CATT has been very active since our last April newsletter. At the last Board meeting our tagline was discussed and modified to “Sustainable Buried Infrastructure for Livable Communities”.

The Trenchless Technology Roadshow, organized with Benjamin Media and held on May 28, 29 at the Scotia-bank Convention Centre in Niagara Falls, Ontario was very successful and the largest to date. There were 450 Roadshow registrations, approx. 430 in attendance and over 60 exhibitors with two trenchless courses preceding the show, Trenchless 101 and Advances in Water and Wastewater Infrastructure Asset Management. Planning has begun for the 2016 Roadshow.

CATT recently submitted an article “Helping municipalities save on infrastructure renewal” to the Environmental Science & Engineering Magazine which was published in the July / August edition and can be accessed from the ES&E website at www.esemag.com/magazine.

The trenchless directory is now active and can be accessed from the trenchless directory website (www.canadiantrenchlessdirectory.ca). It is the one location for where companies provide the information. There is no cost placing company information in the directory which is open to non CATT members. Additional benefits provided by the directory are related to the CATT membership levels.

In 2013 CATT conducted the first Canadian Annual Municipal Infrastructure Survey to review Canada’s water and wastewater buried infrastructure sector and trenchless technology use and needs. The survey collected information from Canadian municipalities and received input from larger, medium and smaller sized munici-

News Release:  Dibco – CRS, A Joint Venture is the selected Microtunnelling Sub Contractor for the Construction of the York Trunk Sewer & Paisley-Clythe Watermain in the City of Guelph. Drexler Construction Ltd. was awarded the York Trunk Sewer & Paisley-Clythe Watermain Contract 14-012 and they selected Dibco-CRS as their Microtunneling Sub Contractor. The Paisley-Clythe Watermain is a 600mm diameter sewer and watermain that will run east-west through the city, parallel to the York Trunk Sewer. Phase 1 of the project is approximately 2200 meters, the majority of which will be installed using open-cut techniques, except through Royal City Park where a 1200mm diameter concrete pipe will be installed using Microtunnelling Techniques for the Trunk Sewer. The Project is well underway and tunneling is to commence in October 2014.
palities. The survey identified the critical issues facing the industry. The Municipal Infrastructure Survey 2014/2015 has recently been released and a link included in the CATT website.

Volunteers to assist with the delivery of technical programs and the development of CATT are welcomed and needed. The Education Committee which is focused on providing learning opportunities about “Trenchless Activities” has recently issued a request for volunteers to serve on the committee as well as the Technical Committee’s request for volunteers to form a new specification subcommittee for the development of a new Ontario Provincial Standard Specification for watertight manhole cover systems. CATT current workshops include the Rehabilitation of Laterals and Water Services and Trenchless for Transit with planned workshops that include, CIPP Design & Construction and Quality Assurance and Horizontal Directional Drilling (HDD) Pipeline Construction Design and Quality Assurance.

Finally our AGM is planned for October 23, 2014 at the Mississauga Grand (Mississauga). Our key note speaker is a supervisor of Approvals and Licensing at the Ministry of the Environment and the evening will provide opportunities for networking. We hope to see you there.

Doug Onishi, Secretary, CATT Board of Directors

Research News

Innovative watermains rehabilitation technology will make the same-day return to service a reality. The Centre for Advancement of Trenchless Technologies and uWaterloo’s Wind Energy Group at the Mechanical and Mechatronics Engineering Department conducted successful field trials of the innovative Tomahawk System at the City of Waterloo on August 25 and 26, 2014. The objective was to collect data on critical parameters that impact the performance of the system. The data from field trials will help the research team to optimize the system’s performance and expedite the commercialization of the technology. This multi-disciplinary, prestigious project is funded by NSERC (Natural Sciences and Engineering Research Council of Canada), OCE (Ontario Centres of Excellence), and Envirolegics Engineering Inc. Other partners include Madison Chemical Industries Inc. and the City of Waterloo.

Municipalities, water utilities and service providers will have a standard defect coding and condition grading system for watermains. The main objective of this project is to create a framework and contents of a standard defect coding and condition rating system for potable water pipelines. The project research team comprising of CATT’s Drs. Younis and Knight, Battelle’s Dr. Matthews and Yeda Consultants’ Dr. Kleiner has made significant progress on the project objectives. This international project is funded by the Water Research Foundation, USA. About a dozen municipalities and water utilities, three main water pipelines’ condition assessment technology providers, and a strong technical advisory committee and resource team are advising the outcomes of the project.

