VOLUME 15
2024

Excavation SAFETY MAGAZINE™

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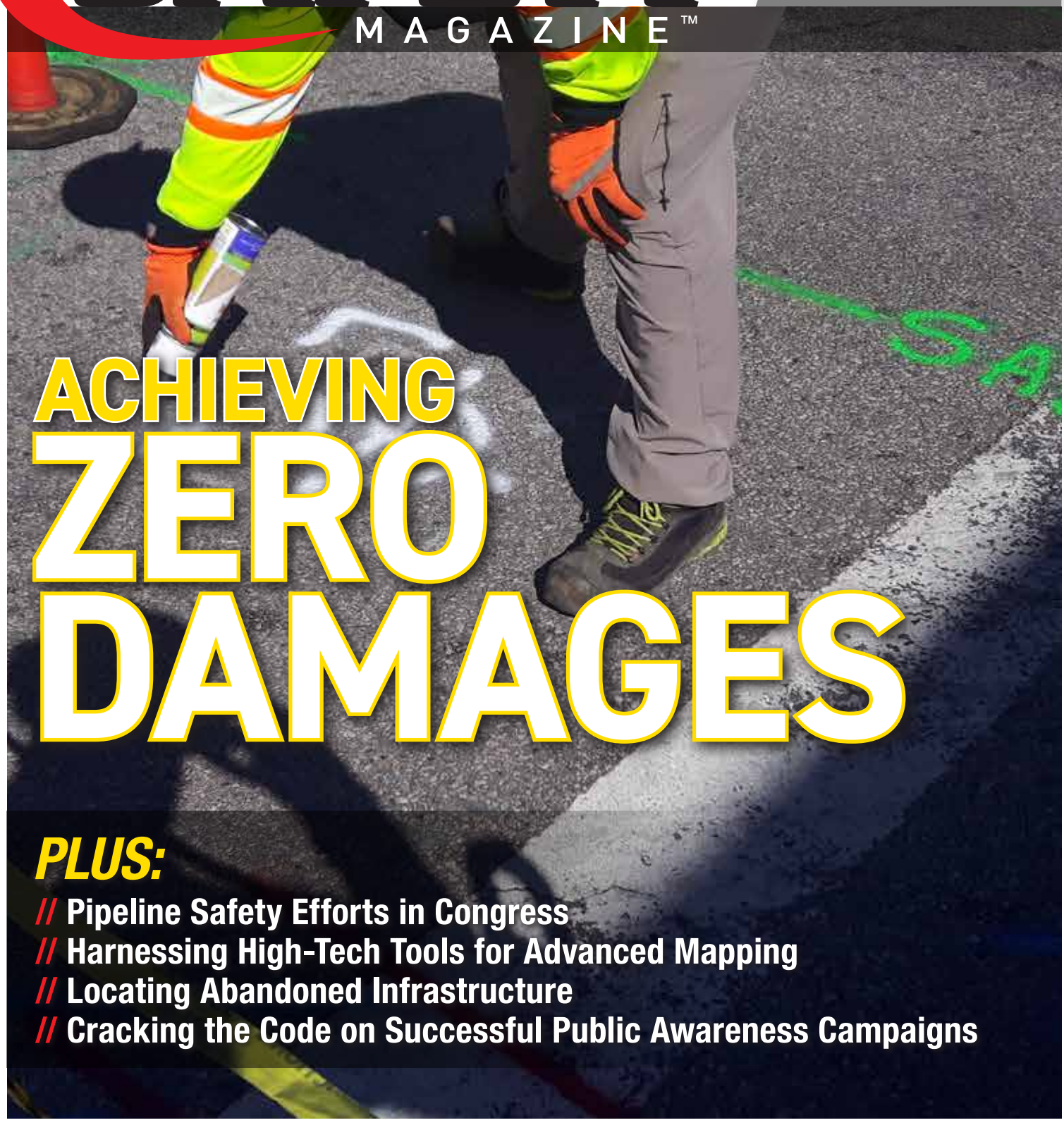

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More training isn't always the answer, especially when employees have already received training on the topic. Instead, dust off the materials, think outside the box, and encourage employees to revisit the topic.

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FROM THE
PUBLISHER

BY ROGER COX

Welcome to this issue of the Excavation Safety Magazine!

If you've received this issue through a subscription, you may be wondering what took us so long to mail your copy this year. The short answer is there have been some changes taking place and here is a brief background:

In 2023, the Excavation Safety Magazine was a quarterly publication, and in 2024 it moved to an annual publication. Additionally, in May of this year ACTS Now, Inc. (ACTS) acquired some of the products and services previously provided by Excavation Safety Alliance (ESA). One of those products is this publication.

To those of you who do not know us, let me give you a quick introduction. ACTS was incorporated in May 2007 by me, Roger Cox, and I'm part of a remarkable team who I hope you get to know better. Next year will be my 50th year working in this industry and in a variety of roles from an excavator, locator, utility owner/operator, the CEO of Arkansas 811 (Arkansas One Call at the time) and now as the owner of ACTS.

These varied experiences led me to conclude that for the most part, all stakeholder groups are committed to damage prevention and public safety, just not to the same degree. Unfortunately, the lack of mutual trust and respect among the stakeholders has created real obstacles to creating the dynamics that define a cohesive and successful team.

The founding principle of ACTS is to create an environment that allows for a free flow of ideas, that establishes the value of listening to people with different views, and creating the foundation for mutual trust and respect.

Since 2007, ACTS has published a quarterly damage prevention publication (811 Magazine) for several states primarily in the South. The 811 Magazine's current mailing is about 80,000 quarterly. Beginning with the first quarter of 2025, ACTS will combine its quarterly state-specific 811 Magazine with the Excavation Safety Magazine to create a new-look publication called the Global 811 Magazine.

The new Global 811 Magazine will combine the mailing lists of our current 811 Magazines and the mailing list of the current Excavation Safety Magazine to reach 100,000 recipients quarterly. We believe stakeholders who receive the magazine are interested in what their local 811 Center has to say and how changes to their respective dig laws will impact them.

Our team believes the new quarterly magazine will provide topics for tailgate meetings, safety briefings, and will continue to share national and international topics selected to keep excavation safety at the forefront of everything we do.

So, I encourage you to sit back and enjoy the current issue of Excavation Safety Magazine and anticipate the launch of the new Global 811 Magazine in early 2025.

To learn more about ACTS, check us out at www.aligningchange.com or look at what we've added to our portfolio at our new website www.actsnowinc.com. ESM

DEPARTMENT

The "Great Debate"-
is Ditch Maintenance Considered Excavation?

• BY CLINT KALFELL, PROGRAM ADMINISTRATOR, MONTANA811 •

Originally published in the 2024 Excavation Safety Guide

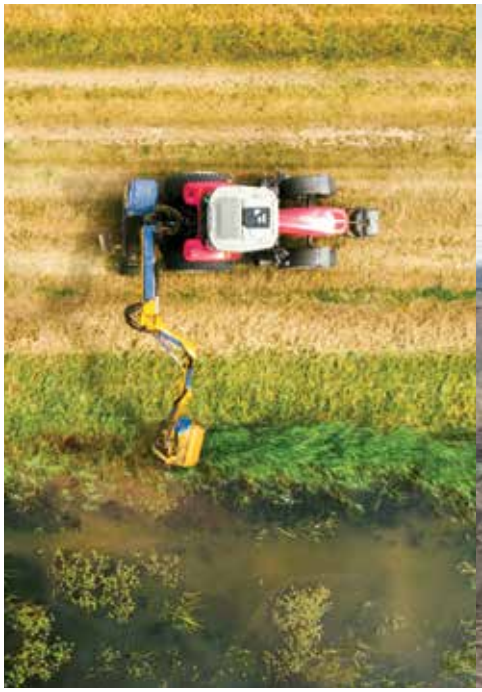
THE MAINTENANCE and creation of ditches, whether for drainage or irrigation are critical tasks in both road construction and agriculture. These activities, which always involve some form of excavation, raise significant concerns about the safety and legal implications associated with damage to underground utilities, especially pipelines transporting hazardous materials such as gasoline, diesel, or natural gas to your local community.

Understanding Ditch Categories

Ditches are categorized into two types: road and agricultural. Agricultural ditches require frequent maintenance due to the accumulated silt and vegetation, necessitating periodic removal to maintain the functionality.

Incidents and Responsibilities

There have been incidents where ditch cleaning, conducted without locating underground utilities, resulted in utility damage. These situations lead to hardships for the individual doing the digging (without a locate) when it comes to paying for the repairs. The real conflict is often who bears the cost of repair and implementing preventative measures, leading to the question - did you have a locate or not?



Excavation and Legal Limitations

A key question typically arises regarding the removal of accumulated material in ditches. Does the process count as excavation, thereby necessitating a One Call notification for the identification of underground utilities that could be impacted by the removal of dirt and vegetation? State laws vary across the U.S. drastically. Some state laws say no, ditch cleaning or road grading is not considered excavation if you are not "changing the grade". This is where the devil is in the details.

What about determining the original grade?

One challenge is determining the original bottom of a ditch, especially when using mechanical equipment. In cases where the ditch is not clearly marked or lined from the past, establishing the original grade becomes impossible to prove at times, and is a weak link for the excavator when it comes to liability. Some state laws offer exemptions for certain types of agriculture excavations, but the ambiguity remains, such as when cleaning irrigation ditches.

Opinion: Arguing over what constitutes excavation in the context of ditches seems fruitless. The use of mechanical equipment near ditches should always be accompanied by a locate request to ensure safety. The approach is not only a form of preplanning but also a free service acting as an insurance policy for the safety of all involved.

In conclusion, while state laws and definitions vary, the emphasis should be on safety and precaution. A simple, proactive approach involving a locate request can prevent potential hazards and disputes, ensuring the safety of individuals and the integrity of the underground utilities and the services your community and neighbors count on. ESM

DON'T BE THAT NEIGHBOR - ALWAYS GET A LOCATE WHEN DOING ANY EARTH-MOVING ACTIVITY, ESPECIALLY DITCH CLEANING!

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DEPARTMENT

GIS Mapping is Key for Future Utility Damage Prevention

Case Study: DOT Proactive Approach in Protecting Underground Pipeline Assets

• BY SANTOSH SARIDE, VICE PRESIDENT OF STRATEGY & BUSINESS DEVELOPMENT, GEOCAL LLC (AN ENVIROCAL BUSINESS SECTOR) •

UNDERGROUND UTILITIES are crucial assets and play a vital role in providing essential services for society's day-to-day life. The United States has a vast network buried with millions of miles of underground utilities that transport hazardous-liquid, natural gas, water, fiber optic, electrical conduits and many other forms of pipelines and sub-surface utilities. However, these utilities are endangered by not knowing their exact location, posing a significant risk to communities.

The deregulation of the utility industry and influx of new players into the market has led to an increased demand for access to the right-of-way (ROW). Due to aging infrastructure and lack of precise utility alignment/placement, the existing utilities have caused significant underground congestion and conflicts, especially at waterways, transportation rights-of-way, and utility crossings, leading to an increased operational risk in the field.

The stakeholders involved in utility design, construction, and infrastructure maintenance encounter numerous challenges with traditional underground utility management systems, and rapid expansion of underground utilities in urban areas. These challenges result in mishaps, fatalities, disruptions, project delays, and financial losses. The ability to mitigate these risks exists by providing accurate digital positional pipeline data while avoiding utility cross bore consequences through the use of trenchless HDD methods. On the other hand, the standard utility management system has become inefficient, due to maintenance of 2D record drawings maintaining inaccurate, unreliable information or out-of-date utility location information.

It is very important to have accurate as-built information of underground utilities in order to support installation of new pipelines, excavation of existing utilities, or other on-field pipeline digging activities. Lack of knowledge of pipeline geolocation information may result in catastrophic damage to existing underground utilities and disruption to utility services. However, the advancement of construction equipment technology combining Geographic Information Systems (GIS) and Building Information Modeling (BIM) can help us solve problems successfully.
The result is a digital geolocated 3D map of buried assets that can be integrated into any existing software such as GIS, AutoCAD, or BIM Software. Asset data residing in GIS has both spatial (location) and attribute (physical properties, condition, etc.).

Locate 'the Unlocatable' Pipelines

There are various technologies for underground utility locating that includes Ground Penetrating Radar (GPR), Electromagnetic Location (EML), acoustic pipe locator, infrared imaging, magnetometry, metal detectors, RFID detectors, and vibration acoustics for the locatable pipelines. The potential solution to identify the unlocatable utilities is "Inertial Measurement Unit (IMU) in-line GIS mapping" technology. Unlike other above ground locating solutions the in-line IMU mapping solution is autonomous in nature and provides high frequency XYZ GPS location information with higher accuracy. The location data is seamlessly uploaded to any GIS based platform.

The industry is actively embracing new technologies to promote safer communities and improve working conditions for field operators. It is a shared responsibility of all to avoid underground utility damage.

The utilization of IMU mapping technology enables the provision of accurate GPS coordinates for identifying pipeline defects. When repairs are needed for reported defects in a pipeline inspection, contractors can efficiently locate the defects using the IMU coordinates. This allows field personnel to pinpoint the GPS location of the defects before excavation, resulting in reduced digging costs and time spent in the field.

George Kuhn, the project manager for NJ DOT, mentioned they were previously unfamiliar with IMU technology, "However, after implementing IMU technology on Route 72 Manahawkin Bay Bridge, Contract 1A & 1B, we experienced positive results that allowed us to accurately determine the location of existing utilities and successfully complete the project on time."

Utilizing global positioning system (GPS) mapping and locating technology, it is possible to store and retrieve precise geographical positional data instantaneously. In addition, the integration of GPS-referenced pipeline utility locates with other technologies offers significant benefits. For instance, the combination of GPS, GIS, and digital video inspections for main lines and lateral service connections will enable utility owners, system operators, and construction contractors to make informed decisions that result in lowering operational costs, reduced risk of utility damage, enhanced safety, and establish more comprehensive infrastructure mapping and database management for buried utilities. ESM

Santosh Saride is a technical expert focused on fast-growing industries and transforming them from being product-driven to solutions-driven with embedded engineering technologies.

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When Prevention Fails: How and What Do We Learn?

BY STEVE CLEAVER, MANAGER, DAMAGE PREVENTION & COMPLIANCE, PACIFIC GAS & ELECTRIC, CO.

I joined the utility industry in January of 2015. Prior to entering the world of excavation safety, I had little knowledge of how underground infrastructure was installed, maintained, and protected. I understood the importance of the subsurface infrastructure where I lived and that it supported many aspects of the world I had come to know, but I lacked a personal connection to it.

Only a few months after I started my new role in Damage Prevention with the utility company that serves my hometown, I had an experience that completely changed my perspective and made it personal.

Pipeline Strike: It Got Personal

I was wrapping up my workday on a Friday afternoon and was shifting my focus from an engaging week to much needed family time. I was riding an emotional high of building connections with new coworkers and onboarding a group of new damage investigators, like myself. I was listening to a local talk radio show when I heard the producer break-in with news of a large fire at the north end of town. There was speculation as to what it was, but early reports noted there was a large column of sustained flames that had shut down traffic on the freeway and local first responders had secured the primary radio channels for emergency communications only. At nearly the same time, I received a communication on my phone of a possible gas line rupture in the same area. There were pipeline crews in the area that were providing personal accounts to our gas control center.

The scene was very chaotic. The incident was near a freeway and a major freight railway. All traffic had been halted by law enforcement and fire fighters were positioned at several locations to contain the spread of towering flames. Ambulances had picked up injured parties and were transporting patients to local emergency rooms. I saw coworkers jump into action and race to protect the public. A pipeline had been struck with a piece of heavy equipment and several people had been injured.

Photo captured by a motorist on a freeway near a natural gas transmission pipeline that was struck by a piece of heavy equipment in 2015.

