DAY 1: Tuesday, May 16, 2017

CTAM 100

7:30 am.	COFFEE AND RECEPTION
8:00	WELCOME AND INTRODUCTIONS… Dr. *Tom Iseley*
8:30	**Introduction to Asset Management** (Ch.1)… *Kurt Wright* Quiz (15 min)
9:15	**Sharing Asset Management Knowledge on a Global Scale** (Ch.2)**...** *Ronald Thompson* Quiz (15 min)
10:00	BREAK
10:15	**Asset Management Technologies** (Ch.3)... *Kurt Wright* Quiz (15 min)
11:15	**Risk Management** (Ch.4)… *Ronald Thompson* Quiz (15 min)
12:00	LUNCH
1:00 pm.	**Government Regulation** (Ch.5)... *Kurt Wright* Quiz (15 min)
1:45	**Case Studies** (Ch.6)... *Ronald Thompson* Quiz (30 min)
3:15	BREAK
3:30	**Development of Center of Excellence for Municipal Asset Management** (Ch.7)… *Kurt Wright* Quiz (10 min)
4:00	**Phase 2** … Dr. *Tom Iseley* Quiz (10 min)
4:30	**Phase 3** … *Kurt Wright* Quiz (10 min)
5:00 pm	ADJOURN

CTAM 100 AT GLANCE

Chapter 1: **Introduction to Asset Management**
Chapter 1 provides the background and the definition of Asset Management. It outlines the challenges facing water providers and describes the benefits and the implementation of asset management.

Chapter 2: **Sharing Asset Management Knowledge on a Global Scale**
Chapter 2 talks about sharing asset management knowledge on a global scale. It introduces the Asset Management Program Learning Environment (AMPLE) and explains the guiding principles and mechanics of AMPLE.

Chapter 3: **Asset Management Technologies**
Chapter 3 reviews asset management technologies such as the leak detection technologies, zoom camera with GIS, and information technology (IT) and asset governance.

Chapter 4: **Risk Management**
Chapter 4 explains best practices for reducing risk by optimizing physical security. In the following, the risk is prioritized and risk rating matrix, risk analysis, and risk cost are discussed.

Chapter 5: **Government Regulation**
Chapter 5 discusses Proactive asset management. In this chapter we learn about the EPA's Capacity, Management, Operation and Maintenance (CMOM) initiative and its goal to help utilities move away from reactive catch-up maintenance and repair, and change to preventative maintenance and predictive evaluation and rehabilitation. In addition to the CMOM initiative, it explains Governmental Accounting Standards Board Statement No. 345 (GASB 34).

Chapter 6: **Case Studies**
Chapter 6 considers the language of risk – responsibly managing infrastructure risks through informed decision-making. In this chapter we learn about the GIS benefits and how benchmarking helps utilities to improve performance. Case studies in Columbus Water Works (CWW) and City of Fort Worth are outlined.

Chapter 7: **Development of Center of Excellence for Municipal Asset Management**
Chapter 7 discusses the development of a virtual Center of Excellence for water and sewer asset management. The Center's web site will be used for sharing and integrating information on beneficial uses of municipal infrastructure asset management.

Phase II.
Practical. Use of a virtual CEMAM (Center of Excellence for Municipal Asset Management)

Phase III.
Application to the industry.

DAY 2: Wednesday, May 17, 2017

CTAM 200

7:30 am.	COFFEE AND RECEPTION
8:00	INTRODUCTIONS… *Dr. Tom Iseley*
8:15	**Introduction** (Ch.1)… *Kurt Wright* Quiz (15 min)
9:15	**Buried Asset Management Program** (Ch.2)**…** *Kurt Wright* Quiz (30 min)
10:15	BREAK
10:30	**Wastewater and Water System Inventory** (Ch.3)... *Kurt Wright* Quiz (30 min)
12:00	LUNCH
1:00 pm.	**Condition Assessment – Wastewater System** (Ch.4)... *Kurt Wright* Quiz (30 min)
2:15	**Condition Assessment – Water Distribution System** (Ch.5)... *Kurt Wright* Quiz (25 min)
3:40	BREAK
4:00	**Conclusions** (Ch.6)… *Kurt Wright* Quiz (15 min)
4:30 pm	ADJOURN

CTAM 200 AT GLANCE

Chapter 1: **Introduction**
Chapter 1 provides a discussion on the background of Asset Management in the utility industry, the importance of Asset Management and the structure and terminology used in asset management

Chapter 2: **Buried Asset Management Program**
Chapter 2 discusses the development of a Buried Asset Management Program including its design, development, presentation to stakeholders and launching the program.

