

# Center for Underground Infrastructure

## CURRENTLY @

# CUIRE

## Research & Education

### CUIRE-UTA Forms Committee To Research Integrating Underground Freight Transportation Into Existing Intermodal Systems

Led by the University of Texas-Arlington's Center for Underground Infrastructure Research and Education, a Stakeholder Committee is being formed to oversee the planning and design for a potential cost-effective and efficient freight pipeline, and to ensure the results will be relevant and essential to the future of the freight transportation.

The project is in the initial phase of a possible three phases. The first year CUIRE will set up a stakeholder committee and investigate planning and design, cost analysis, financing means, environmental impact analysis and construction methods. If the project continues, the second phase would include a small-scale testing in the laboratory, and the third phase will be pilot testing for a short section. The details for the second and third phases will be developed during the current phase.

The purpose of this research project is to investigate the feasibility and to address the potential for employing a variety of technological advances in underground freight technology which allows

for the optimized and intermodal use of the available highway capacity through managing freight use. The objective is to provide more efficient, reliable, secure and cost-effective use of current means of freight transportation. Examples might be providing freight corridors from airports to distribution centers, ports to distribution centers, and/or border crossings. Tube freight transportation is a class of unmanned transportation systems in which close-fitting capsules or trains of capsules carry freight through tubes between terminals.

Being able to use a part of the underground space of the existing right-of-way of highways, especially of interstate highways, will greatly facilitate the construction of such tubes and reduce their construction costs. However, many questions must be answered through a rigorous study before freight tubes can be used along highways, and before they can become an integral part of the nation's future freight transportation system. This study also examines the use of underground freight tubes in certain urban environments where other means

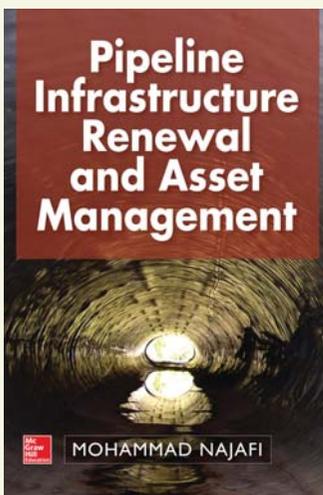
of transportation may not be practical and doable.

Stakeholder Members may be any U.S. entity, association, organization, company, or affiliate, who will benefit from involvement in this Research, Technology and Implementation (RTI) Project. Membership may come from any of the Transportation Research Board (TRB), and any for-profit or non-profit organizations that may use freight tubes or benefit from the use of freight tubes in the future, such as, ports, airports, railroads, package carriers, retailers, freight companies and professional associations.

#### Stakeholder Members shall:

- a. Provide feedback on the needs of the industry, the State of Texas, and the nation, for freight pipeline, and as desired, research milestones, project progress, and final technical memorandum.
- b. Meet and/or communicate as often as desired and are required to provide guidance and advice for the project, and to indicate attendance and participation at meetings as requested.

- c. Make suggestions and provide perspectives on the project and use of freight tubes.
- d. Disseminate information internally as desired to help educate fellow members within their respective organizations.
- e. Review and comment on the UTA technical memorandum describing the results of the Stakeholder Committee.
- f. Attend a final meeting to receive the final findings of the project.
- g. All Stakeholder Members shall receive interim reports (if any) and final report. All Stakeholder Members shall receive copies of all articles and presentations published from the research.
- h. Stakeholder Members have an advisory role only, and will not be held responsible in any way, jointly or severally, for any UTA project commitments or for their input and suggestions into the UTA work product, including the final technical memorandum. For more information on the project and/or the Stakeholder Committee, contact Dr. Mo Najafi, Principal Investigator and Director of CUIRE at najafi@uta.edu or 817-272-0507.



### New Book to be Published in October 2015

A new pipeline renewal and asset management book will be published in October 2015 by McGraw-Hill. This practical resource covers the latest methods to manage, value and estimate the life and cost of pipeline infrastructure assets.

