



CGA White Paper

**Data-Informed Insights and Recommendations
for More Effective Excavator Outreach**

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WELCOME TO THE FIRST CGA WHITE PAPER:

Data-Informed Insights and Recommendations for More Effective Excavator Outreach

April 30, 2019

Dear CGA Members:

The CGA is pleased to release its inaugural White Paper, which will offer key takeaways and recommendations all stakeholders can use to prevent damages to underground infrastructure through more effective excavator outreach.

Why did we focus on excavators?

The damage prevention process only works when all stakeholder groups share responsibility. In this paper, we specifically focus on excavators and their unique position in the process.

Whether it's making a call to 811, waiting the required time for utility marks, confirming the marks or digging with care, excavators have multiple points of exposure. As a result, improved excavator outreach has the potential to greatly improve national damage prevention efforts. This means excavators go home safely to their families at the end of the day, the assets they are working on and near are protected and their bottom line isn't negatively impacted by downtime caused by a dig-in.

CGA's analysis of various data sources, including our recently completed excavator focus groups and online survey, resulted in four key takeaways for effective excavator outreach:

1. Continue increasing awareness of 811 through strategic marketing and education campaigns.

Notifying a one call center before digging remains a critical first step in preventing utility damages. This report illustrates the reasons why professional excavators may choose not to call 811 or make an online locate request, and how stakeholders can develop marketing and educational messages to modify those behaviors.

2. Acknowledge the realities of the jobsite when communicating best practices to excavators.

The pressures of the jobsite are not always reflected in the way we talk to excavators about navigating damage prevention best practices—possibly to our detriment. This section of the report analyzes the on-the-ground judgment calls that excavators face daily and recommends ways that stakeholders can more effectively communicate regulations and practices with excavators' perspective in mind.

3. Develop an integrated communications plan to reach all types of excavators.

Not all excavators are the same, and this must be taken into consideration when developing messages used to reach excavators. This section of the White Paper explores data from the excavator focus groups and online survey that highlights differences by age groups and offers recommendations for creating effective educational campaigns.

4. Make damage prevention training more easily accessible, relevant and actionable.

Excavators want comprehensive damage prevention training and value the experience of more seasoned crew members. The report highlights strategies for incorporating training into existing safety and damage prevention programs, scaling training via online modules and focusing on the specifics of "digging with care" to reduce damages.

I hope you will find the information contained in this report valuable as you develop your damage prevention public awareness and training plans. Feel free to contact me or other members of the CGA staff with any questions you have about this report.

Sincerely,



Sarah K. Magruder Lyle

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COMMON GROUND ALLIANCE'S LEGACY OF DATA ANALYSIS AND RECOMMENDATIONS

The Common Ground Alliance has been the leading authority on underground utility damage prevention since its founding nearly two decades ago. CGA's core philosophy has always been to provide a forum for stakeholder collaboration to determine why damages and near-miss events occur, and what we can do to prevent them in the future. The collaborative analysis approach has undoubtedly helped equip all stakeholders with the information needed to develop strategic plans for better damage prevention.

CGA established its [Best Practices Guide](#) as the first model for this collaborative effort. The Best Practices identify ways to reduce damage to underground infrastructure.

CGA requires all potential Best Practices to first be in use and proven effective, and then must earn consensus approval from all CGA representative stakeholder groups before earning a home in CGA's annual Best Practices Guide.

In 2004, CGA launched a new era for damage prevention analysis with the inaugural publication of the [Damage Information Reporting Tool \(DIRT\) Report](#). This report invited all stakeholders to share annual data about damages and near-miss events that their organizations were either directly involved in (facility operators, locators and excavators) or were reported to them (state/federal regulatory agencies and one call centers). Voluntary and anonymous stakeholder submissions to DIRT have greatly increased over the years, allowing CGA to provide analysis at the state level.

With the launch of 811 as the national call-before-you-dig (CBYD) phone number in 2007, CGA began measuring public awareness of the CBYD process in general and 811 specifically. In recent years, CGA has analyzed correlations between lower incidences of "notification not made" damages and higher general public awareness levels of the one call process.

In 2018, CGA executed more original research than in any other year, including new studies on excavator behavior, focus groups held in Colorado and Georgia and a nationwide online survey.

This inaugural **CGA White Paper** represents the culmination of nearly two decades of growth in CGA's approach to evaluating why damages and near-misses occur and how we can work together to prevent them. As you read through this document, you'll find data-supported recommendations that can make your outreach to excavators—whether your organization excavates, contracts with excavators or works in partnership with them—more effective.

KEY TAKEAWAY #1

Continue Increasing Awareness of 811 through Strategic Marketing and Education Campaigns

Notification of a local one call center by an excavator, either with a phone call to 811 or an online request, is the first critical step in preventing damage to underground facilities.

CGA began analyzing the importance of one call notification and its connection to damage data starting with the 2012 DIRT Report, when it first compared DIRT data to data measuring public awareness of CBYD services—both in general and in relation to calling 811 specifically.

