

C U R R E N T L Y @ C U I R E

CENTER FOR UNDERGROUND INFRASTRUCTURE RESEARCH AND EDUCATION

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If you have a story about your products, services, or projects, please e-mail it to us and we will do our best to include it in future issues of **Currently at CUIRE**.

2009 Spring CUIRE Board Members

The CUIRE Board is the backbone of our organization, and we would like to recognize them for all their support and dedication.

Chris Brahler	TT Technologies, Inc.
Ralph Carpenter	AMERICAN Ductile Iron
Robert Carpenter	Underground Construction
George Davis	Missouri DOT
Mark Dionise	Michigan DOT
Siggi Finnsson	Digital Control, Inc.
Troy Freed	WRSCOMPASS
Bruce Kuffer	Plastic Pipe Institute
Dan Liotti	Midwest Mole, Inc.
Joe Lundy	Hanson Pipe & Precast
John Matthys	UT Arlington
John Morgan	CANTEX
Mohammad Najafi	UT Arlington
Gary Natwig	3M Corrosion Protection
Lynn Osborn	Insituform Technologies, Inc
Jim Rush	Benjamin Media Inc.
Jim Scott	Solution Resource
Mike Sechelski	Northwest Pipe Company
Lawrence Slavin	OPCS
Fred Tingberg, Jr.	Lanzo Lining Services, Inc.

From the Director

It is hard to believe that we have already completed several challenging but successful years at CUIRE headquarters, since we moved to The University of Texas at Arlington (UTA) in September 2006. Some of our activities include completion of several research projects, conducting trenchless technology workshops in conjunction with annual UCT conferences in Houston, Atlanta and San Antonio, conducting a workshop on Trenchless Technology and Critical Underground Infrastructure Issues in Wuhan, China, holding an International Symposium on Underground Freight Transportation at UTA in March 2008.

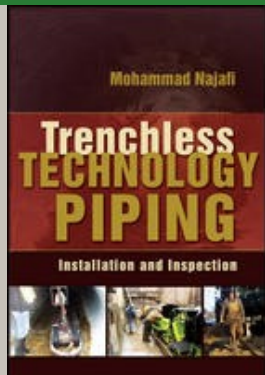
Other activities include:

- **Ribbon cutting ceremonies of our new headquarters which includes [3,500 sq ft laboratory and office building on UTA campus](#).**
- **Start of a new graduate area for [Master of Infrastructure Engineering and Management](#) at the Department of Civil Engineering.**
- **Completion of two research projects on [Culverts Asset Management](#) and [Culvert Renewal](#) for the [Midwest Regional University Transportation Center \(MRUTC\)](#).**
- **Successful field evaluation and installation of approximately 3,000 ft of a Buried Duct Pipeline/Network (BDN) with two 4-in. CanFuse® PVC Pipe ([Cantex/Underground Solutions, Inc.](#)) with horizontal directional drilling (HDD) for [Outside Plant Consulting Services \(OPCS\)](#).**
- **Completion of [ASCE Pipe Ramming Manual and Guide to Water & Wastewater Asset Management for Benjamin Media](#).**
- **Publication of a new book: [Trenchless Technology Piping](#) (publication scheduled for late 2009).**

For future, we have plans that are more exciting. We are starting a dedicated *ASCE Journal of Pipeline Systems Engineering and Practice*. We will have naming opportunities for our new offices and labs, recognition certificates for our members, and launching a new Web site with more features for CUIRE members. We are planning a one-day meeting in fall 2009 at UTA, which will be in conjunction with 50th anniversary of UTA College of Engineering. This newsletter will provide you more information on our activities. I would like to take this opportunity to thank all of you for your help and support throughout these years and hope that you stay involved and support our activities in future. Please do not hesitate to contact me with any question or suggestions.

Best regards,

Mohammad Najafi
CUIRE Director



New Book by Dr. Mohammad Najafi

On December 2009, McGraw-Hill will publish a new book "Trenchless Technology Piping - Installation and Inspection" by Dr. Mohammad Najafi. Packed with illustrations and a range of national and international case studies and examples, the book covers proper planning, contracting, and procuring, installing, and inspecting different pipe materials, and includes testing and acceptance methods, project contract and delivery, and safety issues. This cutting-edge engineering tool also contains vital information on quality control and quality assurance (QC/QA) guidelines. *Trenchless Technology Piping* features:

- Pre-installation, installation, and post-installation requirements
 - Detailed coverage of field and laboratory testing
 - Proven methods of project delivery and final inspection
 - The latest information on asset management and sustainability of pipeline systems
 - Effective procedures for project planning and contract administration

For more information visit: <http://www.mhprofessional.com/>



Dr. Najafi Makes Presentation to Dallas Water Utilities

On Thursday, June 4, 2009, Dr. Najafi presented "Introduction to Trenchless Technologies" to the Engineers of Dallas Water Utilities (DWU). During day-long presentation at DWU Office, Dr. Najafi explained various trenchless methods available for pipeline construction, renewal and replacement and their applications in various condition.



