

# 2023 DIRT REPORT

Ver 17.0



Ontario Regional  
**ORCGA**  
Common Ground Alliance



# Expert tips for safe excavation

Enbridge Gas is using new technology to identify projects with factors that have historically encountered a higher occurrence of utility line damages. If your project is identified, you may be contacted by an Enbridge Gas representative who can provide locate support and safety awareness. This is all a part of our commitment to keeping Ontario safe.

Follow these three simple steps to excavate safely and help reduce damages — **it's the law:**

1

## Submit a locate request

Visit **OntarioOneCall.ca** at least five business days before starting excavation.

2

## Wait for buried lines to be marked

Locators will come out to mark your job site with locate flags or temporary paint.

3

## Respect the marks and dig safely

Once locates have been made, follow best practices to ensure a safe and smooth project.



See more tips and resources

[enbridgegas.com/excavatesafely](https://enbridgegas.com/excavatesafely)





**Douglas Lapp,  
President & CEO**

Underground infrastructure provides crucial essential services to homes, businesses, public institutions, and communities. Whether it is delivery of natural gas for heating, electric power for lighting, high speed fibre for communications, or water supply; these are all critical for both business and day to day living. The risk of disruption to the delivery of these services through this vital infrastructure exists every day, and at every excavation job site.

The ongoing expansion of broadband infrastructure in Ontario with the passing of Ontario Bill 257 in 2021 continues to stress the increased dependence on buried infrastructure in both business and at home. The evolution of numerous “working from home” options at the workplace has become the norm and has heightened the criticality of telecommunications infrastructure to that of other essential services such as power, natural gas and water/sewer. To help facilitate the advancement and construction of this infrastructure, supporting legislation through recent Bills 93 and 153 are expected to help advance and streamline the timely delivery of utility locates. Advancements in the Dedicated Locator Program and the new “Large Locate Requests for Large Excavations or Dig Sites” Regulation, expected to be in force on May 1, 2024, will assist in facilitating timely locate delivery on project work.

To provide the best defence against underground strikes, the understanding and analysis of infrastructure damages or events and drilling down into their root causes will help to determine which aspects of the excavation process should be targeted for awareness, training, and oversight to reduce the frequency and consequences of these events.

The overall number of damages in 2023 decreased from 2022 by approximately 12%, bringing the number of recorded damages to 4,222. Of note were the decrease of 3% for inbound locate requests overall, and a corresponding decrease in One Call outbound notifications of 3.5%. These results show an improvement in the Damages/1,000 Requests ratio of 9.2%, and similar results in the Damages/1,000 Notifications ratio of 8.6%, a notable improvement! Decreases in damage events were noted in most areas across Ontario, with sizable decreases in the GTA East area of 26.7% or 93 and Ontario West at 23.4% or 120.

The most prevalent root cause for underground utility damages continues to be Excavation Practices Not Being Sufficient, however, with an improvement over 2022 of 16.8%! Although notification issues improved from 2022 by 7.4%, this continues to be a concern as close to 100% of these are with no notification request to Ontario One Call prior to excavation activity (39% of damages).

Clearly, there continues to be considerable work ahead to educate excavators on safe digging practices and the need to Call or Click Before You Dig.

The 2023 DIRT Report is the result of the dedicated volunteers on the ORCGA Reporting and Evaluation Committee (R&E), led by Co-Chairs Leah Borley of Hydro One and Amanda Gillis of GTel.

For this 2023 DIRT Report a number of enhancements have been made by R&E including references to the CCGA Best Practices where applicable as well as 5 year trending versus 3 year, and a new graph illustrating “Damages by Day of the Week”.

On behalf of the ORCGA Board of Directors, I would like to extend a sincere thank you to the Reporting and Evaluation Committee for ensuring that the 2023 DIRT Report was accessible on the ORCGA website, as well as being distributed to all members before April 1st, the start of the 2024 Dig Season.

# Reporting & Evaluation Committee Members

The Reporting & Evaluation (R&E) Committee is a group of diverse stakeholders who are responsible for analyzing the data submitted into the Damage Information Reporting Tool (DIRT), identifying trends, making recommendations based on the data, and ensuring that the annual DIRT Report is created and published in a timely manner. The R&E Committee also determines the ORCGA Excavator of the Year award winners. We welcome any new industry members to get involved; your voice matters. Contact us at [office@orcga.com](mailto:office@orcga.com) or **(866) 446-4493**.

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The Ontario Regional Common Ground Alliance (ORCGA) is a non-profit organization that is driving Safe Excavation for workers, the public and underground infrastructure through Advocacy, Education and Engagement.

The ORCGA is a growing organization with approximately 500 active members and sponsors representing a wide cross section of stakeholders:

Electrical Distribution	Homebuilder	Railway
Electrical Transmission	Insurance	Regulator
Engineering	Landscaping/Fencing	Road Builder
Equipment and Supplies	Land Surveying	Safety Organization
Excavator	Locator	Telecommunications
Gas/Oil Distribution	Municipal and Public Works	Transmission Pipeline

The ORCGA works to foster an environment of safety throughout Ontario for all workers and the public. This is accomplished by offering practical tools while promoting public awareness and compliance of best practices regarding underground infrastructure and ground disturbance.

The ORCGA welcomes open participation and new members on its various committees. In order to submit a suggestion, or to join a meeting, please visit [www.orcga.com](http://www.orcga.com) to learn about the scope of the various committees.

General inquiries about the ORCGA can be made to:

**Ontario Regional Common Ground Alliance (ORCGA)**  
**545 North Rivermede Road, Unit 102**  
**Concord, ON L4K 4H1**

**Telephone:** (905) 532-9836  
**Toll Free:** (866) 446-4493  
**Email:** [office@ORCGA.com](mailto:office@ORCGA.com)

To learn more about the ORCGA's Dig Safe Program, visit [www.digsafe.ca](http://www.digsafe.ca).



## 1.1 Reporting and Evaluation Committee Recommendations

### 1. No Notification to One Call Centre

Despite the improvements in the 'No Notifications' root cause subcategory in 2023, it still accounts for a significant 39% of all events.

See **Page 18**, *Figure 11*

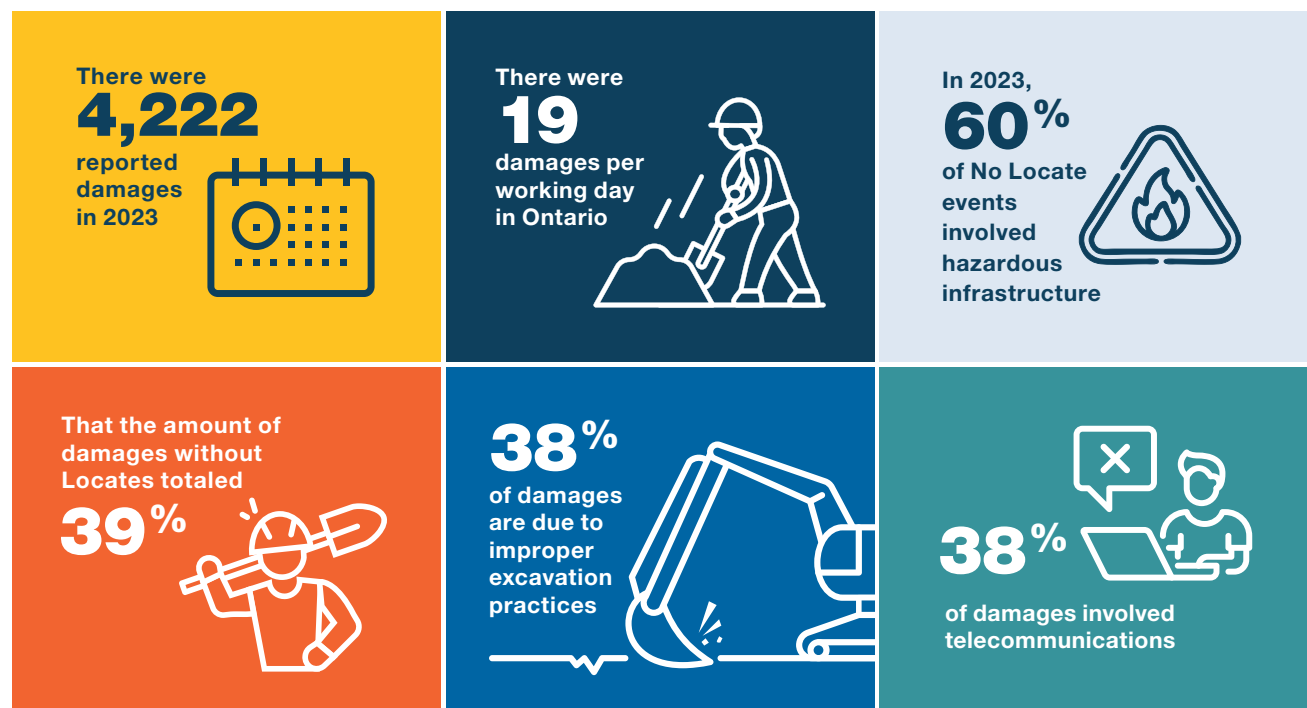
Dig Safe messaging is critical to preventing no locate damages, and it should be a top priority for ORCGA future campaigns. By focusing on Contractor/Developers in geographic areas with high percentages of No Locate Requests events, we can significantly reduce the number of no locate damages. In fact, Contractor/Developers accounted for 66% of no locate damages in 2023, making it clear that they need to be a primary target of our efforts. Let's work together to ensure that everyone is aware of the importance of Dig Safe messaging and the role it plays in preventing no locate damages.

### 2. Excavation Issues

Improper excavation practices accounts for 38% of all facility events and continues to be the number one root cause, leading to significant safety risks and financial losses. To address this issue, we need to provide targeted outreach, training, and education to excavators. By focusing on the Construction Industry, which is a major contributor to these events, we can significantly reduce the number of facility events. This approach will not only improve safety but also lead to reduced costs and improved efficiency, making it a win-win for everyone involved.

See **Page 17**, *Figure 9*

## Did You Know?



# MIND THE LINES

Each day, you and your teams use your expertise to build better communities.

Being equipped with the electrical knowledge and following safety routines is essential so you return home to what matters most – your loved ones.

Hydro One supports public and worker safety and is a proud sponsor of the ORCGA.

Learn more with our safety resources:  
[HydroOne.com/WorkingNearPowerlines](https://HydroOne.com/WorkingNearPowerlines)

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## GET HOME SAFELY



**Do you know what's below?**

Visit [ClickBeforeYouDig.com](https://ClickBeforeYouDig.com)

A safety message from **TC Energy**

**Click Before You Dig.com**





## 1.2 Data

The Damage Information Reporting Tool (DIRT) is the result of the efforts made by the ORCGA to gather meaningful data about the occurrence of facility damages. Gathering information about these types of events gives the ORCGA the opportunity to analyze the contributing factors and recurring trends. This allows the ORCGA to identify potential educational opportunities to meet our overall goals of reducing damages and increasing safety for the public and all stakeholders.

The annual DIRT Report provides a summary and analysis of the known events submitted during the prior year, and as additional years of data are collected, it also provides the ability to monitor trends over time. The 2023 report focuses on the data gathered throughout Ontario during the five-year period between 2019 and 2023. This data can be helpful for all stakeholders to use as a benchmark for their damage prevention performance. It identifies current issues facing the industry, region and province.

Data Analysis Disclaimer: Industry stakeholders have voluntarily submitted their underground facility event data into DIRT. The data submitted is not inclusive of all facility events that occurred during the report year as it represents only the information voluntarily submitted by industry stakeholders. This data includes damages and near misses however, please note that near misses account for less than 1% of recorded events.

The information presented in this report is based on current information provided to the ORCGA for events that occurred, or were updated, in 2023.

*When reviewing statistics published in this report, it is important to note that contributors perform retroactive submissions for the five-year period. This will cause the volume of facility events submitted by year to change in each report.*

In addition to the number of events submitted, an important factor is the completion of the associated information which allows for better overall analysis of the contributing factors. Each submitted record contains numerous data elements that are vital to understanding and interpreting the incidents reported in DIRT. It is important that stakeholders align their data collection and reporting practices with those found on the DIRT Field Form.

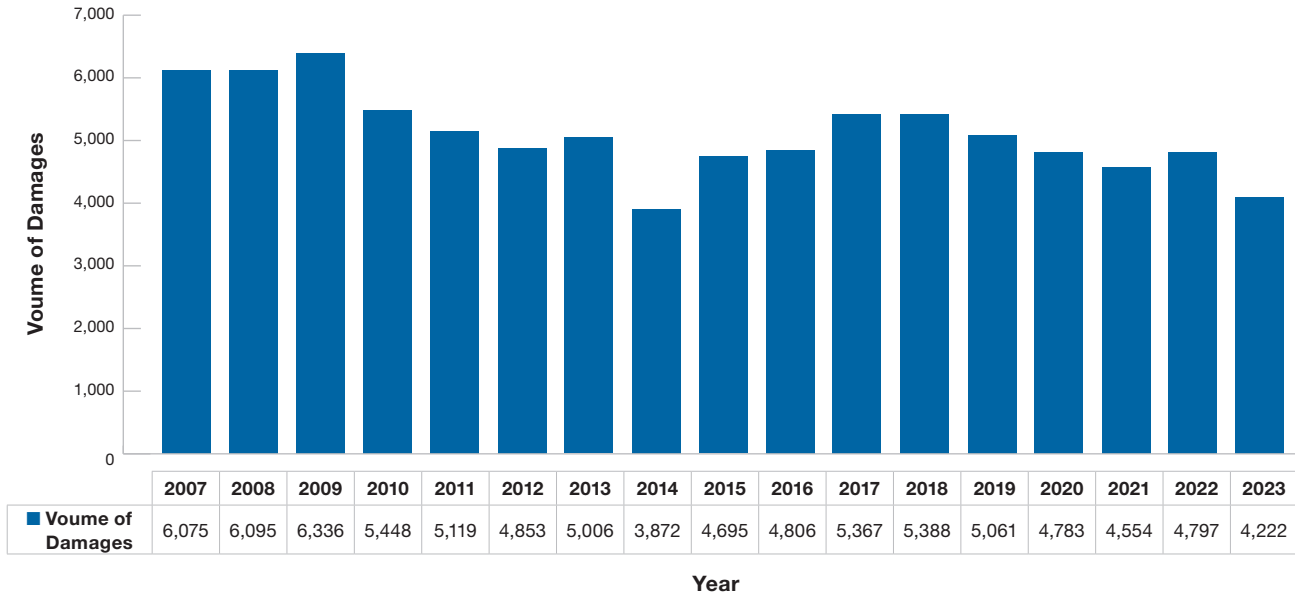
To gauge the overall level of completion of records submitted, the Data Quality Index (DQI) was implemented in 2009. This provides DIRT contributors a way to review the quality of the facility event records they submit.

When reviewing the statistics published in this report, it is important to note that only events with complete data were included.

## 2.1 Facility Event Analysis

In 2023, facility events dropped by 12% to 4,222, marking a near historic low in the DIRT report. The report will further analyze this data to guide future damage reduction efforts.

Figure 1: Facility Events Submitted by Year



**ONTARIO ONECALL**

**Damaging underground infrastructure is dangerous.**

Hitting wires, pipes or cables can cause serious injuries and carry hefty financial consequences.

**GET THE DIRT ON ALL DIGS**

**CLICK BEFORE YOU DIG FOR ANY SIZE PROJECT**

**No matter the size of your project, always Click Before You Dig at [OntarioOneCall.ca](https://www.ontarioonecall.ca)**

Ontario One Call cares about the safety of communities and workers and is a proud sponsor of the ORCGA.

## 2.2 Facility Events Submitted Across Ontario

Table 1 outlines the ORCGA geographic areas and the constituent municipalities/cities.

