



# NASTT's *Trenchless Today*

Educate - Train - Research - Publish



Winter 2015 | Volume 5 | Issue No. 1



## Leading the Way

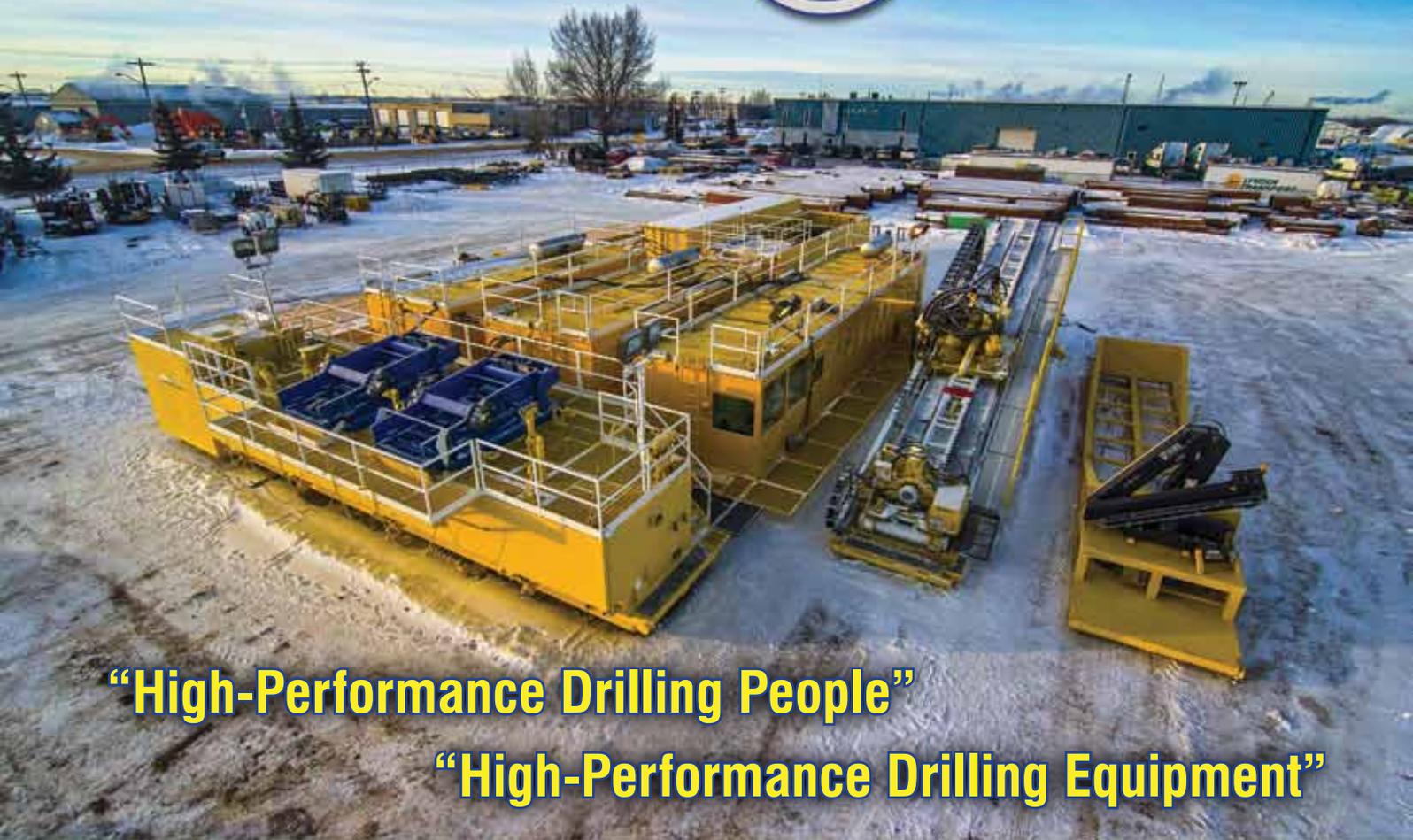
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## Honor the Past, Celebrate the Future

**A**s NASTT enters its 25th year, it is undoubtedly fitting to celebrate the commitment, loyalty and dedication of our many volunteers and sponsors. For a quarter of a century, their support has been both generous and steadfast. The marking of this significant Silver Anniversary offers NASTT both an opportunity to reflect on the proudest accomplishments of the past and upon what future opportunities are in store for our society.

NASTT was founded on the vision that there is a credible way to rehabilitate existing piping systems and an innovative way to install new infrastructure. For those of us who have witnessed the maturity and growth of the trenchless industry, there was an unmistakable “Wow Factor” that came with the introduction of new initiatives and the improvements to old ones. Who knew playing with pipes could be so exciting and so much fun?

The NASTT mission has always been

the same – to advance trenchless technology and to promote its many benefits. Our vision of being the premier resource for trenchless knowledge and education has clearly come into focus. The stature of NASTT can be attributed to many building blocks, such as the success and growth of the NASTT No-Dig Show, the impact of the non-commercial Good Practices Training Programs, or perhaps most importantly, the many hours of volunteer time donated by our educators, committee members and Board of Directors, both past and present. We have also had the good fortune of 25 years of inspiring leadership by 16 NASTT Chairs starting with Richard Thomasson in 1990 to present day with Dr. Kim Staheli.

In recent years, there has been a concerted effort to broaden the benefits of NASTT membership. This has been expressed with a very successful trenchless webinar program and our two scholarship programs supporting student educational costs and assisting

municipal employees who attend the NASTT No-Dig Show via complimentary accommodations. We also reached out via the internet with enhanced website services that are designed to deliver decades of complimentary trenchless information to the membership at just a click away. We also hope this publication is on target with our original idea of a magazine “about trenchless people and for trenchless people.”

The prospects for NASTT’s role in the coming years will be significant considering the escalating need for our communities to be more environmentally, economically and socially sustainable. NASTT can and will be a significant contributor in achieving these goals, as well as making a positive change in the way we live and how we manage our critical infrastructure.

Happy Birthday NASTT and here’s to 25 productive years!



Mike Willmets  
NASTT Executive Director

# OUT OF SIGHT, OUT OF MIND

## INFILTRATION IS OUT OF CONTROL

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# Exciting Developments on the Horizon for NASTT

## A Welcome from First-Year Chair Kim Staheli



**U**ndoubtedly, 2015 is going to be another amazing year for NASTT, and I'm extremely excited to begin my term as the Chair of our society. We have many great things in store for our membership in 2015 as we continue to provide the highest level of education and training available to the trenchless industry.

We've started the year off with several of NASTT's Good Practices Courses in locations throughout North America, and we're gearing up for NASTT's 2015 No-Dig Show in Denver, Colo., in March. We will also continue our complimentary trenchless webinar series this year, so stay tuned for details on how you can take advantage of this opportunity to learn from top industry experts from the comfort of your computer.

NASTT has an excellent team in place to serve as your 2015 Board of Directors. Our Board members consist of an industry cross section representing all segments of the trenchless community. I'd like to take this opportunity to introduce our 2015 Officers and welcome our newest Board members. Our Vice Chair position has been filled by Frank

Firsching, executive vice president and general manager for Underground Solutions, Inc. Taking the reigns as Treasurer is Kevin Nagle, national accounts manager at TT Technologies and Jennifer Glynn, senior infrastructure designer at RMC Water & Environment will continue her role as Secretary.

Our newest Board members are Michael Davison, product director at the Aqua-Pipe Division of Sanexen Environmental Services Inc.; Gerald Lundquist, director of gas and construction for New York for National Grid; and Ed Saxon, general manager for the Beaufort Jasper Water & Sewer Authority. There is no doubt these new Board members will be a great asset to our society.

I'd also like to recognize the Board members whose six-year terms have come to an end and thank them for their dedication and service to NASTT. Our outgoing Board members are Dave Krywiak of Stantec Consulting Ltd.; Jamie Hannam of Halifax Water; and Derek Potvin of Robinson Consultants Inc. Thank you all for your enthusiasm and expertise. Derek Potvin will continue as a trusted advisor to the Board, replacing George Ragula as the Imme-

diately Past Chair. Thank you, George, for your valued leadership and guidance over the years.

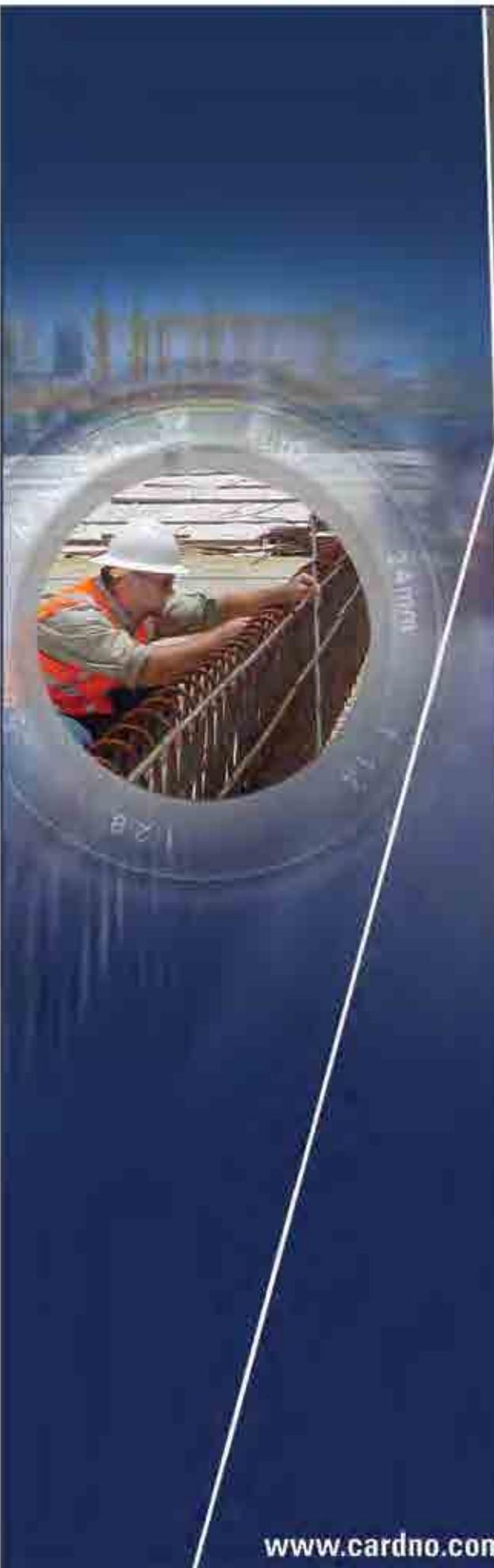
Lastly, I'd like to thank the 16 Board members who will continue their service on the board this year. You can read more about our Board of Directors in the pages that follow in this issue.

In 2015, we will continue with our many goals outlined in our Strategic Plan. A few of these goals include growing our membership so that we can spread the trenchless word even farther; developing and mentoring the next generation of trenchless advocates through cultivating and nurturing our Student Chapters; and growing NASTT's No-Dig Show by offering even more educational opportunities and targeted training to industry segments that are branching out into trenchless technologies.

I am honored by this tremendous opportunity to serve as your NASTT Chair and sincerely look forward to continuing to grow our society as we promote the many benefits of trenchless technology.



Kimberlie Staheli  
NASTT Chair



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## NASTT's Popular Webinar Program Continues to Grow in 2014



The stats are in, and I'm proud to announce that NASTT members and nonmembers have been very busy learning about trenchless technology through our webinar program. NASTT hosted three different complimentary webinars this past year focusing on NASTT's Carbon Calculator, CIPP and condition assessment. On average, more than 600 professionals attended these three events. The condition assessment webinar was our most popular topic, bringing in 926 listeners.

The attendee numbers for our webinar program continue to grow daily as more and more people are taking advantage of our archived webinars in our online education library. If you missed a live webinar last year, make sure you visit [nastt.org/webinars](http://nastt.org/webinars) to learn more about these hot trenchless topics. This program is a team effort, and it would not be possible without our volunteer instructors and moderators. Thank you to Hitesh Patadia, Kaleel Rahaim, Chris Macey, Kevin Bainbridge, John Matthews, Derek Potvin and Jeff Maier for your invaluable support.

Speaking of our amazing volunteers, I would once again like to start the year

off right by thanking our dedicated instructors who led last year's training events and special education opportunities. It is such an honor to work with these talented and kind individuals:

- **Edward Alan Ambler, P.E.**, City of Casselberry
- **Alan Atalah, Ph. D., P.E.**, Bowling Green State University
- **Sam Ariaratnam, Ph. D., P.E.**, P.Eng., Arizona State University
- **Frank A. Badinski**, Robinson Consultants Inc.
- **Kevin Bainbridge, P.Eng.**, Robinson Consultants Inc.
- **David Bennett, Ph. D., P.E.**, Bennett Trenchless Engineers
- **Glenn Boyce, Ph.D., P.E.**, Jacobs Associates
- **Craig Camp**, Hatch Mott MacDonald
- **Aaron Cohen**, Arizona State University
- **Don Del Nero, P.E.**, CH2M HILL
- **Dennis Doherty, P.E.**, Haley & Aldrich
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- **Jason Lueke, Ph.D., P.Eng.**, Associated Engineering
- **Chris Macey, P.Eng.**, AECOM
- **John Matthews, Ph. D.**, Battelle
- **Collins Orton**, TT Technologies
- **George Ragula, PSE&G**
- **Kaleel Rahaim**, Interplastic Corporation
- **Kamran Sarrami, P. Eng.**, Toronto Water
- **Kimberlie Staheli, Ph.D., P.E.**, Staheli Trenchless Consultants Inc.
- **Ray Sterling, Ph.D., P.E.**, Professor Emeritus at Louisiana Tech University
- **Dennis Walsh, P.E.**, Woodard & Curran

NASTT's training calendar is shaping up nicely for 2015. Please take a look at the schedule of upcoming events at [nastt.org/calendar](http://nastt.org/calendar) and make some plans to join us.