Featuring detailed illustrations, case studies and examples, this comprehensive guide offers step-by-step instruction on pipeline planning, repair and renewal. A thorough coverage of asset valuation, financing, depreciation and inventory management techniques will be discussed. Throughout, asset management methods are provided for the full range of building materials and for water, sewer and pressure pipelines.

*Pipeline Infrastructure Renewal and Asset Management* offers technical as well as managerial infor-

mation and lays out ready-to-use best practices for asset administration, budgeting and inspection. Pipeline life expectancy, renewal technologies, government standards and social issues are explained in full detail.

- Explains inspection and inventory methods for water, sewer and pressure pipelines;
- Covers asset management technologies and government standards;
- Provides effective procedures for budgeting cost control; and
- Written by an experienced author and infrastructure engineer.

For more information, contact Dr. Mo Najafi at najafi@uta.edu or 817-272-0507.

# Center for Underground Infrastructure

## CURRENTLY @

# CUIRE

## Research & Education

### CUIRE Holds 1/2 Day Certification Schools

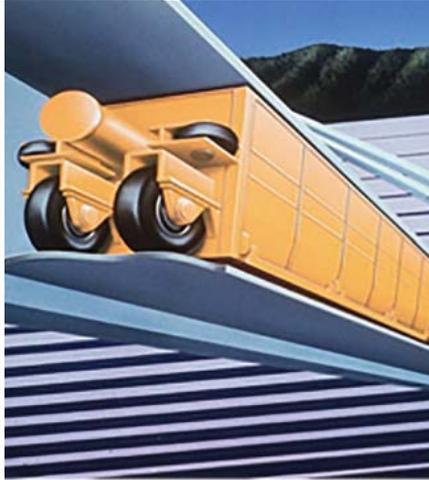
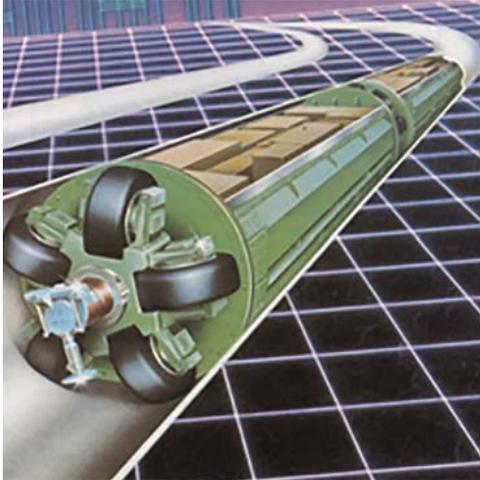
On Jan. 25-26, 2015, in Houston, more than 60 professionals attended the CUIRE trenchless technology inspector training and certification schools. The courses are held annually (see details below) in conjunction with the Underground Construction Technology International Conference & Exhibition (UCT).

#### The schools are:

- Geotechnical School – Geotechnical requirements for both trenchless applications. Soft soils and rock investigations methods, and how ground conditions will impact trenchless feasibility and productivity.
- Pipe School – Applications, advantages and limitations of each type of pipe, such as steel, ductile iron, vitrified clay, PVC, HDPE, fiberglass, etc., and new developments in pipe materials and jointing systems.
- Mud School for Trenchless Technology – Provides attendees everything they need to know to properly mix and apply drilling fluids for trenchless applications, including spoil removal and lubrication applications.
- Horizontal Auger Boring School – Planning, design, construction of conventional pipe jacking and horizontal auger boring. Also includes pipe ramming.
- Advanced Horizontal Directional Drilling (HDD) School – Planning, design, construction of large, mid and small size HDD projects from inception to closeout and delivery. Includes tracking and locating, pipe loads, bore planning, drilling fluids and case studies.
- Pipe Lining and Renewal School – Cured-in-Place Pipe (CIPP) and pipe lining methods. Includes planning, design, construction, inspection and QA/QC.
- Pilot Tube Microtunneling School – Planning, design and construction of pilot tube microtunneling. Includes case studies.



Next year's classes will be held on Monday, Feb 1, and Tuesday, Feb. 2, 2016, in Atlanta, GA. For more information, visit [www.cuire.org](http://www.cuire.org) or call CUIRE at 817-272-9177.