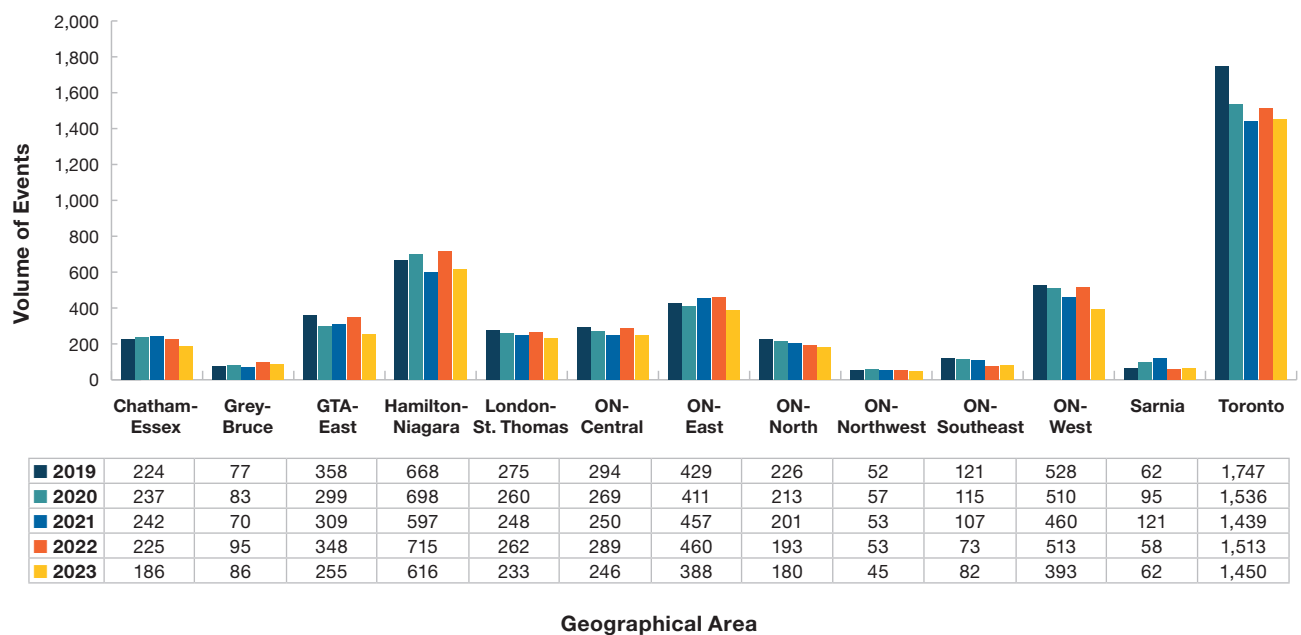
**Table 1: Geographic Area Breakdown by Region/Municipality/City**

Geographic Area	Region/Municipality/City
Chatham-Essex	Chatham-Kent, Essex
Grey-Bruce	Bruce, Grey
GTA-East	Durham, Kawartha Lakes, Northumberland, Peterborough
Hamilton-Niagara	Haldimand, Halton, Hamilton-Wentworth, Niagara, Norfolk
London-St. Thomas	Elgin, Middlesex
ON-Central	Dufferin, Simcoe
ON-East	Akwesasne, Lanark, Ottawa, Prescott & Russell, Renfrew, Stormont, Dundas & Glengarry
ON-North	Algoma, Cochrane, Greater Sudbury, Haliburton, Manitoulin, Muskoka, Nipissing, Sudbury, Temiscamingue, Timiskaming
ON-Northwest	Kenora, Rainy River, Thunder Bay
ON-Southeast	Frontenac, Hastings, Leeds & Grenville, Lennox & Addington, Prince Edward
ON-West	Brant, Huron, Oxford, Perth, Waterloo, Wellington
Sarnia	Lambton
Toronto	Peel, Toronto, York

Figure 2 illustrates the number of events for each geographic area over the past five years.

Most Geographic Council areas are experiencing fewer damages, leading to more focused and impactful initiatives.

**Figure 2: Volume of Events Submitted Per Geographic Area**



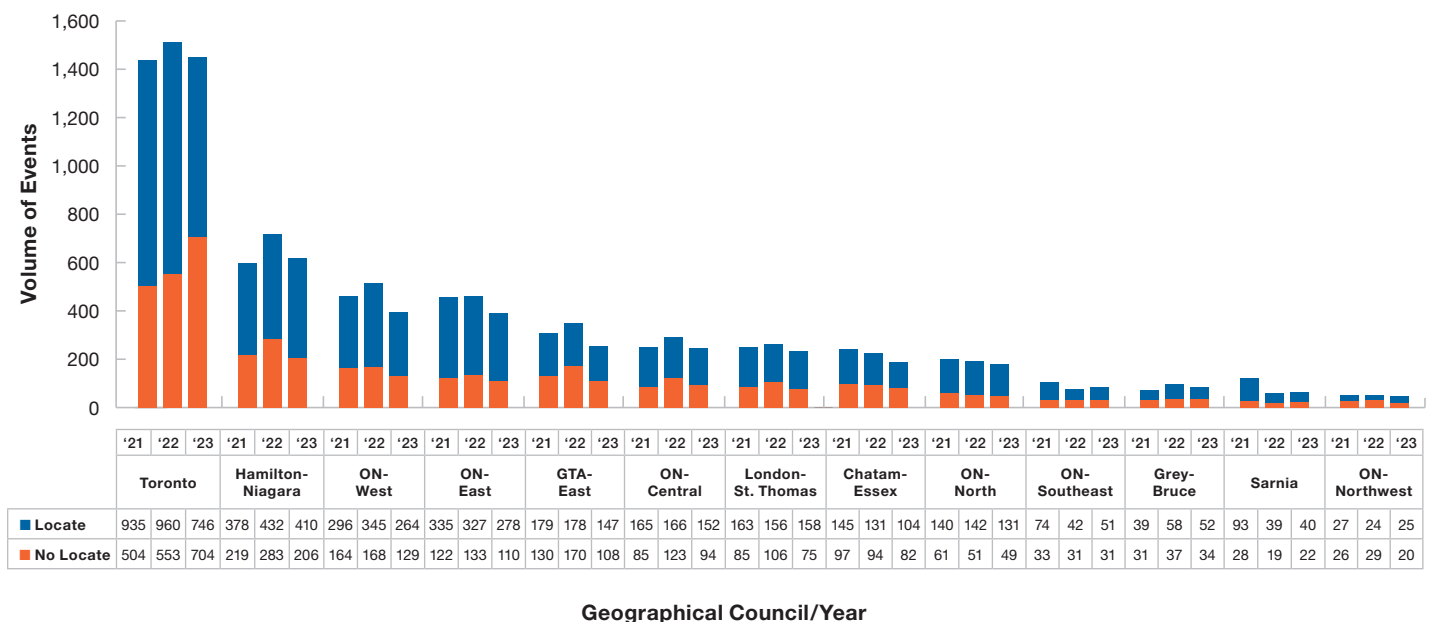
Notifications decreased overall by 3.5% in 2023.

Table 2: Notifications Per Geographic Council

Geographical Area	2019	2020	2021	2022	2023
Central	238,444	206,678	241,198	253,699	259,667
Chatham-Essex	294,729	299,473	313,816	286,483	227,905
East	655,543	613,616	678,522	632,810	565,838
Grey-Bruce	68,326	87,449	103,032	110,792	106,177
GTA-East	466,214	428,078	473,380	462,862	445,433
Hamilton-Niagara	924,656	882,364	909,844	914,040	898,509
London-St. Thomas	255,974	244,691	284,812	267,477	256,234
North	218,310	193,942	195,532	180,318	182,530
Northwest	71,846	70,736	70,264	64,981	63,719
Sarnia	84,192	86,089	104,735	93,172	80,416
Southeast	135,031	123,212	134,991	131,355	132,430
Toronto	2,266,423	1,970,221	2,044,766	1,978,923	2,003,031
West	547,539	539,783	586,820	571,122	519,374
<b>GRAND TOTAL</b>	<b>6,227,227</b>	<b>5,746,332</b>	<b>6,141,712</b>	<b>5,948,034</b>	<b>5,741,263</b>

Figure 3 presents a comparative analysis of events from 2021 to 2023, detailing instances where Ontario One Call (OOC) received a locate request against where a locate was not requested. This data is further categorized by geographic regions.

Figure 3: Locate Versus No Locate Events by Geographic Area – Three Year Trend



In 2023, hazardous infrastructure played a role in 60% of the events where no locates were reported, encompassing 835 incidents related to Natural Gas and 159 to Electrical infrastructure. These numbers are alarming due to their potential for serious consequences.

Figure 4: No Locates with Hazardous Infrastructure

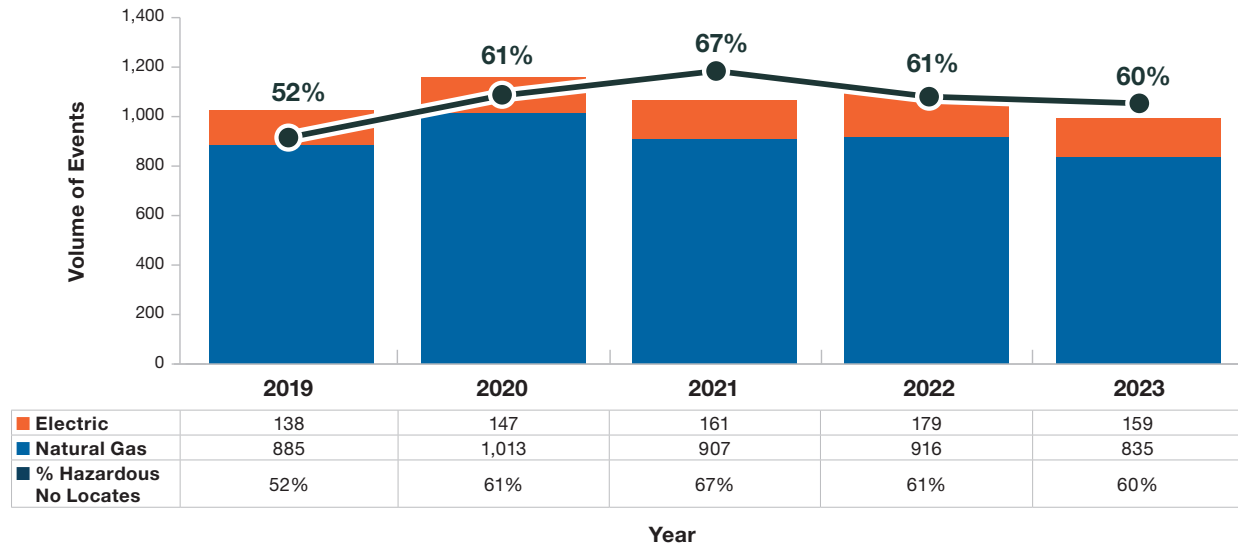
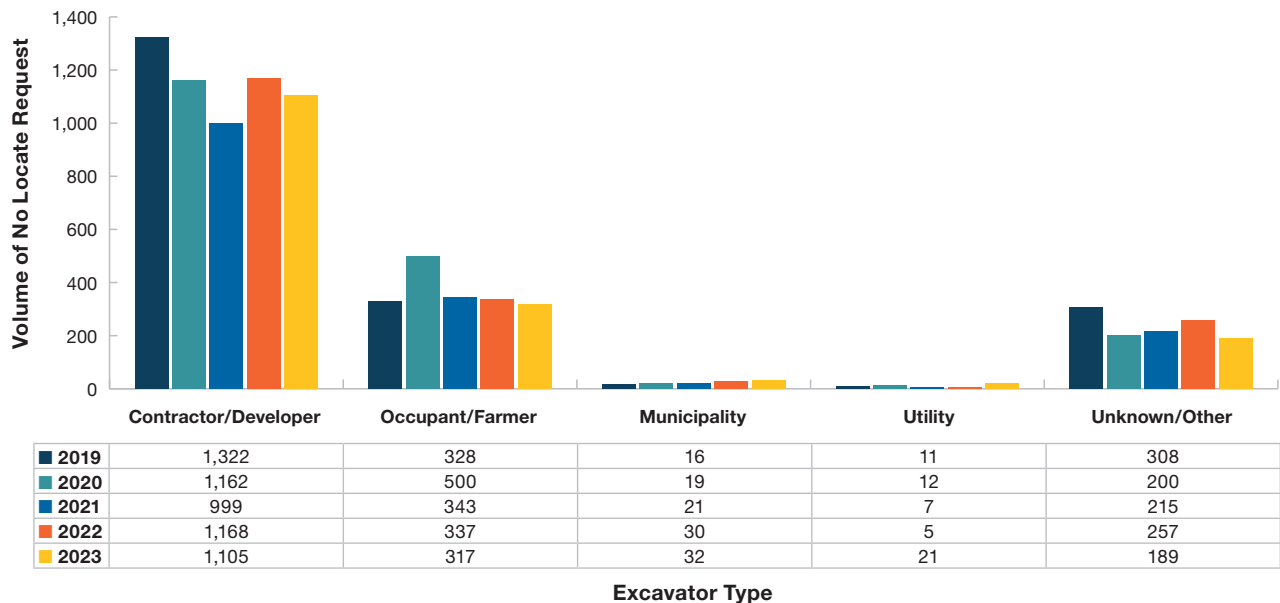


Figure 5 provides further analysis on the categories of excavators that are not submitting locate requests.

Despite the crucial importance of submitting locate requests, many excavators are not doing so, leading to a significant number of no locate damages. In fact, Contractor/Developers accounted for 66% of no locate damages in 2023. To address this issue, we need to increase education and awareness among excavators.

**CCGA Best Practice 2-27** recommends that excavators contact the Notification Service before excavating. By following this practice, we can significantly reduce the number of no locate damages and improve safety, efficiency, and cost-effectiveness for everyone involved.

Figure 5: No Locate Events by Excavator Type



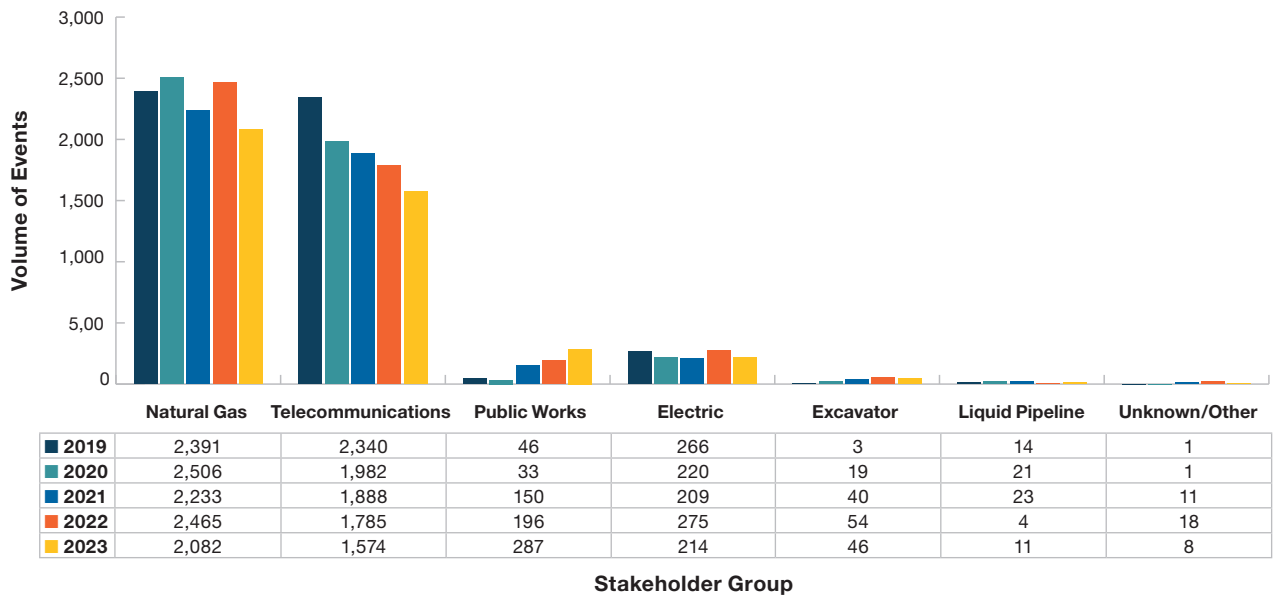
### 2.3 Submitted Facility Events by Stakeholder Group

Figure 6 illustrates a distribution of events by stakeholder group for the past five years.

