

Global Advances in Water Asset Management Programs

By Tom Iseley

Purdue UIT Members



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

**Beavers Heavy Construction Distinguished Fellow
Professor of Practice - Purdue University
Chair, BAMI-I Board of Director**



Wei Liao, PWAM
**Executive Director, BAMI-I
Lead Research Engineer
Construction Engineering and Management
Purdue University**



Mahnoush Mohseni
**PhD. Student
Purdue University**



Saleh Behbahani
**PhD. Student
Purdue University**



Kibum Kim, Ph. D
**Visiting scholar
Construction Engineering and Management
Purdue University**



Kevin KwangHyuk Im
**PhD. Candidate
Purdue University**

UIT work for:



UIT team's mission in Purdue:
Expand the underground construction area impact and encourage and support entry of promising young individuals into heavy engineering construction



BAMI-I's mission:
Bring together industry, government, and academia to educate and promote asset management for underground infrastructure.

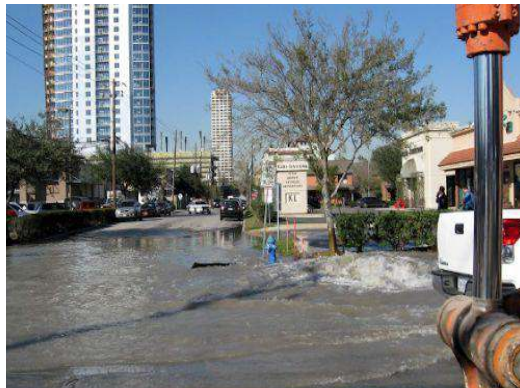
Why AM is important?



Asset Management Strategies

Asset Management:

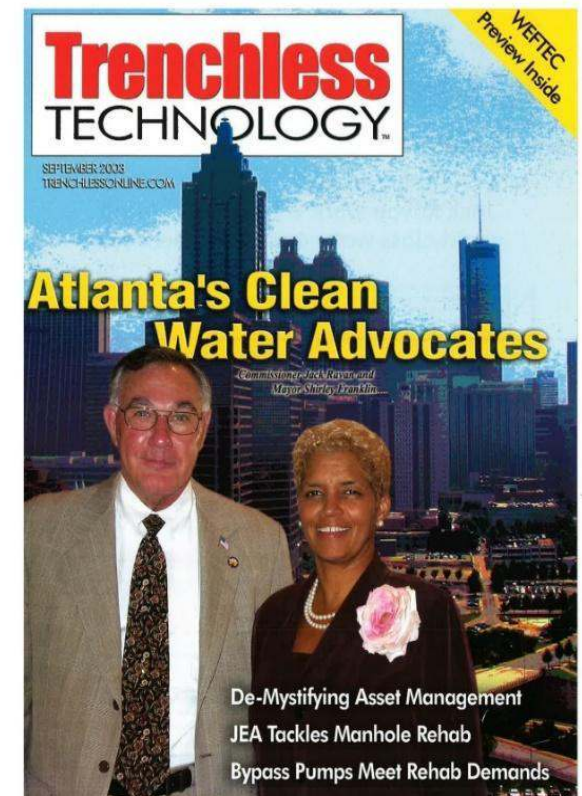
It is maintaining a desired level of service for what you want your assets to provide at the lowest life cycle cost. Lowest Life cycle cost refers to the best appropriate cost for rehabilitating, repairing or replacing an asset.



Resource: EPA Asset Management Best Practices



- In 2003, formed in Atlanta's Department of Watershed Management as a result of inspiration & leadership by Mayor Shirley Franklin & Commissioner Jack Ravan.
- In June 2004, formed as non-profit organization.
- Serves to provide a center of excellence for owners of underground water infrastructure to join with industry and researchers:

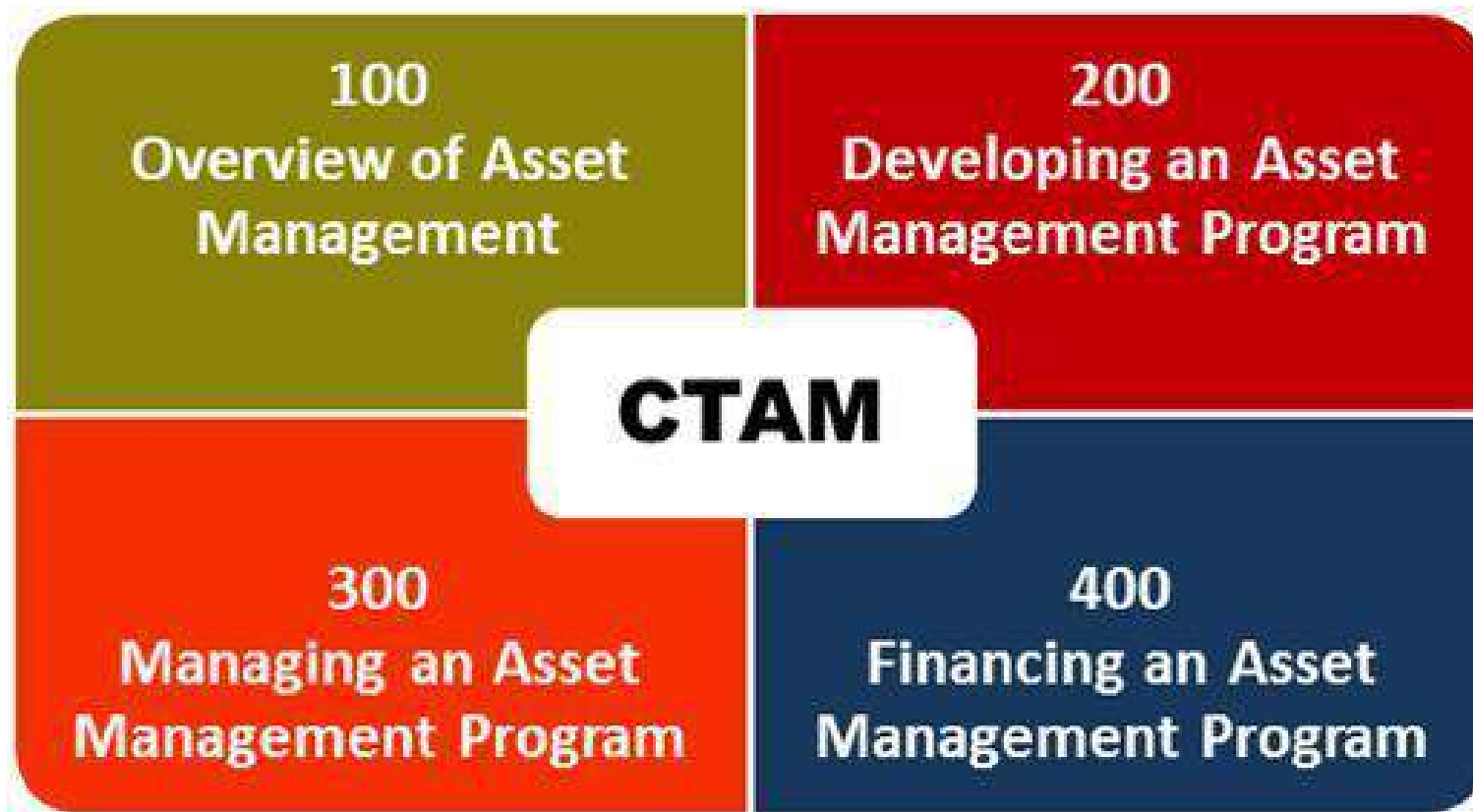


ESTABLISHING A PATHWAY FOR ACHIEVING WATER UTILITY INFRASTRUCTURE MANAGEMENT EXCELLENCE



What is CTAM?

- Certification of Training in Asset Management
- Exclusive four-part series training



Levels of Certification

- **Certificate of Completion.**
 - Issued for any CTAM course upon completion.
 - **Associate Water Asset Manager (AWAM). Required:**
 - Completion of CTAM 100-400
 - Apply to BAMI-I Asset Mgt. Certification Board
 - **Professional Water Asset Manager (PWAM). Required:**
 - Completion of CTAM 100-400
 - Four years of relevant asset mgt. experience
 - Apply to BAMI-I Asset Mgt. Certification Board
-

Online CTAM Registrants



16+ countries
1,600+ students

BAMI-I CTAM Workshop

•Raleigh, NC August 17 – 20, 2015 - 24 Attendees

• Rural Community Assistance Partnership (RCAP) Columbus, OH - May 16 – 19, 2017 - 34 Attendees

•UCTA-North Texas - Nov 5 – 8, 2018 - Lewisville, TX - 47 Attendees

•NJWEA Annual Conference in Atlantic City - May 6, 2019 - 43 Attendees

•City of Atlanta (COA) Department of Watershed Management (DWM).
September 9-12, 2019 - 33 Attendees



BAMI-I Pipeline Technology Workshop Series



PURDUE
UNIVERSITY

Construction Engineering and Management
COLLEGE OF ENGINEERING



UC Underground
Construction
Association
PURDUE UNIVERSITY
STUDENT CHAPTER



BAMI-I
BURIED ASSET MANAGEMENT
INSTITUTE - INTERNATIONAL
www.bami-i.com



NASTIP
NORTH AMERICAN SOCIETY FOR
TRENCHLESS TECHNOLOGY
Purdue University Student Chapter

Presentation Title:
Preliminary Design and Installation of HDPE Water Piping Systems

Sponsored by



PPI
Plastics Pipe Institute



MILLER PIPELINE

April 21 (Friday) – 10:00 am – 3:00 pm (ET)
Purdue University – West Lafayette, IN

A group of approximately 15 people are gathered in a paved courtyard in front of a large, multi-story brick building. The building has many windows and a modern architectural style. The people are dressed in casual to business-casual attire, and some are looking towards the building, while others are talking in small groups. The sky is overcast.

BAMI-I

THE BAMI-I BIENNIAL JOURNAL 2023

BAMI-I Journal



MEDIA PLANNER

2023 Global Buried Asset Management Congress (GBAMC)

September 28 - 30, 2023 / Chicago, Illinois, USA



Bring together asset management leaders around the world to:

- Establish global goals,
- Define the current state of practice, and
- Create an action plan.

**Buried assets:
out of sight but not out of mind
through advancing the science and
practice of asset management**

FEATURED EXHIBIT HALL



Showcase your latest technologies and services, interact with representatives from government agencies, utilities, consultants, contractors, and acquire valuable insights into the current trends and practices in asset management.



Unique Congress:
Cover the core components of asset management, Highlight the unique characteristics and requirements of the underground infrastructure industry

<https://bami-igbamc.com/>

Indiana SB 272:

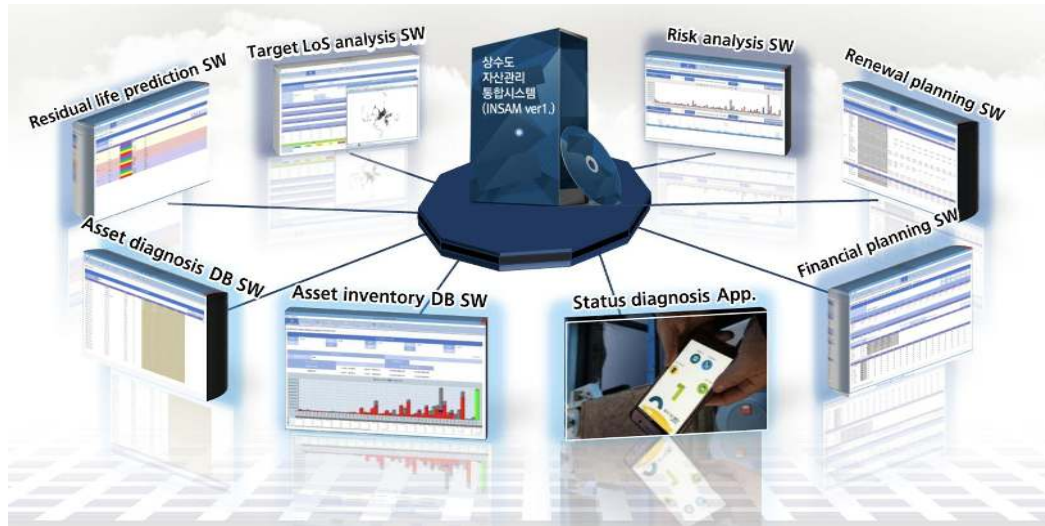
Signed by Governor on March 7, 2022

- **After June 30, 2023**, AMP is required.
 - Drinking water and wastewater infrastructure research and extension program / Asset Management Center -state supported college or university in Indiana.
-