The job I started just a few months earlier had taken on a completely different feeling. I knew I had been hired to help build and design a team to perform damage investigations and support overall damage prevention, but I was still figuring out what that meant and how it was interconnected to the rest of the utility operations. I was relatively unfamiliar with the excavation safety world and had never even heard the term "Damage Prevention" until I was interviewing for my current position. This one event, early into my new career, would shift my perspective significantly, forever. It was no longer something that happened in news articles in other parts of the country, or even in other parts of the world. It wasn't something that only affected someone else. It was now part of my story. I was experiencing the aftermath of a pipeline strike, in my hometown.

Since that first incident, I've responded to and investigated several more natural gas and electric line-strikes. Fortunately, they were all far less significant, with one exception. I've seen property damaged, services disrupted, and tragically, lives lost.

Damage Prevention & Continuous Improvement

For the utility and underground construction industry the stakes are high. A single misstep can have catastrophic consequences. A line-strike can result in service disruptions, environmental damage, property damage, and even loss of life. Despite best efforts to prevent such incidents, failures do occur. People are fallible. We all make mistakes, but as time passes these failures must not be lost. They have to serve as catalysts for continuous

improvement, driving the industry towards better practices and safer outcomes. Damage Prevention needs to be synonymous with excellence in excavation safety.

In 2015, I started my career in damage prevention with an emphasis on investigating for the purpose of determining who, what, when, where, and how. I had a bit of a "just the facts, ma'am," mentality. While my initial approach collected enough information to hold someone accountable for the damage (both the excavator and the locator), it didn't get to the root of the issue. I had completely ignored the "why". We had collected enough information to "settle the bill" but not enough to change behavior.

The organization saw improvements in several areas, but we weren't experiencing the kind of reduction in damages we had expected or hoped for. We saw growth in our relationships with excavators, but the damages persisted. Excavators began to trust our workgroup more, and largely appreciated the detailed investigations. We worked to be transparent and conclude with agreement on the facts collected, but the frequency and drivers of the damages remained consistent. We continued to see far too many line-strikes due to insufficient excavation and locating practices.

IT'S A WAY TO ENSURE WE'RE EVALUATING THINGS BEFORE WE GET TO THE POINT WHERE WE CAN NO LONGER RECOVER. VISUAL MANAGEMENT IS THE USE OF TOOLS AND DASHBOARDS TO SEE HOW WE'RE PERFORMING AND DRIVE DISCUSSION TOWARDS AREAS WHERE WE NEED TO FOCUS.

In 2017, I was introduced to new concepts by the organization I work for. Tools like Operating Reviews, Visual Management, and Problem Solving. Operating Reviews are meetings held on a daily, weekly, and monthly basis to monitor activities, discuss performance, escalate issues, and gain support as needed. It's a way to ensure we're evaluating things before we get to the point where we can no longer recover. Visual Management is the use of tools and dashboards to see how we're performing and drive discussion towards areas where we need to focus. They give visibility to the data we collect and support the Operating Reviews. Problem Solving is exactly what it sounds like, but with structure. Having a consistent way of evaluating issues helps people know what their role is and how they can be a part of identifying solutions.

The Damage Prevention team I was a part of was proud of the work we had been doing. We investigated all damages but found ourselves not using all of the data we were collecting. We had the information in our database, but we were still acting primarily on instinct and gut. We spent so much of our time responding to and investigating damages that we were unable to capitalize on the "prevention" in our name. We needed to challenge ourselves to do more and think about damage prevention with a focus on data and outcomes.

A New Way of Working

- ***Enhanced Reporting Structure:*** Organizational alignment makes Operating Reviews meaningful and beneficial. Including the right people with the right information at the right level is critical to creating opportunities for progress.
- ***Issue Tracking & Resolution:*** When issues are raised, track them and maintain visibility on them until they're resolved. It's easy to identify a problem and forget about it once we say it out loud. Maintaining visibility to problems helps ensure they're resolved in a timely manner.
- ***Make Time for Problem Solving:*** To promote continuous improvement, schedule time weekly to review events that result in unacceptable outcomes. These are issues such as quality findings, preventable damages, and troubling trends. Leaders are expected to attend and contribute.

Outreach and Education

- ***Workshops and Seminars:*** Participate in organized and targeted workshops and seminars for excavation companies, utility operators, and other stakeholders involved in damages. Focus events on partnering with excavators and governmental entities where you're experiencing the most damages.
- ***Public Awareness Campaigns:*** Structure public awareness campaigns that educate the general public and all coworkers about the dangers of utility strikes and the importance of contacting 811 before digging. Leverage internal resources. Use social media to focus on harder to reach audiences.

Continuous Improvement

While implementation and adoption of new tools is not always easy, it is worth it. Since the implementation of the Operating Reviews, Visual Management tools, and Problem-Solving sessions, the number of natural gas and electric line-strikes within our service territory has decreased significantly. The improved alignment in organizational structure, enhanced data analysis, targeted outreach, and stakeholder engagement have all contributed to a safer working environment for excavation crews and utility operators. Ongoing performance evaluation is necessary. We are never done.

Conclusion

Damage Prevention will fail. People will fail. Our best efforts won't always be successful. We must anticipate those failures and work to build a path for success. Challenge yourself and your teams to build those paths for success through continuous improvement. Always ask yourself, "Are we doing everything we can do?" ESM

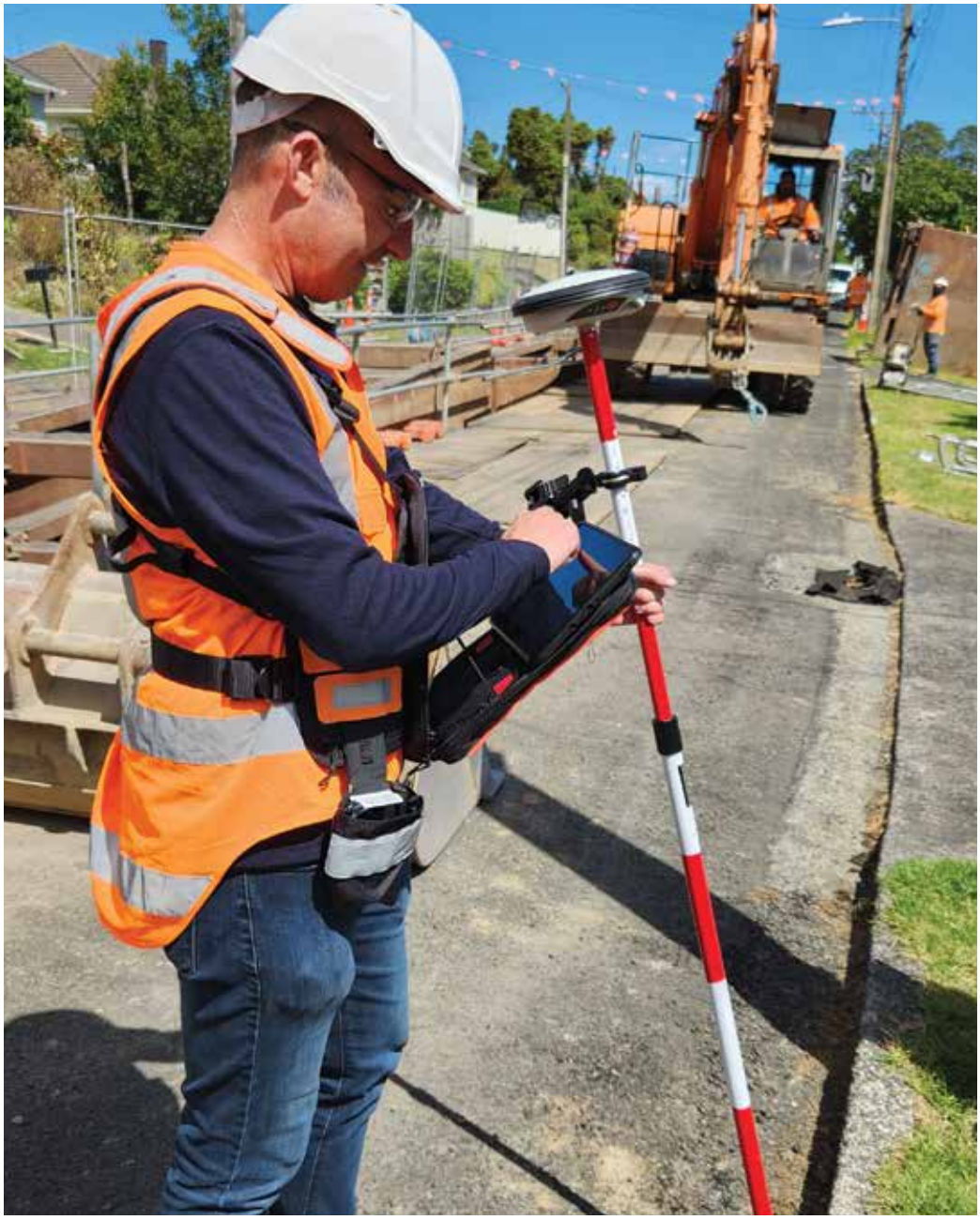
Steve Cleaver is the Manager for Pacific Gas & Electric Company's Damage Prevention & Compliance Operations. Before joining PG&E, he spent 15 years in Law Enforcement. Steve has served as a lead investigator for two significant pipeline strikes and experienced firsthand the devastation that can result from excavation damages. Steve's time with PG&E has been focused on preventing gas and electric line strikes and advocating for improved excavation safety practices.

Harnessing High-Tech Tools for Advanced Mapping

Implementing High-Precision Techniques to Streamline Utility Mapping

BY ABRAHAM ALPUERTO, BUSINESS DEVELOPMENT MANAGER / GEOLANTIS.360 SUBJECT MATTER EXPERT, PELICANCORP, INC.

Locating underground infrastructure has always been a challenge. Simply put, it's difficult to visualize what we cannot see. However, when working to improve the safety of excavation practices and maintain secure communities, it's critical to accurately identify the location of underground assets.



In the United States, state and federal laws require excavators to notify 811 at least 2-3 full business days before breaking ground (check the laws in your state for notification requirements). The 811 system notifies affected utility companies that a dig is planned and provides the area where utilities must be identified. The utility companies then send a professional locator to find and mark the approximate location of public underground utility lines. Unfortunately, this estimated location is not always accurate or comprehensive, particularly when referencing as-built drawings.

In 2022, the Common Ground Alliance (CGA) published the 2022 DIRT Annual Report that states locating practices were identified as a top root cause of damages, attributing about two-thirds of damages in this group to locator error. However, the "locator error" category may be a catchall for several issues. In fact, the CGA report notes that, "Top root causes associated with locator error likely mask deeper issues like inaccurate maps, faulty tracer wire or abandoned facilities."

Although all of these issues require attention, the issue of inaccurate maps is one to evaluate. In the 2023 CGA DIRT Special Report titled, "Uncovering Contributing Factors to Locating Practice Errors," the organization surveyed damage prevention professionals asking how effective a list of actions would be in improving the likelihood of accurate and on-time locates. Of those surveyed, 86% chose "updated maps" as a very effective action to likely improve the accuracy and timing of locate requests.

Sub Utility Engineering Processes and the Quality Data Delivered

To consider how to improve the accuracy and completeness of utility maps, we can learn quite a bit from Sub Utility Engineering (SUE). Using advanced techniques and technologies, the SUE process relies on the American Standard for Civil Engineering (ASCE) 38-22 standards, by using surveyors to create GIS databases and geophysical detection methods. SUE uses the American Public Works Association (APWA) utility color standards which set the Quality Levels A, B, C, and D:

- ***Quality Level A*** (QL-A) uses vacuum excavation or potholing to measure and record the exact locations of buried facilities. This data is spatially accurate and is collected with horizontal and vertical survey-grade accuracy.
- ***Quality Level B*** (QL-B) uses non-invasive methods, such as a GPR unit that locates utility lines using GPS. The GPR unit collects the latitude and longitude of the asset with centimeter-grade accuracy and provides detailed metadata to visualize the location of the line.
- ***Quality Level C*** (QL-C) involves surveys of the site where physical attributes, such as manholes or catch basins, are visually inspected to create an as-built diagram of the area.
- ***Quality Level D*** (QL-D) derives information from existing records or oral recollections from all public and private owners. No field investigations occur. This level is used in the planning stage of the project.

Quality Level B (QL-B) is the sweet spot for mapping underground utilities. It avoids invasive methods, is highly accurate, and delivers in-depth data to envision the underground infrastructure. When reviewing data obtained in **Quality Level A (QL-A) and B (QL-B)**, one can say with certainty, for example, that there is a 10-inch water line at a depth of five feet at a certain latitude and longitude, and the record may include illustrations or photos of the site.

Locate and Map with High-Precision Data

To conduct **Quality Level B (QL-B)** utility mapping with high precision, several tools are required. An Electromagnetic (EM) locator is employed to detect electromagnetic signals emitted by metallic infrastructure such as pipes and cables. Additionally, a Ground Penetrating Radar (GPR) may complement or substitute the EM locator. A GPS unit is typically mounted on a two-meter pole or integrated directly into the EM locator to precisely geo-reference data. Finally, a data collection system is used to gather metadata and visually map the information for future reference. This system includes a digital smart device equipped with mapping software.

To locate subsurface utilities, the field crew member waves the receiver back and forth to register the peaks and nulls of the utility line. Once the position is found, the locator uses the GPS receiver on the pole to lock in the position. The field crew member typically uses a harness to hold the smart device so the display can be read, freeing up both hands to manage the equipment. The mapping software collects rich metadata.

Advanced utility mapping software gathers the data while it is mapped and organizes it into a report that is easily shared with other stakeholders. It improves workflows by automating processes and digitizing the mapped points so they can be easily visualized. To ensure the data is available anywhere, anytime – even in remote areas – the data is stored in a central repository in the cloud. Robust software solutions provide mobile apps for Android and iOS systems.

The data available is a game-changer for stakeholders. Points are mapped and can be shown on a map tool, such as Google Earth™, to visualize the location. For instance, if a line starts at a gain of 1.5 and increases to 3.51 near the end, Quality Assurance (QA) or Quality Control (QC) may need to investigate what is happening with the utility line. By inspecting the map with Google Earth, QA/QC might see that the line depth increased as it moved closer to a transformer. This information may be critical to the excavation work that needs to be completed. Other data that can be collected includes depth, height, accuracy level, direction, gain, current, frequency, signal strength, type of receiver, and more.

TO CONSIDER HOW TO IMPROVE THE ACCURACY AND COMPLETENESS OF UTILITY MAPS, WE CAN LEARN QUITE A BIT FROM SUB UTILITY ENGINEERING (SUE). USING ADVANCED TECHNIQUES AND TECHNOLOGIES, THE SUE PROCESS RELIES ON THE AMERICAN STANDARD FOR CIVIL ENGINEERING (ASCE) 38-22 STANDARDS, BY USING SURVEYORS TO CREATE GIS DATABASES AND GEOPHYSICAL DETECTION METHODS.

Utility Mapping is Ready for an Upgrade

With the technology available, high-precision data collection is available to companies – large, medium, or small – and the benefits are impressive. The improvements in data collection enhance the spatial precision of One Call data for better accuracy and reliability while minimizing construction delays and costs. There is a greater potential to detect possible conflicts early with enhanced data quality, resulting in reduced accident risks, service interruptions, and project slowdowns.