Natural Gas and Telecommunications continue to submit the highest volume of events. 2023 saw a decrease of 16% in events for Natural Gas.

In order to support future trend analysis, additional stakeholders are encouraged to submit their events into DIRT.

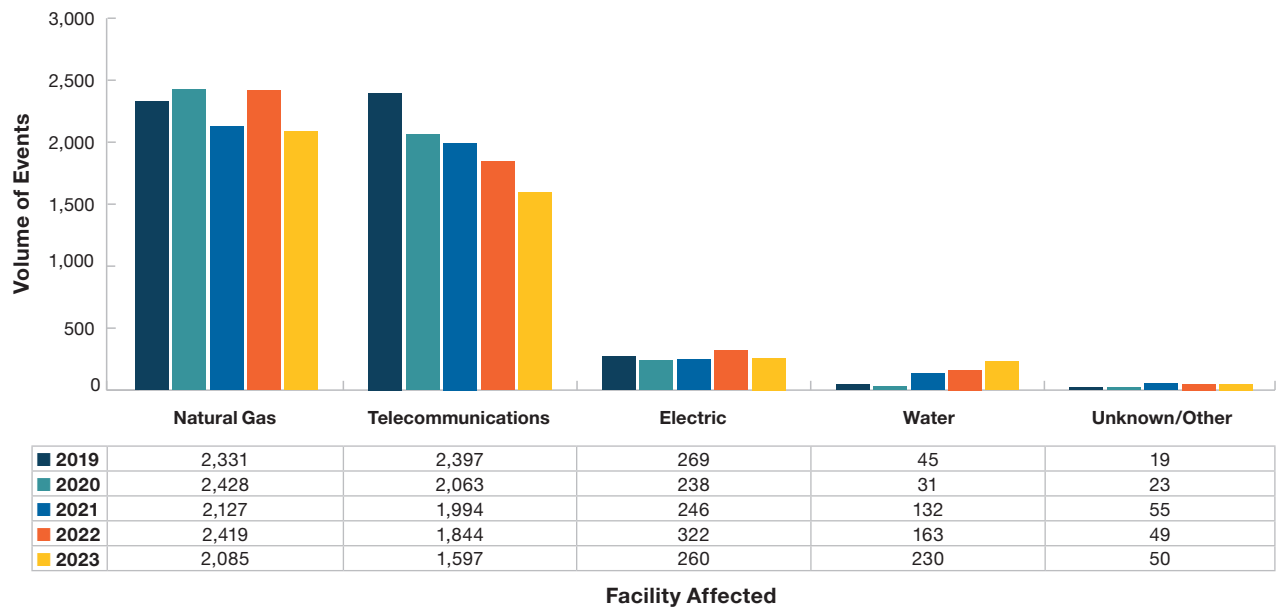
Figure 6: Facility Events Submitted by Stakeholder Group



### 2.4 Submitted Facility Events by Type of Facility Operation Affected

Figure 7 depicts that the majority of events reported in DIRT predominantly impact Natural Gas and Telecommunications facilities. This trend is consistent with the substantial number of events these two facilities consistently report.

Figure 7: Submitted Facility Events by Type of Facility Affected



## 2.5 Volume of Events by Excavation Equipment Group and Type

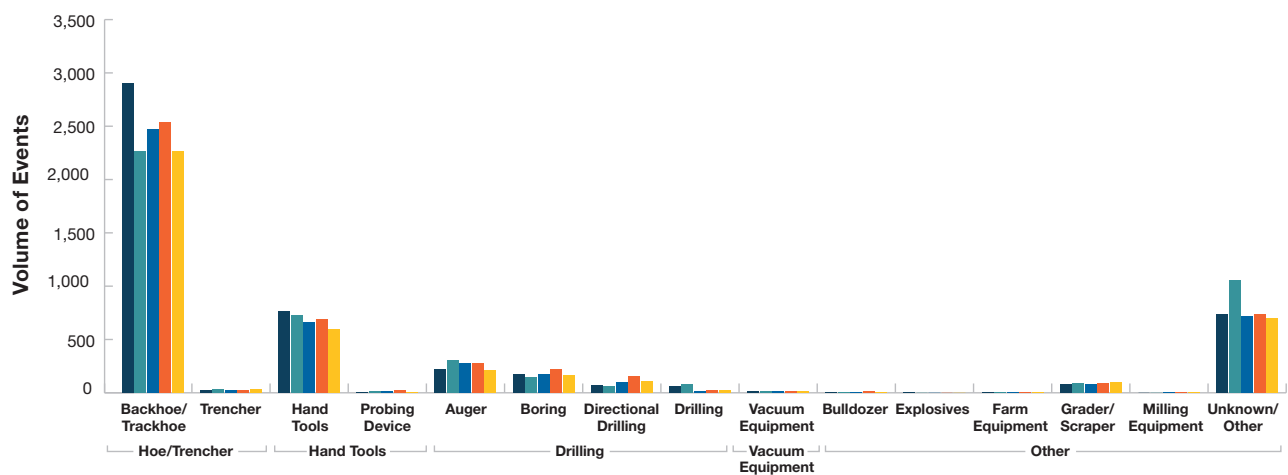
Table 3 outlines the types of excavation equipment included in each equipment group.

**Table 3: List of Excavation Equipment Groups and Types**

Excavation Equipment Group	Excavation Equipment Type	
Hoe/Trencher	Backhoe/Trackhoe	Trencher
Hand Tools	Hand Tools	Probing Device
Drilling	Auger	Directional Drilling
	Boring	Drilling
Vacuum Equipment	Vacuum Equipment	
Other	Bulldozer	Grader/Scraper
	Data Not Collected	Milling Equipment
	Explosives	Other
	Farm Equipment	

Figure 8 provides a breakdown of events triggered by different categories of excavation equipment. In 2023, the Hoe/Trencher group was responsible for the majority of these events, despite a noticeable reduction almost all equipment groups. To enhance the precision of the data, it is recommended that submitters limit the use of the ‘unknown/other’ equipment type category when listing equipment.

**Figure 8: Submitted Facility Events by Excavation Equipment Group and Type**



	Backhoe/Trackhoe	Trencher	Hand Tools	Probing Device	Auger	Boring	Directional Drilling	Drilling	Vacuum Equipment	Bulldozer	Explosives	Farm Equipment	Grader/Scraper	Milling Equipment	Unknown/Other
2019	2,904	23	761	4	219	177	75	63	12	1	1	3	79		739
2020	2,265	31	727	11	305	148	57	80	10	3		2	92		1,052
2021	2,475	23	660	15	278	173	97	18	13	4		3	78	3	714
2022	2,537	26	690	22	280	217	151	27	11	10		5	85	2	734
2023	2,266	30	597	4	209	163	111	26	10	3		5	94	1	703

Equipment Group and Type

## 2.6 Facility Events By Root Cause

Table 4 illustrates the breakout of Root Causes and their subcategories.

**Table 4: 2023 Root Cause and Subcategory**

Root Cause	2019	2020	2021	2022	2023
<b>Excavation Issue</b>	<b>2,085</b>	<b>2,123</b>	<b>1,817</b>	<b>1,940</b>	<b>1,615</b>
Excavation	7	8	98	143	132
Excavator dug outside area described on ticket	19	61	82	77	69
Excavator dug prior to valid start date/time	11	14	23	101	4
Excavator dug prior to verifying marks by test-hole (pot-hole)	27	29	39	60	34
Excavator failed to maintain clearance after verifying marks	54	26	56	88	752
Excavator failed to protect/shore/support facilities	59	9	58	66	81
Improper backfilling		3	3	2	3
Improper excavation practice not listed above	1,854	1,970	1,447	1,398	534
Marks faded, lost or not maintained	54	3	11	5	6
<b>Notification Issue</b>	<b>1,379</b>	<b>1,244</b>	<b>1,239</b>	<b>1,461</b>	<b>1,251</b>
Excavator provided incorrect notification information	10	5	4	3	3
No notification made to One-Call Center / 811	1,369	1,239	1,235	1,458	1,248
<b>Locating Issue</b>	<b>311</b>	<b>256</b>	<b>348</b>	<b>338</b>	<b>289</b>
Marked inaccurately due to Abandoned Facility	9	3		1	26
Marked inaccurately due to Incorrect facility record/maps	20	16	35	35	3
Marked inaccurately due to Locator error	99	110	101	126	106
Marked inaccurately due to Tracer wire issue	33		16		
No response from operator/contract locator					2
Not marked due to Abandoned facility	27	14	5	6	10
Not marked due to Incorrect facility records/maps	29	1	9	23	18
Not marked due to Locator error	83	107	140	101	70
Not marked due to Tracer wire issue			2	4	
Site marked but incomplete at damage location	4		6	2	4
Unlocatable facility	7	5	34	40	50
<b>Miscellaneous Root Causes</b>	<b>1,286</b>	<b>1,160</b>	<b>1,150</b>	<b>1,058</b>	<b>1,067</b>
Deteriorated facility	12	8	1	2	2
One-Call Center error	26	2	1	1	
Previous damage	7		1	4	1
Root Cause not listed above (comment required)	1,241	1,150	1,147	1,051	1,064



Figure 9 illustrates the distribution of events by Root Cause. The most common causes of events are a result of Excavation Issues and Notification Issues.

Figure 9: Facility Events by Root Cause

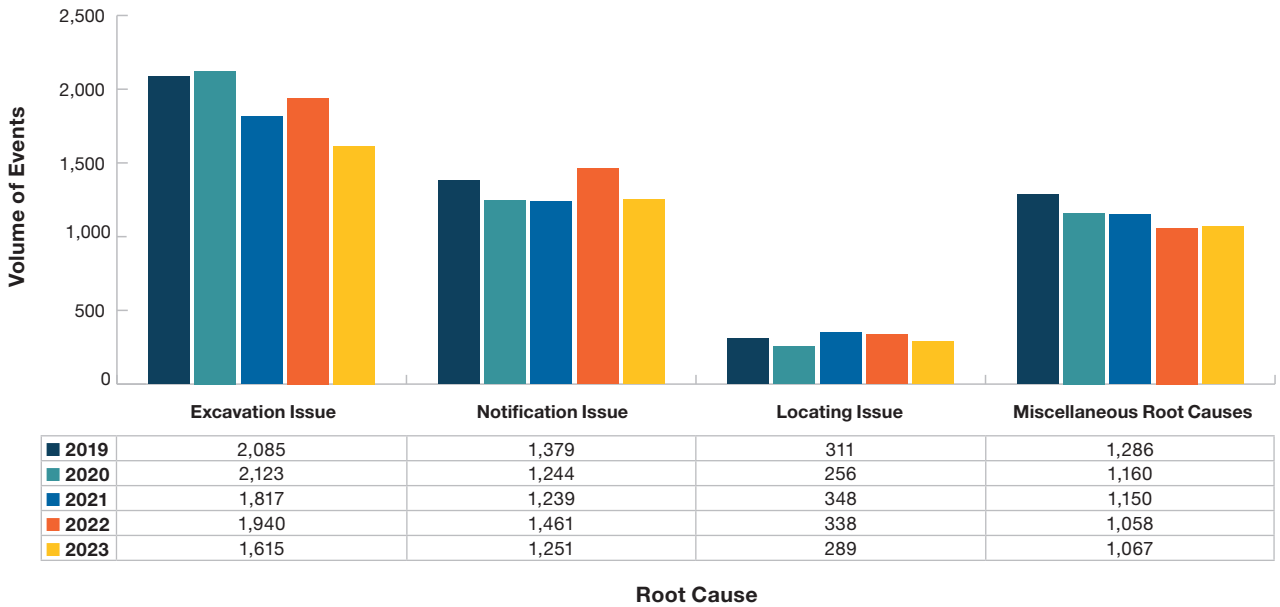


Figure 10 presents a five-year analysis of the root cause subcategories for Excavation Issues. The primary concern, as depicted below, is the failure to maintain clearance. **CCGA Best Practice 4-1 Excavation within Tolerance Zone** describes the methods to consider when exposing any underground facility.

Figure 10: Facility Events by Excavation Issue

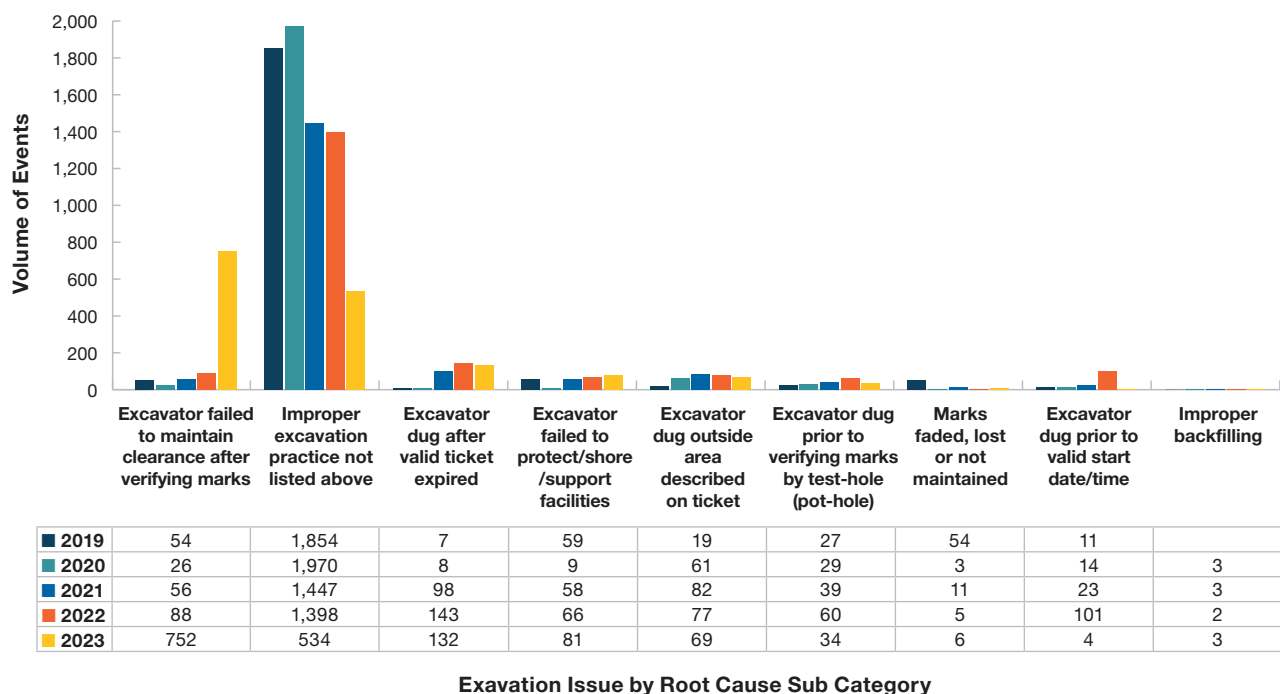
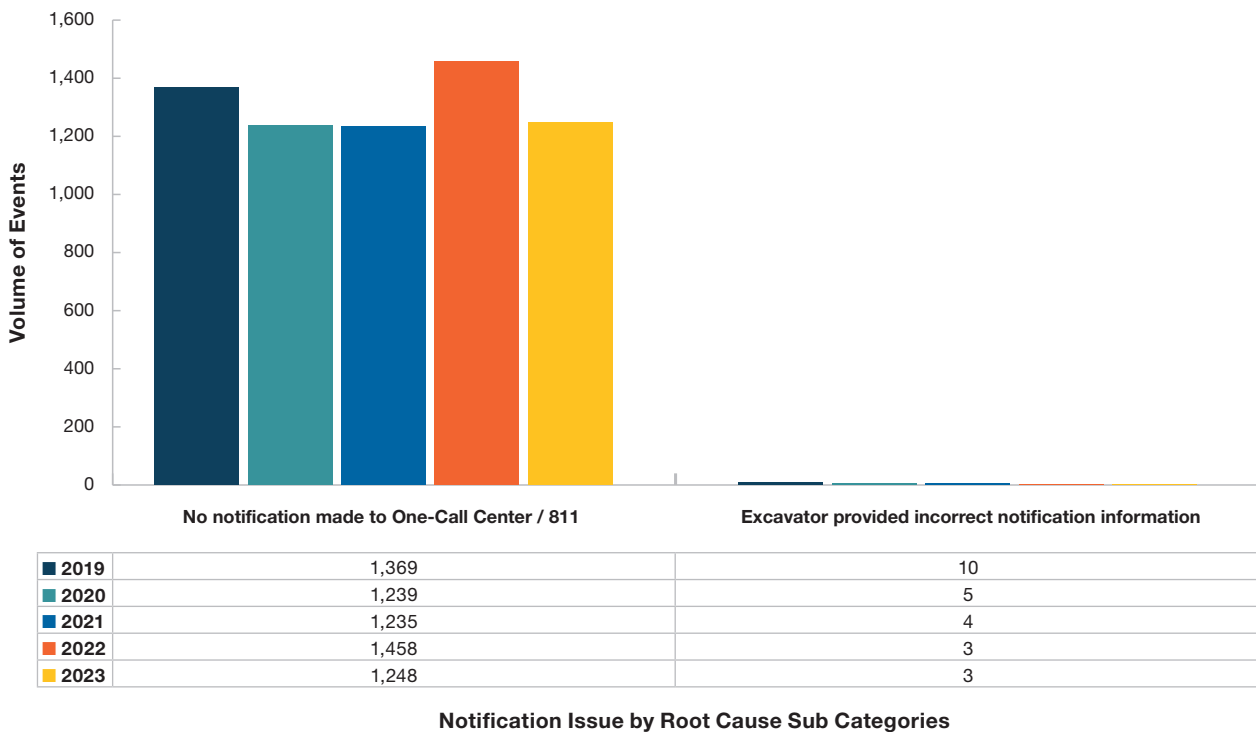


