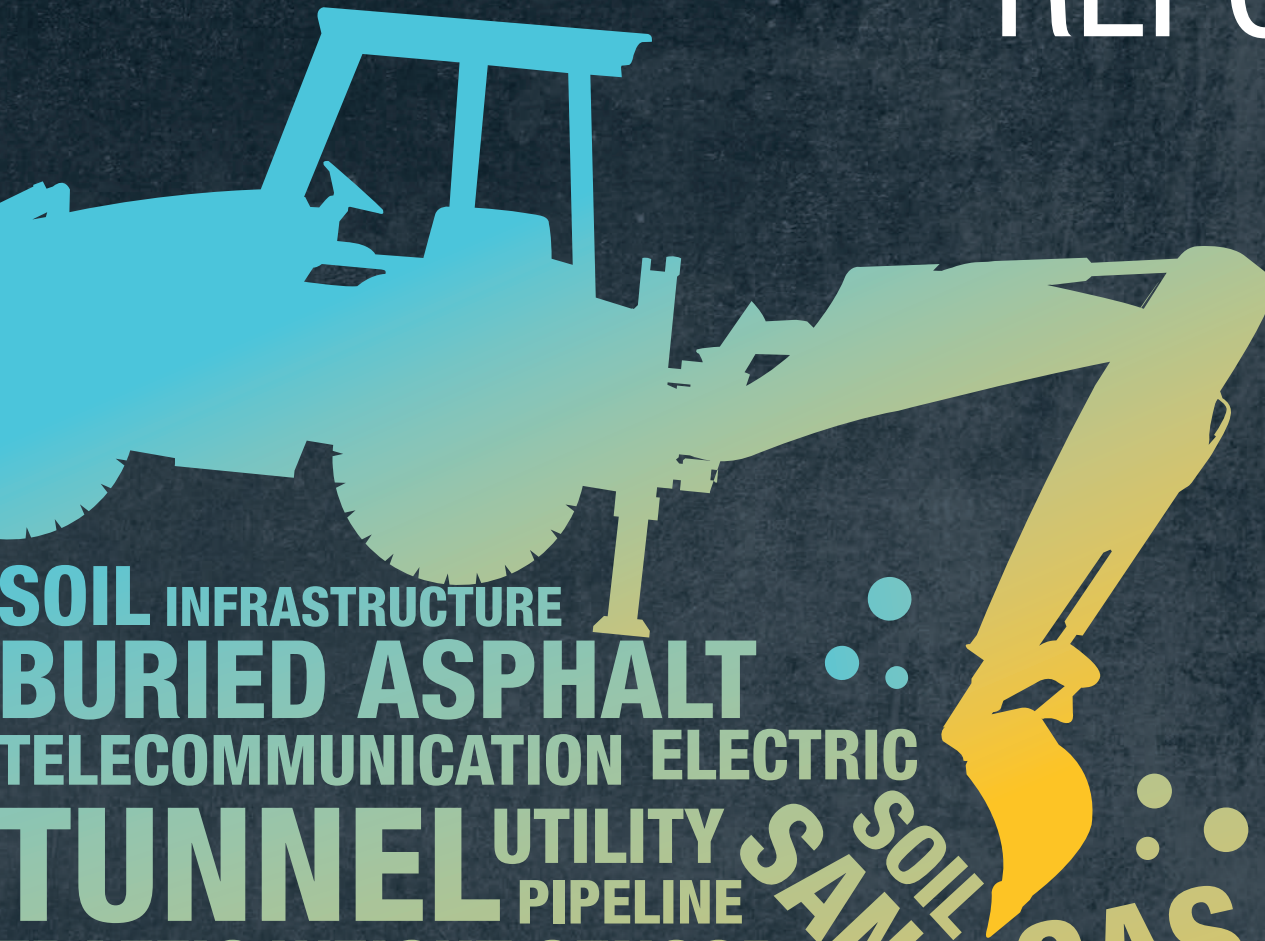




2020 DIRT REPORT

Ver 14.0



SOIL INFRASTRUCTURE
BURIED ASPHALT
TELECOMMUNICATION ELECTRIC
TUNNEL UTILITY PIPELINE
TRAFFIC WEIGHT SENSOR
STEAM LINE
CONDUIT
DISTRIBUTION
OIL TRANSMISSION LINE
CABLE TV
SUBWAY
CONCRETE FOOTINGS
TUNNEL
SANITARY
GAS
DUCT
DISTRIBUTION
SEWER
INFRASTRUCTURE
DRAINAGE PIPE
PIPELINE

PLATINUM SPONSOR



GOLD SPONSORS



SILVER SPONSORS



BRONZE SPONSORS





Damage Prevention Stakeholders:

Underground infrastructure provides crucial and 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 onset of the COVID-19 Pandemic in the first quarter of 2020, presented unprecedented challenges to Ontario residents, disrupting their daily lives both personally and professionally. The criticality of this essential infrastructure to individuals has been intensified exponentially with most being forced to not only work from home, but also to stay and remain in their homes to prevent the spread.

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 2020 decreased from 2019 by approximately 11%, bringing the number of recorded damages below 5,000 to 4,566. There was also an 4.5% decrease in locate requests overall and a corresponding decrease in One Call notifications of 8%, likely attributable to the Pandemic. Substantial reductions in damage events were noted in several areas across Ontario including 21% or 60 in London-St. Thomas; 16% or 275 in Toronto; and 17% or 69 in Ontario East (Ottawa).

The most prevalent root cause for underground utility damages is related to Excavation Practices not being sufficient like previous years, although there was a 4% reduction from 2019. Likewise, underground utility damages due to notification issues dropped 7% over 2019 but remains a concern as 94% of these are due to no call being made to Ontario One Call prior to excavation activity (36% of damages).

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

The chronic issue of late locates through 2019 was not realized to the same extent in 2020 due to the construction start-up lag resulting from the onset of the Pandemic. However, the late locate issue is real, and a new question was developed to explore the relationship between late locates and underground infrastructure strikes.

The 2020 DIRT Report is the result of the dedicated volunteers on the ORCGA Reporting and Evaluation Committee, led by Co-Chairs Richard Durrer of Ontario One Call and Frank Zechner of the Residential Civil & Construction Association of Ontario (RCCAO).

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 2020 DIRT Report was accessible on the ORCGA website, as well as being distributed to all members before April 1st, the start of the 2021 Dig Season.



1.0 Introduction

1.1 Reporting And Evaluation Committee Recommendations	7
1.2 Data	9

2.0 Data Analysis

2.1 Facility Event Analysis	10
2.2 Facility Events Submitted Across Ontario	11
2.3 Submitted Facility Events By Stakeholder Group	14
2.4 Submitted Facility Events By Type of Facility Operation Affected	14
2.5 Volume of Events By Excavation Equipment Group	15
2.6 Facility Events By Root Cause	16
2.7 Facility Events By Excavator Group	19
2.8 Facility Events By Type of Work Performed	20

3.0 Multi-Field Analysis

3.1 Analysis of Root Cause And Facilities Affected By Types of Work	22
---	----

4.0 Regional Partner Data

Regional Partner Data	25
-----------------------------	----

5.0 Articles

Articles	27
----------------	----

6.0 Excavator Of The Year

Excavator of The Year	38
-----------------------------	----

7.0 Appendices

Appendix A: Data Quality Index Indications	39
Appendix B: Damage Information Reporting Tool: Field Form	40
Appendix C: Glossary of Terms	42

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 over 500 active members and sponsors representing a wide cross section of stakeholders:

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

Like and follow us on your favourite social media sites!

1.1 Reporting and Evaluation Committee Recommendations

#1 Excavation Practices Not Sufficient

Excavation Practices Not Sufficient continues to be a large cause of events. This is when the Excavator notified the One Call centre to have underground utilities marked, but an event still occurred due to the lack of careful excavation practices, such as:

- Excavator failed to maintain clearance after verifying marks
- Marks faded or not maintained
- Excavator dug prior to verifying marks by test-hole (pot-hole)
- Excavator failed to protect/shore/support facilities
- Failure to use hand tools where required

Although 2020 has seen a decrease in this category, emphasis should be made to reduce events due to improper Excavation Practices Not Sufficient. Targeted outreach and educational information should be provided to excavators to reduce events resulting from this root cause. A particular focus should be placed on the Construction Industry due to this group being a major contributor to these events.

In response to comments received from the membership regarding a gap in training availability, ORCGA has developed a comprehensive Safe Excavation Practices Training program, targeting front line workers and machine operators. This ½ day instructor-led training program is based on key sections of the CCGA Best Practices document.

#2 No Notification to One Call Centre

No Locate Requests remains a consistent issue over the last 4 years.

This must be addressed as a primary focus of ORCGA education efforts within 2020 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 abnormally high percentages of No Locate Request events (Figure 3).

Did You Know?

There were
4566 reported
damages in
2020?



There were

18

damages per
working day
in Ontario?



43% of damages
are due to improper
excavation practices?



That the amount of
damages without
locates totaled 39%?



In 2020, **68%**
of No Locate events
involved hazardous
infrastructure?



That in 2020,
41%
of damages
involved
telecommunications?



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 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 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 2020 report focuses on the data gathered throughout Ontario during the three-year period between 2018 and 2020. 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, regions 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.

The information presented in this report is based on current information provided to the ORCGA for events that occurred, or were updated, in 2020.

When reviewing statistics published in this report, it is important to note that contributors perform retroactive submissions for the three-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; records with missing data were removed from the analysis.