Chapter 3: **Wastewater and Water System Inventory**
Chapter 3 discusses the wastewater and water system inventory, a critical component of any Buried Asset Management Program and includes related issues pertaining to Geographic Information Systems (GIS).

Chapter 4: **Condition Assessment – Wastewater System**
The chapter defines the various condition assessment tasks that help us answer the questions involving what assets do we have, where are they locate and what is their condition. It introduces the concept of grading and rating observations that will be discussed more fully in CTAM 300.

Chapter 5: **Condition Assessment – Water Distribution System**
Chapter 5 discusses the issues related to condition assessment for water distribution systems. Topics include the means and methods for pipe condition assessment; data storage; and management and analysis of the acquired data.

Chapter 6: **Conclusions**
Chapter 6 presents conclusions from previous chapters.

DAY 3: Thursday, May 18, 2019

CTAM 300

7:30 am.	COFFEE AND RECEPTION
8:00	INTRODUCTIONS… *Dr. Tom Iseley*
8:15	**Organizational Considerations** (Ch.1)… *Jim Harris* Quiz (20 min)
9:45	BREAK
10:00	**Conditional Assessment** (Ch.2)**...** *George Kurz* Quiz (20 min)
11:00	**Repair/Restore Options** (Ch.3) Part 1... *Jim Harris*
12:00	LUNCH
1:00 pm.	**Repair/Restore Options** (Ch.3) Part 2... *Jim Harris* Quiz (30 min)
2:00 pm.	**Priority Development** (Ch.4)... *George Kurz* Quiz (15 min)
3:00	BREAK
3:15	**Tabulation and Presentation of Priority-Based Long-Term Plan** (Ch.5)… *Jim Harris and George Kurz* Quiz (20 min)
4:30	BREAK
5:00	**Social Event: Round Table**
6:00 pm	ADJOURN

CTAM 300 AT GLANCE

Chapter 1: **Organizational Considerations**

Chapter 1 considers the purpose of any governmental organization such as a sewer utility and considers how to use asset management principles to develop Level of Service (LOS) commitments utilizing risk management principles. It also considers how GASB34 can be used to determine and communicate the value of buried assets.

Chapter 2: **Conditional Assessment**

Chapter 2 reviews the various condition assessment tools we considered in CTAM 200 and begins the process of determining how to incorporate the data obtained into an asset management plan. It considers what variety of observations are obtained, how resulting rehabilitation/maintenance is typically priced and the importance of obtaining these assessments for every asset.

Chapter 3: **Repair/Restore Options**

Chapter 3 continues the concept of condition assessment by considering particular types of manhole, pipe and lateral assessment. It also discusses what particular rehabilitations and maintenance tasks can result in extending the useful life of these assets.

Chapter 4: **Priority Development**

Chapter 4 discusses how condition assessment and knowledge of the asset demographics can be used to develop a risk based priority for future assessment, maintenance and rehabilitation. In particular it considers how Likelihood of Failure (LOF) and Consequence of Failure (COF) can be combined to develop a risk matrix.

Chapter 5: **Tabulation and Presentation of Priority-Based Long-Term Plan**

Chapter 5 introduces the concept of life cycle costing and considers how al we have learned thus far can be used to schedule, budget and apply adequate rates to the ongoing implementation of a plan.

DAY 4: Friday, May 19, 2017

CTAM 400

7:30 am.	COFFEE AND RECEPTION
8:00	INTRODUCTIONS… *Dr. Tom Iseley*
8:10	**Accounting Principles** (Ch.2)… *Joe Crea* Quiz (25 min)
9:45	BREAK
10:00	**Infrastructure Stewardship** (Ch.3)... *Kurt Wright* Quiz (20 min)
11:20	**Strategic Financial Planning** (Ch.4) Part 1... *Joe Crea*
12:00	LUNCH
1:00 pm.	**Strategic Financial Planning** (Ch.4) Part 2... *Joe Crea* Quiz (15 min)
1:30	**Contracting Methods** (Ch.5)… *Kurt Wright* Quiz (15 min)
2:15	**Case Study: Town of Spindale Asset Management Plan** (Ch.6)… *Kurt Wright* Quiz (10 min)
2:45 pm.	COURSE WRAP-UP & ADJOURN

CTAM 400 AT GLANCE

Note: Chapter 1 in the manual is an introduction that explains the organization of the manual and specifying the contents of chapters and appendices.

Chapter 2: **Accounting Principles**
Chapter 2 is an introduction to the general financial practices and concerns faced each day by system managers and finance officials. The basic principles of accounting and financial reporting requirements for state and local governments are introduced, including the basics of Generally Accepted Accounting Principles (GAAP) and the impact of GASB 34 as it applies to contemporary asset management. The basic concept of budgeting is discussed, including its role in financial planning and the technical and political challenges inherent in the budgeting process.