Michelle Hill  
NASTT Program Director

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## NASTT's Q&A with Dr. Tom Iseley

**After a 20-year absence, longtime trenchless advocate Dr. Tom Iseley has returned to his role as director of the Trenchless Technology Center at Louisiana Tech University, a program he helped establish in 1989. NASTT's Trenchless Today sat down with Dr. Iseley, who is also a founding director of NASTT and a past Trenchless Technology Person of the Year, to discuss his thoughts on the state of the industry.**

### How does it feel to be back at the Trenchless Technology Center (TTC)?

It is a real honor to be back at TTC. It is hard to believe 20 years have passed since I left to become a department chair at the Purdue School of Engineering & Technology at IUPUI (Indianapolis) in 1994. It has been impressive to see how TTC continued to expand on a national and international basis under the strong leadership of Dr. Ray Sterling. I am challenged every day to build on the foundation that has been built over the past 25 years. I am very fortunate to have an unbelievable leadership team to assist me. Dr. Shaurav Alam is the manager of our research operations. He has worked with TTC for almost eight years. Jadranka Simicevic is back to serve as the TTC assistant director. She was previously at TTC for 15 years. Fredda Wagner serves as our financial manager and has worked for TTC for more than five years. In addition, to this leadership team we have about seven research professors, five Ph.D. students and six master's and undergraduate students working with us.

### It's been a long time. Why did you decide to return after all these years?

During the 20 years that passed while I was away from TTC, I was blessed with many unique opportunities to work in academic research, industry re-

search and development with national and international firms, work as a consultant on many project throughout the world, etc. I had an opportunity to learn much about the needs of our trenchless technology industry and what I believe it will take to meet the challenges for our utilities. I am convinced that the leaders of this industry must embrace innovation, validation and education as we move forward. I returned because I have some specific goals that I want to pursue for our industry and I believe that the TTC, with its 25-year history of excellence, provides the best platform for me to continue to make contributions.

### Obviously the industry has progressed – in a good way – since your first stint with TTC. How is your role as director different now?

The industry has progressed greatly. It is hard to believe how dynamic and rapidly it has expanded. I am convinced that it will be even more dynamic and expand even more rapidly as we move forward.

Overall, my job is the same as it was 20 years ago. I'll be teaching courses in the civil engineering department, managing the operations of TTC and working with students to advance our NASTT chapter. On daily operational level, it has changed greatly. TTC has huge lab facilities, many projects and per-

sonnel that must be managed. TTC was formed as an industry/university cooperative research center. This structure was established by 12 industry leaders when the TTC Industry Advisory Board (IAB) was formed. This real strength and uniqueness of TTC is the continued commitment of the IAB membership. These firms make a major financial commitment to serve on the IAB. The IAB membership requires an annual contribution of \$10,000. It has been exciting to see three new IAB members join during the past five months. A major responsibility I have is to work with this powerful resource of industry leadership to advance the underground infrastructure industry.

### You've been involved in the field of underground infrastructure systems for more than 35 years now. What do you see as the biggest challenge facing the trenchless industry today?

I believe the biggest challenge for the industry is still the same as it was 25 years ago when TTC was formed, which was before NASTT and Trenchless Technology magazine. This challenge involves increasing the awareness of the importance of our underground infrastructure and the severe consequences of continued neglect. Many advances have been made, and it has been impressive to see the impact NASTT has made.

We must continue to strive to reach the senior management and political decision makers with our message. We must continue to strive to reach students. We need the best of the best to get excited about trenchless technology. I was so pleased to see more than 40 students at our last NASTT student chapter meeting at Louisiana Tech. It was wonderful to have Bernie Krzys and John Matthews as our speakers. Other challenges include how we as an industry can continue to inspire innovation, validation and education.

**Let's talk CTAM.** The Certificate of Training in Asset Management program has been administered for four years now and has been successful. Is there a growing interest for water professionals to become a 'Professional Water Asset Manager?'

The CTAM program is very unique and has experienced extraordinary success. It is unique because it got started from my experience working with Commissioner Ravan in Atlanta's Department of Watershed Management. Commissioner Ravan was responsible for developing a program to achieve former Mayor Shirley Franklin's vision of Atlanta's water program moving to first-in-class. It was determined that the only way to move from the current status and meet the demands associated with a \$4 billion consent decree was through the development and application of the principles and practices of comprehensive asset management. This led to the formation of the Buried Asset Management Institute-International (BAMI-I) in 2003. BAMI-I became a 501 (c) 3, non-profit organization in 2004 and was selected for an EPA cooperative Agreement Grant in 2006. This grant program was completed in 2008. The BAMI-I leadership felt strongly that it would be a shame to allow the lessons learned through this EPA program to end with another report sitting on a shelf somewhere.

Working with industry volunteers through BAMI-I, the first CTAM course was launched in 2010. The second course was launched in 2013. These two courses now have almost 500 individuals who have enrolled from 13 countries, and the number is growing every day. One of the unique features of CTAM is that the courses are developed by the industry with assistance from academicians for the industry. Another unique feature is the commitment to make it useable by the small and medium utilities as well as the largest utilities. The target market for CTAM is the decision makers at the middle and upper management levels.

**I'm always proud to say that my father and grandfather were water and sewer contractors. I guess my grandmother was correct when she would say "It's in my blood." I often wish they could see what has transpired in my lifetime. The exciting thing is that it's not over. There is a renewed inspiration driving innovation in every aspect of our industry.**

**Can you explain how CTAM works and how one goes about entering the program?**

The CTAM program grew out of demands from those involved in this unique educational experience. It started out as just one course, but the students demanded more. They requested more detailed instruction on how to develop a buried asset management plan (AMP), and more on how to implement the AMP on a daily basis, and more on how to finance the AMP. These requests have resulted in the following sequence of courses:

- CTAM 100 – Overview of Asset Management (Open)
- CTAM 200 – Developing an Asset Management Program (Open)
- CTAM 300 – Managing an Asset Management Program (Available April 1, 2015)
- CTAM 400 – Funding and Asset Management Program (Available April 1, 2015)

After an individual has completed all four courses, he/she can apply to the BAMI-I CTAM Certification Board for certification as an Associate Water Asset Manager (AWAM). After four years of experience in areas related to water asset management, individuals can apply to the BAMI-I Board for certification at the Professional Water Asset Management (PWAM) level. Getting started is simple and the courses are all online. Just visit [conference.com/Benjamin/CTAM/CTAM\\_Home.html](http://conference.com/Benjamin/CTAM/CTAM_Home.html).

**How big of a role do you feel asset management will play in helping utilities operate and manage their infrastructure systems?**

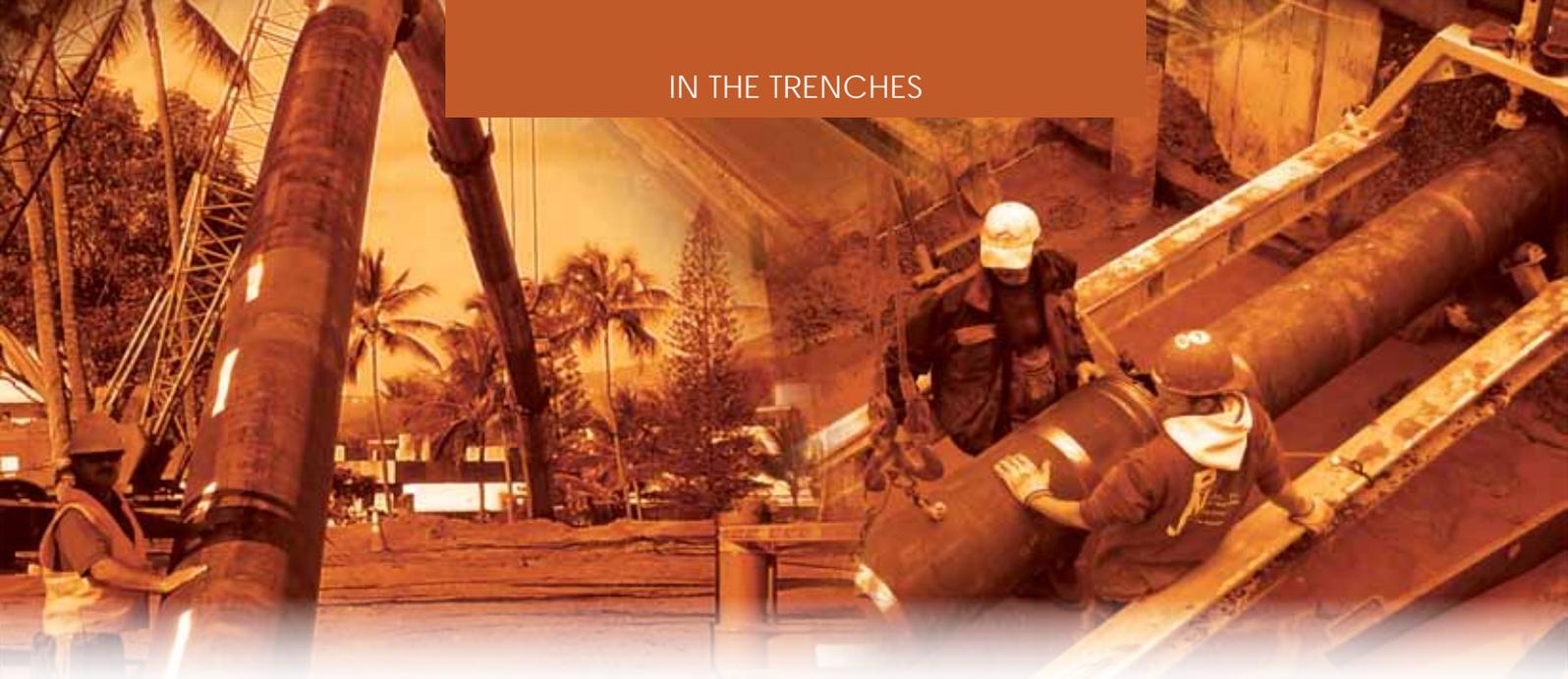
I believe developing and implementing asset management programs is essential in meeting the future challenges of our utilities. You can have great pipeline condition assessment data and the greatest technical solutions, but without an effective asset management program to ensure that best business practices are being applied, the most appropriate solutions will probably not be selected to solve the most critical problems at the best cost.

**We heard you spoke at a trenchless technology seminar in Hong Kong last year. Can you give us a sense of the overall acceptance of trenchless methods outside of North America?**

Within the past few months, I participated in three workshops in Iran as well as workshops and conferences in Hong Kong, China, Singapore, Malaysia and Indonesia. The interest outside the United States in trenchless is huge and growing rapidly. The overall development in Iran and Asia is great. They seem to understand the need for technical solutions which minimize disruption and destruction to society and the environment. I was not only impressed with the level of interest in trenchless but also the commitment to quality. The microtunneling project and utility tunneling project that I visited in Tehran, Iran were two of the most impressive projects that I have visited. I am pleased that TTC will be a partner with organizations seeking to move their technologies to international markets. We have done a lot of this.

**What do you see for the future of underground infrastructure construction?**

I'm always proud to say that my father and grandfather were water and sewer contractors working mostly in the Carolinas. I guess my grandmother was correct when she would say "It's in my blood." I often wish they could see what has transpired in my lifetime. The exciting thing is that it's not over. There is a renewed inspiration driving innovation in every aspect of our industry. As I tell my students, underground infrastructure construction offers a career where we are limited by our imagination. It consists of the most advanced material science where composite materials are being developed. It consists of the most advanced robotics, remote sensing and automation. The list can go on.



## In the Trenches

By Andrew Farr

**T**o kick off the year with our Winter issue in 2015, we spoke to three members of the Society who truly embody what NASTT is all about – passion for trenchless technology. One, a municipal engineer whose passion for construction is as strong as his passion for music, has found continuing participation in the association thanks to a landmark project. The other two have already been recognized by their “Young Trenchless Achievements,” and we hope you’ll enjoy reading more about their unique paths into the trenchless market.

### Alan Ambler City of Casselberry



You wouldn’t think many civil engineers who spend their days working with water and sewer systems also play lead guitar in a rock band. This one does.

When Alan Ambler decided he didn’t need to go to college to accomplish any of his ambitions in music, his father recommended engineering was a good direction.

“I’ve been a musician a lot longer than an engineer,” Ambler says. “I started in college as a music major but I couldn’t see my-

self being a band director. My father said ‘why don’t you take engineering classes – they won’t hurt.’”

They didn’t, and over the course of his career, Ambler has found a way to enjoy his passion for music while succeeding in his professional career where his job as a municipal engineer has led him to become active within the trenchless industry.

Ambler is the water resources manager for the City of Casselberry, Fla., where he has worked for six years, responsible for day-to-day operations for the city’s water, wastewater and reclaimed water system. The only professional engineer responsible for the utility division of Casselberry, Ambler oversees capital improvement planning and design, utility rate studies, project management and construction.

Before joining the City of Casselberry, Ambler held various positions in civil and environmental engineering capacities ranging from roadway drainage design and utility coordination for large highway projects to construction management work for cruise ship berths in Ketchikan, Alaska and development planning for the World Islands in Dubai. Since working for Casselberry, Ambler has been involved with a variety of projects for maintaining the city’s water and sewer systems as well as managing water and wastewater treatment facilities.

On the trenchless side, the City of Cassel-

berry was involved in an asbestos cement pipe bursting project for which Ambler helped coordinate in-house design. The city initially anticipated about \$3 million dollars in grants and loans for the project, but ended up receiving \$10.5 million from the Florida DEP’s state revolving loan fund. The project involved pipe bursting of 35 miles of asbestos cement pipelines – the largest project of its kind in the United States.

