



# **CGA National Damage Prevention Update**

**Khrysanne M. Kerr**

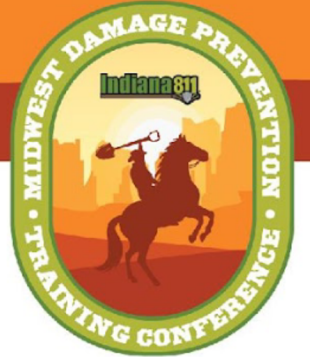
Vice President, Marketing & Outreach

# AUDIOVISUAL SERVICES PROVIDED BY



metronet<sup>TM</sup>

**THIS SESSION  
IS SPONSORED BY**



**ON THE SPOT**  
UTILITY RESOURCES LLC

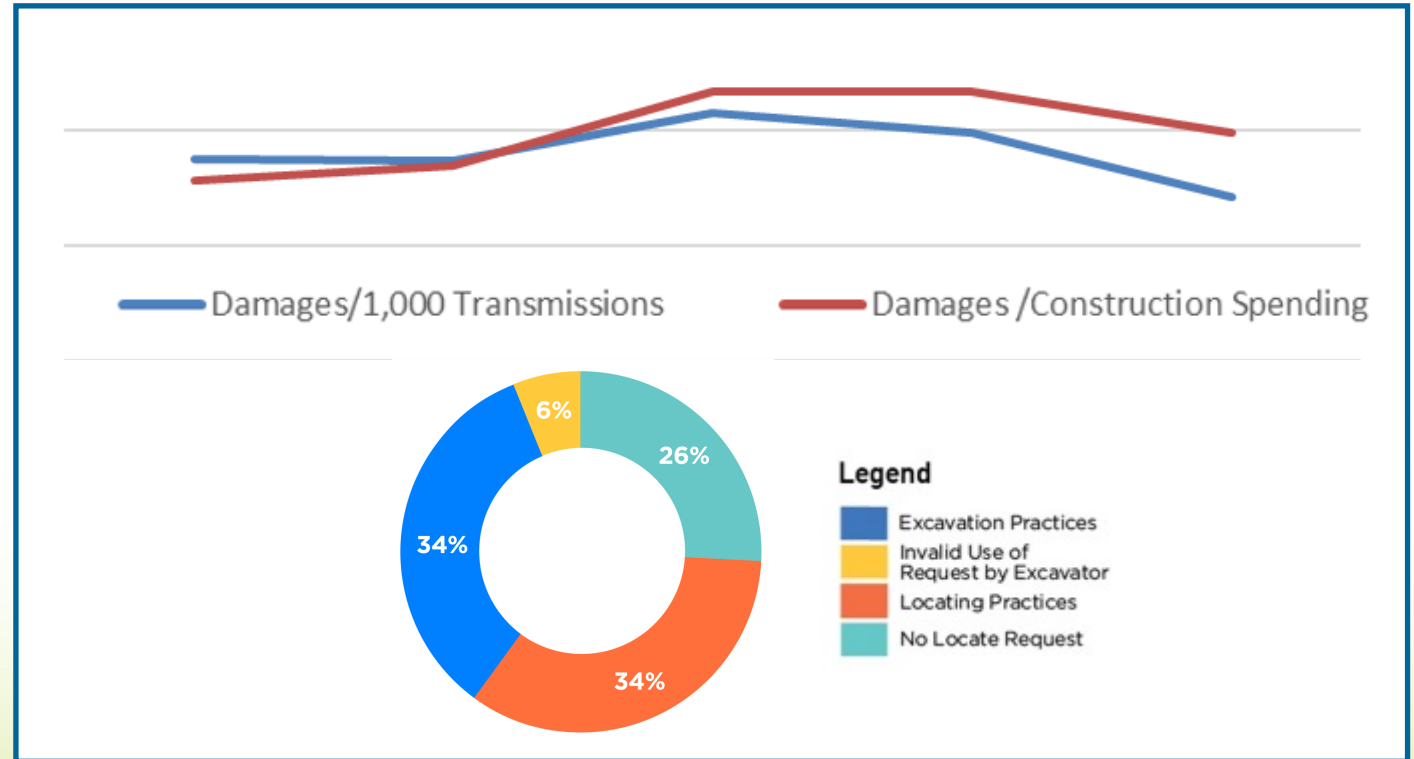






# Damage Prevention Today

- Current practices are not significantly reducing damage trends
- No single answer, root cause or stakeholder group



# **Focused and Systemic Effort**

1. Emphasis on **data and information**
2. Increased implementation of **effective practices and programs**
3. Encouragement of **innovation and new practices**
4. Importance of **examining role in damage prevention** as part of the entire process

# DIRT Report for 2021



- DIRT accepts data on excavation damages and near-misses from all affected parties
- Includes analysis of data submitted into DIRT for a given year
- 2021 is 18<sup>th</sup> annual report
- Written report supplemented by online interactive dashboard

# DIRT Report for 2021 – Roadmap for Future



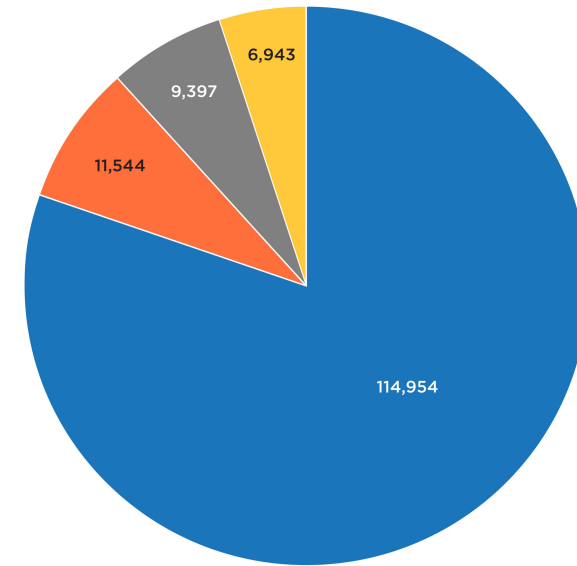
- Documents most pressing *and* consistent issues in damage prevention
- Outlines recommendations and priorities based on key findings
- Opportunity for self-evaluation



# Excavation Information

- **Contractor/developer** is the primary excavator type involved in the greatest number of damages.
- **Backhoes** are involved almost 50% of all reported damages followed by **hand tools** at 21%.

Excavator Type  
# of Reported Damages

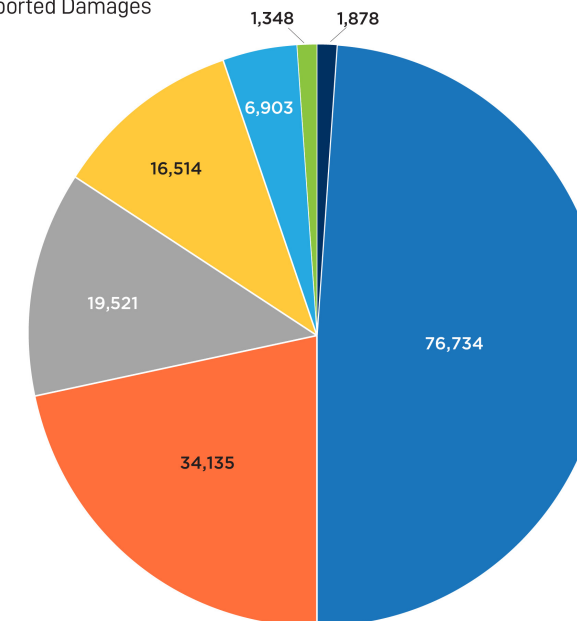


Legend

- Contractor/Developer
- Occupant/Farmer
- Utility
- Municipality/County/State

Chart does not include "unknown" values, and accounts for multiple reports of the same event.

