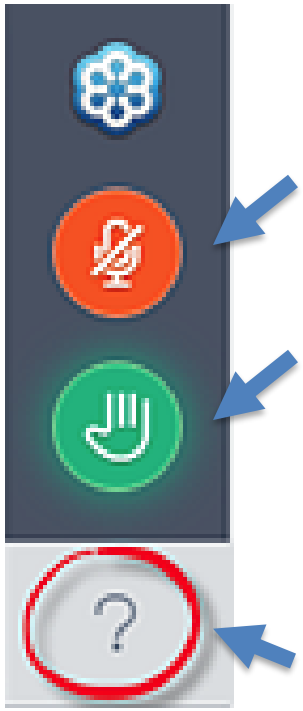
DIRT Damage Information Reporting Tool

2018 Analysis & Recommendations

Volume 15

Webinar Instructions



All attendees are in listen-only mode.

Click “hand raise” icon to ask a question verbally during Q&A session. Ensure you have entered your audio pin.

Click “?” to submit a written question.

Today's Panelists

- **Deanna Centurion**
  Principal, Cyera Strategies
  Co-Chair, Data Reporting & Evaluation Committee
- **Jemmie Wang**
  Principal, BizMetrix Consulting, LLC
  Team Leader, Annual DIRT Report
- **Andrea Stainback**
  CenturyLink
  Co-Chair, Data Reporting & Evaluation Committee

<u>Common Ground Alliance</u>

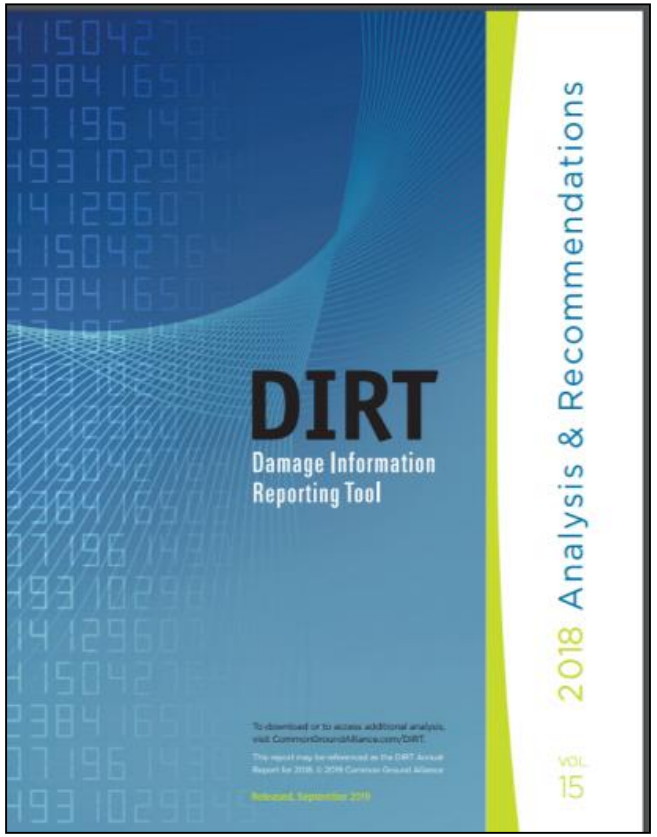
- Steve Blaney, DIRT Program Manager
- Erika Lee, Vice President
- Sarah Magruder Lyle, President

Today's Webinar

- DIRT Report Overview
- New in the 2018 Report
- Key Takeaway, Recommendations & Supporting Data
  - Estimate of total U.S. damages and damage rate metrics
  - Data highlights
    - Data Quality
    - Reporting Stakeholders
    - Root Cause *(stand-alone & cross tabulated with other fields)*
    - Excavation Information
    - Call Before You Dig Awareness
- Interactive Dashboard Overview
- Questions

2018 Report – Overview

2018 DIRT Report



- DIRT accepts data on excavation damages and near-misses from <u>all</u> affected parties
- Includes analysis of data submitted into DIRT for 2018
- Highest event submissions and most complete data to date
- 2018 was the 15th annual report published
- Written report supplemented by online interactive dashboard
- Deadline to submit data to be included in annual report – March 31

Number of Damage and Near Miss Reports Submitted

	2016	2017	2018
Reported Damages (total entered in DIRT)	390,366	411,867	440,749
Reported Near Misses (unique events)	6,093	1,588	4,198
Reported Damages (unique events)	317,869	316,442	341,609

The number of damage reports entered into DIRT, both before and after applying the method to match and weight multiple reports of the same event, reached an all-time high at 440,749 and 341,609 respectively.

Unless otherwise noted, Written Report and Dashboard focus on the 341,609 Unique Damages, which accounts for multiple reports of same event.

Source of Data

Original source of information

2018 Report – What's New?

FRESH DIRT
Changes in 2018

After more than 10 of years DIRT data collection and annual reports, the Data Reporting & Evaluation Committee is making some significant revisions to the DIRT form to ensure it continues to provide value to damage prevention efforts.

New DIRT Questions

Question	Yes	% Yes	No	Blank
Did this event involve a cross bore?	1,668	0.378%	33,700	405,381
Was the work area white lined?	11,433	2.594%	29,362	399,954
Is facility owner exempt from one call center membership?	22	0.005%	7,668	433,059
Is excavation activity and/or excavator exempt from 811 notification?	3,169	0.719%	35,349	402,231

New DIRT Questions

Depth	# Reports	% Reports
Embedded	1,104	0.25%
1 to 18 inches	21,801	4.95%
18 to 36 inches	14,113	3.20%
Over 36 inches	2,475	0.56%
Blank	401,256	91.10%

Key Takeaways, Recommendations and Supporting Data

DIRT Report Key Takeaways

- Damages per one call center transmission and damages per construction spending have plateaued.
- Factors impacting damage prevention efforts include increased construction spending; extended construction seasons; fiber-to-the-premises and 5G installations; labor shortages in construction and utility locating; infrastructure replacement programs; and population and GDP growth.
- Excavation Practices remains leading root cause group, No 811 Notification up slightly comped to 2017.
- New root causes and groupings caused shifts in pie chart, especially from Excavation Issues to *Other* Notification Issues.

Recommendations

1. Minimize “unknown” data entries.
2. Increase awareness of nuances around the 811 notification process.
3. Reduce no notification damages by professional excavators.
4. Promote pot-holing as a best practice.
5. Improve on-time locate metrics.
6. Educate excavators to reduce over-notifications.
7. Use the DIRT Dashboard to identify leading damage causes and maximize damage prevention resources.
8. Adopt new technologies to prevent damages.

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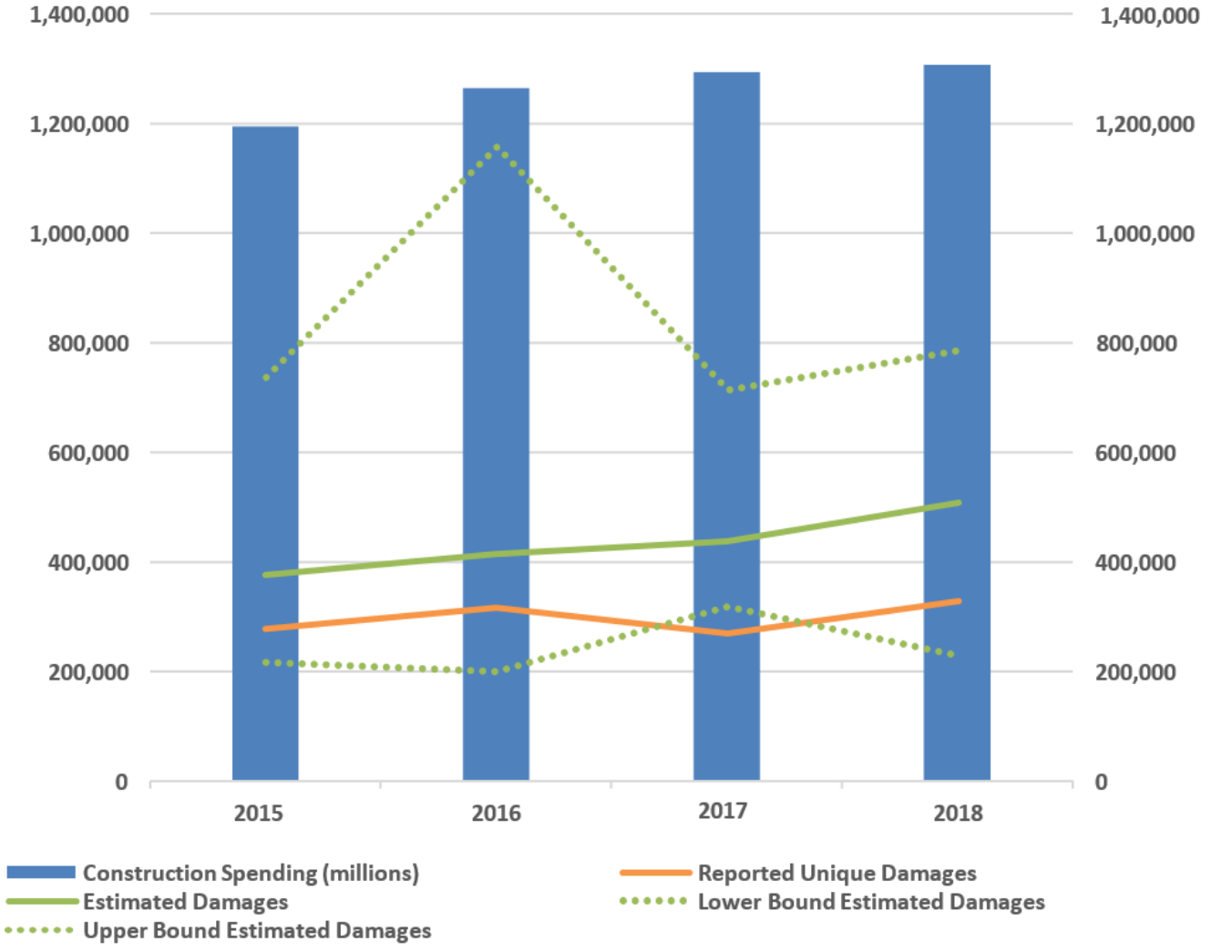
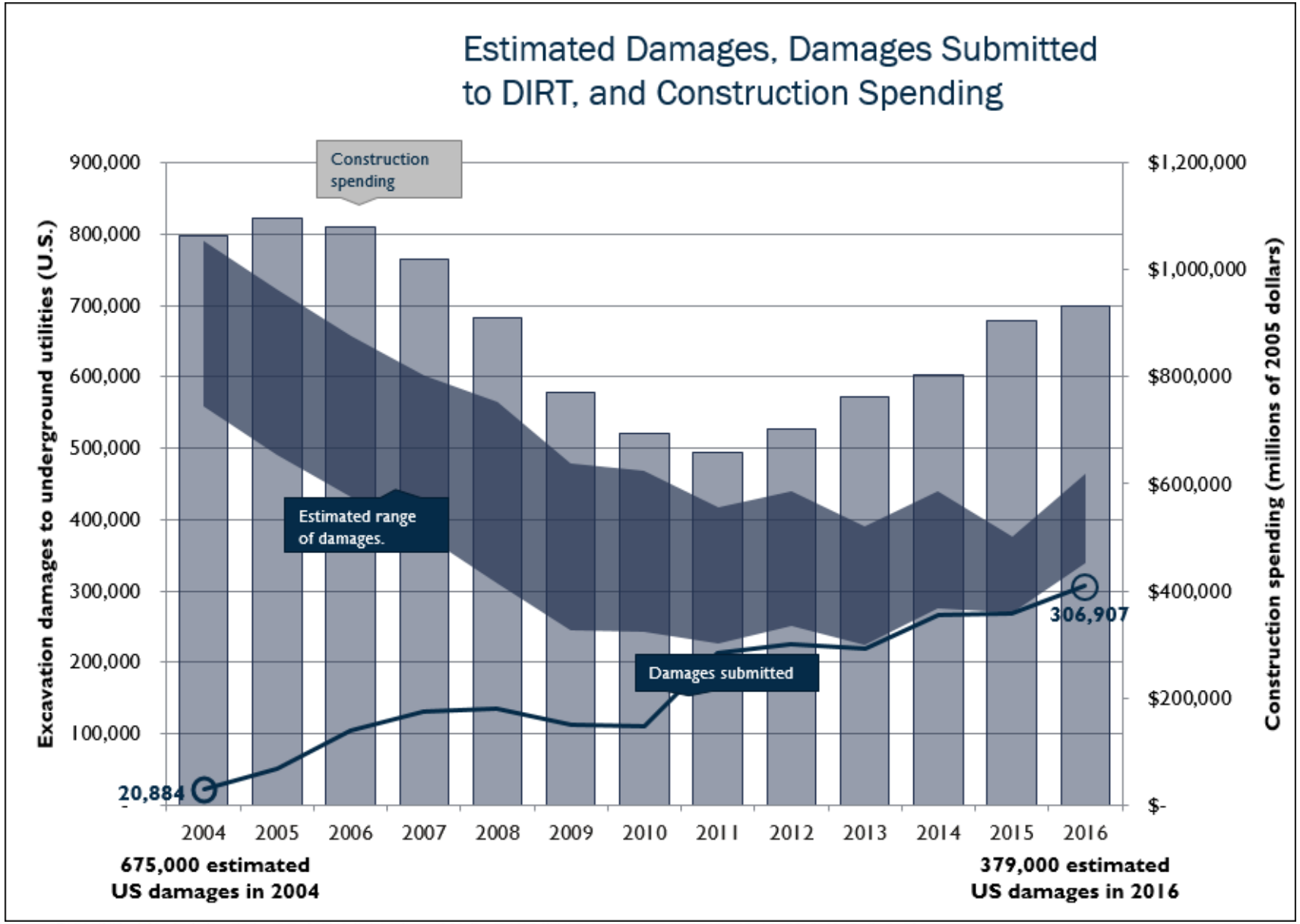
Estimated Total Damages (U.S.)

