

2023 GLOBAL BURIED ASSET MANAGEMENT CONGRESS

&

BAMI-I 20TH ANNIVERSARY

SEPTEMBER28-30, 2023

TINLEY PARK CONVENTION CENTER, ILLINOIS

ORGANIZED BY:





Construction Engineering and Management



Presentation & Exhibition & Food Room: Exhibit North, Tinley Park Convention Center

All food and beverages are sponsored by



Day #1 (Thursday, September 28, 2023)

9:00 am - 12:00 pm: Preparation

12:00 pm - 5:00 pm: Registration open, Exhibition setup

1:00 pm - 4:00pm: Committee Chairs & Board of Directors meeting.

5:00 pm - 7:00 pm: Ribbon Cutting & Kickoff Reception

Day #2 (Friday, September 29, 2023)

7:00 am - 5:00 pm: Continued Congress Registration

7:30 am - 8:20 am: Continental Breakfast

8:20 am - 8:30 am: Introduction

8:30 am - 9:10 am: Presentation on "Demystifying Asset Management to Improve Implementation" by Heather Himmelberger

9:15 am - 10:00 am: Presentation on "Consultation with Communities on Service Levels: Reflections on 21 Years of Experience in New Zealand" by Ross Waugh

10:00 am - 10:30 am: Break

10:30 am - 11:10 am: Presentation on "Evolution of Asset Management Programs at the Metropolitan Water Reclamation District of Greater Chicago" by Frederick Wu

11:15 am - 11:55 am: Presentation on "New Pipeline Technologies – Accelerating Commercialization" by Michael Peter & Wes Cate

12:00 pm - 1:35 pm: Luncheon with Keynote Speaker: "Revolutionizing Utility Asset Management: George's Journey at DC Water and Beyond" by George Hawkins

1:40 pm - 2:20 pm: Presentation on "Water is Affordable: Not Investing in Water Makes It Unsustainable" by Gregory Baird **2:25 pm - 3:05 pm:** Presentation on "Supporting Great Lakes Water Authority's Pipeline Management: Research Efforts and Insights" by John Norton

3:05 pm - 3:35 pm: Break

3:35 pm - 4:15 pm: Presentation on "Asset Condition Assessment – Beyond Inspection to Understanding" by Tom Sangster **4:20 pm - 5:00 pm:** Presentation on "Balancing the Risks and Rewards of Delivery Methods for Underground and Trenchless Projects" by Steven Kramer

Day #3 (Saturday, September 30, 2023)

7:00 am - 8:00 am : Continued Congress Registration

7:30 am - 8:30 am: Continental Breakfast

8:30 am - 9:00 am: Presentations by Tom Iseley

9:00 am - 10:00 am: Think Tank Discussion

10:00 am - 10:30 am: Break

10:30 am - 12:00 pm: Panel Discussion on "The Future of Water Infrastructure" – Moderator: Dr. Matthew Klein, Panelists: George S. Hawkins, Mary Conley Eggert, Doug Youngblood

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12:00 pm: Congress concludes.

1:00 pm-5:00 pm: Water Research Foundation Project Workshop "Innovative Technologies to Monitor Water Assets" hosted by CENTER FOR UNDERGROUND INFRASTRUCTURE RESEARCH & EDUCATION (CUIRE)



Congress's participants:

You can come through the west entrance of the convention center as it's the closest to Exhibit North. If you are in the Even Hotels, just follow the hallway all the way to the end, and the event will be on your right hand side.

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WELCOME **To The Inaugural Global Buried Asset Management Congress** & BAMI-I 20th Anniversary

Welcome to the inaugural Global Buried Asset Management Congress hosted by Purdue CEM and the Buried Asset Management Institute - International (BAMI-I)! We're absolutely thrilled to have you here as we embark on this exciting journey together. Our theme, "Buried Assets: Unseen but Not Forgotten in the Science and Practice of Asset Management," underscores the critical role of asset management in addressing infrastructure needs. What makes our congress truly unique is its highlight of underground infrastructure asset management. Twenty years ago, BAMI-I was founded with a mission to actively promote and educate in the field of asset management for water utility infrastructure. Today, we are bringing together asset management leaders and experts from around the globe to set global objectives, assess the current state of practice, and chart a course of action. Our speakers will not only cover the core elements of infrastructure asset management but also highlight the unique characteristics and demands of the underground infrastructure sector.