Equipment Type  
# of Reported Damages



Legend

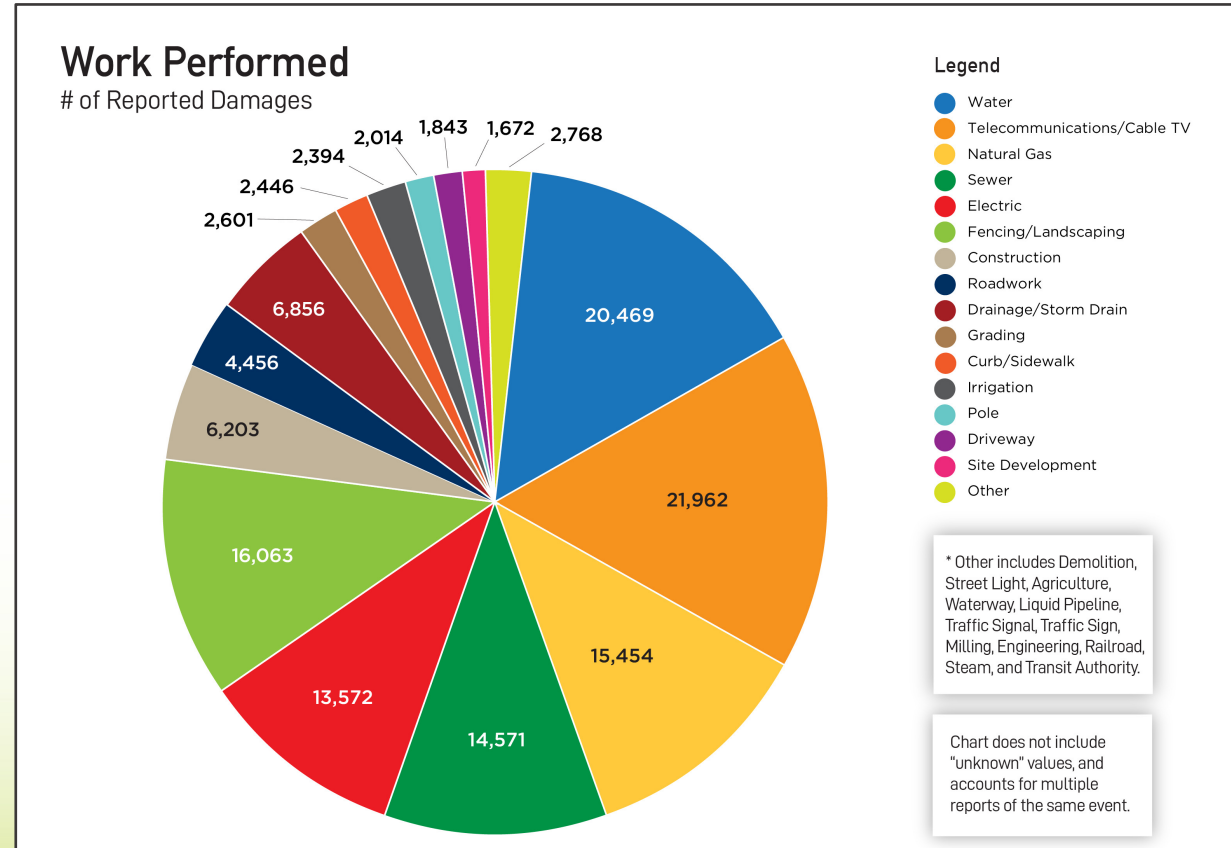
- Backhoe
- Hand tools
- Boring/Directional Drilling
- Trencher/Gradescape/Bulldozer
- Auger/Drilling
- Vacuum
- Other\*

\*Other includes Probing, Farm and Milling Equipment, Explosives.

Chart does not include "unknown" values, and accounts for multiple reports of the same event.

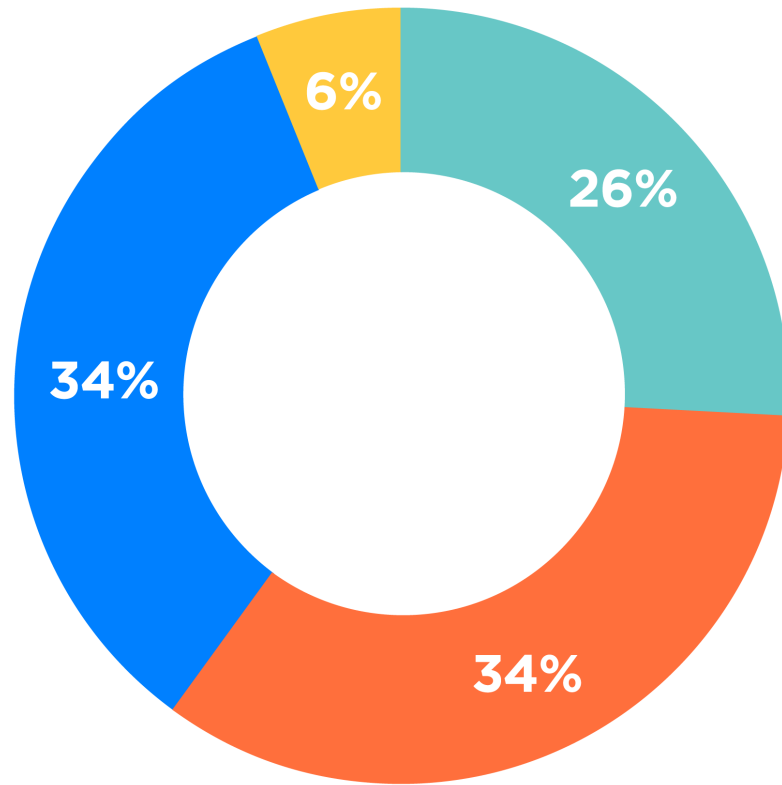
# Utility Work is the Most Prevalent Type of Work Performed

- **Water** is the most prevalent work type **followed closely by sewer and telecom.**
- Many damages involving Horizontal Directional Drilling (HDD) can be **attributed to facility operators, or their subcontractors**, hitting each other and/or themselves.



# Root Cause Analysis - 2021

Reported Damages by Root Cause Group  
% of Total 2021



## Legend



# 76% of Reported Damages - Attributed to Top 6 Root Causes

Root Cause			Reports	2021 % of Total
1		No notification made to 811 Center	34,617	25.72%
2		Facility not marked due to locator error	19,341	14.37%
3		Excavator failed to maintain clearance after verifying marks	18,782	13.95%
4		Improper excavation practice not listed elsewhere	12,181	9.05%
5		Marked inaccurately due to locator error	10,763	8.00%
6		Excavator dug prior to verifying marks by potholing	7,090	5.27%
76.36%				

# Clear Damage and Root Cause Trends

- ***No notification made to 811 center* remains a top root cause** with over a quarter of all damages still attributed to *no notification*.
  - CGA excavator research tells us that professional excavator awareness of 811 is very high, yet **60% of all damages due to *no notification* can be attributed to professional excavators.**
  - It is important to note that **36% of those professional excavators failing to contact 811 were likely working on projects associated with utilities** (natural gas, electric, telecommunications) and/or municipalities (water, sewer, road, sidewalks, etc.).





# Spotlights on Key Facility Types

## (Natural Gas vs. Telecom)

- Telecom facilities are damaged at shallower depths and by facility owners themselves, their subcontractors, or other service providers within their own industry about twice as often as natural gas facilities.