	2015	2016	2017	2018
Total Estimated Damages (U.S.)	378,000	416,000	439,000	509,000
Total Estimated Transmissions	199.9 M	221.9 M	234.9 M	244.3 M
Total Estimated Damages per 1,000 Transmissions	1.89	1.88	1.87	2.08
Damages per million dollars of construction spending	0.354	0.351	0.359	0.389

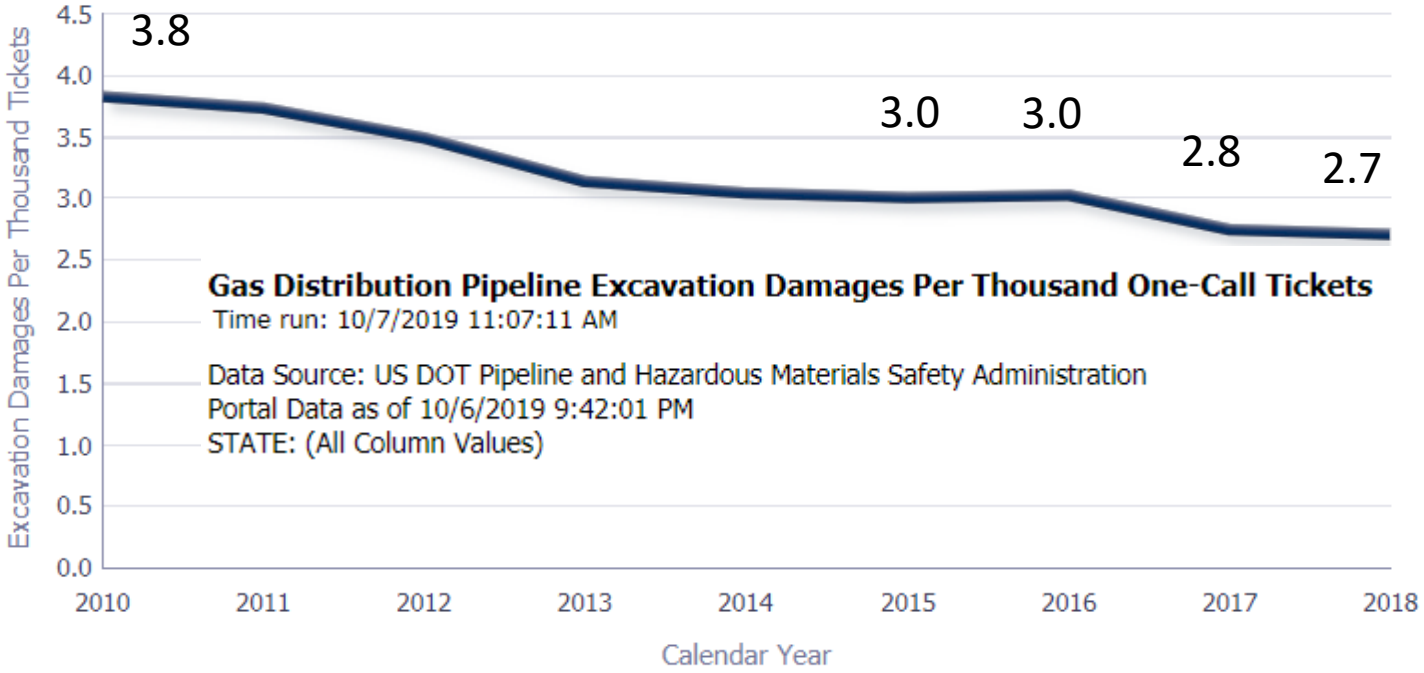
Estimated and Reported Damages (U.S.)

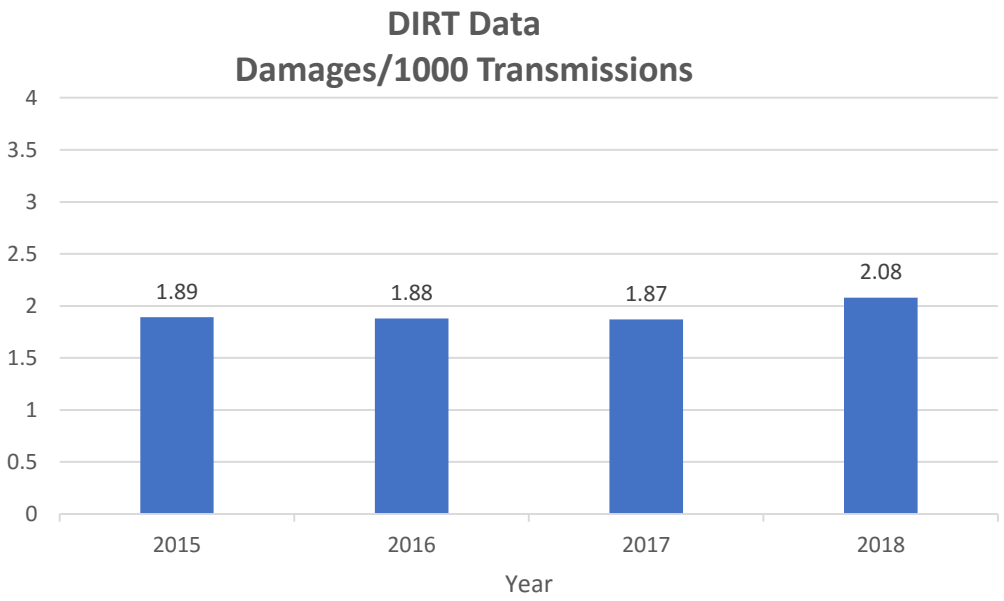


From 2016 DIRT Report



PHMSA vs. DIRT Data





Calendar Year	Number of Excavation Tickets	Number of Excavation Damages
2018	31,492,539	85,033
2017	30,344,441	83,511
2016	29,348,351	89,041
2015	27,189,387	81,953

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Deep Fiber is Required for Both 5G Wireless and Fixed Wireline Broadband Expansion…

AT&T, Verizon to lead U.S. fiber spending charge, but Altice and Comcast are gaining ground, says analyst

Verizon, Corning agree to $1.05 billion fiber deal

Verizon signs billion-dollar deal with Corning for 37.2M miles of fiber for LTE, 5G

Corning ramps production to meet Verizon, other large customers' fiber demands

Xfinity Fiber-Only Network Now in Your Area

Fiber is king: Crown Castle to buy Lightower for $7.1 billion

POLL QUESTION

Based on your own experience, do you think damages overall are increasing, decreasing or remaining approximately the same?