Most of our speakers will participate throughout the congress, so in addition to listening to high-guality speech content, you will have plenty of opportunities to interact and network with speakers and industry peers. We hope you will enjoy every aspect of the event. We strongly encourage you to participate in the Think Tank discussion on Saturday morning, as it will greatly influence the industry's advancement. After Congress concludes, you can join the Water Research Foundation Project Workshop "Innovative Technologies to Monitor Water Assets" hosted by the Center For Underground Infrastructure Research & Education (CUIRE).

We look forward to fostering a collaborative spirit among attendees and speakers as we collectively lead the way in shaping the future of asset management. Together, let's make this congress an unforgettable experience!

	Congress	steering C	ommittee		
POSITION	NAME	TITLE	СОМРАНУ		
		Organization team			
BAMI-I Chair	Tom Iseley	Professor of Practice	Purdue University		
Congress Director	Wei Liao	Lead Research Engineer/Executive Director	Purdue University /BAMI-I		
	Marilyn Shepard	President	International Training & Rehab Technologies, Inc		
Congress(Co-Chair)	Yashu Singh	Student			
Congress Manager/Treasurer	Leonard Ingram	Student	BAMI-I		
	Ming Chen	Assistant	BAMI-I		
Congress team member	Saleh Behbahani Mahnoush Mohseni Yashu Singh Rishitha Reddy Kasarla Samarth Srinivas joshi Sihan Zhou	Student	Purdue University		
	Cor	ngress program committee			
Pipeline condition assessment (Co-Chair)	Susan Dakak	President	Smart Views, LLC		
Pipeline condition assessment (Co-Chair)	Jerry Weimer	President	JERRY WEIMER CONSULTING, LLC		
Trenchless technology (Chair)	Mark Wade	President	BlueWater Solutions Group, Inc		
Oil& Gas (Chair)	Hongfang Lu	Associate professor	Southeast University, China		
Trenchless technology - renewal infrastructure (Chair)	Kent Weisenberg	Managing Member / Team Principal	BrainDrip, IIc.		
Education& research (Chair)	Andy Chae	Associate Professor	Central Connecticut State University		
Financial management (Chair)	Shah Rahman	Area Manager	Arcadis		
Utilities Investigation (Chair)	Joseph Murphy	SUE Program Manager	Lina T. Ramey & Associates, Inc		
International Ambassador Group					
Indian	Niranjan swarup	Vice PresidentVice President	International Institute of Utility Specilists		
China	Baosong Ma	Professor/Director,	Sun Yat-Sen University/China-U.S. Joint Center for Trenchless Research & Development		
South America	Arlex Toro	Executive director	LAMSTT		
Singapore	Sriram Ganesan	Managing Director	Perma-Liner Industries (Singapore) Pte Ltd		
Germany	Robert Stein	Managing Director	STEIN Ingenieure GmbH		
New Zealand	Sam Wiffen	CEO & Founder	Reveal		
Hongkong	Pinky Tso	Secretary	China Hong Kong Society for Trenchless Technology		
Brazil	Sergio Palazzo	Founder	SAP Service		
Europe	Tom Sangster	Managing Director	Downley Consultants		
United Arab Emirates	Binu Jayamohan				

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BAMI-I & Purdue Underground Infrastructure Team



George S. Hawkins, Esq.Founder and CEO, Moonshot Missions

George Hawkins launched the non-profit Moonshot Missions after stepping down as CEO of DC Water. George helps agencies deliver better service and lower cost, with a focus on under-resourced communities.