Utility mapping technology facilitates data migration and integration with Geographic Information Systems (GIS) and Computer-Aided Design (CAD) environments. It improves cross-departmental data communication and boosts collaboration among stakeholders. Advanced utility mapping software streamlines the reconciliation process between GIS and One Call systems, and enables informed, timely decision-making through real-time interaction with field data. The benefits of an advanced, innovative utility mapping software program are impressive. ESM

Pipeline Safety Efforts in Congress

BY JOSHUA ST.PIERRE, MANAGER, LEGISLATIVE AFFAIRS, AMERICAN PUBLIC GAS ASSOCIATION

For community-owned gas utilities across the country and the thousands of other natural gas industry stakeholders, safety is the number one priority. Natural gas utilities invest more than $33 billion per year to help enhance the safety of natural gas delivery systems. In addition, dozens of American Public Gas Association (APGA) member systems have been awarded millions of dollars in grants via the Natural Gas Distribution Infrastructure Safety and Modernization Grants (NGDISM), a program Congress funded specifically for community-owned gas systems to invest in the safety and modernization of their pipeline infrastructure. Congress plays a pivotal role in guiding and exercising oversight of the federal agencies tasked with regulating the safety of the natural gas industry. More often than not, new regulations for pipeline operators and excavation professionals are borne out of the legislative process, more specifically, the reauthorization of the Pipeline and Hazardous Materials Safety Administration (PHMSA). It is pivotal for experts at all levels of the industry to engage with policymakers to ensure that pipeline safety efforts in Congress are well-informed and actually improve safety outcomes.

THE LEGISLATIVE LANDSCAPE

Pipeline safety is not a fresh subject for policymakers in Congress. In 1968 the Pipeline Safety Act was passed, giving the federal government, the Department of Transportation (DOT), authority to regulate pipeline safety. In 2004, because of the growing size and complexity of the regulated industry, legislation was passed to establish PHMSA as a separate entity within the DOT. Since its establishment, Congress has undergone a process known as "reauthorization" wherein typically every 3-4 years they pass a law setting the authorized funding levels for the agency, updating guidelines, asking that standards be incorporated by reference, and sometimes, mandating new regulations.

Reauthorizing the agency is a long and complicated legislative process that consists of various legislative hearings, proposals, negotiations, stakeholder meetings, and more. For a pipeline safety bill to be enacted, the two committees of jurisdiction in the House of Representatives must agree to the exact same language. Then, the bill must be voted on by the full membership of the House. The same process must occur in the Senate, beginning with the committee of jurisdiction. Either chamber can act first or they can work simultaneously. Ideally, the Senate and House versions of the bills are alike, but if not, differences must be worked out in a conference committee and a compromise bill must be drafted and approved by the full memberships of both bodies. If and once all of this occurs, the bill must then be signed into law by the President. Throughout this process, there are plenty of opportunities for proposals to be made that are not practical and may create unnecessary barriers for members of the natural gas industry to achieve their number one priority, safety. Interested stakeholders must engage closely with members of Congress and their staff during this process to ensure that new policies will truly help the industry improve safety outcomes.

RECENT EXAMPLES OF PIPELINE SAFETY REAUTHORIZATION LEGISLATION

Most recently, the Protecting Our Infrastructure of Pipelines and Enhancing Safety (PIPES) Act of 2020 was passed reauthorizing the agency until late 2023. The bill was passed after the devastating Merrimack Valley Incident which occurred in 2018, and the lessons learned from this tragic incident influenced the inclusion of several additional safety mandates. Below are examples of several rulemakings that PHMSA promulgated based on the bill's passage:

- **Gas Pipeline Leak Detection Rule**
- **Safety of Gas Distribution Lines Rule**
- **Pipeline Operational Status Rule**

PIPES ACT 2020 WEB CHART

COMPLETED RULEMAKINGS

Rule Title/Subject/Docket No.	RIN	Rule Stage	Legislation	Description of Work Plan	Rulemaking Timeline (*actual date)		OST Date for Completing Review (45 days)	Date(s) Sent back to PHMSA	Date(s) Sent Back to OST	Current Staff PHMSA/OST Allocation **	Resource Constraints Affecting Process in PHMSA/ OST	OMB Date for Completing Review (90 days) (reginfo.gov)	Additional Details Affecting Rulemaking	Additional Comments on Rulemaking Status
OPS: Safety of Gas Transmission Pipelines: Discretionary Integrity Management Improvements * * * COMPLETED * * *	2137-AF39	Final Rule	**Pipeline Safety Act 2011** Sec 5	Completed	To OST To OMB FR Pub	09/07/21* 02/23/22* 08/24/22*	10/22/21	11/15/21 12/15/21 01/26/22	12/10/21 01/25/22 01/26/22	9 staff PHMSA 5 staff OST	YES	05/24/22	GPAC meeting held March 26-28, 2018.	The Final Rule published in FR on 08/24/2022. This completes the mandate.
OPS: Safety of Gas Gathering Pipelines * * * COMPLETED * * *	2137-AF38	Final Rule	**Pipeline Safety Act 2011** Sec 5; **PIPES Act 2020** Sec 112	Completed	To OST To OMB FR Pub	06/30/21* 08/31/21* 11/15/21*	08/16/21	07/09/21 07/21/21 09/24/21	07/15/21 07/22/21 10/05/21	9 staff PHMSA 5 staff OST		11/01/21		Final rule published in FR on 11/15/2021. PHMSA completed the applicable legislative mandate upon publication of the Final Rule.
OPS: Amendments to Parts 192 and 195 to require Valve Installation and Minimum Rupture Detection Standards * * * COMPLETED * * *	2137-AF06	Final Rule	**Pipeline Safety Act 2011** Sec 4 and 8; **PIPES Act 2020** Sec 113	Completed	To OST To OMB FR Pub	09/24/21* 12/15/21* 04/08/22*	12/13/21	10/26/21 11/16/21 11/23/21	11/10/21 11/17/21 11/24/21	8 staff PHMSA 5 staff OST	YES	03/15/22		Final Rule published in FR on 04/08/2022. PHMSA completed the applicable legislative mandate upon publication of the Final Rule.
OPS: Coastal Ecological Unusually Sensitive Areas * * * COMPLETED * * *	2137-AF31	Interim Final Rule	**PIPES Act 2016** Sec 19; **PIPES Act 2020** Sec 120	Completed	To OST To OMB FR Pub	09/07/21* 10/22/21* 12/27/21*	10/22/21	09/28/21	10/15/21	8 staff PHMSA 5 staff OST	YES	12/10/21	Public workshop held June 12-13, 2019.	IFR published in FR on 12/27/2021. PHMSA completed the applicable legislative mandates upon publication of the IFR.
OPS: Class Location ***COMPLETED***	2137-AF29	Final Rule	**PIPES Act 2020 Sec 115**	Hold GPAC meeting	To OST To OMB FR Pub	NA NA NA4				8 staff PHMSA 5 staff OST	YES			NPRM published in FR on 10/14/2020. Comment period closed 12/14/2020; GPAC meeting held week of March 25, 2024. The closing date for filing comments is August 22, 2024, for comments on the GPAC proceedings.

"Legislation from Congress can provide an opportunity to modernize, innovate, and strengthen the industry's commitment to the safe delivery of energy to millions of Americans. As a result, we have seen bills that enable PHMSA to work with natural gas industry stakeholders to adopt new and emerging technologies, implement leading best practices, increase public awareness, invest in infrastructure, etc."

Pipeline safety legislation results in direct impacts to the work that operators and excavation professionals undertake. The chart (on the previous page) details the status of the rulemakings from the PIPES Act of 2020.

STATUS OF PIPELINE SAFETY REAUTHORIZATION IN 2024

In September of 2023, PHMSA's pipeline safety authorities officially lapsed. The agency is capable of continuing most of its regular operations via the revenue it earns from fees charged to regulated entities. However, it is important that the agency be reauthorized by Congress in order to maintain its authority and receive the full, necessary funding from the federal government.

Currently, two pipeline safety reauthorization bills have been introduced in the House of Representatives. No bill has been introduced in the Senate. Each of the bills has been referred to the two respective committees with jurisdiction over the reauthorization of PHMSA. These committees are the Energy and Commerce Committee and the Transportation and Infrastructure Committee. Both of the bills have a lot of similarities but it's their few differences that have caused progress to slow in the chamber.

H.R. 6494 Promoting Innovation in Pipeline Efficiency and Safety (PIPES) Act of 2023
Committee: House Transportation and Infrastructure

H.R. 7655 Pipeline Safety, Modernization, and Expansion Act of 2023
Committee: House Energy and Commerce Committee

KEY SIMILARITIES:

- Strengthens penalties for pipeline safety violations.
  - Both bills include language that would increase criminal and civil penalties for "damaging, destroying, or impairing the operation of pipeline facilities."
- Establishes a pipeline safety voluntary information sharing system (VIS).
  - Both bills include language that would require PHMSA to establish a confidential voluntary information sharing (VIS) system to encourage the sharing of pipeline safety data and information.
- Bolsters excavation damage prevention language.
  - Both bills include language that would update PHMSA's assessment criteria for State Damage Prevention Programs and describe additional leading practices state One Call programs should consider implementing to prevent excavation damage to pipelines and other underground utilities.

KEY DIFFERENCES:

Pipeline Safety, Modernization, and Expansion Act of 2023

- Authorizes PHMSA's pipeline safety programs for five years.
- Protects fuel choice for consumers.
  - This bill includes language that would prohibit a state or municipality from banning the transportation of an energy source, including natural gas or liquid fuels, that are sold in interstate commerce using a pipeline facility regulated by PHMSA.
- Modernizes and expands pipelines.
  - This bill includes language that would streamline federal energy permitting processes by granting the Federal Energy Regulatory Commission (FERC) expanded authority.

PIPES ACT OF 2023

- Authorizes PHMSA's pipeline safety programs for four years.
- Requires the agency to conduct several studies on the below topics.
  - Composite materials for pipelines study
  - Geohazard mitigation study
  - Integrity management study
  - Hydrogen-natural gas blending study
  - Localized emergency alert system for pipeline facilities incidents study

Reaching a consensus is challenging. Reaching a consensus on an issue as complex and important as pipeline safety in this political climate can seem next to impossible. Both of the bills mentioned above are the fruits of much labor and both bills in their current states have been voted favorably out of their respective committees. This complicates the process as leaders in both committees must reach an agreement on the same text before the next step, a vote by all House members, can occur. Also, the Senate committee of jurisdiction has not introduced its version of the legislation. With a dwindling number of legislative days left on the calendar, it becomes more and more difficult for a pipeline safety bill to be passed in 2024.

NEED FOR CONTINUED ADVOCACY

Legislation from Congress can provide an opportunity to modernize, innovate, and strengthen the industry's commitment to the safe delivery of energy to millions of Americans. As a result, we have seen bills that enable PHMSA to work with natural gas industry stakeholders to adopt new and emerging technologies, implement leading best practices, increase public awareness, invest in infrastructure, etc. This is only possible because of the advocacy of experts in the natural gas industry who offered their knowledge to policymakers throughout the legislative process. Continued engagement on Capitol Hill is the only way to ensure Congress is well-informed to legislate practical solutions that truly improve safety outcomes. ESM

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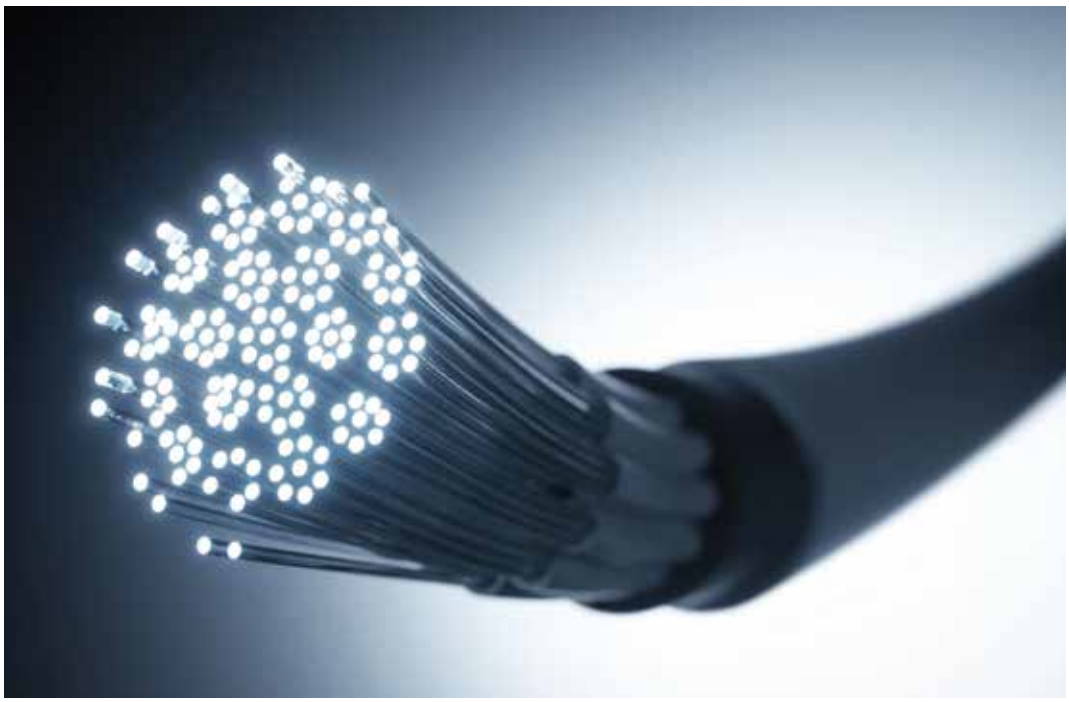
Is This the Answer to Damages Caused by No One Call Tickets?

• BY KYLE VANLANDINGHAM, DIRECTOR OF BUSINESS DEVELOPMENT, TEXAS811 •

IN MARCH 2024, Texas811 and CenterPoint Energy worked with OptaSense and Dura-Line to conduct a proof-of-concept test to demonstrate how fiber optic sensing can detect excavation activities near protected underground utilities. When excavation activity is detected, an alert is sent to Texas811, and our ticket database is queried. If a valid One Call ticket exists at the location of the alert, no further action is taken. If there is not a valid One Call ticket at the location of the alert, an emergency notification is sent to the facility operator providing an opportunity to intercede before damage occurs.



The test accurately detected the vibration activity, identified its source as manual or mechanical, and alerted Texas811 to the GPS of the vibration.

Utility damage prevention has worked the same way for fifty years. The excavator calls the notification center, describes the planned work, the center contacts facility operators in the work area, and underground utilities are marked. This process has prevented billions of dollars of damage to underground utilities and saved countless lives ever since.

That initial excavator call drives the process; but without that call, the system doesn't work.

Excavation without a valid One Call ticket is the largest cause of damage to underground utilities. According to the Common Ground Alliance, 24% of all damage nationwide results from excavations without a One Call ticket, and 77% of damage due to no One Call ticket is caused by professional excavators.

We need a way to provide protection to high-value underground facilities even when there is no One Call ticket.

Fiber Optic Sensing provides a way to do that.

This Isn't Your Father's Fiber Optic Sensing

Fiber Optic Sensing technology has greatly improved over the last decade. New classification algorithms based on machine learning and AI are significantly more accurate in detecting and identifying unique vibration signatures. This advanced technology minimizes nuisance alerts caused by misidentifying non-excavation activities as an excavation. It can accurately identify excavation vibration signatures even in noisy environments like city traffic.

Processing alerts through the Texas811 database prior to sending them to the facility operators eliminates unnecessary alerts for excavation activity that is covered by an existing One Call ticket.

The proof-of-concept test results were showcased at the Common Ground Alliance Expo in April 2024 and the Texas Gas Association in June 2024, sparking significant interest at both events. ESM

For additional information go to Texas811.org/FOS or contact FOS@Texas811.org.

DEPARTMENT

Locating Abandoned Infrastructures in Quebec, Canada

• BY NATHALIE MOREAU, EXECUTIVE DIRECTOR, PREVENTION AND PUBLIC AFFAIRS, INFO-EXCAVATION & CAROLINE LESSARD, SENIOR DIRECTOR, GEOMATICS AND NETWORK INFORMATION, ÉNERGIR •

INTRODUCTION

Abandoned underground infrastructures and unidentified buried energy and utility networks constitute a serious challenge. Unfortunately, these elements do not always appear on the locate reports received from the infrastructure owners and can greatly affect either the construction sites or the workers when discovered. They can also give rise to construction delays, change orders, the utility's relocation costs and, of course, damages to the utility.

