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DCA Welcomes New Study on Technologies and Practices to Improve Facility Locating

BY EBEN M. WYMAN

The Pipeline and Hazardous Materials Safety Administration (PHMSA) recently released a study that evaluates technologies and practices that help improve damage prevention. The Distribution Contractors Association (DCA) was one of many stakeholders invited to contribute material and perspective for consideration during the study's development. The following takes a deep dive into the study as well as the main points DCA was pleased to see included in PHMSA's evaluation.

PIPES Act of 2016

Last year, Congress passed, and the president signed, the Protecting our Infrastructure of Pipelines and Enhancing Safety (PIPES) Act to reauthorize the nation's pipeline safety program. The Act included a mandated study on improving existing damage prevention programs through technological improvements and practices. The PIPES Act directed the Department of Transportation (DOT), in consultation with stakeholders, to "conduct a study on improving existing damage prevention programs through technological improvements in location, mapping, excavation, and communications practices to prevent excavation damage to a pipe or its coating, including considerations of technical, operational, and economic feasibility and existing damage prevention programs."

Specifically, Section 8 of the Act called for:

- An identification of any methods to improve existing damage prevention programs through location and mapping practices or technologies in an effort to reduce releases caused by excavation
- An analysis of how increased use of global positioning system digital mapping technologies, predictive analytic tools, public awareness initiatives including One Call initiatives, the use of mobile devices, and other advanced technologies could supplement existing One Call notification and damage prevention programs to reduce the frequency and severity of incidents caused by excavation damage
- An identification of any methods to improve excavation practices or technologies in an effort to reduce pipeline damage
- An analysis of the feasibility of a national data repository for pipeline excavation accident data that creates standardized data models for storing and sharing pipeline accident information
- An identification of opportunities for stakeholder engagement in preventing excavation damage

Common Ground Alliance (CGA) Plays a Big Role

PHMSA was tasked with conducting the study and in August, A Study on Improving Damage Prevention Technology was sent to several congressional committees with oversight responsibility of pipeline safety in the House and Senate. In addition to its internal evaluation, PHMSA called on the CGA to put together a report to be included as a significant part of the mandated study. In turn, CGA surveyed its membership and established five teams to address each of the required areas mandated by the PIPES Act. A wide range of CGA members and other stakeholders stepped up to participate in developing the CGA contribution to the report.

PHMSA approached eight other industry organizations for their input, including DCA, which represents contractors, suppliers and manufacturers who provide construction services including installation, replacement and rehabilitation of natural gas distribution systems and interstate gas transmission pipelines.

PHMSA Grants Help Improve Facility Locating

PHMSA notes in the study that, in addition to the need to call 811 before excavation, "[d]igging without knowing the location of existing underground utilities can result in damage to gas, hazardous liquid, electric, communication, water, and sewer lines," and "facility operators are responsible for locating their underground facilities and visibly marking the locations of the facilities to enable the excavator to know where existing underground facilities are located and avoid hitting them when digging."

To encourage this, PHMSA describes a range of tools the agency uses to support research and development efforts to enhance damage prevention, such as a 2005 initiative that brought together key stakeholders to develop a pilot program to research and implement new and existing technology to "significantly enhance the development and communication of accurate information among stakeholders regarding the exact locations of planned excavations and of underground utilities."

PHMSA's State Damage Prevention Grant Program also spurs technological improvements by funding projects aimed at improving state damage prevention programs. PHMSA cites the following examples of grant-funded projects:

- Implementation of a cloud and mobile-based geospatial solution



with the ability to support processes to capture and store subsurface utility engineering data, which can be displayed visually on a Geographical Information System (GIS)

- Software to improve mapping data and programs
- Portals for data collection and analysis
- Development of mobile apps to enhance communication about excavation activity
- Stakeholder meetings and summits to provide opportunities for damage prevention stakeholder engagement

PHMSA's One Call Grant Program is another source of funding to state agencies to promote damage prevention. Since 2012, PHMSA indicates it funded a range of improvements to technologies and practices, such as:

- Technical training on locating underground facilities
- Development, implementation, and administration of damage data collection tools and the analysis of data
- Creation of interactive tools used to simulate line hits (used for training purposes)
- Participation in damage prevention stakeholder meetings to develop damage prevention strategies

PHMSA also describes a range of roundtables, forums and outreach efforts where the agency engages damage prevention stakeholders as well as the general public.