A. Increasing

B. Decreasing

C. Remaining the same

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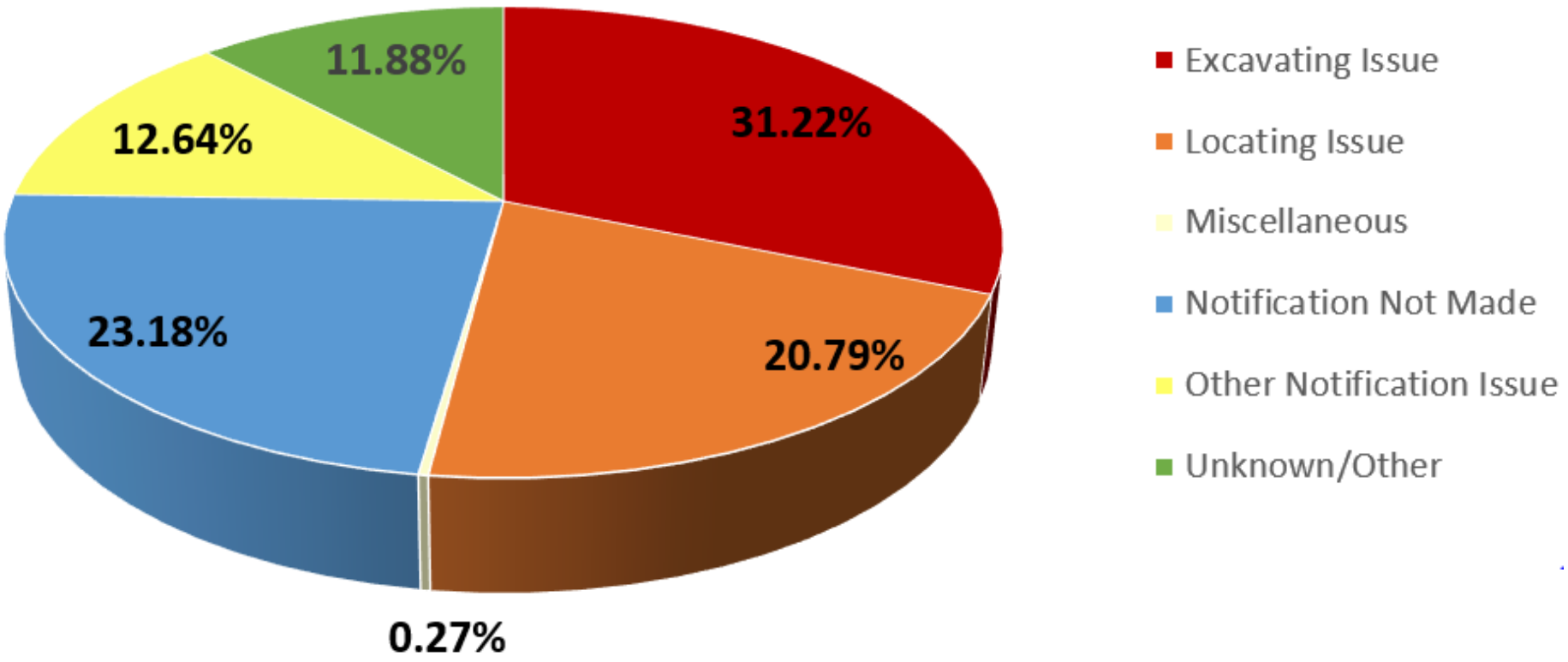
Damage Cause Analysis

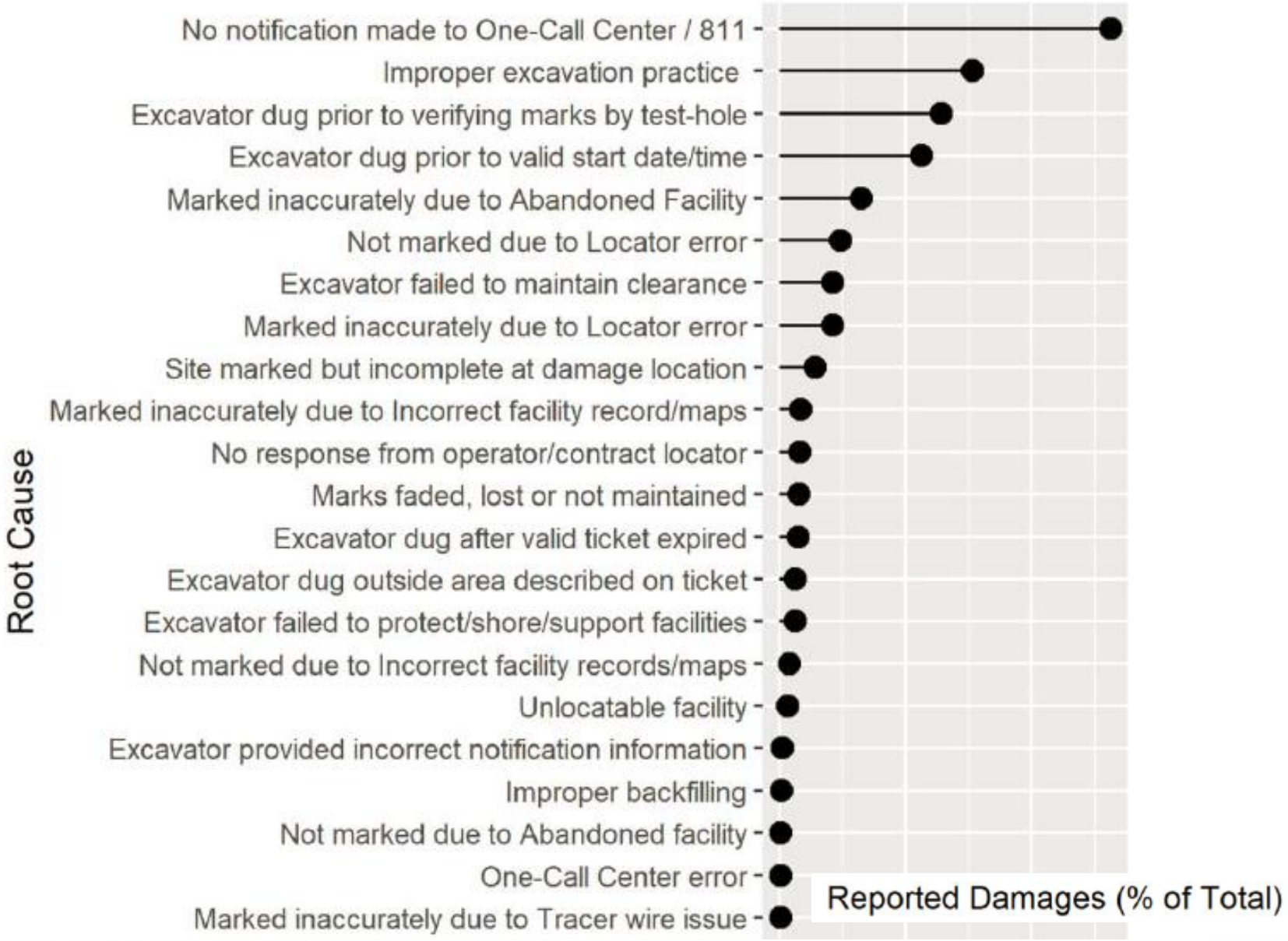
Damage Root Cause Group - 2018



DIRT Report Root Cause Groups

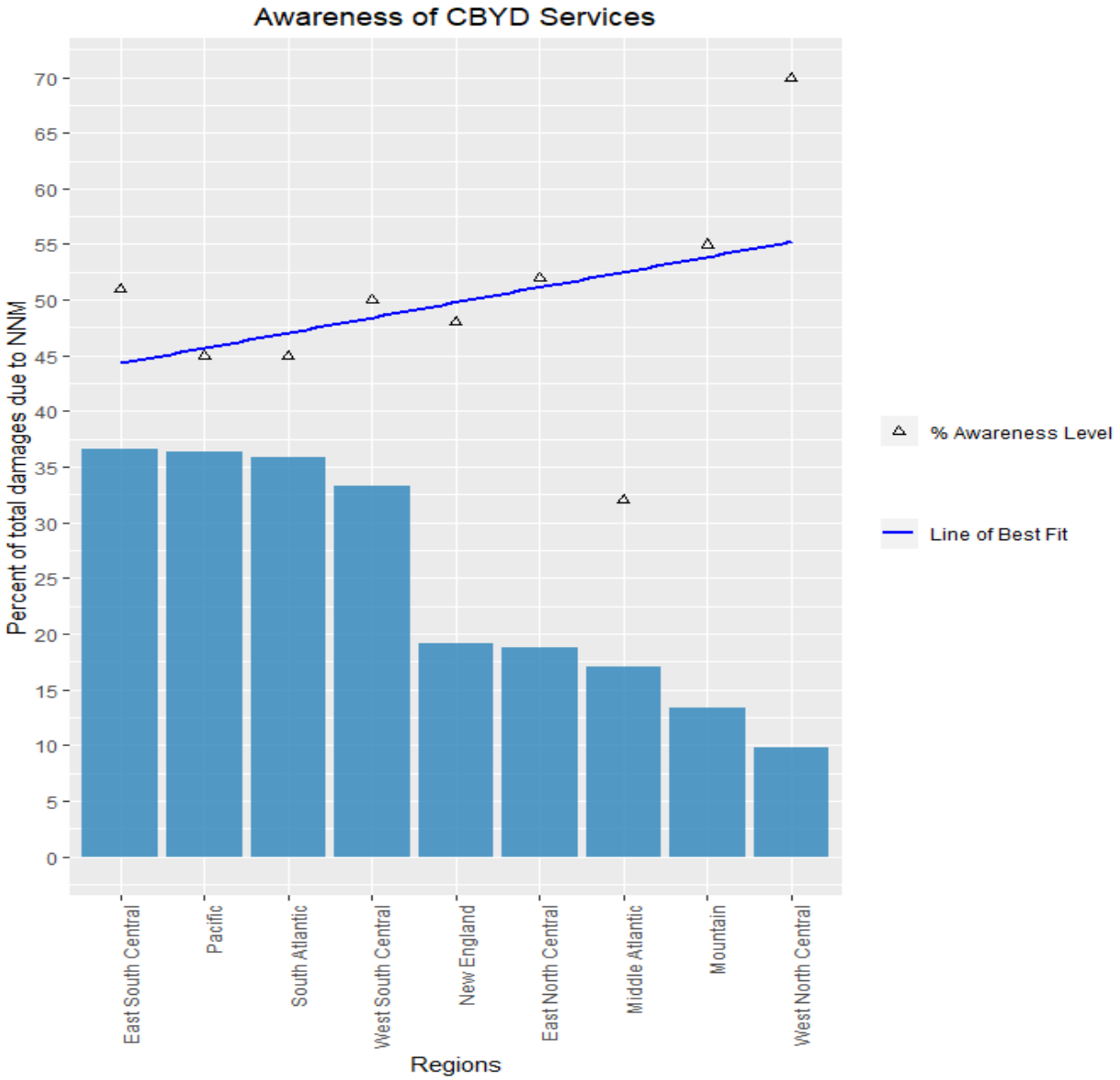
Group	Root Cause
Excavation Issue *Examples*	• Excavator failed to maintain clearance after verifying marks • Excavator dug prior to verifying marks by test hole (pot-hole) • Marks faded, lost or not maintained • Improper backfilling
Notification NOT made	• No notification made to one call center
Locating Issue *Examples*	• Facility marked inaccurately due to locator error • Facility marked inaccurately due to abandoned facility • Site marked but incomplete at damage location • Facility not marked due to no response from operator/contract locator
Other Notification Issue *Examples*	• Excavator dug before valid start date/time • Excavator dug after valid ticket expired • Excavator provided incorrect notification information • Excavator dug outside area described on ticket
Miscellaneous	• One call center error • Deteriorated facility • Previous damage

Reported Damages by Root Cause



Call Before You Dig Awareness vs Damages Due to Notification NOT Made

A comparison of 2018 DIRT damage data to the Call Before You Dig awareness survey data from June 2018 demonstrates that, in general at the U.S. census region level, an inverse relationship between awareness and damages can be observed. As awareness increases, the percentage of damages due to *Notification Not Made* decreases.