Water Asset Management Center

- Integrated & Intelligent Program

Water Asset



- Asset Management Guideline Series/operation manuals



- Establish the world's first academic department of water asset management to theorize and research water



Switz City, IN Asset Management Plan



AMP Developed



George E. Kurz, P.E., DEE

Water Asset Management Center

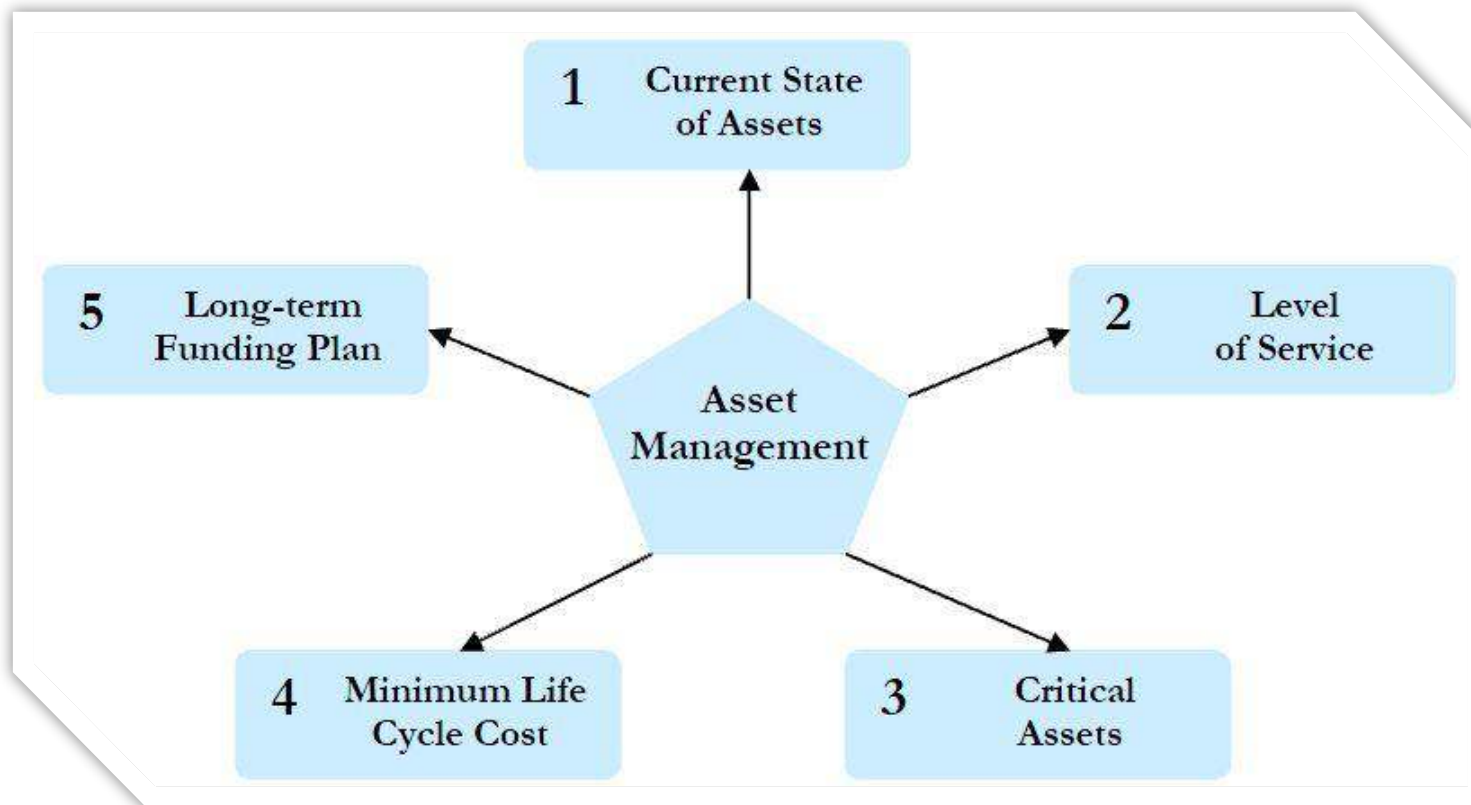


**Testimony
before the state
legislature**



Our Roadmap and Vision for Engaging Current and Future Decision-Makers Must Address:

Five Core Components of an Asset Management Framework



Resource: EPA Asset Management_Best Practices

CORE COMPONENT No. 1

Current State of Assets

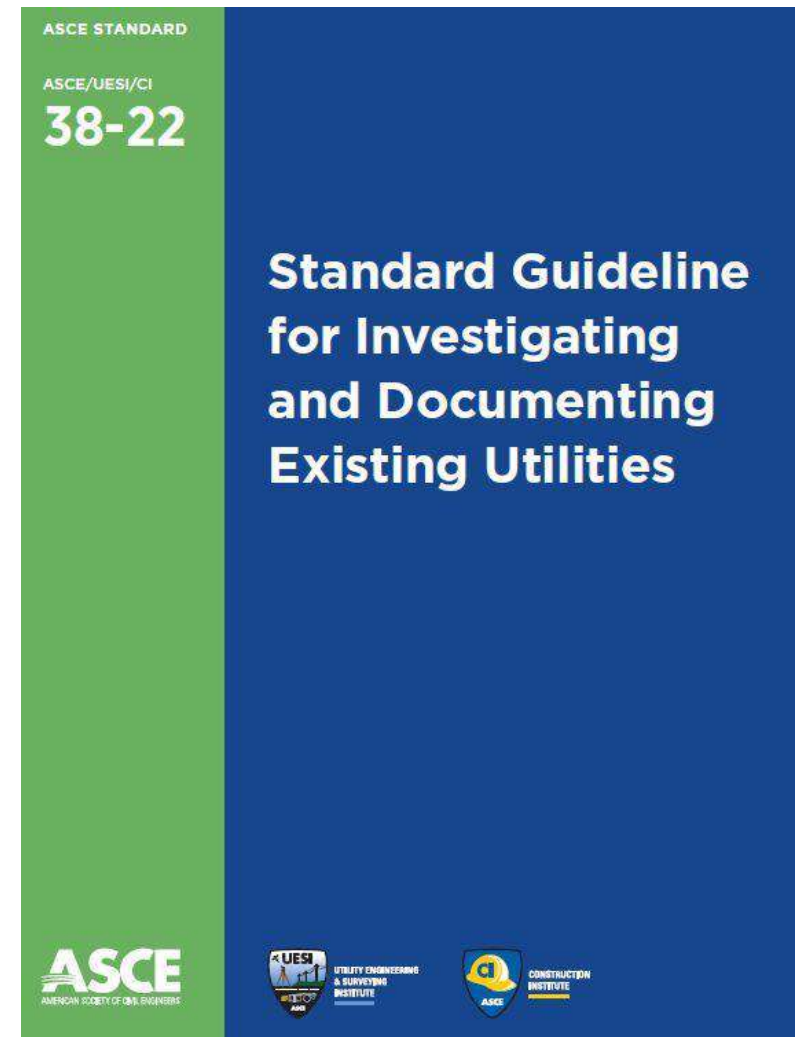
- What does the utility have – **Inventory**
 - Where are the assets located – **Mapping**
 - What are the assets condition – **PCA (Pipeline Condition Assessment)**
 - What technical solutions are available to optimize the useful life of these assets – **Trenchless Technology**
-

What is Subsurface Utility Engineering (SUE)?



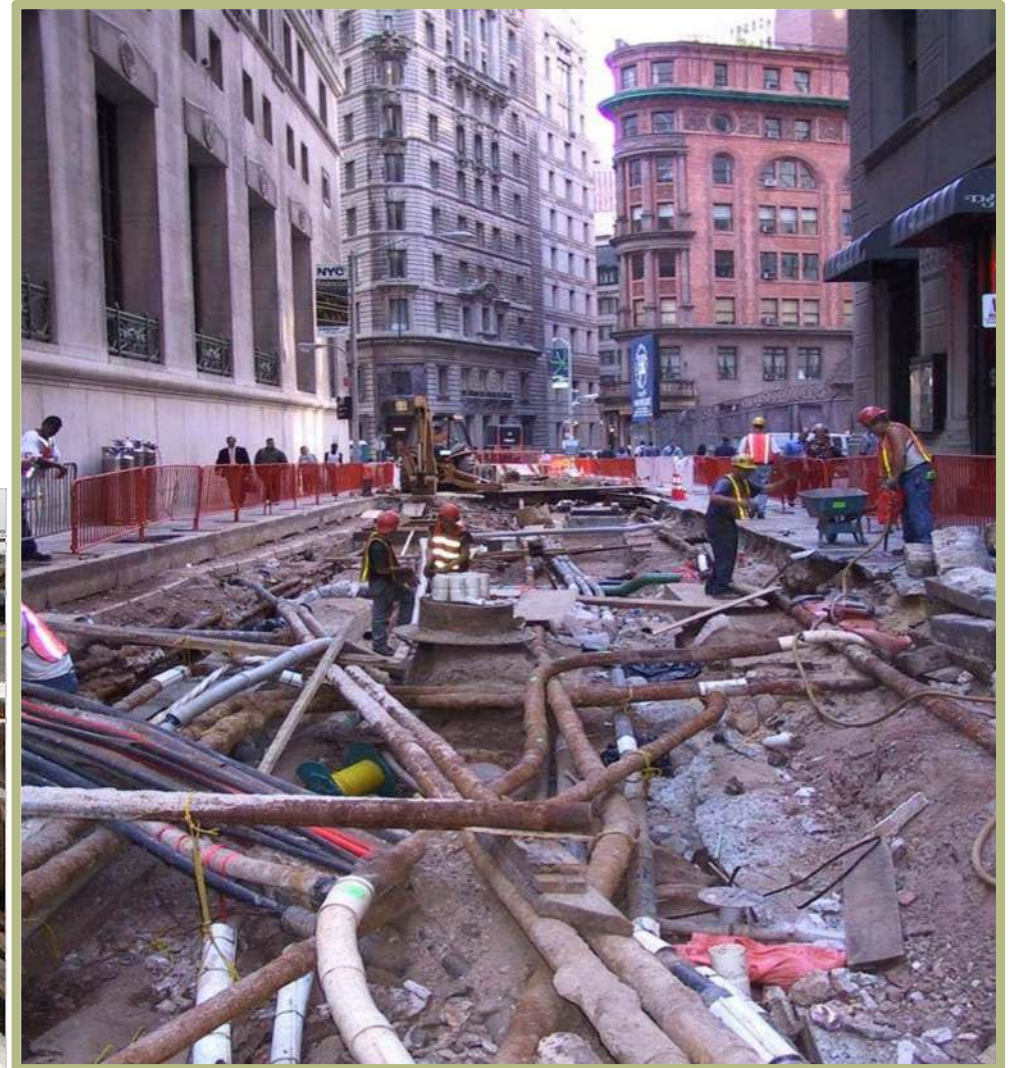
What is SUE?