Sadly, unknown underground infrastructures and unidentified utilities are a problem that will tend to increase over time. Defining policies and procedures that need to be implemented is not an easy task. Info-Excavation, the damage prevention centre for the province of Quebec, has decided to work on finding potential solutions.

DAMAGE PREVENTION CENTRE - LET'S FIND SOLUTIONS

Info-Excavation sent invitations to recruit different stakeholders toward the creation of an official committee. The goal of this committee was to discuss and find solutions related to abandoned and unregistered underground infrastructures. A total of 15 participants from infrastructure owners, municipalities, government organisms, and other organizations offered their time and knowledge.

The mandate of the committee was to:

- ***Define the risks associated with abandoned infrastructures.***
- ***Identify and document cases in Quebec and elsewhere.***
- ***Find solutions to reduce the risks.***
- ***Elaborate a process to identify and improve the infrastructure owners' mapping.***

The committee documented 12 high-impact cases in Quebec.

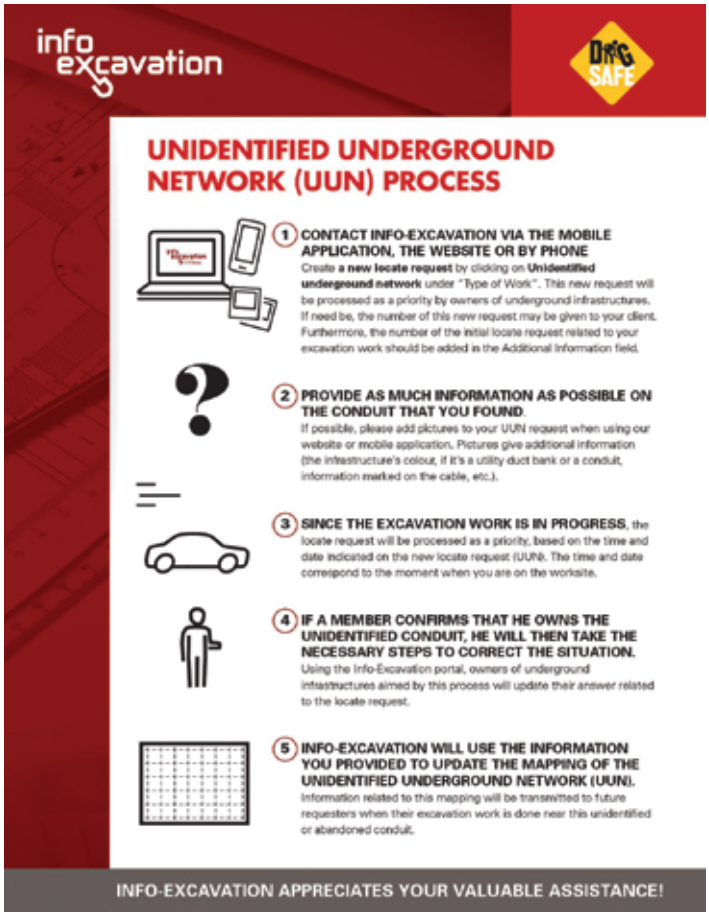
Several meetings were conducted and different solutions were discussed. The end result was the development of a new process created in Quebec that allows the digging community to notify Info-Excavation whenever an unknown or an unregistered underground infrastructure (UUN) is discovered which does not appear in the original locate request.

From now on, when an unidentified underground network is discovered, contractors can place a UUN locate request via our portal or mobile application and add various details such as pictures, description, colours, etc. These UUN requests will be sent to all members who own underground infrastructures in the city where this network has been discovered.

This process will enable us to update our databases and inform future workers when excavation work is projected within the relevant work area.

The last key step was to communicate, communicate, communicate… and that's what we did to all important stakeholders involved in this new process!

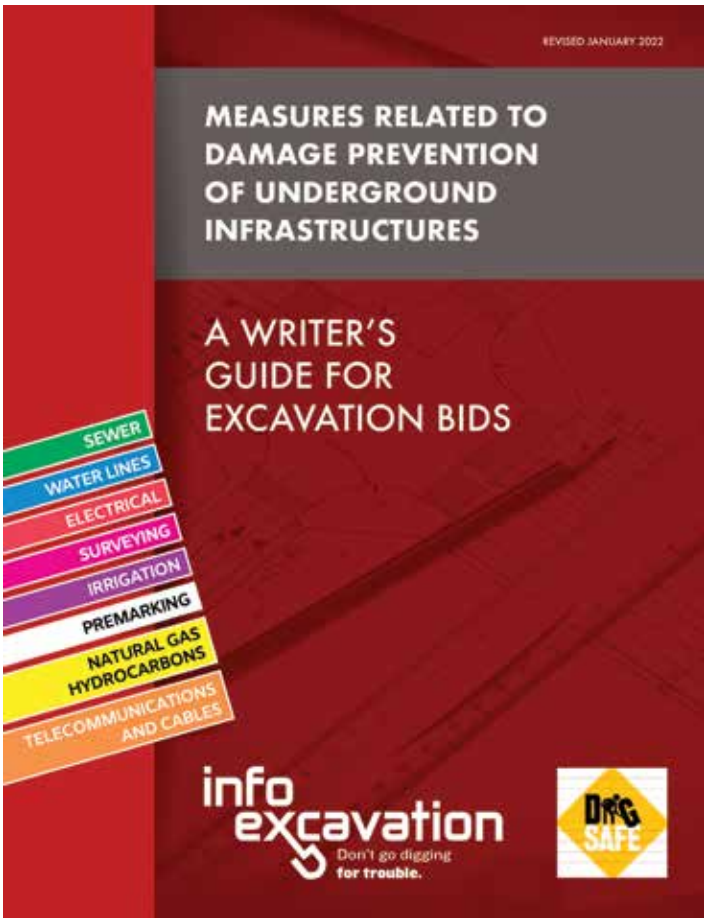
A few years ago, we created a writer's guide for excavation bids. A new clause concerning unidentified underground infrastructures was added. Clients are now asked to add this clause to their tenders when they hire excavators. The clause must stipulate that a UUN request be made by the excavators whenever they find an abandoned facility. Clients and infrastructure owners can help educate the various stakeholders regarding this new process.



ÉNERGIR'S REALITY – AN IMPORTANT GAS INFRASTRUCTURE OWNER IN QUEBEC

At Énergir, the history of our abandoned network is saved in our Geographic Information System (GIS) for several years. As for gas pipes, they have been saved since 2000, while connections are saved since 2014. As for our entire abandoned network, we have a layer in our GIS where users can enable or unable the filter. All documents related to abandoned networks before these dates are archived in paper format only.

Énergir has a very rigorous process for updating its GIS. As soon as one of its



networks is abandoned or modified, Énergir employees must create an "As-Built" document. The related information is sent to the geomatics department who will use the document to update the GIS. Performance indicators linked to our GIS updating process are used. The "As-Built" document for pipes must be completed within 30 days, while the "As-Built" document for services must be completed within 90 days. From the moment the "As-Built" document arrives at the office, the geomatics department has 30 days to update the GIS.

Our "As-Built" process is currently offered in a PDF format which can be annotated using an iPad. We are currently in the process of implementing a "Digital As-Built" procedure where employees will be able to use AutoCAD and ESRI Field Map paired with a High-Accuracy GNSS (Trimble) receiver to create the "Digital As-Built" document.

There are two processes for Unidentified Underground Networks (UNN) at Énergir. Regarding the first process, an excavator may call Énergir's customer service directly. A field order is then created and a technician goes on site to validate if the network is active or inactive.

Created in 2022, the second UUN process is a new process at Info-Excavation which notifies Énergir directly. After analyzing the situation, Énergir decides if a technician should or should not be sent on-site.

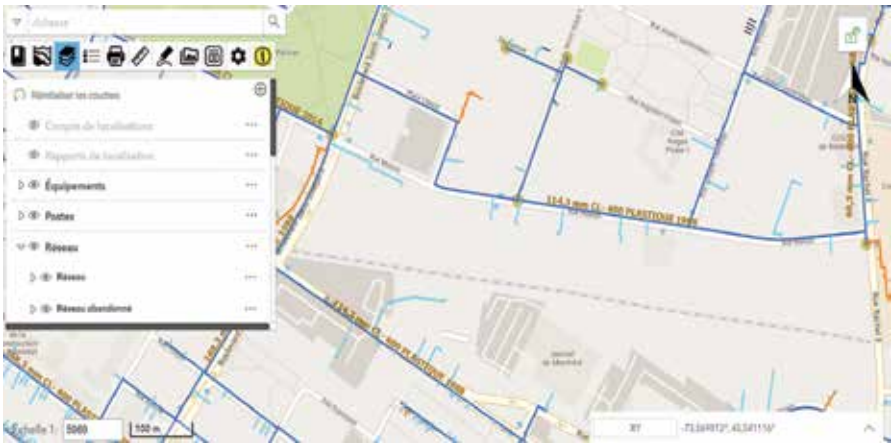
Moreover, since 2018, abandoned infrastructure now appears on the Engineering requests for municipalities. This information is most appreciated by the municipalities as it helps them plan accordingly.

CONCLUSION

Info-Excavation was able to implement an easy process for excavators and a consultation tool is now available for mapping unidentified networks. The centre received over 100 UUN locate requests since 2022 and the feedback received by the digging community is very positive. Even though the process does not give all the solutions, it can rapidly help find answers.

This process will work if every stakeholder accepts to shoulder their responsibility.

Infrastructure Owners = Keep all abandoned utilities in their mapping systems and mention them in the locate reports.



Clients = Ask excavators to document unidentified facilities they have found and respect the time excavators take to create the documentation.

Excavators/Municipalities = Help identify the unknown facilities found in their work zone through the use of a locate request sent to Info-Excavation.

One Call Centre (Info-Excavation) = Create/build a map for all abandoned/unidentified facilities in Quebec.

With everyone's help, we will BUILD THE FUTURE TOGETHER! ESM

Leaders Are All Around Us:

TRANSFORMING CULTURE AT OHIO811

BY NICHOLE FARMER, HR MANAGER AND MARIA FRASCO, HR GENERALIST, OHIO811

Leaders can be found at every level of an organization, a concept OHIO811 has embraced in its cultural transformation over the past several years. During a recent presentation at the Global Excavation Safety Conference in New Orleans, Louisiana titled "Leaders Are All Around Us," Executive Director, Roger Lipscomb along with HR Manager, Nichole Farmer and HR Generalist, Maria Frasco shared insights into the significant journey OHIO811 has undertaken.

The Need for Change

With a clear understanding of OHIO811's 50 plus years of operation, Executive Director, Roger Lipscomb acknowledged the need for a cultural transformation. This realization prompted thorough evaluation of the organization's structure, practices, and culture. It became clear that in an effort to continue fulfilling the organization's and industry's future needs, a new direction was needed.

Roger shared his personal story of overcoming a major health issue and how that experience and other insights led him to become deeply committed to the cultural change at OHIO811. He recounted the initial steps of the journey, highlighting the pivotal moments and key decisions that set the transformation in motion.

A Shared Vision

The process began with the creation of a shared vision. This vision was not just shared by the Leadership team and employees but also by the Board of Trustees. It involved transforming the culture by redefining core values, behaviors, and practices. A key tool in achieving this was the DISC assessment, a personality assessment used to enhance communication skills, personal awareness, and peer-to-peer accountability. This tool helped

team members understand themselves and each other better, laying the groundwork for a more cohesive and effective team. The Leadership team dedicated themselves to charting a new course, emphasizing a shared vision that encompasses Intent-Based Leadership with an Outward Mindset Culture.

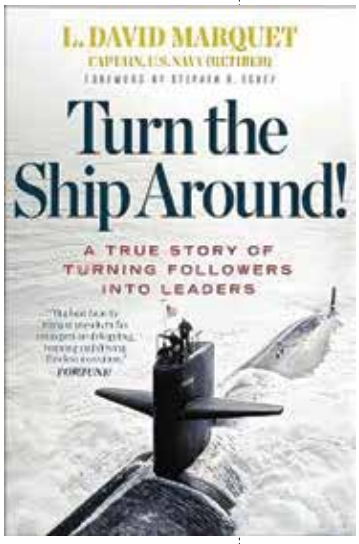
The Pillars of Change

Three main principles have been the pillars of OHIO811's cultural change:

1. The Five Dysfunctions of a Team: This framework helped identify and address key areas where teams often struggle, such as trust, conflict, commitment, accountability, and results. By understanding and overcoming these dysfunctions, OHIO811's teams have become more united and productive.

2. The Outward Mindset: Encouraging employees to focus on the needs, objectives, and challenges of others rather than just their own. This mindset shift has promoted a more collaborative and supportive work environment.

3. Intent-Based Leadership: This principle empowers employees at all levels to take initiative and make decisions, fostering a sense of ownership and responsibility. By giving everyone a voice and encouraging leadership at every level, OHIO811 has cultivated a more dynamic and responsive organization.



Commitment to the Journey

The commitment to this cultural transformation is not a one-time effort but a continual process. Leadership's commitment ensures the new vision and principles are deeply integrated into the organization's daily operations. Continuous learning, adaptation, and reinforcement of these principles have been essential to sustaining the momentum of change.

The team implements regular training sessions and workshops to keep everyone aligned with the new culture. These sessions include role-playing exercises, team-building activities, and open forums for employees to voice their thoughts and opinions. By creating an environment where feedback is not only accepted but encouraged, OHIO811 fosters a culture of continuous improvement.

Roger shared that one of the most significant indicators of success was the noticeable improvement in team dynamics and overall employee engagement. The organization continues to see a decrease in turnover rates and an increase in productivity, which he attributes to the stronger, more collaborative culture.

Navigating Challenges

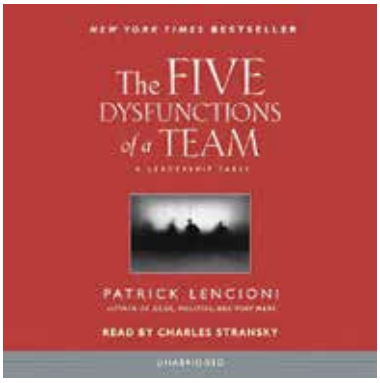
Bumps in the road can be expected during an organizational culture change. Part of the journey involves allowing room for mistakes and understanding that people will begin to embrace it at varying levels. This topic was addressed during the presentation, emphasizing that cultural changes are not for the faint of heart. Often, it is necessary to remind one another where the journey started and, more importantly, where it is headed. It was explained that these challenges should not deter progress, and sustained dedication from the Leadership team is critical for driving positive change and maintaining focus.

They emphasized the importance of nurturing a positive outlook and being patient with the process. They shared stories of the initial resistance they encountered and described their efforts in persistently communicating and providing support to bring everyone on board. They highlighted that acknowledging and celebrating small victories along the way helped in maintaining momentum and building morale.

Conclusion

The cultural shift at OHIO811 demonstrates the power of recognizing and nurturing Leadership at all levels. By adopting a shared vision, using tools like the DISC assessment, and embracing principles such as The Five Dysfunctions of a Team, The Outward Mindset, and Intent-Based Leadership, OHIO811 has set a strong foundation for its future. The dedication to shifting the culture is a testament to the idea of progress. It reflects a commitment to positive change, challenging norms, and with the right approach, how it can drive significant and positive change within any organization.