Using data from the most recent versions of these reports (2017 DIRT Report and 2018 811 Public Awareness Report), **CGA found significant evidence that in parts of the country where awareness of CBYD/811 services is higher, the likelihood of damages due to failure to notify a one call center was lower.**

As shown below, in the West North Central Census Division, more than 70 percent of surveyed general public respondents were aware of the need to contact a one call center either by phone or online before digging—the highest figure in the country, while the percentage of reported DIRT Report incidents due to “notification not made” was just over 10 percent—the lowest in the country and well below the national average of 24 percent (SOURCE: 2017 DIRT Report).

Please see Figure A on page 5 for complete data.

This data supports what has long been intuitive—contacting 811 before digging is not just the law, it produces better results for all stakeholders, including professional excavators.

However, 811 isn't universally used by all professional excavators for all jobs. CGA executed a national online study of excavators in 2018 and examined the self-reported reasons why these professionals chose to sometimes not notify a one call center before digging.

The top reported reasons all fall into the category of making a judgment call instead of a phone call, led by:

- Belief that project was in an area that didn't need marking (30 percent)
- Belief that they were already aware of location of buried utilities (29 percent)
- Not digging deep enough (23 percent)
- Lines run overhead (23 percent)

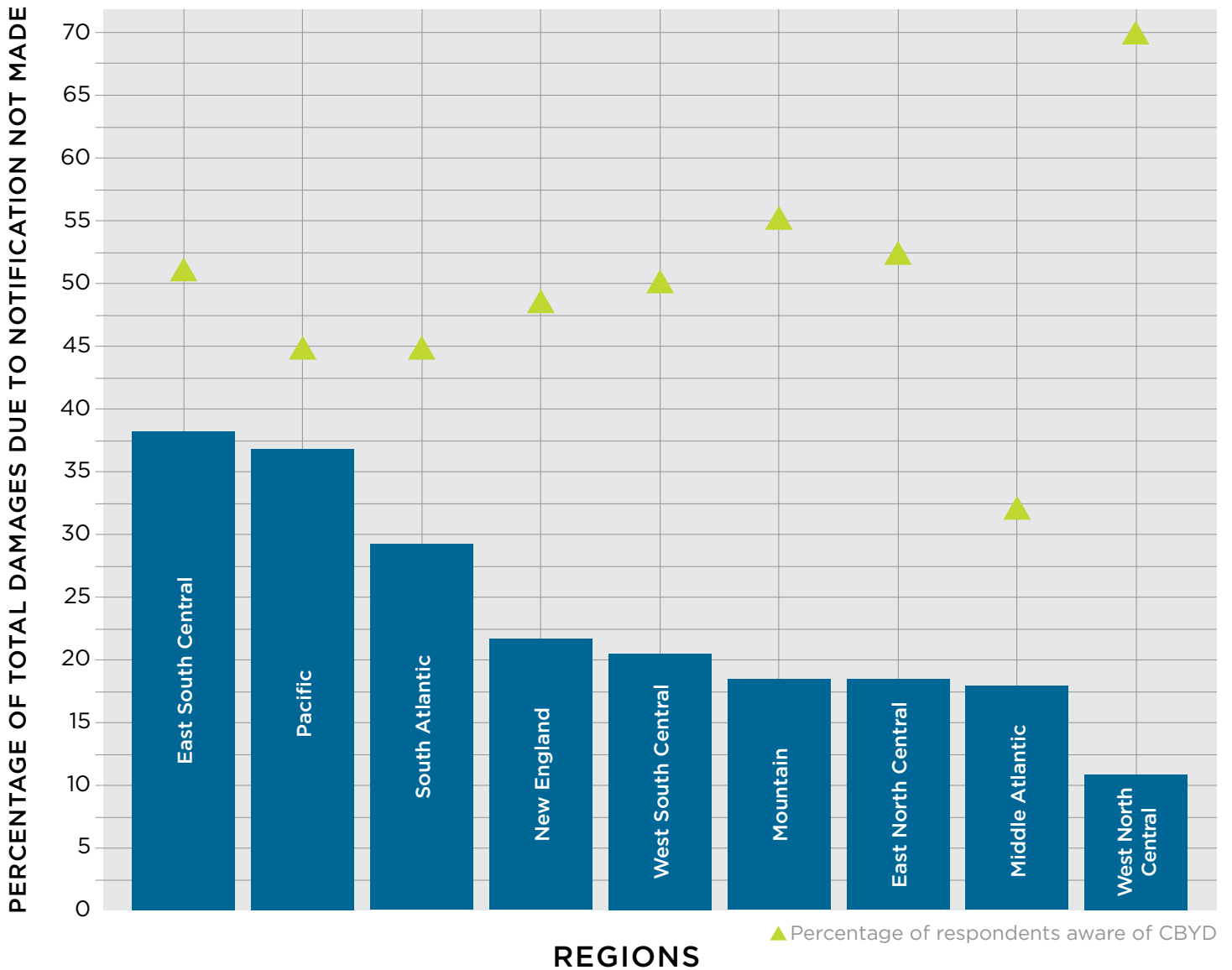
Please see Figure B on page 6 for complete data.