George transformed DC Water into an innovative enterprise while tripling its investment in water. DC Water's innovations ranged from Green Infrastructure to clean energy. DC Water issued the first century and environmental impact bonds, and spearheaded programs for low-income customers and on workforce development.

George is an advisor to Xylem, Inc. and serves on the Board of the North American Electric Reliability Corporation. George has served as a Senior Lecturer at Princeton University. Mr. Hawkins also served as Director of the DC Department of the Environment and served non-profit organizations and USEPA and the firm Ropes & Gray.

George is a popular speaker on environmental issues. He has been the recipient of many awards, including GWI's list of top 20 transformational leaders in water, the AWWA's Fuller Award, Governing Magazine's Public Official of the Year and WEF's Public Official of the Year. He graduated from Princeton University (Summa Cum Laude) and from Harvard Law School (Cum Laude).

Heather Himmelberger, P.E., Director of the SW EFC

Heather Himmelberger is a registered professional engineer with over 35 years of experience working with water and wastewater utilities all across the U.S. She has a BS from Penn State University and an MS from Johns Hopkins University both in Environmental Engineering. As Director of the SW EFC, Heather has been a staunch advocate and promoter of asset management practice for over 20 years. She has provided hundreds of asset management trainings and directly assisted systems of all sizes and types with understanding and implementing asset management. She has presented asset management presentations at regional, national, and international conferences. She has created guidance materials and documents for use by systems of all sizes, including a guidance for green infrastructure.

Ross Waugh, Director, Waugh Infrastructure Management Limited

Ross Waugh is the founder of Waugh Infrastructure Management and is an Infrastructure Asset Management and systems integration specialist with over 30 years experience in municipal government infrastructure asset management and engineering. Ross is also the founder and principal author of inframanage.com a site developed to assist industry professionals with the practice of infrastructure management.

Ross is passionate about assisting people to practice Infrastructure Asset Management holistically and comprehensively yet practically. His strategic analysis of client practices is balanced with a strong practical background that always ensures results not theory. Ross has experience of six cycles of integrating infrastructure asset management planning with long term municipal government financial planning within the New Zealand context.

Specialties: Infrastructure Asset Management, Asset Information Systems analysis and support, infrastructure risk management, municipal infrastructure management, infrastructure service delivery, infrastructure management policy.

Gregory Baird, MPA, M.aff ASCE, AWAM, Principal Consultant, Black & Veatch's Global Advisory

Greg Baird is a Principal Consultant with Black & Veatch's Global Advisory business focused on water, sewer and storm management consulting, rates and financial decision making. He has served as the President of the Water Finance Research Foundation, a municipal finance officer in California and as the CFO of Colorado's third largest utility – implementing an asset management program and overseeing all financial aspects of a \$150M water, wastewater, and storm drain annual operation and \$2B capital program. He has worked for MWH (Stantec) and GHD on many financial (rates, consent decree affordability, bond feasibility and capital planning projects) and asset management engagements. Greg has a Master's in Public Administration, BAMI AWAM certification (Associate Water Asset Manager) and a Professional Certificate in Infrastructure Financial Management from IPWEA. He combines his public finance and infrastructure asset management background to develop compelling drivers to apply analytical tools to support better financial decision-making. He has worked with several firms such as City works (Trimble), Pure Tech, Xylem, Fracta, SewerAl and many others digital/Al/Machine Learning asset management technologies to improve their products and gain wider acceptance in the US water market. Greg is involved with the AWWA, WEF, APWA, GFOA, ASCE and ISO water and sewer asset management initiatives, focusing on integrating finance. He is widely published and presents on municipal utility infrastructure asset management, utility finance, water affordability and sustainability issues in the North American water industry.



