



**2023 CGA WHITE PAPER**  
**TELECOM'S CRITICAL ROLE**  
**IN REVERSING UTILITY**  
**DAMAGE TRENDS**



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Dear Damage Prevention Professionals,

I am pleased to release the 2023 Telecommunications White Paper, the fourth in CGA's series of primary research papers spotlighting challenges and opportunities key stakeholder groups face and how they can contribute to systemic improvements in the damage prevention process. The telecom industry is one of the Nation's most competitive and fastest-growing markets, rapidly deploying fiber to its already expansive underground infrastructure. This buildout significantly impacts the damage prevention system. As both substantial contributors to and recipients of damages, telecom stakeholders have much to gain by enhancing prevention efforts.

**Our research highlights this sector's strengths, as well as opportunities for improvement.** While telecom rightfully prioritizes expanding its networks and customer base, a competitive advantage does not need to come at the expense of safety. Boosting damage prevention's profile internally and collaborating more extensively with partners are pathways to improved outcomes. Locating processes, in particular, need to be rethought, revised and reinforced to curb the crisis of inaccurate and late marks.

The good news is that meaningful change is within the telecom sector's grasp. Steps like updating maps, coordinating major projects and restructuring contracts can swiftly reduce damages while improving network reliability and public safety. But securing leadership commitment to rigorous standards is crucial to making these impactful changes.

At this pivotal moment, telecom leaders are embracing their potential to lead our **"50-in-5"** charge. On **page 10**, read about how Google Fiber is calling on state broadband leaders to educate fiber deployers about the 811 process, utilize federal funding to address locating challenges and share installation location data with 811 centers to coordinate better pre-planning. Crown Castle's plan for reducing mismarks by 50%, damages by 19% and maintenance/repair time by 17% in under a year is profiled on **page 14**. With strategic investments in prevention and transparency, telecom companies can strengthen communities' trust, differentiate themselves competitively and deliver the reliable connectivity Americans rely upon.

**We must work together to restore confidence in the 811 system by creating an environment that incentivizes adherence to Best Practices and safety as *the* priority. CGA remains ready to support telecom stakeholders in achieving safe, connected communities free of damages to buried utilities.**

Be safe,

A handwritten signature in black ink that reads "Sarah K. Magruder Lyle".

Sarah K. Magruder Lyle | President & CEO | Common Ground Alliance

## Introduction

Our 2023 telecommunications research — the fourth in CGA's series of White Papers — is being published at a time when record-high excavation activity meets persistent inefficiencies in the damage prevention system. According to CGA's **2022 DIRT Report**, the rate of damages to buried utilities has plateaued for the better part of a decade as the 811 system has struggled to match the excavation demands of a technology-driven world.

Now, \$65 billion in federal funding to expand high-speed internet access is being deployed across the U.S. concurrently with hundreds of billions of federal and state dollars funding additional infrastructure improvements, resulting in a massive increase in excavation at an already challenging time.

**“The amount of telecom and fiber work that’s going on right now is absolutely absurd.”**

**Telecommunications executive**

*(SOURCE: Qualitative research report, page 20)*

Insights from our new telecommunications research shed light on the particular strengths and challenges this sector of the industry faces in creating a more reliable damage prevention system.

Telecom stakeholders represent many facets of damage prevention — they are excavators, locators and facility owner/operators — giving them a broad perspective on the 811 process, particularly as many within the sector rapidly install and maintain facilities before government funding sunsets.

Telecommunications infrastructure is vital for modern life, and damages can have major consequences for families and businesses that rely on uninterrupted connectivity. The telecom industry is the communications backbone of communities across the country and has a strong incentive to prioritize damage prevention. Our research shows that as owners of more underground miles of facilities than any other utility type, the telecom stakeholder group has the opportunity to transform the U.S. damage prevention system.