While this portion of the CGA Excavator Study looked at usage of 811, another part analyzed familiarity with the phone number and its purpose.

When CGA measured excavator awareness of the 811 phone number, it found that smaller companies (with 10 or fewer employees) were less likely to be familiar with 811 (64 percent of all respondents) than excavators as a whole (76 percent reported being familiar with 811).

AWARENESS OF CBYD SERVICES AND “NO-CALL” DAMAGES

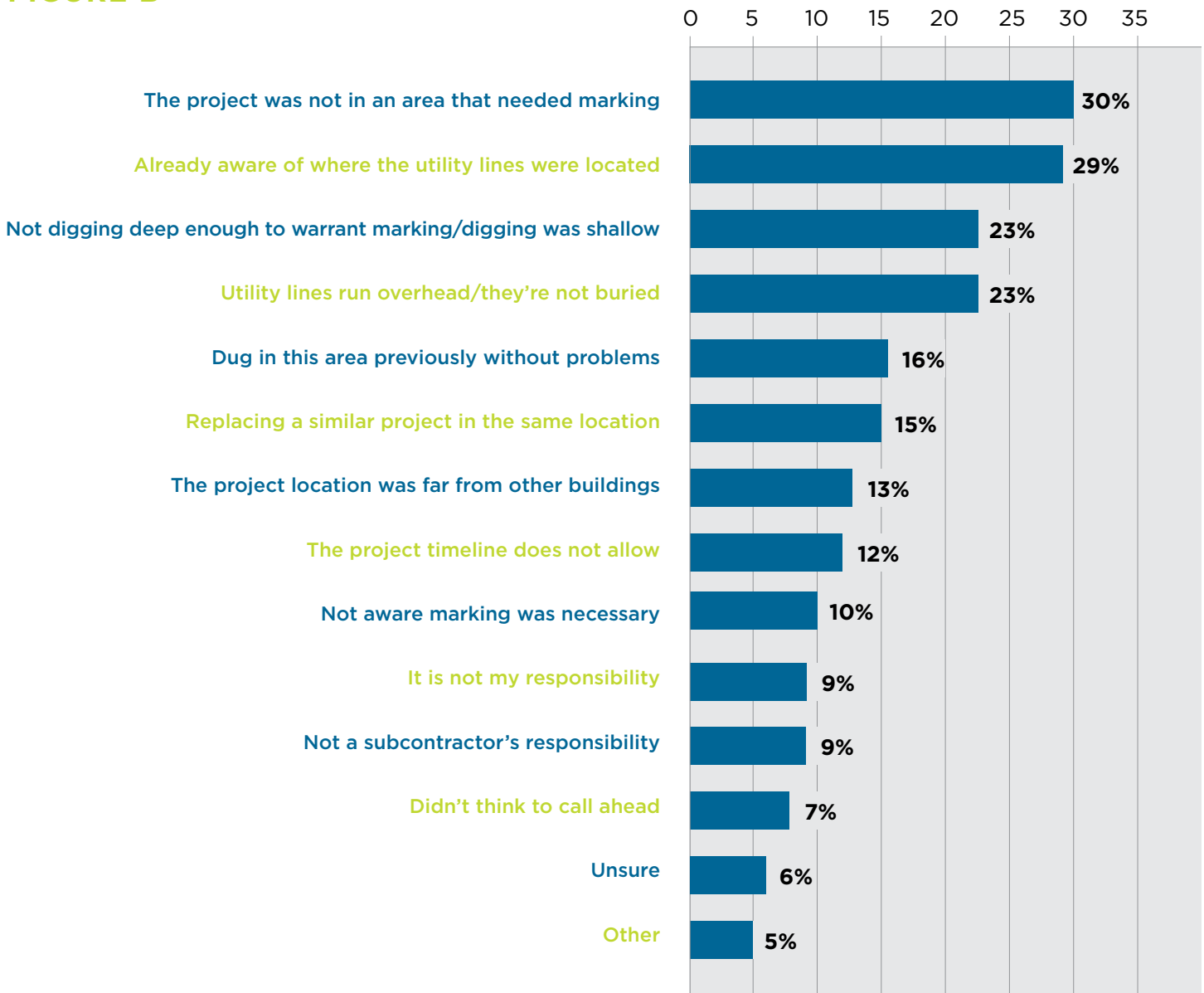
FIGURE A



REASONS FOR NOT CONTACTING 811 OR CBYD

Q: Thinking of notifying 811 or call-before-you-dig, in your opinion, for which of the following reasons do you or others not call or go online to have the underground utility lines on a jobsite marked?