Mr. Frederick Wu .Frederick Wu, P.E. Senior Civil Engineer Metropolitan Water Reclamation District of Greater Chicago

Fred Wu has been working as a engineering for 20 years. He has a Bachelor of Science in Civil & Environmental Engineering from the University of Illinois and a Master of Environmental Engineering from Institute of Technology. Mr. Wu previously worked as a consulting engineer, doing site development and Hydrologic engineering, before joining the Metropolitan Water Reclamation District of Greater Chicago.

Since joining the District, Mr. Wu has spent his time in the Infrastructure Division working in the Local Sewer Section as well at the Collection System Section. Mr. Wu has performed design and post award of sewer rehabilitation contract ranging in cost from \$500,000.00 to \$18,000,000.00. There results of the contract have led to the rehabilitation of 150,000+ LF of large diameter sewers and 150+ structures/manholes rehabilitation. In addition, Mr. Wu oversees the District's Collection Systems Asset Management Plan and oversees the District's Infrastructure GIS system.

John W. Norton, Jr., PhD., PE

Director of Energy, Research, & Innovation Great Lakes Water Authority

Dr. John Norton is Director of Energy, Research, and Innovation for GLWA, a combined water/wastewater utility in Southeast Michigan. GLWA treats more than 40% of the water, and 30% of the wastewater, for the state of Michigan. Norton leads GLWA's research efforts to understand, extend, and enhance its linear and process infrastructure and directs projects ranging from source water monitoring and distribution system water quality, through to energy extraction from biosolids. GLWA owns over 388 miles of PCCP, and over 800 miles of transmission main, 4 ft diameter or greater.

Michael Peters – Equity Member and the Team Principal – BrainDrip, LLC IQ4H2 Lab

Mike Peters is an Equity Member and the Team Principal at BrainDrip's IQ4H2 Lab subsidiary. His primary role at IQ4H2 is exacting technology acceleration of BrainDrip's innovative developments for the emerging hydrogen market. This includes focus on optimizing QA/QC systems, the assimilation of regulatory compliance, and the facilitation of overall risk management and hydrogen safety protocols. Mike is currently applying his subject matter expertise to BrainDrip's novel Innervated Tubular Composite (ITC) technology that is commencing to revolutionize the hydrogen transmission and storage market. Mike has over a decade of experience working as an applied researcher and was a two-time President's Award recipient at the National Renewable Energy Laboratory (NERL). He has applied his expertise on projects from hydrogen production to end-use and everything in-between. His previous roles have led to numerous advances of hydrogen technologies including demonstrating electrolyzes as distributed energy resources (DERs) within the grid, leading a medium-/heavy-duty modeling and hardware test program for Class 8 trucks, and leading a 30+ partner hydrogen blending project for the U.S. Department of Energy. Michael and his IQ4H2 team are exponentially extending BrainDrip's market lead as designers and developers of innovative products for the safe and effectual distribution and storage of highly compressed hydrogen.

Wes Cate, Partner and Chief Business Development Officer for BrainDrip.

Wes Cate's primary roles are focusing on the commercial acceleration of BrainDrip novel technologies as well as identifying strategic partners for theeir disruptive Gas Coil and Pitchfork energy storage systems. Most recently the company completed its first pilot deploying their Innervated Tubular Composite (ITC) lining system on a large diameter oil pipeline for conversion to highly compressed hydrogen transmission. This monumental milestone is helping fast track the final developments for their high-volume localized storage technologies. Uniquely, while designed and engineered specifically for hydrogen these technologies can also address RNG, natural gas, CO2, ammonia and NGLs midstream transportation and storage needs. Wes has a clear understanding of the unique opportunity in addressing current and long-term energy transportation and storage needs while being grounded in science and commercial feasibility. Wes has close to 20 years in the energy business with a heavy focus on infrastructure and trading of natural gas, renewable gas, hydrogen and NGL's. In his previous positions, Wes led the acquisition and development of over 800 miles of pipelines across multiple states, built fractionation facilities and helped acquire disruptive technologies in the energy space.



