The first part of this-session explains how collection system planning and engineering projects can be optimized for expected future conditions by considering the micro-specific projected climate conditions that will affect a collection system. A case study will be presented where it was determined whether such flooding events may occur more frequently in a project with Boulder County, Colorado.

The second part of this-session will cover how deploying sensors establishes historical data for use in planning activities. A full case study will also be presented: Olathe, KS, wanted a dependable source for data collection with analytical capabilities in the software so they could assess their basins and determine where their money should be spent for the highest impact in reducing inflow and infiltration.

Session 14: Force Mains & Pump Stations
Thursday, June 29, 2023
3:45 p.m. - 4:45 p.m.

3:45 p.m. Thinking Outside the Box, Inside of the Box – Planning, Designing, and Constructing Reliability Improvements into City's Forcemain System by Inserting 36-inch Valves with a Thrust Box Methodology
M Richards, Carollo Engineers; Christopher Roschek, City of Boynton Beach Utilities Dept; Ricardo Borromeo, ; Jose Huertas, City of Boynton Beach Utilities Dept

4:15 p.m. E Pluribus Unum – HRSD Brings the Many Towns of Virginia's Eastern Shore together with this Large Design-Build Sewer Collection Project
Alan Edwards, AECOM; Phil Hubbard, HRSD

4:45 p.m. Session adjourns

Alternate The 'Understandings' of a Vacuum System
Brandon De Flon; Mark Holstad, Josh Brown, Mark Gallegos, Juaquin Zamora, Albuquerque Bernalillo County Water Utility Authority; Joe Dryer, Sensus Analytics

Session 15: Optimization & Modelling
Friday, June 30, 2023
8:30 a.m. - 11:45 a.m.

- 8:30 a.m. Optimizing the Operation of the Mill Creek Basin through Innovative Real-Time Control Strategy**
Matthew Van Doren, Metropolitan Sewer District of Greater Cincinnati; William Knight, Xylem, Inc
- 9:00 a.m. Optimizing a Collection System to Address Future Uncertainty; Applying Real-Time Controls to Mitigate the Effects of Rapid and Unprecedented Growth**
Ron Miller, Gwinnett County Department of Water Resources; Carl Chan; Muralikrishna Chelupati, Rahul Patel, Stantec
- 9:30 a.m. The Great Area-Wide Debate: O&M Cleaning Optimization using SSO Rates**
Mark Holstad, Johanna Malouff, Albuquerque Bernalillo County Water Utility Authority; Brandon De Flon; Alma Flores-Garcia, Albuquerque Bernalillo County Water Utility Authority
- 10:00 a.m. Networking break**
- 10:15 a.m. Integrating Smart Sewers with Smart Wet-Weather Treatment to Increase Capacity and Water Quality Resiliency**
James Fitzpatrick; Alexander Szerwinski, Johnson County Wastewater; John Dyson, Aqua Aerobic Systems Inc
- 10:45 a.m. Why Model Real Time When You Can Model the Future? The Fort Wayne Experience**
Christopher Ranck, Black & Veatch; Emily Grabill, Fort Wayne City Utilities; Jingjing Dai
- 11:15 a.m. Improving Model Hydrology Accuracy Using Antecedent Moisture Modeling (AMM): City of Joliet Granite Street Case Study**
David Edgren, RJN Group
- 11:45 a.m. Session adjourns**
- Alternate How the City of Houston Enhanced Wastewater CMOM Programs Using a Bidirectional Application Programming Interface Approach to Hydraulic Model Integration**
William Kuehne, Ardurra; Fazle Rabbi, City of Houston
- Alternate Successful Collaboration between Operations and Engineering by Leveraging Countywide Hydraulic Model to Improve Collection System Performance and Increase Operational Efficiencies**
Matthew Joiner, Ron Miller, Gwinnett County Department of Water Resources; Nicholas Anderson; Carl Chan; Muralikrishna Chelupati, Rahul Patel, Stantec

Session 16: Integrated Planning
Friday, June 30, 2023
8:30 a.m. - 11:45 a.m.