FIGURE B



KEY TAKEAWAY #1

(continued)

RECOMMENDATIONS:

1. Stakeholders should develop public awareness campaigns that can effectively reach both DIY diggers and professional excavators with the 811 message.

While professional excavator awareness of 811 (76 percent aided awareness) is nearly double that of the general public (36 percent aided awareness), continued promotion of 811 to both groups remains incredibly important, especially among smaller excavation firms.

2. Mass media has the power to reach both audiences at the same time, making campaigns more efficient.

When promoting the 811 message, mass media—both traditional and digital—has the potential to reach both audience groups with the same campaigns, which allows for more efficient targeting of advertising dollars.

3. Targeted efforts that promote 811 also matter.

Educational tactics that tap into existing communications channels—such as facility operators including 811 information in bill inserts and on company websites—were identified as memorable outreach efforts by attendees of both excavator focus groups. CGA encourages all stakeholders to consider additional ways to directly target all types of excavators.

4. Campaigns focused on 811/notification should highlight projects that may be performed by both homeowners and professional excavators.

To be successful in targeting both groups with advertising and public service announcements that resonate equally, CGA recommends showcasing projects that occur in a residential setting, including landscaping, fence installation, deck or patio building, excavation for a swimming pool, etc., in marketing and educational materials.

KEY TAKEAWAY #2

Acknowledge the Realities of the Jobsite When Communicating Best Practices to Excavators

Despite excavators' high-level awareness about the need to notify a one call center, **insufficient excavation practices persist as the primary root cause of damages in the U.S.** As a result of this continuing trend, CGA commissioned both quantitative and qualitative studies of professional excavators to better understand the reasons why excavators may not always follow damage prevention best practices in the field. The quantitative piece revealed the **types of decisions excavators are making on the jobsite that may be contributing to damages**, including:

- Failure to confirm the location of marked facilities. Only 42 percent of excavators reported always verifying the accuracy of marks on jobsites via pot-holing or test-pitting. (See CGA Best Practices [5.10](#), [5.19](#), [5.20](#) and [5.32](#).)
- Continuing to work without a re-mark when marks are no longer visible. Fewer than half of excavators reported always renewing tickets when marks are no longer present. (See CGA Best Practice [5.17](#).)
- Working on an expired ticket. Just 52 percent reported always renewing a ticket if work will be continuing past expiration date. (See CGA Best Practice [5.23](#).)

Some excavators appear to be making risk assessments on the jobsite, both in terms of notification and excavation practices. To examine what might motivate behavioral change in this stakeholder group, the online excavator survey asked specifically about consequences of deviating from safe excavation practices:

- 77 percent strongly agreed that fear of physical harm to self or others would be an effective motivator.
- 71 percent strongly agreed that financial reasons (fines/court rulings/repair bills) would motivate change.
- 69 percent strongly agreed that an OSHA citation would be a key motivator.

Regardless of occasional noncompliance, **excavators do believe that damage prevention is a shared responsibility**: Excavators were more likely (combined 52 percent) to believe an excavator bore responsibility in the damage prevention process (notification not made, 26 percent, and excavation issues, 24 percent) than locating issues (33 percent).

