

# Leading Low-Dig Technology Solutions



**GTI, with funding support from Operations Technology Development (OTD), is working to develop and assist with the implementation of various low-dig solutions including keyhole and trenchless technologies. Our experts are closely engaged with utilities and leading manufacturers to develop and commercialize minimally invasive technology that leads to faster repairs, less traffic delays, significant time and cost savings, and fewer impacts on the environment. Below are just a few samples of these exciting new tools and equipment.**



## Live Gas Pipe 3D-Mapping

GTI is working on development and commercialization of a probe to map existing buried utilities and help mitigate third-party pipeline damage. This probe can be inserted inside of a live gas pipeline to map underground pipes 3-dimensionally and provide accurate utility locations to avoid excavation damage. Researchers are addressing the need to extract data, provide software to accurately determine the correct x, y, and z positioning of the pipeline, generate integrated geo-reference video to locate fittings and joints to provide accurate positioning data within the pipeline, and directly download that information to a conventional GIS platform.

## ORFEUS HDD Obstacle Avoidance

A real-time ground-penetrating radar obstacle detection system called ORFEUS (Optimized Radar to Find Every Utility in the Street) for horizontal directional drilling (HDD) developed in Europe was able to successfully detect plastic and steel gas lines, electric conduit, and a sewer main during live U.S. field evaluations. Focused on preventing damage from directional drilling activity, the system is being enhanced through ongoing technology development efforts and operator field tests. These efforts will help bring this “look ahead” technology to the U.S. market.



## PE Pipe-Splitting

Pipe splitting can offer significant cost savings in replacing vintage PE piping systems more efficiently, with less disruption to traffic and the general public. The GTI research team field tested existing PE pipe-splitting equipment to evaluate performance capability and effectiveness. The results were used to refine the hardware and develop standardized tooling packages and operating procedures for the commercially available equipment. These systems are now commercially available and being implemented by utility operators.

**GTI's Keyhole Consortium** is expanding the adoption of keyhole technologies for utility system installations, repairs, and renovations to minimize environmental impacts and reduce costs. It offers access to a community of industry experts and information sharing, supplies important data resources, and supports testing, development, and technology implementation. Learn more at [www.gti.energy/keyhole-technology](http://www.gti.energy/keyhole-technology)

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