OHIO811 gives credit to their initial partners and resources, including



Action Coach, for their collaborative partnership in providing executive coaching to the Executive Director and OHIO811 Leadership Team. They also acknowledged Patrick Lencioni, an author known for his books on business management, best known for "The Five Dysfunctions of a Team." Additionally, they highlighted the contributions of David Marquet, a retired United States Navy captain and bestselling author of "Turn the Ship Around!"

The presentation served as an inspiring example of how committed Leadership and a clear, inclusive vision can transform an organization from within. The journey highlights the importance of patience, persistence, and the belief that in fact, Leaders Are All Around Us.

Ohio Utilities Protection Service, now doing business as OHIO811, was founded in 1972 as a nonprofit association. OHIO811 is committed to preventing damage to member facilities and promoting public safety across the state of Ohio. ESM

For additional information, resources, or for a certified DISC Assessment, please contact Nichole Farmer and Maria Frasco at oupshr@oups.org.

BY SHARON LIPINSKI,
CEO, HABIT MASTERY
CONSULTING

Didn't We Do Training on That?

4 Strategies to Reignite a Past Training

If you held a training program that didn't stick, you're not alone. According to a McKinsey study, only 25% of managers report that training changes employees' performance. The other 75% are left wondering, "Didn't we do training on that?"

The best defense against this problem is to design your training program according to a proven system that approaches the program with clarity on the problem, designed with adult learning principles that keep attendees' attention, secures attendees' commitment to applying the training material, and follows up for at least 60 days after the training with support and additional resources. The author shared such an approach at the 2024 Global Excavation Safety Conference.

However, if you did hold a training program that didn't stick, there is some good news! All is not lost. Here are four strategies for reigniting a past training so you finally get the results you want. These strategies can be used individually or, as the case study will show, combined for powerful results.

1. Teach Your Coworkers

Learning happens best when attendees get the opportunity to practice and reflect on what they've learned, which makes a post-training peer-to-peer learning event a powerful strategy for amplifying the effectiveness of past training. If just a single team member has attended a training, that attendee can present the highlights to their peers. If multiple coworkers or an entire team participated in the same training, assign different parts among groups or individuals who demonstrate and teach on their assigned content.

Ask attendees to review the training materials, which might include the training manual, notes, job aids, and a bibliography of additional sources of information. After reviewing those materials, coworkers can present the key concepts to their peers.

Some critical questions for attendees to cover in their presentation might include:

- **What did you find interesting?**
- **What do your peers need to know about this?**
- **What did you change, or should you have changed as a result of this training?**
- **What should your peers change?**

IMMEDIATELY AFTER THE TRAINING, PARTICIPANTS BEGAN PRACTICING THEIR DESIRED SAFE DRIVING PRACTICE IN A 60-DAY CHALLENGE. PARTICIPANTS RECEIVED DAILY REMINDERS AND TRACKED THEIR SUCCESSES AND FAILURES IN COMPLETING THEIR DESIRED SAFE DRIVING BEHAVIOR EACH DAY VIA THEIR MOBILE PHONES.

After the presentation, facilitate a discussion that allows the team to share their impressions, add personal experiences that add more context to the training, and identify action items they want to follow up on or implement as a result of this training.

2. Facilitated Discussion

A facilitated discussion can still be very effective if the situation does not lend itself to a peer-to-peer presentation. For example, we worked with a mechanical contractor whose supervisors had previously received leadership training. While they had adopted some new behaviors, there was room for more growth.

We guided attendees in recreating their training while they shared their insights on how their communication skills impacted their teams. Attendees identified where they had opportunities for improvement and a skill that would take their leadership to the next level.

3. Gamification

Reviewing past material can be boring for attendees. Especially when it's material they've heard before. In that case, gamification can turn it into a fun and competitive experience that allows attendees to demonstrate how much they know while being re-introduced to material they may have forgotten. Quiz shows and matching games are easy ways to cover essential information in a short period. However, if you're looking to gauge competency with equipment, tools, or processes, you could set up a station rotation game with employees demonstrating mastery and collecting points before moving on to the next station.

4. Challenges

When it's simply a matter of getting enough practice with a new technique, piece of equipment, or skill, a challenge can encourage people to repeat it regularly until they've created new habits around this area. For a limited time, participants track their successes. Participants can compete with themselves or their peers to string together more successes. Meanwhile, they build familiarity, confidence, and experience with the targeted behavior.

CASE STUDY

Here's an example of successfully combining these pieces to rekindle a past training session and increase a desired behavior.

A leader at an international utility company contacted us to help improve his team's safe driving practices. Many of them could be driving hundreds of miles a day from one site to another. They had already been through extensive driving training over the years. They did not need more driving training, but needed an opportunity to practice the driving skills they already knew they needed, so they became a habit.

We designed the "Amazing(ly Safe) Race" as a gamefied training experience themed around dinosaurs and vehicles. Participants divided into teams and moved around a race track by giving correct answers on safe driving practices while avoiding hazards like vehicle-destroying dinosaurs.

In smaller groups, attendees discussed how safe driving practices impacted them and why it was vital they drive safely. By the end of the training, participants had chosen a safe driving practice that would improve their personal safety on the road. For example, attendees chose behaviors like driving the speed limit, leaving more space between vehicles, not using a cell phone, backing into parking spots, and conducting a 360-degree walkaround before entering the vehicle.

Immediately after the training, participants began practicing their desired safe driving practice in a 60-day challenge. Participants received daily reminders and tracked their successes and failures in completing their desired safe driving behavior each day via their mobile phones.

Overall, attendees enjoyed the unique training experience. It offered a fun way to revisit material they already knew and provided strategies to implement their knowledge. At the end of the challenge, participants reported a 157% increase in the safe driving practice they had targeted. In a follow-up survey four months after the training, they reported sticking with it and being very confident they would continue to do so.

CONCLUSION

More training isn't always the answer, especially when employees have already received training on the topic. Instead, dust off the materials, think outside the box, and encourage employees to revisit the topic. ESM

acts

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Q1: Kemp Garcia

A Beacon of Passion in Damage Prevention

PASSION IS UNIVERSAL WITH DAMAGE PREVENTION HEROES, AND KEMP GARCIA IS A POSTER CHILD FOR PASSION.

Damage Prevention Heroes work on damage prevention initiatives outside their daily job responsibilities. Kemp had been involved in locating since 1992 and was very active in damage prevention, so he was a perfect fit. Since then, he has written articles for the Excavation Safety Magazine, Excavation Safety Guide, and has been a Town Hall panel member. Most of his experience is with locating, vacuum excavation, excavation, and SUE, but he always provides ideas and input with all stakeholders in mind, said Scott Landes, President of Excavation Safety Alliance (ESA).

Kemp's dedication and impact extend well beyond his involvement with ESA. Mike Flowers, Director of Education - Training and Safety at NUCA, applauds Kemp's contributions within NUCA, highlighting Kemp's role as the Chair of the NUCA of Washington Dig Safety Program. In this capacity, Kemp serves as the lead instructor and creator of course material, showcasing his expertise and commitment to educating others in damage prevention. Additionally, Kemp is the NUCA Chair Liaison for the Statewide Dig Law Safety Committee, where he is recognized as the damage prevention expert for the NUCA of Washington membership. Kemp's dedication shines through as he fields all damage prevention calls from members, providing advice and guiding them through the process, especially for safe locates. His willingness to go above and beyond is further exemplified by his testimony before the state house, solidifying his role as a leader and advocate for damage prevention initiatives.

Q2: Louis Panzer

A Trailblazer in Damage Prevention

LOUIS IS A DAMAGE PREVENTION FANATIC.

This passion has been evident throughout his 20+ years in the industry, and especially since taking over as the North Carolina 811 Executive Director in 2011. Louis is one of those people who doesn't know how to say no to any request that might help move the needle in reducing damages.

Susan Bohl, Executive Director of OKIE811, notes that not only is Louis a "super-mega data geek" but also a "super-mega damage prevention champion." She appreciates his positive outlook and fun-loving humor, highlighting his generous sharing of knowledge with others and his willingness to serve on committees and boards.

One of the most notable things he volunteered for was joining the Gig Safely Band. You can say Louis wrote the book on damage prevention, literally. In 2021, Louis and Ahmed Al-Bayati, PhD, published Underground Utilities for Construction Practitioners and Homeowners, based on research they conducted on how to reduce third party damage. Louis is a very rare mix of passion for data and analytics and creativity. Louis loves to dive deep into the numbers and yet is also totally comfortable filming entertaining damage prevention videos that may involve crazy costumes and singing, or serious interviews. Much of what Louis contributes to the industry goes well above and beyond his official job, which is why he is a Damage Prevention Hero. ESM

Q3: Scan the QR code to reveal the Q3 Winner!

Q4: Who will it be?!

If you've got a nomination for our Q4 Damage Prevention Hero, please send their name, company, and a few sentences on why you think they are a true Damage Prevention Hero to **Whitney@AligningChange.com.**

BY MATTHEW PETERSON, ASSISTANT COMMISSIONER, CDOT-DIVISION OF INFRASTRUCTURE MANAGEMENT, CHICAGO DOT AND JAI KALAYIL, DEPUTY COMMISSIONER, CDOT-DIVISION OF INFRASTRUCTURE MANAGEMENT, CHICAGO DOT

ACHIEVING ZERO DAMAGES THROUGH TECHNOLOGY AND RELATIONSHIPS

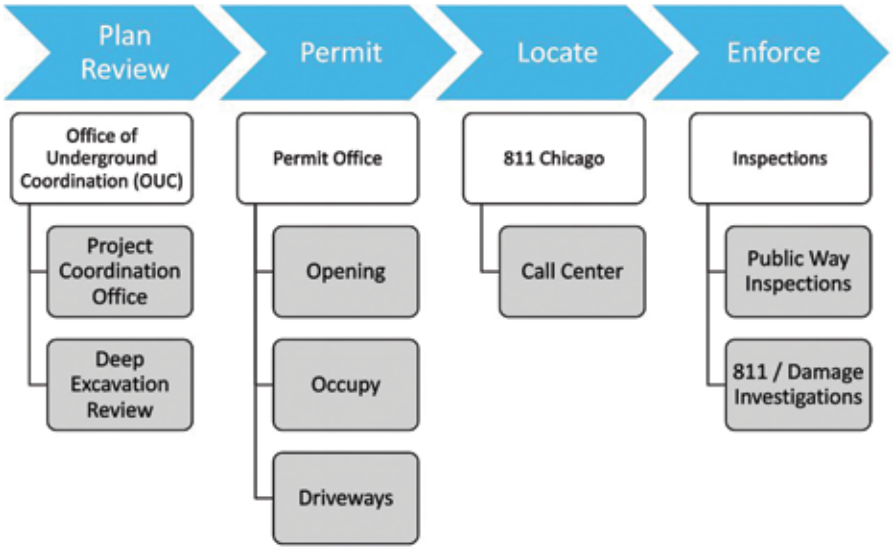
By 1910, Chicago had become a vital component feeding the United States' industrial development. As Chicago's prominence attracted jobs and people, utilities were needed to heat homes, power lights, and fuel industry. As more utilities were built, and subsurface real estate became an increasingly crowded space, the City of Chicago established the "Board of Underground" to coordinate utility installations including how and where facilities were installed. More than 80 years later, the Board of Underground has transformed into the "Office of Underground Coordination" (OUC), operated by the Chicago Department of Transportation (CDOT), Division of Infrastructure Management (DIM). OUC still inhabits the mission of the Board of Underground but is now bolstered by other DIM functions to form a "damage prevention workflow" that has achieved a 50% reduction in the number of utility strikes. While the workflow—comprised of plan review, permitting, locating, and enforcement—has many aspects, two critical components are technology and relationships. These components are essential to implement a similar damage prevention workflow in other jurisdictions.

DIM's damage prevention workflow begins with a plan review phase. All new installations in the public way must receive OUC approval before moving forward. OUC has two main review types: Information Retrieval (IR), which provides atlas

"DIM has two dedicated inspection units: public way inspections and 811 inspections. Public way inspectors visit work sites to ensure the contractor is in compliance with permit terms and restores the public way properly. 811 inspections, conversely, focus on utility damage."

pages to design engineers so they can design projects in a manner that minimizes interference with existing facilities; and Existing Facility Protections (EFP), during which OUC staff ensure that the project complies with laws and regulations before distributing the plan to 30 utility owners (members) for review. The Municipal Code of Chicago (MCC) requires EFP review for new facility installations. If a utility owner determines that the proposed installation encroaches upon existing infrastructure, they ask the project owner to redesign the project or otherwise address concerns about how the facility will be impacted or protected. OUC approves the plan only after all utility owners agree that it can proceed. In this way, the proposed excavation reduces the likelihood of damage before excavation begins.

The plan distribution, review, and revisions occur in a single database that places deadlines



on each task. In this manner, applicants and OUC members have insight into the changes required and when the revisions can be expected. Though OUC membership is not required by law, all major utility owners in the Chicago area participate in IR and EFP reviews because it helps protect their assets. Members pay a membership fee that covers the cost of OUC operations, and, thus, members have an equity share in the OUC's success. Utility owners are some of the strongest advocates for the OUC, thus underscoring how cooperative relationships can produce effective results.

Following OUC approval, the project owner can apply for a work permit. Only licensed contractors with approved OUC projects can request work permits. An API between OUC and permit databases validates project status. If OUC has not approved the project or the approval period has lapsed, the permit application cannot proceed. Permit Office staff also incorporate OUC requirements into the permit. Utility owners have assurance that the installation plan approved by OUC is codified in a permit, while contractors can rely on the transparency and consistency of permit terms to dictate what activity is allowable.

After the Permit Office issues the work permit, the contractor can request a dig ticket by contacting "811." Chicago is unique in that CDOT operates Chicago's One Call center (the rest of Illinois is under the jurisdiction of the state's One Call center, JULIE). The upshot of having the One Call center affiliated with CDOT is that staff, technology, and laws are aligned. For example, the 811 system will not allow staff to issue a public way dig ticket without a valid permit. And, since the permit incorporates OUC proscriptions, the dig ticket would necessarily be limited to those same criteria. In addition, the API transfers approved OUC documents to the dig ticket. Contractors in the field can access these documents electronically by clicking on a link on the dig ticket. The documents show the installation plan, what other utilities may be in their work site, contacts for utility owners, and the comments from utility owners like "please call, watch and protect before digging." The seamless transfer of OUC documents from engineers to field staff is a major innovation and empowers crews to understand the subsurface environment before breaking ground. In addition, 811 Chicago allows utility owners to display messages about their infrastructure depending on the location of the dig. For example, a utility owner can provide a shapefile to 811 Chicago differentiating their "critical" (e.g., high pressure mains, large diameter pipes, transmission lines, etc.) and non-critical facilities. If a dig ticket is requested within the vicinity of a critical facility, a special message (e.g., "do not dig until facility owner is on site") will be prominently displayed on the dig ticket. 811 stakeholders are pleased by the value the system returns especially the multitude of ways it helps excavators "Know What's Below."

The final step in DIM's workflow is enforcement. DIM has two dedicated inspection units: public way inspections and 811 inspections. Public way inspectors visit work sites to ensure the contractor is in compliance with permit terms and restores the public way properly. 811 inspections, conversely, focus on utility damage. The City of Chicago's One Call Law requires contractors to report all utility damage, and 811 inspectors investigate every damage report to determine if there was a violation of the One Call Law. The goal of DIM is to prevent damage by ensuring excavators abide by best practices. While contractors found to have violated the One Call Law or permit terms can face sanctions including revocation of their public way work license, DIM first offers virtual training. DIM also partners with public way stakeholders to conduct training with inspectors. For example, inspectors have taken training classes hosted by utility owners on locating, power distribution, and natural facility maintenance. These training sessions help inspectors determine if what they see on job sites are safe excavation techniques. Finally, DIM has a leadership role in a local damage prevention working group, the Greater Chicago Damage Prevention Council (GCDPC), to further advance policies and practices that will protect individuals who live and work around buried infrastructure.