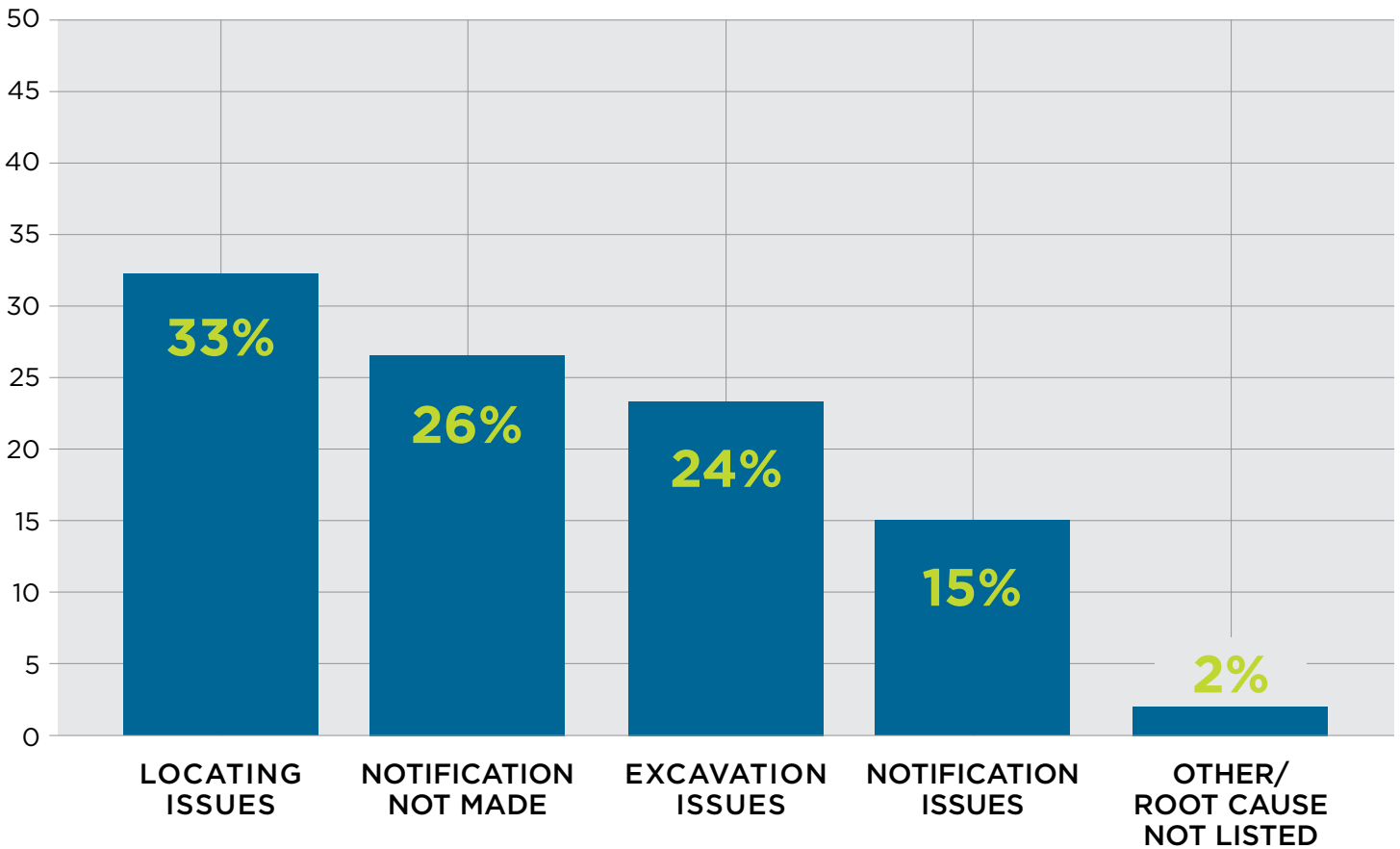
Please see Figure C on page 9 for complete data.

This finding, combined with overall positive perceptions of the 811 process, reinforces that excavators are very willing partners in damage prevention, but messaging targeted toward them needs to bridge specific gaps in their understanding of the consequences of noncompliance.

LEADING CAUSE OF DAMAGE — ALL RESPONDENTS

Q: Thinking of your experiences with professional excavation projects, generally speaking, what do you believe is the leading cause of damage to underground utilities?

FIGURE C



KEY TAKEAWAY #2

(continued)

RECOMMENDATIONS:

1. Acknowledge some of the “judgment calls” that excavators make to expedite work.

Across your training programs, advertising and educational materials targeting excavators, directly engage with excavators’ perceptions about the necessity of getting the job done rather than only talking about what happens in best-case, unhurried scenarios.

2. Leverage the factors that motivate excavators.

A general focus on the costs of not following the process may be more easily understood by all types of excavators, based on input from excavator focus groups. There is confusion or general lack of awareness about the differences between expenses originated by facility operators’ claims departments and those that come from a state enforcement agency. The more general financial costs would likely be more widely understood. Physical harm is also the most powerful motivator for this stakeholder group.

3. Highlight the experiences of seasoned excavators.

CGA’s research shows that previous experience with damage-causing events resonates with excavators. As evidenced by near consensus in CGA’s excavator focus groups, professional excavators’ on-the-job incidents influence their safe digging practices, which makes more seasoned excavators more likely to understand and follow state laws and best practices. Showcasing the stories of experienced excavators who may have learned hard lessons on the job can be powerful.

KEY TAKEAWAY #3

Develop an Integrated Communications Plan to Reach All Types of Excavators

When addressing the variety of reasons that excavation-related damages can occur to underground utilities, there isn't a "one-size-fits-all" approach that is guaranteed to work with all audiences.

As we mentioned in the first section of this White Paper, there may be benefits to targeting homeowners and excavators through a single integrated campaign about the importance of calling 811 prior to digging, but for other root causes, further customization is needed.

With 76 percent of damages occurring due to reasons other than "Notification Not Made" (SOURCE: 2017 DIRT Report), it's important to develop a variety of targeted campaigns that seek to reduce damage that occurs after a notification is made.