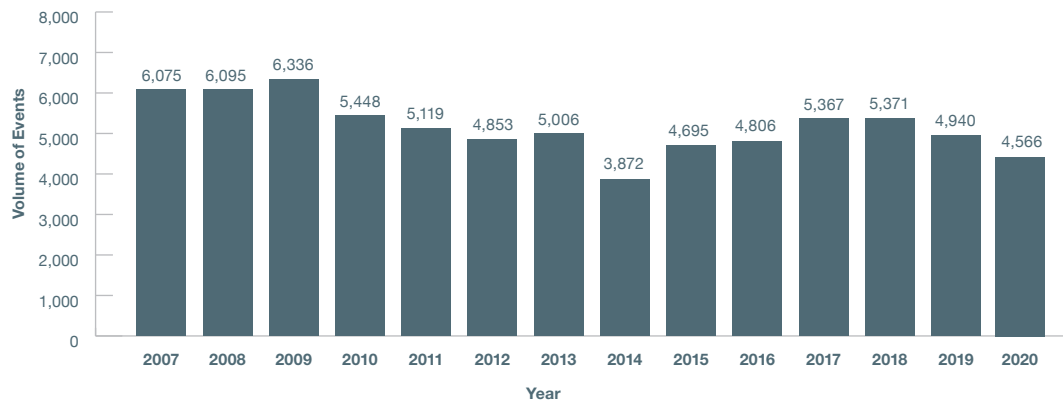
The CIRANO calculation has changed due to the structure of StatsCan data, and therefore, the data is not complete and will not be included in this report.

Although the volume of damages went down in 2020, it is difficult to decipher whether it was due to decreased activity from the pandemic, or the excavating community following Best Practices. Further data analysis in 2021 is required before it can be determined whether or not the decrease was circumstantial.

2.1 Facility Event Analysis

In 2020, facility events saw an overall decrease of 11% over 2019. We will break out incidents to gain insight on where attention and efforts are to be made to continue reducing damages in the future.

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.

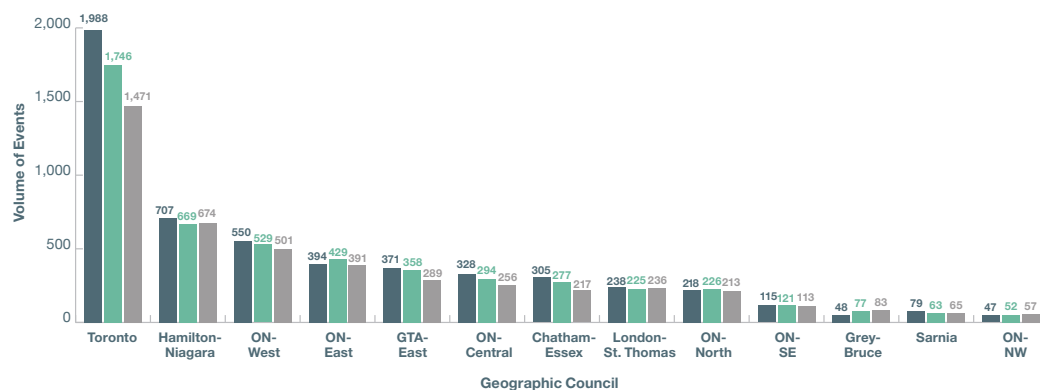
Table 1: Geographic Area Breakdown by Region/Municipality/City

Geographic Area	Cities
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, Temiskamingue, 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 three years.

There have been minor fluctuations, however the majority of Geographic Councils are seeing a downward trend in events. On a positive note, Toronto's incidents continue to show a downward trend with a decrease of 17% in 2020.

Figure 2: Volume of Events Submitted Per Geographic Area



Notifications decreased by just under 8% in 2020 due to pandemic restrictions.

Table 2: Notifications Per Geographic Council

Geographical Area	2018	2019	2020
Central	232,900	238,444	206,678
Chatham-Essex	279,196	294,729	299,473
East	628,130	655,543	613,616
Grey-Bruce	64,692	68,326	87,449
GTA-East	409,834	466,214	428,078
Hamilton-Niagara	886,727	924,656	882,364
London-St. Thomas	236,992	255,974	244,691
North	207,652	218,310	193,942
Northwest	68,907	71,846	70,736
Sarnia	83,041	84,192	86,089
Southeast	130,370	135,031	123,212
Toronto	2,356,341	2,266,423	1,970,221
West	516,517	547,539	539,783
GRAND TOTAL	6,101,299	6,227,227	5,746,332

Figure 3 illustrates the number of events in 2020 where Ontario One Call was notified for a locate request versus not being notified for a locate request, broken down by geographic area.

Figure 3: Locate Versus No Locate Events by Geographic Area



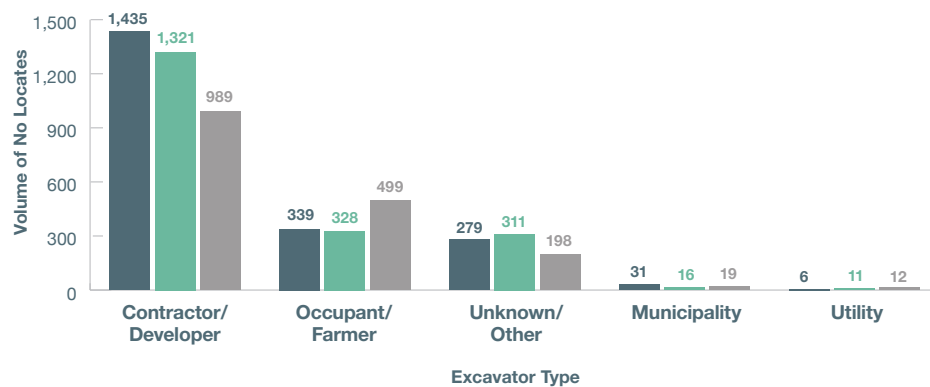
No Locate Damages by Excavator Type

Figure 4 provides further analysis on the categories of excavators that are not submitting locate requests.

Increased education should be targeted towards the Contractor/Developer who were responsible for 58% of the no locate damages in 2020.

Due to the pandemic stay-at-home orders and homeowners initiating home improvement projects, there was an increase of 52% in the Occupant/Farmer category.

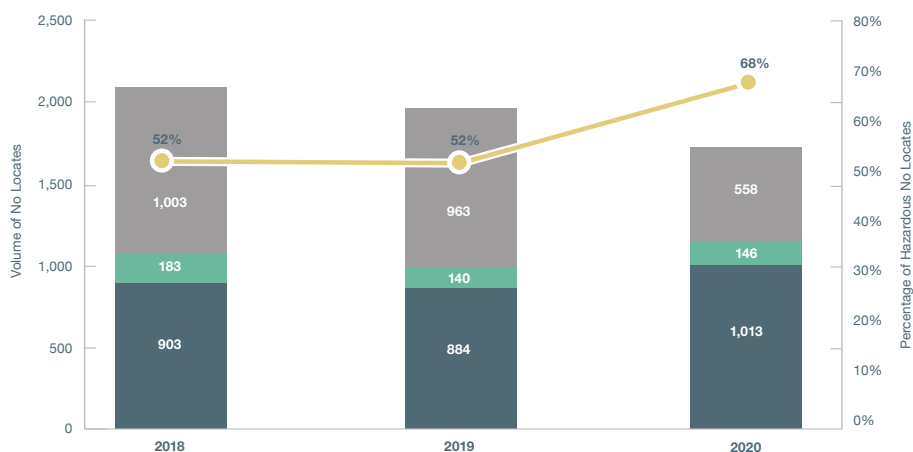
Figure 4: No Locate Damages by Excavator Type | ■ 2018 / ■ 2019 / ■ 2020



In 2020, 68% of No Locate events involved hazardous infrastructure; 1,013 Natural Gas and 146 Electrical.

This represents a large increase in events compared to 2018 and 2019.

Figure 5: No Locates with Hazardous Infrastructure

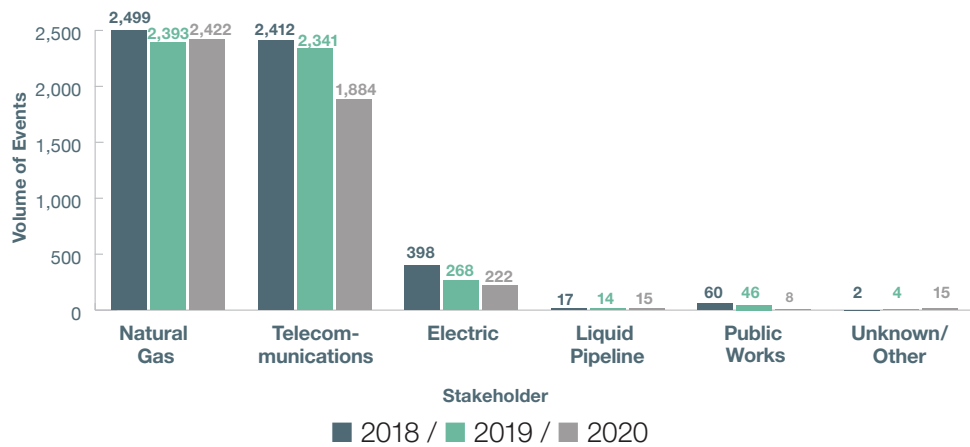


■ Natural Gas / ■ Electric / ■ Steam / ■ Other No Locates / — % Locates Hazardous Infrastructure

2.3 SUBMITTED FACILITY EVENTS BY STAKEHOLDER GROUP

Figure 6 illustrates a distribution of events by stakeholder group for the past three years. Natural Gas and Telecommunications continue to submit the highest volume of events. In order to support future trend analysis, additional stakeholders are encouraged to submit their events into DIRT.

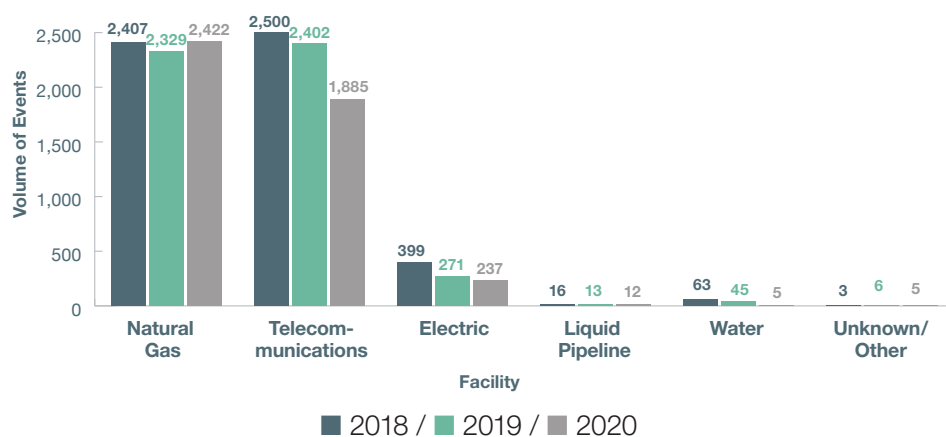
Figure 6: Facility Events Submitted by Stakeholder Group



2.4 SUBMITTED FACILITY EVENTS BY TYPE OF FACILITY OPERATION AFFECTED

Figure 7 illustrates that Natural Gas and Telecommunications continue to be the primary facilities affected by events reported in DIRT. This aligns with the high volume of events that the facilities continue to submit.