- ASCE 38
- Standard of Care
- Contains:
 - Definition of SUE,
 - Quality Levels,
 - Details, and
 - Examples.



Why Use SUE?

We don't know where most utilities are.



Why Use SUE?

- Existing records are often inaccurate/incomplete.
 - Risks become extremely difficult to manage.
-

What Are The Risks?

- Project delays
- Damage to utilities
- Safety of workers
- Safety of public
- Redesign costs
- Higher bids
- Change orders
- Extra work orders
- Construction claims
- Higher insurance costs
- Higher financing costs
- Detours
- Bad publicity

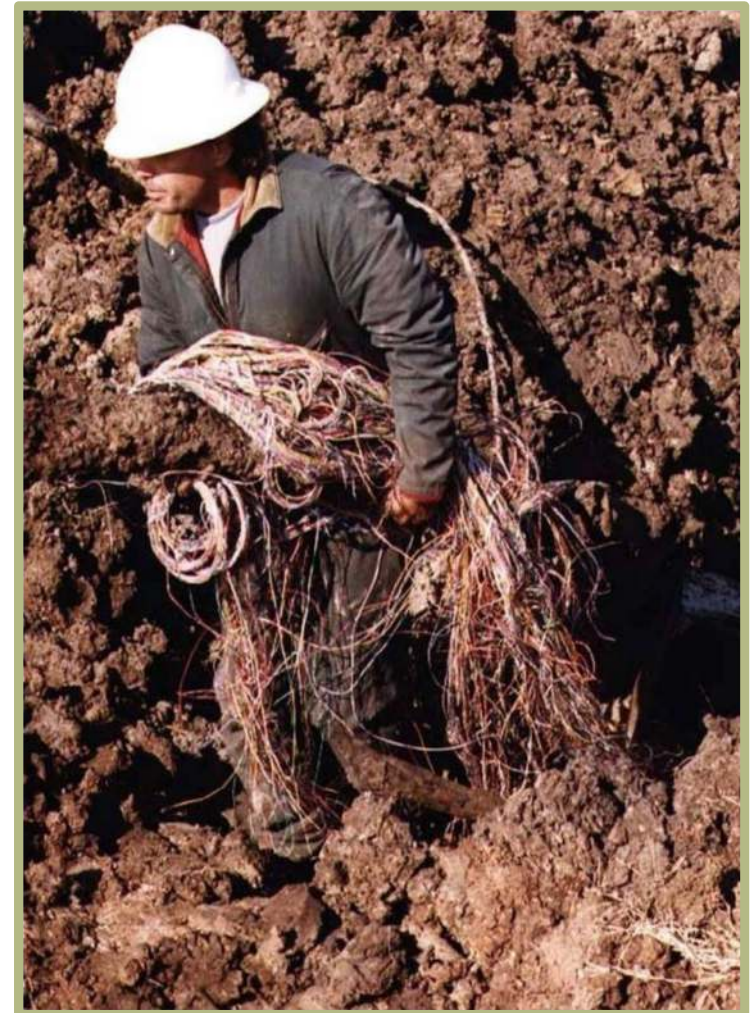
Construction Business is all about “Risk Management”

Why Use SUE?

SUE reduces risks to contractors

SUE benefits project owners and utilities in the following ways:

- Unexpected conflicts with Utilities can be avoided
- More accurate design plan
- Improve public safety



17th & 18th BAMI-I/UESI/Utility Investigation School (UIS)
May 15-19
– Pittsburgh, PA
- New York University



Latin American Collaboration.

Arlex Toro and Dr. Tom Iseley



INVITACION

Lanzamiento del curso:
Mapeo para la Gestión de activos
 Conferencias y exhibición de equipos

Conferencista Internacional:
 PhD David Thomas Iseley
 Presidente BAMI-I



Fecha: 1 de agosto de 2019

Horario: 9:00am - 12m

Lugar: Pontificia Universidad Javeriana-auditorio Pablo VI

Inscripción sin costo alguno para:
 empresas y emprendedores del mapeo de redes subterráneas

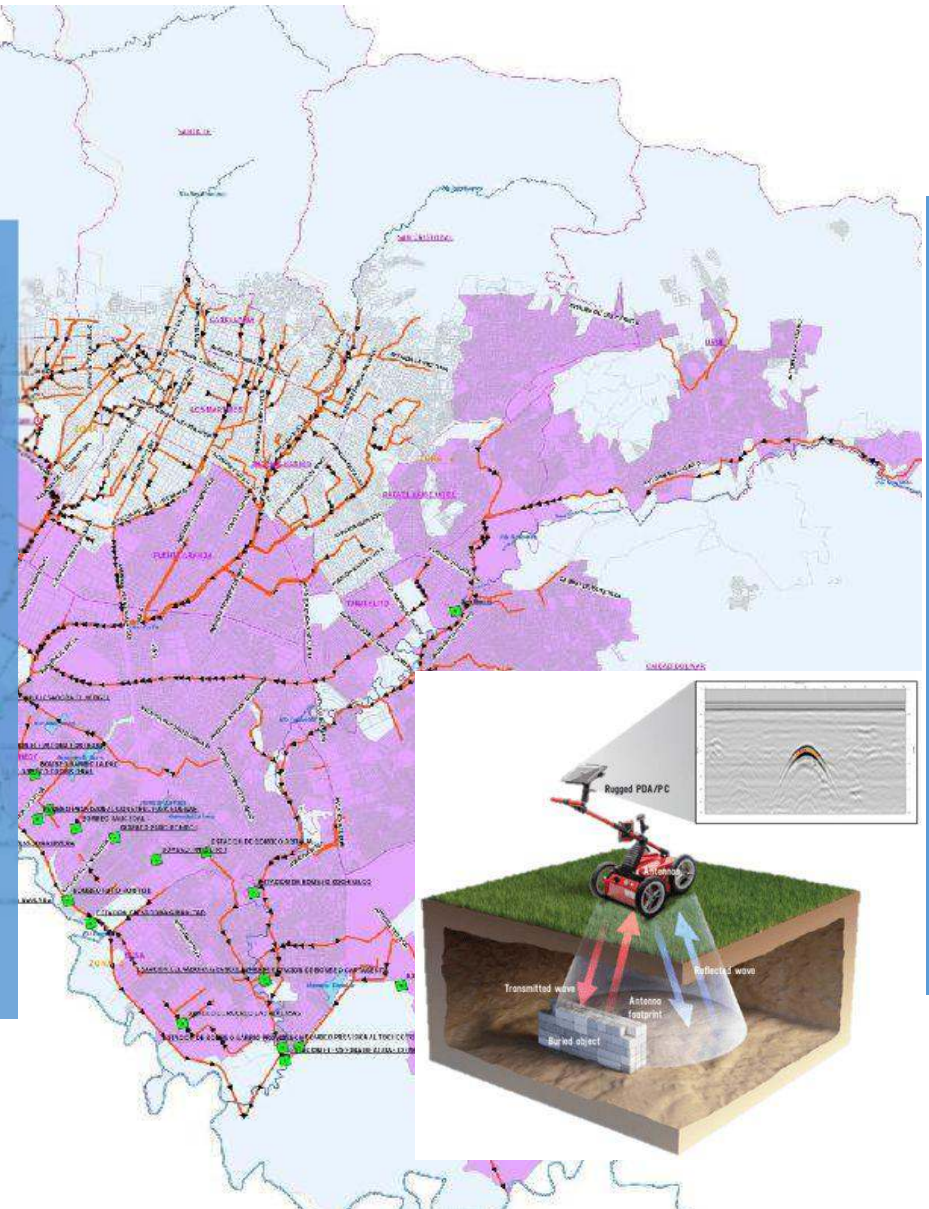
Confirmar asistencia al e-mail: asociacionictis@gmail.com