### Natural Gas: Reported Damages by Root Cause

Top Root Causes Coded by Group

Root Cause		Reports	% of Total All Data	% of Total Known Data
No Locate Request		23,316	28.75%	31.28%
Failure to Pothole/Maintain Clearance		16,631	20.50%	22.31%
Locator Error		9,256	11.41%	12.42%
Insufficient Excavation		7,518	9.27%	10.08%
Other		6,556	8.08%	
Bad Map		3,724	4.59%	4.99%

Excavation Practices   Locating   No Locate Request   Other

### Telecommunications: Reported Damages by Root Cause

Top Root Causes Coded by Group

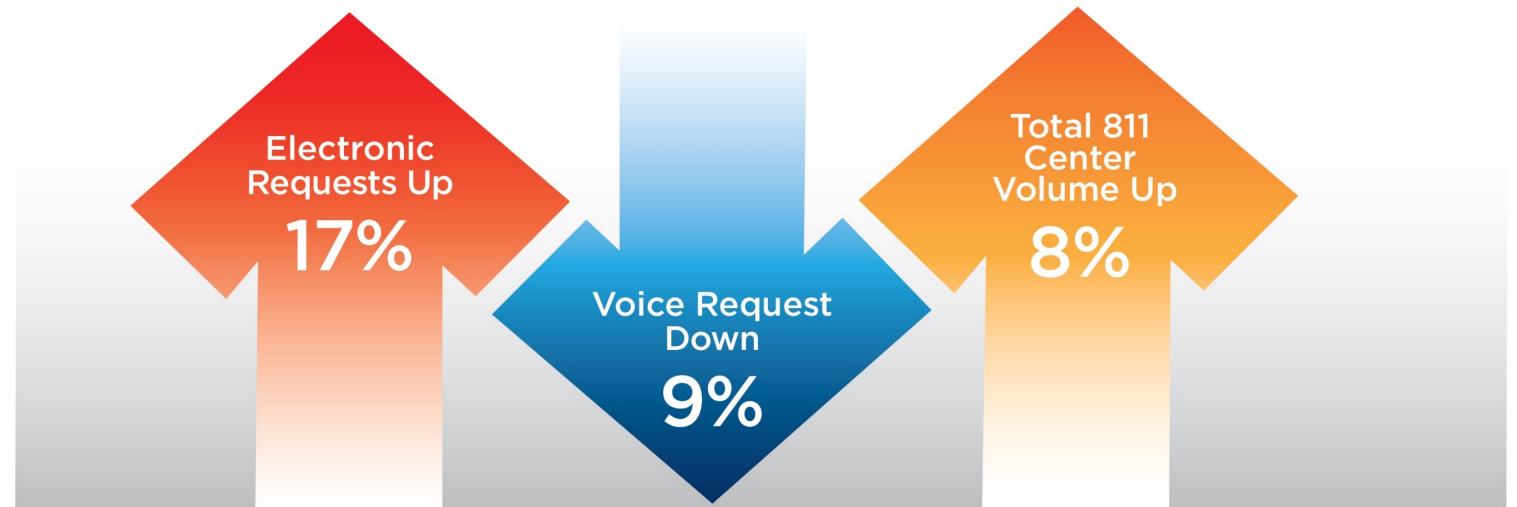
Root Cause		Reports	% of Total All Data	% of Total Known Data
Other		49,068	54.45%	
Locator Error		13,634	15.13%	33.22%
No Locate Request		8,648	9.60%	21.07%
Failure to Pothole/Maintain Clearance		5,793	6.43%	14.12%
Insufficient Excavation		3,869	4.29%	9.43%
Failure to Support/Protect		1,870	2.08%	4.56%

Excavation Practices   Locating   No Locate Request   Other

# Overall Volume Increase

## Incoming Locate Requests / Outgoing Transmissions

Based on 811 Centers that Provided Data for 2020 and 2021



Ticket Type	Canada	U.S.	Total
Incoming Locate Requests			
• Voice	296,657	12,107,270	12,403,727
• Electronic	1,991,836	27,455,516	29,447,352
• Fax	0	2,749	2,749
Total Incoming Locate Requests	2,288,493	39,565,535	41,854,028
Total Outgoing Transmissions	9,681,348	272,673,947	41,854,028

Comparing information submitted by centers for both 2020 and 2021 we find:

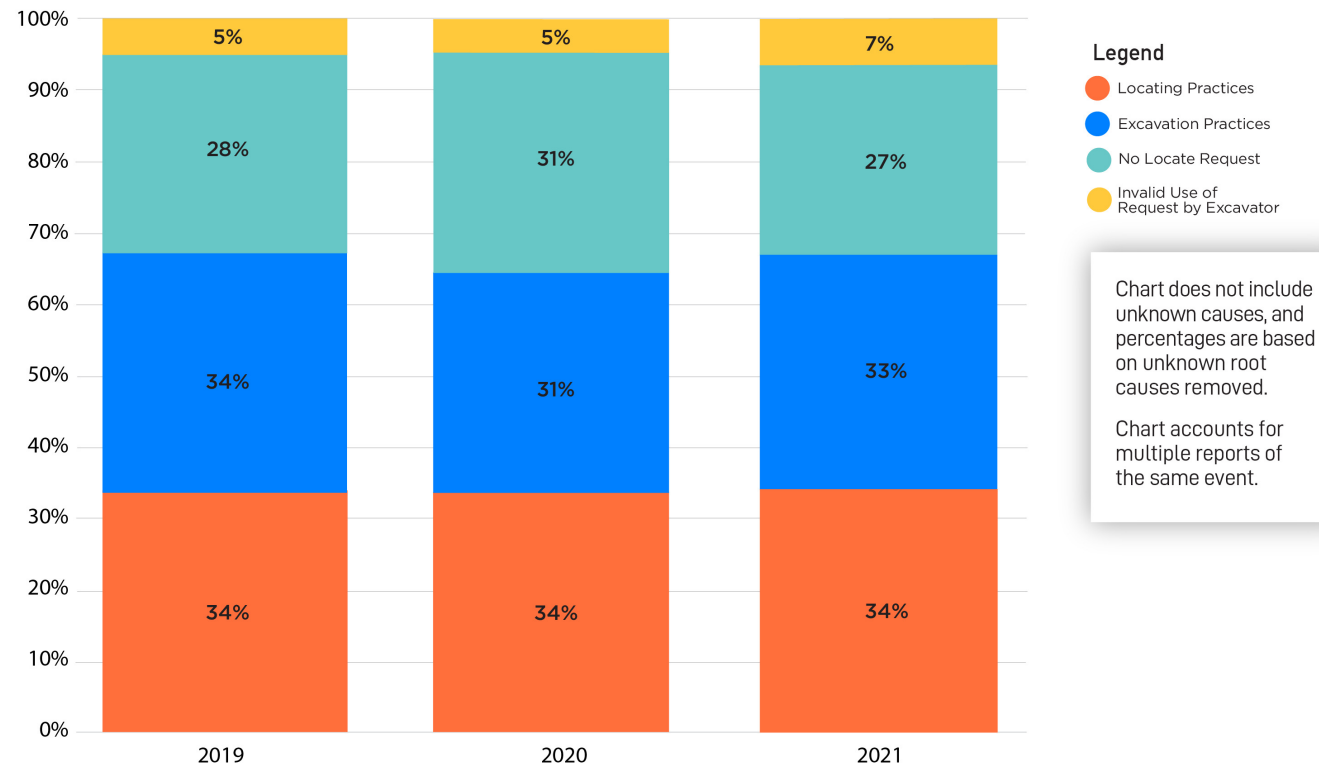
- Incoming voice down 9%
- Incoming electronic up 17%
- Total incoming up 8%
- Total transmission up 5%

# Following the Trends

- Analysis points to overall **plateau or slight increase in damages since 2019.**
- Root cause trends **remarkably consistent.**
- Increased construction spending has consistently proven to correlate with an increase in damages.  
**Infrastructure funding will stress system.**

