

2015 DIRT Report

Version 9.0

Message from the President & CEO

Dear Damage Prevention Stakeholders,

The Ontario Regional Common Ground Alliance (ORCGA) has reported facility events submitted since 2007 to better understand the Root Causes that lead to events (damages) and to develop public awareness programs to minimize the probability / potential for future events. An ongoing challenge has been to gather data from a broader cross section of industry stakeholders within Ontario, as companies will see the value of participating in our DIRT program.

The importance of our DIRT Report to the damage prevention industry remains a key component in painting an accurate picture of where we are with respect to safety and damage prevention in Ontario. As more industry stakeholder companies submit data into DIRT, we will gain more insight into enhancing public awareness programs.

For 2015 DIRT (Version 9.0), a few inconsistencies in data were experienced due to changes in stakeholder submissions. Of note, there were an additional four new companies that began to input their damages in 2015: The City of Barrie, Entegrus, Hay Communications and Kingston Utilities. Overall in 2015, there was an increase in damages for a number of different causes, some of which are detailed in the report.

However, the good news is that the overall trend has seen damages decrease significantly from 6075 in 2007 to 4434 in 2015, a 37% improvement. The lives, service disruptions and cost savings that our collective Damage Prevention efforts have saved is huge and continues to be the right, responsible and safe thing to do. Again, it continues to be seen that events (damages) are on a downward trend and that Ontario continues to lead the other provinces in damage prevention safety statistics, such as damages per 1000 locates and per 1000 notifications. The measure of this trend is shown in Figure 17 and supports the ORCGA vision of leading Ontario to be the safest jurisdiction with the most reliable infrastructure in North America.

The ORCGA and a number of its member companies continue to do a good job promoting the Dig Safe program; however, this data indicates that there is still a great deal of work to be done. There should be no excuse for anyone digging without locates or using insufficient excavating practices; it's a choice people are making! This is a key priority for the ORCGA Education & Events Committee, our 13 geographical councils and all our stakeholders to share the responsibility of digging safely to enhance public safety and infrastructure reliability.

The ORCGA encourages more facility owners and stakeholders to become involved in the DIRT Program as "Damage Prevention is a Shared Responsibility". By providing data, the ORCGA will eventually be able to gain a complete understanding of the total number of annual events in Ontario. All stakeholders will benefit by accessing the DIRT Program reports showing stakeholders how they are progressing in damage prevention efforts.

For the 2015 DIRT Report, our Reporting & Evaluation Committee has included a number of impressive enhancements. These changes, and the entire report, are the result of the work performed by the volunteers, led by Co-Chair Richard Durrer of Ontario One Call. The committee, along with ORCGA staff, have worked together to produce another solid DIRT Report.

On behalf of the ORCGA Board of Directors, I would like extend a sincere thank you.

Sincerely,



Ian Munro
President & CEO, ORCGA

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1.0 INTRODUCTION

The Ontario Regional Common Ground Alliance (ORCGA) is a non-profit organization promoting effective and efficient damage prevention for Ontario's vital underground infrastructure. Through a unified approach and stakeholder consensus, the ORCGA fulfills its motto of 'Working Together for a Safer Ontario'.

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

Electrical Distribution	Land Surveying	Railways
Electrical Transmission	Landscape/Fencing	Regulator
Engineering	Locator	Road Builders
Equipment & Suppliers	Municipal & Public Works	Safety Organization
Excavator	Oil & Gas Distribution	Telecommunications
Homebuilder	One Call	Transmission Pipeline
Insurance		

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 in regards to underground infrastructure and ground disturbance practices.

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 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

To learn more about the ORCGA's Dig Safe Program, visit www.digsafe.ca.

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[@ORCGA](https://twitter.com/ORCGA)

1.1 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 events. An “event” is defined by the DIRT User’s Guide as “the occurrence of downtime, damages, and near misses.” Gathering information about these types of events give 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 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, also provides the ability to monitor trends over time. The 2015 report focuses on the data gathered throughout Ontario during the three-year period between 2013 and 2015. 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 wide.

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.

The information presented in this report is based on current information provided to the ORCGA for events that occurred in 2015.

When reviewing statistics published in this report, it is also important to note that due to retroactive submission by new DIRT users, the volume of facility events submitted by year will be changing with 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.

As a way 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; as records with missing data were removed from the analysis.

The DIRT system compares each field within each report submitted against the fields of all other reports in DIRT, to calculate the probability that it matches an already submitted event. Based on this, there is potential that the same event may have been submitted more than once (i.e. by both the excavator and the facility owner). Repeated reporting of the same event can offer the following benefits:

- Capture of data that may be included on one submission but was omitted on another;
- Insights regarding interpretation of Root Causes based on stakeholder group.

2.0 DATA ANALYSIS

2.1 FACILITY EVENT ANALYSIS

In 2015, stakeholder submissions to the DIRT Report increased, in part, due to the four new companies reporting their events. A few of our major stakeholders have indicated that they noticed an overall increase in events in 2015. Of note, a major telecommunications stakeholder that was reporting damages, has not reported for the last two years (2014-15). Also in 2014, there were 34 additional events reported after the printing of the report.

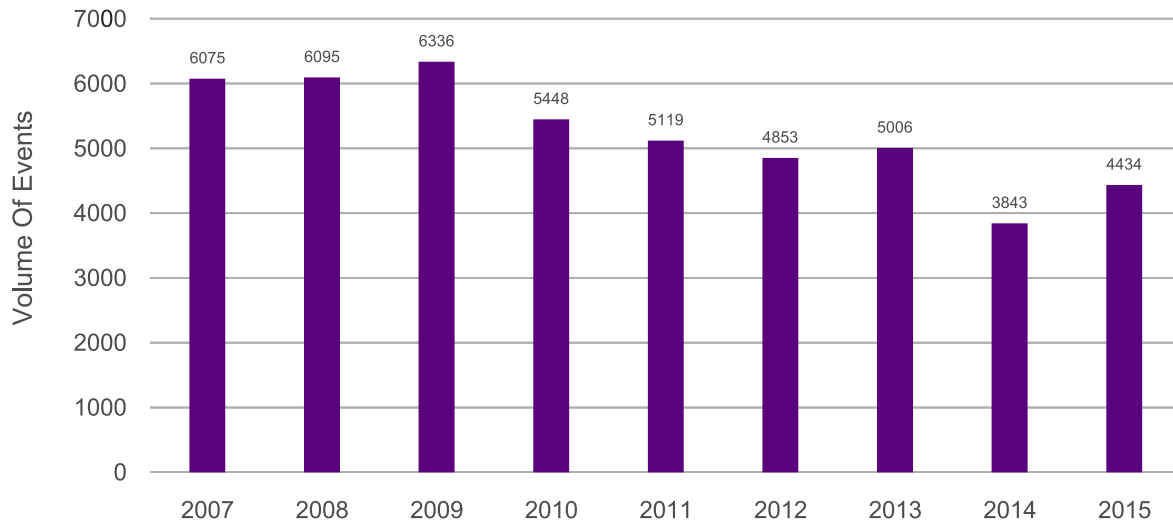


Figure 1: Facility Events Submitted by Year

2.2 FACILITY EVENTS SUBMITTED ACROSS ONTARIO

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

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

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

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

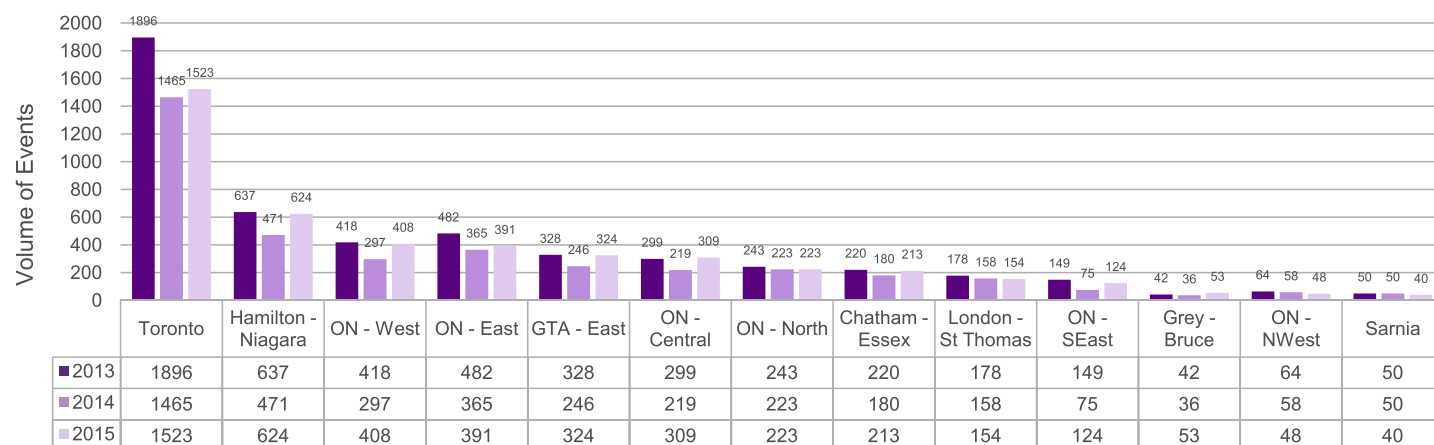


Figure 2: Volume of Events Submitted Per Geographic Area

Table 2 shows the geographic breakdown of the total notifications through Ontario One Call.

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

Table 2: Notifications Per Geographic Council

Figure 3 illustrates a distribution by geographic area comparing the number of events in 2015 where Ontario One Call was notified for a locate request versus not being notified for a request.