CGA Contribution

A significant portion of PHMSA's study describes the recommendations coming from the CGA working groups that address the five areas PHMSA was required to address in the PIPES Act. These include, but are not limited to, the following recommendations:

- Improve GPS Data Accuracy and Digital Mapping
- Verify Records Accuracy
- Manufacturers Data Should Demonstrate Benefits
- Evaluate and Adopt Predictive Analytics
- Apply CGA Public Awareness and Best Practices
- Enable Use of Mobile Technology
- Ensure Accurate Communication

- Hold Pre-Construction Meetings
- Monitor Excavations
- Record Hits and Near Misses
- Evaluate and Adopt Technology Improvements
- Enhance Ownership of Damage Prevention
- Eliminate One Call Exemptions

The study briefly describes input provided by other organizations, including DCA. "The DCA strongly encouraged full participation by underground facility owners (i.e., no exemptions)," PHMSA states, "including municipalities, in the One Call process, especially to avoid the threat of cross-bores..."

As one of many contractor organizations who regularly clamor for more attention to the need for better mapping and use of state-of-the-art locating technologies and practices, DCA appreciates PHMSA's full and thoughtful analysis evident throughout this report. The agency's specific attention to the need to reduce all exemptions to the One Call process (both notification and membership) is most important to DCA, which is most concerned with municipal exemptions because they are widely recognized as a common cause of cross-bores. The association's efforts to mitigate these potentially catastrophic events continue, and the findings in PHMSA's report will help underscore our main points.

DCA Cross-Bore Initiative

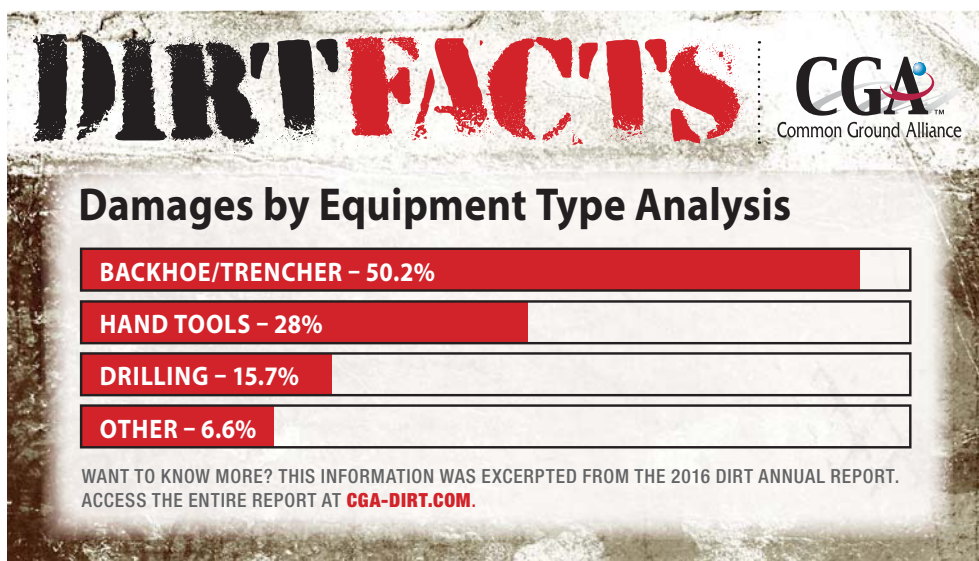
DCA has long pushed for mandatory participation in the One Call process because exempting any stakeholder from the process only compromises safety and damage prevention. Municipal exemptions pose a unique problem because of the enduring threat of cross-bores on unmarked sewer mains and laterals. DCA has encouraged policymakers at the federal and state level to do what they can to require municipalities to belong to their respective One Call center, thereby requiring them to locate and mark their facilities.