Figure 7: 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.

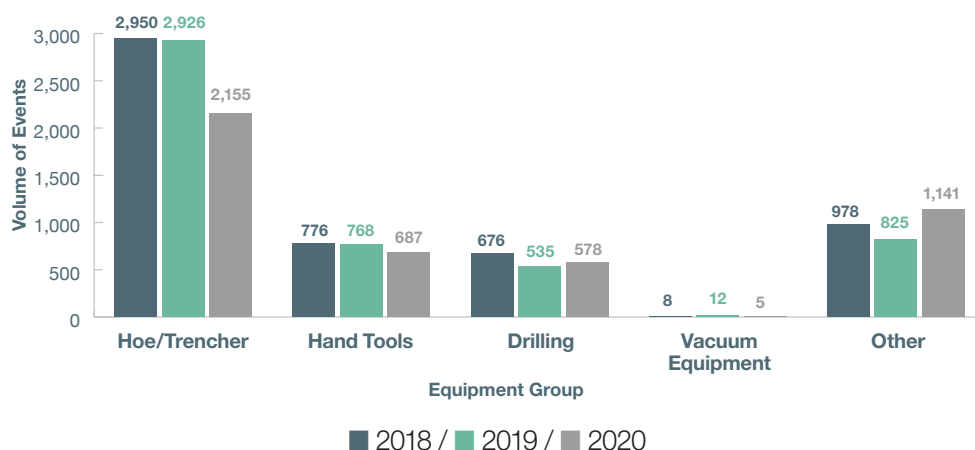
Table 3: List of Equipment Groups

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 illustrates a distribution of events caused by various groups of excavation equipment. In 2020, the Hoe/Trencher group continued to account for the largest volume of events, although there seems to be an encouraging decline in this category. Further data analysis is required to determine whether this is due to a decrease in contractor damages, or if it is a consistent trend.

Submitters are encouraged to minimize listing equipment as 'other' in order to improve data accuracy.

Figure 8: Submitted Facility Events by Excavation Equipment Group



2.6 Facility Events By Root Cause

Table 4 denotes the new data standard for the 2018 DIRT Form.

Table 4: 2018 Root Cause Category and Subcategory

Root Cause Category	Root Cause Subcategory	
Excavation Practices Not Sufficient	Marks faded or not maintained	Excavator failed to protect/shore facilities
	Improper backfilling practices	Excavator dug prior to verifying marks by test-hole (pothole)
	Failure to maintain clearance	Improper excavation practice not listed above
Locating Issue	Facility not marked due to : Abandoned Facility	Facility not marked due to : Unlocatable Facility
	Facility not marked due to : Incorrect Facility records/maps	Facility marked inaccurately due to: Abandoned facility
	Facility not marked due to : Locator error+	Facility marked inaccurately due to: Incorrect facility records/maps
	Facility not marked due to : No response from Operator/contract locator+	Facility marked inaccurately due to: Locator error
	Facility not marked due to : Tracer wire issue+	Facility marked inaccurately due to: Tracer wire issue
Miscellaneous Root Causes	Deteriorated facility	Root Cause not listed (comment required)+
	One-Call notification center error	Previous damage
Notification Issue	No notification made to the one-call center/811	Excavator dug outside area described on ticket+
	Excavator provided incorrect notification information	Excavator dug prior to valid start date/time+
		Excavator dug after valid ticket expired+

+ New Category\Subcategory

Effective 2018, these are the root causes and subcategories to use when submitting DIRT data. 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 understand the most common reasons for facility events, the distribution of Root Cause subcategories will be examined on the following pages.

Figure 9 illustrates the distribution of events by Root Cause category. The most common causes of events are a result of Excavation Practices Not Sufficient. Although there has been a decrease in this category, emphasis should be made to continue to reduce events by providing targeted outreach and education to the excavator community.

Is the decrease due to lack of activity due to the pandemic or the excavating community following Best Practices?

Figure 9: Facility Events by Root Cause Category

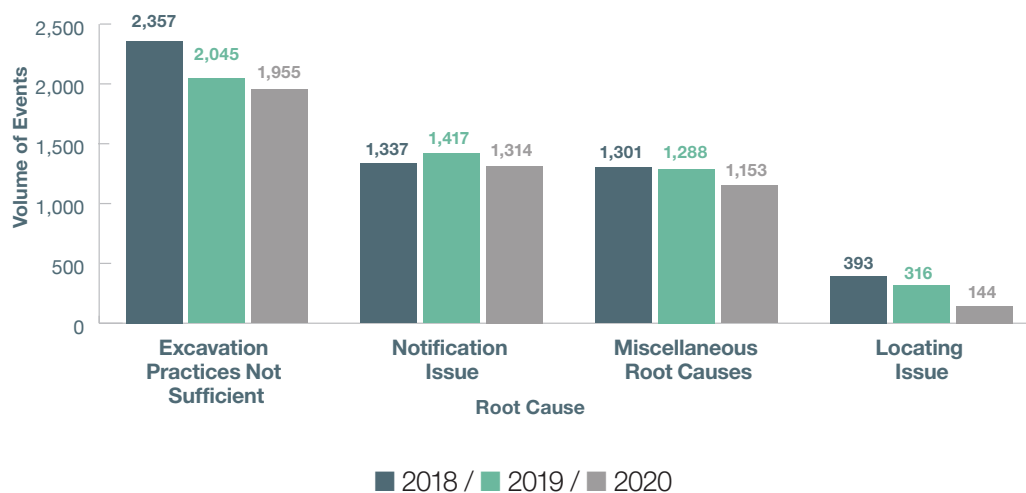


Figure 10 illustrates a 3 year breakdown of the Root Cause subcategories for Excavation Practices Not Sufficient. As seen below, Improper Excavation Practice Not Listed Above continues to be one of main issues. This Root Cause subcategory is defined as any other excavator error, which cannot be classified as one of the other six Root Cause subcategories within Excavation Practices Not Sufficient.

The next highest Root Cause subcategory is the failure to maintain clearance.

Figure 10: Facility Events by Excavation Practices Not Sufficient

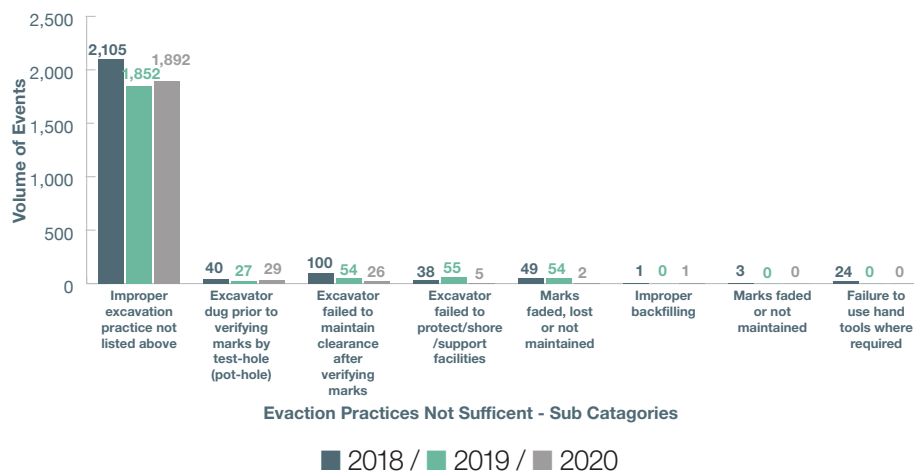


Figure 11 illustrates a three year breakdown of the Root Cause subcategories for Notification Issues.

This figure illustrates the need to continuously increase excavator and general public awareness about requesting a locate before digging starts.

Figure 11: Facility Events by Notification Issues

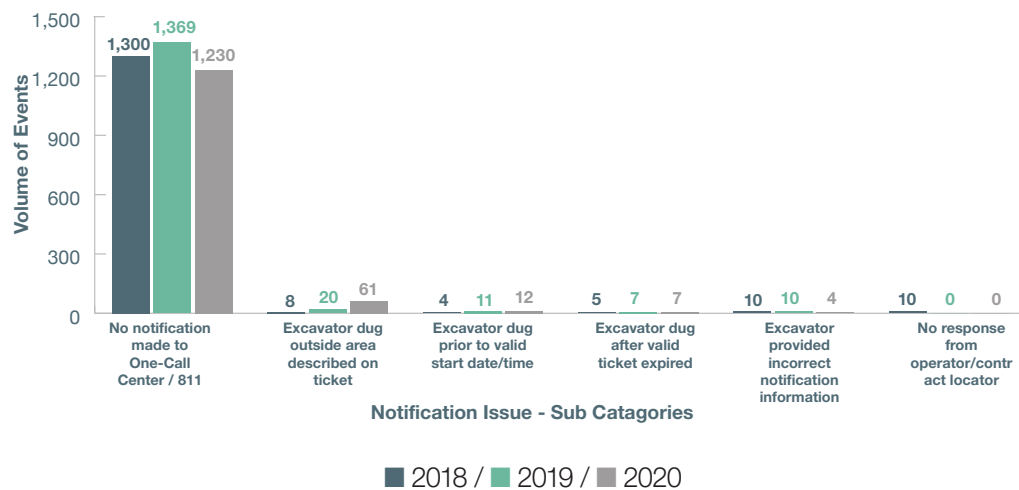


Figure 12 illustrates a three year breakdown of the Root Cause subcategories for Miscellaneous Root Causes.