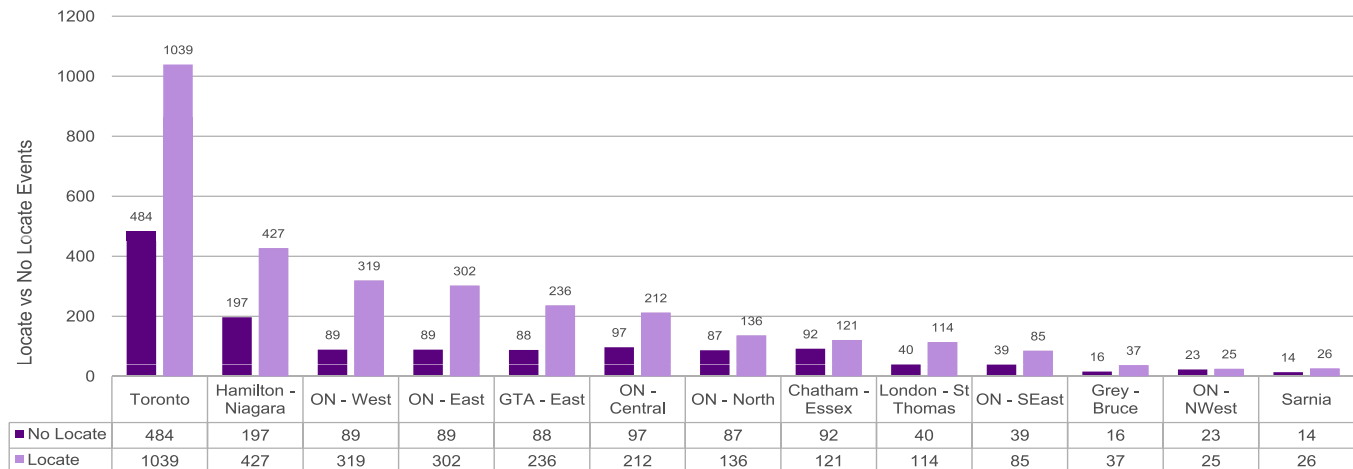


Figure 3: Locate Versus No Locate Events by Geographic Area

2.3 SUBMITTED FACILITY EVENTS BY STAKEHOLDER GROUP

Figure 4 illustrates a distribution of events by stakeholder group for the past three years. Based on the figure it can be seen that Natural Gas and Telecommunications continue to submit the highest volumes of events. Opportunity exists for additional stakeholders to submit events which would support future trend analysis.

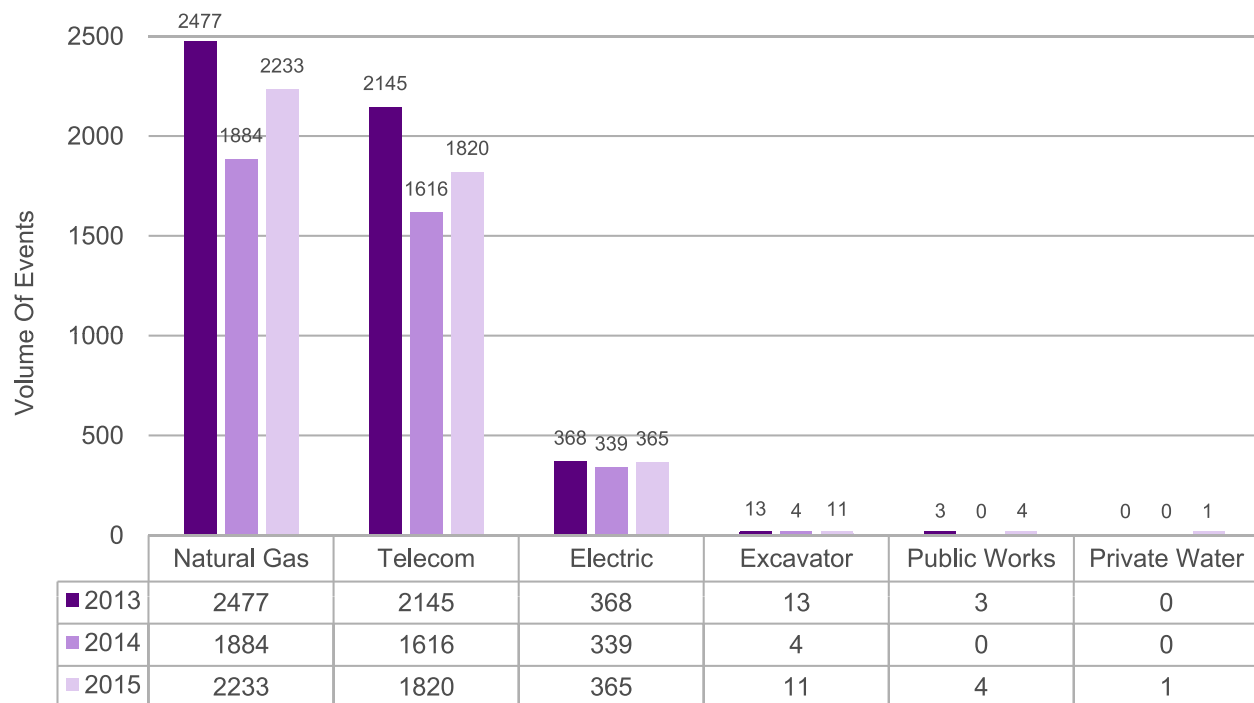


Figure 4: Facility Events Submitted by Stakeholder Group

2.4 SUBMITTED FACILITY EVENTS BY TYPE OF FACILITY OPERATION AFFECTED

Figure 5 illustrates that Natural Gas and Telecommunication can be seen as the primary facilities affected by events reported in DIRT. This aligns with the fact that Natural Gas and Telecommunication stakeholders continue to submit the majority of events.

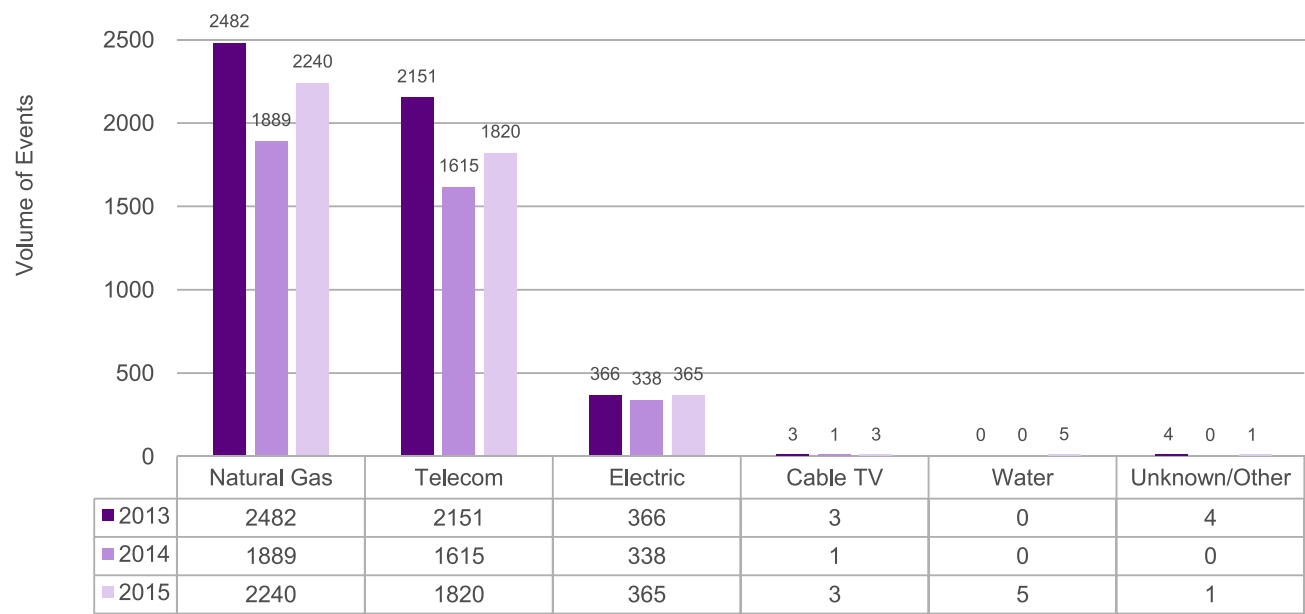


Figure 5: Submitted Facility Events by Type of Facility Affected

2.5 VOLUME OF EVENTS BY EXCAVATION EQUIPMENT GROUP

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

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

Table 3: List of Equipment Groups

Figure 6 illustrates a distribution of events caused by various groups of excavation equipment. In 2014 vacuum excavation equipment was being reported as its own excavation equipment group within the DIRT Report for the first time. In 2015 the Hoe/Trencher group continues to account for the largest volume of events. Efforts should be made by reporting groups to minimize listing equipment as Other, in order to improve the completeness of data.

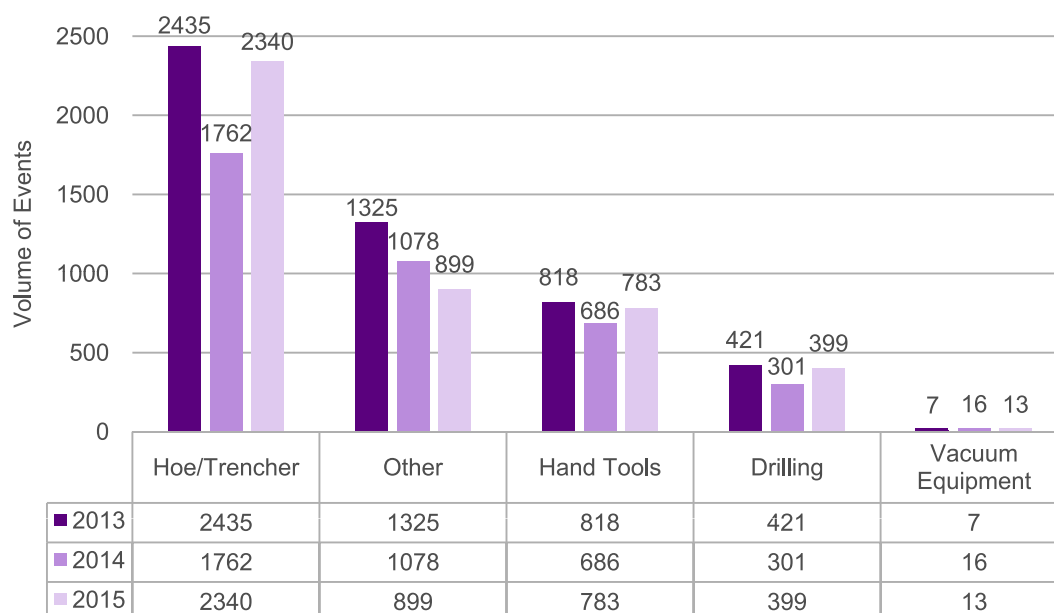


Figure 6: Submitted Facility Events by Excavation Equipment Group

2.6 FACILITY EVENTS BY ROOT CAUSE

Table 4 details the Root Cause subcategories included in each main category. Refer to the Root Cause Tip Card (Appendix A) for a more detailed breakdown of the meaning of each Root Cause subcategory. Depending upon which reporting stakeholder submitted the data for a facility event, Root Cause volumes can vary significantly.