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CUIRE Holds Trenchless Schools in Conjunction with UCT

During Underground Construction Technology (UCT) 2009 held in San Antonio, Texas, CUIRE offered two schools on Trenchless Technology on January 22, 2009 and January 23, 2009. "Advanced HDD School" and "Horizontal Auger Boring and Pipe Ramming School" were offered under sponsorship of Underground Construction Magazine.

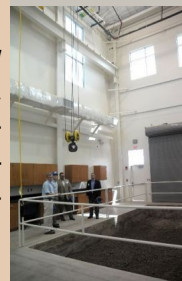


Students Attend UCT 2009

With CUIRE, seventeen students from UT Arlington attended UCT 2009 held in San Antonio on January 20-22, 2009. Students had an opportunity to attend classes and exhibition in the conference. UT Arlington is one of few Universities in USA which offers a master's degree course entirely dedicated to trenchless technologies. CUIRE thanks UCT for providing the opportunity for students to gain firsthand knowledge of Trenchless Technologies.

Ribbon Cutting of CUIRE Laboratory

An audience of 200 attended the ribbon cutting ceremony for the new \$9.8 million Civil Engineering Lab Building on Friday, September 12, 2008. Within the 25,000 sq ft facility is new CUIRE office with four office rooms, one graduate students' study room, one classroom and construction and physical testing laboratory. The laboratory for CUIRE consists of 800 sq. ft. area with 30 ft ceiling. The lab has 10 ft overhead crane and 5 ft by 5 ft pit with 10 ft depth.



Dr. Najafi Moderates Pipe Renewal Product Development Session

On Monday, October 20, 2008, Dr. Mohammad Najafi moderated a 3-hour product development session for Insituform Te-

chnologies, held in conjunction with WEFTEC 2008 in Chicago. Among Participants in this session were directors from public works departments of Houston, Garland (Texas), San Antonio, Hawaii, Charlotte and Chicago. Also, in attendance were engineers and managers from Singapore, and several U.S. design engineering firms as well as several managers and engineers from Insituform Technologies. Insituform is an active board member of CUIRE.

Dr. Najafi Makes Presentation to Halff Associates Clients

During a lunch meeting at Halff Associates office in Fort Worth, on Thursday, September 25, 2008, Dr. Najafi presented "UTA Efforts in Asset Management of Underground Infrastructure & Transportation Systems," to more than 40 engineers from the City of Fort Worth, TxDOT and U.S. Corps of Engineers. During this presentation, the critical issues in underground infrastructure and innovative solutions using trenchless technologies were discussed.



RESEARCH PROJECTS

U.S.—China Workshop on Trenchless Technologies and Critical Underground Infrastructure Issues

The U.S.-China Workshop on Trenchless Technology and Critical Underground Infrastructure Technologies was held at the China University of Geosciences (CUG) in Wuhan, in October 2007. The U.S. team included well known researchers from major universities and research centers. This award provided travel support for U.S. participation in the workshop, where researchers from both countries reviewed the state-of-the-art of critical underground techniques, the experiences in China to-date, and exchange ideas on development of research strategies. Dr. Mohammad Najafi, Director of the CUIRE was the Principal Investigator (PI) on this project, assisted by several Co-PIs. The Chinese collaborators included: Dr. Baosong Ma, Professor of Civil Engineering (CUG), the foreign organizer of this unique workshop, Dr. Huiming Tang, Dean of College of Engineering (CUG), and Dr. Xiaoming Wu, Professor of Civil Engineering (CUG). Dr. Tang and Dr. Wu assisted Dr. Ma with logistics, coordination, publicity, and organization of Chinese contributions to the research agenda. CUIRE received grant from National Science Foundation (NSF) for the workshop and additional support were provided by Department of Civil Engineering at UT Arlington and also by host university CUG.



Preparation of a Manual of Practice for Asset Management of Underground Infrastructure

The main objective of this project is to provide a comprehensive manual that can be used as a reference to municipalities and government agencies providing a practical guide to setup asset management strategies as well as a teaching material for conferences and workshops. For more information, please visit www.cuire.org.