DIM's damage prevention workflow, with an emphasis on relationships and technology, has helped Chicago reduce the total number of annual utility damages by nearly 50% (from 1,876 in 2018 to 950 in 2023). Chicago currently boasts a .45% damage ratio, an impressively low number given the large number of infrastructure projects underway and the amount of buried infrastructure already in place. ESM

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BREAKING THE TECH PANIC CYCLE:

Virginia 811's Approach to Continuous Improvement

BY B. SCOTT CRAWFORD, PRESIDENT & CEO, VIRGINIA 811

"It was a lazy man's invention" that "encouraged idleness." According to one source, it "destroyed all the privacy of society!" What invention could wreak such havoc? Well, the Internet, reinforced by artificial intelligence and its use of "Big Data" for marketing and content delivery. The Internet has contributed to laziness as hours are spent watching TikTok videos or reviewing pictures of food people post. Privacy fades away with each click, each "like," each purchase, and each search as complex algorithms monitor every virtual move from billions of individuals, driving products and content fine-tuned to unique interests from social media, newsfeeds, and inboxes!

While this assessment of the Internet may or may not be entirely accurate, some would nod their head in agreement. However, the opening quotes tied to laziness and privacy are not actually referring to the Internet. In fact, these quotes appear in various newspapers roughly eight decades before the World Wide Web was fully launched! These quotes relate to . . . the telephone! Yes, that harmless, ubiquitous device that allows us to easily communicate with loved ones and friends was at first viewed as a danger and threat to society. It took several decades after its invention before the telephone began its meteoric rise as a primary communicative tool – even in the 1940s, over 60

years after its invention, debates were still raging about whether answering the phone with "hello" was acceptable.

When it comes to adopting new technology, the telephone is not unique. In general, we tend to be skeptical about new technology, fearful it will disrupt the world we know and think we understand. We shy away from new technology as we recognize it will require cognitive energy while we learn how to use it. However, over time, as the technology becomes unavoidable we adapt, adopt, and something new emerges that sends us along the same trajectory of fear, skepticism, and doubt.

With the past 30+ years witnessing unprecedented developments in technology, as Moore's Law helps drive this advancement, the cycle has accelerated. This stimulated process has led Kevin Kelly, writing for Wired, to label it the "Tech Panic Cycle." Kelly outlines seven stages encompassing this cycle, ranging from "Don't bother me with this nonsense – it will never work," to "Now it's everywhere, and there is no way to escape it – not fair," to "Let's focus on the real problem – which is the next current thing."

Through being trapped in this cycle, we delay the implementation of strategies to leverage technology that could realize efficiencies in business and, in the case of damage prevention, find applications that protect life, property, and the nation's underground utility infrastructure! It is essential that we in damage prevention break this cycle and approach emerging technology in a manner that is critical but fair – not in a manner that is driven simply by fear of change.

At Virginia 811 the team embraces tenets of positive psychology in order to break this cycle and to create an environment of continuous improvement. Rather than focusing on why we should not embrace emerging technology, we approach innovative, new ideas using the P.O.I.NT.E.R. process. This process builds upon "P.O.I.NT," which dates back to Aristotle, by adding Evaluate/Review (E.R.), allowing the process to become an ongoing and continuous process (***see Fig. 1***).

When a new idea utilizing new technology is identified, the team first makes a list of the positive (P) results the idea could bring. The team then explores opportunities (O) the idea could create for future innovation. Only after the team explores these positives and opportunities do they focus on what is generally first when an idea emerges: an issue (I). Issues cannot be ignored, but exploring issues after focusing on positives and opportunities can allow an idea to have a fair chance of surviving.

With the list of issues identified, the team then embraces new thinking (NT). New thinking simply involves the team discussing how issues can be overcome. New thinking also allows the team to discuss if the process to overcome these issues outweighs the positives and opportunities. Through this discussion the team can decide whether or not they should implement the idea. If the idea is not implemented, the team records the idea as it might be more feasible in the future. However, if implemented, the team determines if it will be piloted on a small scale or implemented company-wide.

Implementation advances the process to the next stage of the P.O.I.NT.E.R process: Evaluate and Review. The team gathers data and evaluates the success of the idea and reviews areas for improvement. Focusing on these areas, the team identifies new ideas to address unforeseen issues and/or areas for improvement. With the formulation of a new idea, the P.O.I.NT.E.R process begins anew! Through the process an infinity loop is realized with progression from a conceptual, to practical, to implementation stage that drives continuous improvement. In essence, a P.O.I.NT.E.R. cycle replaces the Tech Panic Cycle.

New technologies are emerging rapidly. While some may not help fulfill our mission in damage prevention, many will. In fact, some proven newer technologies, such as artificial intelligence and augmented or virtual reality are not being leveraged as well as they could. We as an industry must break out of the Tech Panic Cycle to drive damages down. The P.O.I.NT.E.R. Process may be a means to help your organization break the cycle and find the next breakthrough in damage prevention. ESM

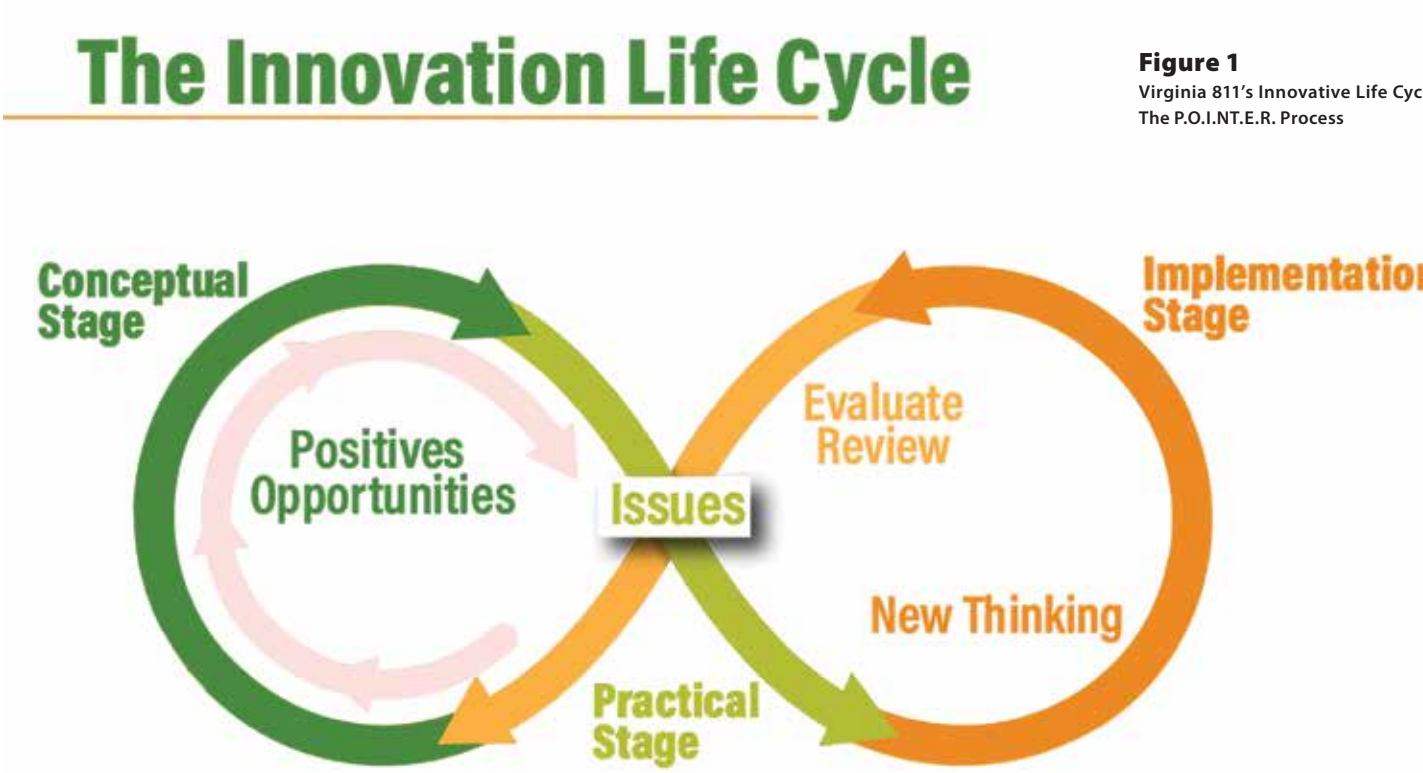


Figure 1
Virginia 811's Innovative Life Cycle: The P.O.I.NT.E.R. Process

Grass Roots Safety

• BY BROOKLYNE WASSEL, COUNTY EXTENSION COORDINATOR AND AGENT, UGA EXTENSION – PIKE COUNTY •

SPREADING THE MESSAGE of safety does not always come easily. It seems to be an easy topic to gloss over or ignore altogether and let someone else worry about it. Within the small community of Pike County, Georgia, the bulk of safety talks coming from Extension focused primarily on providing continuing education hours for first responders. These talks ranged from ladder and chainsaw safety to biting and stinging pests. It was not until the National Association of County Agricultural Agents annual meeting in West Palm Beach, Florida that safety moved from a mindset of must achieve hours to riding shotgun for numerous Extension programs.

The Pipeline Ag Safety Alliance (PASA) luncheon was a "must attend" for all agents who wanted free lunch and coveted swag. Not fully understanding the weight of the topic, the mood was light and fellowship filled the large meeting space. One twelve-minute documentary changed the trajectory of Extension programs for County Extension Agent, Brooklyne Wassel. "Three Seconds Later" was a powerful, moving film that started a true fire for safety and accident prevention programming. Though the documentary focused on drain tile safety, which is not commonly found in middle Georgia, it did touch on facets of community that connect all of agriculture: family, hard work, and love of the land.

One turn of the tractor or placement of one more fencepost could be the difference in not only one life, but a community's. It turned out the warning signs were always there, literally. Once back in Pike County, the scenery looked largely familiar but new signs seemed to emerge out of nowhere, all pipeline markers. There they were, always standing and warning but only to those who knew how to listen.

Pike County, regardless of its small geographic area, plays host to two pipelines which mark an "X" right through the heart of the community. Markers everywhere, potential accidents lurking, and everyone was continuing life as normal. It became apparent that the community was in the same blissful ignorance as the pre-conference Ms. Wassel. How do you convince a community who is quite happy to live their lives the same way they always have, that they should care about pipeline safety? What lured all those agents into a meeting room in Florida? Food and swag! That was a start.

811 Day occurs every year on August 11 and stands to serve as a reminder to put in locate requests to state One Call centers to prevent utility accidents and disruptions. Unless in the utility field, this might not appear on most calendars. Pike County Extension sought to change that for those in the community. Calling on support from Georgia 811, Southern Rivers Energy, Pike County Water and Sewerage Authority, and City of Zebulon Water and Wastewater, funds were raised and swag was collected to give to the community on August 11. Signs were made advertising free, local breakfast consisting of sausage biscuits and iced coffee. With the ideal location just off the square and less than a mile from the public-school system, morning traffic was directed through a lane providing quick education, swag, and breakfast to all who entered. The only catch? Each participant had to sign a pledge card to call 811 before digging. That was it. The message was simple, "Call 811." In the two years of hosting the event, the Pike County Extension office has secured over two hundred pledges to call before digging.

One of the unforeseen obstacles in providing education of this nature in such a tightknit community is the lack of wanting "an outsider" or "stranger" to come to a property for a locate request. This stigma has been slowly squandered due to the workers in the 8/11 assembly line. All those who greet vehicles, distribute goodie bags, give pledge cards, deliver biscuits, and dole out coffee are those who work with utilities and serve as locators. This puts a community face with the concept of the call. It has led to great conversation, deeper understanding, and lessened hesitance for making the important call.

After completing additional online safety training concerning 811 to become more familiar with the material and how to distribute the information, Ms. Wassel learned of a law requiring first responders to be notified of pipeline accidents. While this is at first very logical, it raised

concerns for a community such as Pike County that runs primarily off volunteers. Are volunteers trained properly on how to respond? Could one accident lead to more without proper training? Thanks to relationships forged during that ever-important luncheon, Ms. Wassel reached out to a Kinder Morgan representative, Keith Reese, to help conduct a training for first responders. Mr. Reese led a formal training for all of Pike County's volunteer emergency responders covering pipeline function, proper accident protocol, and the opportunity for additional training. It was eye-opening for the volunteers to learn about a potential emergency call concerning underground utilities.

Teaching safety has become a passion project for Ms. Wassel. She most recently hosted the inaugural Pike County Farm Safety Day for all of the county's seventh grade. Two hundred and seventy-five students spent a full day on the grounds of the community agricultural center learning safety topics. Students learned about pesticide safety, tractor safety, fire safety, livestock safety, trailer safety, and more. No safety day would be complete without 811. While seventh graders are not necessarily the traditional audience for 811 education, there are always untapped opportunities for transferring knowledge. Students learned about 811, the purpose, and when to call. They completed the station by competing in an 811 relay in which students were assigned utilities and had to race their lines to tag their teammate. Students were able to learn the meaning of the flags, understand their significance, and blow off some energy.

Safety continues to play a role in Pike County Extension programming. There is always a way to weave in safety messaging into existing programs with existing audiences, but there are also untouched audiences who have not heard about the importance of making small actions like calling 811 to achieve large impacts. Consider building excavation safety and 811 into future programming. Pike County Extension has employed:

- Discussing 811 during fencing demos
- Writing 811 articles for the newspaper
- Announcing 8/11 and National Safe Digging Month (April) to local groups such as Cattlemen's and Farm Bureau
- Share videos provided by PASA on social media
- Discussing utility safety while on site where markers are visible ESM

Brooklyne Wassel is the County Extension Coordinator and Agent with the University of Georgia Cooperative Extension Service where she has served in Pike County since 2018. Her background is in Animal Sciences, but her focus now consists of water, pollinators, livestock, homesteading, and safety.

Cracking the Code on Successful Public Awareness Campaigns: What Works and Why?

PUBLIC SAFETY is paramount within the utility industry, demanding constant innovation and collaboration. ACTS hosted a Town Hall that explored the success stories and strategic approaches behind impactful public awareness campaigns. A panel of industry experts shared invaluable insights and lessons learned from their respective initiatives, offering a glimpse into the ingenuity and effectiveness of various programs across the utility safety landscape.

Campaign Champions in Action

Look Up And Live: Glen "Cookie" Cook emphasized the vital role of this campaign in fostering safety near overhead powerlines. He highlighted the initiative's longstanding "Look Up And Live" slogan, its ongoing efforts to decrease powerline-related fatalities, and innovative tools like a mapping application for enhanced awareness.

Don't Dig Blind: Mell Greenall, CEO of Before You Dig Australia, showcased their nationally recognized campaign that leverages impactful messaging to deter accidents. The campaign's impressive reach, including extensive toolbox talks and strategically timed media placements, underscores the power of effective communication.

Pipeline Ag Safety Alliance: Whitney Price introduced this unique initiative that focuses on rural safety education. By adopting a "train the trainer" model and collaborating with trusted agricultural resources, the alliance effectively disseminates crucial safety practices to farmers and ranchers through direct communication with ag agents.

Think Inside The Box: Perry Silvey, Safety Manager at BT Construction, shed light on this campaign born from a tragic trench collapse. "Think Inside The Box" advocates for the utilization of existing protective systems, gaining significant industry support through its hardhat stickers and strategic branding.

Detect>Dash>Dial: Tim Teel, Senior Damage Prevention Coordinator at Summit Utilities, Inc., presented this initiative by the Distribution Pipeline Awareness Council. Inspired by fire safety messages, "Detect>Dash>Dial" prioritizes social media engagement and grassroots efforts to spread awareness.