Root Cause Category	Root Cause Subcategory
Excavation Practices Not Sufficient	Failure to Maintain Clearance Failure to Maintain the Marks Failure to Support Exposed Facilities Failure to Use Hand Tools Where Required Failure to Verify Location by Test Hole/Pot Holing Improper Backfilling Other Insufficient Excavation Practices
Locating Practices Not Sufficient	Facility Marking or Location Not Sufficient Facility Could Not Be Found or Located Incorrect Facility Records/Maps Facility Was Not Located or Marked
Miscellaneous Root Causes	Abandoned Facility Data Not Collected Deteriorated Facility One Call Centre Error Previous Damage Other
Notification Not Made	Notification Not Made to One Call Centre
One Call Notification Practices Not Sufficient	Notification Made to One Call Centre but Not Sufficient Wrong Information Provided

Table 4: Root Cause Category and Subcategory

In order to develop useful educational tools to improve the damage prevention performance in Ontario, it is important to examine the causes of reported events. To further understand the most common reasons for facility events, the distribution of Root Cause subcategories should be examined.

Figure 7 illustrates the distribution of events by Root Cause category. The most common causes of events are a result of One Call Notification Practices Not Sufficient and Excavation Practices Not Sufficient. Emphasis should be made to reduce events due to One Call Notification Not Sufficient and to provide targeted outreach/ educational information to excavators to reduce events due to Excavation Practices Not Sufficient. In order to improve the completeness of data, efforts should be made by reporting groups to minimize listing Miscellaneous Root Causes as Other.

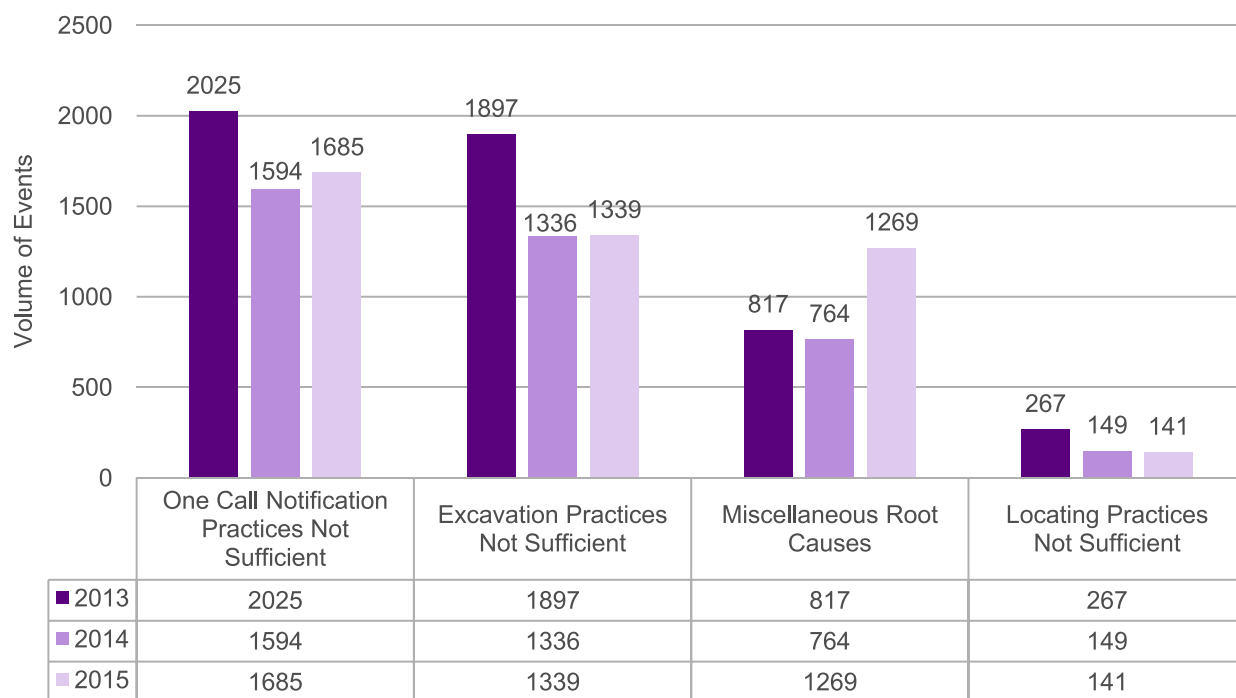


Figure 7: Facility Events by Root Cause Category

Figure 8 illustrates a breakdown of the Root Cause subcategories for the One Call Notification Practices Not Sufficient for the past three years. This figure illustrates the need to continually increase excavator and general public awareness about calling to request a locate before digging starts. This subcategory includes instances such as inadequate information or lead times for a locate request.

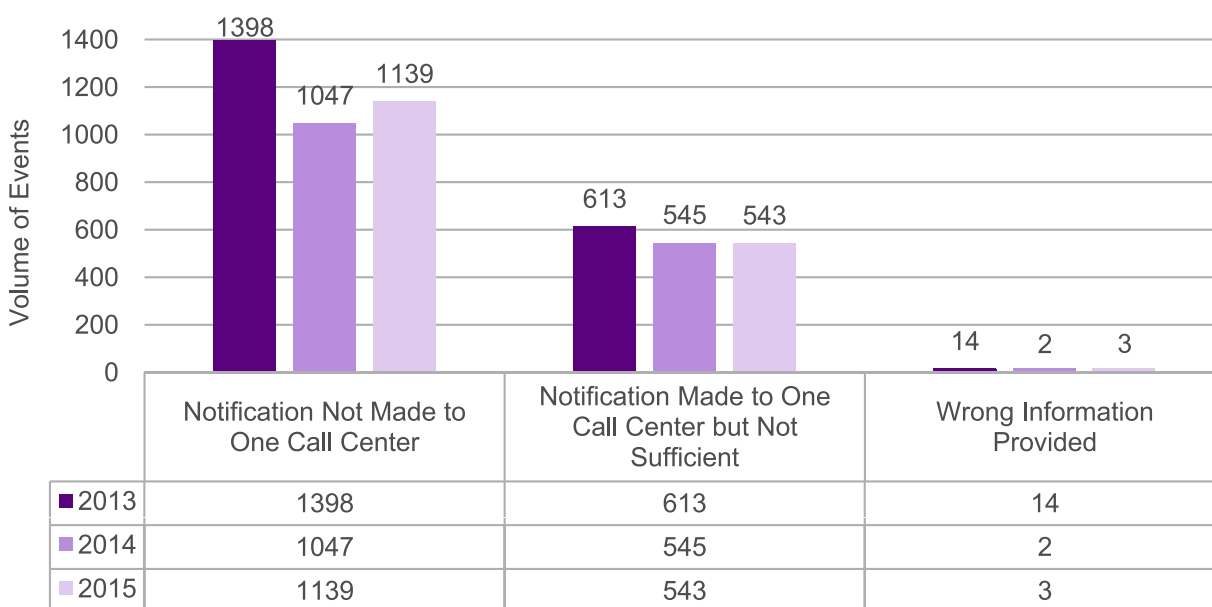


Figure 8: Facility Events by One Call Notification Practices Not Sufficient

Figure 9 illustrates a breakdown of the Root Cause subcategories for the Excavation Practices Not Sufficient for the past three years. This Root Cause subcategory is defined as any other excavator error, which cannot be classified as one of the other three Root Cause subcategories within the Excavation Practices Not Sufficient.

The next highest Root Cause is the failure to use hand tools where required. This needs to be examined to see if this choice is due to an assumption that manually operated equipment (eg: manual post hole digger) is considered digging by hand.

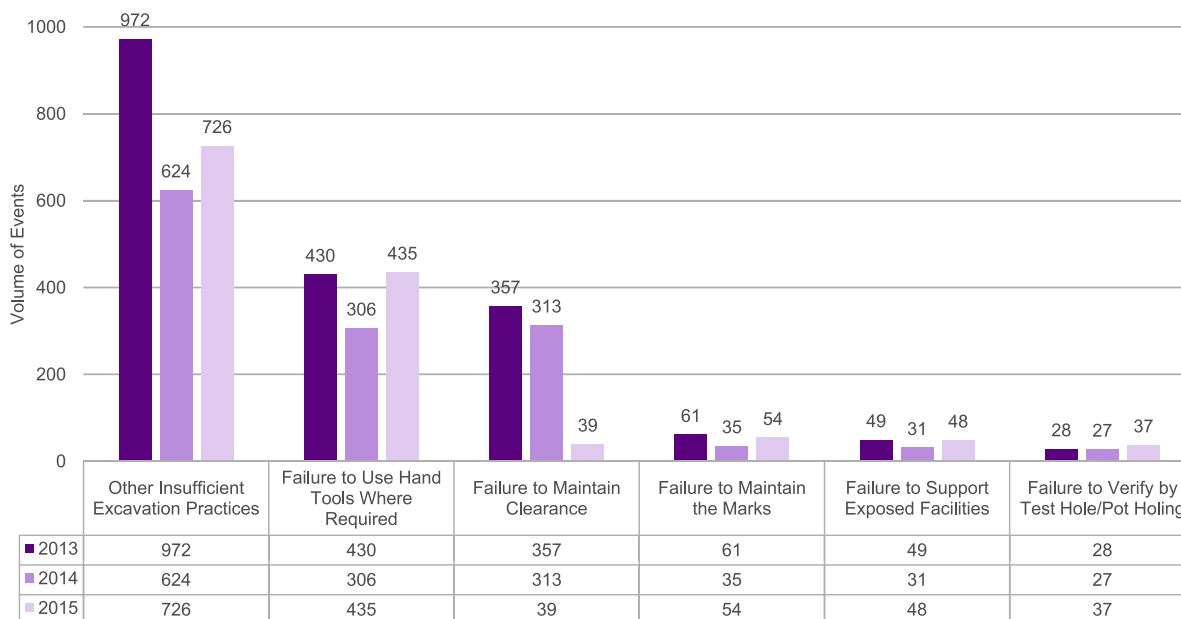


Figure 9: Facility Events by Excavation Practices Not Sufficient

Figure 10 illustrates a breakdown of the Root Cause subcategories for the Locating Practices Not Sufficient for the past three years. The most prevalent Root Cause subcategory is Facility Marking or Location Not Sufficient. Refer to Root Tip Card for examples of Facility Marking or Location Not Sufficient events.