“We’ve done CIPP projects for gravity sewers and horizontal directional drilling as well, but not many projects as notable as the asbestos cement pipe bursting,” Ambler says.

The project has led to Ambler’s continued involvement in NASTT beginning with a paper he co-authored on the project with Dr. Bill Thomas of Killebrew, Inc., which he presented at the 2013 No-Dig Show in Sacramento. Ambler was also a member of the program committee, as well as a moderator and session leader for the 2014 No-Dig Show in Orlando.

“I’m a firm believer in using trenchless technologies,” he says. “The network contacts I’ve gotten through NASTT have been extremely helpful. I frequently give webinars on pipe bursting of asbestos cement pipe and there are lots of other incredible resources available. So if I have any questions about trenchless technologies in general, I don’t have to go too far to be able to find some of the best experts, and they are



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very willing to help out. I'm hoping to do the same with my participation in NASTT.

"Most of our focus [in Casselberry] from a capital improvement standpoint is rehabilitation of the existing pipe network and plants that exist. The more we can stretch resources by using trenchless technologies or other intelligent methods, the more we can repair the infrastructure."

When Ambler isn't at work, he can usually be found spending time with his family and performing with his band, The Honeyslides. Ambler plays lead, rhythm and slide guitar for the band which just released its first album in December 2014 entitled "Get In" – all original music. The band's sound is a fusion of rock, blues and funk with Joe Cocker-style lead vocals. The Honeyslides perform frequently at various venues in the greater Orlando area. Ambler has also recorded original music with his other band, Union Made, and has been playing since he was 11 years old.

## Abhinav Huli Haley & Aldrich



Abhinav Huli put himself in the right place at the right time when he punched his ticket into the world of trenchless technology.

About five years ago, Huli was in the process of completing his master's degree from the University of Texas at Arlington, where he was studying under Dr. Mohammad Najafi. Huli was involved in UTA's NASTT student chapter, which was holding a paper competition for which the winner would receive a full registration to the national No-Dig Show in 2010. Huli's paper was chosen and he headed to Chicago for his first-ever No-Dig Show.

"I was just walking around the exhibit hall trying to meet people and grab as much information as I could since I was working on my master's report," he says. "At that point, I happened to meet Dennis Doherty with Haley & Aldrich. We were just talking about the industry in general, nothing technical."

Huli made an impression because 15 days later, he says, Haley & Aldrich invited him to interview at the company's

Boston and Manchester, N.H. offices. Following those interviews, Haley & Aldrich contacted him offering him a job.

"I was still working on my degree, so at first I said maybe I'll join as an intern," he says. "But they convinced me it would be worthwhile, and I knew Haley & Aldrich is a really good company to work for. They have a reputation for deep understanding of ground behavior that they apply to trenchless projects."

Huli began working for the firm in July 2010, while continuing his master's program, which he completed in December of that year.

Huli says trenchless construction first caught his attention when he learned of the unique niche methods and techniques involved, which is quite different from open cut.

"I saw a lot of open cut construction and thought, there's got to be a better way to do things," he says. "I got my undergraduate degree in civil and transportation engineering in India. Once I got that, I saw a lot of open cut construction and did my research on [other methods]. That's when I got interested in trenchless."

"I really didn't know much about NASTT. But when I came in, I was really wowed by the people [in the industry] and that's when it really piqued my interest to the point where I decided to make a career out of it."

At the beginning of his career, Huli focused on the technical design and calculation of various design parameters for trenchless projects. Today, his work with Haley & Aldrich includes project engineering, forensic and litigation support, feasibility studies, on-site construction monitoring and preparation of contract documents. Much of his work is for private sector energy companies.

One of his first projects involved five HDD drills with a combined length of approximately 28,000 ft, much of which was below marine marshlands and ecologically sensitive oyster beds. Three consecutive drills, each over 7,500 ft long, were drilled below the marshlands and oyster beds using strategically located drilling platforms for HDD entry and exit, and splicing of the electric cable.

Over the last few years he has presented papers at No-Dig on intersect methods for HDD and accuracy and predictability of

design parameters. At the upcoming No-Dig Show in Denver, he will be presenting a paper on due diligence before designing HDD projects through rock.

At last year's No-Dig Show in Orlando, Huli was awarded the Trent Ralston Award for Young Trenchless Achievement.

"For somebody who wasn't involved in trenchless about six years ago, it's interesting to me to look at [the industry] and see that it's a relatively young field compared to other civil engineering practices," he says. "I was actually able to see people who created these techniques and methods. I think it was in Sacramento in 2013 at the Legends of HDD panel, where I had a chance to meet a lot of those folks and talk to them. That's really inspirational and really great for young engineers like me who don't have 10, 20-plus years of experience."



Frank Firsching presents the Trent Ralston Award for Young Trenchless Achievement to Laura Wetter (left) and Abhinav Huli (right) at NASTT's 2014 No-Dig Show in Orlando.

## Laura Wetter Staheli Trenchless Consultants



Geotechnical conditions are a significant consideration when working with underground construction techniques, and perhaps no one understands that as much as Laura Wetter, who came into the trenchless industry when an engineering firm saw the value in her expertise.

Wetter has a bachelor's and master's degree in geology, the latter of which is specifically in geophysics, which she obtained from the University of California, Davis. After graduating, Wetter says one of the career paths she was interested in was engi-

neering geology. While looking for a job in the Seattle area, a mutual friend who knew Kim Staheli of Staheli Trenchless Consultants, set up a meeting between the two, thinking Staheli could make some recommendations.

It turns out Kim Staheli did one better and offered Wetter a job after being so impressed with her knowledge of geology and its importance in engineering for trenchless construction.

"I think from our conversation, and I think she would agree, Kim felt that having a geologist as part of a primarily engineering staff gives a valuable perspective to what we do in terms of the geotechnical engineering and the determination of risk that's specifically associated with trenchless applications through different soils and rock," she says.

Since joining Staheli Trenchless Consultants in 2007, Wetter's job has consisted of performing feasibility studies, geotechnical analysis, risk assessments and project design for a myriad of trenchless methods. She works to reduce trenchless risk on projects through comprehensive constructability reviews, proactive plans and specifications, as well as on-site specialty

construction inspection.

As detailed as it sounds, Wetter says before her initial meeting with Kim Staheli, she had some experience with observing geotechnical conditions as they relate to drilling, but nothing specifically related to HDD or other trenchless methods.

"I was very interested in the application of getting this information and looking at the soil and seeing what it can tell us about feasibility for construction," she says. "So the way I'm able to use my geologic expertise is by looking at different soil types, looking at boring logs and the regional geologic history and applying what we know about engineering properties and trenchless risks so that we end up with a project where we're doing the best we can to mitigate those risks through proactive design."

Wetter's introduction to NASTT began through Staheli Trenchless' association with the Northwest Chapter, which eventually split to also form the Pacific Northwest Chapter. When the PNW Chapter formed, Wetter became involved as a member of the board, as well as assisting with the planning of its biennial Trenchless Symposium. She served as Chair of the Pacific Northwest Chapter from 2010

to 2011 and also became the editor-in-chief of the *Pacific Northwest Trenchless Review*, the Chapter's annual publication that recently released its fifth edition.

Wetter has attended the national No-Dig show regularly since 2007 and has been a session leader and member of the Program Committee since 2012.

Last year, she was a recipient of the Trent Ralston Award for Young Trenchless Achievement for excellence in the early stages of her career and contributions to the trenchless technology industry.

"That was a very happy surprise for me," she says. "I hadn't known that I was being considered and I was very pleased to get the award. It's always great to have the recognition of your peers."

"I've been very happy to work with NASTT. I think spreading outreach and education about trenchless construction and trenchless technology is really valuable. I've always enjoyed going to No-Dig and seeing other people breaking into this field and making new discoveries that further advance our industry."

**Andrew Farr is the associate editor of NASTT's Trenchless Today.**

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# Mile High Trenchless

The North American Trenchless Industry Heads to Denver for Annual Gathering

By Andrew Farr

The trenchless technology community will head to the Rockies March 15-19, for NASTT's 2015 No-Dig Show, where public works officials, engineers, contractors, academicians and manufacturers will gather to learn about the latest trenchless innovations in the underground construction industry.

Owned by the North American Society for Trenchless Technology (NASTT), this annual event draws trenchless professionals from around the world to the

largest and only conference and trade-show in North America dedicated solely to the promotion of trenchless technology. Through exhibits, educational seminars and fun networking events, NASTT's No-Dig Show is a must-attend event for the trenchless professional.

The trenchless industry continues to grow and reach more engineers, contractors and municipalities each year. In 2014, nearly 150 exhibitors and more than 1,800 attendees filled the Gaylord Palms Con-

vention Center in Orlando, making it the best-attended No-Dig Show to be held in the United States to date. This March, trenchless professionals will make their way to the Colorado Convention Center where this year's conference organizers hope to capitalize on the recent momentum with a strong 2015 show. In the meantime, let's explore some of the highlights that continue to make NASTT's No-Dig Show the most comprehensive trenchless program on the calendar.

## Technical Paper Program

Along with the jam-packed exhibit hall, NASTT's No-Dig Show technical paper program is an important part of the show's success and stature — the true heart and soul of the conference. This year will bring more than 150 peer-reviewed technical papers to be presented, focusing on a diverse range of trenchless topics, including horizontal directional drilling (HDD), cured-in-place pipe (CIPP), microtunneling, case histories, asset management, pipe jacking and ramming, water and

sewer rehabilitation, project planning, condition assessment and trenchless research.

Attendees can choose among what peer-reviewed paper presentations they want to see. The papers are evaluated based on relevance, usefulness and non-commercialism. NASTT's No-Dig Show papers are presented in a six-track schedule and are grouped mostly by subject matter so attendees can choose to attend six paper presentations at any given time.

## Educational Tracks

Pre- and post-conference seminars are also on the schedule for attendees at an additional cost. On Sunday, March 15, NASTT's Trenchless Technology Short Courses on New Construction and Rehabilitation will be held. The courses are ideally suited for both newcomers to the industry and for anyone who is interested in seeking a refresher course on trenchless technology methods.

Slated for March 18-19 are several informative courses presented by NASTT: Cured-in-Place Pipe Good Practices Course; Sewer Laterals Rehabilitation & Replacement Good Practices Course; Horizontal Directional Drilling Good Practices Guidelines Course; Pipe Bursting Good Practices Course; and New Installation Methods Good Practices.

Following on the success of the special Legends of HDD and CIPP Forum technical tracks of the last two years, one of the much anticipated technical tracks at NASTT's 2015 No-Dig Show will be the Pipe Bursting Forum, which will be held Tuesday, March 17 at 10:20 a.m. The Pipe Bursting Forum will bring several industry experts together in a panel format to talk about the history of pipe bursting while sharing their experiences and viewpoints on current applications, materials and future potential of the pipe bursting market. The panel will be moderated by 2015 No-Dig Show Program Chair Richard

(Bo) Botteicher of Underground Solutions Inc. The pipe bursting panelists will include Chris Brahler, TT Technologies, Inc.; Ricardo Lopez, Lopez Utilities; Brian Metcalf, Hammerhead Trenchless Equipment; Mike Queen, Consolidated Mutual Water Company; and Mike Woodcock, Portland Utilities.



Also new this year at the 2015 No-Dig Show will be a full day of networking and educational tracks devoted entirely to the gas industry on Wednesday, March 18. CEUs and PDHs will be available.

Although NASTT's No-Dig Show is the conduit to promote and advance the trenchless marketplace through education and exhibits, there's also the social aspect of the conference that fosters networking opportunities for attendees, as well as just some fun and good times.



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## Networking Events

The conference gets underway with its annual kick-off breakfast from 7:30-9:15 a.m. on Monday, March 16. During this event, the formal presentation of the 2015 *Trenchless Technology* Person of the Year will be made. The winners, runners up and honorable mentions for the 2014 *Trenchless Technology* Projects of the Year for Rehabilitation and New Installation will also be formally recognized, as well as NASTT's 2014 Outstanding Papers in Rehabilitation and New Installation. After the awards, attendees can relax and enjoy entertainment by Craig Karges, an award-winning entertainer, nationally-recognized speaker and author.

NASTT's 14th annual Educational Fund Auction & Reception will kick off the networking on Monday night. The fundraiser is the perfect opportunity for attendees to mingle and relax, as well as bid on items for an excellent cause — NASTT's Educational Fund, which supports student chapters, target research, training modules and other student activities. Since 2001, this auction has raised more than \$750,000. Fitting for our host city of Denver, this year's auction and reception is the Totally Rad Slopes 1980s ski theme. So be sure to deck yourself out in your best day-glow neon, leg warmers and puffy jackets for an event that's sure to be a totally awesome time for all!

On Tuesday, March 17, NASTT will host its annual Gala Awards Dinner – arguably the most popular event at the No-Dig Show when the trenchless community gathers for a night of fun, food and dancing. The Gala is highlighted by an awards presentation culminating this year in the induction of NASTT's fourth Hall of Fame class:

- The late David Magill, Jr. (1943-2014), Avanti International's first president and a leader in the chemical grouting industry;
- Ron Halderman, a leading figure in the horizontal directional drilling (HDD) industry; and
- Kaleel Rahaim, Interplastic Corp. business manager and cured-in-place pipe (CIPP) expert.

This new Hall of Fame class will join an already elite group of industry pioneers who helped pave the way for the current generation of trenchless professionals. To learn more about these accomplished individuals, turn to page 30 of this issue for more information on NASTT's 2015 Hall of Fame and this year's ceremony.