## Damage Root Cause Groups

% of Total by Year using the 2019 to 2021 Comparable Data Sets





# DIRT Report Recommendations

## Prioritize Damage Prevention Efforts Based on Immediate Needs and Greatest Impact

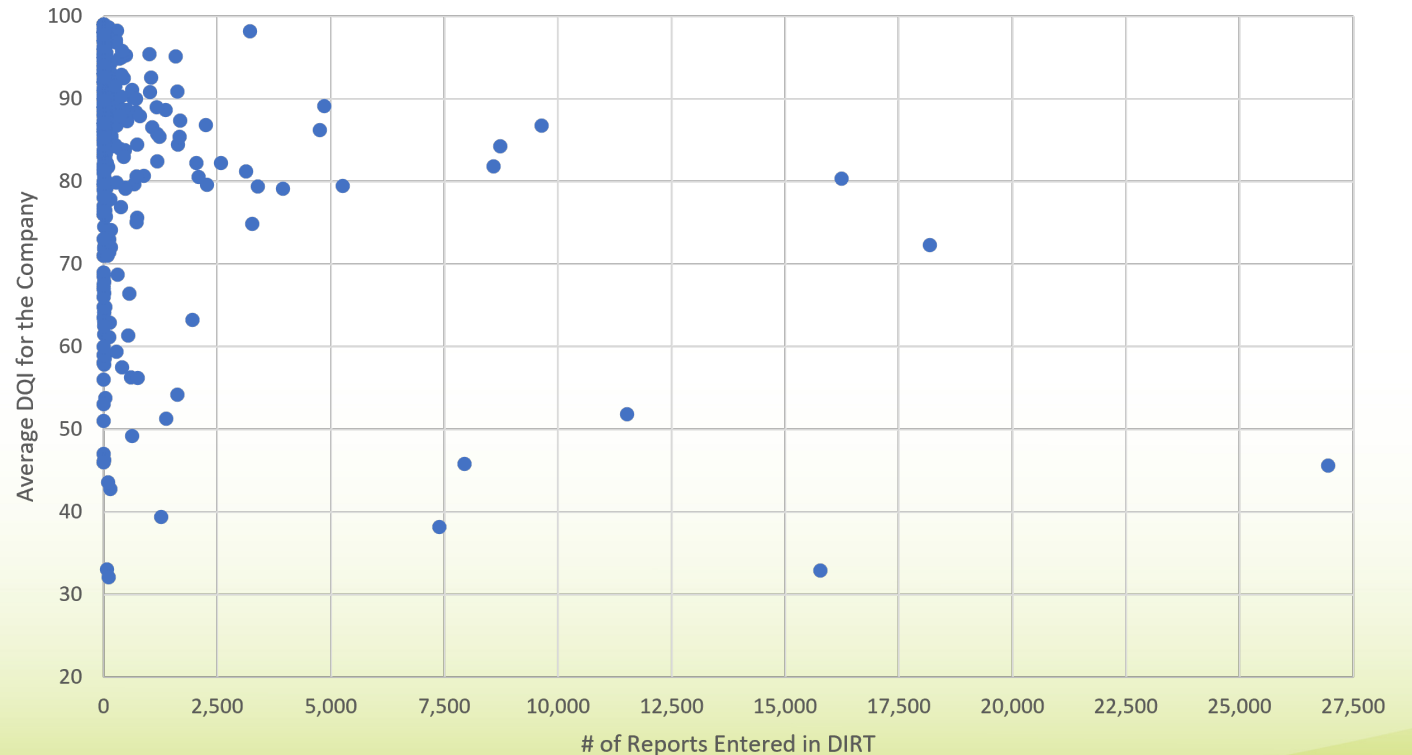
- Increase damage prevention outreach and stakeholder communication as rollout of the Infrastructure Investment and Jobs Act increases construction activity across the U.S.
- Strengthen engagement with **public works stakeholders**.
- Educate professional excavators on areas with the greatest potential impact on damage prevention – **consistent and efficient use of 811 for *all* projects, and safe excavation within the tolerance zone**.
- Tailor damage prevention efforts and investments to address the **leading individual root causes**.

# Impact of Data Quality

## Recommendation Increase Opportunities for Analysis by Improving Data Effectiveness

Know your Data Quality Index (DQI) and identify steps for improvement going forward.

Average DQI by Number of Reports Entered  
Each Dot Represents a Company Submitting in 2021



DIRT Report for 2021 | Common Ground Alliance



# High DQI Profiles

*Reveal best practices in achieving informative datasets*



**Company:** CenterPoint Energy  
**Stakeholder Group:** Natural Gas  
**High Quality Field(s):** Excavation Information (Part D) and Root Cause (Part I)



**Company:** Colorado 811  
**Stakeholder Group:** 811 Center (One Call Center)  
**High Quality Field(s):** Excavation Information (Part D) and Root Cause (Part I)



**Company:** UtiliQuest  
**Stakeholder Group:** Locator  
**High Quality Field(s):** Facility Damaged (Part C), Excavation Information (Part D) and Root Cause (Part I)

## Common Themes

- Gather relevant information as soon as possible.
- Automated internal processes.
- Use data and communicate findings within their own organizations to identify ways to reduce damages.
- Emphasize the importance of good data quality to their employees.
- Each company focused on where they have additional opportunities for improvement.



# DIRT Report Recommendations

## Identify Opportunities for Additional Analysis and Document Effective Strategies

- Gather information on key motivating or influencing factors affecting an excavator's decision to contact 811, with the goal of separating out lack of awareness.
- Identify new strategies to increase consistent use of 811 on every project (and document results).
- Document effectiveness of specific policies, enforcement models and training/educational programs on prevalence of excavator errors in the field.
- Identify methodology to measure and document the impact of greater availability of improved/accurate maps on the damage prevention process.



# Opportunities for Self-Evaluation

**Examine your organization and stakeholder group's impact, role in the damage prevention process and potential opportunities for improvement.**



- Are you collecting and submitting the highest quality DIRT data available to your company/industry? How are you utilizing this data to improve your damage prevention practices within your own company?
- Are you taking steps to minimize “noise” in the 811 system?
  - Excavators: Does your number of locate requests accurately reflect your current workload?
  - Facility Owner/Operators: How many “renotification” requests are you submitting throughout the life of your facility maintenance and new construction projects?



# Opportunities for Self-Evaluation

**Examine your organization and stakeholder group's impact, role in the damage prevention process and potential opportunities for improvement.**



- Are you requiring everyone that works for you or on your behalf to follow the most effective and proven safe digging practices to reduce the likelihood of the top root causes of damage?
  - Facility Owner/Operators or Project Owners: Do you insist on potholing by your contractors and ensure this is built into their project costs? If you are a utility company that uses vendors for locating or subcontracts excavation work, do you use contracts that incentivize following safety and damage prevention processes?
  - Excavators: Do your employees know they will not be penalized for any project delays caused by adhering to the 811 process? Do you require specific training for excavation within the tolerance zone?



# Opportunities for Self-Evaluation

**Examine your organization and stakeholder group's impact, role in the damage prevention process and potential opportunities for improvement.**



- Are you using/investing in new technologies to improve mapping, locating and GIS data?
- Do you prioritize safety and damage prevention in your organization/company? If so, do you communicate that effectively to your employees?