The most prevalent Root Cause subcategory is Root Cause Not Listed Above.

Figure 12: Facility Events by Miscellaneous Root Causes

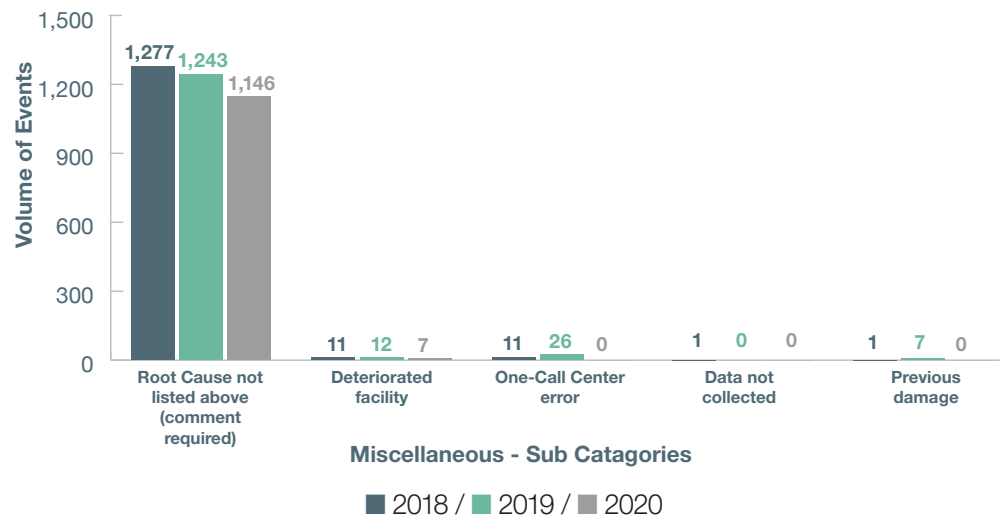
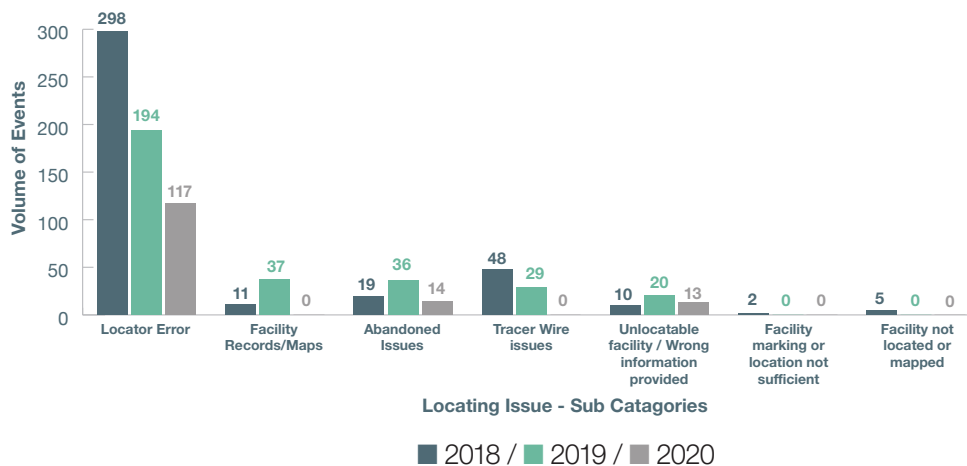


Figure 13 illustrates a three year breakdown of the Root Cause subcategories for Facility Events by Locating Issues. These subcategories were the most affected in the 2018 update of the DIRT Report with new subcategories added, as well as drill down of the old categories.

We have seen a sustained decrease in Locator errors, as well as in facility and facility record/maps issues.

For more information, click [HERE](#) to see Figure 13A, Facility Events by Locating Issue.

Figure 13: Facility Events by Locating Issues

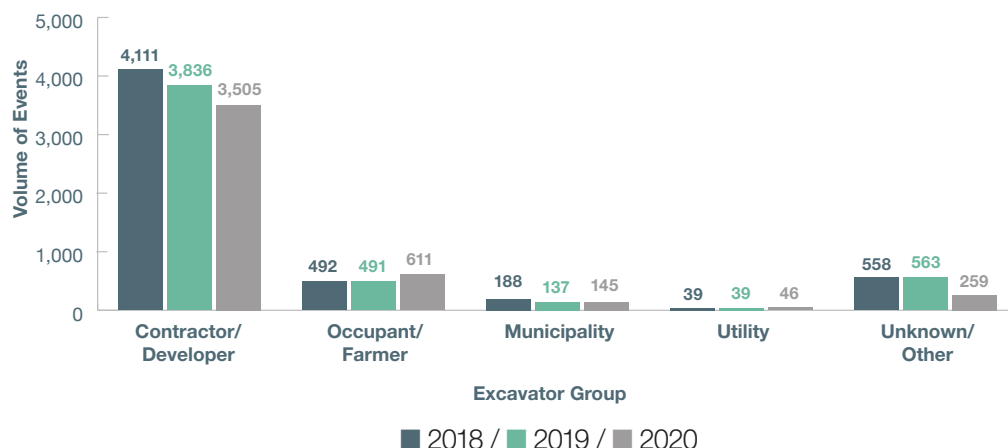


2.7 FACILITY EVENTS BY EXCAVATOR GROUP

Figure 14 illustrates the distribution of events by Type of Excavator showing that Contractor/Developer continues to be involved in the majority of reported events, although there has been a downward trend since 2018. The decrease in 2020 for Contractor/Developer and increase for Occupant/Farmer are very likely attributed to the pandemic restrictions.

In order to develop useful educational tools to improve the damage prevention performance in Ontario, it is important to examine the parties causing reported events. Additional analysis of these groups is provided in the 3.0 Multi-Field Analysis section of this report.

Figure 14: Facility Events by Type of Excavator



2.8 FACILITY EVENTS BY TYPE OF WORK PERFORMED

Figure 15 illustrates a distribution of Events by Type of Work Performed. Construction continues to be a concern as the volume of events have shown a significant increase for the past two years. Construction has now become the primary type of work causing events. Sewer and Water has seen a significant reduction from 2018 to 2020.

Sewer & Water and Utility continue to be involved in the majority of events submitted but have seen a downward trend since 2018.

In order to improve data accuracy, submitters are encouraged to reduce the use of the Unknown/Other category.

Figure 15: Facility Events by Type of Work Performed



Table 5 illustrates a three year breakdown of the most common types of work performed. When broken down into identifiable sub groups, Sewer, with 620 events, has the highest volume in 2020 followed by Fencing with 486 events, followed by Building Construction with 259 events.

These work types take into account over one third of events and would provide the greatest impact in being reduced.

Unknown/Other has the highest volume of events in 2020; however, it is not identified.

Table 5: List of Work Included in Each Work Group

GROUP & TYPE OF WORK	2018	2019	2020
Construction			
Bldg. Construction	828	903	261
Driveway	129	152	162
Site development	54	74	70
Grading	37	39	43
Bldg. Demolition	21	15	11
Green			
Fencing	480	375	488
Landscaping	341	353	397
Irrigation	8	8	10
Waterway Improvement	1	5	9
Agriculture	1	4	2
Sewer & Water			
Sewer	280	249	621
Water	826	722	363
Drainage	175	194	173
Sewer (Sanitary/Storm)	1		
Street & Road			
Road work	286	301	350
Curb/Sidewalk	82	76	102
Storm Drain/C/vert	84	95	44
Pole	11	26	23
Traffic Sign	6	10	15
Railroad			3
Public Transit Authority	9	5	3
Street Light	9	8	2
Traffic Signal	7	3	1
Utility			
Electric	281	278	256
Telecommunications	499	359	255
Natural Gas	195	155	62
Cable TV	67	87	47
Liquid Pipeline		5	1
Unknown / Other			
Unknown/Other	670	567	791
Engineering/Surveying		2	1

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 Construction, Sewer and Water, Utility, Green, Unknown/Other and Street & Road Work for 2018, 2019 and 2020.

Figure 16: Facility Events by Root Cause Group and Industry

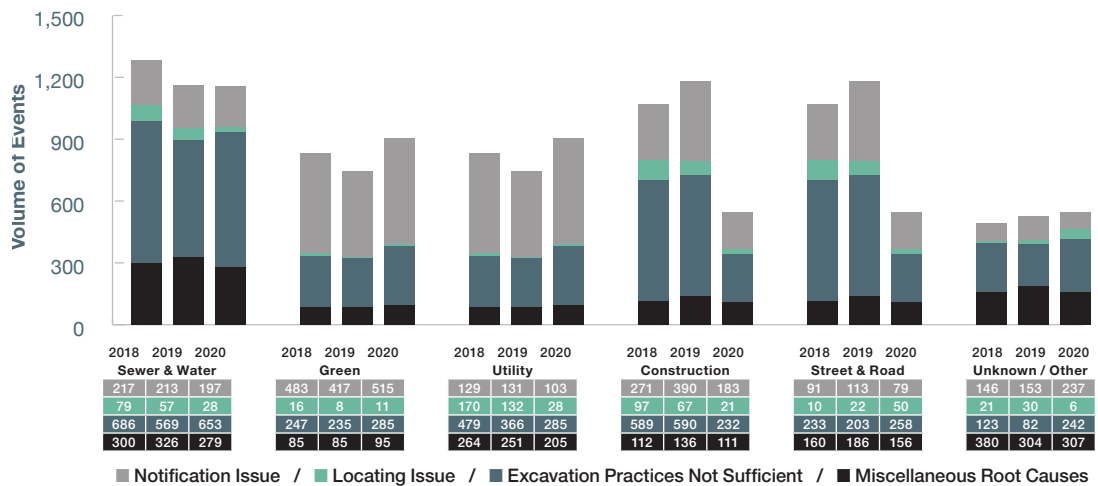


Figure 17 illustrates that the Contractor/Developer excavator type continues to represent the majority of events submitted under the Excavation Practices Not Sufficient category, and has seen a decrease in 2020.