To close out NASTT's 2015 No-Dig Show is the annual closing luncheon and keynote address on Wednesday, March 18. Here, attendees can enjoy lunch, entertainment and say goodbye to their trenchless peers before heading home. As always, we will also look ahead to next year when NASTT heads to the Lone Star State for the 2016 No-Dig Show in Dallas. The lunch will close with Tim Gard, a highly regarded motivational speaker and corporate entertainer who has brought tears of laughter to audiences worldwide. More than just a funny guy, Tim is a recognized expert on stress reduction and conflict resolution and teaches people to be more resilient and resourceful using their own comedic style.

For more information about NASTT's 2015 No-Dig Show, visit [nodigshow.com](http://nodigshow.com) or contact NASTT at 216-570-8711.

Andrew Farr is associate editor of *NASTT's Trenchless Today*.

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## Thank you!



NASTT would like to acknowledge Greg Penza of ULC Robotics, who won the 2014 Caribbean Vacation Raffle. Greg received a \$5,000 voucher to plan a dream vacation, but instead he generously donated the \$5,000 back to NASTT's Educational Fund. Thank you, Greg!

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NASTT's 2016 No-Dig Show  
**Call for Abstracts**

**Submission Deadline:** June 30, 2015

The North American Society for Trenchless Technology (NASTT) is now accepting abstracts for its 2016 No-Dig Show in Dallas, Texas. The conference will take place at the Gaylord Texan on March 20-24, 2016.

Prospective authors are invited to submit a 250-word abstract outlining the scope of their paper and the principal points of benefit to the trenchless industry. The abstracts must be submitted electronically at NASTT's website by June 30, 2015: [nastt.org/abstractsubmission](http://nastt.org/abstractsubmission).

**Questions? Please contact:**

Michelle Hill  
NASTT Program Director  
E: [mhill@nastt.org](mailto:mhill@nastt.org)  
P: 440-638-4676

The 2016 No-Dig Show is owned by the North American Society for Trenchless Technology (NASTT), a not-for-profit educational and technical society established in 1990 to promote trenchless technology for the public benefit. For more information about NASTT, visit our website at [www.nastt.org](http://www.nastt.org).



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# NASTT'S 2015 OFFICERS & BOARD OF DIRECTORS



LEADING NORTH AMERICA'S LARGEST  
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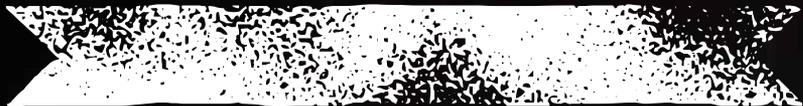
*NASTT's Board of Directors coordinates the activities and events of the organization on behalf of the membership. The Board is made up of 20 directors from across the United States and Canada who are elected by the society's members. The Board of Directors' election is held each fall, and this year, the Board said goodbye to three long-time members - Dave Krywiak, Jamie Hannam and George Ragula. NASTT thanks these outstanding professionals for their contributions to the Board and looks forward to continuing to work with them in other facets of the society. At the same time, NASTT is very excited to welcome Michael Davison, Gerry Lundquist and Ed Saxon to the Board. The following introductions offer a glimpse at NASTT's full leadership team heading into 2015.*



NASTT'S 2015 BOARD MEMBERS



# NASTT'S 2015 OFFICERS



*Chair*

## KIMBERLIE STAHELI, PH.D., P.E.

Kimberlie Staheli is president and founder of Staheli Trenchless Consultants in Seattle, Wash., a trenchless engineering consulting firm specializing in the design and construction management of all types of high risk trenchless projects for more than 20 years.

Kim has a B.S. in Mechanical Engineering from Rensselaer Polytechnic Institute, a M.S. in Civil Engineering from Mississippi State University and a Ph.D. in Geotechnical Engineering from Georgia Institute of Technology. She is a Registered Professional Engineer in Washington, Oregon, California, Colorado, Ohio and Florida.

Kim has specialized in trenchless design and construction working for contractors, performing trenchless research and working as a consultant. She is particularly interested in minimizing the risks of installation techniques including microtunneling, directional drilling, pipe ramming, auger boring and large diameter tunneling. Kim has focused on risk reduction through the development of geotechnical baseline re-

ports as well as pro-active construction risk management. She has vast experience in trenchless forensics and post construction claims analysis and provides expert testimony.



*Vice Chair*

## FRANK FIRSCHING

Frank Firsching is executive vice president and general manager of Underground Solutions (UGSI). Prior to his current role, he served as executive vice president of sales for UGSI. Before joining UGSI in 2006, Frank worked for USFilter Corp. as president of the \$1 billion Water and Wastewater Systems Group with responsibility for USFilter's global process equipment and technology divisions. Frank also held the positions of executive vice president of the Process Water Group, west regional manager and general manager during his 13 years at USFilter. Prior to joining USFilter, he worked at Deloitte & Touch Management Consulting and at GE Corp. He received an MBA at the Wharton School Business and a B.S. in Mechanical Engineering from the University of Virginia.



*Secretary*

## JENNIFER GLYNN, P.E.

Jennifer Glynn, P.E., is a senior infrastructure designer for RMC Water and Environment in its Walnut Creek, Calif., office. She earned her B.S. in Civil Engineering from the University of New Hampshire and then headed west to California. Jennifer has nearly 20 years of experience in municipal infrastructure planning, permitting, design and construction management with an emphasis on pipeline design and the use of trenchless technology. She has published and presented papers on projects she designed using trenchless technology at conferences all over the country.

Jennifer has been a member of NASTT's No-Dig Show Program Committee for the past seven years and is one of the founding members of the Western Chapter (WESTT). She currently serves as Past Chair of WESTT and is a volunteer NASTT Pipe Bursting Good Practices Course and Introduction to Trenchless Technology instructor. Jennifer is also a member of AWWA's Water Pipeline Rehabilitation Committee and a past vice president of the Northern California Pipe User's Group (PUG).



*Treasurer*

## KEVIN NAGLE

Kevin Nagle is a civil engineering graduate from the University of Illinois, earning his B.S. in Civil Engineering in 1997. He worked for six years as a design engineer for a structural engineering firm before moving on to work for TT Technologies in Aurora, Ill., a manufacturer of a wide range of trenchless tools and equipment. As part of the TT team, Kevin works in and out of the office in an effort to grow the trenchless market through education, training and marketing. He has worked at an industry level to help move the

trenchless industry forward through organizations such as NASTT (No-Dig Show Program Committee), the Midwest Society of Trenchless Technology (board member), International Pipe Bursting Association (member of Marketing Committee) and UCA (member of the Construction Materials Methods and Specifications Committee). Kevin has gained firsthand trenchless field experience in the pipe bursting, pipe ramming, horizontal directional drilling and horizontal boring processes.

## DEREK POTVIN, P.ENG.

Derek Potvin, P.Eng., is president of the multidisciplinary engineering firm, Robinson Consultants Inc. He obtained his Bachelor of Applied Sciences with a minor in business administration from the University of Ottawa. Derek has been providing trenchless rehabilitation solutions to his clients for more than 20 years, including a trenchless technology project that won a Canadian Consulting



*Immediate Past Chair*

Engineering Award.

Derek is actively involved with NASTT's No-Dig Show where he has authored many papers including a paper that won an award for Outstanding Paper, and for several years, he has been an instructor of NASTT's Introduction to Trenchless Technology Short Course (sewer and water main trenchless rehabilitation). Derek has also been involved as an organizer and instructor of NASTT's Good Practices Courses and regional trenchless conferences, such as the Trenchless Road Show. Derek is the treasurer for the Great Lakes, St. Lawrence & Atlantic Chapter (GLSLA) of NASTT.



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# NASTT'S 2015 BOARD OF DIRECTORS



## EREZ ALLOUCHE, PH.D., P.ENG.



Dr. Erez Allouche is the trenchless technology leader for the Tunneling and Trenchless Technology Practice at Stantec, specializing in the

condition assessment and rehabilitation of large diameter pipes, as well as the design of complex HDD crossings. Prior to joining Stantec, he was an associate professor of Civil Engineering at Louisiana Tech University, the Director of the Trenchless Technology Center and the holder of the T.L. James Eminent Scholar Chair in Civil Engineering.

For the past 15 years, Allouche served as the PI and Co-PI of research projects in buried infrastructure totaling more than \$14 million. He supervised 50 graduate students in this field, many of whom are practicing professionals or educators in the fields of municipal engineering or construction management. Allouche is the inventor or co-inventor of 17 patents in the area of trenchless technology and the author or co-author of more than 260 publications in

the fields of buried infrastructure management and trenchless techniques, including 64 peer-reviewed journal papers. He is also the co-founder of two start-up companies based in Ruston, La. He is also an associate editor of the ASCE Journal of Pipeline Systems.

## MICHAEL DAVISON, P.ENG.



Michael Davison, P.Eng., is product director for the Aqua-Pipe division at Sanexen Environmental Services Inc. in Montreal, Canada. Since

2002, he has been involved in the design and manufacturing of the Aqua-Pipe product, the creation and maintenance of installation operation procedures, training of operators and licensees, development of QA/QC procedures, planning and management of the largest Aqua-Pipe projects to date and improvements through research and development. Mike is currently the lead for all technical aspects within the Aqua-Pipe team.

A graduate of McGill University in civil engineering, Mike is an active member of the NASTT No-Dig

Show Program Committee and is a technical session leader. He is also involved in ASTM International standard committees and is the Chair of the AWWA standards and M28 CIPP subcommittees. Mike is a member of ASCE and also works locally to improve the trenchless industry with the Bureau de Normalisation du Québec (BNQ). Outside of the office, Mike is an avid hockey player, coach and fan.

## DON DEL NERO, P.E., C.D.T



Don Del Nero has more than 25 years of experience including planning, studies, design and construction management in the areas of tunnel and

trenchless engineering. Don obtained his master's in geotechnical engineering from Syracuse University and his bachelor's in civil engineering from Clarkson University. His project experience covers more than 60 projects and over 50 miles of tunnel and trenchless installations worth more than \$1.7 billion in construction value. He

has been involved in a variety of trenchless technologies for sanitary sewer, storm sewer, raw water, finished water, and recycled water, SSO and CSO wastewater tunnels, highway tunnels, pedestrian tunnels, caverns, raw water intake tunnels, raw water tunnels and large diameter piping in sensitive areas.

Don is a member of and/or involved in the Dispute Review Board Foundation, the Underground Construction Association of the Society for Mining, Metallurgy and Exploration, Tunneling Association of Canada and the British Tunneling Society. He has been very active on NASTT's No-Dig Show Program Committee for several years and has written several articles for *Trenchless Technology* magazine.

## TONY HRANICKA, P.E.



Tony Hranicka recently joined the Gas Technology Institute as a senior engineer in the Delivery Sector. Prior to that, he was project manager responsible for evaluating and implementing new technologies that increase the efficiency and effectiveness for Gas Operations within the Con Edison service territory within and around New York

City. Tony has spent the last 12 years committed to gas main and service rehabilitation, and in certain cases, water main rehabilitation, all by trenchless construction.

Tony has a very diverse background in gas distribution engineering and operations during his 33-year career in the utility industry. He has been a member of the American Society of Mechanical Engineers since college and has held a professional engineering license in New York State since 1989. Tony is the recipient of the American Gas Association 2007 Gas Industry Research Award for commercialization of the CISBOT program (Cast Iron Joint Sealing live robotic system). He received his bachelor's in mechanical engineering from Manhattan College in 1980. He also completed a master's in engineering from Manhattan College 1985 and a second from the New York Institute of Technology in 1997.

## LARRY KIEST, JR.



Larry Kiest Jr. is an innovator, inventor and entrepreneur who has worked in the underground and trenchless utility industry for more than 30 years. Larry started his career as a Licensed Master Plumber in Ottawa, Ill., in the early 1980s, and in 1993, founded LMK Technologies.

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Throughout his career, Larry has grown as an internationally respected leader and speaker in the trenchless industry and holds 117 patents issued throughout North America, Europe and Australia for the innovative solutions and products he has developed. He is personally responsible for the issuance of ASTM standards F2561 and F2599 and is currently balloting two additional ASTM standards.

In 2013, Larry was honored as the *Trenchless Technology* Person of the Year. In 2014, LMK was named a top 10 winner of the prestigious Chicago Innovation Awards, and Larry was featured on "Bootstrapping in America," a live online TV interview in October. Larry is a member of NASTT's No-Dig Show Program Committee and an Advisory Board member for the Trenchless Technology Center at Louisiana Tech University. He is also involved in other industry associations like NASSCO, ASCE, ASTM and WEF. Larry has had technical papers published in ASCE Pipelines Journal, *NASTT's Trenchless Today* and in NASTT, ISTT and UCT conference proceedings.

## BRENDA KINGSMILL



Brenda is a graduate of Sault College and the British Columbia Institute of Technology. Initially working in the private sector for eight years,

Brenda joined Halton Region 1986 where she became a design supervisor. Now a project manager, Brenda is responsible for environmental assessment plus design and construction administration of numerous linear and facility projects. Aside from traditional open-cut methods for both potable water and wastewater systems, Brenda is currently

managing projects utilizing pipe ramming, tunneling, HDD and structural lining of wastewater systems using a UV curing system. Always a willing volunteer, Brenda is a long-term member of the NASTT No-Dig Show Program Committee and has served as a session leader and moderator for the last five No-Dig Shows.

## JOE LANE



Joe Lane is the general manager for HEBNA Corp., an international construction company specializing in the protection of new and existing pipe-

lines from internal corrosion and abrasion through the fabrication and installation of high-density polyethylene (HDPE) pipe liners custom engineered to fit specific project needs.

Currently based in Colorado, Joe holds a bachelor's in biology from the University of Northern Colorado and is a graduate of the University of Michigan's School of Business Management and the Leadership Program of the Rockies. Prior to joining HEBNA, Joe was with SAK Construction and prior to that, he spent nearly 20 years with Insituform Technologies, Inc., in progressively increasing roles of responsibility in business development, training, operations and executive management.