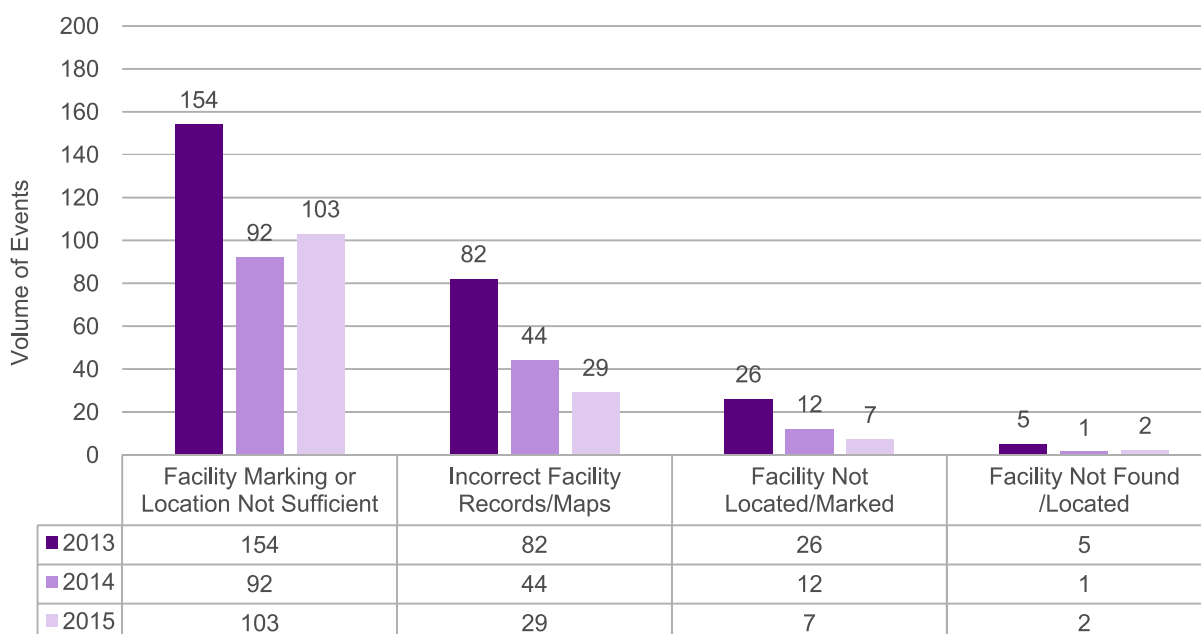


Figure 10: Facility Events by Locating Practices Not Sufficient

Figure 11 illustrates a breakdown of the Root Cause subcategories for the Facility Events by Miscellaneous Root Cause for the past three years. This figure illustrates the need for stakeholders to be sure and complete the Root Cause field. The Data Not Collected subcategory accounts for 26.5% of the total events for all Root Causes, and is a measure of all events where a Root Cause was not selected. Further efforts must be applied to categorize each event.

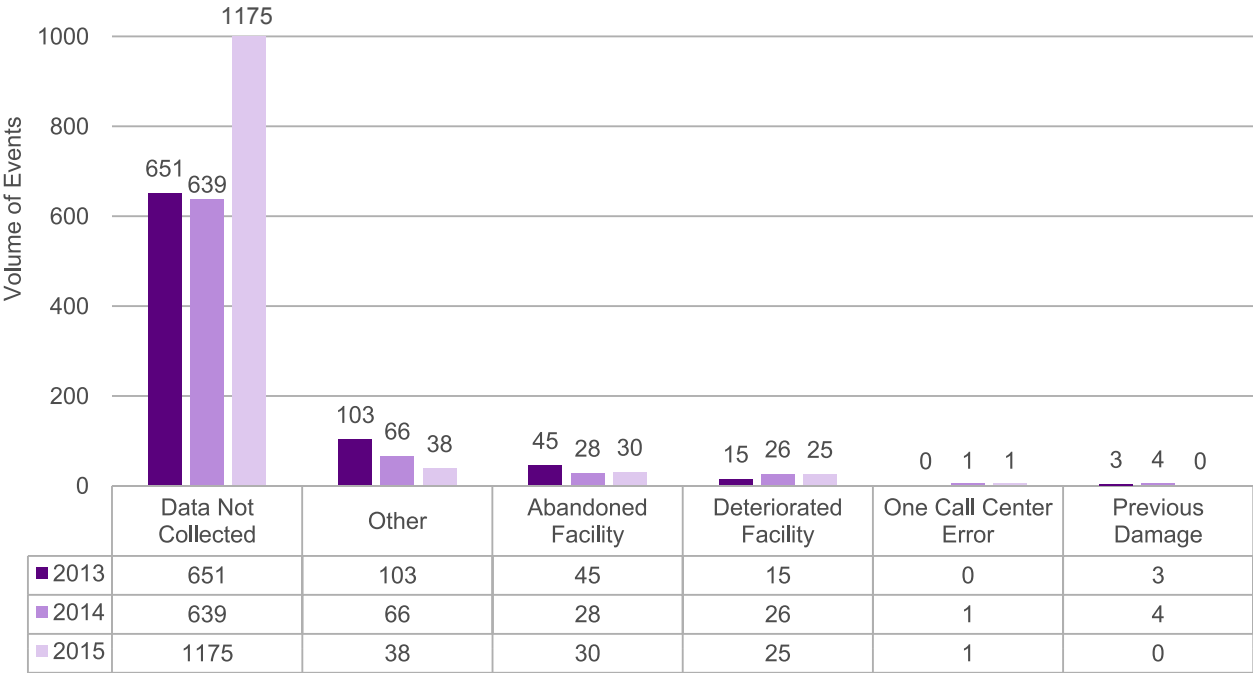


Figure 11: Facility Events by Miscellaneous Root Cause

2.7 LOCATE REQUESTS VERSUS NOTIFICATIONS

When a requester contacts Ontario One Call, the request is analyzed and then notifications are sent to the appropriate members near the ground disturbance/work site. The request can generate multiple notifications which in turn result in a completed locate response.

For example, if you were to submit a request for digging in Toronto on Yonge St. between Dundas Square and Shuter Street, Ontario One Call would send approximately 19 notifications, which in turn generate 19 responses from buried infrastructure owners.

The figure below outlines the historical ratio of facility notifications per locate request in Ontario by month for the last the three years. It can be seen that the ratio continues to increase on a yearly basis with a spike occurring in the summer months.

The ratio of notifications per request varies based on geography and the amount of buried infrastructure present. In Ontario the average request generates seven notifications to facility owners.

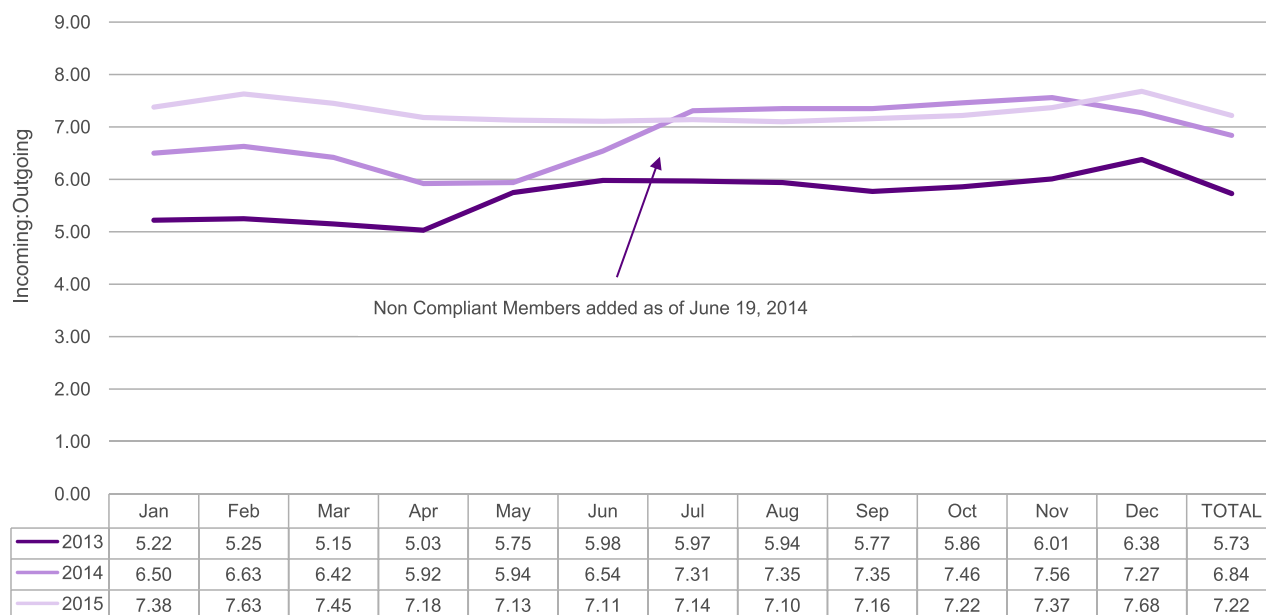


Figure 12: Locate Requests Versus Notifications

In order to develop useful educational tools to improve the damage prevention performance in Ontario, we will examine the common Types of Work causing these events below.

Figure 13 illustrates a distribution of Events by Type of Work Performed. It is seen that the Sewer & Water and Utility work type group continues to be involved in the majority of events submitted. Emphasis should be placed by groups submitting events to reduce the amount listed as Unknown/Other in order to improve data completeness and accuracy.