Figure 17: Facility Events by Root Cause Category and Excavator Type

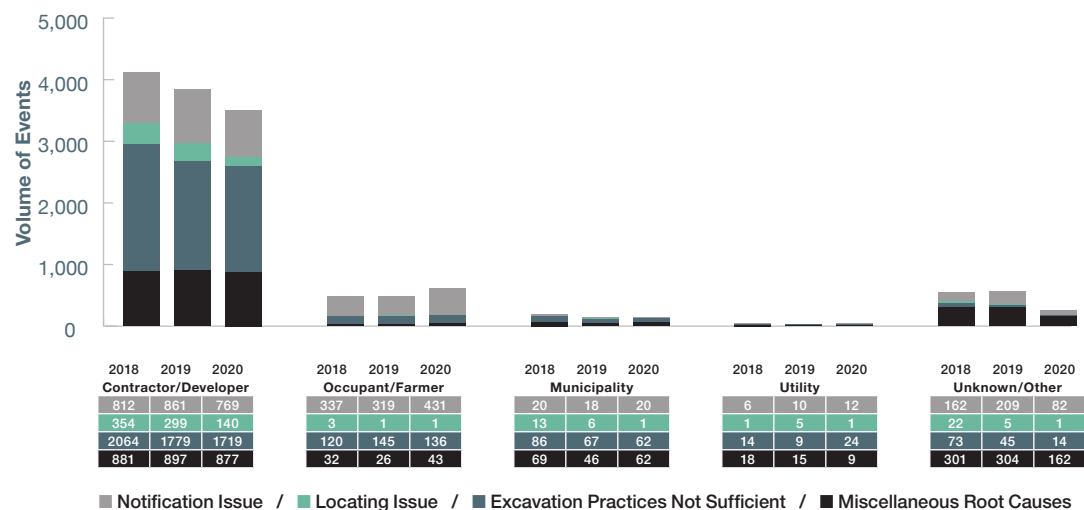
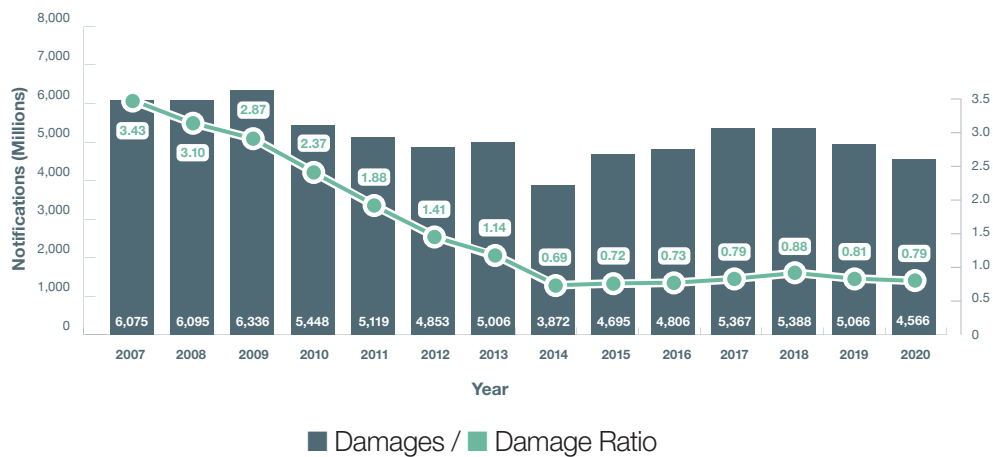


Figure 18 illustrates the damage ratio relative to the volume of events over the past 14 years. Industry practice is to measure damage prevention performance by the volume of damages per thousand notifications.

Due to a change in Ontario One Call process in 2018, notifications have decreased which negatively affects the Damage Ratio. 2020 saw further decreases due to pandemic restrictions.

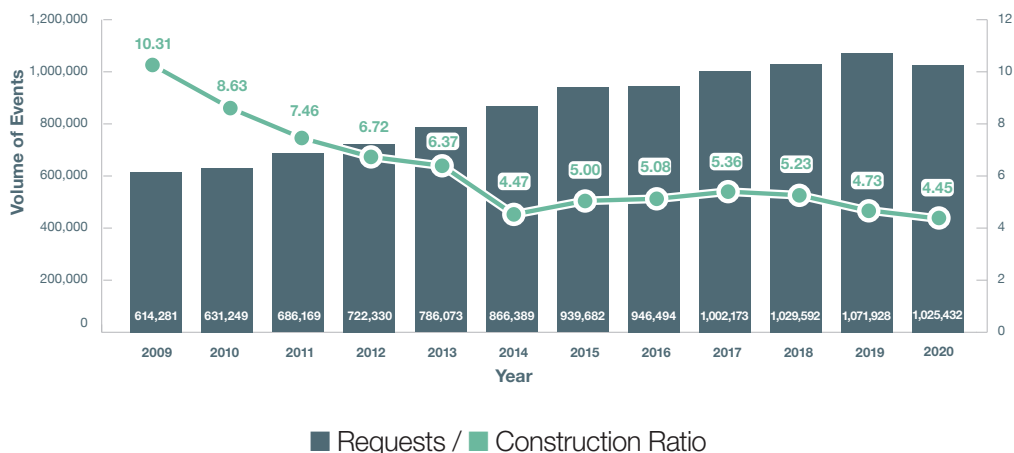
Figure 18: Damage Ratio- Damages/1000 Notifications



In response to the Ontario One Call process changes, this new chart was created to show damages per 1000 requests as this has remained consistent and is driven by either public awareness or economic events.

The 2019 Damage to Request Ratio shows a decrease reversing an upward trend from 2014, which continues in 2020.

Figure 19: Damages/1000 Requests



Based on many industry articles, presentations, and discussions over the last 20 months, it has been identified that Late Utility Locates are problematic in Ontario and that the 2020 DIRT Report should include Late Utility Locates data.

A new question has been added to the 2020 Ontario DIRT questionnaire to determine if there is a relationship between damages and late locates.

The question is: “Was the locate completed within the required timeframe?”, and the response consists of selecting “Yes”, “No”, or “Unknown” as an answer.

Data collection began in November 2020 and therefore this graph does not represent a full year of collected information.

In 2021, the committee will reach out to data submitters to further educate them on this question.

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

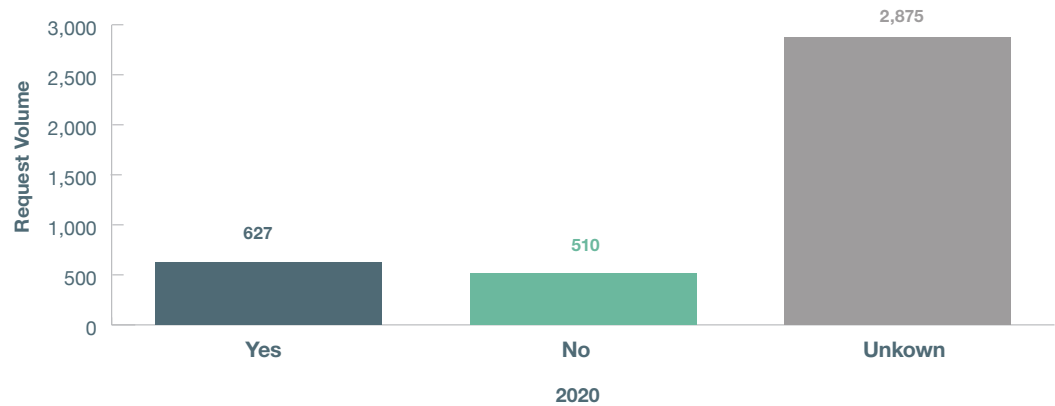


Figure 21 shows that although the peak of locate requests happen in May, the peak of damage incidents occur in July for 2020.

Figure 21: Damages vs Requests

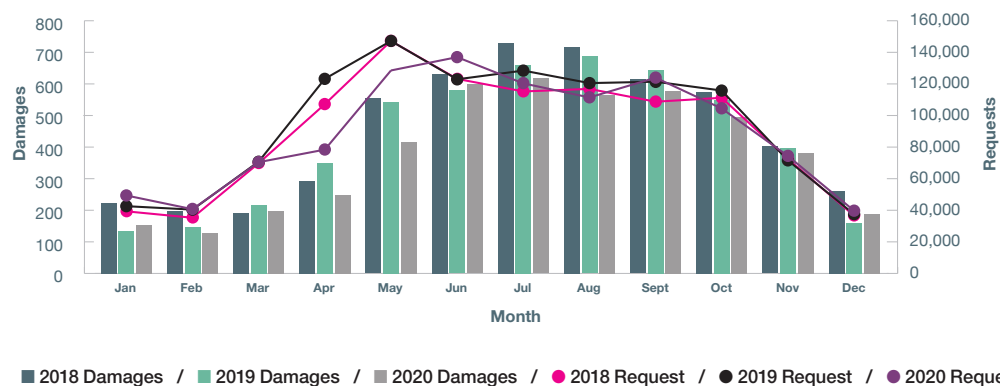
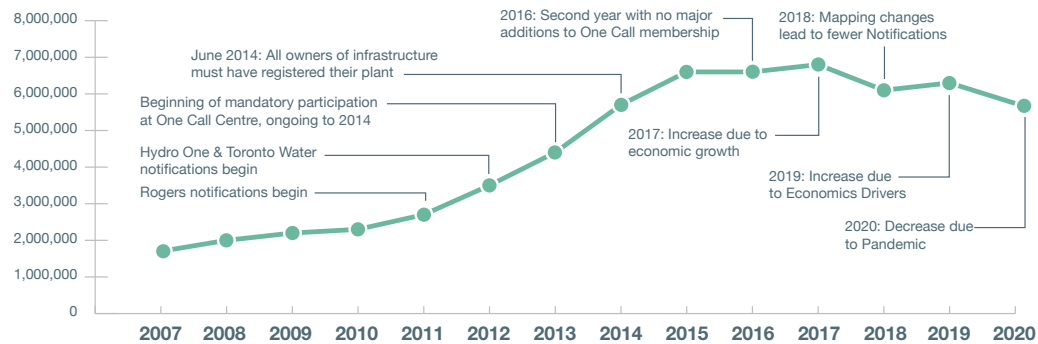


Figure 22 demonstrates that up until 2015, notifications rose significantly as major stakeholders became members of Ontario One Call.