Joe is a regular speaker and instructor at numerous industry and educational associations such as the WEF, APWA and NASTT where he works to advance the knowledge and use of trenchless technologies. He is a Board Member for the Rocky Mountain Chapter of NASTT, sits on NASTT's No-Dig Show Program Committee and is also a session leader.

## JASON LUEKE, PH.D., P.ENG.



Jason has 17 years of experience in consulting, construction, education and research focusing specifically on trenchless engineering and

construction. Prior to rejoining Associated Engineering in 2012, he served three and a half years as an assistant professor and senior sustainability scientist in the Del E. Webb School of Construction at Arizona State University. During his first tenure with Associated Engineering, he was an infrastructure engineer and trenchless discipline lead in the company's Edmonton office. Jason has participated as an engineer or contractor on a variety of trenchless projects involving pipe bursting, HDD, CIPP relining, auger boring, pipe ramming, and tunneling.

Jason is an instructor for NASTT's Lateral Sewer Rehabilitation, HDD and Pipe Bursting Best Practices Courses. He has published more than 50 journal and conference papers related to trenchless design, construction, and research; and has presented across North America and internationally at many conferences and trade shows. In 2010, Jason was selected by NASTT as the inaugural recipient of the Trent Ralston Award for Early Career Achievement in the field of trenchless technology.

## GERARD P. LUNDQUIST



Gerry is currently employed by National Grid, an international electric and natural gas utility, where he works as

director of gas construction for New York State. Gerry has more than 30 years of experience in construction, engineering and project management. His responsibilities include the execution of the capital work plan while also ensuring the safety, security and reliability of the natural gas distribution system.

Gerry has a bachelor's in civil engineering from The Cooper Union, a master's in business administration from Adelphi University, and a master's in economics and finance from NYU. He is a registered professional engineer in New York State.

His affiliations include serving on the on the Board of Directors for the (NEGDC) Northeast Gas Distribution Council consisting of utilities throughout the northeast, and he is an active member of the National Society of Professional Engineers and American

Society of Civil Engineers. He is a member of the American Public Works Association and serves on the Utility and Public Right of Way Technical Committee and is also Chair of the Construction Practices Subcommittee. He is also part of NASTT's No-Dig Show Program Committee as was a judge at the 2014 No-Dig Show for the innovative product awards.

### JEFF MAIER, P.E.



Jeff Maier, P.E., is the director of engineering at C&L Water Solutions in Littleton, Colo. Prior to joining C&L, Jeff worked for

more than 10 years as an engineer with the Metro Wastewater Reclamation District (MWRD) in Denver and was most recently the owner/principal of Colorado Trenchless Consulting LLC, a niche engineering firm that specialized in water/wastewater infrastructure condition assessment, inspection and trenchless corrosion rehabilitation solutions. He is a Colorado registered professional engineer and a graduate of the University of Michigan – College of Civil & Environmental Engineering.

Jeff has more than 15 years of project management and engineering design experience, primarily in the water and wastewater industry. He is recognized as an expert in the fields of condition assessment and trenchless rehabilitation of pipelines, manholes and wastewater facility structures. He developed and successfully managed wastewater pipeline and manhole

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condition assessment and rehabilitation programs for the MWRD and was the co-founder of the MWRD Concrete Rehabilitation Product Evaluation Program.

Jeff is actively involved in NASTT's Rocky Mountain Chapter and is the chairman-elect for the upcoming 2016 No-Dig Show in Dallas. Jeff is NASSCO PACP/MACP/LACP certified, a NACE Certified Coating Inspector – Level 3, and is a certified NASSCO CIPP rehabilitation inspector. In his free time, Jeff enjoys skiing, cycling, hiking and playing golf.

### CINDY PREUSS, P.E.



Cindy Preuss is a senior project manager with HydroScience Engineers, Inc. She graduated with a bachelor's in civil and environmental engineering from the University of California at Berkeley and is a licensed professional civil engineer in the State of California. Cindy has 17 years of experience in the industry with a focus on infrastructure design including collection systems, water and recycled water pipeline rehabilitation and new installations.

Cindy is currently serving a second two-year term as chairman for the Board of Directors for the Northern California Pipe User's Group (PUG), an association of public agencies, private consultants, contractors, vendors and suppliers who study current, conventional and trenchless pipe technologies. PUG sponsors attendance to and scholarships for NASTT's No-Dig Show and regional WESTT No-Dig conferences and offers NASTT Good Practices courses to PUG members on various trenchless technologies. Cindy also serves as vice chair for the WESTT Chapter Board of Directors. She has also been a volunteer on the No-Dig Show Program Committee for eight years running.

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### JIM RANKIN



Jim Rankin has been with the Vermeer Corp. for more than 35 years and has amassed a vast array of knowledge of industrial equipment

and trenchless technology applications. For the past 25 years, Jim's focus has been on Vermeer's horizontal directional drills. Jim was the project leader for the team that developed the first drill commercially marketed by the Vermeer Corp. Prior to working with HDD equipment, he was involved with the development of Vermeer's utility products (formerly Rubber Tire) and track equipment.

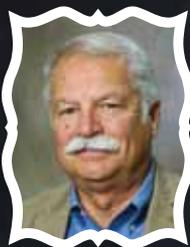
Jim has demonstrated his innovation abilities and technical skills by earning 15 industrial patents. He delivers the Vermeer Vision of "Taking Care of Customers Worldwide with Better Solutions" through extensive domestic and international travel and by meeting the business needs of the Vermeer customers and dealers.

Jim is a long-term member of NASTT's No-Dig Show Program Committee. He and his wife, Jeanette, have three daughters, one son and five grandchildren. Jim spends his free time boating and woodworking.

engineering from the University of South Carolina. He worked for DuPont and Conoco for 12 years before moving to Beaufort in 1989 to join BJWSA as the chief engineer. He is active in many water/wastewater and engineering professional organizations and is the current president of the South Carolina Water Quality Association. Ed is also extremely community minded as past president of the local Rotary Club; former Board Member and Campaign Chair for the United Way; and former member of Beaufort Chamber Board and Economic Alliance Board. A keen hobbyist, Ed enjoys golfing, boating and fishing in the local saltwater creeks.

Beaufort Jasper Water & Sewer Authority (BJWSA) is the regional supplier of water and wastewater services for two counties along the southeast coast of South Carolina. Its service area encompasses over 1,300 square miles and has a service population of over 170,000 residents. This area is known for its pristine water resources and Beaufort County has more islands than any county along the US east coast with a surface area that consists of 40 percent water. BJWSA has been utilizing trenchless technologies since the late 1980s to expand service to the island communities and to rehabilitate aging sewer system. BJWSA has employed different contracting methods to share risk as innovations in the trenchless technology industry are introduced.

### ED SAXON, P.E.



Ed Saxon, P.E., is the general manager of the Beaufort Jasper Water & Sewer Authority (BJWSA) in South Carolina. A native of

South Carolina, Ed earned a bachelor's and master's in mechanical

### DENNIS WALSH, P.E.



Dennis M. Walsh, P.E., is a senior project manager and associate for Woodard & Curran and leads the Natural Gas Service Line,

based in East Windsor, N.J. Dennis is a 1972 graduate of the Uni-

versity of Dayton, Ohio, with a bachelor's in civil engineering and a 2002 graduate of the Polytechnic University of New York with a master's in technology. He retired from KeySpan Energy Co. in 2005 after a 28-year career in the gas utility field with a background in engineering, operations, construction, quality assurance and HVAC. He led KeySpan's efforts to expand the use of trenchless technology in the early 1990's to decrease its main and service installation costs.

Dennis is a member of the American Gas Association, the Society of Gas Operators in addition to NASTT. He is a Board Member for NASTT's Mid-Atlantic Chapter and serves on the annual No-Dig Show Program Committee. He has designed numerous HDD installations for various utilities

including a 1,800-ft, 30-in. steel HDD project under a tidal basin in Brooklyn, N.Y.; a 2,000-ft, 12-in. HDD project under an environmental sound in south New Jersey; and a 400-ft jack and bore installation in Newark, N.J. When he is not involved in trenchless projects, he consults on gas engineering and other utility projects. His spare time is spent traveling and playing golf.

### DAN WILLEMS, P.ENG.



Dan Willems is currently the special projects manager with the City of Saskatoon Transportation & Utilities De-

partment's Major Projects division. Dan holds a bachelor's in civil engineering from the University of Saskatchewan in Saskatoon. Since 2001, he has worked for various municipal government and private consulting organizations across the Canadian Prairie Provinces. Throughout his career, Dan has been involved in several trenchless construction projects, including CIPP lining, microtunneling, case boring, tunneling, directional drilling and pilot-tube microtunneling.

Dan has been heavily involved in the Northwest Chapter of NASTT since 2005 and has also been a regular contributor at NASTT's annual No-Dig Show. He is actively working with the Northwest Chapter and local industry in Saskatchewan and Manitoba to expand NASTT's presence across the Prairie Provinces.



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# NASTT'S 2015 *Hall of Fame Inductees*

JOIN AN ELITE CLASS OF TRENCHLESS LEADERS

**T**he North American Society for Trenchless Technology (NASTT) has announced the new inductees of the society's 2015 Hall of Fame class: The late David Magill, Jr., Avanti International's first president; Ron Halderman, a leading figure in the horizontal directional drilling (HDD) industry; and Kaleel Rahaim, Interplastic Corp. business manager and cured-in-place pipe (CIPP) expert.

NASTT's 2015 Hall of Fame class will be formally inducted at the Gala Awards Dinner on March 17 at NASTT's 2015 No-Dig Show in Denver, Colo. The new Hall of Fame class will join an already elite group of industry pioneers who helped pave the way for the current generation of trenchless professionals.

"The lifelong dedication of these individuals has made innovative trenchless technology practices acceptable and sustainable, not only for today's infrastructure solutions but for those of the future," said NASTT Executive Director Mike Willmets. "Their commitment to trenchless technology has been pivotal to the growth of the entire industry and has impacted infrastructure management in countless communities throughout North America."

NASTT's Hall of Fame was created in 2010 by the NASTT Board of Directors to celebrate the Society's most outstanding and accomplished members who have made a lasting impact on the trenchless industry. In creating the Hall of Fame, the Board wanted to ensure that these praiseworthy members received due recognition and that their outstanding work and dedication to the industry could be honored and preserved. Members may be elected from all five NASTT membership categories: Manufacturers and Suppliers; Engineers and Consultants; Municipal and Utility Employees; Contractors; and Academia.

NASTT is a preeminent affiliate of the International Society for Trenchless Technology (ISTT), and many of its members are pioneers of trenchless technology. The Hall of Fame forever honors the leaders and trailblazers of the industry. The NASTT Board of Directors met last year and voted these trenchless icons as members of the 2015 class. Congratulations to our new inductees!



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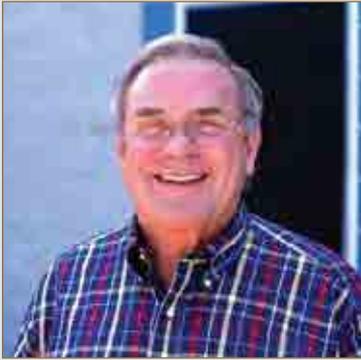
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**1943-2014**

## *David Magill, Jr.*

David Magill, Jr. (1943-2014) was a pioneer in the chemical grout industry and was the first president of Avanti International, a company that he championed for more than 30 years. In 1990, David was one of the seven Charter Members of NASTT providing the initial funding to start the Society.

David received an engineering degree from Virginia Polytechnic Institute in 1965 and an MBA in 1975 from Louisiana State University. He was an icon in the chemical grout industry, led Avanti International since 1978 until his son Daniel took over leadership in 2008. David's passion and vision not only caused the infrastructure rehabilitation industry to flourish but helped commission NASTT as the premier source of trenchless engineering.

David loved cruising – on his boat and on large cruise ships, around continents or up and down rivers. He enjoyed reading (novels, history, spiritual) and listening to music (smooth jazz, some country, some easy). He was a friend and mentor, and an inspiration to many. He will always be remembered for his generosity, optimism, non-judgmental acceptance of others and for his overwhelming kindness to help anyone in need.

## *Ron Halderman*

Ron Halderman is a registered professional engineer and director of horizontal directional drilling for the Mears Group. He is a leading figure in the HDD industry and has helped innovate many of the procedures currently being used by HDD contractors and consultants throughout the world.

Ron graduated from the Colorado School of Mines, and for the past 35 years, has been working in the drilling industry. He has presented numerous papers at industry conferences such as NASTT's No-Dig Show, UCT, ASME and ICC. He has also had several articles published in many different trade journals, including *Trenchless Technology*, *Trenchless International*, *World Tunneling*, *Pipe Line Industry* and *Pipeline & Gas Journal*. He holds a patent entitled "Apparatus and Method for Recirculating Mud When Drilling Under an Obstacle," and has applied for a patent on the Mud Recovery System to be discussed at this year's Power Delivery Design Conference.



## *Kaleel Rahaim*



Kaleel Rahaim is the business manager of pipeline remediation polymers for the Thermoset Resins Division of Interplastic Corp. An expert in the field of cured-in-place pipe (CIPP), he also has experience in many different aspects of engineering such as project and process engineering. He has been involved in the thermoset polymer industry for more than 30 years.

Kaleel is a graduate chemical engineer from Mississippi State University. He served on the NASTT Board of Directors from 2006 to 2011, serving as treasurer, and has been involved with many other trade organizations for the trenchless remediation industry.