Figure 11 illustrates a five-year breakdown of the Root Cause subcategories for Notification Issues.

No Notifications to the One-Call Centre saw a decrease of 14%.

This figure underscores the urgent need for heightened awareness among both excavators and the general public about the importance of requesting a locate before any digging begins. It’s crucial to remember that this simple step can prevent potential damages and ensure safety. We strongly recommend referring to **CCGA Best Practice 4-1** in the Best Practice Manual, which states the excavator requests the location of underground facilities at each site by notifying the owner through the Notification Service. By adhering to these guidelines, we can collectively contribute to safer and more efficient excavation practices.

**Figure 11: Facility Events by Notification Issues**



## REMINDER

In order to improve the overall completeness of submissions, the committee is advising submitters to:

### Submit events in a timely manner

It is recommended that Damage Information Reporting Tool (DIRT) data is submitted on a monthly or bi-monthly basis, so the events are fresh in your memory and details are easy to recall.

### Complete the Late Locate Question

Although this is not mandatory it is strongly recommended that submitters answer to the best of their ability in order to gather enough data to determine if there is a relationship between facility events and late locates.

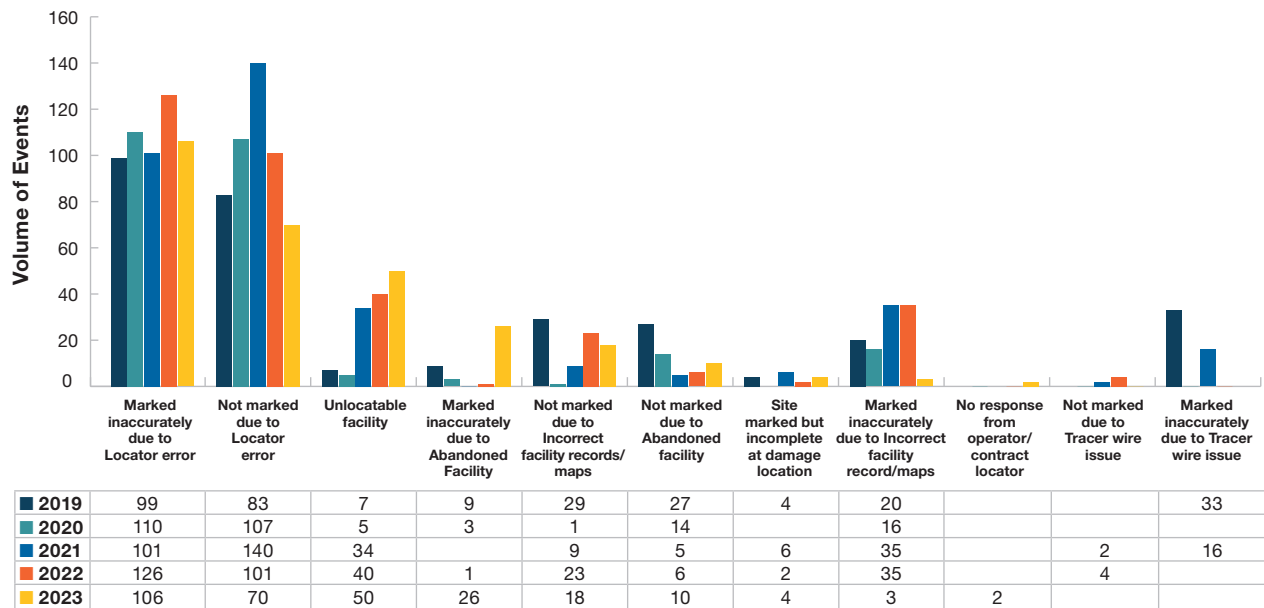
### Unknown/Other

It is the goal of this report to provide as much insight as possible for all stakeholders. Usage of the “unknown/other” categories limits our ability to provide clear measurable data to all stakeholders.

Figure 12 illustrates a five-year breakdown of the Root Cause subcategories for Facility Events by Locating Issues.

This highlights the need for continuous improvement in our practices. We strongly recommend referring to the **CCGA Best Practice Manual Section 3**, which provides a wealth of best practices specifically designed to assist in Locating and Marking. By implementing these practices, we can collectively work towards reducing these incidents and enhancing overall safety.

Figure 12: Facility Events by Locating Issues



Locating Issue by Root Cause Sub Categories

Figure 13 illustrates a five-year breakdown of the Root Cause subcategories for Miscellaneous Root Causes. The most prevalent Root Cause subcategory is Root Cause Not Listed Above.

Figure 13: Facility Events by Miscellaneous Root Causes



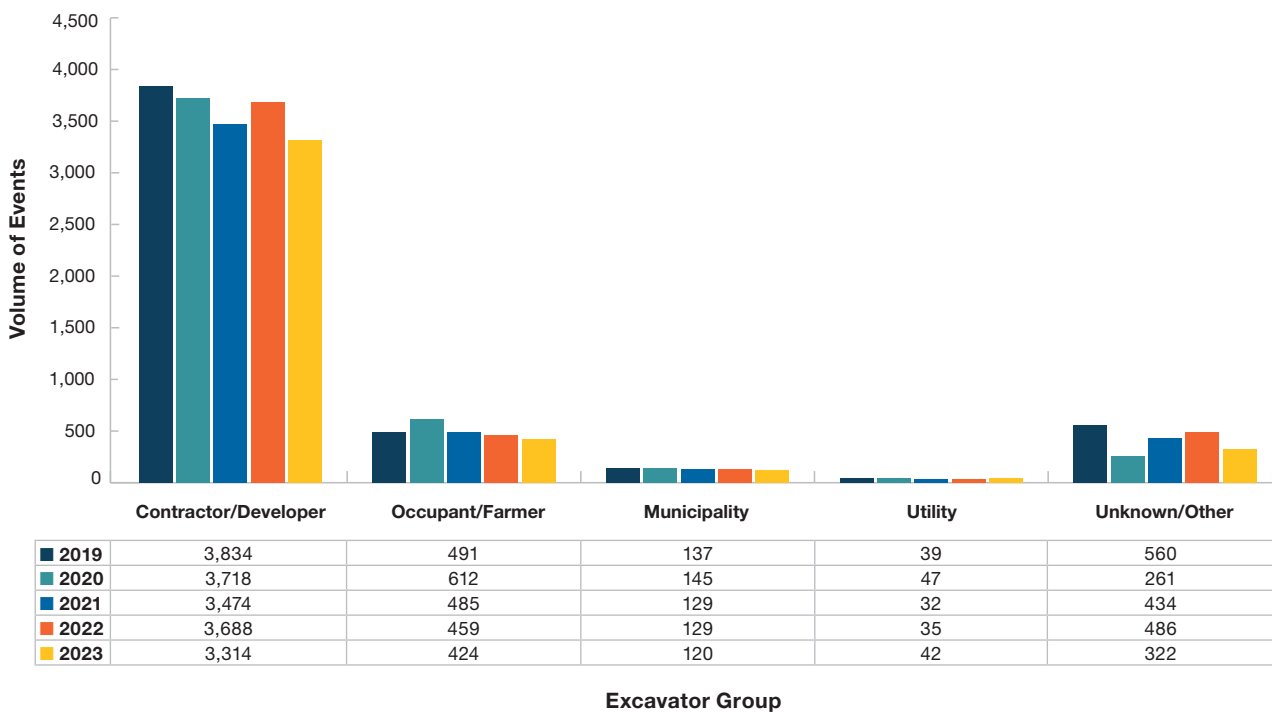
Miscellaneous Root Cause by Sub Categories

## 2.7 Facility Events by Excavator Group

Figure 14 illustrates the distribution of events by Excavator Group showing that Contractor/Developer continues to be involved in the majority of reported events, contributing to 78% of the events in 2023.

Enhancing damage prevention performance in Ontario is a crucial task. To achieve this, we must thoroughly understand the parties involved in reported events. By doing so, we can create effective educational tools tailored to their specific needs. For a deeper understanding, we invite you to explore the comprehensive analysis provided in Section 3.0 (Multi-Field Analysis) of this report. This section offers valuable insights that can significantly contribute to our collective goal of damage prevention.

Figure 14: Facility Events by Type of Excavator



### WHAT IS DIG SAFE MONTH?

April 1st marks the official start of Dig Safe Month!

The Ontario Regional Common Ground Alliance (ORCGA) and its members have designated April as Dig Safe Month in Ontario. This month is dedicated to raising awareness of safe digging practices across the province to improve safety and reduce damages to underground infrastructure.

Table 5 illustrates a five-year breakdown of the most common types of work performed. When broken down into identifiable subgroups, Sewer, with 653 events, had the highest volume in 2023 followed by Building Construction with 504 events.

These two work types account for 28% of events and would provide the greatest impact in being reduced.

Road Work events have had a three year upward trend, with a 28% increase from 2022.

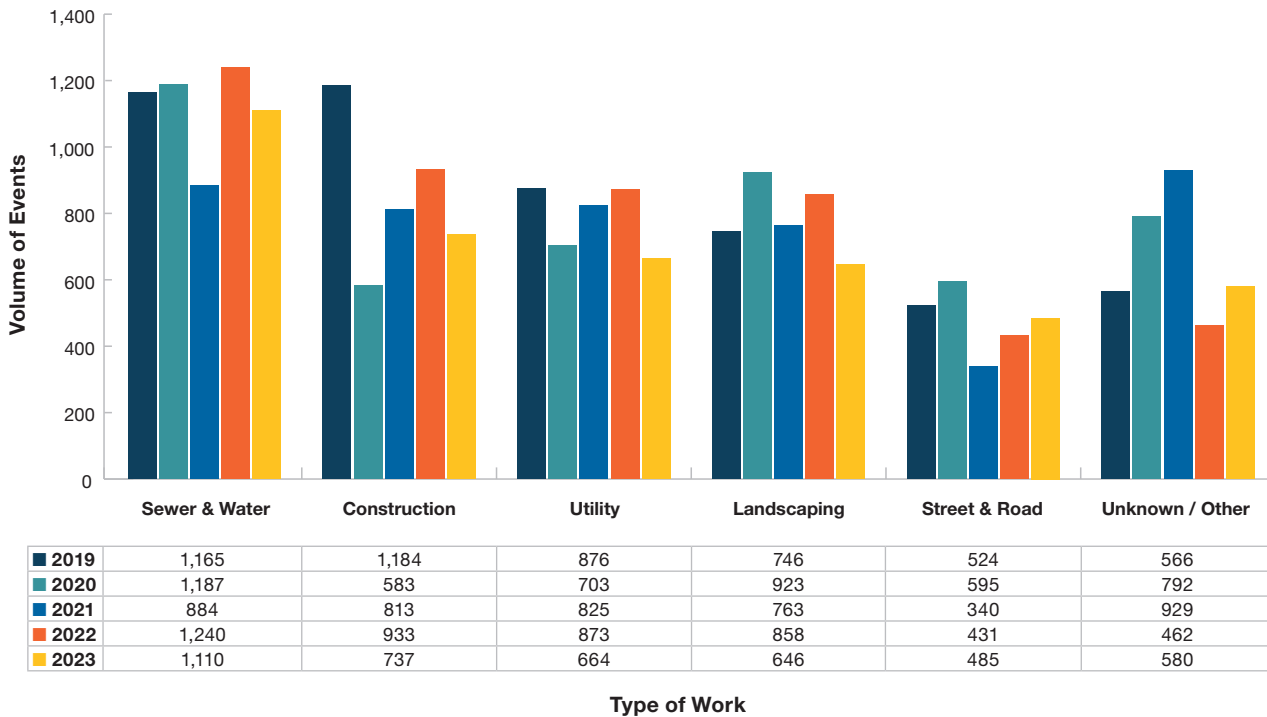
**Table 5: List of Work Included in Each Work Group**

<b>GROUP &amp; TYPE OF WORK</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
<b>Sewer &amp; Water</b>	<b>1,165</b>	<b>1,187</b>	<b>884</b>	<b>1,240</b>	<b>1,110</b>
Sewer	249	625	602	717	653
Drainage	194	173	28	291	260
Water	722	389	254	232	197
<b>Construction</b>	<b>1,184</b>	<b>583</b>	<b>813</b>	<b>933</b>	<b>737</b>
Bldg. Construction	904	291	553	679	504
Driveway	152	168	141	165	148
Site Development	74	70	85	57	53
Bldg. Demolition	15	11	13	23	13
Grading	39	43	21	9	19
<b>Utility</b>	<b>876</b>	<b>703</b>	<b>825</b>	<b>873</b>	<b>664</b>
Telecommunications	446	302	403	501	398
Electric	278	255	233	230	195
Natural Gas	147	145	189	136	71
Liquid Pipeline	5	1		6	
<b>Landscaping</b>	<b>746</b>	<b>923</b>	<b>763</b>	<b>858</b>	<b>646</b>
Fencing	375	496	413	480	333
Landscaping	354	404	332	354	292
Waterway Improvement	5	10	6	15	7
Irrigation	8	11	10	6	13
Agriculture	4	2	2	3	1
<b>Street &amp; Road</b>	<b>524</b>	<b>595</b>	<b>340</b>	<b>431</b>	<b>485</b>
Road Work	301	387	193	196	250
Curb/Sidewalk	76	115	58	114	100
Storm Drain/Culvert	95	44	63	95	111
Traffic Sign	10	16	5	5	7
Street Light	8	3	3	5	4
Traffic Signal	3	1	6	5	3
Pole	26	24	8	5	9
Public Transit Authority	5	2	1	5	
Railroad		3	3	1	1
<b>Unknown / Other</b>	<b>566</b>	<b>792</b>	<b>929</b>	<b>462</b>	<b>580</b>
Unknown/Other	564	791	928	457	577
Engineering/Surveying	2	1	1	5	3

## 2.8 Facility Events by Type of Work Performed

Figure 15 illustrates a distribution of Events by Type of Work Performed. Sewer and Water continues to be the primary type of work causing events in 2023. We strongly advocate for minimizing the use of the Unknown/Other category, as it enhances the precision and reliability of our data. This would ensure that our data reflects the most accurate and informative insights.