Recommendations

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3. **Reduce no notification damages by professional excavators.**
4. **Promote pot-holing as a best practice.**
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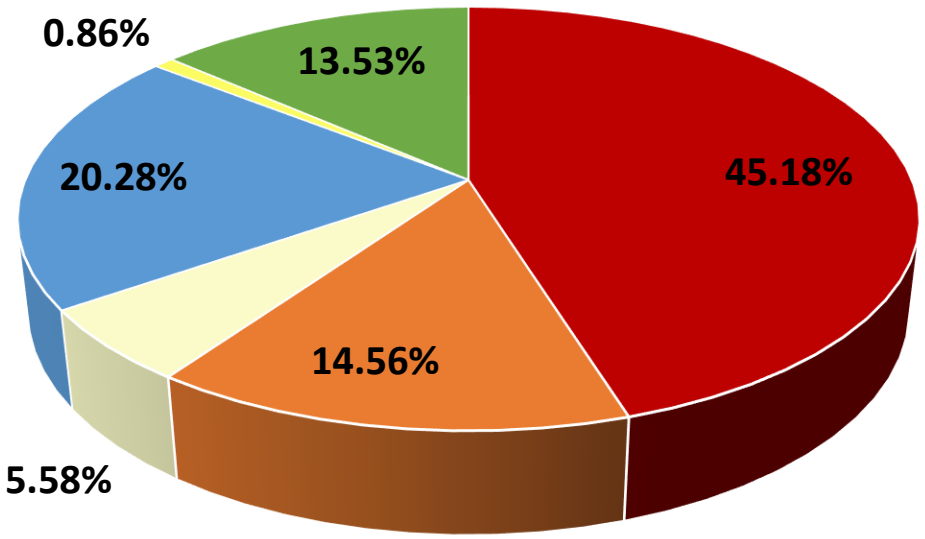
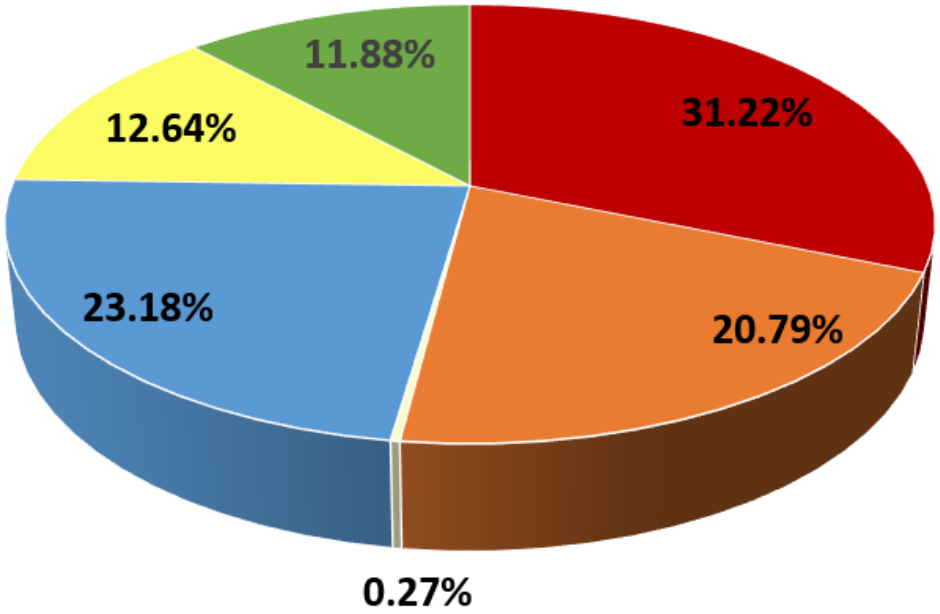
Root Cause Groups

2017



2018



- Excavating Issue
- Locating Issue
- Miscellaneous
- Notification Not Made
- Other Notification Issue
- Unknown/Other

New “Other Notification Issue” Root Causes

- **Excavator Dug Outside Area Described on Ticket:** Excavator notified one call center/811 of intent to dig, but then dug outside of work area as described on one call ticket. (Best Practice 5-1)
- **Excavator Dug Prior to Valid Start Date/Time:** Excavator notified one call center/811 of intent to dig, but then dug before the stated start date and time. Include when excavator dug before markouts completed when facility operator or locator requested delay in accordance with state regulations. Include if excavator failed to check positive response system where required. (Best Practices 5-1, 5-8)
- **Excavator Dug after Valid Ticket Expired:** Excavator notified one call center/811 of intent to dig, but state law has a “life-of-ticket” which was exceeded without renewal or renotification. Note: this should be selected for cases where a ticket renewal likely would have prevented the event. Example: Ticket is a few days beyond expiration, but marks are still visible. If marks are inaccurate, Root Cause could be a Locating Issue. If marks are accurate, the Root Cause may be an Excavating Issue, such as not pot-holing or not maintaining clearance. If state does not have a life-of-ticket, consider "marks faded or not maintained" as possible root cause. (Best Practices 5-1, 5-23)

These replaced *Notification to one call center made, but not sufficient*

FRESH DIRT
Changes in 2018

DIRT Report Root Cause Groups

Root Cause	Reports	% of Total
No notification made to One Call Center / 811	79,197	23.18%
Improper excavation practice not listed elsewhere	46,117	13.50%
Root Cause not listed elsewhere	40,742	11.93%
Excavator dug prior to verifying marks by test hole (pot-hole)	38,559	11.29%
Excavator dug before valid start date/time	33,938	9.93%
Facility marked inaccurately due to locator error	12,790	3.74%
Facility marked inaccurately due to abandoned facility	19,535	5.72%
Facility not marked due to locator error	14,596	4.27%
Excavator failed to maintain clearance after verifying marks	12,808	3.75%
Site marked but incomplete at damage location	8,491	2.49%
Facility marked inaccurately due to incorrect facility record/map	5,126	1.50%
Facility not marked due to no response from operator/contract locator	4,997	1.46%
Marks faded, lost or not maintained	4,711	1.38%
Excavator dug after valid ticket expired	4,622	1.35%
Excavator dug outside area described on ticket	3,906	1.14%
Excavator failed to shore excavation/support facilities	3,889	1.14%
Facility not marked due to incorrect facility record/map	2,360	0.69%
Facility not marked do to unlocatable facility	2,020	0.59%
Excavator provided incorrect notification information	737	0.22%
Improper backfilling	601	0.18%
Facility not marked due to abandoned facility	422	0.12%
One Call Center error	411	0.12%
Facility marked inaccurately due to tracer wire	320	0.09%
Previous Damage	301	0.09%
Deteriorated Facility	212	0.06%
Facility not marked due to tracer wire issue	202	0.06%
Total	**341,610**	**100%**

Recommendations

1. Minimize “unknown” data entries.
2. **Increase awareness of nuances around the 811 notification process.**
3. Reduce no notification damages by professional excavators.
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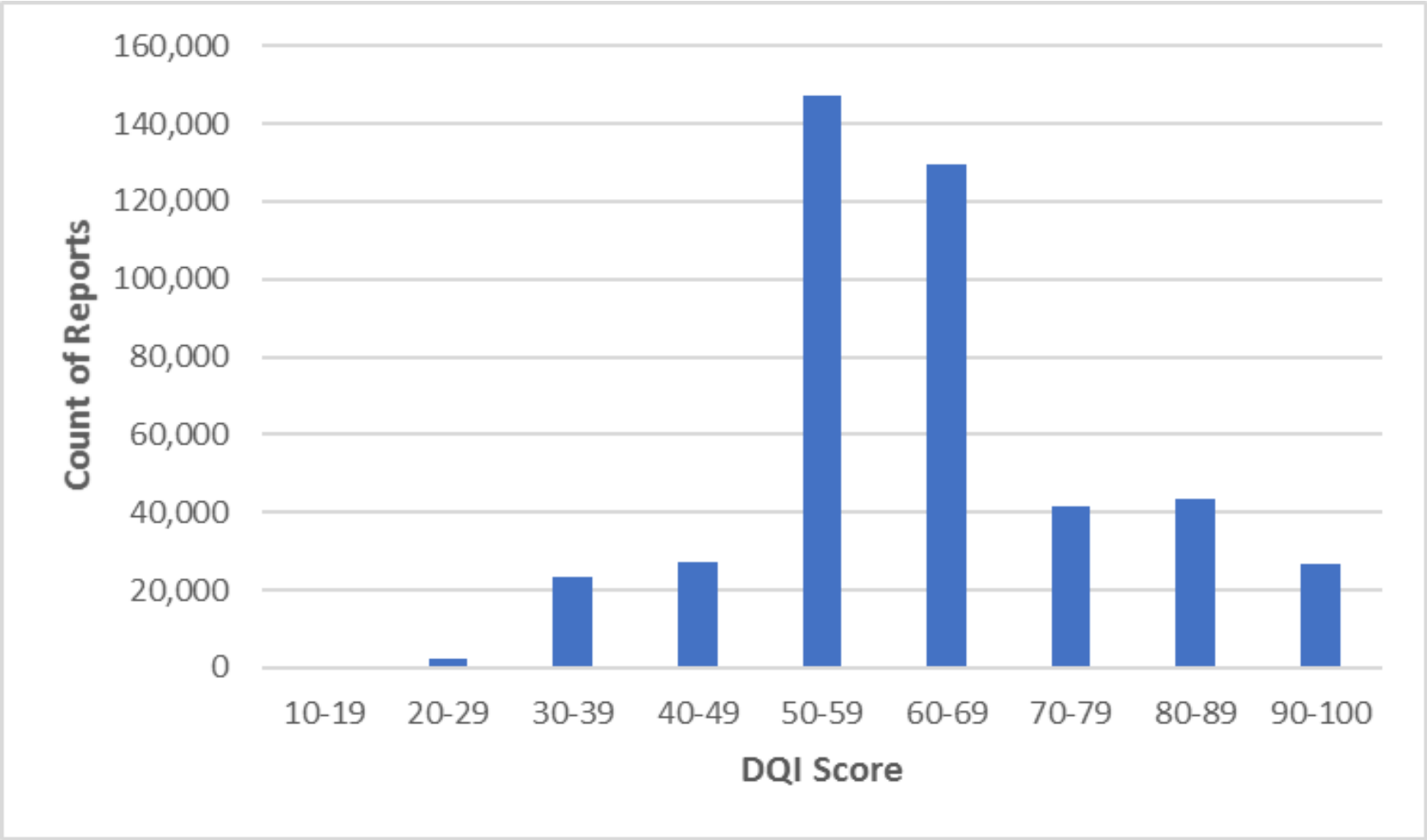
Data Quality Index (DQI)



Year	DQI
2016	67
2017	63
2018	62

Data Quality Index (DQI)

DQI	# Companies	# Records	% of Companies	% of Records
30-40	5	6,908	1.05%	1.57%
40-50	7	32,426	1.46%	7.36%
50-60	18	285,279	3.77%	64.73%
60-70	25	27,946	5.23%	6.34%
70-80	48	23,749	10.04%	5.39%
80-90	143	49,310	29.92%	11.19%
90-100	232	15,131	48.54%	3.43%
Total	**478**	**440,749**	**100.00%**	**100.00%**