Tom Iseley, Ph.D., P.E., Dist. M. ASCE, PWAM

Beavers Heavy Construction Distinguished Fellow

Professor of Engineering Practice Division of Construction Engineering and Management Purdue University Chair, BAMI-I Board of Directors

Dr. Tom Iseley has over 40 years of experience in the planning, design, and construction of underground infrastructure systems. During the past 40 years, he has maintained an international leadership position in Trenchless technology. In 1989, Dr. Iseley established the Trenchless Technology Center (TTC) at Louisiana Tech University. He is a founding director of the North American Society for Trenchless Technology (NASTT). In 2003, he established BAMI-I (Buried Asset Management Institute – Internatinal), non-profit professional organization, committed to providing training and certification for water infrastructure asset management.

Tom Sangster, Civil Engineer, Managing Director of Downley Consultants

Tom Sangster is a professionally qualified Civil Engineer with 35 years' experience in geotechnical engineering and underground pipe networks and is the Managing Director of Downey Consultants, an internationally renowned consulting engineer specializing in Trenchless technology projects. Mr. Sangster gained a bachelor's degree in civil engineering at the University of Surrey in 1978 and became a chartered civil engineer in 1983. He also holds an MBA from a leading UK business school. His early career was spent in design of water supply and wastewater systems and in geotechnical and foundations contracting. He also gained senior sales and marketing experience with companies manufacturing products for civil engineering applications. He has undertaken and managed many waters and sewer pipe inspection, condition assessment and rehabilitation projects throughout the world. His experience in underground infrastructure encompasses innovative installation, assessment and rehabilitation and in developing strategies for managing rehabilitation programs including QA and risk management. He is a recognized internationally as an expert in this field. Tom is based in Geneva, Switzerland and is a former Chairman of the UKSTT Technical & Education Committee and a past President of the Swiss Society for Trenchless Technology, CHSTT.

Steven Kramer, PE, FASCE, Senior Vice President, COWI | President 2022/2023, ASCE UESI

Steven Kramer oversees the growth and development of the transportation and water business. He has 40 years of experience in engineering firms serving the infrastructure industry. Steve led the design, management and construction of over 75 underground projects around the globe with construction values up to \$1 billion.

A frequent speaker and active participant at industry conferences and in technical societies, Kramer has published more than 90 technical and management papers. In recognition of his significant accomplishments and contributions to the industry, Kramer was named the recipient of the 2004 Trenchless Technology Person of the Year award, received a 2016 Engineering Alumni Achievement Award from Washington University in St. Louis, elected to the Moles in 2020 and inducted into the Trenchless Hall of Fame in 2023.

Dr. Matthew Klein, CEO & Chief Futurist Aqualaurus Group, LLC

Dr. Matthew Klein is a former President of North Carolina and Tennessee for a private equity-backed drinking water and wastewater utility. Earlier in his career, Dr. Klein led the turnaround and eventual sale of Indianapolis Water, one of the largest public drinking water systems in the United States. Previously, Dr. Klein served as both a senior environmental regulator and a senior utilities regulator.

Dr. Klein is the host of the Water Foresight Podcast. Also, he is a graduate of Leadership North Carolina Class XXV and the recipient of the 2018 Exceptional Service Award from the Management & Leadership Division of the American Water Works Association.

🗰 Friday September29

8:30 am - 9:10 am Presentation "Demystifying Asset Management to Improve Implementation" by Heather Himmelberger

Keywords: Asset Management, Implementation, Solving Problems, Levels of Practice, Simplifying

Abstract: Asset Management has been discussed in the U.S. related to water and wastewater for over 20 years but its adoption and implementation in a robust way is still lagging. There are probably many reasons for this challenge, but one way to help overcome it is by demystifying asset management. It does not have to be viewed in such grandiose terms or as so difficult; this view gets in the way of implementation. If it can be viewed in simpler terms, it will be easier to get a larger and more relevant uptake of the practice.