This is NASTT's fourth Hall of Fame class to be inducted. Last year, Bob Affholder, Joe Loiacono and Dr. Ray Sterling joined Bernie Krzys, Frank Canon, Ed Malzahn, Dr. David Bennett and the late Eric Wood and Gary Vermeer. This year, NASTT's No-Dig Show will be held March 15-19 at the Colorado Convention Center in Denver. For more information, visit [nodigshow.com](http://nodigshow.com).



NORTH AMERICAN SOCIETY FOR  
TRENCHLESS TECHNOLOGY

# NOMINATIONS BEING ACCEPTED FOR NASTT'S HALL of FAME Class of 2016

In 2010, the NASTT Board of Directors voted to create a Hall of Fame in order to ensure that the Society's most outstanding and praiseworthy members received due recognition. The intent of NASTT's Hall of Fame is to preserve the outstanding accomplishments of these exceptional individuals and to honor their contributions to the advancement of both the trenchless industry and the Society. Members may be elected from all NASTT membership categories: Manufacturers and Suppliers; Engineers and Consultants; Municipal and Utility Employees; Contractors; and Academia.

Nominee \_\_\_\_\_

Birth Date \_\_\_\_\_ Year NASTT Membership Started \_\_\_\_\_

### Nominee or Next-of-Kin Contact Information

Name \_\_\_\_\_

Business Name (if applicable) \_\_\_\_\_ Business Phone \_\_\_\_\_

Business Address \_\_\_\_\_

Home Address \_\_\_\_\_

Home Phone \_\_\_\_\_ Email Address \_\_\_\_\_

### Summary of Outstanding Achievements

Please state in 3-4 sentences the contribution(s) made by this nominee that justifies his/her induction. You may also attach a document to this application if you need more space.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Contact Information for the Principal Nominator

Name \_\_\_\_\_

Business Phone \_\_\_\_\_ Email Address \_\_\_\_\_

Completed applications along with (3) letters of recommendation and biographical information on the nominee should be directed electronically to Michael Willmets, NASTT Executive Director at [mwillmets@nastt.org](mailto:mwillmets@nastt.org) and must be received by no later than July 1, 2015.



[nastt.org](http://nastt.org)

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# NASTT'S EYE ON THE INDUSTRY

## OUR MEMBERS IN ACTION

### Lake Oswego-Tigard Water Partnership

Staheli Trenchless Consultants;  
Northwest Pipe Co., Michels Corp.  
Lake Oswego, Oregon – HDD



The Lake Oswego-Tigard Water Partnership in Oregon saw the successful completion of a 36-in. steel pipeline crossing the Willamette River through high-strength basaltic bedrock with unconfined compressive strengths approaching 50,000 psi. As part of the 10-mile long conveyance project, a 3,800-ft HDD was constructed from the eastern river bank of the Willamette River in Meldrum Bar Park to a wooded residential area north of Mary S. Young State Park on the western bank. Other portions of the water supply expansion are currently underway and include trenchless crossings with pipe ramming and microtunneling. Staheli Trenchless Consultants provided design consulting on the project, Northwest Pipe Co. supplied the steel pipe and Michels served as a trenchless subcontractor.

### South Magnolia CSO Project

Staheli Trenchless Consultants  
Seattle, Washington – HDD



Staheli Trenchless Consultants was part of the design team for the South Magnolia CSO project for King County, Wash. The project included construction of an on-grade 3,074-ft pipeline beneath Magnolia Hill to convey excess flows to a 1.5 million gallon storage tank near Smith Cove Park in Seattle. The intersect method of horizontal directional drilling was used to install the 32-in. fusible PVC pipe at a slope of 1.8 percent beneath the hill, with a maximum depth of cover of over 150 ft.

### CPV Woodbridge Energy Center

Underground Solutions, Inc.  
Woodbridge, New Jersey – HDD



Competitive Power Ventures' Woodbridge Energy Center is a new, 700-megawatt, gas-fired power generating station currently being built in Woodbridge, N.J. When plant construction is complete, power generated by this new facility will be transmitted to an existing substation three miles away. Because the high voltage transmission lines cross two wetland areas and the Raritan River, use of traditional installation methods such as overhead towers and direct burial in conduit were not feasible in these sections of the alignment. In these three locations, horizontal directional drilling (HDD) was used to install more than 11,000 ft of 30-in. Fusible PVC casing pipe, provided by Underground Solutions. Each of the three sections required dual parallel crossings, resulting in six separate drills of casing pipe to house three 230 (kV) electrical cables each – conducting enough electricity to power more than 600,000 homes.

### New Jersey-New York Expansion Project

Michels; Herrenknecht  
New York, New York – HDD



The New Jersey-New York Expansion project is an expansion of Spectra Energy's Texas Eastern Transmission and Algonquin Gas Transmission pipeline systems to deliver new, critically needed natural gas supplies to the New Jersey and New York areas, including Manhattan – the first high-pressure natural gas pipeline in NYC in four decades. The project utilized HDD on 40 percent of the installation (or eight of the 20 miles), allowing construction beneath waterways, highways and streets without impeding traffic and provided an additional layer of safety, given the depth of the pipe.

A critical portion of the project involved the completion of nine incredible HDD crossings that were in diameters of 30 in. (six crossings) and 42 in. (three crossings) and ranged in length from 1,707 to 8,100 ft. Use of the pilot hole intersect method was required on seven of the crossings due to their enormous length and locations. The Direct Pipe method was also utilized to install large diameter casing.

The project involved the assembling of a massive amount of equipment including the use of ten 1.2 million-lb drilling rigs (at times used simultaneously on multiple crossings), more than 30 drill motors and 20 steering

tools (INROCK), with more than 55,000 ft of drill pipe deployed. Michels served as the HDD contractor and Herrenknecht supplied equipment for installing surface casings. This project was named *Trenchless Technology's* 2014 Project of the Year for New Installation.

**Gulf Coast Water Authority  
Transmission Main Rehab  
Hammerhead Trenchless Equipment;  
TT Technologies**  
*League City, Texas - Swagelining*



The Gulf Coast Water Authority (GCWA) and the City of League City, Texas, were faced with the need to rehabilitate 6,800 ft of a 39-in. PCCP water transmission main along a relatively narrow section of roadway. The decision to complete the rehabilitation of this main — which provides an interconnect between the City of Houston and Galveston County — using Swagelining allowed planners to keep the same hydraulic model/capacity, as well as giving the pipe a full structural overhaul that extended the life expectancy to at least 100 years.

According to project officials, the Calder Road project also resulted in a few firsts in North America: 1) it is

the largest diameter, high-pressure, full structural pressure pipeline rehabilitation project completed and 2) no other trenchless method has ever completed a project requiring a fully structural solution at an operating pressure of 125 psi. Hammerhead Trenchless and TT Technologies supplied equipment for the project which was named the 2014 *Trenchless Technology* Project of the Year in the Rehabilitation category.

**Garden City Park Water District  
GAME Trenchless Consultants**  
*Garden City Park, New York -  
Condition Assessment*



In July 2014, Garden City Park Water District (GCPWD), located in Garden City Park, N.Y., awarded a contract to GAME Consultants USA Inc. to investigate the condition of various small diameter potable water pipes in their network. The goal of the project was to provide a high-definition inspection and leak detection on pipes ranging from 6- to 12-in. cast iron and ductile iron water mains without putting any homeowner out of service. Some of the objectives were to determine the level of tuberculation, the material of the pipe and if there were any leaks in the areas being inspected. This work was done using the JD7 Investigator+ technology through existing fire hydrants. The inspections successfully identified the pipe material and condition of the water main.

In order to complete the work using GCPWD hydrants, GAME had to adapt to the different styles of hydrants found in the different locations. The project lasted three working days, with an objective of three to four hydrant inspections per day. By the end of the third day, the GAME crew had completed 14 inspections.

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# NASTT CHAPTER NEWS

## British Columbia



Year by year, the BC Chapter of NASTT is continuing to develop programs to fulfill the mandate of NASTT, which is to promote, through education, the benefits of trenchless technology. In 2014, the BC Chapter and NASTT co-hosted a course on CIPP training. The course attracted 56 attendees and was well received by all. In an effort to correct a deficiency in most engineering degrees, the BC Chapter is committed to offering courses on CIPP and other basic trenchless expertise in a cyclic manner, with the same subject being revisited every four to five years.

In 2014, the Chapter offered, at different locations within the province, three identical seminars on the topic of Subsurface Utility Engineering (SUE). Topics were developed around the theme, and eight experienced speakers delivered a dynamic program. This day-long presentation was presented in the interior of British Columbia in May to about 25 attendees, on Vancouver Island in June to about 33 attendees and in Vancouver during the fall to some 87-plus attendees. It was well received by all.

In early 2015, the BC Chapter is again teaming up with NASTT to offer a course on the subject of sewer laterals. This course is planned for mid-February and will be offered in the greater Vancouver area. In addition to offering local educational opportunities, the BC Chapter is also joining forces with the University of Waterloo and *Trenchless Technology* magazine to host a three-day Trenchless Road Show. Join us for this event in November 2015 in Richmond, BC. It is shaping up to be an exciting year!

## Great Lakes, St. Lawrence & Atlantic



The Great Lakes, St. Lawrence & Atlantic Chapter of NASTT encourages and facilitates the science and practice of trenchless technology for the public benefit. The Chapter achieves this by fostering education and re-

search and acting as a catalyst for technological and process change. For more information on GLSLA, upcoming events in 2015 and training sessions, please visit [www.glsla.ca](http://www.glsla.ca).

## Mid Atlantic



The Mid Atlantic Chapter conducted a "Trenchless Technology, SSES and Buried Asset Management" seminar on Aug. 13-14, 2014 in Pittsburgh, Pa., at the Wyndham Grand Pittsburgh Downtown Hotel. The guest presenters were Robert Christian, P.E., director of the Pittsburgh Water and Sewer Authority and David Troianos, P.E., project engineer with Chester Engineers. The presentation was "Pittsburgh's Trenchless Program." The seminar provided opportunities for networking and learning about trenchless technology, SSES and buried asset management. ASCE's Pittsburgh Section was the co-sponsor for the seminar.

Please go to [www.mastt.org](http://www.mastt.org) to view the MASTT's 2015 proposed seminar schedule. Seminar locations and dates will be updated as the seminar dates, venues and programs are finalized. To participate in any of the seminars, please contact Leonard Ingram, MASTT executive director, at [leonard@engconco.com](mailto:leonard@engconco.com) for more information.

MASTT plans to publish its inaugural issue of the *Mid Atlantic Journal of Trenchless Technology 2015* in the spring. The journal will have numerous Mid Atlantic project articles, messages and advertisements. After the mail out, the journal can be seen online at [www.mastt.org](http://www.mastt.org).

MASTT will have its annual Membership and Board Meeting at the NASTT's 2015 No-Dig Show in Denver at the Colorado Convention Center on Sunday, March 15, 2015, from 4 p.m. to 5:30 p.m. in Classroom 702. This meeting is open to members, supporters and friends. Please plan to attend to become active in the Society.

## Midwest

The Midwest Chapter conducted a "Trenchless Technology, SSES and Buried Asset Man-

agement" seminar Nov. 5-6, 2014 in Louisville, Ky., at the Marriott Louisville Downtown Hotel. The guest presenter was Andrea Rogers, P.E., Louisville MSD. The presentation was on "Louisville's Trenchless Program." The seminar provided opportunities for networking and learning about trenchless technology, SSES and buried asset management. ASCE's Louisville Branch was the co-sponsor for the seminar.



In September 2015, MSTT plans to publish and distribute the annual issue of the *Midwest Journal of Trenchless Technology*. This will be the third issue of the journal. After the mail out, the journal can be seen online at [www.mstt.org](http://www.mstt.org).

Please go to [www.mstt.org](http://www.mstt.org) to view MSTT's 2015 proposed seminar schedule. Seminar locations and dates will be updated as the seminar dates, venues and programs are finalized. To participate in any of the seminars, please contact MSTT executive director Leonard Ingram, at [leonard@engconco.com](mailto:leonard@engconco.com) for more information.

MSTT will have its annual Membership and Board Meeting at NASTT's 2015 No-Dig Show in Denver at the Colorado Convention Center on Sunday, March 15, 2015, from 1 p.m. to 2:30 p.m. in Classroom 702. This meeting will be open to members, supporters and friends. Please plan to attend to become active in the Society.

## Pacific Northwest



The Pacific Northwest Chapter is planning the 2015 PNW Trenchless Symposium to be held mid-year at the Cedarbrook Lodge in SeaTac, Wash. The Symposium was originally planned for February but scheduling conflicts have pushed it to later in the year. Visit our website, [www.pnwnastt.org](http://www.pnwnastt.org), for updates and current information as we finalize speakers and topics. A primary goal for the PNW Chapter in 2015 is additional training opportunities throughout the Pacific Northwest. The two-day biennial Trenchless Symposium will fea-

ture a rehabilitation short course taught by certified NASTT instructors with years of expertise and valuable insight into all aspects of rehabilitation technology and techniques.

**Northwest Chapter**



The Northwest Chapter had a very active and successful year in 2014, including two short courses and a conference and tradeshow.

The first short course was a New Installations Good Practices course held on Oct. 7 in Saskatoon. Instructors were Don Del Nero of Stantec and Kim Staheli of Staheli Trenchless Consultants. The course had 46 attendees, all non-members, which was great for increasing membership. The second short course was a Pipe Bursting Good Practices Short Course held on Nov. 14 in Edmonton in conjunction with the Chapter conference. Instructors were Collins Orton of TT Technologies and Dr. Jason Lueke of Associated Engineering. There were 28 in attendance for this course.

The Northwest Chapter's Trenchless Conference was held on Nov. 13 with great attendance and generous support from the trenchless community. This included more than 180 attendees, 24 exhibitors and special event and general sponsorship.