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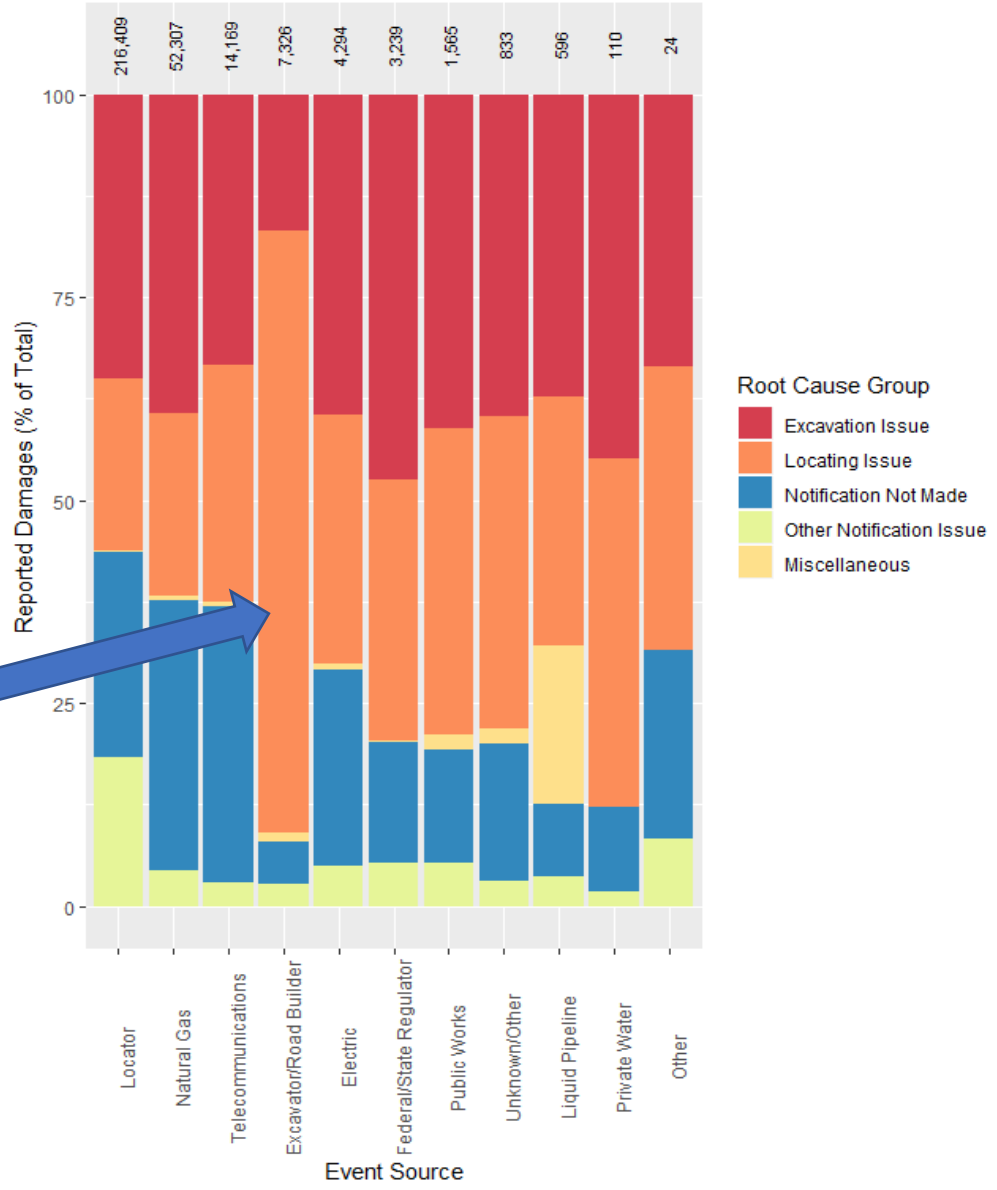
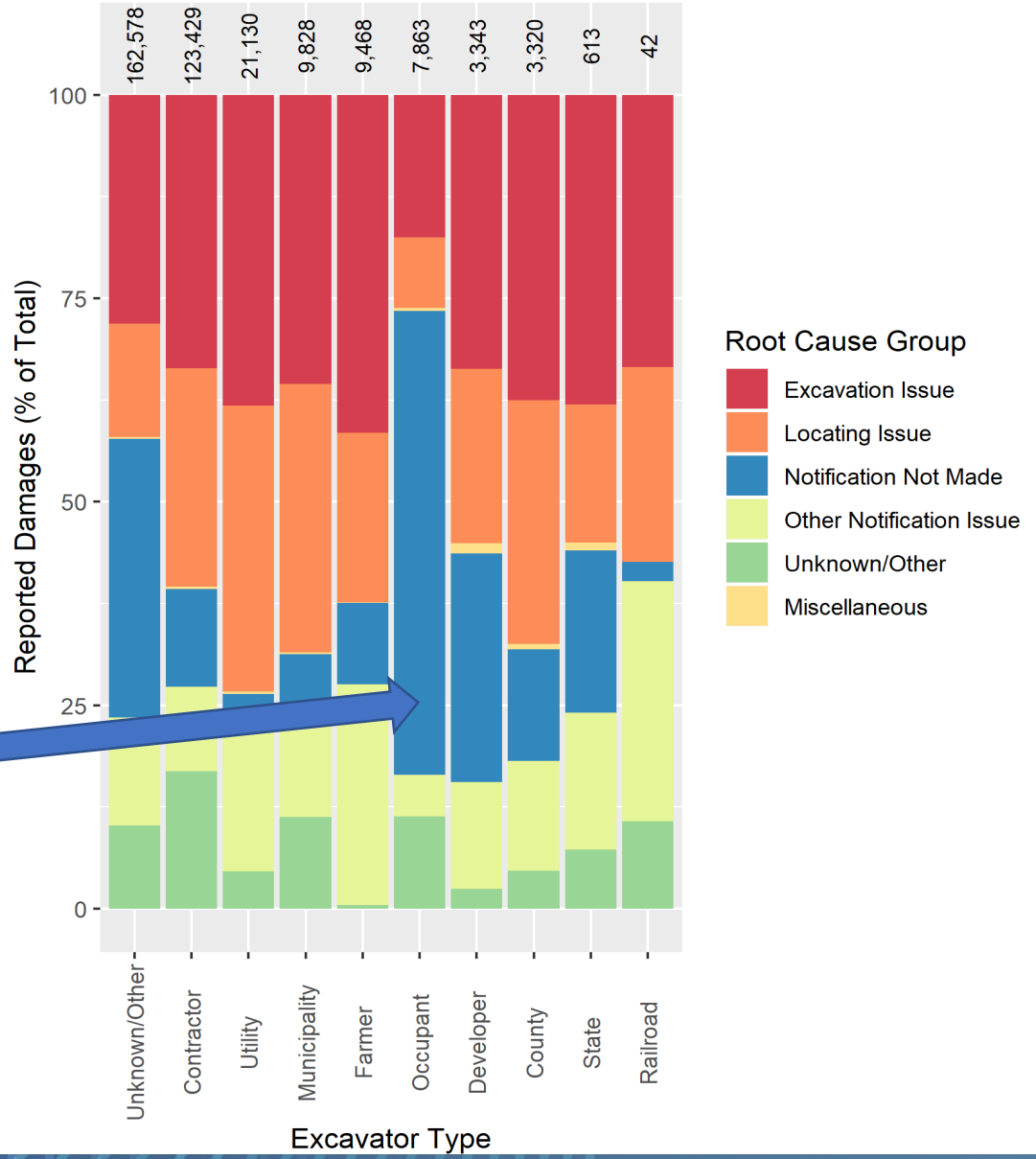
Root Cause by Event Source