Our research also points to areas where telecommunications companies can enhance their efforts to further reduce damages. Greater focus on delivering timely and accurate locates, investing in reliable mapping, collaboration with other utilities and contracts that stress the importance of damage prevention are all opportunities for improvements. The need for these changes is reflected in the analysis on the next several pages.



# Methodology

CGA's research includes both qualitative (focus groups) and quantitative (survey) studies with telecommunications and other damage prevention industry stakeholders. This Paper also references data from CGA's **2022 DIRT Report** and **Next Practices Reports**.

## IN-DEPTH INTERVIEWS

Hour-long video interviews were conducted with 17 individuals between Aug. 15 and Sept. 6, 2023, to gain an in-depth understanding of the telecom sector's role within the damage prevention industry.

[Click here to access the qualitative research report.](#)

**Participants:** Leaders in the telecom industry as well as locators and excavators who work with telecom companies.

## SURVEY

520 damage prevention professionals completed an online survey gauging their opinions and perceptions of the state of the industry between Oct. 12 and Nov. 3, 2023.

[Click here to access the quantitative research report.](#)

**Participants:** All facility owner/operator types (including telecom), 811 centers, excavators, locators, engineers/designers, equipment manufacturers and regulators – who are members of not only CGA but also 18 of our partner associations – responded to the survey.

## KEY FINDING #1:

**The telecom sector has the most potential to impact the U.S. damage prevention system – and its own bottom line.**

The sheer amount of underground telecommunications infrastructure across our country – with more being installed daily – not only makes telecom an influential stakeholder within the damage prevention industry, but also provides this sector with considerable incentives to reduce damages. Telecommunications facilities experience an outsized share of damages from excavation work, both as receiving parties and the party causing damages.

According to CGA's **DIRT Report**, year after year telecom ranks among the top two most damaged facility types while also topping the list for type of work being performed when damages occur. As seen in the graph on the following page, in 2022, telecom was the third biggest contributor to its own facility type damages (*SOURCE: 2022 DIRT Report*).