Any further changes would be due to outside economic events.

Figure 22: History of Notifications



In 2019, the number of damages reported via DIRT for Canada totaled 11,949, which is slightly down (0.8%) than the 12,041 for 2018. Table 1 presents a summary of key performance indicators related to damages by province/region. Canada-wide, there were on average 48 damages per workday (assuming 251 workdays per year).

Table 1 - Damages, requests, notifications, by province/region, 2019

PROVINCE/ REGION	Damages	Damages per Work Day	Damage Ratio per 1,000 Locate Requests*	Damage Ratio per 1,000 Notifications**
British Columbia	1,304	5	6.45	1.92
Alberta	3,613	14	8.96	2.47
Saskatchewan	669	3	4.73	1.49
Manitoba	196	1	2.62	1.02
Ontario	5,005	20	4.67	0.80
Quebec	1,102	4	3.82	1.76
Atlantic	60	<1	1.15	0.87
Canada	11,949	48	5.35	1.23

* 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 take place when a One-Call Centre transmits locate requests to their member facility operators. Each incoming notice of intent to excavate will generate several notifications to the electric, gas, water, sewer, cable TV, telecommunications, etc.

Natural Gas Sewer Safety Inspections



Natural gas pipelines installed using trenchless practices may have inadvertently penetrated sewer service lines.

Using motorized or water-jetting equipment to clear the sewer line can damage a natural gas line resulting in a gas leak, fire or explosion.

Before clearing a blocked sewer beyond the outside of a building, take the necessary precautions to protect yourself and others.

Always call Ontario One Call at 1-800-400-2255 to request a free Natural Gas Sewer Safety Inspection.

Enbridge Gas
Damage Prevention Department
1-866-922-3622
enbridgegas.com/sewersafety



Article 1

NOW is the Time to Address 'Late Locates'

By Frank Zechner, Residential Construction
Council of Ontario

1. 'Late Locates' Background

Ontario took a large step forward in 2012 by establishing a mandatory One Call system to allow homeowners, construction contractors and other excavators to make one locate request to a call centre instead of the previous practice of requiring separate calls to up to 14 separate utilities.

A locate, however, is of little value unless it is both timely and reliable. In recent years, there have been growing concerns by all stakeholders on both sides of the Canada US border, about the perceived increase in the number and duration of late locate responses. Other stakeholders believed that 'late locates were temporary'¹ and that "It may take a couple of months to work out the kinks, but a five day locate standard will happen in Ontario."

Six years later, the same Landscape Ontario professional who had expressed optimism about five day locate responses was at the ORCGA's 2020 Symposium and noted: "almost every contractor that came into the ORCGA exhibit complained about late locates. I was surprised. Their comments were very upsetting because nothing seems to have changed over the last decade. Many contractors indicated that in some cases, locates were up to 15-20 days late. Late locates cost contractors time and money."

¹ <https://horttrades.com/the-solution-to-utility-locate-problems>

2. Evolution of DIRT Reports

The DIRT Report (Damage Information Reporting Tool) which is familiar to Ontario stakeholders originated through the US Common Ground Alliance (CGA). The foundation for DIRT reports (whether in the US or Canada) was and continues to be an examination of data for “events that could have, or did, lead to a damaged underground facility”, including damage information, downtime, and near misses. Canada’s current CCGA Best Practices² defines the term “Event” as “the occurrence of an underground infrastructure damage, near miss or downtime”.

In May 2020, the CGA provided a supplement to its DIRT report regarding ‘near-miss data’ for the years 2015-2018³. The headline of the associated press release read “Common Ground Alliance Analysis of Near Miss Data Suggests Late Locates of Buried Utilities are underreported”. That same article also included the following statement: “Isolating and examining near miss data helps us see what makes those situations unique for certain stakeholders, and has also illuminated paths for new data correlation and analysis, such as the potential for leveraging data from one call centers’ automated positive response (APR) systems to gauge the percentage of locate requests that are addressed late.”

3. The Relevance of ‘Late Locates’

As of late 2020, neither the US CGA, nor any of the Canadian Regional CGA chapters have had questions about the timeliness of locate responses as part of their DIRT data fields.”

Late Locates are a potential cause of “downtime”, and “downtime” is a reportable event that is related to ORCGA’s primary mission of damage prevention. The ORCGA does not yet have sufficient data to determine whether there is a direct link between late locates and infrastructure damage, and whether measures to reduce the number of late locates will trigger a corresponding reduction in infrastructure damage.

It is difficult to solve a problem if you cannot measure it. Doctors cannot be certain that a dose of a drug will reduce a patient’s high fever unless the doctor can measure the patient’s temperature. Similarly, one cannot know if specific steps will decrease the frequency and/or severity of late locates, unless there is a measurement of the frequency and severity of late locates before and after the steps are implemented. Due to the anonymity that is at the heart of the DIRT tool and the familiarity that stakeholders already have with inputting data into the DIRT tool, the ORCGA has determined that a measurement of ‘late locates’ should become a part of the DIRT tool.

4. Steps that Might Reduce Late Locates

In October 2020, CGA released its ‘Locator White Paper’⁴. One of the observations from that White Paper is: “If you’re going to squeeze productivity too much that means you’re going to push your locators harder, and they’re going to cut a corner. Something is going to be mis-marked or not marked and that’s where damages occur.”

The number of Ontario excavation activities that trigger locate requests is expected to grow year by year, although there may be temporary reductions

² CCGA Best Practices Version 3.0 – October 2018 at https://orcca.com/wp-content/uploads/2018/11/CCGABest-practices_version3_October2018.pdf

³ US CGA Supplemental Report at <https://commongroundalliance.com/DIRT>

⁴ <https://commongroundalliance.com/Portals/0/CGA%20Locator%20White%20Paper%20-%20FINAL%2010.21.20.pdf?ver=2020-11-10-130356-690>

in construction activity, either due to a major and lasting economic downturn, such as the 2008-2010 recession or the current COVID-19 pandemic.

In order to avoid pushing locators harder, the number of locate requests handled by locators can be reduced, and some of the difficulties for a specific locate response can be simplified.

Increasing the number of qualified locators available to respond to locate requests is likely to have a significant positive impact on reducing the number of locate requests handled by individual locators, however qualified and experienced locators cannot be created instantly, this is a step that will likely take several years to complete. Before proceeding in this direction, we will need answers to the questions of “who is going to pay for the training of the new locators?” and “who is going to cover the incremental cost of adding locators to various payrolls?”

The number of locate requests can also be reduced by extending the validity period of locate tickets from the prior practice of 30-day validity periods to 60-day tickets or longer. Recently many Ontario infrastructure owners have either implemented or agreed to implement this step. Other measures that could reduce the number of locate requests without reducing construction activity also includes placing greater onus on project owners to obtain locates on behalf of all prospective contractors bidding on a construction project instead of leaving it to individual bidders to obtain request their own locates. Authorizing the sharing of locate tickets among multiple excavators at a single project is another way to reduce the quantity of locate requests.

The US CGA published a White Paper in October


2020 ‘Insights into Improving the Delivery of Accurate, On-Time Locates’⁵, which was based largely on detailed interviews with high level decision makers at 20 locating and utility companies as well as questionnaires completed by more than 400 locate technicians from across the US. The white paper lists several actions to improve locate quality and turnaround times, including, but not limited to:

- Making white lining by excavators mandatory;
- Putting a greater emphasis on infrastructure owners to maintain and share updated maps; and
- Investing in improved locate technology and more accurate equipment.

5. Conclusions

Late Locates are neither a recent nor temporary phenomena and there is no simple, one-time fix that will alleviate the number and severity of late locate responses.

Each group of stakeholders has a unique opportunity to take positive steps that will reduce the frequency and severity of late locates. Measures taken by stakeholders to reduce late locates might also help to decrease the number and severity of damages to buried infrastructure.

One of the first steps to addressing the problem of Late Locates is to obtain measurements of the source and severity of the problem. ORCGA’s decision, to add a field to the DIRT questionnaire regarding the timeliness of locate responses, is likely to be a vital and constructive measurement tool for the ORCGA and its stakeholders. 

⁵ <https://commongroundalliance.com/Portals/0/CGA%20Locator%20White%20Paper%20-%20FINAL%2010.21.20.pdf?ver=2020-11-10-130356-690>