Note how Excavators/Road Builders report high percentage of Locating Issues

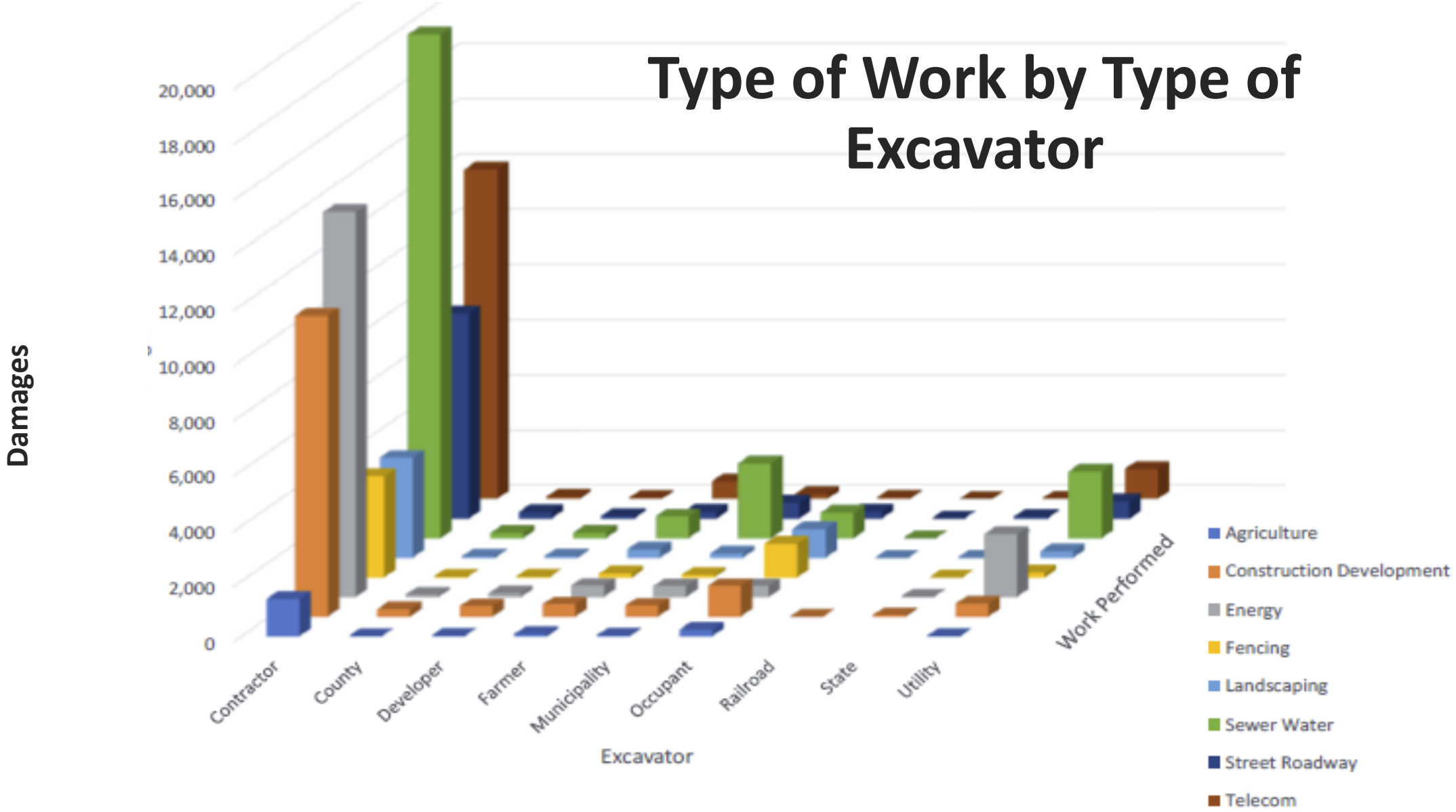


Root Cause by Excavator Type

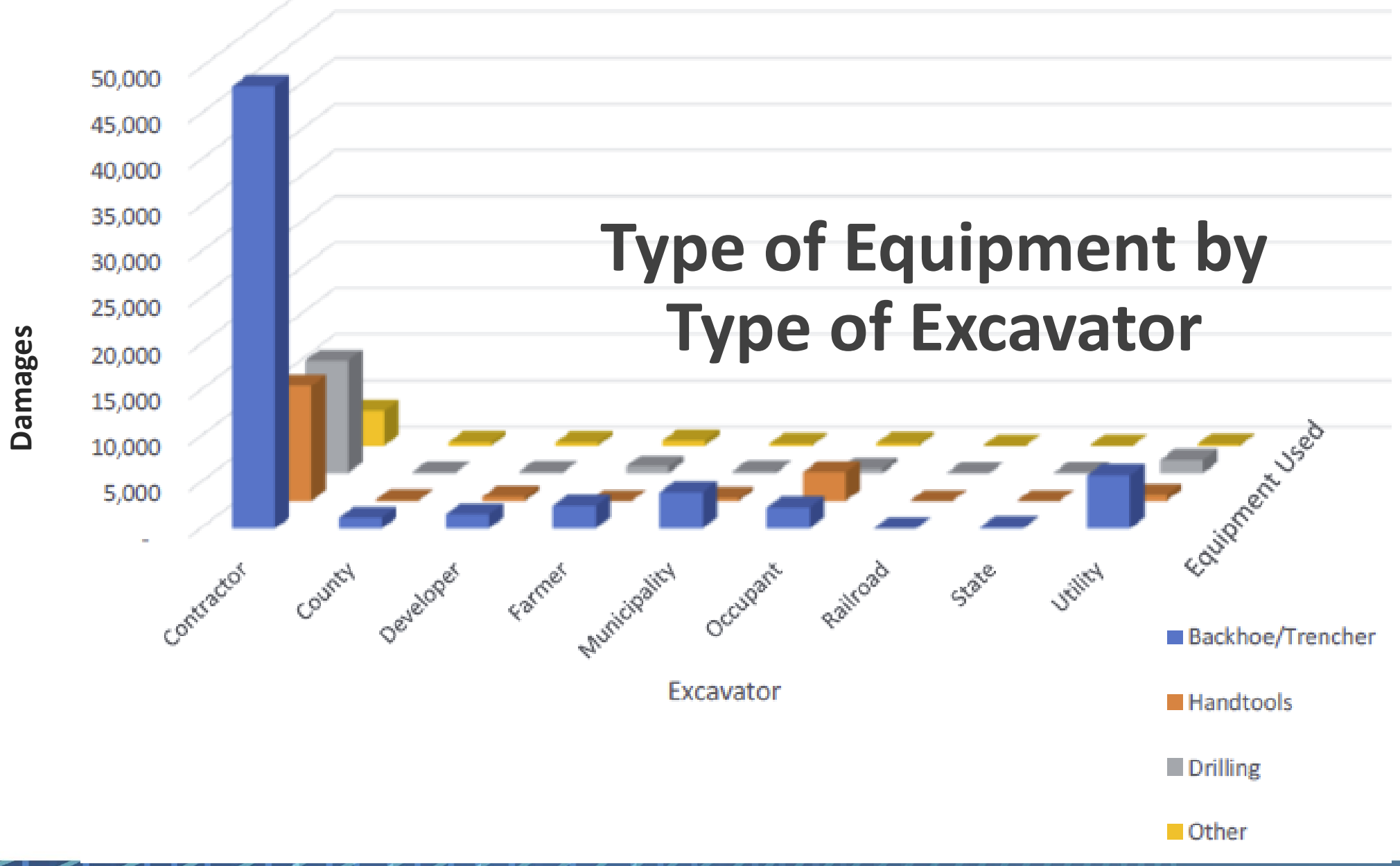
Note how Occupants have high percentage of Notification NOT Made



Type of Work by Type of Excavator



Type of Equipment by Type of Excavator



Near Miss Reports

Near Miss: An event where a damage did not occur, but a clear potential for damage was identified. Some examples include, but are not limited to the following:

a. An excavator discovers a buried facility that was not marked or not marked accurately.
b. An excavator is found digging without having notified the one call center.
c. An operator fails to respond to a locate request.
d. A one call center incorrectly entered data regarding the work site.

- The leading contributors to near miss reports are Locators and Road Builders reporting Locating Issues and Natural Gas and Liquid Pipelines reporting excavation activity without a one call notification (*Notification Not Made*).
- Excavators and Road Builders enter better quality data (higher DQI) and complete the downtime questions more often in near miss reports than they do for damage reports.
- For Natural Gas and Liquid Pipelines, Transmission is identified as the affected facility for near miss reports in significantly higher proportion than for. damage reports

POLL QUESTION

Please select all that apply.

A. I read the DIRT Report for 2018.
B. I have accessed the interactive DIRT Dashboard for 2018.
C. Neither – I have not read the report nor accessed the dashboard.

Interactive Dashboard

(commongroundalliance.com/dirt-dashboard)

CGA DIRT Dashboard

- Introduction
- Terms of Use
- State/Provinces
- Root Cause
- DIRT Explorer
- State Summaries
- Calendar Heatmap
- Feedback

DIRT 2018

CGA Common Ground Alliance

Introduction

The Damage Information Reporting Tool (DIRT) is an initiative of the Common Ground Alliance (CGA). DIRT is a system for gathering data regarding damage and near-miss events related to buried facilities from excavation activities. It allows industry stakeholders in the United States (US) and Canada to submit data anonymously to a comprehensive database. This interactive website presents the DIRT data for 2018. It provides industry stakeholders with the opportunity to explore the data and inform focused strategies to reduce underground excavation damages.

In 2018, the number of events reported via DIRT was 440,749. Consolidating multiple reports of the same event and filtering out near-misses results in 341,609 Unique Damages, a increase of 7.95% compared to the equivalent figure for 2017. The 341,609 damages include 330,445 in the US and 11,164 in Canada.

The 2018 reported damages are the basis for the visualizations shown in the following tabs:

- The **State/Provinces** tab demonstrates the spatial distribution of the 2018 damage data.
- The **Root Cause** tab shows the connection between root cause and facility damaged, excavators and equipment.
- The **DIRT Explorer** tab allows the user to filter and query the damage data.
- The **State Summaries** tab allows users to examine damage data for a particular state.
- The **Calendar Heatmap** is a calendar view of the damage data with the ability to filter by geography and other variables.

CGA DIRT Dashboard

- Introduction
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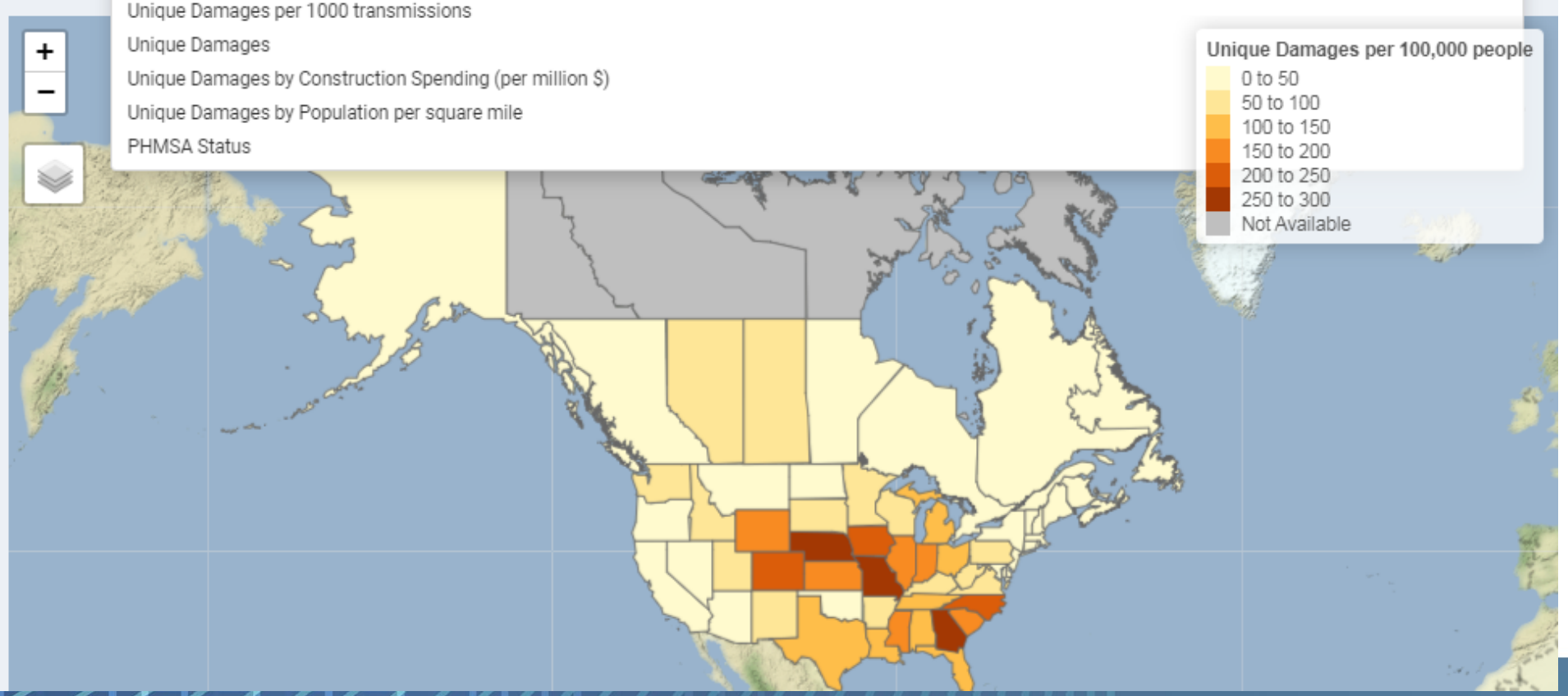
Map Controls

This page presents the data by state and province. A range of outputs can be displayed by selecting the variable of interest. When users click on an individual state or province, a dialog box will display the jurisdiction's value for the chosen variable.

