

The Need for Full Participation in the Damage Prevention Process *Water and Sewer Needs to be Included in the One Call Process More than Ever*

BY EBEN M. WYMAN

All underground facilities are vulnerable to excavation damage regardless of what product they carry. Natural gas and hazardous liquid pipelines are obviously considered high consequence in risk calculations, but damages to other facilities such as water and sewer mains and service lines bring unique but significant consequences as well. Ever increasing population densities are resulting in more facilities being installed underground, especially in urban areas.

While more and more municipalities are finding that underground installation is the most effective way to go, this does amplify the need for heightened attention to our underground infrastructure. There are a variety of measures and practices owners and operators of water and sewer facilities can employ to better protect the underground utilities they oversee, starting with fully engaging in the damage prevention process.

IMPERATIVE BUT NEGLECTED INFRASTRUCTURE

It's no secret that America's underground environmental infrastructure is in serious trouble before even considering threats related to excavation activity. Aging pipes, shrinking budgets and a general lack of political will to do the right thing has created a huge gap between what is needed and what is invested in this critical infrastructure. Let's look at estimates from both government and industry sources.

According to the American Society of Civil Engineers (ASCE), nearly 170,000 public drinking water systems are located across the U.S. that collectively serve more than 264 million people. The nation has far fewer public wastewater systems, where some 35,000 wastewater treatment and piping systems face formidable capacity challenges. A high percentage of these systems are municipally owned.

While access to centralized treatment systems is widespread, many of them are in poor condition. Aging pipes and inadequate capacity leads to an estimated 900 billion gallons of untreated sewage discharges each year. In fact, according to the ASCE's latest Report Card of America's Infrastructure, there are an estimated 240,000 water main breaks per year in the U.S.

Other industry sources indicate that up to 10 billion gallons of raw sewage is leaked into waterways or watersheds every year.

Federal estimates don't paint a pretty picture, either. The U.S. Environmental Protection Agency (EPA) estimates capital investment needs for the nation's wastewater and stormwater systems at \$298 billion over the next 20 years, while \$335 billion is needed for drinking water infrastructure over the same timeframe.

While this may seem somewhat unrelated to underground damage prevention, it does illustrate the fact that America's water infrastructure is aging, and not aging well. Local governments with jurisdiction over these critical systems should do everything possible to protect what they have in the ground. Excavation damage to municipal facilities is a headache that local officials can do without. Full participation in the One Call and damage prevention process can go a long way to protect these fundamental assets to public health, environmental protection, and overall quality of life.

MUNICIPAL SERVICES AND THE THREAT OF CROSS BORES

Municipalities have enough problems trying to find the resources needed to repair, replace and



rebuild this infrastructure. It would seem that cost-effective, commonsense measures such as participating in the One Call process would be considered a "no-brainer." However, municipalities are exempt from One Call requirements in some states, significantly compromising damage prevention and the shared responsibility of protecting our underground infrastructure.

The Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 included language that restricts federal dollars from being allocated to state damage prevention programs that exempt municipalities and their contractors from One Call notification requirements. While most damage prevention advocates support efforts to reduce exemptions from One Call requirements, many in the excavation community believe the 2011 pipeline law was misguided by stopping short of including One Call membership in eligibility requirements for federal pipeline grant assistance. Municipal exemptions to One Call membership increases the likelihood of a cross bore, defined as an unintended intersection of a utility line by trenchless construction which damages another existing utility.

Cross bores can occur on sewer mains, although sewer laterals are of primary concern. All mu-



municipal facilities should be included in the One Call process. Federal dollars should be restricted from state programs that exempt municipalities from One Call notification and membership requirements. Moreover, state laws should be adjusted to

require municipalities to locate and mark their sewer service lines.

CONTEMPORARY MATERIALS OFFER RESILIENT PIPING

Just as local gas utilities are working diligently to replace antiquated distribution infrastructure with superior piping material, water utilities might consider similar approaches to their public works systems. Polyethylene (PE) currently represents more than 95% of what's going in the ground to replace aging cast iron, bare steel and other outdated gas distribution pipeline systems. Many in the water infrastructure industry believe that replacing old ductile iron, concrete and other traditional materials with PE offers water piping that is not only highly leak-resistant, but also more resistant to outside force damage.



PE piping and fittings are inherently tough, resilient and resistant to damage caused by external loads, vibrations, and from pressure surges such as a "water hammer." While no material can withstand a serious strike from a backhoe or trenchless tool, local officials are giving PE and other plastic piping a second look for a variety of reasons.

For example, "rapid crack propagation" (RCP) is a rare, but significant and sometimes catastrophic, cause of pipe failure that results in a rapidly progressing crack when a pressurized pipeline is subjected to a sudden or intense impact. Piping that offers RCP resistance, such as PE, used in water systems offers local officials a modern piping material that may withstand minor excavation strikes, allowing for repair or replacement with less disruption of service.

Of course, this is not to say use of any piping relieves any excavator from a primary "golden" rule: any and all excavation hits must be reported so that remedial actions can take place. However, if contemporary piping materials can mitigate circumstances related to a utility hit, they should be given ample consideration by the appropriate authorities.

FULL PARTICIPATION IS THE NAME OF THE GAME

As described, America's underground water and wastewater infrastructure serves as a significant environmental safeguard, and one that has been neglected for decades. As stewards of these critical lifelines, local governments increasingly struggle to find the dollars needed to even begin to address what will become a trillion dollar problem if priorities at all levels of government don't change.

As that political fight rages on, local officials are well-advised to protect the assets they have through full participation in the highly effective and widely embraced One Call damage prevention process. "Full participation" means municipal workers (and contractors) call 811 before every project. It also means municipalities belong to their respective One Call center and meet all locating and marking responsibilities that come with that membership. Local officials might also consider modern piping materials that are tougher and more resistant to outside force damage than traditional water piping.

States that don't require municipalities to fully participate in the One Call process need to reevaluate. Ambiguous language in state damage prevention statutes that exempt water, sewer, slurry or non-pressurized lines should be adjusted to require municipal facilities to be located and marked, just as is required for other underground facilities.

Anything less than full participation in the One Call process compromises damage prevention and the shared responsibility so many claim to support. **DP**

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