Beyond the Spotlight: Key Considerations

The Town Hall delved beyond campaign highlights to address critical questions and challenges faced by public awareness initiatives:

Target Audience Engagement: Panelists stressed the importance of crafting messages that resonate with diverse audiences, advocating for bilingual strategies and subject matter expert consultation to ensure tailored communication.

Messaging and Impact: Balancing impactful messaging with economic considerations emerged as a key point. The discussion explored incorporating fear and/or humor for enhanced engagement while maintaining a strong focus on safety.

Collaboration and Partnerships: Leveraging partnerships with state, federal agencies, and regulators was highlighted as a strategic approach for amplified campaign reach and impact.

Building a Culture of Safety Through Actionable Insights

The Town Hall concluded with practical takeaways for industry professionals and organizations embarking on public awareness campaigns:

Persistence is Key: Building traction takes time and relentless effort. Start small and consistently build momentum.

Embrace Agility: Utilize low-cost, adaptable approaches that leverage social media and grassroots initiatives.

Audience-Centric Focus: Prioritize understanding your target audience and tailor messages accordingly. Collaborate with stakeholders and experts to refine your communication strategy.

The Town Hall underscored the power of collaboration, innovation, and targeted messaging in driving successful public awareness campaigns within the utility and excavation safety industry. By learning from these best practices, industry professionals can elevate their campaigns and contribute to a safer, more informed community. Want to hear everything that was discussed by our panelists? Scan the QR code to view the full Town Hall. ESM

Learn more about each of the initiatives by scanning the QR codes below:

Look Up And Live

Don't Dig Blind

Think Inside The Box

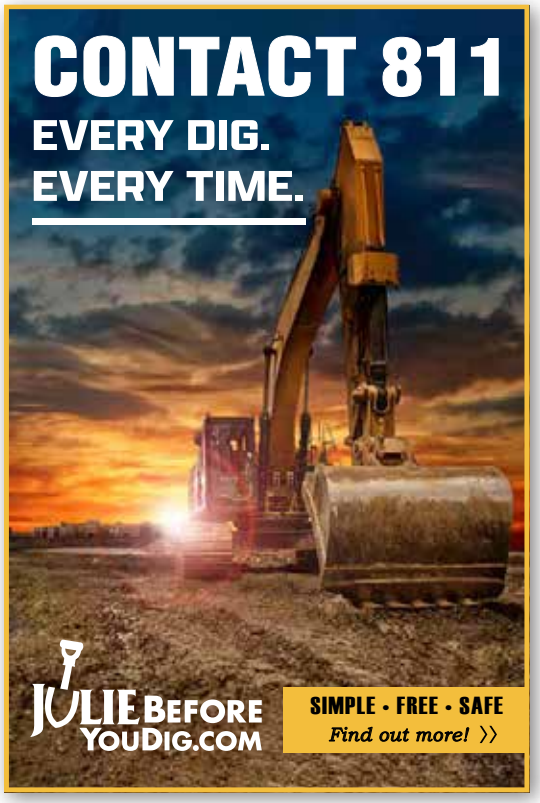
Detect>Dash>Dial

Pipeline Ag Safety Alliance (PASA)

Pipeline Association for Public Awareness Launches New Risk-Based Geofencing Program

• BY KESLEY TWEED, EXECUTIVE DIRECTOR, PIPELINE ASSOCIATION FOR PUBLIC AWARENESS •

THE PIPELINE ASSOCIATION for Public Awareness (PAPA) has launched a geofencing program that mirrors the innovative technology used by billion-dollar brands – all in the name of safety. Just as leading companies harness cutting-edge technology to enhance customer engagement, the pipeline industry is now leveraging geofencing to strategically target 811 and excavation safety ads.



What is Geofencing?

Geofencing is a location-based technology that uses GPS, RFID, Wi-Fi, or cellular data to create virtual boundaries around specific geographic areas. When a device enters or exits these boundaries, it triggers a pre-defined action, such as sending a notification or alert. This technology is also used to create virtual geographic boundaries to target and serve highly relevant ads to audiences that visited specific locations.

Examples of Geofencing in Other Industries

- Targeting customers of competitor brick-and-mortar businesses with relevant ads to drive business to online or alternative stores.
- Targeting users in airports to encourage them to use specific transportation options.
- Targeting customers of competitor coffee shops to attract them to buy from different coffee chains.

How PAPA's Geofencing Program Works

PAPA's geofencing program leverages this technology to create virtual perimeters around "high-risk" excavator business locations. These "high risk" areas are either excavation companies who have caused line strikes or near misses on the operator's system, or excavation companies in counties that the operator has seen high digging activity or other risk-factors. When an individual, vehicle, or equipment enters a designated geofenced zone, this excavator is targeted with 811 ads, linking to a landing page where detailed 811 information is provided. The ads are delivered in platforms already utilized by the excavator recipient. For example, if the recipient has visited websites like ESPN.com or the ESPN app in the past, these are channels where the ads will appear during the campaign.

About the Pilot Program

The pilot program's goal was to increase awareness of PAPA resources, particularly an excavation safety checklist. PAPA partnered with JULIE, VA 811, and Enertech to target multiple high-risk counties in each state and specific excavator types, including telecommunications, fencing, municipal/water/sewer contractors, plumbers, concrete work/driveways/sidewalks, state regulator offices, and permitting authorities. The campaign directed these audiences to a dedicated landing page at pipelineawareness.com/checklist.

Various ad designs and two different calls to action were tested over a campaign duration of one month.

Campaign Results

In just one month, the pilot program yielded impressive results, demonstrating the effectiveness of PAPA's geofencing initiative:

- 1.6M Impressions: The campaign reached a wide audience, making a significant impact on public awareness.
- 310,000 Unique Excavators: A large number of unique individuals within the target audience were engaged.
- 2,000 Clicks: The ads prompted direct engagement, leading users to seek more information.
- 4,000 Page Views: The dedicated landing page received considerable traffic, indicating strong interest in the provided resources.
- A click-through rate that exceeded the industry average demonstrated that the campaign design and strategy was effective.

Get Involved

Following the success of the pilot, PAPA has rolled out an "Excavator Geofencing Program for High-Risk Excavators" that is open to pipeline operators and One Call centers nationwide. Enrollment for the program will re-open in January 2025. Please visit www.pipelineawareness.org/exgeofencing for additional information, or contact admin@pipelineawareness.info.

Additionally, the organization is currently conducting a pilot project aimed at testing geofencing strategies for emergency responders.

About PAPA

The Pipeline Association for Public Awareness (PAPA) is dedicated to enhancing pipeline safety and public awareness. With a mission to protect people, property, and the environment, PAPA works closely with various stakeholders, including excavators, emergency responders, public officials, schools, pipeline operators, regulatory agencies, and the public, to promote safe practices and effective communication. PAPA's initiatives are focused on education, collaboration, and the implementation of best practices to ensure the highest standards for public awareness communication. ESM

DEPARTMENT

Protecting What's Below: In Pursuit of the Ninety One Billion Dollar Prize

• BY STEVE SLUSARENKO, DIRECTOR, SUBSURFACE UTILITY MAP DATA EXCHANGE (SUMDEx) •

Over the past two decades in the U.S. alone, nearly 2,000 injuries and more than 400 fatalities have been the tragic result of accidental contact with underground infrastructure.

This article aims to illuminate and explore an opportunity to enhance damage prevention capabilities further by providing a way to improve legacy map records by developing and using a map data exchange system.

BBC Video Still: Wappingers Falls, NY gas explosion caused by accidental contact on an unmarked buried gas line

Those working on or near buried pipelines and utilities must rely on information that alerts them to the presence of infrastructure that may be damaged during excavation or drilling activities. To provide this information to those performing digging activities, One Call centers (aka Facility Notification Centers) notify utility owners that someone wishes to conduct a ground penetrating activity near their facilities.

Results Using the Current Process

Under the current damage prevention process, an excavator notifies the One Call Center of the location of their planned excavation work. The One Call center sends out a notification to their member utilities with infrastructure that may be put at risk by the planned work. The utility owner is then responsible for reviewing the nature and location of the work to determine if they can give the excavator clearance to proceed if they are not working near their infrastructure. If the work is too close, they will send a crew to find and mark their location on the ground's surface to indicate to excavators where the facility is located. The excavator will then take the appropriate measures to ensure the infrastructure remains undamaged. The discipline itself is called "damage prevention" and is supported mainly by One Call centers in each state using the "Call Before You Dig" process and now more commonly with the advent of computers, the "Click Before You Dig" process.

The above process relies on several things. The excavator must contact the One Call center and accurately relate/depict the dig site's location. The One Call center must have information showing which member utilities have infrastructure within the ticket's boundary. The utility owner must receive and react to the ticket notification, and the requestor must await clearance or be located by each affected utility owner before proceeding. For the most part, this process is working; however, there is room for improvement.
A staggering 1,400 line strikes occur daily on buried utility lines in North America. This alarming statistic becomes even more concerning when we consider the human cost.

Results in Other Jurisdictions

In some very populous countries with a high density of buried infrastructure, they experience far fewer line strikes per year than we do in North America. For example, in Japan there are less than 200 line strikes per year, as detailed in a report compiled for the Geospatial Information Technology Association (GITA) in 2018 by Geoff Zeiss and Sakura Shinoaki. In perspective, in 2016 Japan had approximately 1 line strike per million residents, Canada had 347 reported line strikes per million residents, and the U.S. had over 1,270 reported line strikes per million residents.

Why the disparity? Japan has a system in place where the precise location of its infrastructure is mapped and made available as soon as it can be utilized. In February 2021, Geoff Zeiss published an article in his Between the Poles blog relating to where and how various standards for mapping underground infrastructure have evolved. Creating accurate maps and providing access to them to assist with subsequent works are critical in reducing damage to buried infrastructure. The need to develop and provide access to accurate maps was one of the significant recommendations of the Common Ground Alliance (CGA) in their October 2021 Best Practices Report.

The Cost of Doing Nothing

So, what is the cost of maintaining the status quo compared to developing accurate map records and providing access to that information?

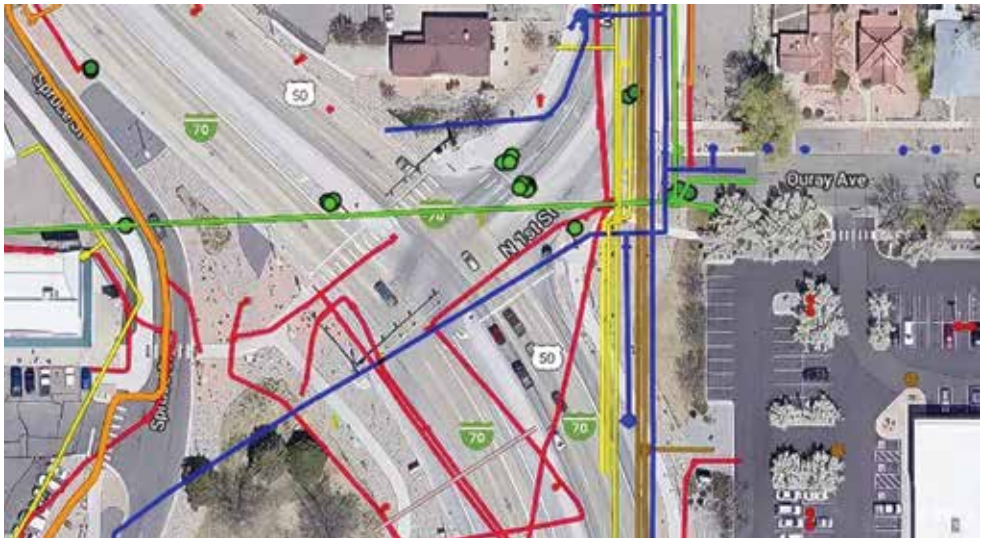
In the U.S., two groups have provided some insight into the issue's magnitude in terms of the cost of the process as it stands today. In the October 2021 Next Practices Initiative report, the total cost of damages including societal costs was estimated to be $30 billion. In this report, they also stated, "For example, investments in accurate, accessible real-time GIS mapping of facilities make the processes of planning/design, notifying facility owners, and locating facilities much more efficient. Contracts with construction and locating vendors can be structured to require adherence to Best Practices, incentivize damage prevention and include more upfront safety investments in exchange for eliminating a great deal of risk. Investing in technology that can make the locate request process more effective will also improve overall damage prevention efficiency. A greater focus on these investments will yield less overall waste in the system, increase system integrity, and lead to an overall reduction in costs following a reduction in damages."

Another group, the Infrastructure Protection Coalition, a coalition of contractors and locate service providers, published a report that stated, "The 2019 estimated national total damage cost is approximately $30 billion in annual and out-of-pocket cost to the system. An additional $61 billion in waste, inefficiency, and excess cost is embedded in the system and largely invisible." In this report, they identified and estimated $33 savings per dollar spent on implementing their recommendations. This puts the current cost of maintaining the status quo in the U.S. at $91 billion.

Between the Poles: Underground Utilities, Elgin St. Ottawa, ON

The Subsurface Utility Map Data Exchange (SUMDEx)

SUMDEx is an initiative to improve the damage prevention process even further. This U.S./Canada joint data exchange solution will be powered by a software application called FuzionView, currently being developed by Gopher State One Call (MN One Call center). FuzionView is a map data conflation engine that will receive electronic map files from each utility owner requested via a One Call ticket and plot each file as a separate layer on an electronic map. This map will be available to designers and Subsurface Utility Engineering (SUE) companies that submitted a Design Ticket and to locate service providers for a Dig Ticket. The electronic data collected in the field for each utility will be sent back to each utility owner in their preferred file format so they can confirm the accuracy of their current records and investigate any discrepancies that need to be resolved. Gopher State One Call will provide FuzionView to the damage prevention community at no cost. They will also make their installation and training documentation available for free.



Example of data collected in the field using a data collection software application

Colorado Department of Transportation C70 Highway Project

Colorado DOT gathered the centerline information from each utility within the C70 Highway widening project's bounds, and armed with this information, the contractor then confirmed the precise location of those utilities and provided this information to their crews. As a result, the contractor experienced an over 90% reduction in damages, saved millions of dollars in construction costs, and eliminated months of project delays caused by line strikes.

Providing a secure system to allow infrastructure owners to share electronic map records with other damage prevention stakeholders will improve safety, cost, schedule performance, and allow them to receive valuable field-verified data to improve the accuracy of their records. ESM

1 Reducing Damage to Underground Utility Infrastructure during Excavation V5-2-2.pdf page 74
2 2020 Canadian CGA DIRT Report - page 7
3 2016 US CGA DIRT Report - Page 1
4 Between the Poles: Standards for underground location quality are rapidly evolving (blogs.com)
5 Oct 2021 CGA Next Practices Initiative Pathways to Improving U.S. Damage Prevention Report
6 https://www.ipcweb.org/images/reports/US-RPT.pdf
7 www.sumdex.net
8 Home - (fuzionview.org)

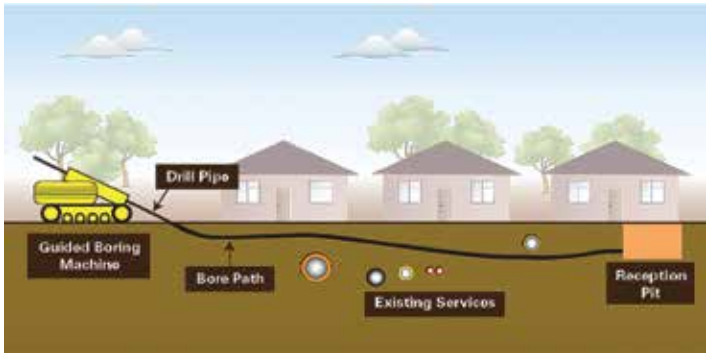
Steve Slusarenko is a senior management consultant and project manager with over forty years of experience in commercial and industrial construction. During the last thirty years, Steve has specialized in performing software implementations for Fortune 500 companies. Steve is passionate about making positive contributions to industry and society, especially when the safety and well-being of people and the environment are involved.