HDPE Database

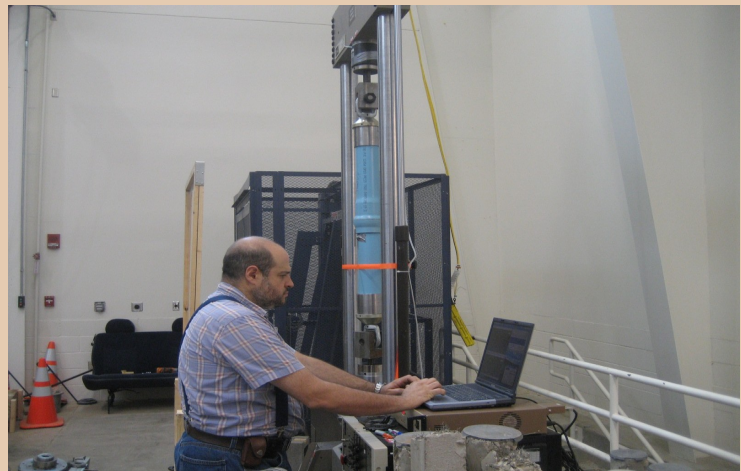
CUIRE conducted a comprehensive search for literatures on HDPE pipe for municipal applications and created a comprehensive database of the literatures. CUIRE also recommended research areas for HDPE pipe for municipal applications. The project was supported by Plastic Pipe Institute (PPI) which is an active member of CUIRE.

CUIRE Works with 3M to Prepare Design and Installation Guides for a New Water Pipe Renewal Product

The purpose of this research is to provide design and consulting engineers, utility and pipeline owners, and municipalities, as well as pipeline contractors, with an overview of planning and design requirements for structural renewal of water pipes utilizing Spray-in-Place Pipe 269 (SIPP 269) lining, a Hybrid Polyurea Structural enhancement spray method. The lining material is expected to satisfy the minimum requirements of rapid cure, smooth and pinhole free lining, long term durability, consistency of water quality, suitable adhesion with old pipe and cost-effectiveness.

Pipe Testing

CUIRE is conducting pipe testing for different pipe manufacturing companies at its new laboratory facility at the University of Texas at Arlington. Tests for various strength parameters of different pipes and their joints have been conducted. CUIRE will submit reports of the tests to respective pipe manufacturers.



Buried Duct Network (BDN) Field Trials at the University of Texas at Arlington

Buried Duct Network (BDN) is an integrated system that facilitates future upgrades of buried communications and power lines to provide improved cost-effective hardware and practices, relative to present buried construction procedures. CUIRE installed 22,000 ft of twin 4.5" OD fusible PVC pipe during the Field Trials.



Ditch Witch JT2020 mini-HDD was used for installation. Please visit CUIRE website www.cuire.org for report of this project. CUIRE thanks OPCS, CANTEX, SPARUS and BAROID for supporting the project.

Use of Trenchless Technologies for a Comprehensive Asset Management of Culverts and Drainage Structures

The tasks of the project were to:

- Review various geo-environmental and mechanical factors affecting the deterioration of culverts.
- Literature review and survey of DOT's, we developed a database of trenchless technology methods already used in culvert structure and history of their performance.
- Consider standard testing data and all other information that manufacturers provided. We included available academic research and third party testing to come up with a comprehensive database of these technologies.
 - For each of the technologies included in the database, compile information on range of application, diameter restrictions, type and geometry of culvert they can be applied, diameter and/or cross sectional reduction, structural capability, hydraulic analysis (roughness factor), construction requirements, design life, life-cycle-cost, chemical (corrosion) and mechanical properties, maintenance issues and requirements, and other important parameters specific to the needs of MDOT, ODOT and other Midwestern states. All this information were verified through multiple sources.
 - Review inspection and maintenance requirements of renewed culverts (such as how and what to inspect). Each trenchless technology requires a specific method of inspection. Therefore, an inspection and asset management methodology for trenchless renewal of culverts were developed.
- Provide modifications to be brought to buried pipes technologies to be implemented on culverts with emphasis on trenchless technologies.
- Collaborate with MDOT and ODOT to develop a system for integration of this system with their existing computerized system of asset management. The system is expected to help MDOT and ODOT engineers select the best technologies given culvert description and condition and provide them with risks, performance and cost analyses as described previously.
- Offer educational programs in terms of two workshops for MDOT and ODOT engineers to present the result of this research project and train them in the use of new asset management system using trenchless technologies.
- Publish and present at TRB national convention, major professional and trade conferences, and publish at peer-reviewed journals such as ASCE Journal of Transportation Engineering (JTE).

Several graduate and undergraduate students participated in this project under supervision of principal investigators. The final report can be viewed on web at:


www.cuire.org

CUIRE Hosts Trenchless Roadshow

CUIRE is hosting Trenchless Roadshow to be held on June 23-24, 2009 at the University of Texas at Arlington. The Trenchless Roadshow will consist of over 40 exhibitors, live trenchless field demonstrations and educational sessions.




We Bring the Show to You



Trenchless Road Shows

Dallas Trenchless Road Show
June 23-24
University of Texas at Arlington



Over 40 Exhibitors • Live Trenchless Field Demonstrations • Educational Sessions

www.trenchlessroadshows.com