# Data and Research

## *What DIRT data doesn't tell us?*

White Paper 2022

Natural Gas: Leading  
the Damage  
Prevention Industry

REPORT

White Paper - Natural Gas: Leading  
the Damage Prevention Industry



Research

RESEARCH

Interview Report: Gas Distribution  
Industry Exploratory Study



Survey Results

RESEARCH

Survey: Natural Gas Industry



Active Digger  
Data Sheet

RESEARCH

Active Digger Research 2021 Data  
Sheet



Survey Results

RESEARCH



811 Research

RESEARCH



Research

RESEARCH

CGA White Paper

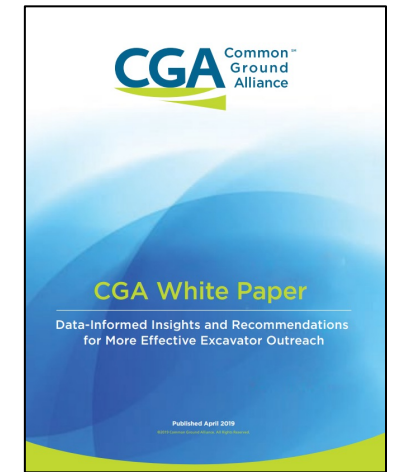
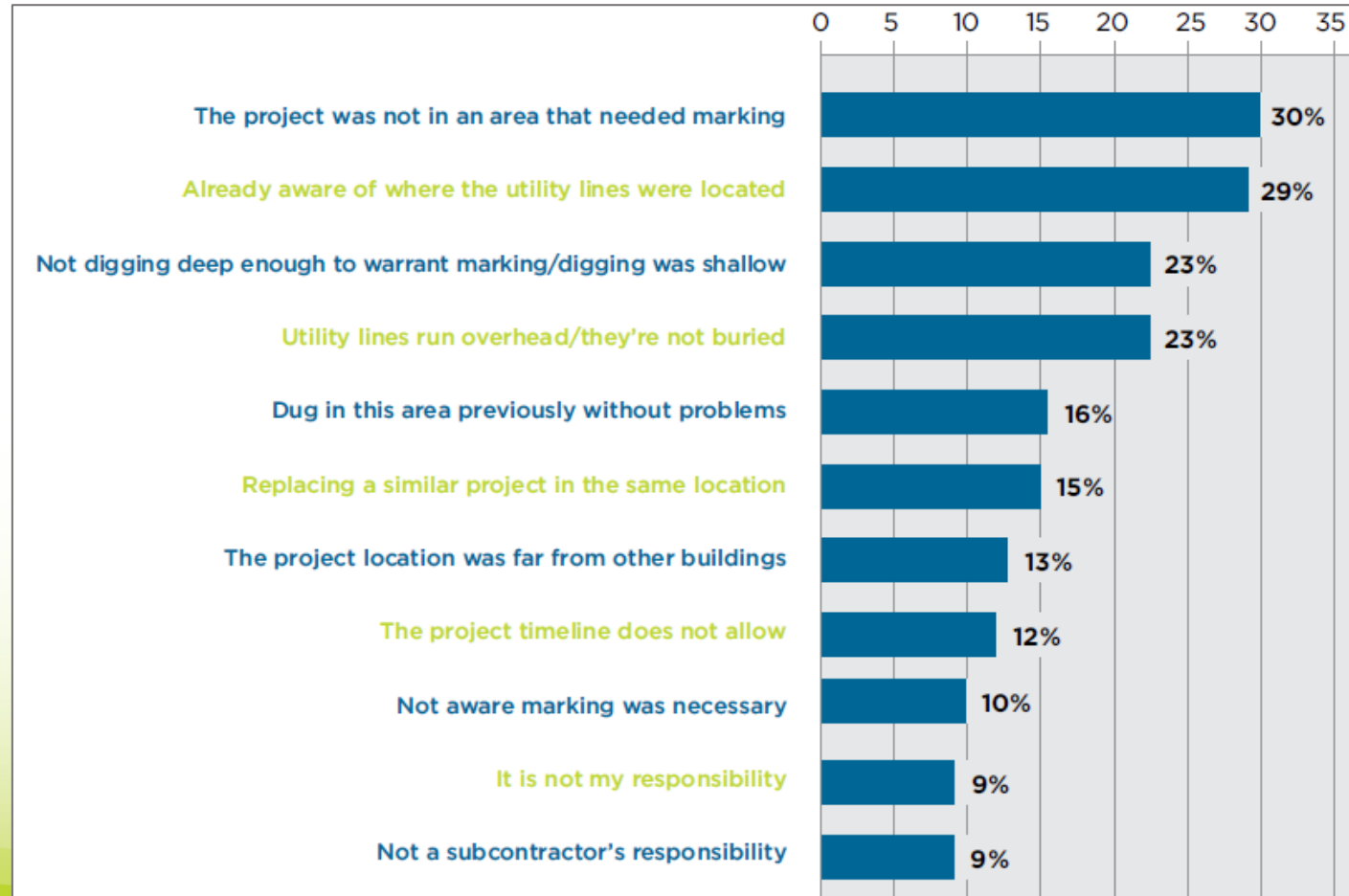
2020

Insights into Improving the  
Delivery of Accurate, on-Time  
Locates

REPORT

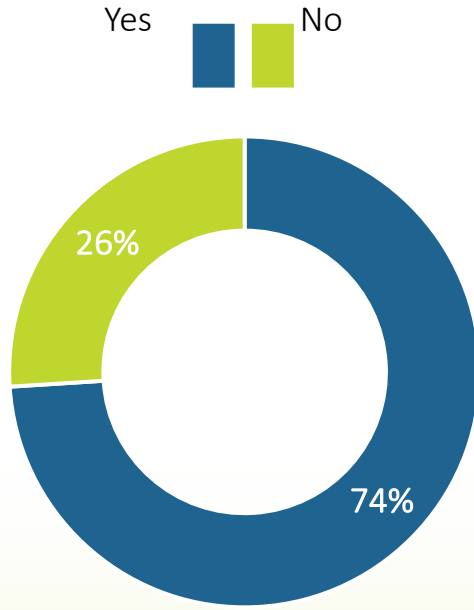
# Professional Excavators

## Reasons for Not Contacting 811



# Active Digger Research

Are you aware of service?



Q: Are you aware of a free national phone number and service that people can contact to have underground utility lines on their property marked prior to starting any digging project?



## THE REASONS ACTIVE DIGGERS HAVE NOT HAD LINES MARKED VARY

*Among active diggers who have not had their underground utility lines marked:*

**believe they are not digging deep enough to warrant having lines marked**

**36% say their project was not in an area that needs marking**

# Locator Research: Data, Findings and Insights

## Locator research methodology

402

U.S.-based locate technicians completed an online survey.



20

locating industry decision-makers participated in in-depth interviews.

## TOP 3 CHALLENGES facing locate technicians:

1. Area to be marked is not clearly defined - **51%**
2. Incorrect information provided by excavator - **37%**
3. Heavy workload - **33%**

97%

of locators believe mandatory white-lining would improve the likelihood of accurate and on-time locates, and **99%** say updated facility maps would be effective.



CGA

CGA White Paper

2020

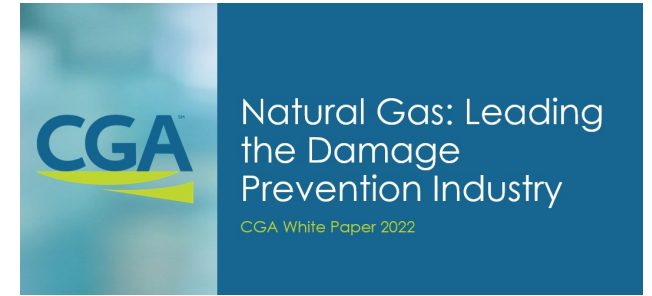
Insights into Improving the Delivery of Accurate, On-Time Locates



Published October 2020 © 2020 Common Ground Alliance. All rights reserved.



