Town of Switz City AMP Project

Infrastructure Improvement Based on a Comprehensive Asset Management Approach

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August 2025 | A Collaborative Success Story

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

ALLIANCE OF INDIANA RURAL WATER
Solutions for Water & Wastewater Professionals

BAMI-I: BAMI-I Mission & Scope

Who We Are

- **Founded at Atlanta's Department of Watershed Management** - Center of excellence for underground infrastructure
- **International Reach** - Serving utilities and agencies worldwide
- **Academic Foundation** - Research-driven practical solutions
- **Industry Partnership** - Bridging theory and practice

Established Mission

Advance asset management education, research, and practice for buried infrastructure systems

🎓 *Education & Training*
🔬 *Applied Research*
🤝 *Industry Practice*

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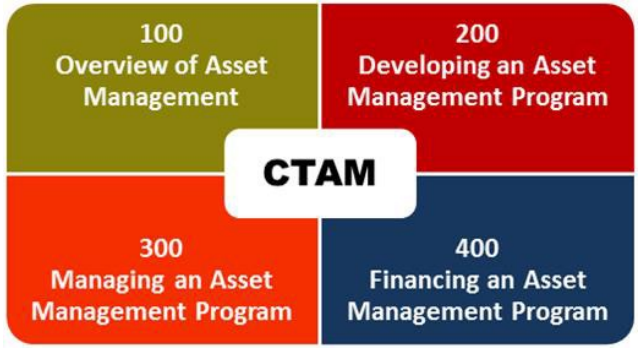
BAMI-I: BAMI-I Mission & Scope

Training & Education

CTAM - Certification of Training in Asset Management
UIS - Utility Investigation School
Pipeline Installation for Inspectors – Online Course
Workshops - Hands-on technical training
Webinar -Case studies, demos & discussions



Professional Certification

AWAM - Associate Water Asset Manager
PWAM- Professional Water Asset Manager

BAMI-I: BAMI-I Mission & Scope

Exchange Platform & Partnerships

Annual Congress - International knowledge exchange
BAMI-I Journal- Industry Insights publication
Industry Collaboration - Technology partners
Government Relations - Policy development support
Research Networks - Global academic partnerships

Bridging academia, industry, and government to solve real-world infrastructure challenges

BAMI-I: BAMI-I Mission & Scope

JOIN US AT

GBAMC

The 3rd Global Buried Asset Management Congress

2026

OCTOBER 11 - 13, 2026

INDIANAPOLIS, IN, USA

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ACE PIPE CLEANING

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GLWA

PPI Plastics Pipe Institute

PVCPIPE

POLYMER Technologies USA

CALL FOR PRESENTATIONS | BURIED ASSET MANAGEMENT CONGRESS 2026

WE CORDIALLY INVITE INDUSTRY EXPERTS AND SCHOLARS TO SUBMIT PRESENTATION ABSTRACTS ON THE FOLLOWING TOPICS:

- All about Buried Asset Management

Organizers:

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

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Bridging academia, industry, and government to solve real-world infrastructure challenges

Why Switz City?

- **Representative Challenge:** "Fix it when it breaks" approach, aging infrastructure, and limited resources
- **Policy Impact:** Supporting Indiana **SEA 272(2022)** implementation
- **Educational Value:** Living lab for students and professionals
- **Shareable Practices:** Lessons and tools that other small communities can adapt to their context

Switz City Demographics

Water Served: 870

Wastewater Served: 268

Daily Water Demand: 120,000 gallons

Project Genesis: From Concept to Reality

2023 Initial Meeting

2024 Data Collection

2025 AMP Complete

2026 Implementation Begins

2030+ Long-term Goals

Volunteer Phase (Jan 2023 - Jul 2024)

Pro bono effort to establish framework, build data foundation, and earn community trust

Formal Execution (Jul 2024 - Jul 2025)

$650,000 from IFA enabled systematic inspections and comprehensive AMP development

The Volunteer Phase: Building Partnership

Volunteer Effort (Jan 2023 - Jul 2024)

- **Zero Budget Start:** Entirely volunteer-driven collaboration
- **Technical Framework:** Risk-based AMP methodology for small systems
- **Data Foundation:** Integrated records, GIS, Asset inventories
- **Preliminary Fieldwork:** SL-RAT screening, CCTV inspections, I&I analysis
- **Graduate Students:** 5 teams developed complete AMPs

Volunteer Contributors

Industry Partners:

• Ziptility, Inc. • InfoSense • Utility Inspection Services

• 4M Analytics • Smart Views LLC

Individual Experts:

• George Kurz (I&I Analysis) • Adam Hershberger (GIS & Data)

• Jeff Farmer (Operations)

Educational Contributors:

• Adam Hershberger • Smith F. Rangel • Gregory Baird • Chris Callahan & Alex Churchill (InfoSense), Ross Waugh (AMP Expert), Joseph Eberly, Jim Harris

Transition to Full Execution

$650,000 Total Funding

$250,000: comprehensive AMP development

$400,000: Urgent repairs and system upgrades

Expanded Team

Technical Institutions

- ADS Environmental Services • ACE Pipe Cleaning
- George Kurz Consulting • Kurt Wright Consulting
- USG Water Solutions

Financial Partners

- Glenn Barnes， Water Finance Assistance (WFA)
- Heather Heather Himmelberger

Data Quality Control

- Smart Views LLC, Independent Review

Data Acquisition: Building the Knowledge Base

Baseline Inventory

Water System:

• 28 miles of mains • 348 connections
• 52 hydrants • 200,000-gal elevated tank

Wastewater System:

• 5 miles of mains • 79 manholes
• Treatment plant • Pump stations

Condition Assessments

Comprehensive Inspections:

• CCTV inspection of critical segments
• Manhole structural surveys
• Smoke testing for infiltration
• SL-RAT acoustic screening (90% coverage)
• Elevated tank interior/exterior assessment

Data Management System

Integrated Platform:

• GIS asset mapping
• Operations & maintenance records integration
• Quality control
• Periodic data updates

Critical Infrastructure Challenges

Water System Issues

78.6% Increase in Water Loss
Non-revenue water cost: $60,428 (2019) → $107,941 (2023)

Infrastructure Leakage Index: 16.86
Far exceeds the industry benchmark of <3.0

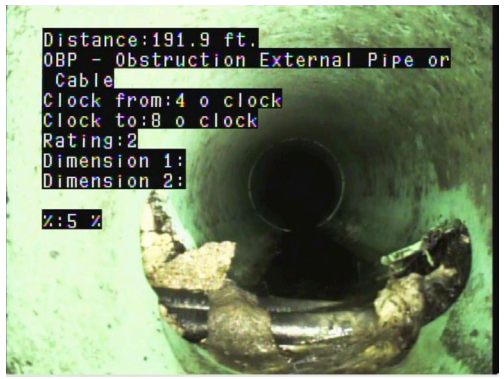
Aging Infrastructure
Multiple hydrants and valves inoperable, aging cast iron mains

Wastewater System Issues

46% I/I Rate
Excessive infiltration and inflow causing hydraulic overload

Treatment Capacity Exceeded
Daily flows exceeded capacity on 102 of 110 study days

Critical Asset Deterioration
Effluent outfall, valves, and critical pipe segment replacement require immediate replacement



Linking Data to Decisions

Criticality Assessment Framework

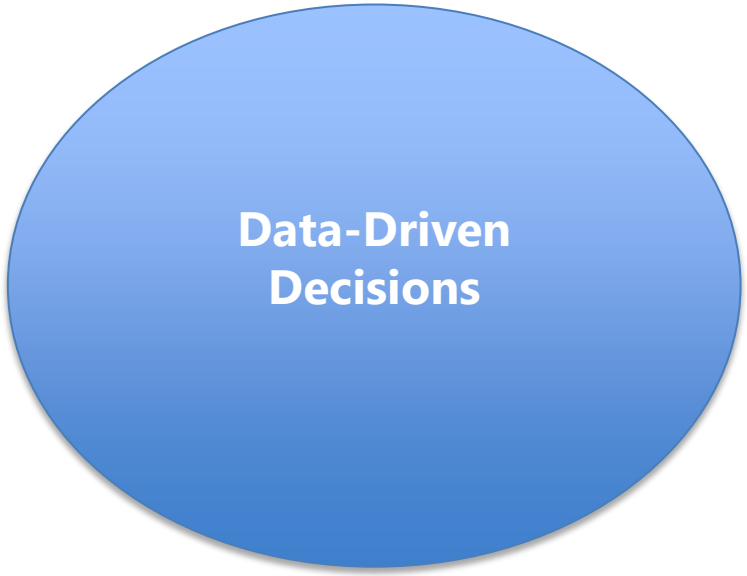
- **Probability of Failure (PoF)** - Asset condition and age
- **Consequence of Failure (CoF)** - Service impact and cost
- **Risk Score = PoF × CoF**