Table 5 illustrates that the largest Type of Work Performed, when broken down into identifiable sub groups, is Water with 905 events, followed by Building Construction with 385, and then Fencing with 347. This takes into account over a third of the events and would provide the greatest impact in being reduced.

Group/Type of Work	2013	2014	2015
Construction			
Building Construction	484	381	385
Building Demolition	11	17	12
Driveway	115	105	131
Grading	31	16	30
Site Development	59	40	51
Green			
Agriculture	3	4	1
Fencing	424	257	347
Irrigation	1	2	10
Landscaping	334	258	310
Waterway Improvement	29	34	1
Sewer/Water			
Drainage	133	130	180
Sewer (Sanitary/Storm)	265	232	270
Water	938	680	905
Street/Road			
Curb/Sidewalk	128	112	70
Pole	25	29	23
Public Transit Authority	5	9	0
Railroad Maintenance	2	2	1
Road Work	243	185	253
Storm Drain/Culvert	35	31	74
Street Light	2	10	2
Traffic Sign	16	8	10
Traffic Signal	4	3	3
Utility			
Cable TV	58	25	58
Electric	308	252	292
Liquid Pipeline	0	1	0
Petroleum Pipeline	0	0	0
Natural Gas	166	146	94
Telecommunications	276	244	277
Unknown/Other			
Data Not Collected	1	1	2
Engineering/Surveying	3	2	1
Unknown/Other	907	627	641

Table 5: List of Work Included in Each Work Group

3.0 MULTI-FIELD ANALYSIS

3.1 ANALYSIS OF ROOT CAUSE AND FACILITIES AFFECTED BY TYPES OF WORK

The following charts illustrate the known Root Causes of events for the six work groups of Sewer and Water, Green, Construction, Utility, Street and Road Work and Unknown/Other for the years 2014 and 2015.

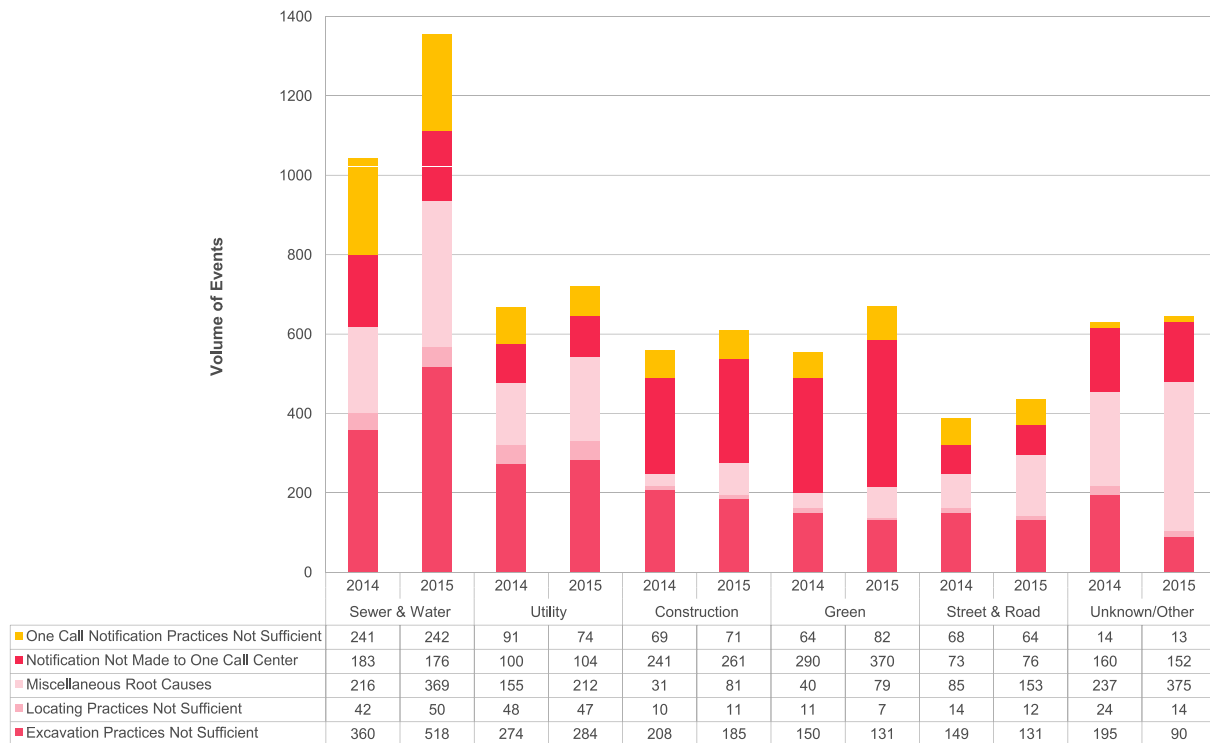


Figure 15: Facility Events by Root Cause Group and Industry

Figure 16 illustrates that the Contractor/Developer excavator type still represents the majority of events submitted under the Excavation Practices Not Sufficient.

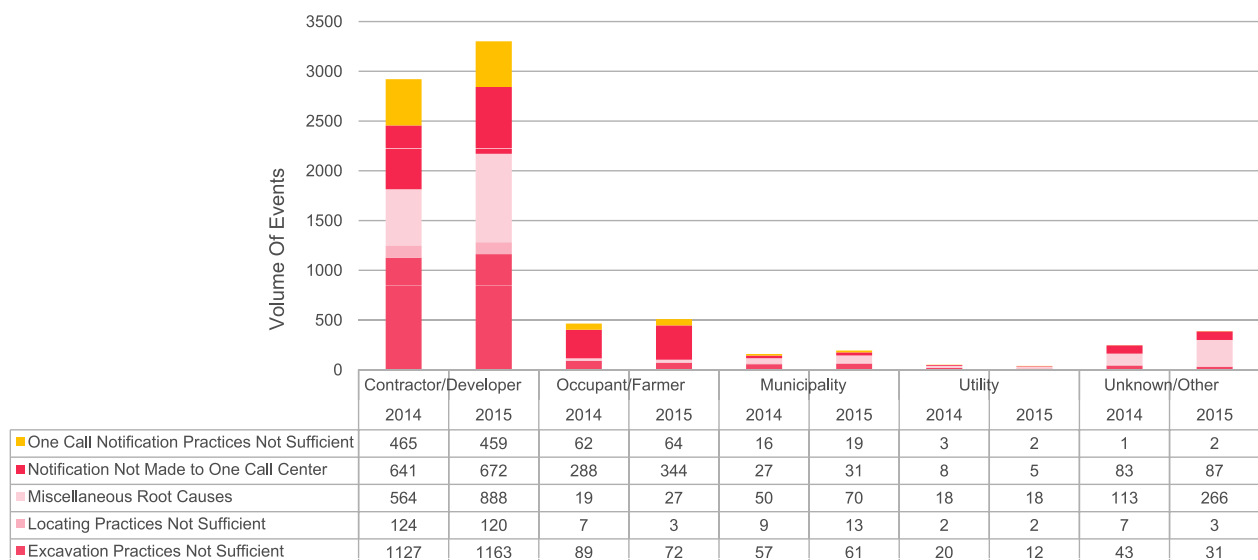
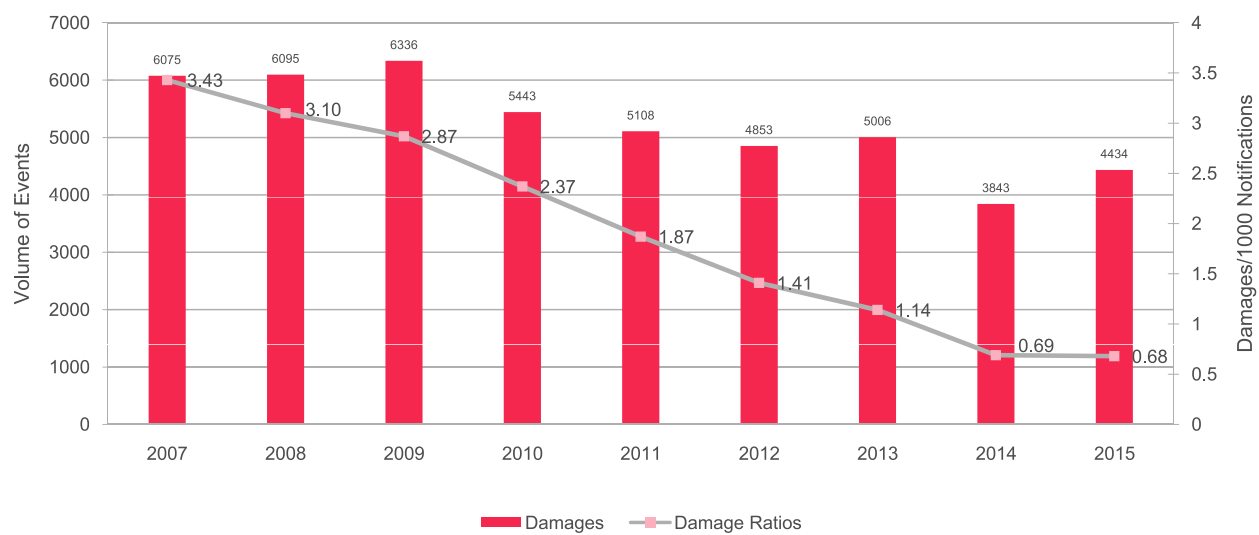


Figure 16: Facility Events by Root Cause Category and Excavator Type

Figure 17 illustrates the damage ratio relative to the volume of events over the past nine years. Industry practice is to measure damage prevention performance by the volume of damages per thousand notifications.



Mandatory Legislation has increased notification base

Figure 17: Damage Ratio - Damages/1000 Notifications

4.0 REPORT FINDINGS

4.1 DATA QUALITY INDEX INDICATIONS

Table 10 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 71.3%.

The weight assigned to the various DIRT parts varies based upon its value in analyzing the event 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 “2015 DQI” column in the table below represents the average of all 4434 submitted events in the 2015 dataset.