As part of the conference, we also presented the Northwest Chapter's 2014 Project of the Year Award. This year the award went to the Saline Creek Plateau Offsite Water & Sewer Servicing Project. The owner was the Regional Municipality of Wood Buffalo, the consulting engineers were Associated Engineering and the trenchless contractors were Michels Canada, Neptune Coring, Direct Horizontal Drilling and Calgary Tunneling and Horizontal Augering. Congratulations to all involved on this project!



**The NW Chapter's 2014 Project of the Year Award is presented to the Saline Creek Plateau Offsite Water & Sewer Servicing Project.**

In 2015, the Northwest Chapter's Trenchless Conference will be held in Calgary in November, and planning is currently under-

way. Technical lunches in both Edmonton and Calgary will continue as well. Please check our website at [www.nastt-nw.com](http://www.nastt-nw.com) for more information on these events.

Thank you to all who supported the Chapter in 2014. Whether that support was through participating in the planning of an event or through attending events, all the support is appreciated and we look forward to your continued support in 2015.

**Rocky Mountain**



Recent activities of the Rocky Mountain Chapter have been focused in the Salt Lake City area of Utah and the front range of Colorado. The RM Chapter hosted a project site visit in October in Utah that dealt with a sanitary sewer rehabilitation and repair job which included large diameter CIPP and auger boring.



**Large diameter CIPP in Utah during a RM Chapter project visit in October.**

The Chapter also hosted an educational seminar on Jan. 15 in Sandy, Utah. The seminar boasted a full day of paper presentations by regional trenchless experts discussing trenchless techniques and unique case studies from across the region. The seminar was sold out to a highly engaged audience and the event, which was the first RM Chapter educational seminar held in Utah, was a significant success for the RM Chapter.

In Colorado, the Chapter continues its preparations for NASTT's 2015 No-Dig Show, which will take place at the Colorado Convention Center in Denver, March 15-19. The Rocky Mountain Chapter is pleased and very excited to host the North America's premier trenchless technology conference within its borders this year.

Looking ahead, the RM Chapter will hold its annual regional conference at the Denver Tech Center (south Denver), Nov. 4-5, 2015, which will include a full day of regional paper presentations, exhibitors and networking op-

portunities. The second day will be devoted to an NASTT Short Course. For more information about the RM Chapter, upcoming events and how to get involved, please visit [www.rmnaastt.org](http://www.rmnaastt.org).

**Southeast**



The Southeast Chapter conducted a "Trenchless

Technology, SSES and Buried Asset Management" seminar on Dec. 10-11, 2014 in Jacksonville, Fla., at the Jacksonville Marriott Hotel. The guest presenter was Elizabeth A. DiMeo, P.E., Jacksonville Electric Authority (JEA). The presentation was on "Trenchless Technology at JEA." The seminar provided a lot of networking and learning about trenchless technology, SSES and buried asset management. ASCE Jacksonville Branch was the co-sponsor for the seminar.

Please go to [www.sestt.org](http://www.sestt.org) to view the SESTT Chapter Seminar Schedule. To participate in any events or seminars, please contact Leonard Ingram, at [leonard@engconco.com](mailto:leonard@engconco.com).

SESTT plans to publish its inaugural issue of the *Southeast Journal of Trenchless Technology 2015* in the summer. After the mail out, the journal can be seen online at [www.sestt.org](http://www.sestt.org). Participation info can be obtained by contacting Leonard Ingram.

SESTT will have its annual Membership and Board Meeting at the NASTT's 2015 No-Dig Show in Denver at the Colorado Convention Center on Sunday, March 15, 2015, from 2:30 p.m. to 4 p.m. in Classroom 702. This meeting is open to members, supporters and friends. Please plan to attend to become active in the Society.

**Western**



The Western Chapter of NASTT promotes the NASTT mission within the western region of Arizona, California, Hawaii, Nevada and

New Mexico. More information on the chapter and upcoming events can be found on the website at [www.westt.org](http://www.westt.org).

**NASTT's Trenchless Today Wants To Hear From You!**

If you're involved with one of NASTT's nine regional chapters, we want to hear about all your events and activities. Send write-ups to associate editor, Andrew Farr at [afarr@benjaminmedia.com](mailto:afarr@benjaminmedia.com).



NASTT has a network of nine regional chapters throughout the United States and Canada. With a single NASTT membership, you're automatically enrolled in the national organization, the international organization (ISTT) and also in your regional chapter. Regional chapters offer valuable educational and networking opportunities in your local area. Share your ideas, network with colleagues and find solutions to your everyday challenges.



## British Columbia

The British Columbia (NASTT-BC) Chapter was established in 2005 by members in the province of British Columbia, Canada.

### Chapter Contact

David O'Sullivan, Chair  
Phone: (604)-580-0446  
E-mail: david@pwtrenchless.com  
Website: www.nastt-bc.org

### Elected Officers

Chair - David O'Sullivan  
Vice Chair - Rod Loewen  
Secretary - vacant  
Treasurer - Kieran Field



## Great Lakes, St. Lawrence & Atlantic

The Great Lakes, St. Lawrence & Atlantic (GLSLA) Chapter was established in 1995 and represents the Eastern Canadian perspective of the trenchless technology marketplace. GLSLA members are from Ontario, Quebec and the four Atlantic provinces.

### Chapter Contact

Kevin Bainbridge, Chair  
Phone: (905) 304-0080  
E-mail: kbainbridge@rcii.com  
Website: www.nasttghsl.on.ca

### Elected Officers

Chair - Kevin Bainbridge  
Vice Chair - Frank Badinski  
Secretary - Gerald Bauer  
Treasurer - Derek Potvin



## Mid Atlantic

The Mid Atlantic (MASTT) Chapter was established in 2004 by members from the states of Delaware, Maryland, New Jersey, Pennsylvania, Virginia, West Virginia and the District of Columbia.

### Chapter Contact

Richard Thomasson, Chair  
Phone: (703) 842-5621  
E-mail: rthomasson@pirnie.com  
Website: www.mastt.org

### Elected Officers

Chair - Richard Thomasson  
Vice Chair - Michael Delzingaro  
Secretary - Dennis Walsh  
Treasurer - Tom Wyatt



## Midwest

The Midwest (MSTT) Chapter was established in 1998 to promote trenchless technology education and development for public benefit in Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Ohio and Wisconsin.

### Chapter Contact

Jeff Boschert, Chair  
Phone: (314) 229-3789  
E-mail: jeffboschert@yahoo.com  
Website: www.mstt.org

### Elected Officers

Chair - Jeff Boschert  
Vice Chair - Larry Kiest, Jr.  
Secretary - Randy Fries  
Treasurer - Bill Shook



## Northwest

The Northwest Chapter was established in 1988 by members in the Canadian provinces of Alberta and British Columbia, Canada, and in Washington state. In 2009, the Chapter adjusted the geographic area to include the members in the provinces of Manitoba and Saskatchewan, Canada.

### Chapter Contact

Alan Miller, Chair  
E-mail: amiller@nastt-nw.com  
Website: www.nastt-nw.com

### Elected Officers

Chair - Alan Miller  
Vice Chair - vacant  
Secretary - Ben Campbell  
Treasurer - Keith Moggach



## Pacific Northwest

The Pacific Northwest Chapter was established in 2009 by members in the states of Alaska, Idaho, Oregon and Washington.

### Chapter Contact

Christopher Price, Chair  
Phone: (425)-205-4930

### Elected Officers

Chair - Christopher Price  
Vice Chair - Chris Sivesind  
Secretary - Matthew Pease  
Treasurer - Richard Hanford



## Rocky Mountain

The Rocky Mountain Chapter was established in 2009 by members in the states of Colorado, Utah and Wyoming.

### Chapter Contact

Al Paquet, Chair  
E-mail: al.paquet@ch2m.com  
Website: www.rmnaastt.org

### Elected Officers

Chair - Al Paquet  
Vice Chair - Bo Botteicher  
Secretary - Andrew Lockman  
Treasurer - Ken Matthews



## Southeast

The Southeast (SESTT) Chapter was established in 2001 to serve the members of NASTT from Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Puerto Rico.

### Chapter Contact

Jerry Trevino, Chair  
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E-mail: jerry@mechanicaljobbers.com  
Website: www.sestt.org

### Elected Officers

Chair - Jerry Trevino  
Vice Chair - Ed Paradis  
Secretary - J. Chris Ford  
Treasurer - Kelly Derr



## Western

The Western (WESTT) Chapter was established in 2003 by members from the states of Arizona, California, New Mexico, Nevada and Hawaii.

### Chapter Contact

Craig Camp, Chair  
Phone: (619) 881-0407  
E-mail: craig.camp@hatchmott.com  
Website: www.westt.org

### Elected Officers

Chair - Craig Camp  
Vice Chair - Cindy Preuss  
Secretary - Cory Street  
Treasurer - Matt Wallin



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## NASTT REGIONAL CHAPTERS REGIONAL ISSUES, INTERNATIONAL SUPPORT

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The grassroots of NASTT is a network of ten regional chapters throughout the United States and Canada. Regional chapters network at the local level, share infrastructure challenges and develop new ideas. Regional chapters hold various events throughout the year, and like NASTT, are dedicated to the advancement of trenchless technologies for the benefit of the public and the environment.

With your NASTT membership you are automatically enrolled not only in the national and international organization, but also in your regional chapter. So join today and get to know the "local heroes" that are making their communities better places through the innovative engineering solutions of trenchless technologies.



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[www.nastt-bc.org](http://www.nastt-bc.org)

*British Columbia*

#### **Great Lakes, St. Lawrence & Atlantic**

[www.glsia.ca](http://www.glsia.ca)

*Ontario, Quebec, New Brunswick, Prince Edward Island, Nova Scotia, Newfoundland and Labrador*

#### **Mid-Atlantic**

[www.mastt.org](http://www.mastt.org)

*Delaware, Maryland, New Jersey, Pennsylvania, Virginia, West Virginia and District of Columbia*

#### **Midwest**

[www.msstt.org](http://www.msstt.org)

*Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Ohio and Wisconsin*

#### **Northwest**

[www.nastt-nw.com](http://www.nastt-nw.com)

*Alberta, Manitoba and Saskatchewan*

#### **Pacific Northwest**

*Alaska, Idaho, Oregon and Washington*

#### **Rocky Mountain**

[www.rmnaastt.org](http://www.rmnaastt.org)

*Colorado, Utah and Wyoming*

#### **South Central**

*Texas*

#### **Southeast**

[www.sestt.org](http://www.sestt.org)

*Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Puerto Rico*

#### **Western**

[www.westt.org](http://www.westt.org)

*Arizona, California, New Mexico, Nevada and Hawaii*

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North American Society for Trenchless Technology  
14500 Lorain Avenue #110063 • Cleveland, Ohio 44111  
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## NASTT STUDENT CHAPTERS

NASTT Student chapters are involved in a number of activities throughout the academic year including field trips, seminars and fundraisers. Members of student chapters also attend and participate in NASTT's No-Dig Show where they present trenchless research posters, participate in competitions and provide event support

monitoring the technical paper sessions. There are many benefits for students who belong to a NASTT student chapter – scholarships, networking opportunities, education and career opportunities to name a few. To learn more about NASTT's student chapters, visit [www.nastt.org/student\\_chapters](http://www.nastt.org/student_chapters).



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**NASTT**

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# The Three C's of Water Main Rehabilitation:

## Cooperative Agreements, Cured-in-Place Pipe Lining and Competitive Bidding

**Dave Wasserburger**  
Marshfield Utilities, City of Marshfield, Wis.

**Brad Marquardt**  
Wausau Water Works, City of Wausau, Wis.

**Mark Kilheffer**  
Public Works, City of Appleton, Wis.

**James Wojcehowicz**  
Wauwatosa Water Utility, City of Wauwatosa, Wis.

**Paul Pasko, P.E.**  
Short Elliott Hendrickson Inc.

Though structural cured-in-place pipe (CIPP) lining for water main rehabilitation has been widespread throughout Canada, only recently is it gaining steam in the United States. Unfortunately, forward-looking municipalities in the upper Midwest looking to implement CIPP technology to rehabilitate their aging water infrastructure encounter a major obstacle: there are few nearby qualified contractors available to do the work.

This paper uses as a case study the experience of several northern Wisconsin Utilities who entered into a Cooperative Project Agreement (CPA) to attract qualified contractors and leverage bargaining power for CIPP work. The CPA established a single commission with the power to manage funds, enter into contracts, and hire employees. More importantly, the CPA increased the volume of lining work and allowed the utilities to receive more competitive bids from distant, qualified contractors.

This paper demonstrates the benefits of such a CPA agreement, as well as the overall advantages of using CIPP to innovatively address aging water infrastructure problems. Namely, by inserting a new pipe into the existing pipe without trench excavation - then by reinstating water services from inside the pipe using robotic drills, it mitigates political fallout, reduces damage to roadways and pavement, has a small carbon footprint, and minimizes disturbances to boulevards and landscaping. The CIPP method, used in conjunction with a CPA, has saved the utilities more than forty percent compared to the open-cut method. By joining together and implementing the three C's of water main rehab — cooperative agreements, competitive bidding, and cured-in-place pipe lining — these utilities were able to affordably address critical water main issues for their customers.

### Introduction

In the past decade water main breaks and related problems have increased significantly as municipal infrastructure approaches its usable expiration date. Northern municipalities looking to address aged water mains are beginning to regard CIPP as a viable solution to expensive and disruptive traditional dig-and-replace methods. However, today only about four companies in North America offer CIPP products, and only a handful of contractors are qualified for the installation of these systems. For this reason, it can be difficult for Northern Utilities to attract competitive bids from qualified out-of-state contractors for a single small project. Such was the case

for the Marshfield Utilities, serving the City of Marshfield, Wis., where a cooperative project agreement (CPA) among cities compelled contractors to compete for work, and thus brought CIPP to communities that otherwise may not have been able to afford it individually.