Variable

Unique Damages per 100,000 people

- Unique Damages per 100,000 people
- Unique Damages per 1000 transmissions
- Unique Damages
- Unique Damages by Construction Spending (per million $)
- Unique Damages by Population per square mile
- PHMSA Status



CGA DIRT Dashboard

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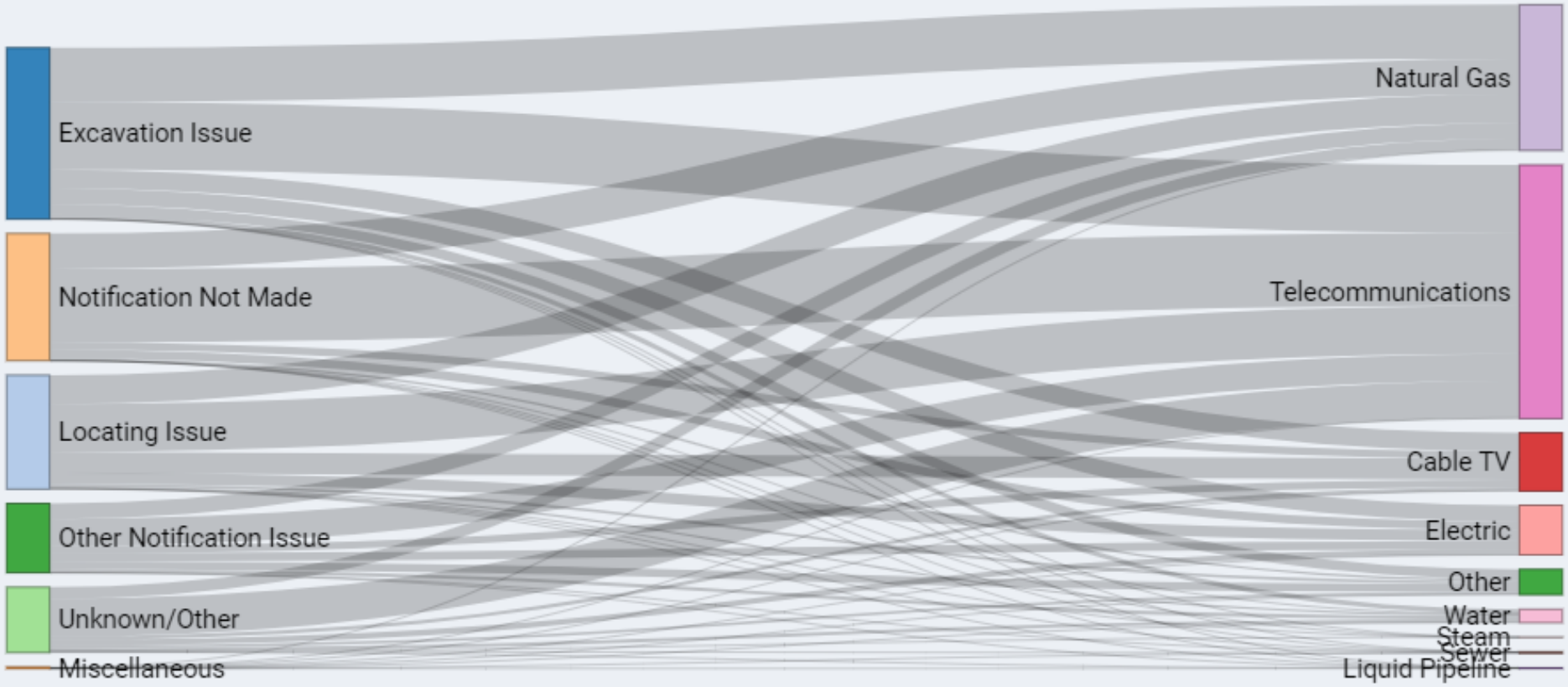
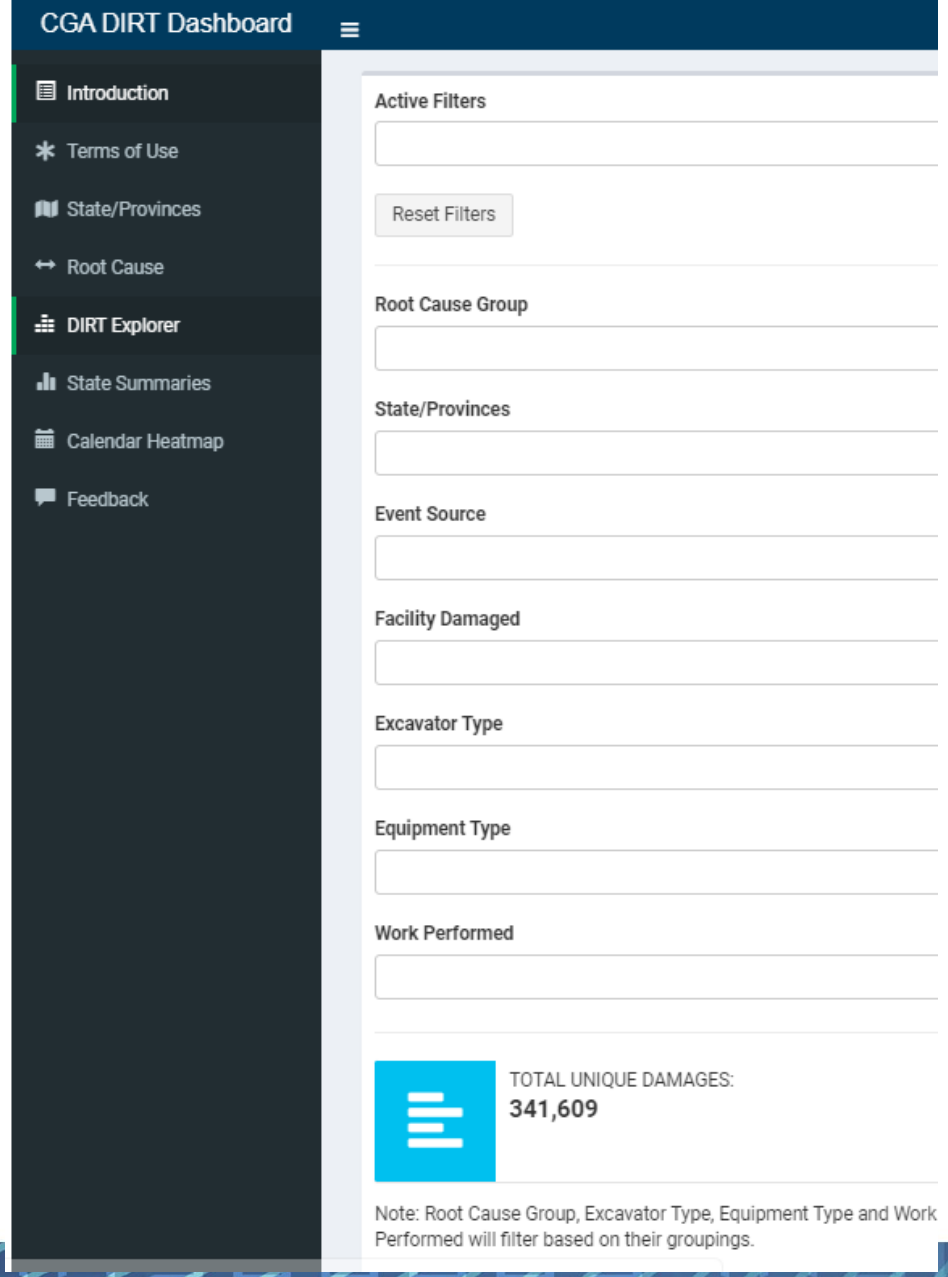
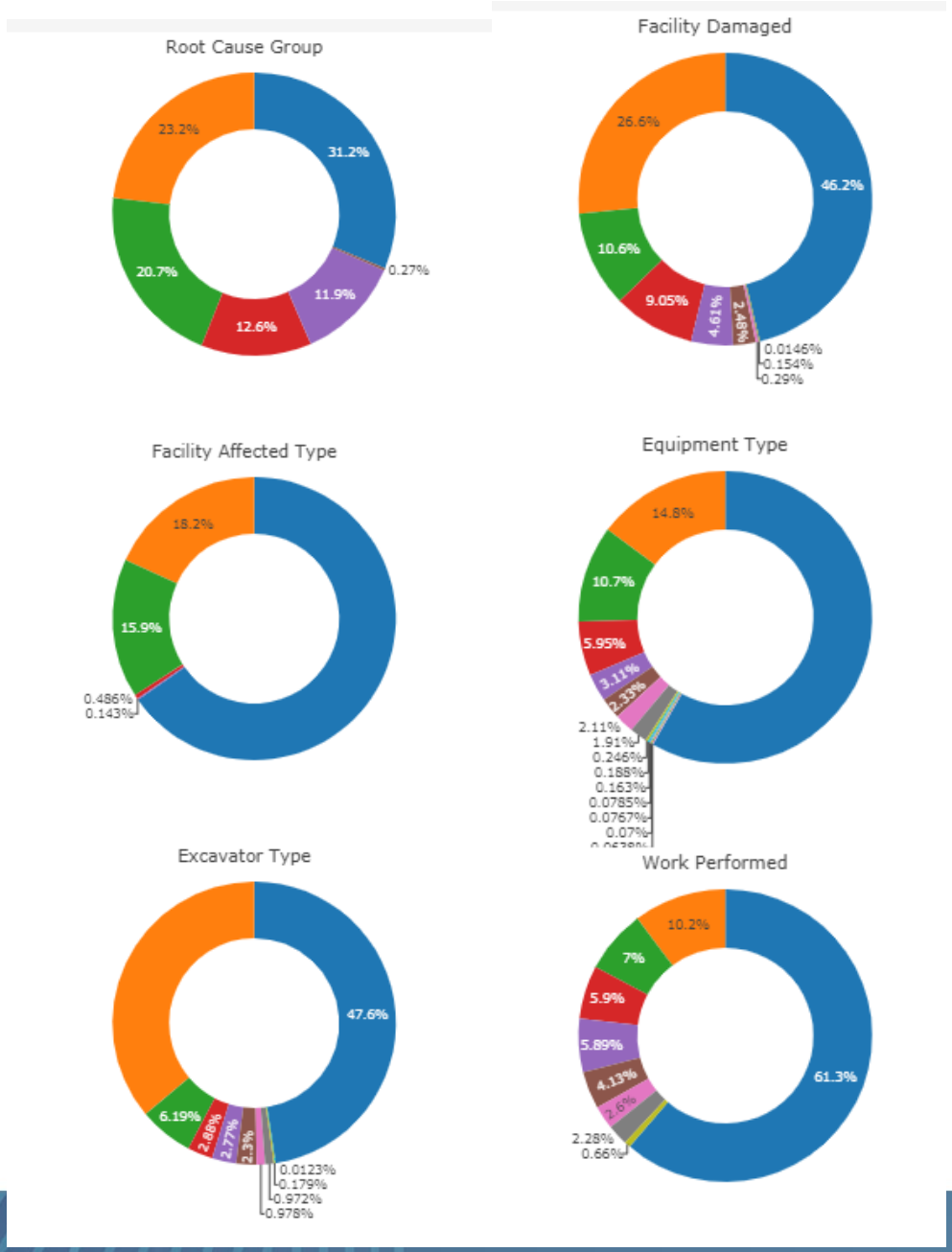
This page summarizes the root cause data displaying the root cause connection to facility damaged, excavator type, and equipment type. By hovering the cursor over each bar, a dialogue box will display the number of reported damages. Users can also hover your cursor over the grey pathways to see the number of reported damages between the two corresponding variables. The users can also move the bars to make the specific linkage of interest more visible. These diagrams are intended to quickly demonstrate how root cause variables are linked to what is damaged, who was involved in the damage, and what equipment was used.