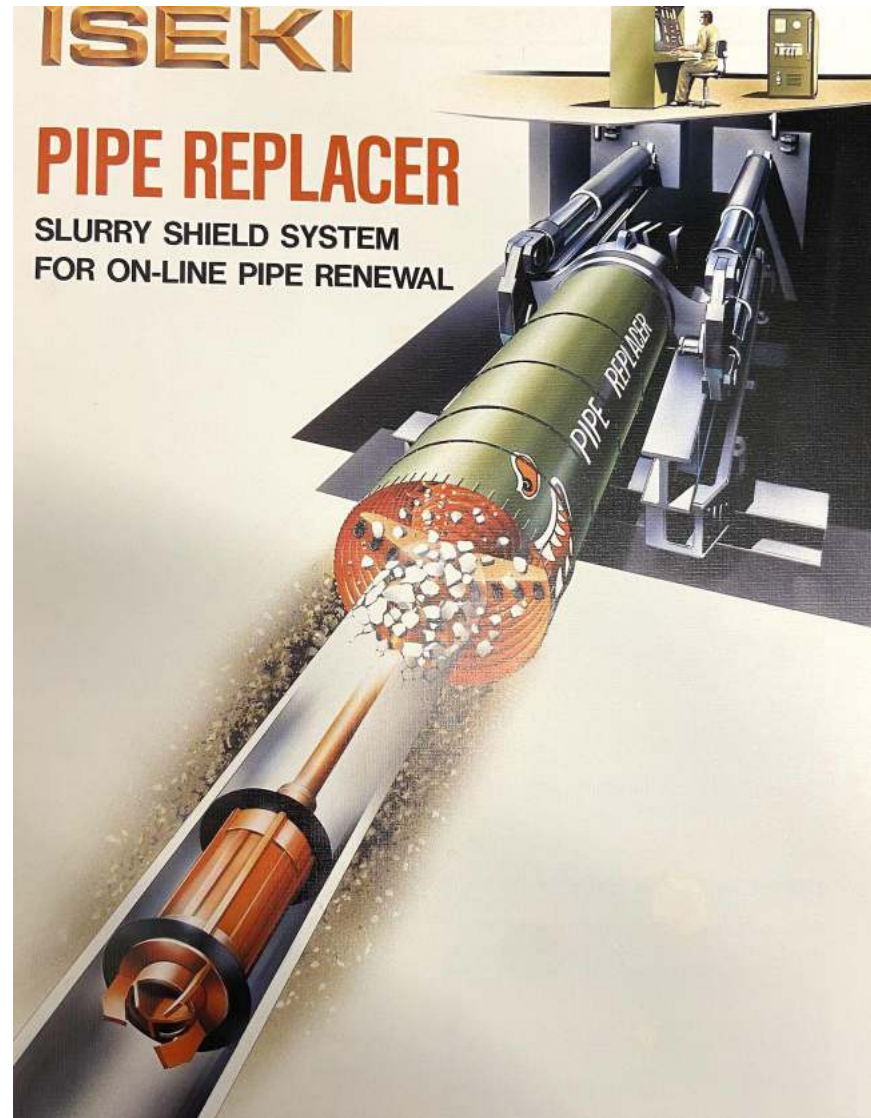
CERTIFICATE COURSE OF MAPPING AND GIS



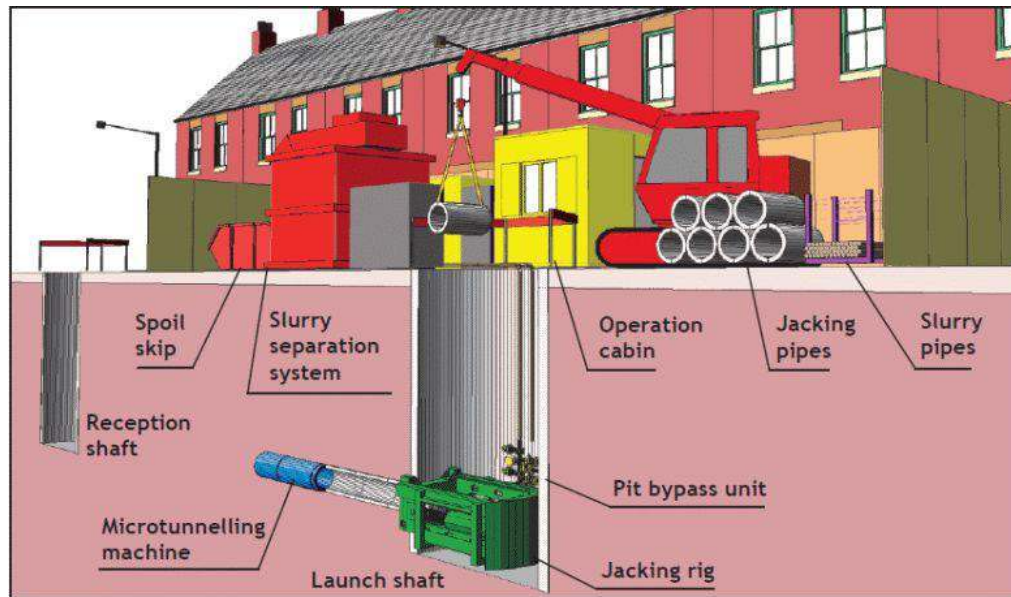
Construction Engineering
and Management



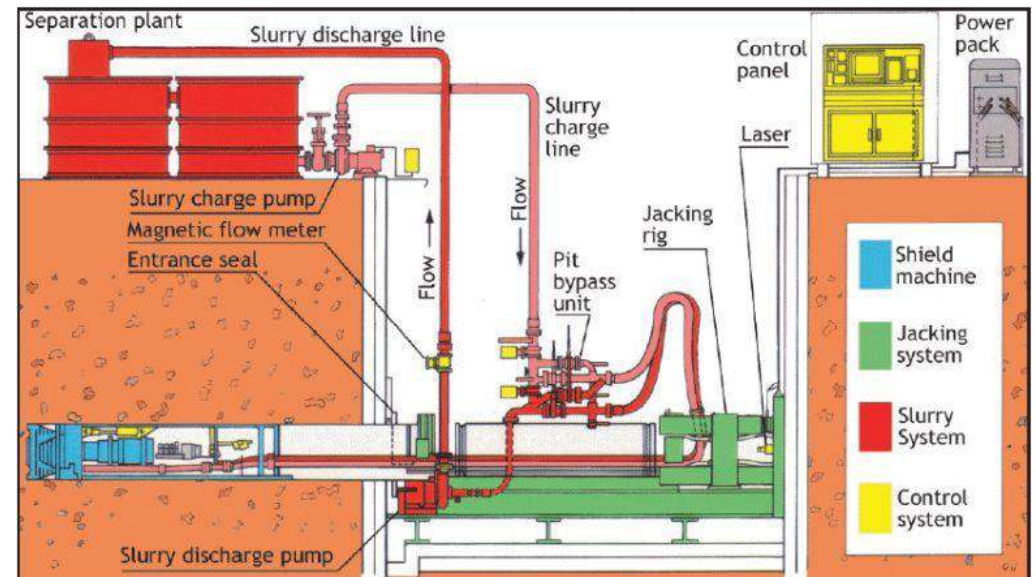