Figure 15: Facility Events by Type of Work Performed



### REMINDER

In order to improve the overall completeness of submissions, the committee is advising submitters to:

#### Submit events in a timely manner

It is recommended that Damage Information Reporting Tool (DIRT) data is submitted on a monthly or bi-monthly basis, so the events are fresh in your memory and details are easy to recall.

#### Complete the Late Locate Question

Although this is not mandatory it is strongly recommended that submitters answer to the best of their ability in order to gather enough data to determine if there is a relationship between facility events and late locates.

#### Unknown/Other

It is the goal of this report to provide as much insight as possible for all stakeholders. Usage of the “unknown/other” categories limits our ability to provide clear measurable data to all stakeholders.

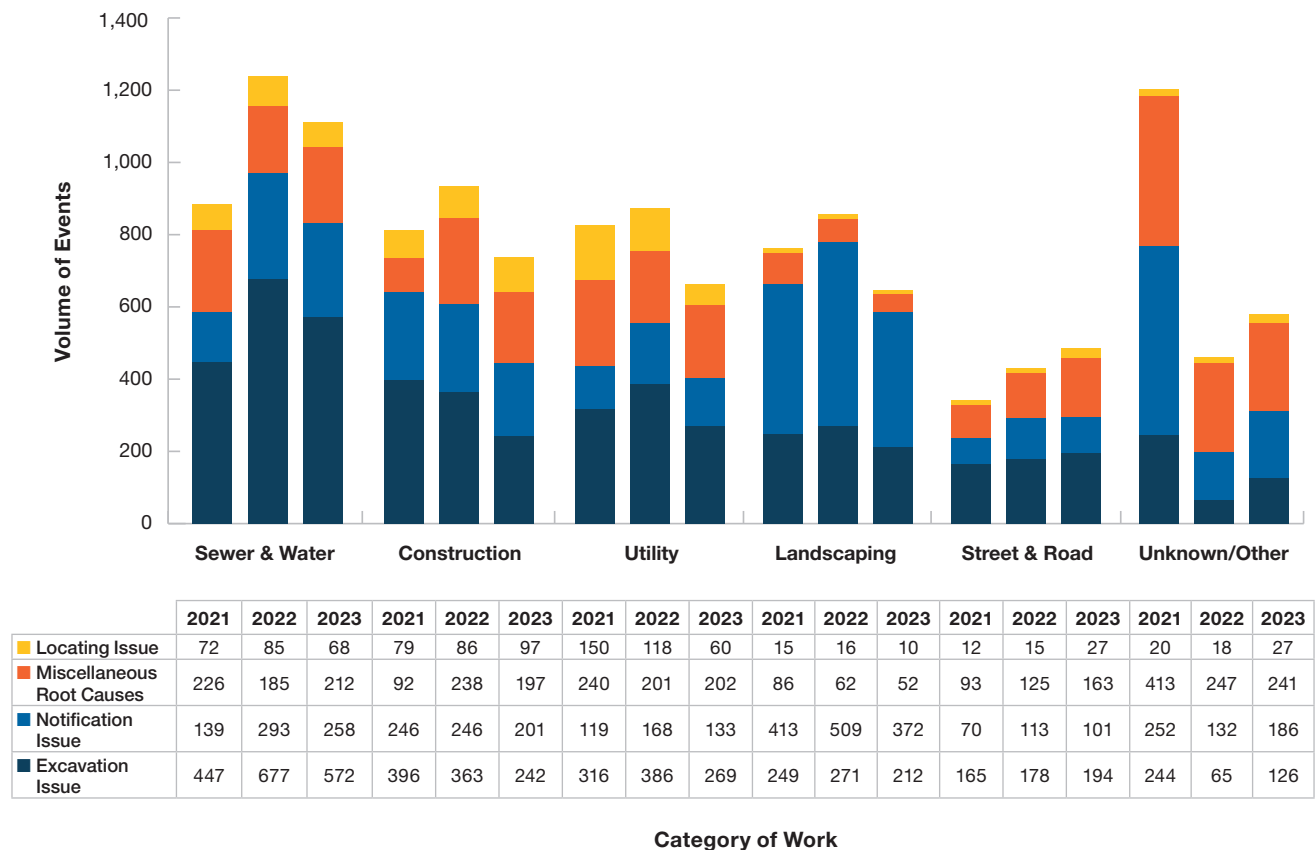
### 3.1 Analysis of Root Cause and Facilities Affected by Types of Work

The charts provided offer a comprehensive analysis of the root causes of events across six distinct work groups: Sewer and Water, Construction, Landscaping, Utility, Street & Road, and Unknown/Other. These groups represent a broad spectrum of operations, each with its unique challenges and circumstances.

For each of these work groups, the charts delve into the root causes of the events that occurred over the course of three years: 2021, 2022, and 2023. This time frame allows for a thorough examination of trends and patterns, providing valuable insights into the underlying causes of these events.

In summary, these charts serve as a valuable tool for understanding the root causes of events across a diverse range of work groups over a significant period. They provide a balanced and detailed view, allowing for informed decision-making and strategic planning.

Figure 16: Facility Events by Root Cause Group and Industry – Three Year Trend



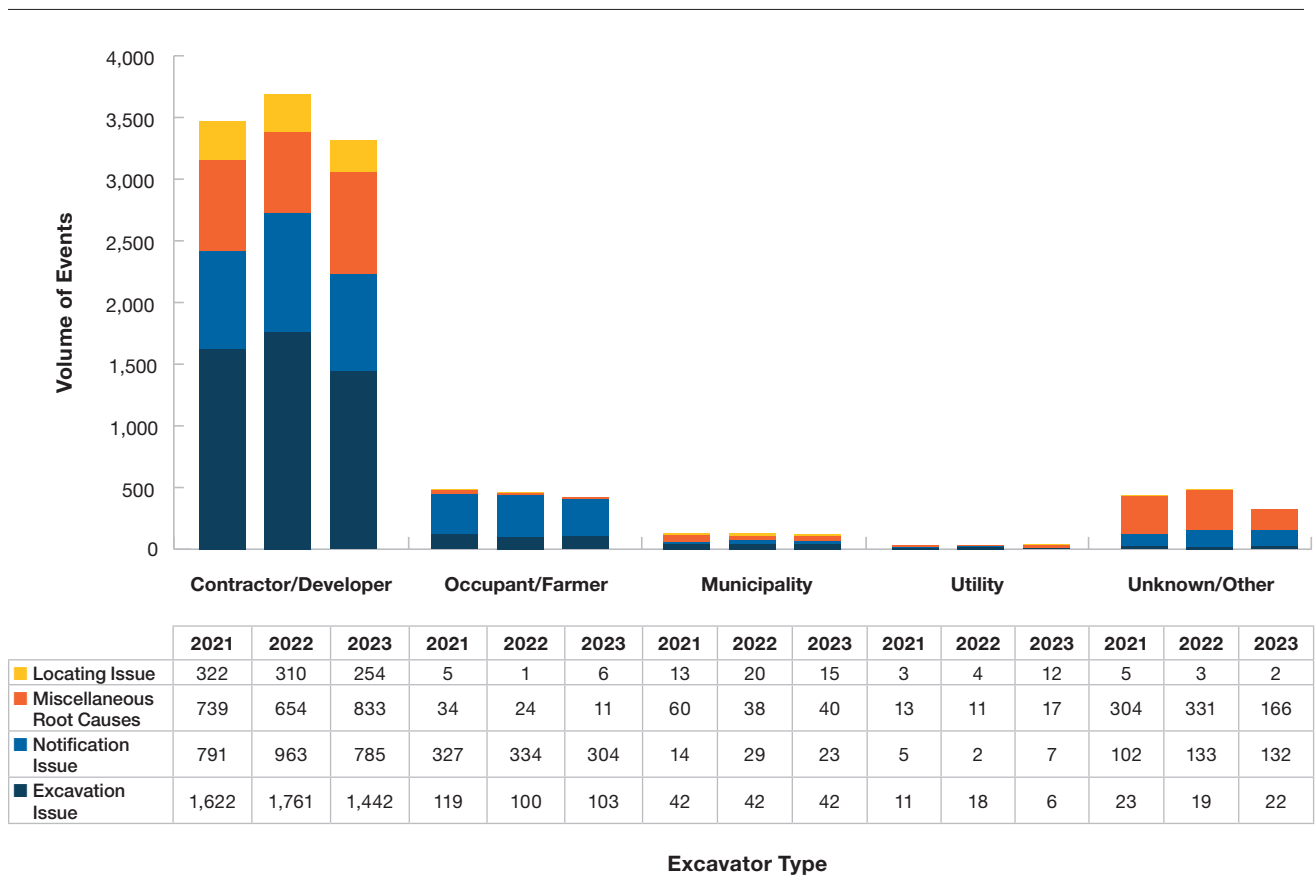
### 3.0 | Multi-Field Analysis

Figure 17 clearly demonstrates that the excavator type associated with Contractor/Developer continues to be the predominant contributor to the events reported under the Excavation Issues category. This trend is not only consistent but has also seen a notable decrease in the year 2023, indicating a positive development in this particular area.

The Contractor/Developer excavator type, with its unique set of challenges and operational complexities, has consistently been at the forefront of excavation-related issues. The decrease in events in 2023 underscores the need for continued focus in this area.

In summary, the data paints a comprehensive picture of the challenges faced by Contractors/Developers, particularly, the observed trends provide valuable insights for future planning and decision-making.

**Figure 17: Facility Events by Root Cause Category and Excavator Type – Three Year Trend**



*“For this 2023 DIRT Report a number of enhancements have been made by R&E including references to the CCGA Best Practices where applicable as well as 5 year trending versus 3 year, and a new graph illustrating “Damages by Day of the Week”.”*

Douglas Lapp, ORCGA President & CEO



Following the modifications to the Ontario One Call process, we've developed this chart to illustrate the trend of damages per 1000 requests. This steadfast pattern is linked to fluctuations in public awareness and significant economic events, offering a comprehensive insight into the underlying factors that influence these statistics. It underscores the importance of our collective efforts in damage prevention and the need for continuous improvement in our practices.

Figure 18: Damages/1000 Requests

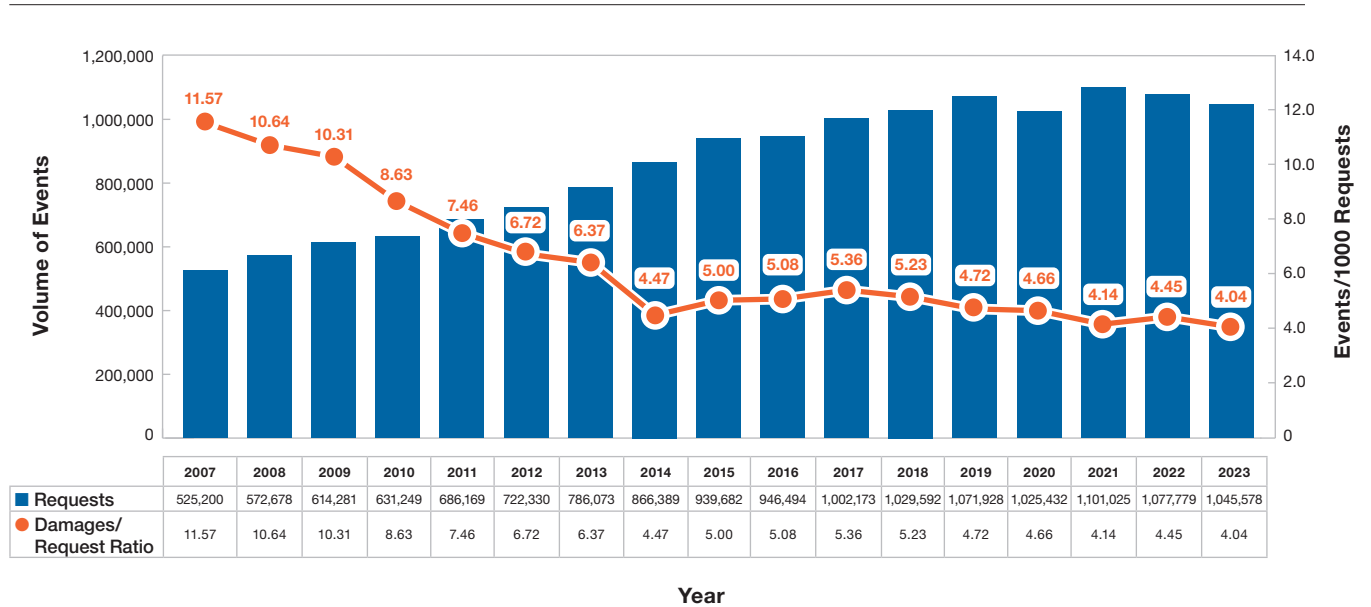


Figure 19 provides a comprehensive visualization of the damage ratio in relation to the volume of events spanning the past 17 years. This long-term perspective offers valuable insights into trends and patterns that have emerged over time, providing a robust basis for understanding the dynamics at play.

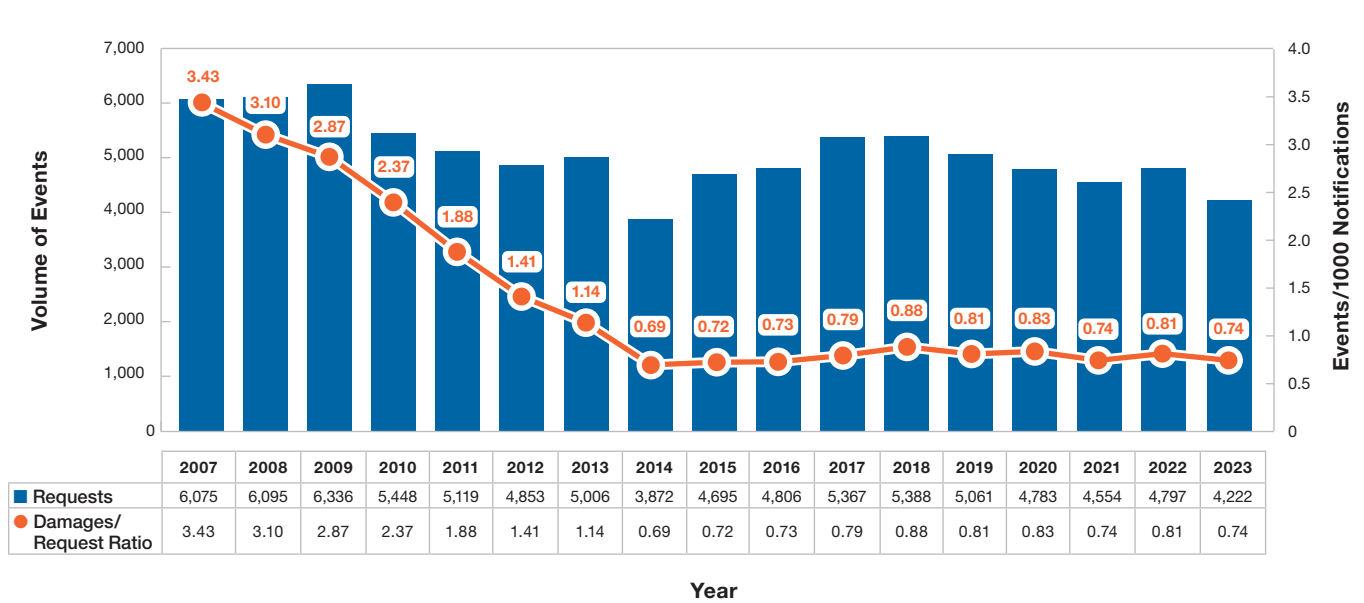
The industry standard for assessing damage prevention performance is to evaluate the volume of events per thousand notifications. This metric offers a normalized measure that allows for meaningful comparisons and benchmarking, irrespective of the scale of operations.