DIRT Parts	Relative Weight	2013 DQI	2014 DQI	2015 DQI
A: Who is submitting this information?	5%	100.0	100.0	100.0
B: Date and Location of the Event	12%	78.2	78.5	76.3
C: Affected Facility Information	12%	92.3	90.0	90.5
D: Excavation Information	14%	83.5	83.4	86.2
E&F: Notification, Locating, Marking	12%	90.7	90.1	89.9
G: Excavator Downtime	6%	12.2	12.7	11.8
H: Description of Damage	14%	30.6	34.6	32.3
I: Description of the Root Cause	25%	85.1	81.8	72.7
Total Weighted DQI	100%	74.4	73.8	71.3

Table 10: DIRT Submission Parts and DQI

Of the various parts of the damage report, Parts G: Excavator Downtime and H: Description of Damage are often not included, as most of the organizations inputting data into DIRT do not track this information. The DQI for Part I: Description of The Root Cause has again decreased between 2014 and 2015.

4.2 RECOMMENDATIONS

The ORCGA makes the following observations and recommendations to Damage Prevention stakeholders based on the analysis of the 2015 DIRT report. These are intended to enhance industry efforts toward public safety and infrastructure reliability and to reduce events and standardize the data collection process. Based on the results of the 2015 DIRT report the Reporting and Evaluation committee have identified the following recommendations:

1) No Locates remains a significant issue as there has been an observed increase in the number of No Locate events.

This is the major category leading to events as seen in (Figure 7) and broken out in (Figure 8). Of the 4434 events reported in 2015, 1685 or 38% were due to no notification being made to Ontario One Call. This must be addressed as a primary focus of ORCGA education efforts within 2016 and subsequent future campaigns. Successes in this area have occurred from Dig Safe efforts but these efforts need to be reinforced and strengthened. Particular focus should be placed on Dig Safe messaging to geographic areas which show above average percentages of No Locate events (Figure 3).

2) Excavation Practices Not Sufficient is a close second for being a cause of events.

- Other Insufficient Excavation Practices
- Failure to Use Hand Tools Where Required
- Failure to Maintain Clearance
- Failure to Maintain the Marks
- Failure to Support Exposed Facilities
- Failure to Verify Locations by Test-Hole (Pot-Holing)
- Improper Backfilling

This should be targeted in our education efforts. Some of the hand tool issues may be due to Excavators regarding a hand tool as anything that is not mechanical; anything using a worker's own muscle power such as picks, spud bars and any other piercing devices.

3) Emphasis needs to be placed on growing the use of DIRT by underground infrastructure owners.

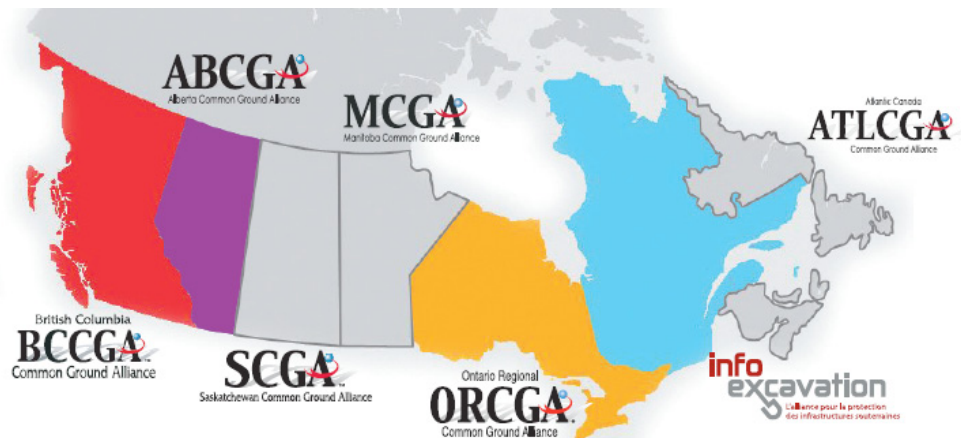
While the majority of submissions are by Ontario's major utilities, there needs to be more utilities, excavators and municipal stakeholders using DIRT to report their events. DIRT is a free and anonymous damage reporting tool that can be used to track and report on events. Increased participation would also help increase the amount of data shared to stakeholders and the ORCGA.

4) Over the past years there has been a significant increase in the number of notifications.

This is a direct result of legislation that has culminated in all stakeholders being a part of the Ontario One Call Centre, with the last spike of influx members being in June of 2014. It is therefore expected to begin seeing a reduction in the growth rate of notifications from the addition of stakeholders to Ontario One Call. Over the next three years the notification growth rate should be moderately consistent with the amount of Excavator education and/or the overall economic growth in the Province.

5.0 REGIONAL PARTNER DATA

The following information was provided by four Canadian Common Ground Alliance (CCGA) Regional partners. This data reflects the volume of events submitted by their members from 2012-2014. Since 2003, DIRT has been the North American standard for data collection and reporting of underground damage information. The Alberta Common Ground Alliance (ABCGA) began reporting into DIRT in 2012. The British Columbia Common Ground Alliance (BCCGA) joined the DIRT reporting community in 2011, releasing their first DIRT Report in September 2012. The Quebec Common Ground Alliance (QCCGA) joined DIRT in 2010, with their first report being released the same year. Regional Common Ground Alliances have also been established for Saskatchewan, Manitoba and Atlantic Canada (Newfoundland & Labrador, New Brunswick, Nova Scotia, and Prince Edward Island) with DIRT reporting expected to commence in the upcoming years.



National Report on Damage to Underground Infrastructure

Highlights
2012, 2013
and 2014

Alberta
British Columbia
Ontario
Quebec
Saskatchewan



The Common Ground Alliance (CGA) created the Damage Information Reporting Tool (DIRT) in 2003 to document damages to underground infrastructure. Five Canadian provinces currently report damages into the DIRT database. This document presents and analyzes the main data from these provinces.



Interpreting the Data

- Reporting in DIRT is voluntary; therefore, the data analyzed is not representative of all damages that have occurred.
- A significant number of queries were left unanswered in the damage reports completed by DIRT users. Despite those questions left blank, this report provides aggregate data from the participating provinces.
- The term "damage" refers to damages to underground infrastructure and near misses (there are few near miss reports in DIRT).

40 reported damages per business day

	Number of damages			Damages per business day*			Population 2014**	Damages per 1,000 locate requests	Damages per 1,000 notifications
	2012	2013	2014	2012	2013	2014			
Alberta	32	30	2,934	-	-	12	4,121,700	7.0	1.6
British Columbia	1,227	1,188	1,315	5	5	5	4,631,300	8.9	1.9
Ontario	5,149	4,836	3,809	20	19	15	13,678,700	4.4	0.7
Quebec	1,421	1,240	1,198	6	5	5	8,214,700	6.1	2.3
Saskatchewan	1,110	1,037	682	4	4	3	1,125,400	5.0	1.9
Total	8,939	8,331	9,938	35	33	40	31,771,800	6.28	1.7

* 254 business days per year **Source: Statistics Canada

Compared with 2013, the overall number of damages appears to increase, from 33 to 40 events per business day. However, the addition of Alberta data to the report skews that number. In effect, comparing only the three provinces reporting since 2012 indicates a decrease from 29 to 25 events per business day. Ontario contributed to the decrease by reducing their number of damages by four per business day while Quebec and British Columbia remained static. CCGA provided 2012 and 2013 Alberta data for information purposes only, and 2014 should be considered the first year that Alberta's data is representative. Saskatchewan is included in the national report for the first time. Because the data

was collected directly by the SCGA rather than through DIRT, there was some variation in the type of data available for comparison in this report. This data should be considered for information purposes only until the DIRT reporting process is fully established in that region.

The breakdown of the number of damages in each province is determined by a variety of contributing factors such as level of economic activity and population. In that light, it isn't surprising the majority of damages occur primarily in Ontario, the most populated province. It is also noteworthy that the frequency of damages in Quebec is similar to British Columbia, even though Quebec has a greater population.

The ratio of the number of damages per 1,000 notifications can be compared between the reporting provinces. The reference criteria used for the comparison (locate requests and notifications to members) illustrates, for example, that while the number of damages are higher in Ontario, the ratio of damages to activity is lower than that of other provinces.

85% of damages cause a service interruption

	Yes		
	2012	2013	2014
Alberta	0%	17%	84%
British Columbia	92%	93%	89%
Ontario	85%	85%	84%
Quebec	82%	85%	84%
4 provinces	86%	87%	85%

Damages to underground infrastructure causing a service disruption remained high in 2014. Beyond the cost of repairing the damaged infrastructure, there are costs related to the inconvenience that bring about and the risk of injury and environmental damage. Significant impact of damage to underground infrastructure relates to societal costs. An example of those societal costs is the costs of First Responders. Damage to natural gas infrastructure requiring de-

ployment of First Responders (firefighters, police officers and ambulance), represent 32% of the damages in Quebec, 48% in Ontario, 47% in Alberta and 15% in British Columbia. In each case, Responders are deployed to the incident initiating a cost to the community tax base.

39% damages were the result of insufficient excavation practices

Failure to request a locate and insufficient excavation practices remain the most common root causes for damage to occur during excavation.

British Columbia continues to stand out sharply with 60% of damages caused by failure to request a locate. The most frequent cause of damage in Quebec, Ontario and Saskatchewan is insufficient excavation practices (58%, 43% and 39% respectively).

In the *Excavation Practices Not Sufficient* category, the most frequent cause of damage in Quebec is *Failure to use hand tools where required* which indicates that more education around safely hand-exposing facilities may be beneficial.

For Alberta, the causes are known for only 23% of events and are not necessarily representative of all damages in the province. The focus in Alberta should be on gathering more specific data around root cause before any conclusions can be made.