In response to PHMSA's request for information, DCA submitted a package of materials, including DCA's position paper on cross-bore mitigation, for PHMSA's consideration. The main points of DCA's

position are that:

- Cross-bores remain an enduring problem in the distribution construction industry
- Contractors are often in the best position to recognize and mitigate cross-bore situations, and should be compensated for that work
- Because unmarked sewer facilities remain the single largest cause of cross-bores, municipalities should be responsible for locating them (consistent w/CGA best practices)
- Federal damage prevention grant dollars should be restricted from state programs who exempt municipalities from One Call membership requirements

DCA also submitted a report entitled





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Analysis of Cross-Bores in Unmarked Sewer Service Laterals, authored by Dr. Samuel Ariaratnam of Arizona State University on behalf of the American Society of Civil Engineers, which describes the challenges with respect to these perilous intersections of underground facilities.

DCA was pleased PHMSA included this material in full as part of the study's appendices and that PHMSA's recommendations to Congress are consistent with the foundation of DCA's position. The following is taken from the PHMSA report:

"Exemptions in state laws. Removal of exemptions in state laws to require all facility owners to be members of One Call systems and to locate and mark their underground facilities. Such exemptions create gaps in safety. This is particularly true when there is a threat of a "cross-bore," which occurs when an existing underground utility or underground structure is intersected by a second utility. This can compromise the integrity of either or both intersecting facilities, and has occurred numerous times during installations of gas distribution lines using trenchless technology.

Gas distribution lines have been installed through cross-bores that penetrated unmarked underground sewer lines. In these situations, the penetrating gas line can be compromised if a sewer line clog occurs and a "roto-rooter"-type machine is used to clear the clog. The gas line can be cut or completely severed, and the sewer line can provide a direct path for leaking natural gas to migrate into one or more homes or other structures. This can pose serious, life-threatening consequences.


There are many programs and initiatives underway to address legacy cross-bore issues. However, some state One Call laws exempt municipalities (i.e., sewer line operators) from the requirements to mark/locate sewer lines. This can result in an increased possibility of sewer line cross-bores. Requiring full participation in One Call systems by all underground facility owners and operators so that they are responsible for locating and marking their facilities would significantly reduce the threat of any new cross-bores occurring. Additionally, requiring that all newly installed pipelines be locatable using electromagnetic equipment would further reduce the threat of pipeline damage resulting from cross-bores."

Final Recommendations

The PIPES Act required PHMSA to make recommendations "on how to incorporate existing damage prevention programs, technological improvements and practices that help prevent excavation damage." In addition to the CGA contribution to the study, the PHMSA report presents the following recommendations:

1. Development of collaboration/communication tools that foster better communication between the excavator and pipeline operator throughout the excavation process
2. Evaluation and implementation of predictive analytic tools to identify and address high-risk excavations
3. Improvement and implementation of GPS/GIS technologies in accurately locating and documenting the location of underground facilities
4. Require damage data reporting
5. Promote universal participation in the One Call process
6. Consider development of national standards for certain state One Call requirements
7. Implementation of the program started by PHMSA in 2016 of evaluating state damage prevention enforcement programs
8. Pursuit of improvements in locating processes, technologies, and right-of-way monitoring technologies
9. Promote the continued identification and implementation of the CGA and other damage prevention best practices, including effective ways to communicate and reach out to the public, and the education of stakeholders toward the benefits thereof

The intent of this mandated study was to identify ways to improve damage prevention programs through use of state-of-the-art technologies that better provide for accurate mapping and facility locating, something that DCA has pushed for years in communications with Capitol Hill, conversations with regulatory agencies, participation in the CGA, in our annual workshops with the American Gas Association and other venues.

We commend PHMSA on the final product and we thank the countless stakeholders within the CGA and industry organizations who helped develop this important document. 

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