Article 2

The Region of Peel

Transitioning to DIRT Reporting:
The Necessity and The Challenges

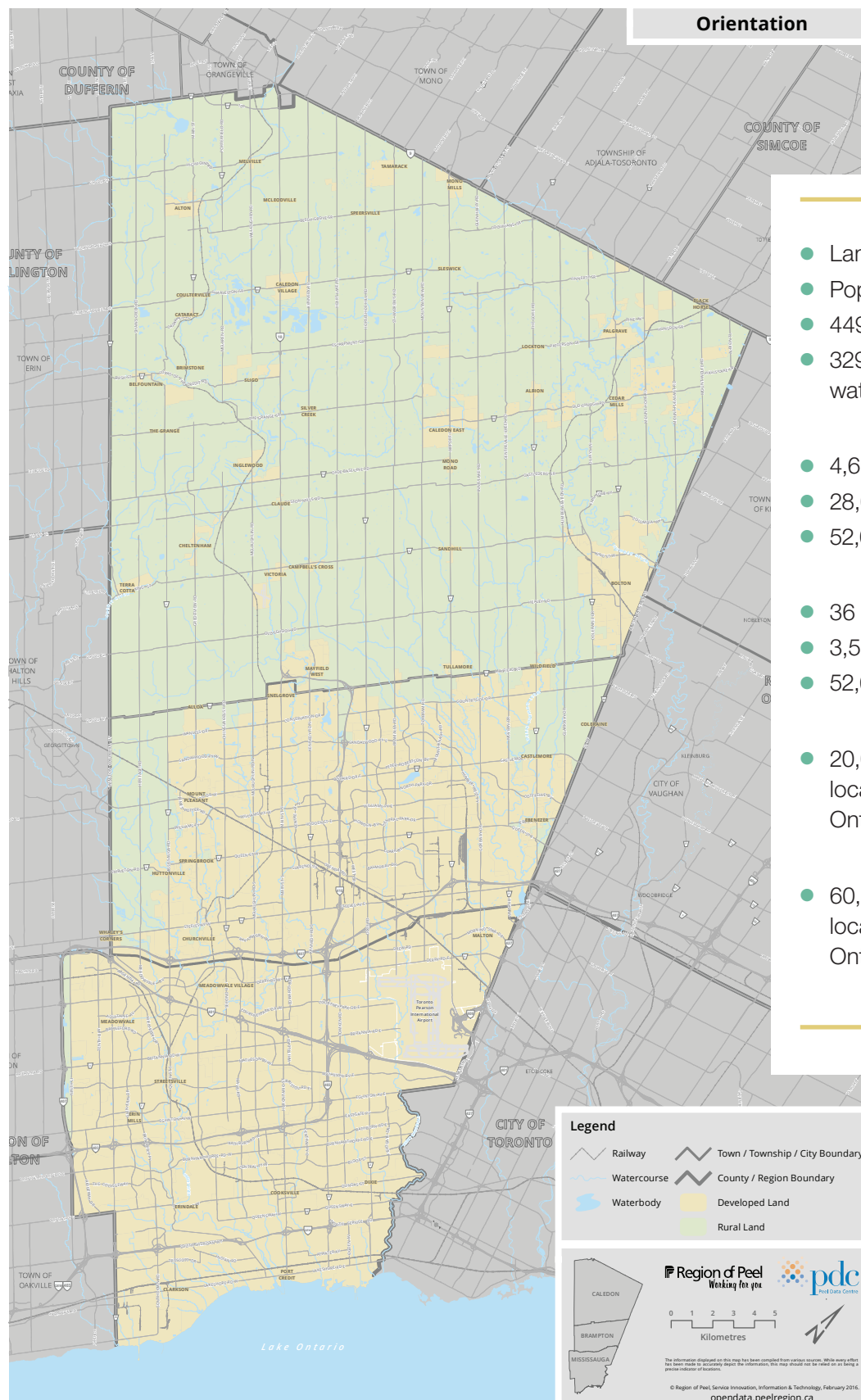
By Nectar Tampacopoulos, Manager, Water Operations, South Peel, and,
Qasim Rana, Supervisor, Water Operations Support (A), Public Works, Region of Peel

Introduction

The Regional Municipality of Peel is located immediately to the west of Toronto and is comprised of three Municipalities: The City of Mississauga, the City of Brampton, and the Town of Caledon.

Since 1974, the Region has delivered a wide range of programs and services including:

- Paramedic services
- Health programs
- Human services
- Waste collection and recycling
- Water and wastewater distribution and treatment
- Road maintenance



- Land mass of 1,225 square km
- Population 1,494,747(2019 est):
- 449,755 dwellings (est):
- 329,653 residential and commercial water services
- 4,665 km of water mains
- 28,054 hydrants
- 52,090 main line valves
- 36 sewage pumping stations
- 3,541 km of sanitary sewer mains
- 52,649 sanitary maintenance holes
- 20,00 utility water, sanitary and storm locates per year prior to becoming an Ontario One Call member
- 60,00 utility water, sanitary and storm locates per year after becoming an Ontario One Call member

The Region's strategic plan provides a foundation for their annual budget and operational plans.

This planning ensures that the right services are delivered properly and efficiently to residents, business owners and taxpayers.

Peel Water staff ensure the provision of safe drinking water to residents and business of the Region by managing and operating the system within all relevant environmental, labour, safety and Ministry of the Environment, Conservation and Parks legislation, as well as to internal Peel service levels.

Although we've made progress, what is reported into DIRT represents a small portion of the damages that are actually occurring in the field.

The Peel Water Operations team works closely with the Capital Group and State of Good Repair Program Planning team to ensure that the existing distribution system is in good standing.

Safe drinking water and wastewater services are paramount to residents and businesses, while also allowing health professionals to do their work, and assisting Fire Departments with keeping the communities safe.

It is not until we lose these services that we realize how impactful and important underground infrastructure is to our community.

The Region of Peel and DIRT Reporting

The DIRT Report holds significant value for the Region of Peel, as it provides:

- Key information on underground damages including root causes, types of equipment, and types of work causing most of the damages.
- Important statistics that are otherwise difficult to gather and analyze.
- The impacts of damage on underground infrastructure.
- "Lessons learned" from the experience of other utilities across the industry.

The Challenges of DIRT Reporting

Capturing and centralizing information for the DIRT Report has been a challenge for the Region of Peel.

Currently, DIRT reporting for the Water and Wastewater (W/WW) Operations group is in its infancy stage. A "damage investigator" has been assigned to capture damage data and upload into the DIRT reporting system. We have centralized this process for W/WW by the creation of digital forms that can be filled out in the field and have designated this responsibility to our Quality Control Lead.

The goal is to improve on this process by capturing damage data as incidents occur directly within our GIS system, which allows for review and analysis of the data, as well as an easier upload into the DIRT system.

Although we've made progress, what is reported into DIRT represents a small portion of the damages that are actually occurring in the field.

An even greater challenge for a Municipality the size of Peel has been the need for improved coordination amongst the various groups and departments to ensure all damages to all infrastructure are captured and reported.

Silos of information reside in other Peel departments that must be extracted to get a true sense of all damages occurring in Peel. Some examples include Information Technology (Public Sector Fibre Network), and Transportation (traffic signals on Regional roads).


Having the DIRT Data Field Form is a start, but true data collection requires many other processes to be put into place, such as:

- Senior Leadership buy-in. This buy-in is key to the success of this program. Peel prides itself on a culture of health and safety and through this lens, damage prevention is an extension of this culture.
- Buy-in from each Stakeholder Operational Group.
- Coordination amongst various groups/departments to ensure all damages are captured and reported outside of water and wastewater (i.e. Public Sector Fibre Network and Transportation for Regional traffic lights).
- Change in culture/mentality from the current outlook ("fix the damage first") to understanding why it is important to capture damage information.
- Education for a high number of external staff who might potentially encounter

damaged infrastructure in the field outside of public works, to understand the importance and benefits of capturing damage information.

- Development of protocols and training for staff to capture damages accurately.
- Embed new processes into the field staff's regular work routines.
- Data tracking and quality control from one centralized point.
- Data entry, data updates, and tracking of damages into the Asset Management system.
- Development of stakeholder reporting detailing:
 - What happened?
 - Why did the damage occur?
 - What were the financial impacts?
 - Were our customers impacted (water outage, sewage contamination)?
 - Was Peel's reputation damaged?
 - Did our customers lose trust and confidence in Peel's service offerings?

Although capturing and centralizing information for the DIRT Report has been a challenge for the Region of Peel, we realize that mitigating the potential health and safety impact for the public and upholding the reputation for Peel Region far outweighs the cost and effort of root cause analysis.

By utilizing the tools and methods mentioned above, together with submitting data to DIRT, Peel Region strives to maintain the delivery of essential services and uncompromised asset integrity. 



Article 3

Protection of Ontario's Land Survey Monuments

Submitted by the Association of Ontario Land Surveyors
Monument Protection Task Force

We all have our reasons for needing to know where property limits are on the ground. A homeowner needs to know where to place a new fence and a contractor needs to know that a service being installed is within the road allowance and not on private property. Whatever the purpose, survey markers or “monuments” are vital for marking these limits.

So vital, in fact, that Part XI, Sections 442 and 443 of the Canadian Criminal Code (R.S., 1985, c. C-46) make the wilful damage or removal of monuments an indictable offence carrying a punishment of up to five years' imprisonment.

Under the authority of the Surveyors Act, a licensed Ontario Land Surveyor (OLS) is the only professional who can legally establish and re-establish survey markers.

The Ontario Regional Common Ground Alliance (ORCGA) is mandated in Ontario to enhance safety through the prevention

of damage to underground infrastructure. Survey monuments have been identified as being part of the underground infrastructure.

Unlike typical underground infrastructure, survey monuments are much more difficult to ascribe to an owner. If a monument is removed because of work being performed close to the boundary limit, then the monument should be re-instated as a common “Best Practice”.

Prior to title insurance, survey monumentation was constantly being replaced because new surveys were required for most real estate transactions. Moreover, the continued installation of utilities in public roadways has led to an estimated loss of 75% of the monuments marking their limits over many years. Consequently, interest in monument preservation has increased. The Surveyor General of Ontario's office has received

Examples of Land Survey Monuments

such an increase in inquiries about missing monuments that, in cooperation with the Association of Ontario Land Surveyors (AOLS), a task force was established to find a recourse for the public when they encounter damaged or missing monuments.

The task force reviewed the issue of missing monuments and determined that a large number of monuments are being removed through road corridor projects, either road or sidewalk reconstruction or through utility installations. To address these findings, the task force developed a “Best Practice” document to educate the industry about the issue and also developed a Special Provision (SP) titled “Protection of Survey Monumentation”. This provision was approved by the Council of the AOLS. The document can be found on the AOLS website. https://www.aols.org/site_files/content/resources/public/monument-protection-sp--sept-2014-.pdf

The SP is very clear. A pre-inventory of all the monuments is taken by an OLS prior to the start of construction, and by working with the constructor, monuments are preserved during construction. At the completion of the project a post-inventory is performed, all missing monuments are replaced and the OLS signs off that all the monuments within the project are in place.

The creation of the SP was the start of the education process and gives the industry a sound document to be used in all construction projects. The principles that are outlined in the SP are currently being used by the Ministry of Transportation (MTO) as well as several large Municipalities, and are part of the general conditions of contract, although it will take time to see the benefits of this approach.

Contractors and Excavators can make a difference by being aware of the Special Provision and following Sections 1-2 and 4-33 Protection of Survey Infrastructure in the CCGA/ORCGA Best Practices Manual. Change will happen if we all work together with the same common goal to preserve survey monuments.