Cured-in-Place-Pipe (CIPP) mechanical behaviour. High-performance composites have advanced the existing cured-in-place-pipe lining systems for trenchless rehabilitation of deteriorated water, wastewater, and industrial/ave pipelines. CATT is investigating both the short and long-term mechanical behaviour of nine new CIPP systems for watermains.

Next generation, innovative tools for water and wastewater buried infrastructure asset management. The buried infrastructure asset management research group is going strong with four PhD, one
MASc. and two post-docs working on different aspects of asset management. The research team has developed innovative tools and techniques for effective, efficient and sustainable management of water and wastewater networks. The collaborative research is supported by NSERC and cities of Waterloo and Niagara Falls. The City of London and the Region of Waterloo will join the existing research partners in the next phase of research starting in the Fall 2014.

CATT welcomes Dr. Jai Jung as a PDF (post-doctoral fellow). Dr. Jung, currently a PDF at Virginia Tech, will join CATT in October 2014. Dr. Jung earned his PhD from Cornell University with a main focus on soil-pipe interaction. Jai will assist and drive the CATT’s research project in the area of watermain cleaning and lining technology. He will also assist in the development of new research projects and programs.

Second Annual Canadian Municipal Buried Infrastructure Survey

Please take a few moments to fill out the Second Annual Canadian Municipal Buried Infrastructure Survey at https://www.surveymonkey.com/s/CATT_Survey2014. The survey will provide a broad-based summary of critical issues and market conditions of Canadian water, wastewater and storm water sectors. Your response will help to assess the short-term outlook of market activity in the municipal buried infrastructure field. The information will be useful for a variety of stakeholders — city engineers/managers, contractors, consultants, manufacturers and political decision makers — for market analysis and assessment.

The results of the First Canadian Municipal Buried Infrastructure are available at http://cattevents.ca/2014/09/05/2013-municipal-buried-infrastructure-survey/

CATT is pleased to announce the launch of the Canadian Trenchless Directory. The directory lists trenchless technology and service providers including contractors, consultants, suppliers and manufactures in various parts of Canada. For CATT’s Silver, Gold and Platinum members, there is no additional cost to be listed on the trenchless directory. For a limited time, non-CATT members can list themselves free of cost. For further information, please contact CATT.

Education: Asset Management of Buried Infrastructure

CATT is excited to partner with the Ontario Good Roads Association to offer the Asset Management of Buried Infrastructure Course from April 13 to 17, 2015 in Mississauga. The week-long course provides in-depth knowledge and hands-on exercises to establish an effective asset management program for water and wastewater conveyance systems. For further information please visit http://www.ograacademy.org/Courses.aspx or www.catt.ca

Save the date! The Trenchless Technology Road Show is coming to Western Canada! The BC Trenchless Technology Road Show 2015 will be held November 17-19, in Richmond, BC. More details coming soon.
Kingston, sometimes called the ‘Limestone City’ is one of Ontario’s oldest and proudest cities. The local sewer infrastructure has kept up with the times but Kingston’s Manager of Water & Wastewater Operations, Joe M. Lewis, says that they face the same inflow and infiltration challenges as any municipality. Ponding water, is one such problem. “We have an area right at the foot of Beverley Street where storms will cause ponding of several inches on top of three maintenance holes,” he says. “‘Lake Beverley’ can be in place for several hours, so we knew we had to do something.”

Standing water over maintenance holes is a problem; the pick holes found in most maintenance lids seem insignificant; in fact they’re a major source of unwanted inflow and can seriously impact treatment capacity. Studies in Moncton, NB showed that just two 25mm² holes in ONE lid covered by 50mm of water will let in about half a litre of water… per second. If standing water is as deep as 150mm—which is often the case for ‘Lake Beverley’—the rate of inflow doubles and allows 3.6m³ of water to flow into the sewer every hour.

Treatment capacity is closely monitored in Kingston, but as Lewis says, “Anytime we can save capacity, that’s a good thing; it can be utilized for development, and delays expansion.” Fortunately, Lewis found a way to batten down the hatches in Kingston—the city recently installed 14 watertight cover systems, on Beverley Street and elsewhere. The Lifespan System, made by Hamilton Kent, is a watertight frame and lid system that is easy to install and eliminates inflow and exflow through the top of maintenance holes. And Lewis says the new frames and lids have so many additional advantages that they may become the new standard in Kingston.