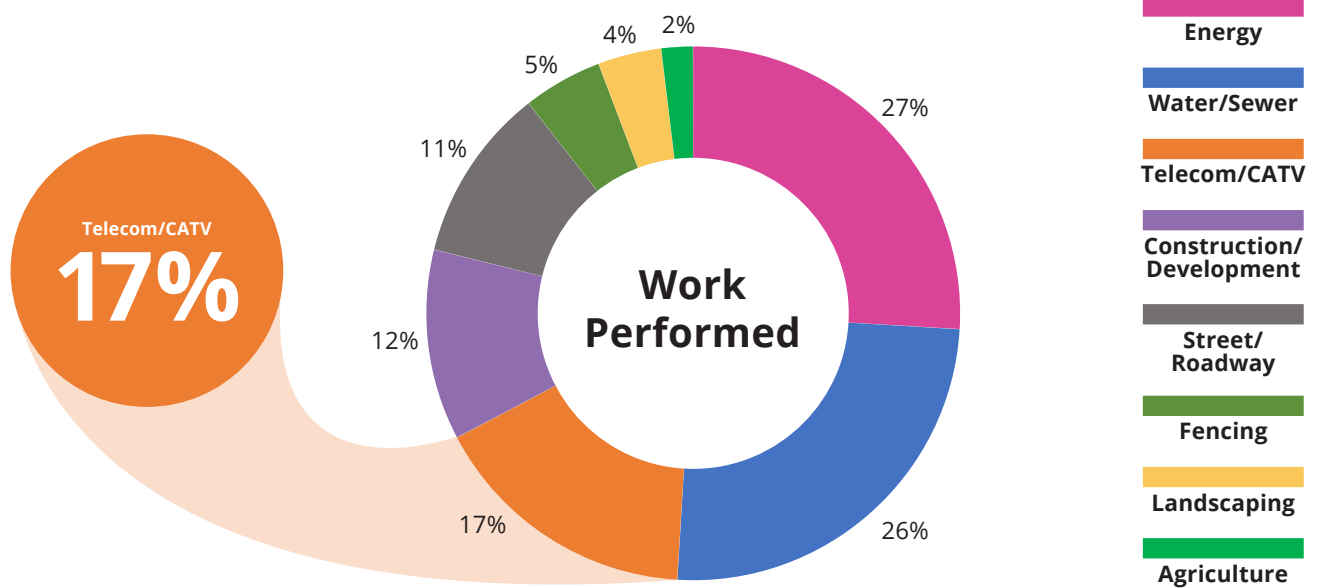


## Damages by Facility Type



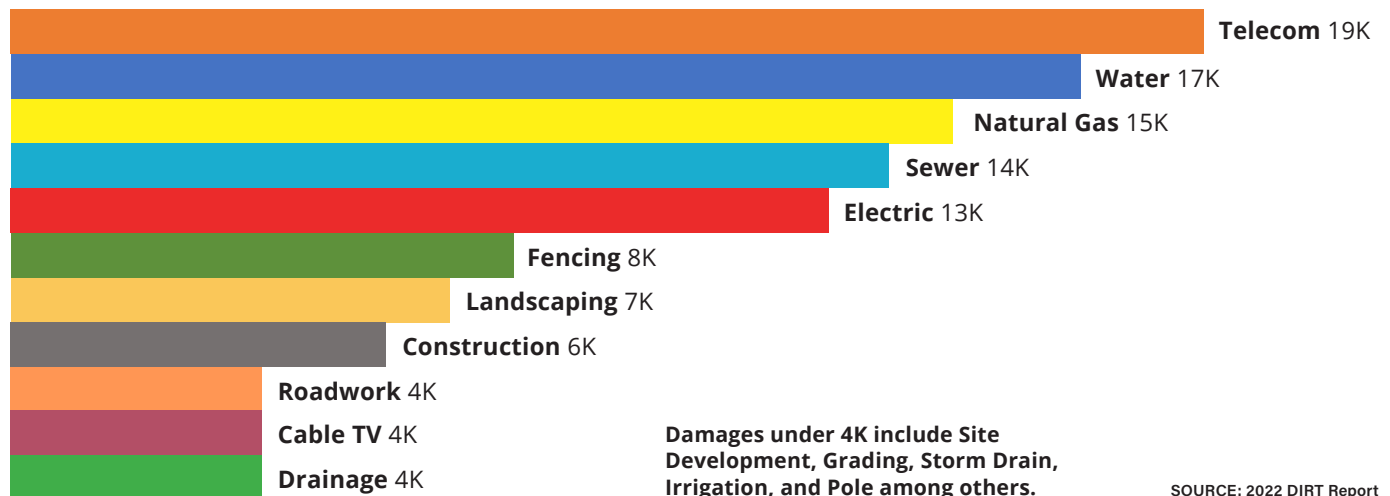
SOURCE: 2022 DIRT Report

## Work Performed When Telecom Facilities are Damaged



SOURCE: 2022 DIRT Report

## Damages to All Facilities by Work Performed (Top 11)



Damages under 4K include Site Development, Grading, Storm Drain, Irrigation, and Pole among others.

SOURCE: 2022 DIRT Report

In contrast with more regulated facility types like gas and electric, **telecom may view damages to their buried infrastructure as inevitable.** According to in-depth interviews with telecommunications executives and managers, as well as with executives and managers at locating and excavating companies who work for telecom owner/operators, there is a perception that the telecom sector accepts damages as part of its business model.

This perception is likely underscored by this industry's focus on recovering repair costs. Telecom stakeholders report that while lessons are learned from dig-ins, the final result of damage investigations is submitting insurance claims and/or billing responsible parties (*SOURCE: Qualitative research report, page 16*).