In 2015, the American Water Works Association (AWWA) surveyed water and wastewater utilities about their status of asset management activities. This survey indicated that there was practice going on ,but generally not robust practice and some areas were definitely weaker than others. In 2020, the survey was repeated with the hope that an increase in practice would be seen. While the survey had roughly the same number of participants, with similar demographics, the result did not show a substantial increase. On the positive side, there was not a drop off in practice and there was a slight increase in many categories, but large gains were not seen.

One reason for the lack of progress overall and perhaps the lower uptake, particularly among smaller utilities, may be the focus on "Asset Management Plans" and overall programs, rather than asset management implementation. When agencies require asset management, they typically require a "Plan" and do not require evidence of implementation. Therefore, an outside entity is able to create a plan, sometimes with little to no involvement of the community at all, and the plan is never implemented. While Asset Management Plans are great documents, the focus on this aspect may be contributing to the lower implementation. When Asset Management is described as "having to develop a plan" to a community, they see it as busy work that is not meant to help them, but rather to meet a state or federal requirement. If instead, asset management can be seen as solving issues, improving operations and management for the utility workers, and giving customers better service, the response is much better. Thinking of asset management in these terms involves asking questions, making connections, and solving problems which can demystify the process. If a utility manager or employee can see the benefit right away by using asset management thinking to solve a problem, the bigger sell of asset management becomes much easier.

This presentation will discuss some of the ways to demystify asset management in order to improve implementation along with some examples of how this was done.

9:15 am - 9:55 am Presentation "Consultation with communities on service levels, reflections on 21 years of experience in New Zealand" by Ross Waugh

Keywords: Levels of Service, Community consultation, New Zealand, Practice examples, Successes and challenges in New Zealand practice

Abstract: New Zealand started its formal infrastructure asset management journey in the mid 1990's following the effects of a severe economic recession. Infrastructure asset management was mandated by law for municipalities, who own and manage the majority of public water networks (water, wastewater and stormwater) in New Zealand.

In 2002 further law changes required municipalities to formally consult with their communities regarding levels of service, public expenditure, future plans for expenditure and outline current and future plans for public infrastructure expenditure – roads, water utilities, parks, public buildings and community services (libraries, art galleries, theatres, auditoriums, sports grounds) As the mandated community level of service consultation practice progressed and developed there were lessons along the way. The successes and challenges have shaped the development of this practice over the past 21 years.

The presentation will highlight how New Zealand infrastructure management level of service community consultation practice has developed, from the early attempts with too much technical detail, through to working out what communities want to consider and the ongoing challenge of having the 'right debate' with communities.

Three short case studies will highlight examples of what has worked and some of the success's challenges of New Zealand level of service community consultation.

Whilst the affordability of the maintenance and renewal of utility infrastructure remains a ongoing challenge in New Zealand, community consultation has led to good outcomes when correctly used.

10:00 am - 10:30 am Break time

🌞 Friday September 29

10:30 am - 11:10 am Presentation "Evolution of Asset Management Programs at the Metropolitan Water Reclamation District of Greater Chicago" by Frederick Wu

Abstract: In 1993, the Metropolitan Water Reclamation District of Greater Chicago (MWRD) implemented the Interceptor Inspection & Rehabilitation Program (IIRP). The purpose of IIRP was to create a rational critical asset and repair these assets in a cost-effective manner. As a result of the MWRD's IIRP, the District has rehabilitated approximately 70 miles of intercepting sewers ranging in size from 10" to 10'x10' and have 7 additional contracts currently under design.

In 2013, the MWRD undertook the task to update the IIRP. As a result, the MWRD implemented the Collection Asset Management Plan (CAMP). The objectives of CAMP largely remained the same as IIRP but to provide an updated framework for a comprehensive inspection, condition assessment and rehabilitation plan for the collection system assets. CAMP allowed the District to centralize the administration of the contract, implement NASSCO Pipeline Assessment Certification Program (PACP®) inspection standards, create a risk assessment system, tie PACP inspection data into MWRD's geographic information system (GIS), implement the use of tablets for level 1 Manhole Assessment Certification Program (MACP®) inspection and utilize cutting edge technologies to performs inspection of our assets. As a result of CAMP, the District to date has rehabilitated an additional 2 miles of sewers, performed 6-point repairs, initiated 8 additional contracts for design, and has identified another 336 sewer segments of in need of repair.