		Locate Request Not Made	Excavation Practices Not Sufficient	Locating Practices Not Sufficient	Miscellaneous Root Causes
Alberta	2012	44%	6%	3%	47%
	2013	40%	20%	10%	30%
	2014	15%	20%	63%	1%
British Columbia	2012	71%	28%	0%	1%
	2013	72%	26%	0%	2%
	2014	60%	37%	1%	1%
Ontario	2012	31%	41%	5%	23%
	2013	33%	42%	6%	19%
	2014	33%	43%	3%	21%
Quebec	2012	37%	54%	8%	1%
	2013	33%	58%	7%	2%
	2014	34%	58%	5%	3%
Saskatchewan	2012	34%	43%	22%	1%
	2013	28%	33%	23%	17%
	2014	28%	39%	22%	11%
5 Provinces		34%	39%	19%	3%

34% of damages occur during work on sewer and water systems

Water and Sewer work continues to show the highest percentage of damages reported in all provinces but one. In British Columbia, damages occur more frequently during Construction work, with Water and Sewer work being the second highest percentage. In Quebec, work related to streets and roads showed a decline in damage rate, while the rate of damage for work on sewer and water systems has steadily increased.

Regardless of the type of work, backhoes and trackhoes remain the excavation equipment most often used in all provinces when damage occurs (Quebec 88%, Ontario 64%). In Ontario, hand tools represent the second most often used excavation tool when damage occurs (25%).

In the remaining provinces, data is too low to clearly identify the second most frequent cause.

		Green Work	Construction	Sewer & Water	Utility	Street & Road Work
Alberta	2012	14%	45%	9%	0%	32%
	2013	21%	21%	26%	11%	21%
	2014	14%	16%	31%	25%	14%
British Columbia	2012	60%	5%	27%	3%	5%
	2013	32%	45%	13%	3%	7%
	2014	10%	38%	30%	13%	9%
Ontario	2012	19%	18%	31%	19%	13%
	2013	19%	18%	33%	20%	11%
	2014	17%	18%	33%	22%	10%
Quebec	2012	15%	10%	29%	14%	32%
	2013	15%	13%	37%	10%	25%
	2014	14%	19%	40%	10%	19%

Register with DIRT and Be Part of the Damage Prevention Solution

The Canadian Common Ground Alliance (CCGA) invites you to register with Regional Partner Virtual DIRT and complete the online field form to report damages to Canada's buried infrastructure. Doing so will allow more thorough analysis and enable damage prevention and safety solutions that will benefit all Canadians.

Alberta: www.cga-dirt.com/ab

British Columbia: www.cga-dirt.com/bc

Ontario: www.cga-dirt.com/orcga

Quebec: www.cga-dirt.com/qcwpd

Saskatchewan: www.cga-dirt.com/scga

The more information we have on damages, the more effectively we can target our damage prevention efforts.



6.0 ARTICLES

The 2015 DIRT report features articles on Root Cause investigations and industry topics. Root Cause investigations assess both the events leading up to the incident, the surrounding conditions, and the event outcomes or learning points.

ARTICLE NO. 1

AN ONTARIO LANDSCAPER LEARNS HIS LESSON

Even for an experienced landscaper, there is always something to learn.

In the following scenario, many job site tasks were done correctly, but the job ended up as a negative statistic. The contractor called Ontario One Call for locates. He remembered where the markings were located even though they had disappeared due to vehicle traffic. He knew the rules and special considerations where hand tools were required, when working within the tolerance zone.

What went wrong?

Nearing job completion, and late in the day, the customer decided that he wanted two pillars installed at the end of the driveway. The contractor knew that these pillars were inside the tolerance zone and care had to be taken in digging around the gas main. The contractor worked with a sharp hand tool to carefully break away hardened clay when a 2-inch gas supply line gas line was cut.

Several trucks from the gas utility company showed up on the job site to shut off the gas supply, repair the line and check for leakages.

The contractor then received an \$11,000 invoice from the gas company for the repair. Since it was an emergency repair after 5:00 p.m., all repair work was charged at overtime rates.

The contractor thought that since he had called for locates and was using hand tools as required by the ORCGA Best Practices Manual, that he should not have been invoiced. The gas company's philosophy is 'you hit it, then you pay for all damages'. The invoice did not include any gas loss charges. Also, the TSSA charges were extra.

Upon further investigation, the contractor learned that this was an ideal job for a hydrovac company. When hand digging in clay it is almost impossible to prevent damages to a gas line. Hydrovacating could have quickly done the job without any damages.

Now, the contractor won't allow his workers to work within a clay tolerance zone with 'hand tools'. He allows for the extra cost of hydrovacating in his estimates and explains this cost to his customer.

Even though many things were done correctly, this gas event was recorded as Excavation Practices Not Sufficient (bad excavation practices) in the DIRT Report.

Hydrovacating should be considered a safe and fast alternative to hand digging in the tolerance zone.

ARTICLE NO. 2

AERIAL PATROL

Unknown to most Ontarians, natural gas utilities operate and maintain large diameter, high pressure, underground pipelines that span the province. These pipelines are referred to as transmission lines or “trunk lines”, as they allow the transportation of gas from storage facilities to areas of demand. These pipelines can be as large as 48 inches in diameter and have maximum operating pressures of up to 1000psi.

In order for utilities to cross private and public land with their pipelines, certain property interests must be obtained from the landowner. These interests are contained in a document called a “grant of easement”. The grant of easement provides the pipeline owners with the necessary rights to construct, operate and maintain the pipeline facilities authorized by the regulating body. Once the pipeline has been installed, the easement is kept clear of most obstructions to provide both a visual safety reminder of utilities in the area, as well as ready access to the area for company personnel performing regular maintenance or other activities.

In Ontario, companies use aerial patrol programs to observe surface conditions on and adjacent to the transmission line easement. Patrols look for indications of leaks, construction activity, and other factors affecting safety and operations.

Aerial patrols along a pipeline easement may be flown as often as weekly but at a minimum must be flown at least once annually. The frequency is determined by population density, street improvement, foreign construction activity, time of year, and other risk factors. The inspector on board the airplane observes and documents many different potential risks. A few examples include:

- Indications of gas leakage such as discolored or wilted vegetation or bubbles in standing water;
- Potential risks on or adjacent to the right-of-way such as fires, new irrigation or drainage canals, construction/excavation activity, and installation of new structures;
- Water erosion, soil slippage, or loss of cover over pipeline;
- The condition of pipeline markers; and
- Damage to existing utility facilities such as valves, regulating stations, or communication facilities.

During the patrol there are two people aboard the plane: the pilot, and a second inspector who observes, logs and notifies area personnel regarding any new encroachment activities or other problems listed above which could affect the pipeline. This allows for immediate notification rather than having the pilot wait until the airplane lands to alert the utility of any high-risk issues.

Operating safely and reliably in Ontario is the top priority. Aerial surveys are one of the many tools natural gas utilities use to help ensure the reliable, safe operation of facilities. It is important to remember that before digging, crossing, or planning work anywhere near or around a utility easement, that you first contact Ontario One Call at 1-800-400-2255.



ARTICLE NO. 3

ALTERNATE LOCATE AGREEMENTS

Alternate Locate Agreements (ALA), allow an excavator to proceed under set conditions without the infrastructure owners locate service provider providing a field locate. Many types of excavating such as hydrovacing, road resurfacing, hand digging and stumping pose little risk to some types of underground infrastructure. The conditions to allow these excavations are set in the Alternate Locate Agreement. The infrastructure owner sets the agreement's conditions, including depth, location, method and type of excavation based on their knowledge of the plant to ensure the plant and excavator are still protected.


Once an agreement has been established, it's implemented through the Ontario One Call request system. The excavator requests a locate using a One Call identification number. The identification number links their requests to the appropriate Alternate Locate Agreement. The excavator once receiving notification from Ontario One Call, can excavate in accordance to the conditions of the agreement. This results in little wait time for the excavator and relieves demand on the locate service provider.

Toronto Hydro has been actively establishing Alternate Locate Agreements for over three years. The use of these agreements has significantly improved Toronto Hydro's proficiency in providing safe and prompt locates. All allowable excavation methods and associated conditions are in Toronto Hydro's standard 3-year agreement. No modifications are necessary to the standard agreement for each type of excavation, allowing for faster processing. In 2015 Toronto Hydro provided approximately 32,000 locates with Alternate Locate Agreements and reduced the cost of these locates by approximately 95%.

The benefits to both the excavator and infrastructure owner are apparent, however safety cannot be compromised. Individual infrastructure owners must set the conditions of their agreements based on plant knowledge and the risk posed by each type of excavation. Toronto Hydro is constantly expanding the number of Alternate Locate Agreements and would recommend other infrastructure owners explore their use in providing locates.

7.0 EXCAVATOR OF THE YEAR

The Excavator of the Year distinction is presented to an excavator with the best-in-class safe digging practices. Each year a subset of the R&E Committee, consisting of representatives of each of the utilities, is tasked with reviewing each contractor's individual damage ratio. The damage ratio is dependent on the volume of locates, of which each excavator must have a minimum of 500, measured against the number of digging related damages to the underground structure. The recipient of the award is the excavator with the lowest ratio who best reflects the type of work in each category represented.

Electric		Langley Utilities Contracting
Gas	 	Michels Canada Inc.
Homebuilder		Cotton Inc
Landscape		The Professional Post Hole Guy
Road Builder		Powell Contracting Ltd.
Sewer Water		Clean Water Works
Telecommunications		Brad Cole Underground Construction Ltd.
Most Improved		Colautti Construction Ltd.

8.0 APPENDICES

Appendix A: Root Cause **Tip Card**

OPERATOR ISSUES

Facility Was Not Located or Marked

No locating or marking was completed prior to excavation activities.

Example: The company received a valid ticket, but did not mark, locate, or communicate with excavator prior to start of work.

Facility Marking or Location Not Sufficient

Includes all areas where marking was insufficient.

Example: Locator marked the work zone, but missed a service.
Locator misread the ticket and did not locate the entire work zone.
Facility was outside the tolerance zone.

Facility Could Not be Found/Located

Type of facility, depth, or lack of records prevented locating of facility.

Example: Plastic pipelines installed without tracer wires.
HDD installed facilities at depths that cannot be located.

Abandoned Facility

This damage was caused by an abandoned facility issue.

Example: The abandoned facility may have been located, instead of the active facility.
An abandoned facility may have been located, but it may have been found active after the excavation exposed the facility or damaged it.

Incorrect Facility Records/Maps

Incorrect facility records or maps led to an incorrect locate. (This does not include facilities missing from maps.)