**“Not my company, but ... the telecommunications industry views damages as a cost of doing business. And they also view that as a revenue stream to bill excessively for repairs when that may not be justified.”**

**Telecommunications executive**

*(SOURCE: Qualitative research report, page 15)*

Of course, not all telecom providers share those viewpoints. Forward-thinking telecom organizations have invested significantly in damage prevention and experienced returns, from reduced repair costs (see the case study on **page 14**) to improved network reliability that sets them apart competitively.

**When telecommunications companies treat damage as unacceptable rather than inevitable, they can transform their operations in ways that both improve public safety and strengthen their market positioning.**

Another area where telecom could work within its own stakeholder group to improve outcomes for its sector specifically and the damage prevention industry as a whole is locate delivery. **CGA's 2022 DIRT Report** noted that amidst the “crisis” of late and inaccurate locates, **telecom simultaneously had the highest late locate response rate and also was the work type most likely to be impacted by late locates.**



CGA’s industry survey reveals that telecom respondents report being concerned about locating issues — more so than other stakeholder groups. As shown in the table below, telecom respondents outpaced the industry as a whole by a margin of 35% in viewing “late locates” specifically as the greatest challenge to the industry, and by a margin of more than 20% when compared to the industry’s view of “facilities not marked” and “inaccurate line locates.”

By improving this sector’s locate record, telecom stakeholders can protect their own assets, improve the efficiency of their own installation and maintenance crews, and make a significant contribution to restoring the confidence of all excavators who rely on accurate information to safely perform critical infrastructure work.

# INVESTING IN DAMAGE PREVENTION

Read about how dedicating resources to damage prevention helped a telecom company reduce mismarks by 50%, damages by 19% and repair/maintenance expenses by 17% in under a year on page 14.

## Most Critical Damage Prevention Challenges (Top 8)

CHALLENGE/ISSUE	All	Telecom	Excavator/ Road Builder	Natural Gas Distribution	Locator	Liquid Pipeline/Gas Transmission	811 Center/ One Call
<b>Facilities not marked</b> <i>(facility not marked due to no response, inaccurate facility maps, improper ticket screening practices, etc.)</i>	56%	78%	71%	43%	13%	36%	66%
<b>Inaccurate line locates</b> <i>(facilities marked but not marked accurately)</i>	54%	78%	77%	45%	29%	39%	28%
<b>Inaccurate and outdated facility maps</b>	41%	34%	58%	32%	25%	31%	28%
<b>Excavator errors in the field</b>	36%	28%	37%	45%	38%	33%	21%
<b>Late locates</b>	34%	69%	31%	23%	29%	21%	60%
<b>Lack of potholing by excavator</b>	33%	34%	26%	43%	42%	22%	25%
<b>Excavator failing to maintain clearance after verifying marks</b>	32%	22%	26%	38%	33%	48%	26%
<b>Lack of communication between stakeholders</b>	32%	25%	31%	30%	42%	39%	51%

Survey question: “From your perspective, please select five issues from the list that currently present the greatest challenge to the damage prevention industry.” Respondents chose from 18 critical issues/challenges. The top eight are listed above.

SOURCE: Quantitative research report, page 6



## KEY FINDING #2:

**Growth and customer satisfaction are prioritized over damage prevention by many telecom stakeholders.**

Business growth and customer service/satisfaction tie as the most mentioned top priorities by telecom industry interviewees, followed by safety, which broadly includes damage prevention (SOURCE: Qualitative report, page 7).

That telecom companies focus more on growth than damage prevention is also reflected in CGA's industry survey responses: The telecom industry stands out against other stakeholder groups as reporting that it is "not prepared at all" and "somewhat unprepared" to meet the damage prevention challenges in the coming year (SOURCE: Quantitative research report, page 4).