# White Paper 2022: *Natural Gas Industry*

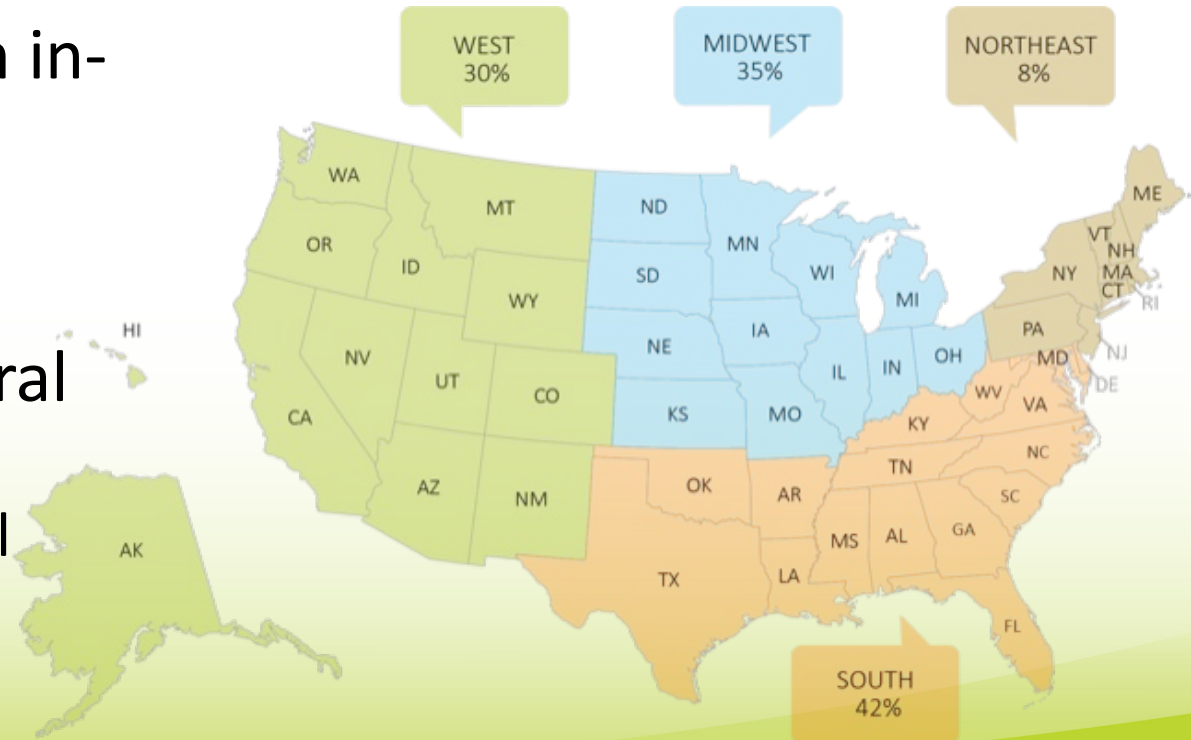


## Qualitative Research

- **15 natural gas leaders** participated in in-depth interviews

## Quantitative Research

- Survey of **181 employees** in the natural gas industry
  - 55% C-level, Director and Manager level
  - 38% Damage Prevention
  - 22% Operations
  - 11% General Management



# 1. Expanding natural gas' key role in the industry

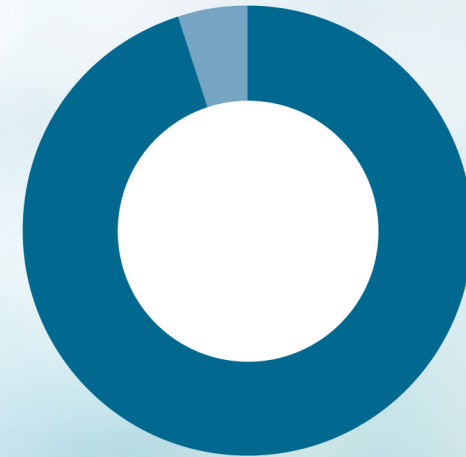
Natural gas distribution stakeholders place high priority on safety, and view themselves as a group primarily responsible for damage prevention.

- Heavy incentives to invest in safety gives these stakeholders a unique opportunity to share their expertise with other groups.
- The culture of safety within natural gas distribution organizations is created through strong leadership and by weaving damage prevention into the fabric of organizational life.
- Natural gas distribution organizations reach other stakeholders by investing in excavator training and awareness initiatives to address excavation issues.

## IMPORTANCE OF DAMAGE PREVENTION

Q | How important is damage prevention in the natural gas industry?

Somewhat important  
5%



Very important  
95%

SOURCE: Survey, slide 7

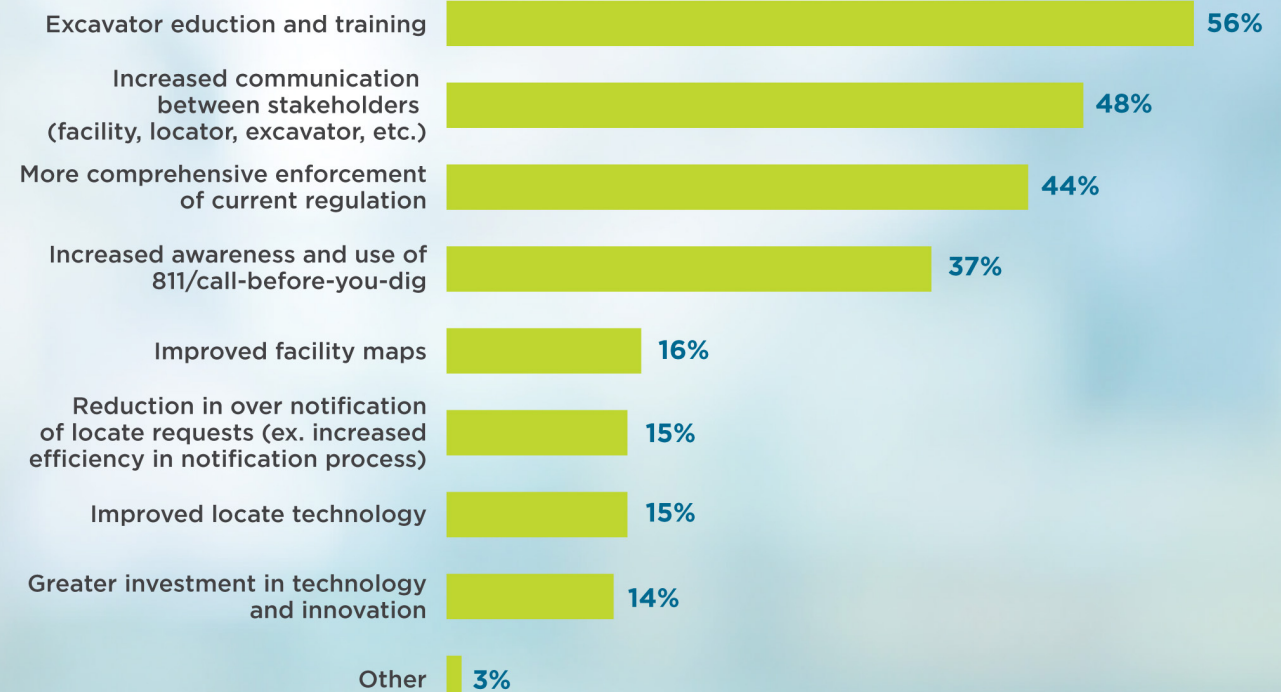
## 2. Shifting the focus

Focusing on internal processes and policies may be the most direct pathway to address external challenges in the short term.

- Legislation changes can be effective, but often take years to have an impact.
- 56% of natural gas distribution survey respondents report excavator education and training as a valid strategy to reduce damages.
- Natural gas distribution stakeholders have opportunities to influence excavator behavior within their companies and externally.