11:15 am - 11:55 am Presentation Presentation on "New Pipeline Technologies – Accelerating Commercialization" by Michael Peter & Wes Cate

Abstract: Innovation is constantly happening in the water and energy distribution space, but adoption and acceptance of new technologies can be a challenge. This presentation will explore different ways companies can accelerate adoption of new technologies and gain acceptance across a wide range of applications. Case studies will be presented with lessons learned from on-going work with an innovative pipeline and pipeline leak detection technology. Discussions will be focused on market transformation activities and key metrics that new products must achieve to be considered commercially viable.

12:00 pm - 1:35 pm Luncheon, Keynote: Revolutionizing Utility Asset Management: George's Journey at DC Water and Beyond by George Hawkins

George arrived at DC Water as a Board Member in 2007 and became General Manager in 2009. To help learn, George tagged along with work crews to observe efforts to respond to water main breaks, sewer line back-ups and similar disruptions in the buried assets throughout Washington, DC. He was stunned to learn how these teams were hampered by out of date paper records and response approaches that had not changed in decades. Starting with how these essential buried assets were managed, George worked with his team to transform every aspect of how DC Water collected and used information to speed responses – often heading them off before they happened. Since departing DC Water, George has worked with dozens of utilities across the country and observed some of the best in class approaches to these vital assets. Come hear about the how George helped DC Water transform, and how these lessons are relevant to any utility and community of any size.

1:40pm - 2:20 pm Presentation "Water is Affordable: Not Investing in Water Makes It Unsustainable" by Gregory Baird

Abstract: If we accept the basic principle that "water is life" then we must accept that water has an irreplaceable value. Drinking water, following all regulations for public health, is not free. The cost centers of source water, transmission, storage, treatment, distribution, metering and then collection, storage, treatment, discharge or reuse requires a great deal of capital intensive investment. Water infrastructure also requires continuous operations, maintenance and monitoring in order to meet existing delivery challenges as well as future improvements and demand. All of these costs, allocated across users over time - makes water available and affordable. Continued investment in existing and new innovative processes and technologies consistently makes water infrastructure more resilient and sustainable. The price we pay for water collectively should be for the sustainability of services against uncertainty. Water will not solve poverty, but the allocation of costs and services can be distributed to meet basic needs and service level expectations. Water is not free, if attainable, it is affordable considering the value of life and with consistent investment and planning, water can be sustainable. This level of sustainability going into the future does require a shared and responsible retooling of water use and benefits, prioritized and allocated between the natural environment, energy resources, agriculture and food production, industrial and commercial use and of course public health for urban and rural consumption.

🗰 Friday September29

2:25 pm - 3:05 pm Presentation "Supporting Great Lakes Water Authority's Pipeline Management: Research Efforts and Insights" by John Norton

Dr. Norton will describe the various research efforts they are undertaking to support GLWA 's pipeline management efforts. These research efforts include pipe failure statistics, assessment and evaluation of new and emerging methods for pipeline assessment and pipe renewal, analytical methods for assessing pipe condition and remaining life, and the impact of operations on pipe management.

3:05 pm - 3:35 pm Break time

3:35 pm - 4:15 pm Presentation "Asset Condition Assessment – Beyond Inspection to Understanding" by Tom Sangster

Abstract: Inspection and condition assessment are key elements in asset management of underground pipe networks. But they are often confused and many people consider inspection to be assessment, which is incorrect. Inspection is the acquisition of data; assessment is the analysis of that data to understand asset condition. They are separate but complementary activities and both are essential elements of the asset management process.