### Industry Preparedness on Meeting Damage Prevention Challenges

#### 811 Center / One Call



#### Locator



#### Excavator / Road Builder



#### Liquid Pipeline/Gas Transmission



#### Natural Gas Distribution



#### Telecommunications



■ Not Prepared At All
 ■ Somewhat Unprepared
 ■ Neutral
 ■ Somewhat Prepared
 ■ Very Prepared

SOURCE: Quantitative research report, page 4



**“I would say that the telecom industry – some, not all – hires contract locators almost as an insurance policy.”**

**Locator**

*(SOURCE: Qualitative research report, page 9)*

It is important to note that telecom stands out among other facility owner/operators for valid reasons: the relative risk of striking this kind of infrastructure as compared to energy and high-pressure water, the shallow depth of telecom facilities, and again, the high volume of telecom infrastructure.

**However, the prioritization of growth and customer satisfaction creates competitive concerns that can undermine damage prevention, safety, and ultimately, telecoms’ ability to install and maintain reliable networks.**

Some locators and excavators who work with telecom companies feel the difference in priorities between telecom and other facility owner/operators, noting “that safety, even if a priority, is not emphasized among telecom the way it is among other clients, like gas and electric” *(SOURCE: Qualitative research report, page 9)*.

Competitive concerns appear to drive practices that are exacerbating the locate

crisis and result in damages to telecom facilities as well as other underground utilities. Some telecom stakeholders prioritize low-cost contracts and confidentiality around planned installations over damage prevention.

**“I felt like they didn’t take it as serious as I took it.”**

**Excavator**

*(SOURCE: Qualitative research report, page 9)*

According to interviews with excavators and locators, while some telecom companies are excellent to work with, other clients in this sector are more focused on cost and performance versus safety *(SOURCE: Qualitative research report, page 12)*.



Contracts reflect priorities. Excavators report that telecom contracts “tend to be project-to-project and go faster,” which impacts damages rates because of time pressures and the inability to form relationships with locators. Telecom contracts with locators “typically prioritize on-time performance over other objectives, which can negatively impact damage rates” (SOURCE: Qualitative research report, page 12).

When telecom companies do not disclose large-scale installation plans with their locating partners, affected 811 centers and other facility owner/operators with local infrastructure, the 811 system becomes quickly overwhelmed. As damages and delayed locates affect the telecom industry more and more, **the calculus around competitive confidentiality and damage prevention may be changing.**

Transparent planning not only allows sufficient resources to be marshalled to prevent infrastructure conflicts, but also facilitates mutually beneficial collaboration with local utilities to accelerate builds and improve community relations. A more open, proactive approach to major project coordination could benefit telecoms and prevent needless damages industry-wide.



**“It’s so dependent on which telecom,** because we have some that are very involved, where we have monthly performance reviews and we talk about damage ratios and we talk about on-time performance, and **what they see coming.**”

And we’ve got others that you may not talk to for, I don’t know, six to eight months until something happens and there’s a reason to talk. **You’ve got some that you get records updates every month, you’ve got others you haven’t seen records update in two years.”**

**Locator**

(SOURCE: Qualitative research report, page 13)







## KEY FINDING #3:

**Rather than focus on long-term national standardization strategies to reduce damages, telecom can achieve more timely results by improving internal practices and contracts.**

In in-depth interviews, telecom stakeholders point to national strategies such as consolidated 811 centers, a national 811 law with more stringent enforcement, and required certification programs for locators and excavators as mechanisms for improving the overwhelmed 811 system (SOURCE: Qualitative research report, pages 4, 5, 18 and 30).

**Even if these strategies garnered damage prevention results, they would take years to implement.** Ongoing work to advance strong laws and regulations must be coupled with organizational and industry-level commitment to understanding and addressing damage prevention challenges. Internal changes within telecom companies would be quicker to operationalize and drive more immediate results.

**The path forward centers on enhanced communication.** Improved communication is identified by telecom survey respondents as having the greatest potential to reduce damages (SOURCE: Quantitative research report, page 8), and interviewees repeatedly reinforce its importance (SOURCE: Qualitative research report, pages 4 and 18).