According to CGA focus groups with excavators in Georgia and Colorado in 2018, **excavators would welcome more specific damage prevention messages from other stakeholder groups.**

CGA's online study of excavators analyzed the differences among excavators by age groups. Below are some of the findings from this online study:

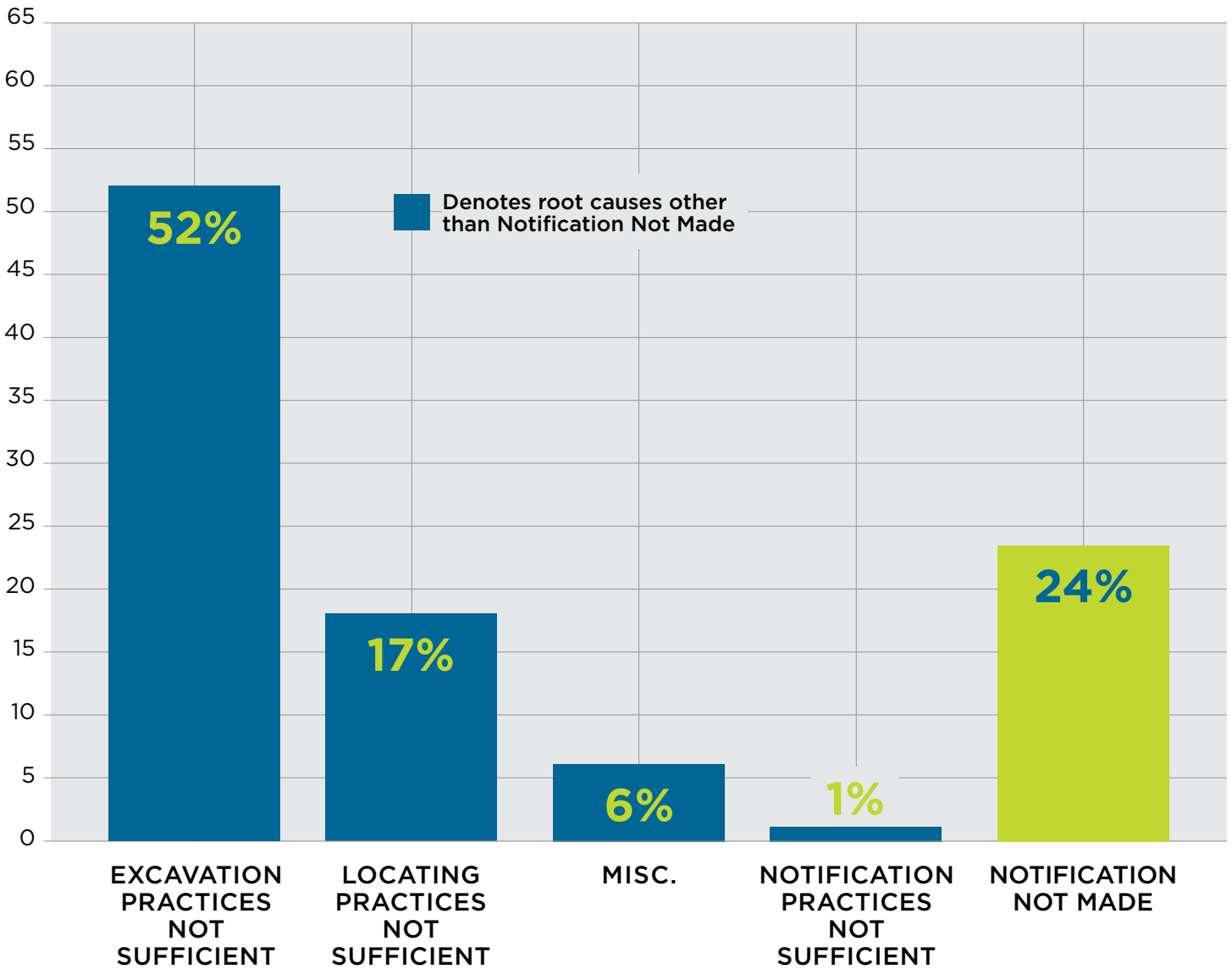
- 74 percent of respondents ages 50-64 reported having personally contacted a one call center before digging, compared to only 54 percent of respondents ages 21-34.
- 86 percent of respondents ages 50-64 reported digging carefully around the marks, compared to just 62 percent of respondents ages 21-34.
- 64 percent of respondents ages 50-64 reported always waiting the required amount of time for utilities to be marked, compared to only 54 percent of respondents ages 21-34.

In the focus groups, excavators expanded upon their desire for more targeted information by mentioning the importance of state law education, as well as a request for information that is easy to quickly digest.

ROOT CAUSE REPORTED IN 2017 DIRT REPORT

FIGURE D

Root Cause Details: 76% of damages reported into DIRT for 2017 were due to root causes other than "Notification Not Made."



KEY TAKEAWAY #3

(continued)

RECOMMENDATIONS:

1. Help excavators see themselves in the marketing and educational materials your organization produces.

In general, CGA's online excavator study found that younger employees and employees of smaller companies were less likely to know and follow all of the steps in the damage prevention process. CGA recommends members consider featuring younger excavators in materials to help connect with these new professionals who are still learning.