Assessment protocols such as the NASSCO PACP are efficient methods for the assessment stage, and they rely on good inspection, especially CCTV in sewers. However the inspection itself is not an assessment. But good inspection is essential to good condition assessment; poor or inadequate inspection leaves the engineer guessing.

This paper will review both elements of the process and examine how they differ and how they complement each other. It will cover the inspection and investigation methods for water and wastewater networks, including sewer force mains. This will include data audit in advance of inspection to identify the inspection data needed for assessment – this may go beyond CCTV especially for pressure pipelines. It will also describe the engineering process of condition assessment and risk analysis and how this contributes to asset management.

4:20 pm - 5:00 pm Presentation "Balancing the Risks and Rewards of Delivery Methods for Underground and Trenchless Projects" by Steven Kramer

Abstract: The underground construction industry is impacted by new risks and challenges. The linear nature of underground work is different than general construction and methods for recovery due to problems are frequently limited. The challenges between owners, designers and constructors sometimes feel like they are in conflict. Funding sources are frequently limited, yet project demands remain high.

Owners want solutions to improve, rehabilitate and build new underground public infrastructure. We live an environment where better procurement and delivery strategies are needed. There are many types of delivery methods from conventional to alternative delivery that can be used for projects. There is a clear shift away from conventional delivery to alternative delivery as the preferred method. Each method has its advantages and challenges. There is not a magic solution that works for every project.

This presentation describes the trends in tunneling/trenchless procurement and delivery being used across the Americas and the world along with insights on how to fairly balance the risks and rewards between the participants.



8:30 am - 9:00 am: Presentations by Dr. Tom Iseley

Dr. Tom Iseley will describe the roadmap for advancing science and practice for the asset management journey.

9:00 am - 10:00 am: Think Tank Discussion

The purpose is to provide the opportunity for all congress participants to share their ideas and recommendations on how to advance asset management practices in the industry. This is the critical component of our program to accomplish the congress's objectives, which include the state of practice and present strategic future directions.

10:00 am - 10:30 am: Break

11:20 am - 12:00 pm Panel "The Future of Water Infrastructure"– Moderator: Dr. Matthew Klein; Panelist: George S. Hawkins, Mary Conley Eggert, Doug Youngblood

The purpose of this session is to offer panel of experts to discuss the possible, probable, and plausible futures of water infrastructure (10-20 years from now) through various lenses, including social, technological, economic, environmental, political, legal, and ethical lenses. Various scenarios can be discussed, including unintended consequences. Goal: The goal of the session is to deploy systems thinking in back-casting the identified scenarios into strategies for implementation. The strategies can be focused upon taking advantage of new opportunities and avoiding potential risks.

1:00 pm-5:00 pm: Water Research Foundation Project Workshop "Innovative Technologies to Monitor Water Assets" hosted by CENTER FOR UNDERGROUND INFRASTRUCTURE RESEARCH & EDUCATION (CUIRE)



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Established in 1976 as a 501(c)(6) trade association, NASSCO has been at the forefront of providing top-quality education on pipeline condition assessment and inspection. Through its member-driven committees, NASSCO delivers unbiased technical resources in the form of specification guidelines and other valuable tools. However, NASSCO's impact goes beyond education and resources.

As a strong advocate for underground infrastructure funding and the widespread acceptance and growth of trenchless technologies, NASSCO plays a pivotal role in shaping industry standards. Its diverse membership base includes contractors, suppliers, public agencies, utility owners, engineers, and other stakeholders dedicated to setting high standards to ensure the health and safety of our communities.

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The Uni-Bell PVC Pipe Association was founded in 1971 as a non-profit organization and serves the engineering, regulatory, public health, and standardization communities.

Our mission is to promote use of longer-life, lowermaintenance, corrosion-proof PVC pipe in water and wastewater systems – for real sustainability, strength, and long-term asset management. The Association offers free technical and engineering support for the design, installation, and application of PVC piping systems.

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