### Marshfield's Problem

Marshfield Utilities had a problem — 1,280 ft of 6-in. cast iron water main under Palmetto Avenue had broken 14 times since 1988, including four breaks between 2008 and 2012. Because Marshfield Utilities must reimburse the City of Marshfield for the cost of pavement repairs incurred during water main repairs, it wanted to repair its pipe with minimal pavement disruption — especially since Palmetto Avenue is concrete.



Figure 1 - Palmetto Avenue where it is intersected by Wallonnie Drive. The pipe varies in location from under the curb to near the middle of the lane in the foreground. Excavation would disturb much of the pavement.

Traditional dig-and-replace methods would disturb too much pavement. While the pipe bursting and directional drilling methods disturb less pavement initially, service pipe reinstatement would still require dig and replace methods. In addition to pavement concerns, the service pipe reinstatement would interfere with storm sewer pipe crossings as well as a city mill and overlay project occurring on intersecting streets, which had to be completed before the start of an upcoming county fair. This is critical to the project because both Palmetto Avenue and its intersecting streets provide necessary overflow parking for the nearby fair grounds.

After considering these options and weighing them against the needs of residents, taxpayers, and the community, Marshfield Utilities decided the best way to repair its water main was through CIPP structural water main lining. Unfortunately, while the contractor Michels Corporation was nearby in Brownsville, Wisconsin, the next two closest contractors were in Chesterfield, Missouri (Insituform) and Taylor, Michigan (Fer-Pal Construction). Marshfield Utilities was concerned the lack of nearby contractors — and therefore lack of competition — would affect its bid unit prices (Figure 2).



Figure 2 – For Marshfield, Wausau and Appleton Wis., the nearest qualified lining contractors operated out of Brownsville, Wis., and Chesterfield, Mo., and Taylor, Mich.

**The Collective Power of a CPA**

To address these concerns, Marshfield Utilities hired engineering firm Short Elliott Hendrickson Inc. (SEH) to help develop a Cooperative Project Agreement (CPA). A CPA, also called a joint powers agreement, establishes a single commission with the power to manage funds, enter into contracts, and hire employees. Not limited to the State of Wisconsin, every state in the country has an allowance to enter into similar agreements. With a CPA, Marshfield Utilities would be able to combine its project with similar CIPP water main lining projects in two nearby cities: Wausau and Appleton, Wis.



Figure 3 – The side yard easement containing the 14-in. cast iron pipe serving the 6-in. pipe in Sunset Drive. The pipe passes under the blue witness flag in the foreground on its way to the power pole at the bottom of the hill.

**Wausau’s Problem**

Wausau Water Works (WW) in Wausau, Wis., was experiencing similar water main-related issues. Specifically, 1,020 ft of 6-in. cast iron water main beneath Sunset Drive, and 680 ft of 14-in. cast iron pipe in a side yard easement serving it, had broken eight times since 1980. Traditional dig-and-replace methods would disturb significant amounts of the side yard easement and also damage the recently reconstructed Sunset Drive pavement and its adjacent concrete curb (Figure 3).

Importantly, the Wausau WW did not know how the pipe was laid into the bed rock; especially in the easement. If the trench cut into the rock was narrow and needed widening during dig-and-replace method operations, the resulting vibrations from rock excavations would likely impact nearby homes. Furthermore, pipe bursting and directional drilling methods were not feasible due to shallow bedrock. Wausau WW decided the best way to repair the water main was to use CIPP structural water main lining.

**Appleton’s Problem**

In Appleton, Wis., the Appleton Department of Public Works (DPW) had to remedy a slow leak in 280 ft of 12-in. cast iron water main under the Fox River’s navigation channel at Old Oneida Street. Traditional dig-and-replace methods would require extensive Wisconsin Department of Natural Resources (WiDNR) permitting and channel dewatering. The pipe did not require upsizing as part of leak repair. Because of this, installing a new pipe using horizontal directional drilling method was not necessary. Pipe bursting was not an option due to an uncertain vertical pipe alignment featuring many bends. After weighing the options, the Appleton DPW also decided the best way to repair its water main was using CIPP structural water main lining.

**CPA Facilitates Competitive Bidding**

By developing the CPA with SEH, the individual CIPP projects for Marshfield Utilities, Wausau WW and Appleton DPW were merged into single set of bidding documents. The cities were able to increase the total volume of lining work and were able to attract bids from three qualified contractors. Fer-Pal Construction won the contract and completed the work in the CPA for an overall cost of \$0.9 million (compared to \$1.26 million using dig-and-replace methods) yielding a total savings of almost 40 percent (Figure 4).

However, even with the overall savings, the Appleton DPW project was not cost effective due to the likelihood that a sacrificial liner may need to be installed before the installation of the actual liner. Appleton DPW chose not to award a contract for the work in their community and withdrew from the CPA. This is a key aspect of the CPA — there is an allowance for any party to withdraw at any time up to, and including, award of contract.

		Appleton	Wausau	Marshfield
Pipe Data	Diameter - Inches	12	14	6
	Length - Feet	280	680	1,020
	No. of Services	1	0	19
Bid Lining Only Cost - per LF (1) (3)	Low	\$430	\$147	\$111
	Construction Cost - per LF (2) (3)	\$625	\$256	\$203

Figure 4 – Summary of bids for Appleton DPW, Wausau WW and Marshfield Utilities.

- (1) Cost to only furnish and install the liner and re-establish water service connections.
- (2) Cost includes traffic control, excavation, installation and removal of temporary water main network pipes, pipe cleaning, furnish and install the liner, reestablish water service connections and restoration.
- (3) All costs rounded to the nearest dollar.

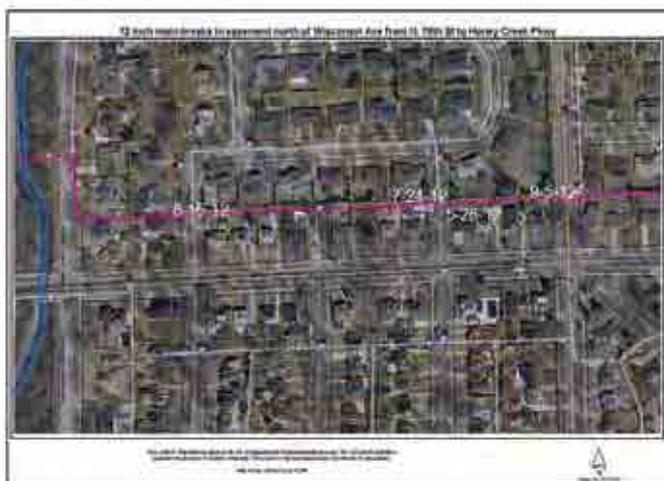


**CPA Speeds Up Permitting**

During CPA and bid document preparation, the WiDNR was developing CIPP design review and construction testing permitting requirements for CIPP. The WiDNR worked closely with the utilities, their consultant and the CIPP contractor community to develop its CIPP permitting requirements. Once these permitting requirements were defined, the CPA allowed the utilities to accelerate the permitting process with WiDNR for CIPP. While three separate permits were submitted, one for each utility, WiDNR reviewed them simultaneously using one set of bidding documents.

**Last-Minute City**

While Fer-Pal was installing CIPP for Marshfield Utilities and Wausau WW, another utility – the Wauwatosa Water Utility (WU) serving Wauwatosa, Wis. – had an emergency of its own. Wauwatosa WU’s emergency involved 1,285 lf of backyard 12-in. cast iron water main installed in 1919 along a developed 20-ft wide easement. The pipe shares the easement with a sanitary sewer pipe and overhead power, telephone, and cable TV lines. The pipe serves 53 properties and broke four times between May and September 2012. While only 19 of the properties were served directly by the pipe, the remaining 34 properties were connected to the pipe via a ‘loop’ (Figure 5).



**Figure 5 – 1,285 lf of backyard 12-in. pipe serving 53 properties and the location of its four breaks. Note the ‘looped’ pipe network north of the four breaks.**

Wauwatosa WU needed a fast and affordable solution to rehabilitate the problematic pipe. Dig-and-replace method was not an option due to structures built in the easement, mature and valued neighborhood landscaping along the easement, and limited access to the easement. Pipe bursting and directional drilling methods were not feasible because after pipe installation, excavations would be needed in the easement to reinstate each of the 19 service pipes. Wauwatosa WU decided the best way to repair its water main was using CIPP structural water main lining.

Fortunately, due to a combination of Appleton DPW withdrawing from the CPA, and a long-standing relationship between Wauwatosa and Marshfield officials, Wauwatosa WU knew Fer-Pal was in Wisconsin installing CIPP and that Appleton DPW had left the CPA. Wauwatosa had an opportunity to take advantage of the contractor’s presence to complete their emergency repair.

Officials from Wauwatosa WU traveled to Marshfield to review the CIPP procedure and meet SEH and Fer-Pal Construction. Wauwatosa WU asked SEH to quickly prepare a Request for Quote document, which Fer-Pal responded to using prices very similar to those they provided to the Cities through the CPA. Wauwatosa WU accepted Fer-Pal’s quote.

Because WiDNR now had previous experience using its new CIPP permitting requirements with the three other utilities, Wauwatosa WU was able to fast track its permitting process with the WiDNR. As a result, the contractor was able to complete the rehabilitation work before leaving Wisconsin for winter. In the end, approximately 4,200 lf of water main was reinstated in three Wisconsin communities – all at significant cost savings to the utilities and their customers.



**Figure 6 – Excavation in Wauwatosa after the Sept. 15, 2012 pipe break. The pipe runs parallel to, and behind, the retaining wall. Note the limited access along this pipe easement and the presence of overhead private utilities.**

**Summary**

Northern communities facing water main plights must do so in a way that is not only expeditious and economical, but also has minimal impact on the community and taxpayer property. In many cases, structural cured-in-place piping for water mains has come to represent the best choice solution for such a problem. And when a single Northern municipality does not have enough CIPP work to offset the high cost of qualified, out-of-state contractors, the answer lies in joining with like-minded communities to aggregate individual needs through a CPA. By doing so, they are able to attract more competitive bids. This solution significantly reduces cost for municipalities and is advantageous to contractors.

**This paper was edited for style and space for publication in NASTT’s *Trenchless Today*. To view the full version of Paper MM-T3-01, please visit [nastt.org/technical\\_papers](http://nastt.org/technical_papers).**



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- Colorado Department of Transportation, Colorado
- Colorado Springs Utilities, Colorado
- DC Water, District of Columbia
- DeKalb County Government, Georgia
- District of Maple Ridge, British Columbia
- Eagle River Water & Sanitation District, Colorado
- East Bay Municipal Utility District, California
- EBMUD, California
- Erwin Utilities, Tennessee
- Halifax Water, Nova Scotia
- Hamilton Township Municipal Authority, Pennsylvania
- King County, Washington
- Long Beach Water Department, California

- Meridian Township, Michigan
- Metro Wastewater Reclamation District, Colorado
- Miami-Dade County, Florida
- Moorhead Public Service, Minnesota
- Mount Pleasant Waterworks, South Carolina
- Municipality of Anchorage, Alaska
- Orange County Sanitation District, California
- Pinellas County Office of Engineering, Florida
- Port of Seattle, Washington
- Sacramento County, California
- Salt Lake City Public Utilities, Utah
- Salton Community Services District, California
- Santa Cruz County Sanitation District, California
- Sarasota County Government, Florida
- Seattle Public Utilities, Washington
- State of Washington Military Department, Washington
- The City of Medicine Hat, Alberta
- The Regional Municipality of Niagara, Ontario
- Town of Cary, North Carolina
- Town of Drumheller, Alberta
- Town of Wareham, Massachusetts
- Village of Bellwood, Illinois
- Village of Pleasant Prairie, Wisconsin
- Woodmoor Water and Sanitation District, Colorado

**These organizations will be attending NASTT's 2015 No-Dig Show, March 15-19 in Denver, Colorado.  
Plan to join them by registering at [nodigshow.com](http://nodigshow.com).**

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 8:00 AM - 12:00 PM  
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**NASTT's Trenchless Technology Short Course – Rehabilitation**  
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 Colorado Convention Center  
 Denver, Colorado

18  
**NASTT's Gas Industry Day**  
 8:00 AM - 6:30 PM  
 Colorado Convention Center  
 Denver, Colorado

18-19  
**NASTT's Pipe Bursting Good Practices Course**  
 March 18, 2015 2:30 PM - 5:30 PM  
 March 19, 2015 8:30 AM - 12:00 PM  
 Colorado Convention Center  
 Denver, Colorado

**NASTT's New Installation Methods Good Practices**  
 March 18, 2015 2:30 PM - 6:00 PM  
 March 19, 2015 8:00 AM - 12:00 PM  
 Colorado Convention Center  
 Denver, Colorado

**NASTT's HDD Good Practices Guidelines Course**  
 March 18, 2015 2:30 PM - 6:30 PM  
 March 19, 2015 7:30 AM - 12:00 PM  
 Colorado Convention Center  
 Denver, Colorado

**NASTT's CIPP Good Practices Course**  
 March 18, 2015 2:30 PM - 6:00 PM  
 March 19, 2015 8:00 AM - 12:00 PM  
 Colorado Convention Center  
 Denver, Colorado

**NASTT's Laterals Good Practices Course**  
 March 18, 2015 2:30 PM - 5:30 PM  
 March 19, 2015 8:30 AM - 12:00 PM  
 Colorado Convention Center  
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## Future NASTT's No-Dig Shows



March 20-24, 2016  
**NASTT's 2016 No-Dig Show**  
 Gaylord Texan  
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April 9-13, 2017  
**NASTT's 2017 No-Dig Show**  
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