2. Produce materials that focus on the full damage prevention process with specific references to state law.

These materials could include:

- **Videos**, which could include those that are hosted within the [CGA 811 Communications Plan](#)
- **Fact sheets** that visually explain the importance of and steps included in the entire damage prevention process
- **Informative and easy-to-read one-pagers** that use concise and direct language and visuals

3. Keep all information approachable by avoiding industry jargon whenever possible.

The knowledge and awareness gap between younger and older employees measured in the CGA online excavator study highlights the importance of using language that is easy for more novice audiences to understand, all while remaining true to state laws. For example, consider simplifying terms like “positive response” with language that is more descriptive/action-oriented like “confirm response from all utilities,” along with other modifications that describe a process.

KEY TAKEAWAY #4

Make Damage Prevention Training More Easily Accessible, Relevant and Actionable

It is problematic that **only half (51 percent) of respondents to CGA's excavator study believe that all employees are responsible for maintaining safe digging practices** (SOURCE: 2018 CGA Professional Excavators Online Survey Report, page 15). In the CGA “shared responsibility” model, all stakeholders should seek to improve these figures through effective training programs in which all are encouraged or rewarded for being responsible and accountable for their damage prevention performance.

While nearly three-quarters of excavators in CGA's online study reported that they or their employer utilize safe digging training, focus groups revealed that much of this **training is as-needed on the jobsite versus formal training**. Relatedly, the most-cited damage prevention resource by excavators was not CGA Best Practices but OSHA guidelines, which do not address the damage prevention process in detail.

Please see Figure E on page 15 for complete data.

The focus groups revealed that **excavators have limited knowledge about regulations beyond the need to notify** before beginning work (SOURCE: 2018 Professional Excavators Focus Group Findings, page 12), while the online survey showed that concepts such as pot-holing/test-pitting, needing to maintain marks or request re-marks, and other **critical but lesser-emphasized excavation Best Practices do not have the same level of awareness and compliance as making the notification** (2018 CGA Professional Excavators Online Survey Report, page 13).

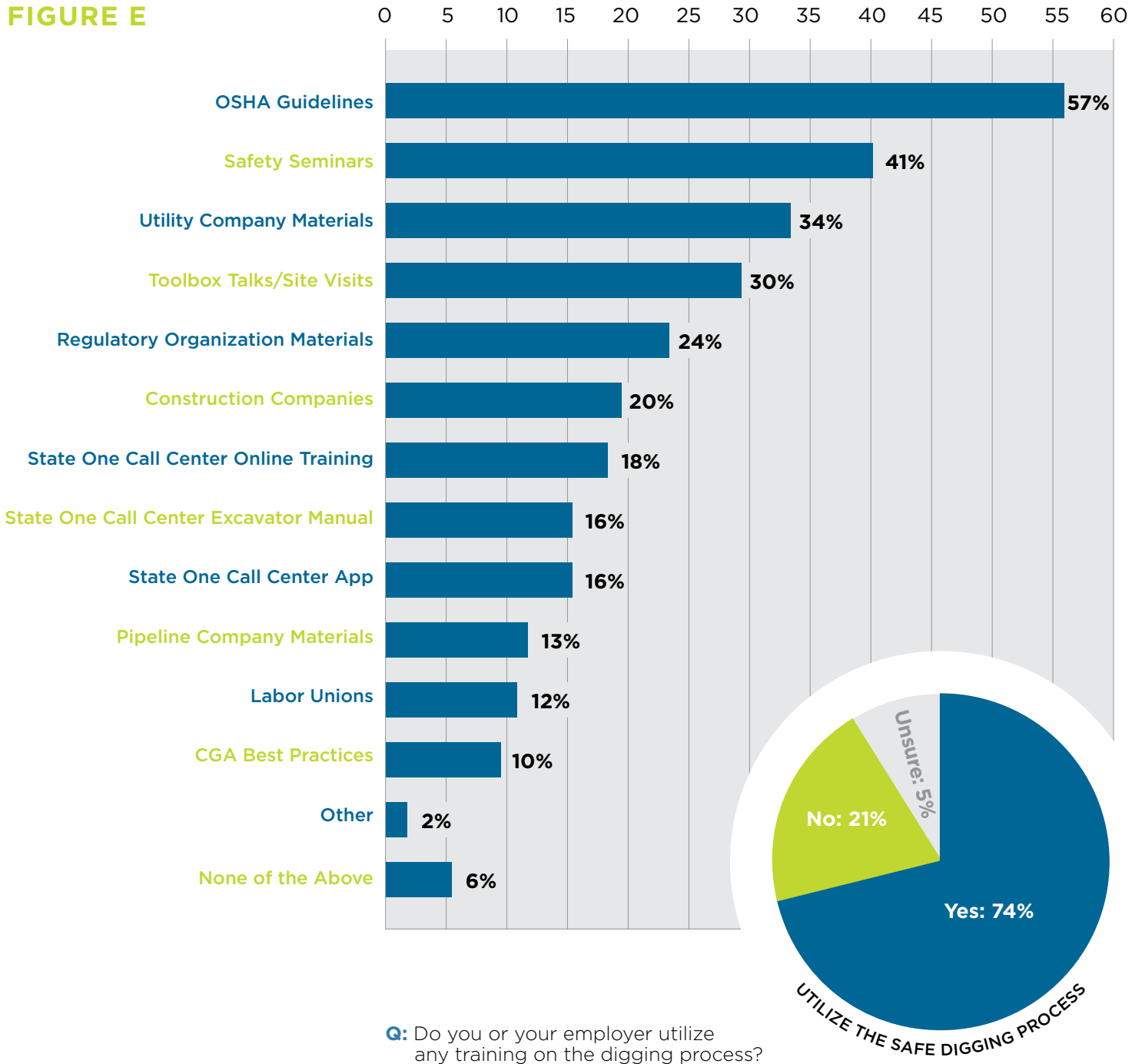
These findings indicate the **need to highlight specific excavation best practices in detail**, which is best achieved through **scalable educational training programs**. As seen on the graph in Figure E on the next page, in-person trainings are popular with this stakeholder group, as evidenced by 41 percent of excavators attending safety seminars and an additional 30 percent having training on-site. Given that 18 percent report having accessed online training from one call centers, this digital means of providing robust damage prevention training is an avenue that could be exploited more heavily.