In 2023, the Damage Ratio experienced a marginal decrease of 0.07. This shift, albeit slight, is significant as it indicates a change in the underlying factors that contribute to the Damage Ratio. The overall decrease can be attributed to a dual effect: a decrease in the number of damages and a decrease in the volume of notifications. This underscores the importance of continuous monitoring and proactive management of damages and notifications in the industry.

For outbound notifications from Ontario One Call, a higher number of notifications indicates a greater number of utilities at risk for a given locate request. Conversely, for inbound locate requests to Ontario One Call, the higher number of requests indicates both a heightened awareness to “Call Before You Dig”, as well as an increased level of construction activity. These factors further emphasize the need for vigilance in managing notifications and damages in the industry.

In summary, Figure 19 serves as a powerful tool for understanding the damage ratio in the context of event volume over a substantial period. The slight decrease in the Damage Ratio in 2023 further emphasizes the effectiveness of these management strategies.

Figure 19: Damage Ratio-Damages/1000 Notifications



Based on many industry articles, presentations, and discussions, it has been identified that late utility locates are problematic in Ontario and beginning in 2020, the DIRT Report was updated to include late utility locates data. The question is: “Was the locate completed within the required timeframe?”, and the response consists of selecting “Yes”, “No”, or “Unknown” as an answer.

Please note that our data collection commenced in November 2020, and as such, the graph does not reflect a full year’s data for 2020. The response rate to this question has yet to reach an acceptable level, underscoring the need for our committee to intensify outreach efforts and further educate data submitters on this matter.

This issue is a collective concern for all stakeholders, with utilities playing a pivotal role in data provision. It’s crucial to remember that without robust data, we cannot devise effective solutions. Therefore, we urge all parties to contribute to this vital endeavor, ensuring our strategies are informed by accurate and comprehensive data.

Figure 20: Was the locate completed within the required timeframe?

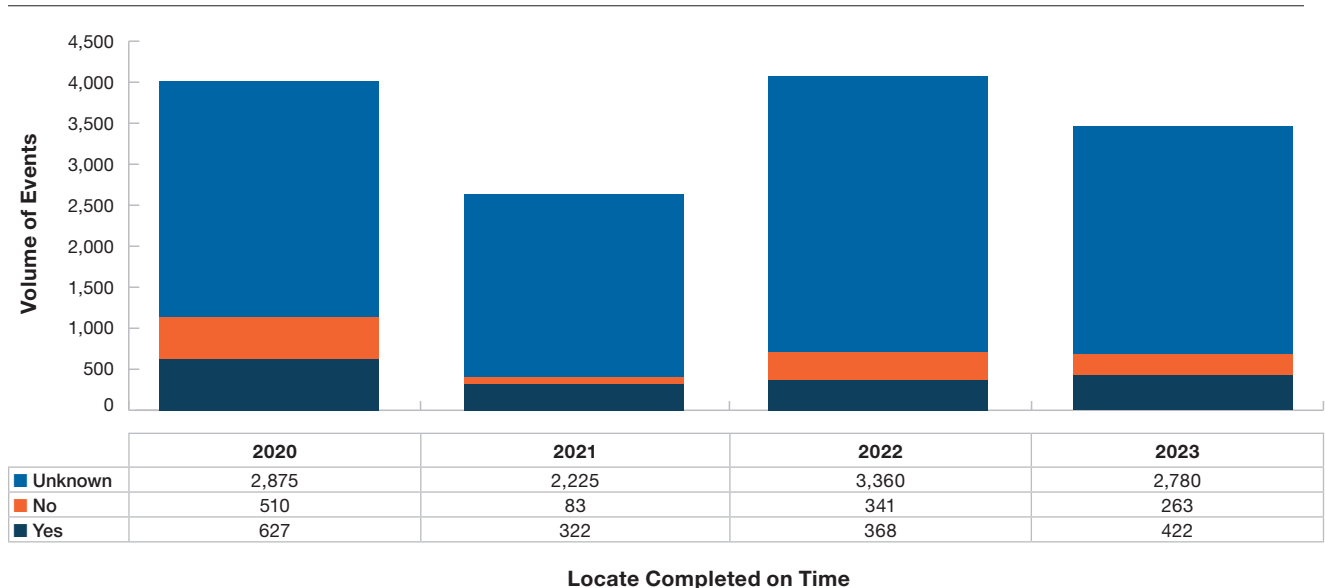


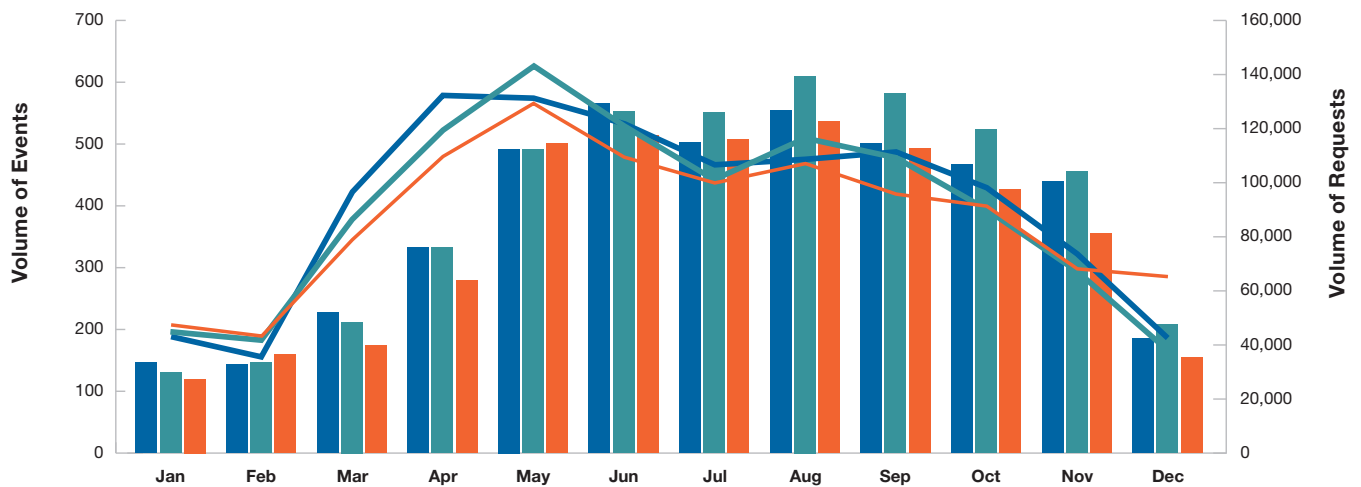
Figure 21 provides a detailed analysis of the distribution of locate requests and damage incidents over the course of the year 2023. This analysis offers valuable insights into the timing and correlation of these two key operational aspects.

The data reveals that the highest volume of locate requests was recorded in May. The peak in May suggests a surge in planned activities during this period.

However, the peak of damage incidents did not coincide with the peak of locate requests. Instead, the highest number of damage incidents was observed in August. This shift between the peaks of locate requests and damage incidents could be attributed to various factors, including the time required for planning and executing operations after locate requests, and potential delays in reporting and recording damage incidents.

In summary, this graph offers a nuanced understanding of the dynamics between locate requests and damage incidents over time. The distinct peaks in May and August highlight the importance of continuous monitoring and proactive management to mitigate damages and enhance operational efficiency.

**Figure 21: Events versus Requests by Month**



■ 2021 Events	146	143	227	332	492	565	503	554	501	467	439	185
■ 2022 Events	131	146	212	333	491	553	551	610	582	524	456	208
■ 2023 Events	120	160	174	279	501	514	508	537	493	426	355	155
— 2021 Requests	43,186	35,497	96,619	132,219	131,741	121,474	106,384	108,645	111,143	98,261	73,621	42,235
— 2022 Requests	44,772	41,706	86,199	119,258	143,027	120,864	101,199	116,365	109,252	90,141	66,862	38,134
— 2023 Requests	47,465	43,336	78,952	109,729	129,356	109,493	99,957	107,111	95,287	91,389	68,191	65,312

Month



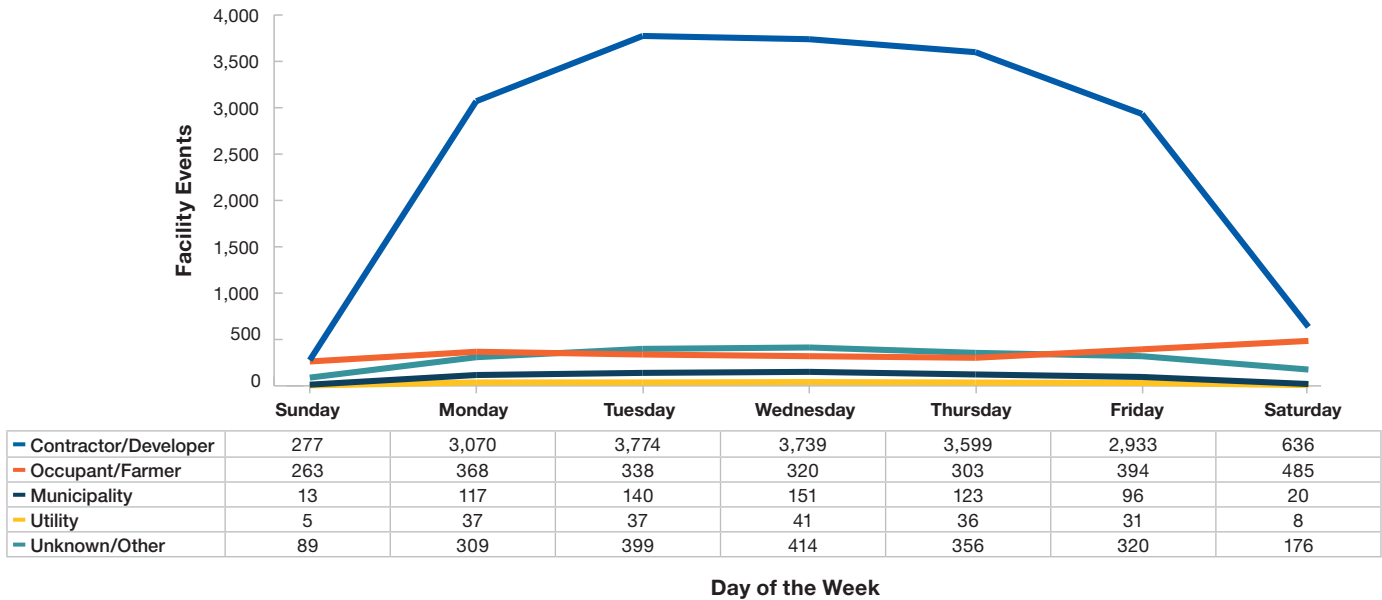
To learn more or contact the ORCGA  
[www.orcga.com](http://www.orcga.com) | [info@orcga.com](mailto:info@orcga.com)



### 3.0 | Multi-Field Analysis

In our comprehensive analysis of facility events, we've observed a distinct pattern related to the days of the week. Interestingly, Tuesday emerges as the day with the highest frequency of facility events. This trend holds true across various contractor types, suggesting a broader industry phenomenon rather than isolated incidents.

**Figure 22: Facility Events by Day of Week for Excavator Type**



### 4.0 | Regional Partner Data

In 2022, the number of damages reported via DIRT for Canada totalled 10,636, which represents a 7% decrease compared to the 11,402 damages reported in 2021. Table 6 shows a summary of key performance indicators related to damages by Province/Region. Canada-wide, there was an average of 42.4 damages per workday (assuming 251 workdays per year).

**Table 6 – Summary by Province/Region, 2022**

PROVINCE/ REGION	% of Population	Damages	% of Damages	Damages per Work Day	Locate Requests	Damages per 1,000 Requests*	Locate Notifications	Damages per 1,000 Notifications**
British Columbia	14%	1,099	10%	4.4	234,372	4.69	664,384	1.60
Alberta	12%	3,021	28%	12.0	459,610	6.57	1,551,932	1.89
Saskatchewan	3%	599	6%	2.4	148,680	4.03	413,202	1.28
Manitoba	4%	265	2%	1.1	76,026	3.49	192,062	1.28
Ontario	39%	4,797	45%	19.2	1,149,797	4.17	6,699,251	0.71
Quebec	22%	840	8%	3.3	313,761	2.68	554,051	1.37
Atlantic	6%	15	< 1%	< 1	62,605	0.24	72,635	0.21
<b>Total</b>	<b>100%</b>	<b>10,636</b>	<b>100%</b>	<b>42.4</b>	<b>2,444,851</b>	<b>4.35</b>	<b>10,147,517</b>	<b>1.03</b>

\* Locate request is defined as 'communication between an excavator and a staff member of a One-Call Centre in which a request for locating underground facilities is processed.

\*\* Notifications: Ticket data transmitted to underground infrastructure owners.

Ontario is the only province with legislation mandating registration with a One-Call Centre.

# EXCAVATOR OF THE YEAR *Awards* 20 23

ORCGA recognizes excavators with the Best In-Class safe digging practices.

## Congratulations to our 2023 Excavator of the Year Recipients.

Each year, the Ontario Regional Common Ground Alliance (ORCGA) proudly recognizes excavators with the Best In-Class safe digging practices and congratulates the winners by presenting them with the Excavator of the Year award.

The Excavator of the Year winners are determined by reviewing each excavator’s individual damage rate for the previous year. A damage rate is a calculation based on the excavator’s volume of locate requests, measured against their number of digging related damages to underground infrastructure. Input from infrastructure owners is also used in determining the winners. To qualify, excavators must have submitted a minimum of 500 locate requests to Ontario One Call within the calendar year.

Excavators are divided into nine categories: Electric, Gas, Homebuilder, Landscape, Roadbuilder, Sewer/Water, Telecommunications, Most Improved, and new for this year, Hydrovac Excavation.

The Reporting and Evaluation Committee felt that Hydrovac Excavation warranted its own separate category, as using this method sets the bar high for safe practices within the industry and reduces the risk of damage to underground utilities.

### ELECTRIC



### GAS



### HOME BUILDER



### HYDOVAC



### LANDSCAPE



### ROAD BUILDER



### SEWER/WATER



### TELECOMMUNICATIONS



### MOST IMPROVED



# 1 Shifting Calls to Clicks

By Mike Sullivan, President – Utility Safety Partners



The ability to communicate with one another has evolved considerably over the last two decades but the desire to get our point across whether we were sending smoke signals across mountain ranges or messages by carrier pigeon across greater distances, has always been there.