Chapter 3: **Infrastructure Stewardship**
Chapter 3 revisits the concept of Level of Service and how this basic foundation of a utility's services sets it on a path to appropriate financial planning of the system. Related topics include Life Cycle Costing, Capital Improvement Planning, Revenues, Rate Setting and communications with the public.

Chapter 4: **Strategic Financial Planning**
Chapter 4 discusses various methods of financing operations and projects in order to balance current operating expenses with long-term capital costs. Building upon the core material in Chapter 3, it provides supplemental information on available financing tools and funding sources.

Chapter 5: **Contracting Methods**
Chapter 5 discusses various methods of contracting for both operational and capital-level projects.

Chapter 6: **Case Study: Town of Spindale Asset Management**
Chapter 6 presents a Case Study of the Town of Spindale, NC. Beginning in 2012, the Town of Spindale undertook a full Asset Management programming effort to include asset inventory, condition assessment, and capital improvement plan. The Case Study examines how all these processes culminated into action through a well-thought and reasoned approach to setting its system user rates, with said rates designed to put the Town's wastewater system on a sustainable financial path.

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COURSE INSTRUCTORS

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

Dr. Iseley has over 40 years of experience in the planning, design, and construction of underground infrastructure systems. From 1982 until 1995, he served on the faculty of Mississippi State University, Purdue University, Louisiana Tech University, and as chairman of the department of Construction Technology at the Purdue University School of Engineering and Technology in Indianapolis. During the past 15 years, he has maintained an international leadership position in trenchless technology. In 1989, Dr. Iseley established the Trenchless Technology Center (TTC), an industry/university cooperative research facility, at Louisiana Tech University and served as director for 5.5 years and director of development for 2 years. He is a founding director of the North American Society for Trenchless Technology (NASTT). He served for 3 years as the chairman of the National Utility Contractors Association's (NUCA) Trenchless Technology Committee, and he received NUCA's 1993 Associate Member of the Year Award. Also, in 1993, Dr. Iseley was selected as the Trenchless Technology Magazine's Person of the Year. He received the ASCE 1995 John O. Bickel Award and the 1999 Stephen D. Bechtel Pipeline Engineering Award. He has served on the board of directors of the American Underground-construction Association (AUA) from 1991 to 2005. Dr. Iseley has been elected to the Class of 2016 of the National Academy of Construction (NAC). In April 2015, Dr. Iseley was selected as a Distinguished Member of the American Society of Civil Engineers (ASCE) for his eminence in engineering, becoming just one of only 637 Distinguished Members ever selected by the ASCE. He was also selected a 2016 UCTA MVP (Most Valuable Professional) by the Underground Construction Technology Association (UCTA) and Underground Construction magazine. Dr. Iseley was inducted into the 2017 NASTT Hall of Fame.

In 2002, Mayor Shirley Franklin appointed Jack Ravan as the commissioner of her newly formed Department of Watershed Management for the City of Atlanta. Her vision was to move Atlanta's water program past achieving requirements of the nation's most demanding consent decree to becoming "First-in-Class." Tom had the opportunity in February 2003 to join Commissioner Ravan's senior management team as a senior advisor with the responsibility to establish an asset management program. This initiative resulted in the formation of BAMI (Buried Asset Management Institute) to assist in achieving Mayor Franklin's vision. In 2004, BAMI became BAMI-International (BAMI-I) when it transitioned into a 501(c) 3, non-profit, professional association. Tom continues to serve as the chairman of the Board of Directors. He was responsible for BAMI-I being selected for an EPA asset management grant in 2006 that involved Virginia Tech, Louisiana Tech, the University of Texas in Arlington, and the Georgia Rural Water Association as subcontractors. IUPUI served as the program manager for BAMI-I. This EPA project was finalized in 2008. Tom formed a team consisting of Benjamin Media, Inc., IUPUI (replaced later with TTC) and BAMI-I to develop a comprehensive certification program for water asset managers. This program consists of a series of 4 courses and work experience.

Tom has participated in assisting numerous municipalities with meeting consent decrees in a wide range of responsibilities, including Atlanta, GA; Los Angeles, CA; Los Angeles County, CA; Sacramento, CA; Seattle, WA; King County, WA; Indianapolis, IN; Norfolk, VA; Tuscaloosa, AL; Fulton County, GA; DC Water, Washington, DC; and Spindale, NC. Tom holds a B.S. degree in Civil Engineering and an M.B.A. degree from the University of Alabama in Birmingham and a Ph.D. degree in Civil Engineering from Purdue University.