### STRATEGIES FOR REDUCING DAMAGES

Q | Which of the following strategies do you think have the most potential to reduce damages to natural gas facilities? (Select up to 3)



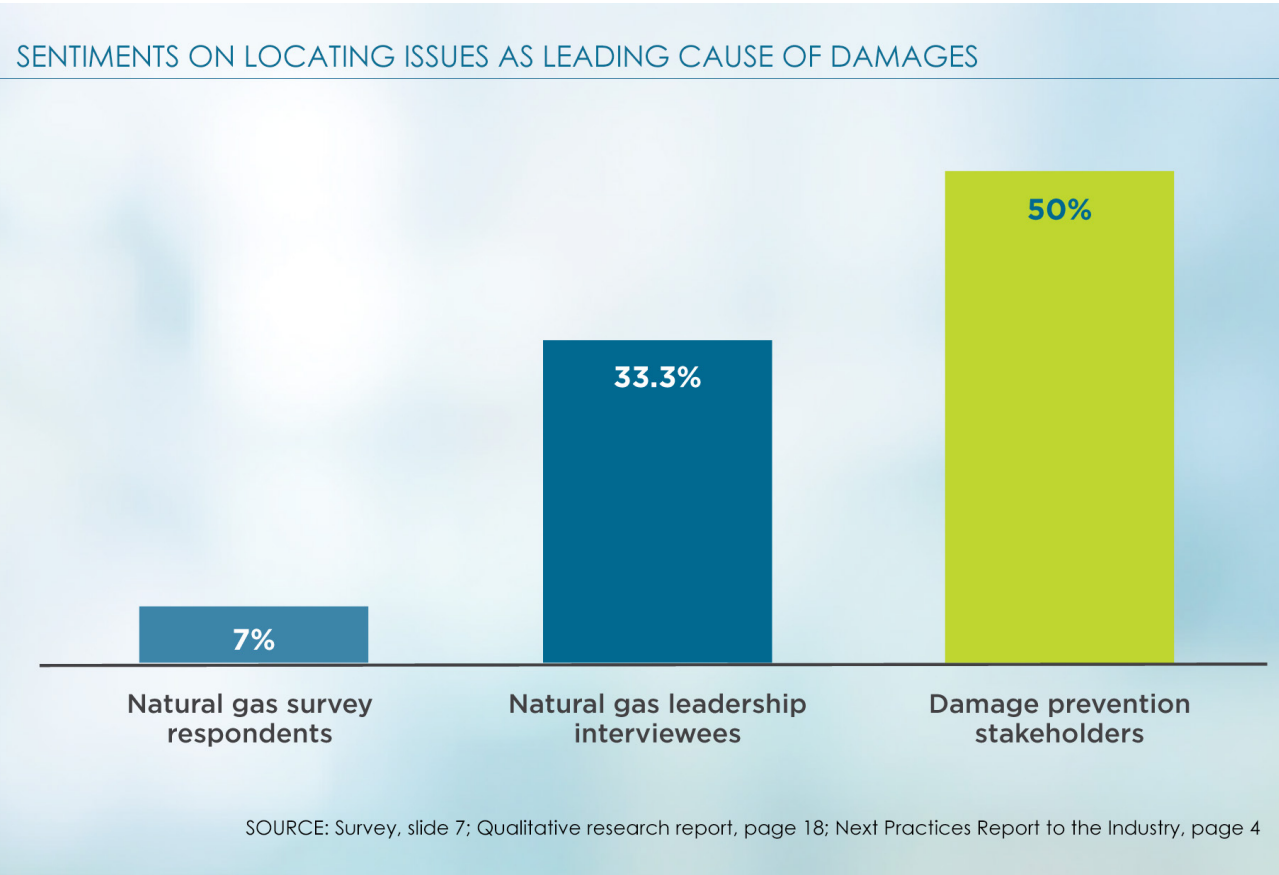
SOURCE: Survey, slide 16



# 3. Improved mapping and contracts

Natural gas distribution stakeholders can better reduce damages by focusing on improved facility mapping and fair contracts that prioritize damage prevention.

- Updated facility maps were a nearly unanimous request from locators surveyed for CGA's Locator White Paper.
- A case study from Southwest Gas found that utilizing best value contracts reduced damages by 20% in just over two years.
- Focusing on facility mapping and fair contracts can contribute to restoring excavator trust in the system and better excavator notification practices.



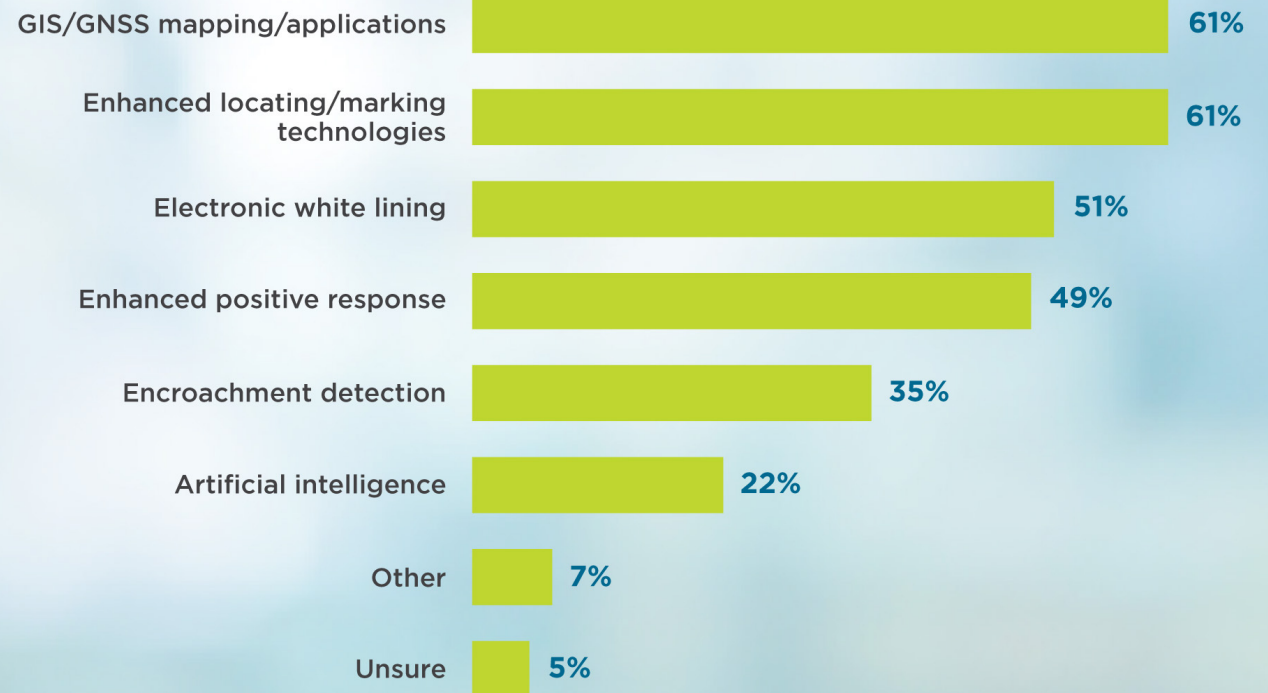
# 4. Innovation and technological advancements

Technology and innovation are critical to damage prevention and reducing future damages.

- More than half of natural gas stakeholders reported that GIS/GNSS mapping, enhanced locating/marking and electronic white-lining (EWL) technologies could help reduce damages to their facilities.
- Environmental and safety concerns from the general public and greater ESG prioritization within organizations may drive greater investment in technologies.

## TECHNOLOGY TO REDUCE DAMAGES

Q | What technological advances could help reduce damages in the natural gas industry?  
Select all that apply



SOURCE: Survey, slide 20

# Best Practices

- Version 18.0 published June 2021
- More than 160 practices developed through consensus
- Available online at [bestpractices.commongroundalliance.com](https://bestpractices.commongroundalliance.com)



Published in summer of 2021, Best Practices 18.0 includes all new practices and is now available to download and in hard copy.