Change is constant. If you can accept, move, and adapt to change, you'll be fine. If not, you're likely to find yourself in a lonely world defending the past as progress and process pass by. For decades, damage prevention organizations have promoted *Call Before You Dig!* and the result was brick and mortar One-Call Centres staffed row upon row with Call Centre Agents amid a hum of activity. Monday mornings in a One-Call Centre during the digging season were mayhem with diligent diggers often waiting an hour or more to reach an Agent so they could place a locate request.

Fax machines appeared in the 1980s displacing some of the call-ins but they were clunky and never made a lasting dent in Call Centre operations.

Then, in the 1990s, the world wide web emerged significantly enhancing the speed of communication. I can vividly recall when I received my first email address and instantly able to communicate with contacts across the country. It was astonishing! When Portable Document Format (PDF) documents emerged, files that couldn't previously be transmitted were easily shared and printed. And it was around this time, the mid-to-late 1990s, when One-Call Centres began accepting web-based locate requests. Back then, however, locate request software couldn't do what it does today, and Call Centre Agents still had to "process" web tickets. The phones no longer rang as much but the Call Centre was still humming.

Soon, software would emerge that changed all of this.



As online, or "ClickBeforeYouDig", locate requests took over, software changed, too. Locate requests could now completely bypass Agents, reducing One-Call centre costs. One-Call Centre procedures enhanced, software streamlined, and training improved. Promoting the damage prevention process also changed. *Call Before You Dig* was no longer the preferred method of securing locates so Centres began to promote ClickBeforeYouDig and **ClickBeforeYouDig.com** but the promotions and branding were inconsistent so USP registered the ClickBeforeYouDig Trademark in Canada and the United States and offered it to everyone.

Within a few short years, the mayhem of the One-Call Centre had shifted to the harmony of the Notification Centre. Web-based locate requests quickly climbed to 75% across the country. The Notification Centres themselves also shifted from brick-and-mortar offices to virtual centres. Info-Excavation in Quebec and Ontario One-Call have business offices, but they too offer virtual workspace to their staff.

The benefits of shifting from Calls to Clicks were clear from an operational perspective but maybe there was more to it than just that. What if online locate requests were better overall? What if ClickBeforeYouDig wasn't only streamlining longstanding processes but also reducing damages?

I needed to know.

I reached out to Utility Safety Partners' Notification Centre Manager, Josef Rosenberg, who at the time was also the Chair of the Canadian Common Ground Alliance's (CCGA) Data Reporting and Evaluation Committee. I told Joe I had a hunch web-based locate requests were reducing damages and suggested that if we could determine how a locate request was submitted, we could feasibly determine when damage was more likely to occur – by Call or by Click? After a brief discussion, we decided on a rather simple process to find out.

**Review all damage data submitted into DIRT for Alberta within a specific timeframe and:**

- a) determine if a locate request was submitted? If yes,**
- b) determine how that locate request was submitted – phone or web / Call or Click?**

With that data in-hand, we should know if there was a disparity between the two locate request options and if one method was more likely to result in damage. Despite the simplicity of the task, it was quite tedious, but the results were fascinating. Not only was there a disparity between the two locate request options, but the likelihood of damage was two times higher when a locate request was submitted by phone! But why?

The answer is straightforward. The reason there are less damages by web-based locate requests is because the person who is digging, or someone very close to the project, is physically drawing / identifying their dig site using the software rather than explaining its location to someone by phone. The locate submitter is typically familiar with the area of work and can use landmarks or structures to pinpoint their location. And if they're tech-savvy, they can identify their dig site using GPS information. ClickBeforeYouDig takes all guesswork out of the communication process.

We approached our Operations Oversight and Guidance Committee, the operational arm of our Board Member companies. After explaining what we had done and the results of our analysis, we suggested it was time for USP to mandate web-based locate requests for USP members and contractors. The percentage of web-based locate requests for these two stakeholder groups was already high but those members and contractors choosing not to switch from Calls to Clicks needed a little push. The Committee members agreed, and a Board Item was drafted for the USP Board of Directors to consider implementing the mandate. The Board agreed with the recommendation and on September 16, 2020, USP 'soft-launched' the mandate providing those members and contractors who continued to

submit locate requests by phone with awareness of the impending change. USP's Agents walked callers through the online process and training sessions were offered. On January 1<sup>st</sup>, 2021, the mandate was hard launched.

USP promoted the shift from Calls to Clicks on its social media channels, Twitter, LinkedIn, Facebook and Instagram, posted information in its eNews, **Click to Know What's Above and Below**, and on its website. Since January 2021, contractor and member online locate requests haven't dipped below 97% - and only because emergencies must be called in.

We also posted a challenge on USP's **LinkedIn** profile – explaining what we had done and challenging Notification Centres around the world to conduct the same analysis. While public feedback was minimal, it supported our findings. Interestingly, I also received emails and phone calls from industry colleagues in the United States stating they had conducted the suggested analysis and discovered the same results – damages were higher when a locate request was submitted by phone. However, they also provided they were reluctant to promote ClickBeforeYouDig and the related URL because of the Call811 brand and the Common Ground Alliance's 3 digit dialing advocacy (the CGA still doesn't promote online locate requests). Ontario One Call, however, did provide the result of their analysis and it was even more compelling than USP's.

According to the 2022 CCGA DIRT Report, 89% of all locate requests in Canada originate on the web - that's over 2 million locate requests – and the percentage keeps growing! Despite this, the CCGA continues to promote "Call" Before You Dig in its Best Practices manual and buried utility markers across the country continue to promote the same. And so, in 2023, Utility Safety Partners submitted two Transaction Requests to the CCGA Best Practices Committee to a.) strip "Call Before You Dig" from damage prevention vernacular and replace it with ClickBeforeYouDig and related URL; and b.) adopt and promote the ClickBeforeYouDig QR Code for all buried utility markers. Scanning the QR Code links the user directly to ClickBeforeYouDig.com where they can select their province, official language of choice and initiate the damage prevention process.

ClickBeforeYouDig is simple, fast, and it reduces damage. 

# 2 Top 10 Canadian Construction Trends to Watch in 2024

*What are some of the continuing and emerging themes to watch for in the coming 12 months? Canadian Construction Association president Mary Van Buren shares some of the items on her radar.*

By Mary Van Buren, President – Canadian Construction Association



As we continue to navigate one of the more tumultuous economic periods in Canada's history, both within the construction sector and in general life, the end of the year is a good time to take stock and reflect on some of the trends, needs, and developments that are likely to influence the next year of our lives. Here are some of the trends that we have been watching at the Canadian Construction Association (CCA), which we think could have a significant impact on where 2024 takes the industry.

## 1. BREAKTHROUGH OF WOMEN.

The industry's focus to include more women and other underrepresented groups to join the construction workforce is paying off. With the industry committed to providing properly fitting PPE, training and education, making improvements to on-site sanitary conditions, creating inclusive workplace cultures, and the increased use of modular construction, barriers are reducing.

Female construction employment made important gains in September 2023 (+7,800 workers; +3.9%), according to Statistics Canada's Labour Force Survey, bringing the female construction workforce to an all-time-high of 206,000 workers. The trades are also getting a boost – 47 per cent of first-year apprentices applying to be part of the Canadian Apprenticeship Service program were from equity-deserving groups.

These are fantastic gains, and the industry is keen to keep up the momentum. With a need for tens of thousands of additional workers and promoting diversity and inclusion, more women, new Canadians, and other underrepresented groups will put construction on their career radar.

## 2. GOVERNMENTS RECOGNIZE NEED IS FOR HOUSING, PLUS...

Building an incremental 3.5 million units of affordable housing is a challenge unto itself! Now add in the investment and workforce required to connect that

housing to clean water and sewage, the electrical grid, upgrade transportation, expand clinics, hospitals, and schools...and other essential infrastructure to support communities.

A successful housing strategy will include funding that goes beyond the number of units needed to accommodate our growing population and the workforce we need. It will also support and align with our municipalities who carry the brunt of investment and maintenance. The positive economic impact of construction is clear, and governments recognize the industry is foundational to building a stronger Canada.

## 3. SECURE DIGITAL CONTRACTING LEAPS FORWARD.

Canadian Construction Documents Committee (CCDC) and Canadian Construction Association (CCA) guides and documents are consensus documents valued by the industry because they are developed by the industry, for the industry. With CCA's new digital contract purchasing and management platform launching in 2024, they will be even easier to use, leading to wider adoption.

## 4. GENERATIVE AI IS FOR CONSTRUCTION TOO!

Not just a cool tool for other industries; leading firms will move beyond experimentation to including generative AI tools like ChatGPT and GPT-4 in their processes. Complementing a stretched project management and administrative workforce, some immediate applications include drafting RFIs, sifting through reports for common themes, or drafting reports. While ChatGPT and other generative AI tools may help with real-time analysis of construction data and simplified communication, there are limitations and risks to its use. Companies will create policies and processes to mitigate these risks while harnessing the benefits.



## 5. WINDS OF POLITICAL CHANGE: WILL THEY WORK FOR OR AGAINST CONSTRUCTION?

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A federal long-term infrastructure strategy that addresses Canada's aging infrastructure, invests in the economic growth potential of trade-enabling infrastructure, and plans for housing-enabling infrastructure that aligns with provincial, municipal and Indigenous communities is long overdue.

With a possible change in the federal government on the horizon, the industry will seize the opportunity and responsibility to bring more attention to this urgent issue; focusing on the benefits of job creation, a green economy, and affordable housing – themes important to Canadians.

## 6. COLLABORATIVE CONTRACTING TAKES ROOT.

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With the workforce shortage, high financing costs and large number of projects to advance Canada's economy in the pipeline, owners, contractors and labour will have an incentive to work collaboratively. This will ensure we keep our labour force employed, reduce risks, drive innovation and deliver the essential projects Canada needs to remain a competitive country, and great place to live and work.

## 7. BUILDING GREEN ENTERS INTO THE EARLY STAGES OF “BUSINESS AS USUAL.”

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No longer an idea on the horizon, contractors have been gaining experience and expertise over the last few years to build more sustainably. No longer is it unusual or notable when a project incorporates an environmental aspect into the plans. Green is an expectation; notable are the projects, companies and industry sectors that are continually setting the bar ever higher (or lower, if you are assessing based on carbon, greenhouse gases, and energy use).

Manufacturers like the cement producers have committed to ambitious carbon reduction targets, and others are also reducing their emissions. The role of governments in providing incentives, tools to make it easier for the industry to comply like Environmental Product Declarations (EPDs), and updating the building code will help move the needle.

## 8. WE GET SERIOUS ABOUT ELECTRIFICATION.

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With the federal government's planned release of the Canada Build Green Strategy in early 2024, it will need to get serious about a national electrification strategy, working closely with all orders of government and Indigenous communities. Not only is the level of investment staggering, but we will also need a trained and available workforce.

## 9. IMMIGRATION STARTS FLOWING, BUT PAYOFF IS STILL A FEW YEARS OFF.

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The federal government has taken some positive steps, but overall has not acted quickly enough to secure the necessary construction and related workforce. Immigration is still weighted to higher education.

Accelerating approvals for applicants with skills in high-demand construction jobs, including labourers for our civil sector and skilled tradespeople, is necessary for Canada's future growth. Working closely with provincial and territorial governments will also help align workers to varying needs across the country and fill gaps.

## 10. FOCUS ON APPRENTICESHIP SHIFTS TO RETENTION AND PROGRESSION THROUGH TO JOURNEYPERSONS.

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The collaboration between industry, government and labour is resulting in increased applications for the Red Seal trades. This is great news. While we need to maintain this flow of talent into apprenticeships, we must pay equal attention to incenting apprentices to not only stay in the industry, but also to progress to journeypersons.

Retirements will impact our industry's ability to mentor and supervise apprentices if we don't have enough journeypersons to work effectively on projects while training apprentices. Finding good people, keeping good people, and providing these professionals with a pathway to growth is good business and great for the industry's future. 

Originally published in [On-Site Magazine](#), December 2023

# 3 Dedicated Locator – Does it Only Improve Locate Delivery Timelines?

*In the underground infrastructure industry, efficiency and safety are paramount.*

By Adam Mordaunt, Director of Member Services



## Understanding Dedicated Locator

In April 2022, Dedicated Locator was introduced to the Ontario Underground Infrastructure Notification Systems Act, 2012 (OUINSA) to give the excavating community an option to control the locate delivery for their projects. But does Dedicated Locator solely enhance the speed of locate delivery, or does it offer broader benefits?

Since its introduction, thousands of projects have used the service to gain greater control over locate delivery, reducing crew and equipment downtime, and ultimately saving money.

## How does a Dedicated Locator work?

A Dedicated Locator is a single resource who will locate all underground infrastructure<sup>1</sup> in the project area. The Dedicated Locator works directly for the Project Owner and, therefore, works on their timelines to complete the locates.

Dedicated Locator gives control of the locate delivery to the Project Owners and removes time consuming and complex locates from the public stream. This allows for more efficient use of locators for all other locate requests, helping the industry achieve compliance with the legislation.

## How has Dedicated Locator had an impact on the safety of the project worksites?

Dedicated Locator ensures a more focused and efficient delivery of locates for high priority projects that are vital to Ontario communities. But the impact of Dedicated Locator extends beyond expediting locate delivery.


In the face of mounting pressures on locators stemming from larger construction projects and complex locate requirements, having a Dedicated Locator to focus on a single project and be onsite for any issues or questions that the construction crew may have resulted in high-risk Underground Infrastructure Owners saying dig site safety and protection of underground infrastructure has improved.

## Unlock Industry-Wide Benefits

In 2023, we saw a significant increase in large scale projects with complex locating requirements using Dedicated Locator. While Project Owners reap the benefits of streamlined locate delivery timelines, the broader industry also experiences positive outcomes through the reduction of complex locates in the public stream, which in turn can allow them to focus on the delivery of a complete and safe locate.

Furthermore, 2023 marked a notable increase in compliance rates among Underground Infrastructure Owners. While various factors contribute to this improvement, it is strongly believed that Dedicated Locator emerges as a significant driver in enhancing locate delivery compliance.

## Looking Ahead

While Dedicated Locator has made significant strides, achieving optimal balance and consensus among stakeholders remains an ongoing journey. This is a very important journey for an industry committed to advancing damage prevention and safety while ensuring projects are completed on time and on budget. If we continue the progress that we have made over the past two (2) years Dedicated Locator promises a positive future for the construction sector. 

***“The implementation and utilization of the Dedicated Locator program is positive for the locate industry and has improved overall industry locate delivery timelines”***

Tim Dykas, Enbridge Gas Inc.

## Appendix A:

### Report Findings: Data Quality Index

Table 7 indicates the Data Quality Index (DQI) for each individual part of the DIRT Field Form. The DQI is a measure of data quality and consists of the evaluation of each organization that submitted records, in addition to the evaluation of each record submitted to DIRT. The overall average DQI is 74.2%.

The weight assigned to the various DIRT parts varies based upon its value in analyzing the data for damage prevention purposes, with Root Cause receiving the largest weight. The overall DQI for a set of records can be obtained by averaging the individual DQI of each record. The “2023 DQI” column in the table below represents the average of all 4222 submitted damages in the 2023 dataset.

**Table 7: DIRT Submission Parts and DQI**

DIRT Parts	Relative Weight	2021 DQI	2022 DQI	2023 DQI
A: Who is submitting this information?	5%	100.0	100.0	100.0
B: Date and Location of the event	12%	78.4	78.6	78.0
C: Affected Facility Information	12%	78.4	78.8	78.4
D: Excavation Information	14%	85.1	88.2	87.4
E&F: Notification, Locating, Marking	12%	100.0	100.0	100.0
G: Excavator Downtime	6%	14.0	13.2	15.6
H: Description of Damage	14%	36.5	33.6	32.2
I: Description of the Root Cause	25%	74.8	78.1	74.8
<b>Total Weighted DQI</b>	<b>100%</b>	<b>74.2</b>	<b>75.7</b>	<b>74.2</b>

In the context of damage reports, there are numerous sections that require careful attention. However, it is noteworthy that Parts G and H, which pertain to Excavator Downtime and Description of Damage respectively, are frequently omitted. This omission is not due to oversight, but rather because most organizations that contribute data to the Damage Information Reporting Tool (DIRT) do not routinely monitor or record this specific information. As a result, these sections often remain blank, leading to a potential gap in the comprehensiveness of the report.