Example: Records show the facility located on the wrong side of the street, and ticket was cleared.

Deteriorated Facility

Those situations in which an excavation disrupts the soil around the facility resulting in damage, failure or interruption of service. However, the deterioration and not the excavation caused the facility damage.

Example: An excavator reports a gas odor, investigation proves it is coming from an old cast iron pipeline.

Previous Damage

A significant period of time has passed from the actual damage to the failure or discovery of the damages.

Example: Pipe coating was damaged during a previous excavation and was not reported.
Subsequently, a corrosion leak occurred.

EXCAVATOR ISSUES

No Notification Made to the One-Call Center

Excavator did not call the one-call center, includes occasions when notification was not required.

Excavation Practices Not Sufficient

The excavator did not use proper care or follow the correct procedures when excavating near a facility. Optionally, choose one of the following 2nd-level causes:

Failure to Maintain Clearances While Using Power Equipment - as defined by applicable state regulations or underground facility owner.

Failure to Maintain Marks - The marks deteriorated or were lost and the excavator failed to request that they be restored/refreshed.

Failure to Support Exposed Facilities - Facility damage due to lack of support in accordance with generally accepted engineering practices or instructions provided by the facility operator.

Failure to Use Hand Tools - Failure to use hand tools where required.

Failure to Verify Facility by Test Hole - Some state regulations define a “tolerance zone” around buried facilities and require the accuracy of the facility marks be verified by exposing the facility by hand digging prior to excavation within the tolerance zone, or require hand digging or special precautions when working within the tolerance zone.

Improper Backfilling - Damage caused by improper materials (ex: large/sharp rocks) in the backfill or improper compaction of the backfill.

Wrong Information Provided

This damage occurred because an excavator provided the wrong excavation location to the notification center, or there was a miscommunication between stakeholders.

Example: Excavator used ITE to notify and indicated the wrong dig site.
After speaking with excavator, the locator incorrectly cleared a ticket.

Notification to the One-Call Center Made, But Not Sufficient

The excavator contacted the notification center, but did not provide sufficient information, or the excavator did not provide sufficient notification time according to state law.

Example: Excavator did not wait 48 hours before digging.
Excavator was excavating on an expired ticket.

ONE-CALL CENTER ISSUES

One-Call Center Notification Error

Includes all issues related to the center such as incorrectly entered data, ticket transmission failures, and stakeholder omissions, et al.

Example: This would include damages that occurred because the center’s database registry had not been updated to reflect correct location of gas facilities.
The one-call center system crashed and failed to deliver the ticket.



www.cga-dirt.com



Damage Information Reporting Tool (DIRT) - Field Form**Part A – Who is Submitting This Information**

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

Name of the person providing the information:

Part B - Date and Location of Event

*Date of Event:		(MM/DD/YYYY)		
*Country	*State	*County	City	
Street address		Nearest Intersection		
*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
Private:	<input type="checkbox"/> Private Business	<input type="checkbox"/> Private Land Owner	<input type="checkbox"/> Private Easement	<input type="checkbox"/> Public-Other
	<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"/> Data not collected	<input type="checkbox"/> Unknown/Other

Part C – Affected Facility Information

*What type of facility operation was affected?				
<input type="checkbox"/> Cable Television	<input type="checkbox"/> Electric	<input type="checkbox"/> Natural Gas	<input type="checkbox"/> Liquid Pipeline	<input type="checkbox"/> Sewer (Sanitary Sewer)
<input type="checkbox"/> Steam	<input type="checkbox"/> Telecommunications	<input type="checkbox"/> Water	<input type="checkbox"/> Unknown/Other	
*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
Was the facility part of a joint trench?				
<input type="checkbox"/> Unknown	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
Was the facility owner a member of One-Call Center?				
<input type="checkbox"/> Unknown	<input type="checkbox"/> Yes	<input type="checkbox"/> No		

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"/> Railroad	<input type="checkbox"/> State	<input type="checkbox"/> Utility	<input type="checkbox"/> Data not collected	<input type="checkbox"/> Occupant
<input type="checkbox"/> Unknown/Other				
*Type of Excavation Equipment				
<input type="checkbox"/> Auger	<input type="checkbox"/> Backhoe/Trackhoe	<input type="checkbox"/> Boring	<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"/> Data Not Collected	<input type="checkbox"/> Unknown/Other
*Type of Work Performed				
<input type="checkbox"/> Agriculture	<input type="checkbox"/> Cable Television	<input type="checkbox"/> Curb/Sidewalk	<input type="checkbox"/> Bldg. Construction	<input type="checkbox"/> Bldg. Demolition
<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 Maint.	<input type="checkbox"/> Road Work
<input type="checkbox"/> Sewer (San/Storm)	<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"/> Data Not Collected	<input type="checkbox"/> Unknown/Other			

Part E – Notification

*Was the One-Call Center notified?	
<input type="checkbox"/> Yes (If Yes, Part F is required)	<input type="checkbox"/> No (If No, Skip Part F)
If Yes, which One-Call Center?	
If Yes, please provide the ticket number	

Part F - Locating and Marking

*Type of Locator			
<input type="checkbox"/> Utility Owner	<input type="checkbox"/> Contract Locator	<input type="checkbox"/> Data Not Collected	<input type="checkbox"/> Unknown/Other
*Were facility marks visible in the area of excavation?			
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Data Not Collected	<input type="checkbox"/> Unknown/Other
*Were facilities marked correctly?			
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Data Not Collected	<input type="checkbox"/> Unknown/Other

Part G – Excavator Downtime**Did Excavator incur down time?**☐ Yes ☐ No**If yes, how much time?**☐ Unknown ☐ Less than 1 hour ☐ 1 hour ☐ 2 hours ☐ 3 or more hours Exact Value _____**Estimated cost of down time?**☐ Unknown ☐ \$0 ☐ \$1 to 500 ☐ \$501 to 1,000 ☐ \$1,001 to 2,500 ☐ \$2,501 to 5,000
☐ \$5,001 to 25,000 ☐ \$25,001 to 50,000 ☐ \$50,001 and over Exact Value _____**Part H – Description of Damage*****Was there damage to a facility?**☐ Yes ☐ No (i.e. near miss)***Did the damage cause an interruption in service?**☐ Yes ☐ No ☐ Data Not Collected ☐ Unknown/Other**If yes, duration of interruption**☐ Unknown ☐ Less than 1 hour ☐ 1 to 2 hrs ☐ 2 to 4 hrs ☐ 4 to 8 hrs ☐ 8 to 12 hrs ☐ 12 to 24 hrs
☐ 1 to 2 days ☐ 2 to 3 days ☐ 3 or more days ☐ Data Not Collected Exact Value _____**Approximately how many customers were affected?**☐ Unknown ☐ 0 ☐ 1 ☐ 2 to 10 ☐ 11 to 50 ☐ 51 or more Exact Value _____**Estimated cost of damage / repair/restoration**☐ Unknown ☐ \$0 ☐ \$1 to 500 ☐ \$501 to 1,000 ☐ \$1,001 to 2,500 ☐ \$2,501 to 5,000
☐ \$5,001 to 25,000 ☐ \$25,001 to 50,000 ☐ \$50,001 and over Exact Value _____**Number of people injured**☐ Unknown ☐ 0 ☐ 1 ☐ 2 to 9 ☐ 10 to 19 ☐ 20 to 49 ☐ 50 to 99
☐ 100 or more Exact Value _____**Number of fatalities**☐ Unknown ☐ 0 ☐ 1 ☐ 2 to 9 ☐ 10 to 19 ☐ 20 to 49 ☐ 50 to 99
☐ 100 or more Exact Value _____***Part I – Description of the Root Cause *Please choose one****One-Call Notification Practices Not Sufficient**

- ☐
- No notification made to the One-Call Center
-
- ☐
- Notification to one-call center made, but not sufficient
-
- ☐
- Wrong information provided to One Call Center

Excavation Practices Not Sufficient

- ☐
- Failure to maintain marks
-
- ☐
- Failure to support exposed facilities
-
- ☐
- Failure to use hand tools where required
-
- ☐
- Failure to test-hole (pot-hole)
-
- ☐
- Improper backfilling practices
-
- ☐
- Failure to maintain clearance
-
- ☐
- Other insufficient excavation practices

Locating Practices Not Sufficient

- ☐
- Facility could not be found or located
-
- ☐
- Facility marking or location not sufficient
-
- ☐
- Facility was not located or marked
-
- ☐
- Incorrect facility records/maps

Miscellaneous Root Causes

- ☐
- One-Call Center error
-
- ☐
- Abandoned facility
-
- ☐
- Deteriorated facility
-
- ☐
- Previous damage
-
- ☐
- Data Not Collected
-
- ☐
- Other

Part J – Additional CommentsVisit DIRT at www.cga-dirt.com

APPENDIX C: GLOSSARY OF TERMS

Abandoned Line or Facility: Any underground or submerged line or facility no longer in use.

Backfill: To fill the void created by excavating.

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.

Damage: Any impact 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.

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

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: Any operation using non-mechanized or mechanized equipment, demolition or explosives in the movement of earth, rock or other material below existing grade.

Excavator: Any person proposing to excavate or engaging in excavation or demolition work for himself or for another person.

Facility: An underground or submerged conductor, pipe or structure used in providing electric or communications service (including, but not limited to, traffic control loops and similar underground or submerged devices), or an underground or submerged pipe used in carrying, providing, or gathering gas, oil or oil product, sewage, storm drainage, water, or other liquid service (including, but not limited to, irrigation systems), and appurtenances thereto.

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: The surface of the earth (i.e., ground level) upon which a structure is built or prepared.

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

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

Locate (verb): The process of an underground plant owner/operator 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 one call centre personnel in which a request for locating underground facilities is processed.

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

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

Notification: Ticket data transmitted to underground infrastructure owner by the One Call Centre.

One Call Center: A system through which a person can with only one phone call or other communications, notify multiple facility owners/operators of proposed excavations.

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: Exposure of a facility by safe excavation practices used to ascertain the precise horizontal and vertical position of underground lines or facilities.

Ticket: All the data required from an excavator by the One Call Centre to transmit a valid Notification to the buried infrastructure owner (Member).

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

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

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



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