**Light & Watertight**

Lifespan System components are made of a rigid high-performance rubber that is extremely long lasting and lightweight—the frame for example, weighs just 25 kg compared to 90 kg for its cast-iron counterpart. This lightness and ease of installation, makes it possible to rehabilitate maintenance...
holes quickly. Hybrid Construction Group—Kingston’s contractor for the rehabilitation work—was able to replace ten of the original cast-iron frames and covers in just three days. The replacement process consists of excavation, removal of old concrete leveling rings and brick and cast-iron frame components, and replacement with Lifespan components, which are first dry-stacked for fit and slope adjustment, then marked and drilled before being joined with stainless steel bolts and butyl sealant. The result is a permanently watertight cover from the concrete chimney up. “Normally we could do several a day, and could probably do as many as ten per day in a concentrated area,” says Project Manager Tanner Wartman.

I&I reduction is Kingston’s primary reason for installing the new Lifespan Systems, but Lewis says, “We’ll install more of these, even in situations with no standing water.” Reasons he cites include:

- **Ergonomics.** “Lugging around heavy lids and grade rings is dangerous,” Lewis says. “Anything we can do to reduce strained muscles and pinched fingers is worth it for us.”

- **Adaptability.** “Lifespan’s tapered grade rings make it easy to exactly match road surfaces, which is a good thing given the amount of snowplowing we do here.” Lifespan components also do well in freeze/thaw regions because they don’t crack, and don’t allow water into joints.

- **Toughness.** Lifespan composite lids aren’t just watertight; they’re also very strong and bolted down. This has two advantages. First, Kingston has a few lids that routinely pop off in heavy storms, and bolted lids will stay put in these situations. And second, bolted down composite lids should discourage the ‘entrepreneurs’ who sometimes steal iron lids for the few dollars they bring at the recycling yard.

Watertightness is still the main advantage, and replacing just a few lids can cause a big reduction in I&I. “As a rule, 10% of the sanitary covers are responsible for 80%-90% of all the inflow that comes in through the top of maintenance holes,” says Hamilton Kent Business Development Manager Dan Leger. “Replacing these will make a huge difference in reducing I&I.”

Still, it’s good to know there are other advantages. The Lifespan system does cost more in terms of materials, but as Kingston has learned, they’re cost-effective in terms of the reduction of injuries, labour costs, thefts, asphalt repairs and naturally the elimination of the cost to unnecessarily convey and treat I&I. The Lifespan System pays for itself very quickly and proves to be the lowest cost solution overall.

Angus W. Stocking, Email: angusstocking@gmail.com
Feature Product - Chemical Grouting Test and Seal System

Chemical grouting of sewer main joints and service lateral connections is a proven process that can halt groundwater infiltration. Reducing the volume of sewage at municipal treatment plants can significantly lower facility operating costs.

The Chemical Grouting Test and Seal System, offered by Aries Industries, Inc., is the solution most often used by contractors and municipalities to achieve that goal.

Groundwater infiltration results in the unnecessary treatment of millions of gallons of diluted sewage every year. Leaking sewage can contaminate storm sewers and groundwater. Underground washouts can cause major surface failures, requiring expensive repairs. Chemical grouting is a cost-effective soil sealing process that has been used for decades. It can halt infiltration in mainline joints and eight feet up the lateral line, above the water table. A grout packer is towed down the main pipeline, with an Aries Pan & Tilt camera providing clear images to monitor and record the process. The operator, working at a control panel in the grout truck, inflates bladders in the packer to isolate the pipe connection. An air pressure test detects any failed joints, which are then sealed by pumped chemical grout that fills the void, flows through the joint leak, and into the surrounding soil. The grout and soil mixture forms a long-lasting, impenetrable barrier to stop infiltration.

The Aries Chemical Grouting System is a complete package with simple push-button operation that reduces test and seal time. Test data and the sealing process are easily viewed, recorded and logged. The grout truck features seventy-gallon mixing tanks and continuous-duty chemical mixers providing high volume to seal large diameter pipe. Reels for fast deployment and retrieval, with 800 feet of grout hose, and high-power winches to quickly move the packer, ensure high-production operation. For more information contact Aries Canada Ltd.: 877-730-7010 or visit www.ariesindustries.com.

Upcoming Events

October 15: Trenchless for Transit Workshop
October 23, CATT Annual General Meeting and Dinner: Re-interpreting AWWA C651 (Watermain Disinfection) for Ontario to Facilitate Same Day Return to Service
November 20, Ensuring Successful Horizontal Directional Drilling (HDD) Projects
November 25, Renewing Water and Wastewater Pipelines using Cured-In Place Pipe Linings (CIPP)
January 25: Cleaning, By-pass and Same Day Return to Service

Welcome New Members:
Platinum: Canada Pipe Company ULC (Platinum)
Silver: Hamilton Kent