## Appendix B: Damage Information Reporting Tool (DIRT) - Field Form

FRESH DIRT (beginning 2018)

Rev: 11/7/2017  
 \*\* indicates a Required Field

### Damage Information Reporting Tool (DIRT) - Field Form

#### Part A – Original Source of Event Information

<b>Who is providing the information?</b>			<input type="checkbox"/> Electric	<input type="checkbox"/> Engineer/Design	<input type="checkbox"/> Equipment Manufacturer
<input type="checkbox"/> Excavator	<input type="checkbox"/> Liquid Pipeline	<input type="checkbox"/> Locator	<input type="checkbox"/> Natural Gas	<input type="checkbox"/> Private Water	
<input type="checkbox"/> Public Works	<input type="checkbox"/> Railroad	<input type="checkbox"/> Road Builders		<input type="checkbox"/> Federal / State Regulator	
<input type="checkbox"/> Telecommunications	<input type="checkbox"/> Unknown/Other				

Name of person providing the information:

#### Part B – Type, Date, and Location of Event

<b>Type of Event:</b>	<input type="checkbox"/> DIRT Event	<input type="checkbox"/> Underground Damage	<input type="checkbox"/> Underground Near Miss
	<input type="checkbox"/> Non-DIRT Event	<input type="checkbox"/> Above Grade	<input type="checkbox"/> Aerial <input type="checkbox"/> Natural Cause <input type="checkbox"/> Submarine

\*Date of Event: (MM/DD/YYYY)

\*Country                      \*State                      \*County                      City

Street address:                      Nearest Intersection:

Latitude/Longitude: Lat:                      Lon                       Decimal Degrees     D M S

\*Right-of-Way where event occurred

Public:	<input type="checkbox"/> City Street	<input type="checkbox"/> State Highway	<input type="checkbox"/> County Road	<input type="checkbox"/> Interstate Highway	<input type="checkbox"/> Public-Other
Private:	<input type="checkbox"/> Private Business	<input type="checkbox"/> Private Land Owner		<input type="checkbox"/> Private Easement	
	<input type="checkbox"/> Pipeline	<input type="checkbox"/> Power /Transmission Line		<input type="checkbox"/> Dedicated Public Utility Easement	
	<input type="checkbox"/> Federal Land	<input type="checkbox"/> Railroad		<input type="checkbox"/> Unknown/Other	

#### Part C – Affected Facility Information

\*What type of facility operation was affected?

<input type="checkbox"/> Natural Gas	<input type="checkbox"/> Sewer	<input type="checkbox"/> Steam	<input type="checkbox"/> Cable Television	<input type="checkbox"/> Electric	<input type="checkbox"/> Liquid Pipeline	<input type="checkbox"/> Telecommunications	<input type="checkbox"/> Water	<input type="checkbox"/> Unknown/Other
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\*What type of facility was affected?

<input type="checkbox"/> Distribution	<input type="checkbox"/> Gathering	<input type="checkbox"/> Service/Drop	<input type="checkbox"/> Transmission	<input type="checkbox"/> Unknown/Other
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Was the facility part of a joint trench?  Yes  No  Unknown

Did this event involve a Cross Bore?  Yes  No

Was facility owner One Call Center member?  Yes  No  Unknown

If No, is facility owner exempt from One Call Center membership?  Yes  No  Unknown

Measured Depth     Embedded in concrete/asphalt pavement     <18" / 46 cm    Measured depth

From Grade     18" – 36" / 46 - 91 cm     >36" / 91 cm    from grade \_\_\_\_\_ in/cm

#### Part D – Excavation Information

\*Type of Excavator

<input type="checkbox"/> Contractor	<input type="checkbox"/> County	<input type="checkbox"/> Developer	<input type="checkbox"/> Farmer	<input type="checkbox"/> Municipality
<input type="checkbox"/> Occupant	<input type="checkbox"/> Railroad	<input type="checkbox"/> State	<input type="checkbox"/> Utility	<input type="checkbox"/> Unknown/Other

\*Type of Excavation Equipment

<input type="checkbox"/> Drilling	<input type="checkbox"/> Directional Drilling	<input type="checkbox"/> Explosives	<input type="checkbox"/> Farm Equipment	<input type="checkbox"/> Grader/Scraper	<input type="checkbox"/> Hand Tools
<input type="checkbox"/> Milling Equipment	<input type="checkbox"/> Probing Device	<input type="checkbox"/> Trencher	<input type="checkbox"/> Vacuum Equipment	<input type="checkbox"/> Unknown/Other	

\*Type of Work Performed

<input type="checkbox"/> Agriculture	<input type="checkbox"/> Bldg. Construction	<input type="checkbox"/> Bldg. Demolition	<input type="checkbox"/> Cable Television		
<input type="checkbox"/> Curb/Sidewalk	<input type="checkbox"/> Drainage	<input type="checkbox"/> Driveway	<input type="checkbox"/> Electric	<input type="checkbox"/> Engineering/Survey	
<input type="checkbox"/> Fencing	<input type="checkbox"/> Grading	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Landscaping	<input type="checkbox"/> Liquid Pipeline	<input type="checkbox"/> Milling
<input type="checkbox"/> Natural Gas	<input type="checkbox"/> Pole	<input type="checkbox"/> Public Transit Auth.	<input type="checkbox"/> Railroad	<input type="checkbox"/> Road Work	<input type="checkbox"/> Sewer
<input type="checkbox"/> Site Development	<input type="checkbox"/> Steam	<input type="checkbox"/> Storm Drain/Culvert	<input type="checkbox"/> Street Light	<input type="checkbox"/> Telecommunication	
<input type="checkbox"/> Traffic Signal	<input type="checkbox"/> Traffic Sign	<input type="checkbox"/> Water	<input type="checkbox"/> Waterway Improvement	<input type="checkbox"/> Unknown/Other	

#### Part E – Notification and Locating

\*Was the One-Call Center notified?  Yes  No    Ticket Number

If Yes, type of locator  Facility Owner     Contract Locator     Unknown/Other

If No, is excavation activity and/or excavator type exempt from notification?  Yes  No     Unknown

Was work area white-lined?  Yes  No     Unknown

#### Part F – Intentionally left blank



## Appendix B: Damage Information Reporting Tool (DIRT) - Field Form

FRESH DIRT (beginning 2018)

Rev: 11/7/2017

\*\*\* indicates a Required Field

### Part G – Excavator Downtime

Did Excavator incur down time?	<input type="checkbox"/> Yes	<input type="checkbox"/> No						
If yes, how much time?	<input type="checkbox"/> < 1 hr	<input type="checkbox"/> 1 -<2 hrs	<input type="checkbox"/> 2-<3 hrs	<input type="checkbox"/> 3+ hrs	Exact Value _____	<input type="checkbox"/> Unknown		
Estimated cost of down time?	<input type="checkbox"/> \$0	<input type="checkbox"/> \$1 -1000	<input type="checkbox"/> \$1,001 - 5,000	<input type="checkbox"/> \$5,001 - 25,000	<input type="checkbox"/> \$25,001 - 50,000	<input type="checkbox"/> >\$50,000	Exact Value _____	<input type="checkbox"/> Unknown

### Part H – Interruption and Restoration

*Did the damage cause an interruption in service?							<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown					
If yes, duration of interruption							<input type="checkbox"/> < 1 hr	<input type="checkbox"/> 1 - <6 hrs	<input type="checkbox"/> 6 - <12 hrs	<input type="checkbox"/> 12 - <24 hrs	<input type="checkbox"/> 24 - <48 hrs	<input type="checkbox"/> 48+ hrs	Exact Value _____ hrs	<input type="checkbox"/> Unknown
Approximately how many customers were affected?							<input type="checkbox"/> Unknown	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2 - 10	<input type="checkbox"/> 11 - 50	<input type="checkbox"/> 51+	Exact Value _____	
Estimated cost of damage / repair/restoration:							<input type="checkbox"/> \$0	<input type="checkbox"/> \$1 - 1,000	<input type="checkbox"/> \$1,001- 5,000	<input type="checkbox"/> \$5,001 - 25,000	<input type="checkbox"/> \$25,001 - 50,000	<input type="checkbox"/> > \$50,000	Exact Value _____	<input type="checkbox"/> Unknown

### \*Part I – Root Cause Select only one

<p><b>Notification Issue</b></p> <input type="checkbox"/> No notification made to One Call Center/ 811 <input type="checkbox"/> Excavator dug outside area described on ticket <input type="checkbox"/> Excavator dug prior to valid start date/time <input type="checkbox"/> Excavator dug after valid ticket expired <input type="checkbox"/> Excavator provided incorrect notification information		<p><b>Locating Issue</b></p> <p><i>Facility not marked due to:</i></p> <input type="checkbox"/> Abandoned facility <input type="checkbox"/> Incorrect facility records/maps <input type="checkbox"/> Locator error <input type="checkbox"/> No response from operator/contract locator <input type="checkbox"/> Tracer wire issue <input type="checkbox"/> Unlocatable Facility <p><i>Facility marked inaccurately due to</i></p> <input type="checkbox"/> Abandoned facility <input type="checkbox"/> Incorrect facility records/maps <input type="checkbox"/> Locator error <input type="checkbox"/> Tracer wire issue	
<p><b>Excavation Issue</b></p> <input type="checkbox"/> Excavator dug prior to verifying marks by test-hole (pothole) <input type="checkbox"/> Excavator failed to maintain clearance after verifying marks <input type="checkbox"/> Excavator failed to protect/shore support facilities <input type="checkbox"/> Improper backfilling practices <input type="checkbox"/> Marks faded or not maintained <input type="checkbox"/> Improper excavation practice not listed above		<p><b>Miscellaneous Root Causes</b></p> <input type="checkbox"/> Deteriorated facility <input type="checkbox"/> Root Cause not listed (comment required)	
		<input type="checkbox"/> One Call Center Error <input type="checkbox"/> Previous damage	

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<p><b>Part J – Additional Comments</b></p>    
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<p><b>Part Z – Images and Attachments: List the file names of any images and attachments to submit with this report</b></p>    
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## Appendix C: Glossary of Terms & Definitions

**Abandoned:** With reference to underground infrastructure, taken out of service permanently but left in place.

**Alternate Locate Agreement (ALA):** A contractual agreement between a facility owner and an excavator that allows the excavator to proceed with their excavation work without receiving a traditional field locate.

**Backfill:** The act of filling the void created by excavating or the material used to fill the void.

**CCGA:** The Canadian Common Ground Alliance's (CCGA) primary role is to manage damage prevention issues of national interest that Regional Partners consider best addressed through a single voice.

**CGA:** The Common Ground Alliance (CGA) is a member-driven association dedicated to ensuring public safety, environmental protection, and the integrity of services by promoting effective damage prevention practices.

**Compliance:** Adherence to acts and regulations.

**Damage:** Any impact, stress and/or exposure that results in the need to repair an underground facility due to a weakening or the partial or complete destruction of the facility, including, but not limited to, the protective coating, lateral support, cathodic protection or the housing for the line, device or facility.

**Damage Reporting:** The immediate reporting to appropriate authorities and the owner of any damage made or discovered in the course of excavation or demolition work.

**Daylighting:** The exposure of underground utility infrastructure by minimally intrusive excavation practices to ascertain precise horizontal and vertical position or other attributes. (Note: may also be referred to as potholing" or "test pitting".)

**Demolition Work:** The intentional, partial or complete destruction by any means of a structure served by, or adjacent, to an underground line or facility.

**Depth:** The vertical distance below grade.

**DIRT:** Damage Information Reporting Tool.

**Downtime:** Lost time reported by a stakeholder on the Damage Information Reporting Tool (DIRT) field form for an excavation project due to failure of one or more stakeholders to comply with applicable damage prevention regulations.

**DQI:** The Data Quality Index (DQI) is a measure of data quality and consists of the evaluation of each organization that submitted records, in addition to the evaluation of each record submitted to DIRT.

**Event:** The occurrence of an underground infrastructure damage, near miss, or downtime.

**Excavate or Excavation:** An operation using equipment or explosives to move earth, rock or other material below existing grade. (Note: Excavation can include augering, blasting, boring, coring, digging, ditching, dredging, drilling, driving-in, grading, plowing-in, pulling-in, ripping, scraping, trenching and vacuuming).

**Excavator:** Any person proposing to or engaging in excavation or demolition work for themselves or for another person.

**Facility:** See Utility Infrastructure.

**Facility Owner/Operator:** Any person, utility, municipality, authority, political subdivision, or other person or entity who owns, operates, or controls the operation of an underground line/facility.

**Grade (noun):** The surface elevation.

**Grade (verb):** The act of changing the surface elevation.

**Hand Digging:** Any movement of earth using a hand shovel\*. The preference is to use an insulated or wooden-handled shovel.

**Joint Trench:** A trench containing two or more underground infrastructures that are buried together by design or agreement.

## Appendix C: Glossary of Terms & Definitions

**Locate (noun):** The provision of location information by a facility owner (or their agent) in the form of ground surface markings and/or facility location documentation, such as drawings, mapping, numeric descriptions or other written documentation.

**Locate (verb):** The process of an underground plant owner or their agent providing information to an excavator which enables them to determine the location of a facility.

**Locate Request:** A communication between an excavator and the owner or their agent (usually the notification service) in which a request for locating underground facilities is processed.

**Locate Ticket:** A locate request document created by the notification service or an owner marked with a unique identification number.

**Locator:** A person whose job is to locate underground infrastructure.

**LSP:** Locate Service Provider - a person authorized by the owner to locate and mark its underground facilities.

**Marks or Markings:** Surface marking indicating the presence of underground infrastructure including but not limited to highly visible paint and/or labeled stakes or flags to indicate the approximate location of buried facilities within the Located area.

**Near Miss:** An event where damage did not occur, but a clear potential for damage was identified.

**Notifications:** Ticket data transmitted to underground infrastructure owners.

**One Call Centre:** A system which provides a single point of contact to notify facility owners/operators of proposed excavation activities.

**ORCGA:** The Ontario Regional Common Ground Alliance (ORCGA) is a Regional Partner of both the Common Ground Alliance (CGA) and the Canadian Common Ground Alliance (CCGA). It is a non-profit organization promoting efficient and effective damage prevention for Ontario's vital underground infrastructure.

**Person:** Any individual or legal entity, public or private.

**Public:** The general population or community at large.

**Root Cause:** The primary reason an event occurred.

**Test Hole(s):** Exposure of a facility by safe excavation practices used to ascertain the precise horizontal and vertical position of underground lines or facilities.

**Ticket:** All data required from an excavator to transmit a valid notification to the owner

**Ticket number:** A unique identification number assigned by the one call center to each locate request.

**Tolerance Zone:** The space in which a facility is located, and in which special care is to be taken.

**Underground:** Beneath the ground surface or submerged, including where exposed by temporary excavation.

**Utility:** A private, publicly, or cooperatively owned entity whose purpose is to deliver a commodity or service such as communications, television/internet, power, electricity, light, heat, gas, oil, water, steam, and waste collection.

**Utility Infrastructure:** A cable, line, pipe, conduit, or structure used to gather, store, or convey products or services. (Note: may also be referred to as "facility" or "plant".)

**Vacuum Excavation:** A means of soil extraction through vacuum where water or air jet devices are commonly used for breaking the ground.

*\* This does not include picks, bars, stakes, or other earth-piercing devices.*

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