## Some Benefits Of Underground Freight Transportation

Success in this project will enable such freight tubes to be built for transporting most of the cargoes currently transported by trucks, resulting in the following potential benefits:

- Reduced congestion and traffic jams at borders and on highways and streets – This will benefit especially cities that are heavily dependent on trucks for freight shipment;
- Reduced number of accidents caused by trucks – This will improve highway safety;
- Reduced air pollution and greenhouse gas in cities where there is large concentration of cars and trucks causing air pollution problem;
- Reduced consumption of diesel fuel and energy – As will be shown later, the energy required to transport each ton of freight over one mile of distance by freight tubes is only a fraction of

that used by trucks;

- Reduced damage to highway infrastructures including pavement, bridges, overpasses, etc.
  - Trucks cause far more damage than cars do to pavements and bridges, in spite of the fact that there are far more cars than trucks on the highways. Therefore, use of freight tubes will enhance the life of highway infrastructures, and will reduce their maintenance cost; and
- Improved transportation security – Underground freight tubes have controlled inlets and outlets, and hence are more difficult for terrorists to sabotage than aboveground structures. Unlike trucks which could be used as truck bombs to attack other structures, freight tubes being fixed to the ground cannot be used as weapons above ground.



## AWWA Invites Water Professionals To Join Pipe Rehabilitation Standards Committee

The American Water Works Association Standards Committee on pipe rehabilitation provides a forum for the development of appropriate minimum requirements for pipeline rehabilitation technologies. The committee is comprised of professionals within all aspects of the industry and they are responsible for putting together standards in six areas of pipeline rehabilitation including pipe bursting, cured-in-place-pipe, internal joint seals, spray-on linings, sliplining and structural classification of pipeline rehabilitation and repairs.

This committee welcomes expertise from water utilities, producer and general interest members with knowledge and experience specific to pipeline rehabilitation. If interested in contributing to this committee please contact Dawn Flancher, [dflancher@awwa.org](mailto:dflancher@awwa.org), (303) 347-6195, or Dr. Mo Najafi, committee chair, at [najafi@uta.edu](mailto:najafi@uta.edu) or (817) 272-0507.

### CUIRE Board Members

#### Sam Arnaout

Sr. Vice President of Engineering  
Hanson Pressure Pipe

#### Abu Abraham

Technical Manager  
Instituform Technologies USA, LLC

#### Robert A. Carpenter

Editor-In-Chief  
*Underground Construction Magazine*

#### Frank Crumb, P.E., BCEE

Public Infrastructure Business Development  
HALFF ASSOCIATES, INC.

#### George H. Davis, R.G.

Geotechnical Liaison  
Missouri Department of Transportation

#### Bruce Hollands

Uni-Bell PVC Pipe Association

#### Julia J. Hunt, P.E.

Assistant Regional Manager/Operations  
Trinity River Authority of Texas

#### Tim Kennedy, P.E.

Business Development Manager  
Ameron International Corp. / NOV

#### Therese R. Kline, P.E.

Michigan Department  
of Transportation

#### Chad Kopecki, P.E.

Interim Program Manager  
Dallas Water Utilities Engineering Services

#### David H. Marshall, P.E.

Engineering Services Director  
Tarrant Regional Water District

#### Lynn E. Osborn, P.E.

LEO Consulting, LLC  
Technical Director  
NASSCO, Inc.

#### Anna Pridmore, Ph.D.

Vice President, Pipeline Solutions  
Structural Technologies

#### Camille George Rubeiz

Director of Engineering  
Plastic Pipe Institute (PPI)

#### Jim Rush

Editor  
Benjamin Media Inc.

#### Larry Slavin, Ph.D.

Outside Plant Consulting Services, Inc.  
Rockaway, NJ 07866-1019

#### Harvey Svetlik

Staff Engineer - Water & Energy  
Georg Fischer Central Plastics LLC  
GF Piping Systems

#### Richard Williammoe Jr., P.E.

District Materials Engineer  
Fort Worth District  
Texas Department of Transportation