Some telecom players are advocating for the use of specific communication channels and practices to improve damage prevention. **Google Fiber, a CGA member, recently advocated for better coordination among fiber companies, State Broadband Offices, 811 centers and the excavators and locators that fiber installers hire.**

## Strategies With Most Potential to Reduce Damages to Underground Facilities

POLICIES/INITIATIVES	All	Telecom	Excavator/ Road Builder	Natural Gas Distribution	Locator	Liquid Pipeline/Gas Transmission	811 Center/ One Call
<b>Improved communication between stakeholders</b> <i>(locators, facility owners, excavators, etc.)</i>	15%	18%	17%	12%	18%	16%	20%
<b>Increased focus on excavator education and training</b>	12%	8%	11%	14%	10%	14%	10%
<b>Comprehensive enforcement of state laws/regulations and/or modifications of those requirements as necessary</b>	12%	13%	5%	17%	10%	19%	14%
<b>Increased focus on locator education and training</b>	10%	17%	13%	10%	4%	5%	4%
<b>Enhanced accuracy and accessibility of facility GIS-based mapping information</b>	10%	11%	12%	6%	12%	7%	8%
<b>Improved locate technology</b>	9%	8%	13%	8%	7%	8%	4%
<b>Greater emphasis on increasing awareness and consistent use of 811</b>	8%	2%	4%	14%	11%	12%	4%
<b>Enhanced communication among stakeholders through robust positive response</b>	7%	4%	6%	6%	7%	6%	10%

Survey question: "Which of the following practices, policies and/or initiatives do you think has the most potential to reduce damages to underground?"

SOURCE: Quantitative research report, page 8

**In an open letter dated Oct. 4, 2023,** Google Fiber's Public Policy and Government Affairs Manager Ariane Schaffer called for fiber companies to attend local damage prevention council meetings, educate deployers about state 811 regulations and arrange pre-construction meetings between excavators and locators. The letter also appeals to State Broadband Offices to share future fiber installation locations early so stakeholders can prepare.

**This collaborative approach represents a growing recognition that telecoms can protect their investments while preventing community disruptions by transparently coordinating major construction initiatives.**

Accurate facility maps are foundational communication tools as well. According to CGA's qualitative research, "participants

across segments ... cite issues with inaccurate or antiquated telecom company maps as main challenges when it comes to preventing damages to telecom facilities” (SOURCE: Qualitative research report, page 21).

More accurate and precise telecom maps could reduce overnotification and make installing and protecting networks more efficient – and improve 811 system efficiency as a whole.

Contract structures with third-party locators and installation/repair crews who excavate can also reduce damages to telecom facilities and by telecom stakeholders. According to interviewees, **“most agree the incentivization structures of locating contracts impact damage rates, although most do not include incentives in their contracts.** Those who incentivize only do so for in-house locators” (SOURCE: Qualitative research report, page 12).

For excavators, there appears to be support among telecom stakeholders to include reimbursement for potholing in contracts. Failure to pothole has been a consistent top damage root cause according to **CGA’s DIRT Reports, so including this practice in contracts and most importantly, compensating excavators for the time and resources to positively identify underground facilities, could have a significant impact.**

**While broader solutions will take time to implement, telecoms can lead right now through internal changes: enhancing industry coordination, updating maps and structuring agreements to reward practices that reduce damages.**

With proactive communication and prevention incentives, telecom stakeholders can make substantial near-term progress on persistent damage prevention challenges. Their decisive actions and transparent coordination will strengthen public safety protections and service reliability across the sector at this critical time.

**“I believe we should all be doing the potholing, paying to restore. Like, if in order to do potholing means that there’s some repair that has to be done after-the-fact, we should have in our contracts with our suppliers that we pay for that.”**

**Telecommunications executive**

(SOURCE: Qualitative research report, page 29)







## KEY FINDING #4:

**Securing executive-level buy-in from telecom facility owner/operators on rigorous damage prevention standards will be necessary to reverse the upward trend of damages to U.S. infrastructure.**

To meet this challenging moment, it is imperative that leadership at telecom companies engage with damage prevention. The structural and cultural changes recommended in this White Paper require investments of capital and human resources – in other words, **the intervention of executive-level decision-makers.**

As noted by our qualitative research, “processes are often dictated by executives or department heads,” with significant support needed for projects like initiating a system-wide map upgrade or restructuring contracts (SOURCE: Qualitative research report, page 10).