- 8:30 a.m. Integrated Wastewater Planning and Financing to Solve the Pains of Rapid Growth**
Ishita Rahman, Rachel Adkisson, Adam Conner, Murali Erat, Freese & Nichols Inc; Dan Johnson, City of Manvel
- 9:00 a.m. A Happy Marriage: Leveraging SSES and IDDE for Sewer and Drain System Management**
Samantha Weidenbenner, Zach Henderson, Woodard & Curran
- 9:30 a.m. NetCreate: the Future of Wastewater Planning**
Andy Taylor, Lynn Chamberlain, Atkins North America
- 10:00 a.m. Networking break**
- 10:15 a.m. A Tale of Two CIPs: Implementing Separate Plans when Development Potential Outweighs Improvement Capability**
Maia Dupes, Ethan Shires, Freese and Nichols; Kyle Burow, City of Kerrville
- 10:45 a.m. Reimagining Capital Delivery to Accelerate Infrastructure Rehabilitation**
Joanna Brunner; Andres Villarraga, WSSC; Jason Carter, James Shelton, Arcadis
- 11:15 a.m. Swap Your Canoe for a Paddle Steamer: Reframe your Approach to Sustainability & Resiliency**
Justin Waples, Central Contra Costa Sanitary District; Dan Frost, Central San; Jennifer Ninete, HDR
- 11:45 a.m. Conference adjourns**
- Alternate When Less is More: A Wastewater Treatment Consolidation Case Study**
Bailey Keller; Robert Upton, Jameson Appel, City of Pearland; Kendall Ryan, Jared Barber, Lindsey Reid, David Munn, Freese and Nichols
- Alternate Cloud Based Decision Making Business Model for Enterprise Infrastructure Management**
Pradeep Nagarajan, Walter Graf, GHD; Bhavin Bhayani

Session 17: Local Utilities
Friday, June 30, 2023
8:30 a.m. - 11:45 a.m.

- 8:30 a.m. Sewer Separation in Downtown Kansas City: A Balancing Act**
Bridget Harper, Katelyn Davison, Tetra Tech
- 9:00 a.m. KC Water's Trolley Trail Basin, From Abandoned Landfill to Unique Sewer Solution - Expect the Unexpected**
Colleen Connor, Timothy Schneller, George Butler Associates; Nick Kleekamp; Brent Herring, Kansas City Water
- 9:30 a.m. Kansas City Smart Sewer Program Savings Using Adaptive Management – A Case Study**
Sasa Tomic, Burns & McDonnell; Brian Hess, Kansas City Water; Alicia Chase, Burns & McDonnell
- 10:00 a.m. Networking break**
- 10:15 a.m. Johnson County Wastewater Private I/I, Past, Present, Future**
Troy Young, Johnson County Wastewater; Ron Thomann, TREKK Design Group
- 10:30 a.m. 15 Years of AI Optimization Technology Innovation at JCW**
Joel Wilson, WCS Engineering; Julia Matton; Ryan Eisele, HDR; Aaron Witt
- 11:15 a.m. Johnson County Wastewater Collection System Asset Management Program – Lessons from Implementing a Comprehensive Asset Management Program**
Ryan Eisele, HDR; Michael Piller, Frank Shell, Johnson County Wastewater; David Spencer, HDR; Troy Young, Johnson County Wastewater
- 11:45 a.m. Conference adjourns**
- Alternate Sewer Rehabilitation: Pioneering New Planning Tools**
Andrew Conard, Lamp Rynearson; Elango Thevar, Neer Technologies, Inc
- Alternate Successful Design-Build Approach for Sewer Condition & Capacity Improvements: A Cost Effective, Sustainable Approach to Sewer Rehabilitation**
Jessica Stanton, Erica Wellen, CDM Smith; Dana Giesy