

# Federal Damage Prevention Overview

## Introduction

The importance of protecting underground infrastructure from excavation damage cannot be overstated. Excavation work related to construction, maintenance, or any other activity that involves breaking ground puts critical underground infrastructure at risk. *Damage prevention* is the collaborative process that protects this subsurface infrastructure from excavation damage.

In the United States, there are over 20 million miles of pipes, cables, and wires buried below the ground, and in recent years, the annual cost from excavation work that damages these underground facilities adds up to around \$30 billion.<sup>1</sup> Damage prevention begins with stakeholders working together to provide notice about a proposed excavation, locating services to identify what facilities are below the ground, and communication on the presence and location of underground infrastructure between parties.

The damage prevention ecosystem includes excavators (who can range from a homeowner installing sprinklers to a large construction contractor), One-Call centers, utility owners/operators, and locate technicians. These parties operate under various state and local rules and regulations that set the parameters and expectations for how a safe digging project must proceed. Each state has its own laws and regulations in place, leading to 50 or more sets of rules across the nation.

At the federal level, there is one primary agency tasked with ensuring damage prevention is successful in the United States. Although this agency is primarily responsible for protecting pipelines, its impact on damage prevention spreads to other underground infrastructure. Several other agencies also support damage prevention efforts, and this overview explains some of the jurisdictions and activities in damage prevention from the federal level.

## The Pipeline and Hazardous Materials Safety Administration

The Pipeline and Hazardous Materials Safety Administration (PHMSA) was created in 2004 partially in response to the high rate of damage caused to pipelines from excavation. As a result of its overseeing the movement of hazardous materials across the nation by land, sea, and air, PHMSA has become the nation's top damage prevention authority.

The agency's damage prevention jurisdiction primarily consists of authority over interstate natural gas and hazardous liquids pipelines. PHMSA can directly regulate, enforce, or otherwise support damage prevention efforts intended to protect these pipelines. The agency does not have jurisdiction over construction activity nor over underground infrastructure like electrical cables, telecommunications lines, or water infrastructure. However, PHMSA exercises its leadership in protecting other underground utilities by studying damage prevention, working with stakeholders, and administering grants at the state and local level that promote damage prevention programs that protect all underground infrastructure.

In order to protect pipelines and all of the other critical underground infrastructure across the country, PHMSA works with industry participants, state policymakers, and other federal agencies. By hosting panels, conferences, and collaborating on research, PHMSA is able to elevate the importance of damage prevention and promote consistency in damage prevention programs across the country.

## Supporting Agencies

A number of other federal agencies also have a hand in damage prevention. While some interact with pipeline safety and underground infrastructure protection directly, others research, participate in events hosted by industry groups, or support policymakers at the local, state, and federal levels.

The National Transportation Safety Board (NTSB) plays two key roles in damage prevention: investigations and recommendations.

Pipelines are one of the six major transportation modes that the NTSB investigates, so when significant incidents occur, the agency investigates to identify root causes. Although NTSB is largely backward-looking (damage incidents must occur first for them to be investigated), they are forward-looking through the recommendations that they make – particularly in the technology space – establishing NTSB as a key player.

While this independent agency does not promulgate rules, it does have a significant impact by studying issues and providing safety recommendations to federal agencies that do have authority and an obligation to implement recommendations, such as

PHMSA.<sup>2</sup> The NTSB also makes recommendations directly to the private sector, lawmakers, and advocacy and community organizations, many of which are damage prevention stakeholders like pipeline operators, utility regulatory commissions, or energy companies.<sup>3</sup>

Even beyond accident investigations and recommendations, the agency has helped lead damage prevention policy in other ways. In 1994, the NTSB commissioned a study to investigate excavation safety best practices, and for three years starting in 1997, “Excavation Damage Prevention to Underground Facilities” appeared on its Top 10 Most Wanted list.<sup>4</sup> In 1999, the NTSB participated in the seminal Common Ground Study, which brought over 160 stakeholders together to identify damage prevention best practices.<sup>5</sup> This ultimately led to the creation of the Common Ground Alliance (CGA) in 2000, a member-driven trade group composed of representatives from 16 stakeholder groups including utility owner/operators, One-Call centers, and utility locators.

These were significant steps in advancing damage prevention, which laid the groundwork for the creation of PHMSA itself, as it became clear a nationwide program was needed. In fact, CGA is now one of the most important partners to PHMSA, as CGA works directly with its members to advance damage prevention across all stakeholders for all underground infrastructure.

Through investigations, recommendations, study, and cross-agency collaboration, the NTSB has elevated both pipeline safety and damage prevention for all underground infrastructure.<sup>6</sup>

Another agency instrumental in establishing today's damage prevention system is the Federal Communication Commission (FCC). Carrying out a request from PHMSA, the FCC approved 811 for national use as the single toll-free call-before-you-dig number for all excavation work and utility locating. This was significant as it unified the process for providing notice of intent to dig. Before, each state or One-Call center had its own 10-digit phone number, but with 811 and the related awareness campaign, compliance with call-before-you-dig laws improved. While the only damage prevention involvement from the FCC was setting a phone number, it had outsized importance and helped drastically reduce excavation damage.

The actions of other agencies may at times relate to damage prevention. In some cases, these agencies even have the ability to regulate certain practices under their domain. For instance, the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) is tasked with ensuring workplace safety. OSHA can do this through collaborations<sup>7</sup>, but also directly by regulating training or standards that industries must follow. Likewise, the Environmental Protection Agency (EPA) has relevant authority as it seeks to protect human health and the environment.<sup>8</sup> The EPA has promoted damage prevention technology as a means of reducing methane emissions since fewer pipeline incidents mean less methane leaking into the atmosphere.<sup>9</sup>

While these and other agencies have jurisdiction over certain elements that are present in damage prevention (i.e., health, safety, communication), they nevertheless do not have specific damage prevention offices or authority. In most instances, beyond

generally applicable rules that apply to all industries, these agencies partner with stakeholders to promote best practices, training, educational efforts, and more.

## Conclusion

Damage to underground infrastructure remains a challenge today. With so many buried utilities and service lines, every excavation project poses a risk. Industry leaders have been tackling this challenge for decades, and state policymakers over time have incorporated some best practices and minimum standards into state laws and regulations to improve damage prevention.

The federal government became seriously involved in the 1990s. It was not until the early 2000s that a single agency was tasked with promoting any type of damage prevention consistency nationwide. Although PHMSA's direct authority is primarily limited to protecting pipelines, it has an impact on preventing damage to other underground infrastructure.

Today, the Pipeline and Hazardous Materials Safety Administration, alongside partners like the National Transportation Safety Board and the Common Ground Alliance work to refine best practices, improve public policy, and ultimately all protect underground infrastructure. These efforts are critical not only to the quality of infrastructure but for the health and safety of workers and communities as well as the environment.

*The Alliance for Innovation and Infrastructure (Aii) is an independent, national research and educational organization. An innovative think tank, Aii explores the intersection of economics, law, and public policy in the areas of climate, damage prevention, energy, infrastructure, innovation, technology, and transportation.*

## Citations and Notes

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