Bringing executives to the table may be more of a challenge for larger telecoms than smaller ones. In interviews, “one middle management level telecom participant explains that this is because departments

at his very large company can be siloed, and while damage prevention is important to him due to his specific role, it does not necessarily improve the company's overall functions or profits, **thus damage prevention is not prioritized by top leadership**” (SOURCE: Qualitative research report, page 7).

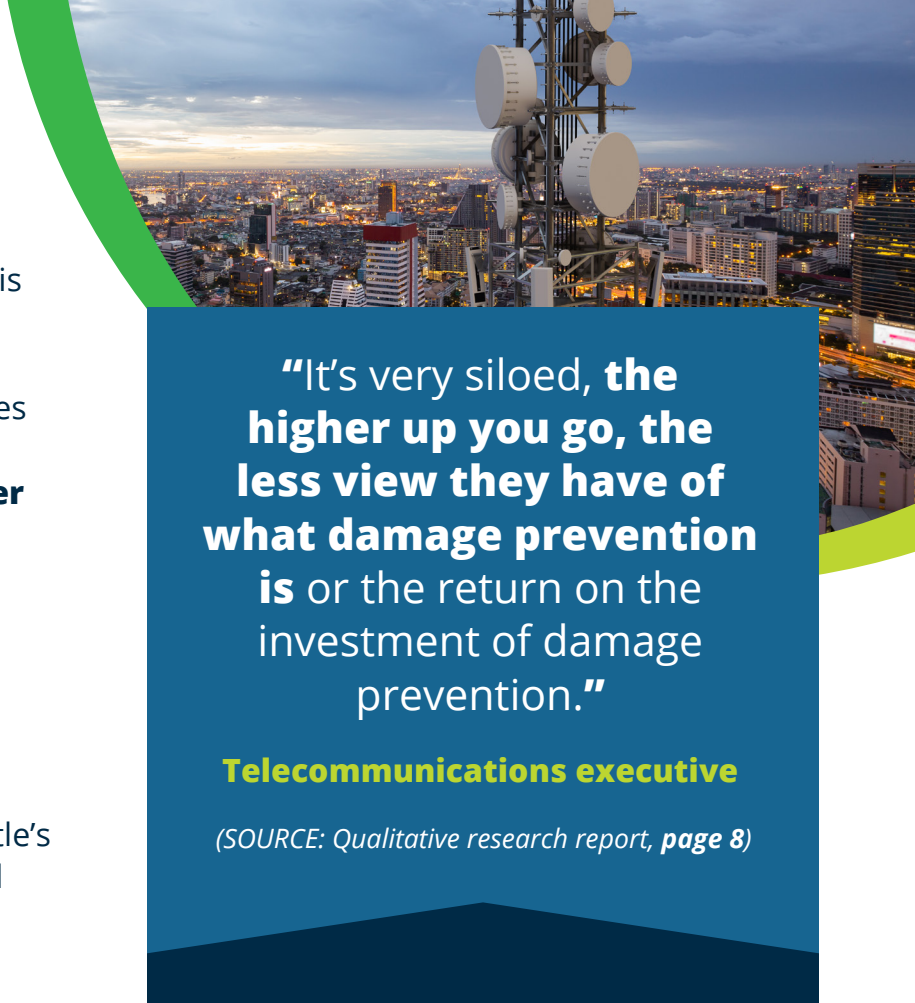
**Manager-level participants also acknowledged “that their executives do not play as large of a role as they should in damage prevention, often due to their company size”** (SOURCE: Qualitative research report, page 18).