DEPARTMENT

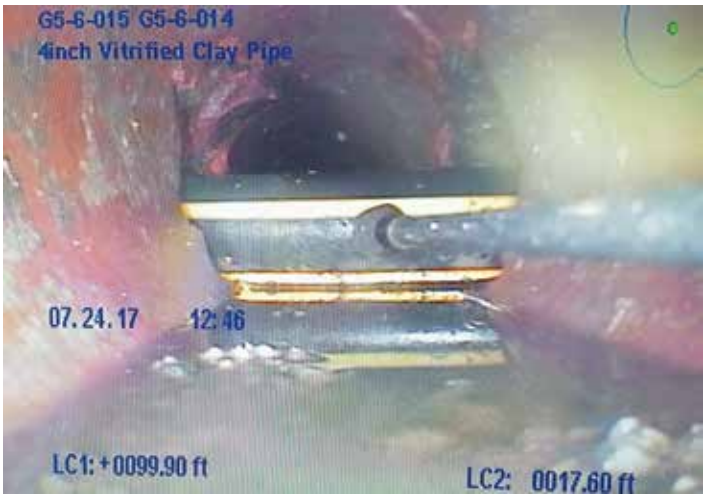
Prevention of Natural Gas Cross Bores in Sewer Systems

• BY JOSH GRAHAM, CROSS BORE SPECIALIST, COMPLIANCE ENVIROSYSTEMS, LLC •

Since the 1970s, gas utilities and contractors have utilized trenchless technologies such as moles, plows, and Horizontal Directional Drilling (HDD) to install natural gas pipelines across the United States. The equipment is specifically



designed to drill through almost anything, including sanitary sewer mains and laterals, storm drain pipes, sewer force main pipes, water mains, and other utilities. This is known as a cross bore (the accidental intersection of one underground utility with another utility). When a utility is bored through a sewer force main or water main, you know it almost immediately because you can typically see the result above ground. It will look like the famous Old Faithful Geyser in Yellowstone National Park. However, when a utility is bored through a gravity sewer main, sewer lateral, or storm drain pipe, the cross bore can likely remain undetected until it is too late.



Why is this an issue?

1) Costly Damage and Overflows: Boring through gravity sewer and storm drain pipes wreaks havoc on those utilities, causing an enormous amount of inflow/infiltration (also known as groundwater or rainwater and is commonly referred to as I/I) and debris to enter into the sewer system. When this occurs, the owner of the sewer system can unnecessarily spend millions of dollars by having to pump I/I with lift stations. Lift stations require power to operate, so electric bills will rise sharply and there will be increased wear and tear on pumps which will need to be replaced more frequently due to overuse. The owner of the sewer system will also pay a massive amount of money to treat the I/I at their wastewater treatment facility, which is required by the Environmental Protection Agency (EPA). Inevitably cross bores can also cause Sanitary Sewer Overflows, an occurrence in which sewer spills into streets, waterways, and even homes.

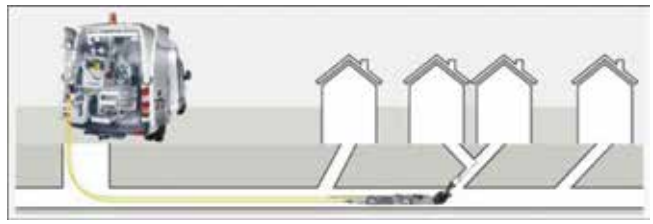
2) Lack of Tracer Wires: One Call tickets are typically required when a contractor is boring natural gas pipes. The issue is that in most cases the sewer mains and laterals will not be located as part of this process because these pipes are usually installed without tracer wires, so they are not easily located through standard One Call practices. Therefore, the gas boring contractor will have no knowledge of the location of the sewer mains and laterals.

3) Gas Explosion/Migration Risks: Routine cleaning of gravity sewer mains and sewer lateral pipes often requires the use of cutting tools to remove grease, roots, and other debris to allow the sewer to flow via gravity through the pipes. If there is a natural gas cross bore present in the sewer pipe, the cutting equipment will destroy the gas pipe, potentially causing an immediate explosion or allowing gas to migrate through the sewer system into nearby homes/businesses.

Preventing and Locating Natural Gas Cross Bores with Advanced Sewer Inspection Technology

PRE-Bore Locates

When performing PRE-bore sewer locates, Compliance EnviroSystems, LLC (CES) uses a variety of sewer inspection cameras that contain sonde frequency transmitters. The cameras are custom-built and designed to video the sewer main and launch up into the sewer laterals from the sewer main. While tracking the sewer camera (and sonde frequency transmitter) above ground, CES is able to collect X, Y and Z (depth) GPS data on the sewer pipes below ground. They will provide the GPS data to the gas utility and/or the gas boring contractor via easy-to-read digital maps that can be viewed in real-time from a smartphone, tablet or laptop in addition to locate marks they place on the ground. When these maps and marks are utilized before boring new pipes in the ground, historical data shows there is less than 0.05% chance of a cross bore occurring. If this GPS data is NOT collected and maps are NOT utilized before boring new pipes in the ground, historical data shows that there will be a cross bore in as many as 6-10% of sewer pipes. This is an alarming statistic because natural gas cross bores are essentially ticking time bombs, which can cause loss of life among many other things.



POST-Bore Inspections

When performing POST-bore inspections, it is imperative that a GIS map be created to account for all sewer pipes inspected (or not inspected), current location of all gas mains and gas laterals, and all cross bores located. Without a map, sewer pipes will be unaccounted for and things will likely get overlooked. In addition, mapping the current location of the gas pipes and sewer pipes can potentially save the gas utility millions of dollars simply by not inspecting pipes where there is no possibility of a cross bore existing (based on the proximity of the two utilities to each other).

Conclusion: Proactive Measures are Essential for Preventing and Addressing Cross Bores

Occasionally, gas utility companies will attempt to use hydroexcavation as the only method to pre-locate sewer utilities. While hydroexcavation is a fantastic tool in the proper scenario, in most cases it is not possible to locate sewer laterals with hydroexcavation alone. Sewer laterals can make 45 and 90-degree turns through yards and are rarely laid on a straight line from the house to the sewer mainline, so a hydroexcavation crew could not possibly know where to expose to watch the gas bore pass by the sewer lateral.

Cross bores are not specific to any region, utility company, or boring contractor. They exist in every city in America. It is critical that natural gas utility companies take a proactive stance on preventing, locating, and addressing cross bores before they become hazards. In order to ensure the safety of the residents in an area that utilizes natural gas, it is recommended that a PRE-bore locate of the sewer utilities occur AND a POST-bore inspection is conducted. This is the industry-proven method to reduce cross bores from occurring, and to locate them after the fact if they occur. ESM

For specific questions, Josh Graham can be reached at 985.502.5667 or jgraham@ces-sses.com.

DEPARTMENT

Exploring Multichannel GPR for Effortless Damage Prevention

• BY GORKA SANTAMARIA, SENIOR PRODUCT MANAGER GEOMATICS, SCREENING EAGLE TECHNOLOGIES •

This is a typical result from a single channel GPR (*first image*).
This is the result you get with a Multichannel GPR (*second image*).

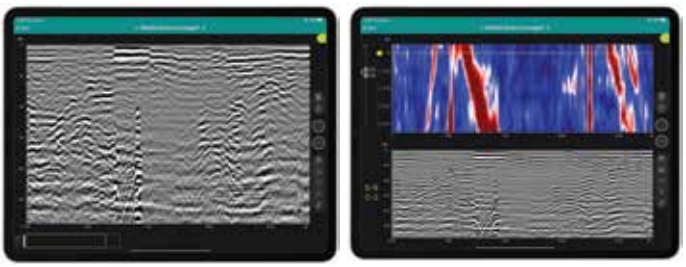


Image view from top while walking over multiple pipes at different angles.

With a live view of the data, you can see all the hazards below your feet as you walk over them. There is no wait time to see results, no complex interpretation, and no costly guesswork.

Just one accidental utility strike can cost hundreds of thousands of dollars to repair and disrupt services for days. Multichannel GPR helps prevent these incidents, translating to significant savings for both excavation companies and utility providers.

The past five years alone have witnessed a significant evolution in Ground Penetrating Radar (GPR) technology for damage prevention. While traditional GPR offered valuable insights into the subsurface, its limitations were often akin to relying on a blurry radar image to see a complex city, and it required a certain level of expertise to interpret the data accurately.

Multichannel GPR, on the other hand, represents a quantum leap forward. The maps are now generated live as you walk and viewed in 3D on an iPad. Described as being like x-ray vision to see below ground, the latest multichannel GPR delivers sharper images in high resolution, making objects clearly distinguishable.

But with all the tech advancements, how user-friendly is it for excavation professionals?

Thankfully the advancements have made things simpler. You no longer have to be a GPR expert to prevent damage before excavation. The newest multichannel GPRs are revolutionizing the process by simplifying the pre-excavation workflow.

Empowered Excavations

Gone are the days of complex data interpretation and time-consuming utility identification practices. Multichannel GPR empowers everyone on your excavation crew with real-time insights, leading to safer, faster, and more efficient projects. Here's an example:

It's not only pipes and cables to watch out for before excavation. Potential subsurface sewage runoff and seepage are also issues to be aware of as they can lead to delayed projects and unsafe excavation pits. A quick scan with the latest multichannel GPR can also identify these issues with ease.

Innovation Meets Simplicity

Multichannel GPR also fosters a collaborative approach to damage prevention. With clear 3D visualizations accessible to all stakeholders, communication between the team becomes seamless and everyone is aware of the potential hazards underground. Just a few taps on the iPad and the data can be shared quickly and interpreted easily.

Fast and accurate information is the key to clearer decision making. Cutting-edge tech means nothing if no one knows how to use it properly. But with the latest advances in software for multichannel GPR, the data is accurate and reliable every time, in all conditions, regardless of the experience level of the user.

Multichannel GPR isn't just a damage prevention tool; it's a revolution in how we see the unseen. As this technology continues to evolve, the possibilities for unearthing a safer, more efficient future for excavation are only just beginning – and getting the job done efficiently enables you to focus finishing your project on time and within budget. ESM

LEGAL

BY ROGER COX, PRESIDENT, ACTS NOW, INC.

Drivers for Change to Dig Laws

Changes in Dig Laws have occurred since they were first enacted. These regulations were designed to create efficiencies in resources necessary to fund the process of contacting underground utility owners and prevent damage to underground utilities during excavation activities. As programs matured, other considerations became key factors in driving changes to these same laws.

Likely, one of the early drivers of change to every Dig Law was related to safety. Requiring membership in the state's 811 center was one of those safety related issues. It wasn't an easy sell. Ask any of the old guards about the difficulties of getting stakeholders to agree to require membership in 811. Even though safety was the driver, status quo and politics were in the driver's seat. But since those early battles, membership has become almost universally accepted across the United States, and if it is not required, most would say that state's Dig Law is not fair and cannot be effective. Consequently, you can count on the one hand the number of states that do not require membership in 811. Furthermore, as you look at the amendments to your state's Dig Law, you will surely see other changes driven by safety to ensure proper procedures are followed to minimize risks to workers and the public.

Another key factor that has driven changes to the Dig Law is the advancement of technology. These laws were created more than 30 and 40+ years ago. They used paper maps, a Big Chief tablet, and a number 2 lead pencil to notify their members. A positive response was paint on the ground. Excavation was open trenching. Advances in technology, such as improved mapping, geographic information systems (GIS), underground utility locating techniques and the widespread use of Horizontal Directional Drilling (HDD) have raised awareness that changes may be necessary to incorporate new definitions and methods to ensure consistency and effectiveness in utility damage prevention efforts. The speed of excavation has increased tremendously because of this technology and the locating community struggles to catch up. What changes need to take place to level the playing field in your state because technology has surpassed your Dig Law?

Certainly, changes to the Dig Law have been driven by the need to update regulations to comply with federal mandates related to excavation safety and damage prevention. Many times, those changes have been coupled with enforcement mechanisms and penalties for non-compliance.

Obviously, changes in Dig Laws have been, and continue to be, driven by a combination of safety imperatives, technological advancements, regulatory requirements (either state or federal), stakeholder feedback, and general 811 policy considerations aimed at protecting underground infrastructure and enhancing public safety during excavation activities. The consideration of how to provide this vital service to the membership with additional cost-effectiveness is equally important.

Perhaps nothing is more important than listening to stakeholders who are impacted by these Dig Laws. Consequently, many states have formed committees made up of all identified stakeholders to discuss issues of concern before any legislative changes are proposed. The benefits are obvious. Getting consensus early in the process certainly improves the chances for success. The last place you want to learn that a stakeholder group is opposed to the proposal is at the Capitol. It has been my privilege to interact with a wide range of stakeholder groups, and I think it is unlikely you'll find one that objects to the concept of safety for their employees and members of their communities. So, why the difficulty in getting meaningful legislation passed? I believe for the most part, we focused so much on getting legislation passed that we forgot to rebuild the foundation of mutual respect, trust, and partnership that has eroded over a long period of time. In some cases, we just don't like one another. We aren't exactly clear on why we don't, we just know we don't.

Many of the stakeholder groups have been ignored or left out of

"Advances in technology, such as improved mapping, geographic information systems (GIS), underground utility locating techniques and the widespread use of Horizontal Directional Drilling (HDD) have raised awareness that changes may be necessary to incorporate new definitions and methods to ensure consistency and effectiveness in utility damage prevention efforts."

The engine for Dig Law Change is complex with many moving parts.

"The last place you want to learn that a stakeholder group is opposed to the proposal is at the Capitol. It has been my privilege to interact with a wide range of stakeholder groups, and I think it is unlikely you'll find one that objects to the concept of safety for their employees and members of their communities."

conversations for years and the degree of difficulty when trying to get them to the table again has increased significantly. But it can and must be done, not just to be in compliance with whatever the new federal or state guidelines will be, but because it is in the best interest of our citizens and communities.

So, what is the leading driver for change to Dig Laws today? Not to take away from the drivers already mentioned, but as I talk to stakeholder groups across the country since the passage of the Infrastructure Bill, the topic that comes up consistently is how to manage workloads due to unprecedented broadband network expansion projects anticipated to take place simultaneously across all states over the next 3-5 years. The frustrations are exacerbated because of the billions of dollars granted to states to place the fiber, and none was allocated to protect existing underground facilities. While there is a clear financial impact to all owners/operators, for a smaller utility it is disastrous. Perhaps it's the fear of the unknown, however, if utility locators struggle to keep up with today's workloads, bringing in multiple subcontractors to meet unreasonable timelines will cause damages to trend in the wrong direction.

Since many, if not most, state Dig Laws can't provide relief to its members or locators, several municipalities and counties have enacted permitting processes not designed to generate revenue, but designed to slow the excavation process down to meet the local utility's ability to locate their underground facility. Many of these permitting processes are unsustainable with current timelines for spending grant money. As a result of what is happening at the local level and what could happen at the state level without written rules or regulations, many states are looking to create new ticket types such as a large project ticket or looking for ways to manage workloads by creating additional and enforceable laws designed to encourage excavators from calling in for renewals when work has been completed. Additionally, others are looking to require new contractors to go through state-specific Dig Law training prior to working in their state.

Since many, if not most, state Dig Laws can't provide relief to its members or locators, several municipalities and counties have enacted permitting processes not designed to generate revenue, but designed to slow the excavation process down to meet the local utility's ability to locate their underground facility. Many of these permitting processes are unsustainable with current timelines for spending grant money.

The progress toward public safety and the protection of underground utilities we're looking for is likely beyond the regulations we'll enact, but until we embody the principles of mutual trust, respect, and learning to work together as a team of excavators, locators, and utility owners/operators we will need the rule of Dig Law to direct our efforts.

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