AC Pipe Replacement Technology



Microtunneling With PVC pipe



MT Construction site Layout



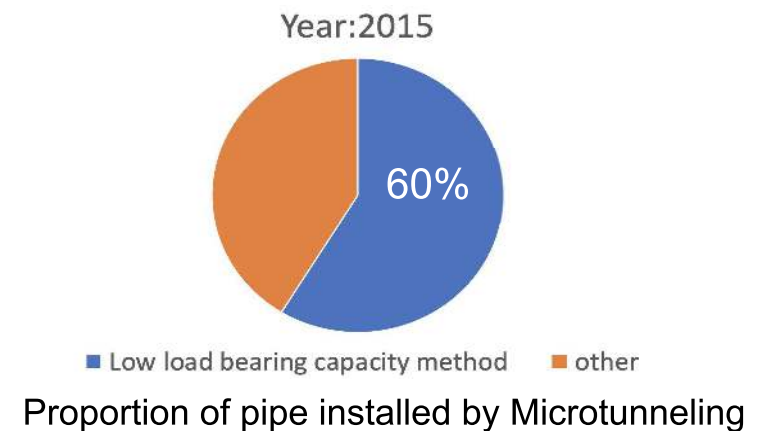
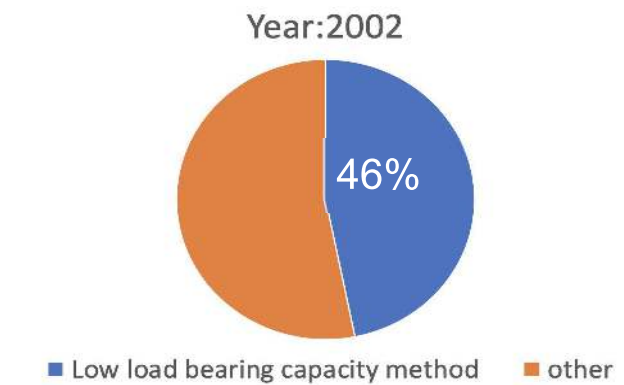
MT system Layout

(Source: Iseki Microtunneling Inc)