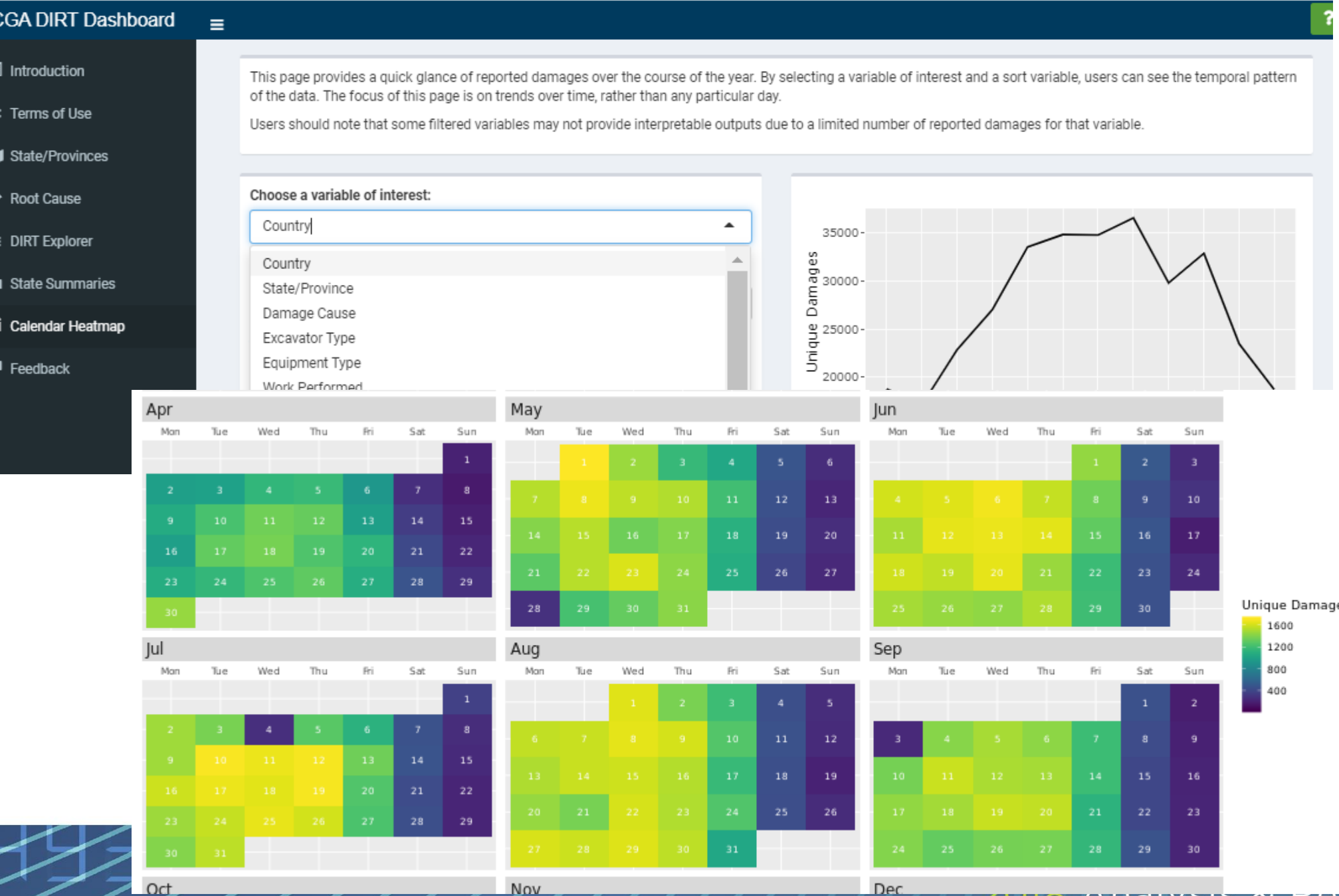
Root Cause by Facility Damaged







2018 Analysis & Recommendations



2018 Analysis & Recommendations

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This page provides detailed information for individual states. Clicking the **Remove Unknowns** box will filter out all unknown responses, enabling users to see the relative impact of unknown data and gain a better understanding of the known data.

Note that participation in DIRT is voluntary and varies by state, which means that DIRT data may not provide a complete picture of damages and damage prevention efforts at the state level. **Total Unique Damages** is based on damages actually reported to DIRT. **Ticket Transmission Ratio** is based on data provided by participating one call centers. Some states have more robust DIRT reporting than others, and not all one call centers provide ticket transmission data. Thus, care must be taken when comparing state damage metrics against each other or against national figures based on other data sources.

Choose Your State

United States

Remove Unknowns

?

State Summary

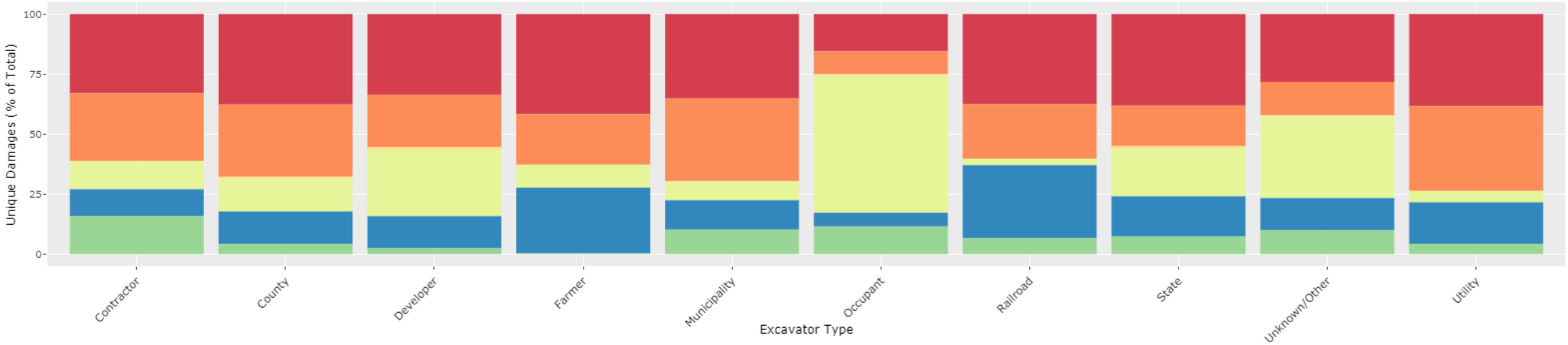
TOTAL UNIQUE DAMAGES
330,445

INCREASE FROM 2017
8.1 %

TICKET TRANSMISSION RATIO
1.8

Download Legend

Root Cause by Excavator Type



2018 Analysis & Recommendations

Recommendations

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2. Increase awareness of nuances around the 811 notification process.
3. Reduce no notification damages by professional excavators.
4. Promote pot-holing as a best practice.
5. Improve on-time locate metrics.
6. Educate excavators to reduce over-notifications.
7. **Use the DIRT Dashboard to identify leading damage causes and maximize damage prevention resources.**
8. Adopt new technologies to prevent damages.

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Upcoming Technology Update Webinar November 5, 2019

Technology REPORT

Please join the CGA Technology Committee for their webinar on November 5th when PA One Call presents "**Coordinate PA: The Next Generation of Utility Coordination**", this new technology is being utilized today enables data sharing on large excavation projects to increase coordination and decrease potential risk due to gaps in communication. The same technology allows excavators to efficiently schedule and communicate complex projects to assist in eliminating multiple service disruptions during the life of a project.

Data Reporting & Evaluation Committee

- **Committee** – The driving force behind DIRT. Oversees tool updates and manages statistical evaluation/reporting of data.
- **Co-Chairs** – Deanna Centurion and Andrea Stainback
- **CGA Objective** – Collect and analyze data to inform decisions that impact damage prevention activities and policies.

Toolkit/Infographic

www.commongroundalliance.com/dirt

Active CGA Participation

Join a committee today!

- Data Reporting & Evaluation
- Best Practices
- Educational Programs and Marketing
- Stakeholder Advocacy
- Technology Committee
- One Call Systems International
- Regional Partners

Become an Active CGA Committee Participant
Contact us at 703-836-1709 or email support@commongroundalliance.com.

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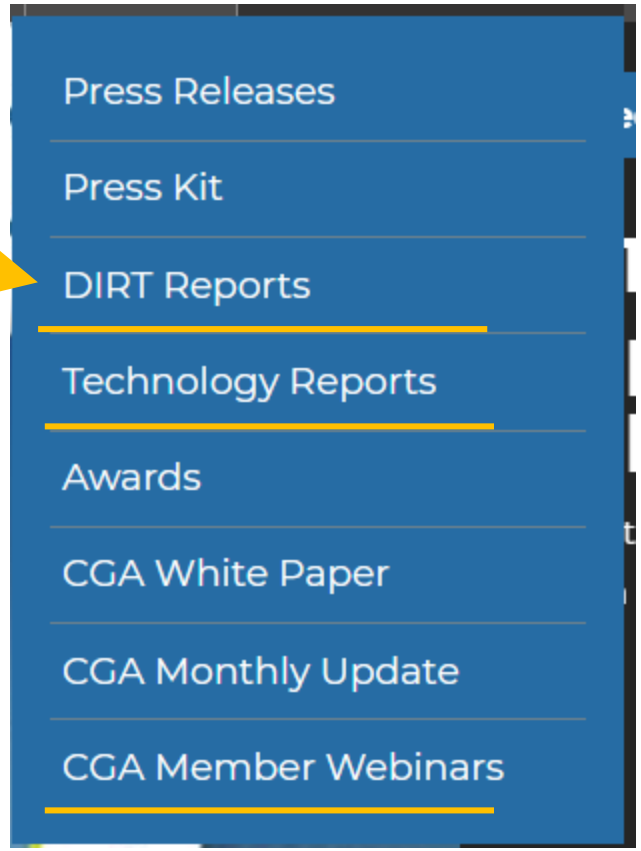
Questions

All attendees are in listen-only mode.

Click “hand raise” icon to ask a question verbally during Q&A session. Ensure you have entered your <u>audio pin</u>.

Click “?” to submit a written question.

Where to find resources?



Thank you!

- Recording and presentations will be posted to Commongroundalliance.com/webinars

- Send follow-up questions to dirt@commongroundalliance.com