Joe Crea

Over the past eight years, Mr. Crea has developed a thorough understanding of the opportunities and challenges facing water and wastewater utilities. Mr. Crea currently serves as a Manager in RFC's Cincinnati Office helping municipal utilities manage the myriad of financial and managerial efforts required to maintain a sustainable and effective operation. Mr. Crea graduated from Clemson University in 2005 with a Bachelor of Science in Mathematical Sciences. Since joining RFC, he has served as lead consultant on numerous water and wastewater rate and financial planning studies, cost of service studies, bond feasibility engagements, and customer affordability analyses. Mr. Crea authored a chapter entitled, "Identification of Revenue Requirements," for the Fourth Edition of the industry guidebook, Water and Wastewater Finance and Pricing: The Changing Landscape. He is also actively involved in AWWA & WEF, serving as district chair for the Ohio AWWA's young professional's leadership committee as well as presenting at numerous conferences.

Jim Harris, P.E., PWAM

Jim is a professional engineer with 40 years of experience as a consultant, contractor and municipal engineer. He is currently a Sr. Project Engineer at Jacobs Engineering. He is formerly the owner of HARRIS ANALYSIS a consulting business in Murfreesboro, TN that specializes in CCTV analysis and training and writing small town asset management plans. Jim holds B.S. in Civil Engineering from Auburn University. Jim is a former member of the NASSCO board of directors and currently serves on the BAMI-I board. He is also a Certified NASSCO PACP Trainer.

George E. Kurz, P.E., DEE

George has 40 years of experience in state and local government, sewer service contracting and consulting engineering. For most of that time he has worked on detecting, measuring, and stopping I/I in municipal sewer systems. He believes that I/I is the most significant problem facing most operators, but that the true magnitude of the problem is underestimated and has been largely overlooked. To change this paradigm, he initiated an independent project using public information to measure I/I in the 242 NPDES permitted sewer systems in Tennessee to increase public and regulatory awareness of this problem. George has also developed standard methods for measuring effectiveness of rehabilitation using flow monitoring. His approach for I/I reduction programs is based on the measured elimination of 4.6 billion gallons annually in 3 Tennessee cities.

Ronald Thompson, P.E., PWAM

Ronald has experience in Program Management and Project Management for water treatment design and construction projects, pipeline design and construction, and storm water management. He has worked closely with municipal governments to establish performance requirements and achieve compliance with EPA consent order mandates. Under his leadership, the program teams worked with stakeholders to define program objectives, identify risks, and determine metrics for program success, and then developed detailed program plans to accomplish overall objectives. Ronald has wide-ranging experience in the investigation, planning, design, and construction of water transmission/ distribution systems and wastewater collection systems. His projects include water pipeline evaluation, water pipeline replacements and the design for installation of new water transmission mains. His wastewater experience includes master planning, water resource planning, sewer system evaluation surveys (SSES), design of gravity sewers, sewer rehabilitation, and construction management services. His experience on these projects includes capacity analysis, route selection, permitting, coordination with government agencies, and coordination with other utilities and transportation agencies. Ronald holds both B.S. and M.S. in Civil Engineering from Auburn University. He is registered P.E., and has CTAM certifications. He has numerous professional appointments, recognitions and affiliations.

Kurt Wright, P.E., PWAM

Kurt established his own professional engineering firm in 2002 based in Rutherford County, North Carolina. The corporate mission is to meet clients' requirements by providing quality professional water and wastewater engineering services with solutions for a sustainable environment. Kurt has over 39 years' experience in engineering planning, design, project financing (grantsmanship), advertisement/bidding, contract administration, construction management and startup services for numerous types of projects. Most of his experience is with municipal water and wastewater infrastructure. His experience with Asset Management began in 2012 when he took the CTAM 100 online course in 2012. He subsequently became a member of BAMI-I (Buried Asset Management Institute – International). Kurt was the chief author of the Asset Management Plan for the town of Spindale, NC which was approved by the state of North Carolina in 2013. He holds a certificate of completion for CTAM 100 and 200 and contributed in the development of the CTAM 200 and 400 training manuals. Kurt holds B.S. in Urban and Environmental (Civil) Engineering from the University of North Carolina at Charlotte. He is P.E. in North Carolina. Kurt has professional affiliation with numerous associations and professional certifications, i.e., ASCE Board Certified Environmental Engineer (BCEE) and Professional Water Asset Manager (PWAM).

May 16 - CTAM 100 – Tom Iseley, Kurt Wright, & Ron Thompson
May 17 - CTAM 200 – Kurt Wright
May 18 - CTAM 300 – George Kurz & Jim Harris
May 19 - CTAM 400 – Joe Crea, Kurt Wright