Microtunneling With PVC pipe

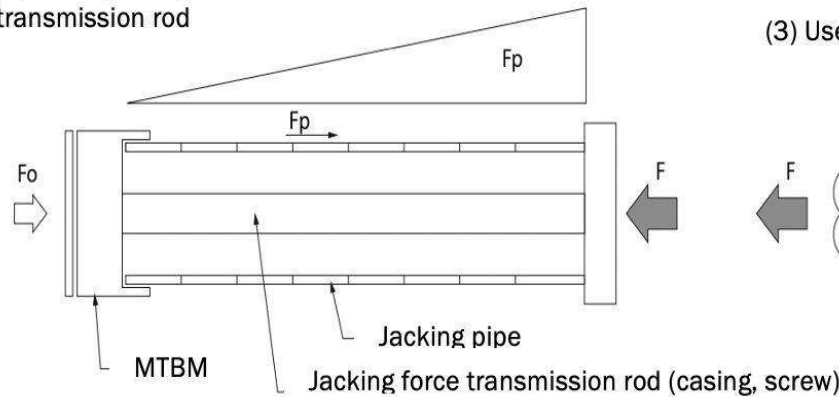


Source: Iseki Microtunneling Inc

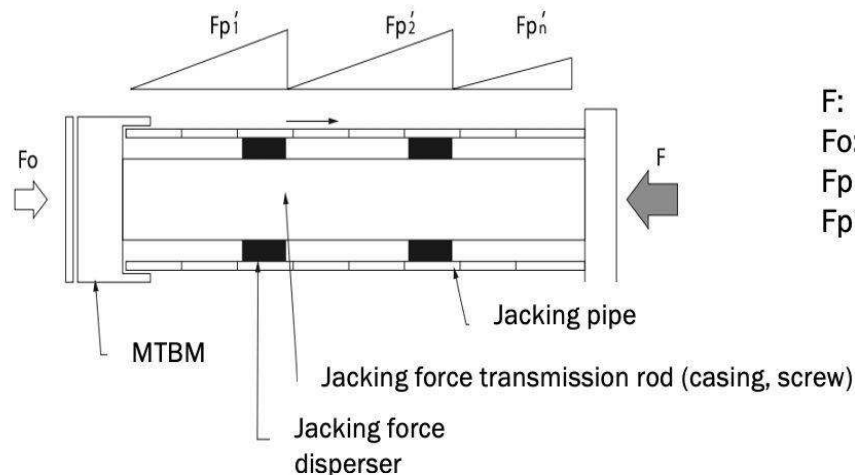


Microtunneling With PVC pipe

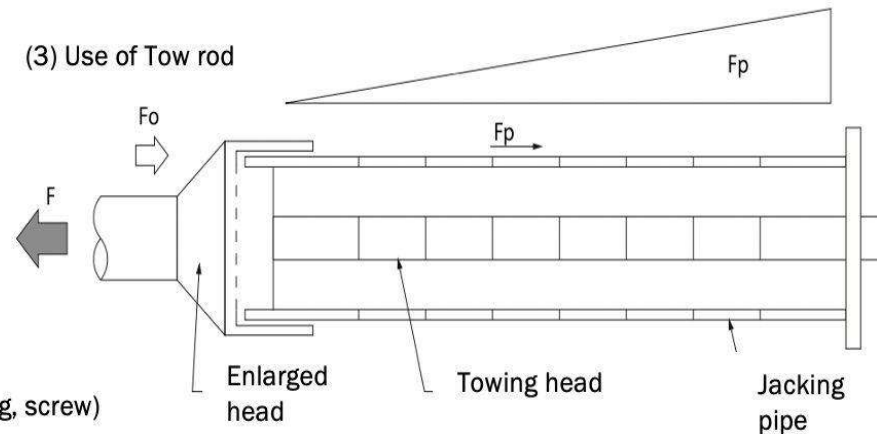
(1) Use of jacking force transmission rod



(2) Use of jacking force transmission rods and jacking dispersers



(3) Use of Tow rod



F : Jacking force ($F_o + F_p$)

F_o : Initial resistance

F_p : External resistance

F_p' : External resistance reduced by the disperser

Mechanism Classification of MTPP (Source: Kenichi Aoki, 2011)

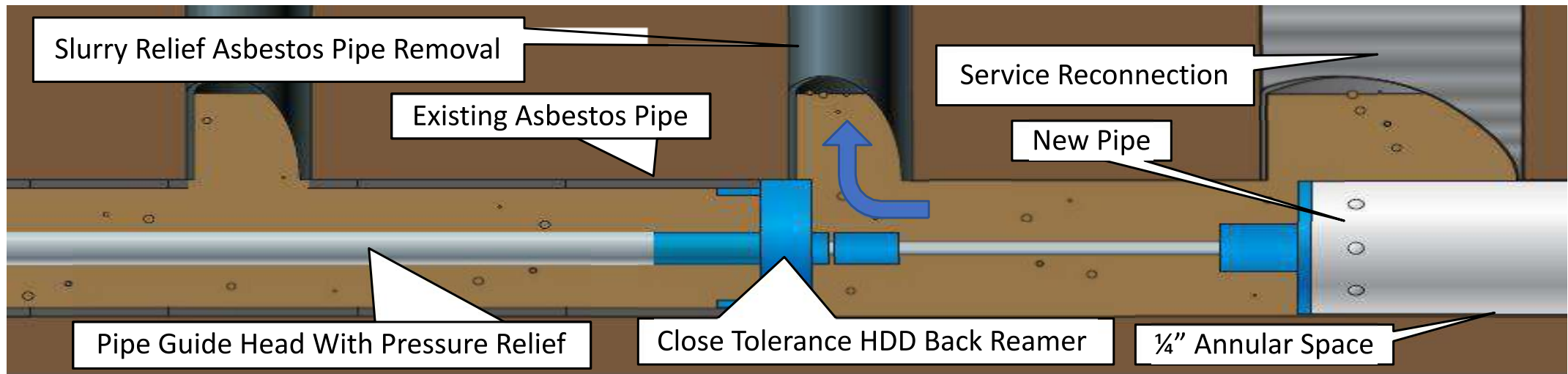
Microtunneling With PVC pipe

Long distance line and curved line method (Bell method)

- First used in 2010.
- Length of up to 250 m(820 ft) .
- Minimum radius of curvature of up to 60 m(196 ft) .
- The total construction length : 6,692 m(21,955 ft)



Close Tolerance HDD AC Pipe Slurrification Process



Close Tolerance HDD Pipe Replacement Back Reamer and Guide Head



Wide Sharp Edge Carbide Cutters Rotating at 240+ RPM's Creates Slurry and Reactivates Portland Cement





Thanks for your attention!

Questions?



Contact information

Tom Iseley

diseley@purdue.edu