While passionate telecom managers may hold positions on 811 boards of directors, they are not often empowered to make changes that will reduce damages. Within their own professional associations and industry groups, telecom companies need to make sure that damage prevention is on the agenda to drive more consensus within their stakeholder group on key issues.

In addition to the other improvements suggested in this White Paper, telecom executives will need to lead the charge on improving data around telecom damages

and near-misses. DIRT data submitted by telecom stakeholders has a low data quality index (DQI) compared to other industries, perhaps because the focus is on cost recovery versus root cause analysis when documenting damages. In order to make improvements, we need to have a clearer understanding of the circumstances surrounding telecom damages that is **focused on identifying solutions rather than determining liability.**

When telecom leadership understands damage prevention as a driver of growth and network reliability, significant dig-in reductions can be made. Read on for a summary of the Next Practices Initiative's living case study documenting Crown Castle's significant reduction in damages achieved when company leadership connected the dots between service outages and dig-ins, and responded decisively.



**“It’s very siloed, the higher up you go, the less view they have of what damage prevention is or the return on the investment of damage prevention.”**

**Telecommunications executive**

*(SOURCE: Qualitative research report, page 8)*

## **CROWN CASTLE CASE STUDY: Leadership-Driven Interventions Reduce Damages and Costs While Improving Network Reliability**

In response to an increasing rate of damages in its southern region, leadership at Crown Castle, a national provider of shared communications infrastructure, took action. First, the company realized that it could benefit from more granular data than the repair- and claims-focused information it was gathering, and added several additional fields to its Incident Reporting Module – including DIRT data fields – that could help Crown Castle identify the circumstances and specific excavators causing damages.

Next, Crown Castle joined CGA and engaged more deeply with other industry stakeholders. During this time, the company established monthly meetings with its contract locating firm to review mismarks, interfaced with contractors who were causing damages and engaged 811 centers to better understand state regulations and processes. Mismarks declined by 50% following the meetings with locating contractors, and engagements with another utility's contractors and subcontractors resulted in the utility requiring that its workers pothole and sharing GIS files of planned excavation on a weekly basis so both parties could coordinate.

Crown Castle established an Underground Utility Avoidance Standard to which it holds all employees and partners accountable nationally. The Standard includes, among many other things, the requirement for engineers to generate a subsurface utility engineering (SUE) risk score and meet with stakeholders in the field if the risk meets a certain threshold. For the construction side of the business, the Standard criteria include safe excavation training, escalating communications in situations that generate high-risk SUE scores, potholing and positively locating all utilities. The company also employs focused tactical defenses, like its Boots on the Ground program, which proactively dispatches Crown Castle liaisons to high-risk excavation sites.

Crown Castle has created a robust damage prevention program that is proactive, leverages recovery data, and resulted in a 19% reduction in damages and a 17% reduction in repair and maintenance costs in less than a year. **(Read the full case study.)**

## RECOMMENDATIONS

**Key actions for telecom stakeholders to help the industry achieve our “50-in-5” goal of reducing damages by 50% over the next five years:**

1. Ensure executives are at the damage prevention table, and are engaged and active participants.
2. Update facility maps, regularly share them with 811 centers and contract locators, and provide 811 ticket-level facility visualizations to excavators, designers and engineers.
3. Coordinate with other stakeholders in advance of large projects.
4. Improve damage data collection processes with a focus on root cause analysis.
5. Evaluate contract structures with locators and excavators: Consider incentives versus penalties, best-value versus lowest-bid contracts, and reimbursing for potholing.
6. Become **Damage Prevention Institute** accredited, and require locators and excavators to do so as well.

## References

- Qualitative Report
- Quantitative Report
- 2022 DIRT Report
- Past DIRT Reports
- Next Practices Initiative Reports
- CGA White Papers

# 50-IN-5

## PATHWAY TO 50-IN-5

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