With thousands of companies digging each year in each state, **“train the trainer” and online training modules can be a mechanism to effectively reach everyone who could possibly need to be trained.**

SAFE DIGGING TRAINING

Q: What resources do you reference on safe digging practices?

FIGURE E



KEY TAKEAWAY #4

(continued)

RECOMMENDATIONS:

- 1. Continue investing in online training modules and programs that identify influencers in excavator safety (such as insurance providers, general contractors, associations, internal risk management/safety directors).**

Tasking these stakeholders with training of the broader excavation workforce is an approach that is scalable, approachable and can easily fit into employee downtime.

- 2. Work to integrate damage prevention training into existing processes.**

Given the potential value of damage prevention training, CGA encourages member organizations to find opportunities to integrate damage prevention training into important state-level processes/business relationships. Examples include, but are not limited to, training provided by utility operators, governmental agencies such as state and local permitting offices and programs provided by contractors.

- 3. Be mindful of using words and illustrations that carry the broadest meaning.**

Terms that come directly from state laws, including “tolerance zone,” “positive response” and “pot-holing,” may be barriers to understanding by all target audiences. Consider showing what these concepts mean in a visual way and give short process tips that help all audiences understand their legal requirements in plain language.

CONCLUSION

Resources for Taking Action

CGA created this White Paper to serve as a strategic plan for all stakeholders to use in developing campaigns that provide education and training for excavators. The key takeaways and data-supported recommendations provide a checklist for all CGA members.

This document is not a stand-alone document but instead is designed to integrate into existing CGA programs and resources, as outlined below:

- Download and use elements of the 811 Communications Plan to aid your organization's public awareness program.
- Incorporate specific references to CGA Best Practices to help make your excavator outreach more concrete.
- Submit data to the DIRT Report to help CGA better track national and state data trends that can indicate progress and additional areas for improvement.
- Read recent editions of the DIRT Report and use the online interactive dashboard. The dashboard allows filtering down to state or industry level. Use these tools to identify and act on the leading opportunities for reducing damages.
- Work with your local one call center for state law training opportunities.
- Join a CGA Regional Partner to meet and collaborate with all types of damage prevention stakeholders.
- Read the CGA Technology Report to learn ways technology is making damage prevention more efficient and effective not just for excavators, but for all stakeholders.

Below are links to the full reports mentioned throughout this White Paper, which are all housed on the CGA website:

- [2017 Damage Information Reporting Tool \(DIRT\) Report](#) - The CGA DIRT Report is published annually and features data voluntarily and anonymously submitted by damage prevention stakeholders across North America. This report offers analysis that includes damage root causes, type of work performed and type of facility damaged.
- [2018 Public Awareness Study*](#) - Since 2013, CGA has executed an annual national survey of more than 1,800 adults, evenly distributed among the nine U.S. Census Divisions. CGA studies general public awareness of CBYD in general, the 811 phone number specifically, awareness of 811 advertising and likelihood to use 811 in the future.
- [Comparison of DIRT Report and CBYD/811 Public Awareness Study Data*](#) - This CGA report is new in 2019 and compares data from the most recent DIRT Report and public awareness study, allowing CGA to identify ways that awareness of CBYD/811 correlates with the frequency of utility damages.
- [2018 CGA Excavator Online Survey Report*](#) - CGA conducted a national online survey of 251 professional excavators in November 2018 to study awareness of CBYD/811, adherence to excavation best practices and their motivations to adhere to best practices.
- [2018 CGA Excavator Focus Groups Report*](#) - To supplement the findings from the online survey of excavators, CGA also conducted a set of focus groups—one in Denver and another in Atlanta—in December 2018. These focus groups further explored topics from the survey, allowing for greater depth of understanding, especially regarding motivating factors and excavation best practices.



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