Priority Classifications

Critical (Score >16): Immediate action required

Important (Score 9-16): Medium-term planning

Low Risk (Score <9): Routine maintenance



Improvements in Action: 20-Year Capital Improvement Plan

Priority Projects Identified

Immediate (2026):

- Critical pipe segment replacement
- WWTP pump and valve upgrades
- AMI meter deployment

Short-term (2027-28):

- I&I reduction
- Manhole rehabilitation program

Long-term Strategy

Investment Framework:

- $3.72M total over 20 years
- Risk-based asset renewal schedule
- Performance monitoring milestones

Target Outcomes:

- Water loss <25% by 2030
- I&I reduction to 30%
- 100% regulatory compliance

Improvements in Action: Example

Smart Meter Implementation

Project Scope

348 Ultrasonic Smart Meters

- Complete system upgrade
- Real-time data collection
- Integrated leak detection
- Remote reading capabilities

Direct Benefits

Accurate Billing
Eliminates meter reading errors and reduces commercial water losses

Fair Cost Distribution
Ensures customers pay only for water actually consumed

Early Leak Detection
Immediate alerts for unusual consumption patterns

Data Analytics
Consumption pattern analysis for system optimization

Community Impact & affordability Considerations

Community Economic Profile

- **47%** of families at/below 200% federal poverty level
- Median household income **$28,000 below** state average
- Income growth has **not kept pace** with inflation
- 20th percentile income: **$23,000/year**

Affordability Strategy

- Phased rate implementation reduces shock
- Grant funding minimizes customer burden
- Energy efficiency reduces operational costs
- Proactive maintenance prevents emergency costs

Critical Balance: Without these investments, deferred maintenance will result in emergency repairs costing 3-5x more, ultimately creating greater affordability challenges.

Rate Structure Simplification Recommended

Analysis suggests moving from complex 6-block decreasing rate structure to simplified single-rate approach ($15.89/1,000 gallons) to reduce administrative burden and improve equity.

AMP Implementation Framework

Organizational Structure

- **Town Board:** Policy direction, funding approval
- **Clerk-Treasurer:** Coordination, administration
- **BFU (Contract Operator):** Technical implementation
- **Technical Partners:** Ongoing support, training

Performance Monitoring

- Monthly operational metrics
- Quarterly stakeholder updates
- Annual comprehensive review
- 5-year major plan updates

Key Success Factors

Data-Driven Decisions: Continuous asset condition monitoring and performance tracking

Stakeholder Engagement: Regular communication with customers, regulators, and funding agencies

Adaptive Management: Annual plan updates based on actual performance and changing conditions

Technical Support: Ongoing partnership with BAMI-I, AIRW, and industry experts

Broader Impacts: Beyond Infrastructure

Improved Financial Planning

Comprehensive Rate Study:

- 20-year financial sustainability model
- Multi-source funding strategy
- 60% SRF loans, 30% operating revenue, 10% grants
- Transparent rate adjustment justification

Regulatory Compliance

Meeting Requirements:

- **SEA 272 Compliance** Complete AMP meeting all Indiana statutory requirements for SRF eligibility
- **EPA Guidelines:** Best practices implementation following EPA asset management guidance
- **IDEM Requirements:** Full documentation for drinking water and wastewater permit compliance
- **HB 1459 (2025) mandates compliance**
- Comprehensive reporting framework
- Proactive asset management documentation

Workforce Development

Educational Integration:

- Training platform for professionals
- Academic curriculum enhancement
- Knowledge transfer to industry
- Capacity building for small utilities

Statewide Model

Reference Framework:

- Manual of Practices development
- I-WIIC platform establishment
- Policy framework demonstration

Key Takeaways

Asset Management Provides a Roadmap

- Systematic approach to infrastructure challenges
- Data-driven decision making
- Long-term financial sustainability
- Risk-based prioritization of investments

Switz City as Reference Model

- Proves feasibility for small systems
- Demonstrates compliance pathway
- Provides replicable methodology
- Shows measurable outcomes

Collaboration = Success

- Multi-sector partnership model
- Academic-industry integration
- Community engagement and trust
- Shared expertise and resources

"Everything's (About to Be) Up to Date in Switz City"

From crisis to opportunity, from reactive to proactive

Questions & Discussion

Thank You!

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*"From crisis to opportunity, from reactive to proactive -
This is the future of utility asset management."*