Article 4

TOP 10 Canadian Construction Trends to watch in 2021

By Mary Van Buren, President, Canadian Construction Association

The president of the Canadian Construction Association breaks down the industry organization's expectations for the year ahead

1. RHETORIC OR REALITY: WILL INFRASTRUCTURE INVESTMENT DOLLARS FLOW IN TIME?

Billions of dollars have been earmarked through Infrastructure Canada's Investing in Canada Plan, yet there are still billions that are uncommitted since 2018. With a severely hard-hit economy, will the feds, provinces and municipalities be able to set aside politics and get funds flowing, and people working? Mixing infrastructure stimulus with unrelated social policy goals will delay projects, interfering with economic recovery and getting people back to work.

2. IMPROVED HYGIENE STANDARDS ARE HERE TO STAY

While COVID-19 has been devastating in so many ways, one positive outcome is the increased hygiene on job sites across Canada. Improved handwashing and bathroom facilities have addressed some of the downsides of working on job sites and may result in reduced spread of other common germs, like colds and flus.

3. PRIVATE SECTOR STALLS

Investor confidence has taken a beating in the commercial sector, as some businesses promise to significantly reduce their

footprints. And, while the square foot per office worker was already declining, will it need to increase again to accommodate a smaller workforce, while respecting physical distancing? Project tendering began to slow down in the third quarter of 2020, which will have a significant impact on the design and engineering community first, followed by the construction industry late next year, unless this gap is filled with government work or a return to private sector investor confidence.

4. WORKFORCE SHORTAGE WORSENS

The CCA has advocated and continues to advocate for a steady, flexible and dedicated commitment to infrastructure investment. With governments slow to launch economic stimulus in the form of infrastructure investment, placements for apprentices are most at risk. This will sharpen the already significant shortfall in skilled workers, such that recovery will be slower. Skilled tradespeople simply cannot be created overnight.

5. RISKY BUSINESS

Construction firms have long shouldered the majority of project risk. Throughout COVID-19, contractors took a leap of faith that owners would reimburse extraordinary costs related to COVID-19. While some owners have been flexible and fair, others

have not. P3 models, seen as a panacea for large infrastructure projects, have not been as well received by contractors who have been charged with a disproportionate share of the risk. While vaccines may be on the horizon, COVID-19's continued impact, lower investor confidence and contractors burning through their backlog could mean 2021 could be a make or break year for many. The small and medium-sized contractors who carry much of the upfront costs of projects are most at risk.

6. RISE OF PROTECTIONISM

Provinces with struggling economies and municipalities with limited funds may look inward, erecting trade barriers to narrowly focus on their constituents. This short-term thinking is already happening in British Columbia, with its Community Benefits agreements, which are Project Labour Agreements (PLA), as well as with Saskatchewan's stated preference for Saskatchewan-based firms to win bids. Economists suggest that policies that impose trade barriers are harmful to the economy. Interprovincial trade barriers are inefficient, and do not support a fair, transparent and competitive procurement processes. It is essential that we stand united and work together to benefit all Canadians during recovery.

7. GREENING OF INFRASTRUCTURE

The federal government will continue to advance its sustainability strategy, which may lead to more projects in urban areas. We also need to tend to our infrastructure deficit. Highways, roads, bridges, ports and other forms of transportation infrastructure are integral to maintaining the quality of life Canadians enjoy. They are not only essential for personal commuting and travel, but also allow for movement of goods and services that underpin the economy. The Canadian Trucking Alliance estimates, for instance, that over 90 per cent of all consumer products and foodstuffs are shipped by truck. According to the 2019 Canadian Infrastructure Report, nearly 40 per cent of roads and bridges are in fair, poor or very poor condition and 30 per cent of tracks for public

transit require investment in the next decade. About 25 per cent of Canada's potable water infrastructure, including watermains, reservoirs and dams, and 30 per cent of its wastewater infrastructure, including sewers and treatment plants, is in fair, poor or very poor condition. These needed infrastructure investments are an opportunity to reshape our communities in a more sustainable manner.


8. DIGITAL ACCELERATION

The consumer appetite for digital commerce radically increased during the shutdowns, altering business priorities and operations. E-commerce activities advanced 10 years in three months, according to a report by the McKinsey Institute. The construction industry also appreciated the value of connecting through technology during the pandemic, complying with physical distancing while managing projects remotely. The added benefit has been improved data on projects, the modernization of procurement, such as e-ticketing in the cement industry and a demand for permitting to go digital.

9. FEDERAL PROMPT PAYMENT IS LAUNCHED

The federal government has been working to bring the legislation into implementation. Understandably delayed by COVID-19, the industry is counting on this to be in place for 2021. With the uncertainty of projects and liquidity concerns, this will send a positive message.

10. SUPPLY CHAIN RE-THINK

While the supply chain was surprisingly resilient during 2020, it was not without its risks. From lumber to windows to cement, contractors had to deal with uncertainty in receiving materials and increasing costs. This may ramp up investments in modularization, as well as prompt calls for governments across the country to support those industries that supply "made in Canada" materials. 

First published in On-Site



EXCAVATOR OF THE YEAR AWARDS

ORCGA recognizes ongoing achievement in our industry through our Awards Program.

These awards recognize excavators with the best in-class safe digging practices. Excavator of the Year is determined by each contractor's individual damage rate. A damage rate is a calculation dependent on the volume of locate requests, measured against the number of digging related damages to underground infrastructure. Input from infrastructure owners is also used in the determination.

To qualify, excavators must have a minimum of 500 locate requests to Ontario One Call.

ELECTRIC



GAS



HOMEBUILDER



LANDSCAPE



ROAD BUILDER



SEWER/WATER



TELECOMMUNICATIONS



MOST IMPROVED



Appendix A:

Report Findings: Data Quality Index Indications

Table 6 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 74.1%.

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 “2020 DQI” column in the table below represents the average of all 4,566 submitted events in the 2020 dataset.

Table 6: DIRT Submission Parts and DQI

DIRT Parts	Relative Weight	2018 DQI	2019 DQI	2020 DQI
A: Who is submitting this information?	5%	100.0	100.0	100.0
B: Date and Location of the event	12%	82.9	82.9	76.1
C: Affected Facility Information	12%	76.7	77.4	78.2
D: Excavation Information	14%	86.9	87.6	84.8
E&F: Notification, Locating, Marking	12%	78.6	81.0	83.7
G: Excavator Downtime	6%	33.2	34.0	8.1
H: Description of Damage	14%	47.2	49.4	45.3
I: Description of the Root Cause	25%	76.3	75.5	74.9
Total Weighted DQI	100%	76.9	77.2	74.6

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.

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

Who is providing the information?

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

Name of person providing the information:

Part B – Type, Date, and Location of Event

Type of Event: ☐ DIRT Event ☐ Underground Damage ☐ Underground Near Miss
☐ Non-DIRT Event ☐ Above Grade ☐ Aerial ☐ Natural Cause ☐ 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

***What type of facility was affected?** ☐ Distribution ☐ Gathering ☐ Service/Drop ☐ Transmission ☐ Unknown/Other

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 _____ in/cm
From Grade ☐ 18" – 36" / 46 - 91 cm ☐ >36" / 91 cm

Part D – Excavation Information

***Type of Excavator** ☐ Contractor ☐ County ☐ Developer ☐ Farmer ☐ Municipality
☐ Occupant ☐ Railroad ☐ State ☐ Utility ☐ Unknown/Other

***Type of Excavation Equipment** ☐ Auger ☐ Backhoe/Trackhoe ☐ Boring ☐ Bulldozer
☐ Drilling ☐ Directional Drilling ☐ Explosives ☐ Farm Equipment ☐ Grader/Scraper ☐ Hand Tools
☐ Milling Equipment ☐ Probing Device ☐ Trencher ☐ Vacuum Equipment ☐ Unknown/Other

***Type of Work Performed** ☐ Agriculture ☐ Bldg. Construction ☐ Bldg. Demolition ☐ Cable Television
☐ Curb/Sidewalk ☐ Drainage ☐ Driveway ☐ Electric ☐ Engineering/Survey
☐ Fencing ☐ Grading ☐ Landscaping ☐ Liquid Pipeline ☐ Milling
☐ Natural Gas ☐ Pole ☐ Public Transit Auth. ☐ Railroad ☐ Road Work ☐ Sewer
☐ Site Development ☐ Steam ☐ Storm Drain/Culvert ☐ Street Light ☐ Telecommunication
☐ Traffic Signal ☐ Traffic Sign ☐ Water ☐ Waterway Improvement ☐ 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

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"/> \$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"/> \$25,001 - 50,000	<input type="checkbox"/> > \$50,000	Exact Value _____
			<input type="checkbox"/> Unknown

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

Notification Issue <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 Excavation Issue <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 Miscellaneous Root Causes <input type="checkbox"/> Deteriorated facility <input type="checkbox"/> Root Cause not listed (comment required)	Locating Issue <i>Facility not marked due to:</i> <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 <i>Facility marked inaccurately due to</i> <input type="checkbox"/> Abandoned facility <input type="checkbox"/> Incorrect facility records/maps <input type="checkbox"/> Locator error <input type="checkbox"/> Tracer wire issue <input type="checkbox"/> One Call Center Error <input type="checkbox"/> Previous damage
--	---

Part J – Additional Comments**Part Z – Images and Attachments: List the file names of any images and attachments to submit with this report**

Appendix C: Glossary of Terms

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

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.

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.

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.

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 the facility owner/operator or their agent (usually the One Call Centre) 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.

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 underground infrastructure owner.

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.

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

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.



www.orcga.com



STEAM LINE
BURIED ASPHALT
SANITARY
OIL TRANSMISSION LINE
PIPELINE
SUBWAY DUCT
UTILITY
SEWER
UNKNOWN METAL OBJECT
PIPELINE
TUNNEL
GAS
TRAFFIC WEIGHT SENSOR
SECURITY ALARM CABLE
DRAINAGE PIPE
CONDUIT
DISTRIBUTION
INFRASTRUCTURE
SEWER
SOIL
CABLE
PIPELINE
GAS
OIL
ELECTRIC