To download or order booklets visit:

[BestPractices.CommonGroundAlliance.com](https://BestPractices.CommonGroundAlliance.com)



Filter by Industry Icons

One Call Center Facility Owner Excavator Locator Project Owner Designer

# Best Practices – Recent Approvals

## *New and Modified Practices*

- 18 new practices and modifications approved since 2020
- Focused on key contributors to damage and DIRT recommendations
  - 2-19 – Underground Electronic Utility Markers (NEW)
  - 6-17 – Accuracy of Location Information (Modification)
  - Updates to seven practices in Chapter 3
  - 5-2 – Delineate Area of Proposed Excavation (Modification)
  - Glossary – New definition of “electronic white lining”
  - 4-4 – Removal of “Single Locator” practice (Modification)
  - 4-17 – Forecasting/Planning for Predictable Workload Fluctuations (Modification)
  - Pothole definition (Modification) and practices referencing potholing – 5-15, 5-20, 2-3, 2-14 (Modification)



# Documenting Industry Case Studies



CASE STUDY

Next Practices Case Study - Crown Castle



CASE STUDY TECHNOLOGY

Technology Case Study - People's Gas



CASE STUDY TECHNOLOGY

Technology Case Study - Exodigo



CASE STUDY TECHNOLOGY

Technology Case Study - Alliance Water Resources & Public Water Supply District 6



# Promoting Safe Digging



TOOLKIT

Incident & Disaster Response



TOOLKIT

811 Tips for Excavators Toolkit



TOOLKIT

811 Logos



TOOLKIT

MEMBER-SHARED

General Campaign Materials





MAKING THE 811 SYSTEM MORE EFFICIENT  
**HOW EXCAVATORS CAN HELP**

**WHEN MAKING LOCATE REQUESTS...**

**PROVIDE QUALITY  
INFORMATION**

Specific dig site location  
& dimensions

Correct contact name &  
phone number

Detailed description of  
work being performed



**MANAGE TICKET  
QUANTITY**

Give sufficient notice

Eliminate  
unnecessary requests

Stop locates on  
completed jobs



LEARN MORE WAYS TO HELP  
VISIT [CALL811.COM/EXCAVATOR](https://call811.com/excavator)



CGA Excavator Video (Full Length) Watch later Share

**HOW  
EXCAVATORS  
CAN HELP**

Watch on YouTube

**DOWNLOAD VIDEO**



# ***What is the future of damage prevention?***



# Next Practices Initiative

- Clearly identifies and focuses the industry on the **advancement of effective solutions to address the most critical damage prevention challenges.**
- Targets most critical issues
  - Data driven
  - Identifies inefficiencies
- Industry Call to Action
  - Opportunities for Systemic Improvement
  - Roadmap to Realizing Systemic Improvements



### **CRITICAL CHALLENGE #1**

**Facilities not marked  
accurately and on  
time**

### **CRITICAL CHALLENGE #2**

**Excavator errors  
in the field**

### **CRITICAL CHALLENGE #3**

**Effective and  
consistent use of  
811**

## **SYSTEMIC OPPORTUNITIES**

- **Increase effective implementation of electronic white lining.**
- **Pursue accurate, accessible GIS-based mapping.**
- **Utilize technology/software to account for variability in demand.**
- **Contractually incentivize adherence to Best Practices and address incidents via effective enforcement mechanisms.**

# **Status Report: Increase effective implementation of electronic white lining.**

## Incentives to Implement Electronic White Lining

- Improve excavator confidence in the damage prevention system
- Reduce system volume and increase efficiency

**Call to Action:** Document successes/lessons learned and track effectiveness.

# Status Report: Quantifying Unchecked Demand and Leveraging Technology

## Incentives for Addressing System Demand

- Technology already exists to address many issues
- Understanding primary drivers of system volume is key to adjusting demand

**Call to Action:** More data/analysis on impact of unchecked demand. Pursue innovative processes and use of technology to increase efficiency.

# **Status Report: Contractually Incentivize Adherence to Best Practices**

**Contracts** establish relationships between stakeholders and affect overall confidence in the damage prevention process.

## **Call to Action**

- Ensure your **core values are reflected in your contracts**
- Review and redefine what constitutes an “effective” contract



## Shared Responsibility In Data Benchmarking

Through commitment to shared responsibility we can reduce excavation damages to underground facilities.





# Core Principles of the DPI

- Participants demonstrate commitment to their damage prevention responsibilities through accreditation, maintaining an active status, and participating in peer reviews.
- The DPI is **participant-driven** and **operates transparently** and **in service to all stakeholders**.
- Participation is **voluntary**.



# Desired DPI Outcomes

- Incentivize **all** stakeholders to increase engagement and embrace their critical roles in the damage prevention process.
- Comprehensive metrics that focus on shared responsibility.
- Analytical products that provide insights into not only individual company performance, but also systemic issues.
- Peer reviews that facilitate assessment and improvement of the damage prevention process for all stakeholders.

# DPI Use Cases & Benefits

Organizational Management Tool	Analysis of Systemic Issues
<ul style="list-style-type: none"> <li>• Improvements for individual companies               <ul style="list-style-type: none"> <li>• Management of 1<sup>st</sup> and 2<sup>nd</sup> party damages</li> <li>• Procurement of services</li> <li>• Manage damage data</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Enhanced DIRT capabilities, measuring...               <ul style="list-style-type: none"> <li>• Contextual factors contributing to damages</li> <li>• Implementation of Best Practices</li> <li>• Implementation of Next Practices</li> <li>• Measuring 3<sup>rd</sup> party damages</li> </ul> </li> <li>• Sharing lessons from peer reviews with damage prevention industry</li> <li>• A sandbox for testing innovation</li> </ul>



# More Information

- Website: [dpi.commongroundalliance.com](https://dpi.commongroundalliance.com)
  - Updates coming soon
- Email: [dpi@commongroundalliance.com](mailto:dpi@commongroundalliance.com)
- DPI community on CGA Engage is coming!
- Webinar in January 2023

# Roadmap – Damage Prevention Actions

- ✓ Read the DIRT report, access the dashboard and utilize data
  - <https://dirt.commongroundalliance.com>
  - <https://commongroundalliance.com/DIRT-dashboard>
- ✓ Plan your roadmap / evaluate your practices
  - How are you addressing the root causes attributed to 76% of all damages?
  - Use data as opportunity for self-evaluation.
- ✓ Implement Next Practices
  - Read the Next Practices report
  - Review the “Call to Action”
- ✓ Engage with DPI - [dpi.commongroundalliance.com](https://dpi.commongroundalliance.com)

# Common Ground Alliance

*Become an Active Member*

- Brings together all damage prevention stakeholder groups.
- Addresses the entire damage prevention process.
- Includes over 1,900 individual members and 300 member organizations/ companies.





ON THE ROAD TO **ZERO**  
*Eliminating Damages in 2023*



CONFERENCE  
& EXPO **2023**



*April 17-21 • Caribe Royale Resort • Orlando, Florida*

**We look forward to seeing you at the  
2023 CGA Conference & Expo!**

April 17-21, 2023

Caribe Royal Resort

Orlando, Florida







**Khrysanne Kerr**

*Vice President of Marketing & Outreach*

908 King St., Suite 330 • Alexandria, VA 22314

703-836-1709 • Direct: 571-385-2606

Cell: 330-283-3760 • [commongroundalliance.com](http://commongroundalliance.com)

[kerr@commongroundalliance.com](mailto:kerr@commongroundalliance.com)



## CEU & SCHOLARSHIP ATTENDEES:

Attendees who would like to receive CEU credit or who are scholarship recipients, please scan the QR code OR visit the link below and fill out the online form.

<https://www.midwest811conference.com/khrysanne-kerr/>