DIRT Report **2018**

CCGA
Canadian Common Ground Alliance

DIG SAFE

October 2019

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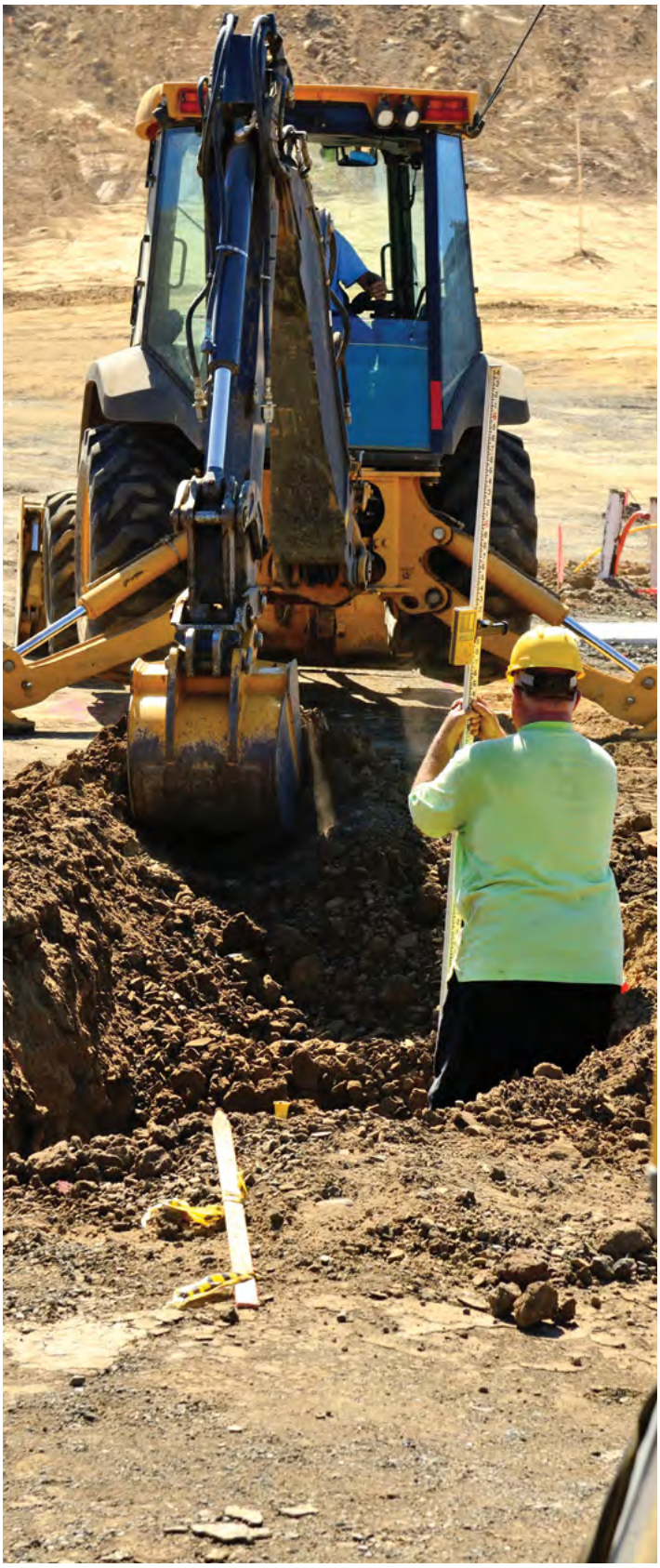


Word from the Chairman of the Board

On behalf of the CCGA Board of Directors, I am proud to deliver the CCGA's second annual DIRT report. Building on the release of our first fully enhanced DIRT report, the CCGA Board continues with its commitment to present the DIRT data currently being collected across Canada in a comprehensible and useful format. The DIRT data collected to date provides a baseline from which the Damage Prevention Professionals can measure their progress moving forward.

In reviewing the 2018 DIRT report, I am reminded of the complexity of the task the CCGA is charged with championing. The effective protection of all forms of buried infrastructure in Canada is critical to public safety, the safety of our communities and workers, the stability of our economy and the protection of our environment - and failure is not an option. Despite the many challenges, the CCGA has successfully brought together stakeholders representing industry, government regulators and citizen groups from across the nation and we should all be very proud of our many accomplishments to date including; the establishment of Locate Notification Systems serving all Canadians, the development of a National Best Practices Manual, the national adoption of "Dig Safe" and "Click Before You Dig" branding, and of course, our progress with coast to coast data collection.

Although the CCGA 2018 DIRT report provides us with valuable information towards the state of Damage Prevention in Canada, it is important to remember that DIRT reporting remains a voluntary activity. The trends we extrapolate from this data have been consistent over time and are definitely a call to action for our members knowing that the absolute number of the damages is most likely significantly understated. It is my belief that a continued focus improving the consistency and accuracy of our data is critical to the future of the CCGA and will be our driving force to our future initiatives.

Yours truly,

Todd Scott
Chair - CCGA

Introduction

Vast networks of conduits and cables lay underground, delivering products and services to today's society: telecommunication and electrical cables, gas conduits, sewers, water lines, drainage systems, oil pipelines, transportation, etc.

The fact that many of these underground infrastructures are buried not far from the ground's surface increases the risk of accident during excavation or rehabilitation work. Despite all efforts made to increase awareness on the importance of exercising vigilance during excavation work, damages still occur too often. This has an impact on the environment and on the integrity of services, but more importantly, it puts the safety of workers and citizens at risk.

The Damage Information Reporting Tool (DIRT) was developed by the Common Ground Alliance (CGA). It was designed to record the data found in damage reports for damages made to underground infrastructure during excavation work. It provides a summary and an analysis of damages reported throughout Canada in the DIRT system.

Important Note About the DIRT Data

- The Damage Information Reporting Tool (DIRT) is a confidential database where various stakeholders may enter information related to damages to buried utilities.
- Participation to DIRT is made on a voluntary basis. The report does not reflect the total number of damages that take place in Canadian provinces and there is no legal obligation for reporting such damages.
- In 2018, important changes were made to the damage reporting form, increasing the accuracy of the information written on the form and thus, make the comparison year after year less appropriate.
- The data collected is a rich source of industry intelligence on damages related to buried facilities from excavation activities. Despite this, uncertainties remain that limit the ability to draw firm conclusions on the trends over time and across jurisdictions. For one, since damages are reported to DIRT on a voluntary basis, they do not reflect the total number of damages that take place in a given year. For example, an increase in damages in one year, relative to another, could reflect a difference in actual damages, or it could reflect an increase in the number of damages being reported. In addition, not all regions have adopted the database to the same extent. As a result, some jurisdictions contain more comprehensive data than others. Results may vary from one yearly report to another, due to retroactive data being entered from time to time, thus making comparison difficult from one report to the next.
- Damage is defined as 'any impact, near miss 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.

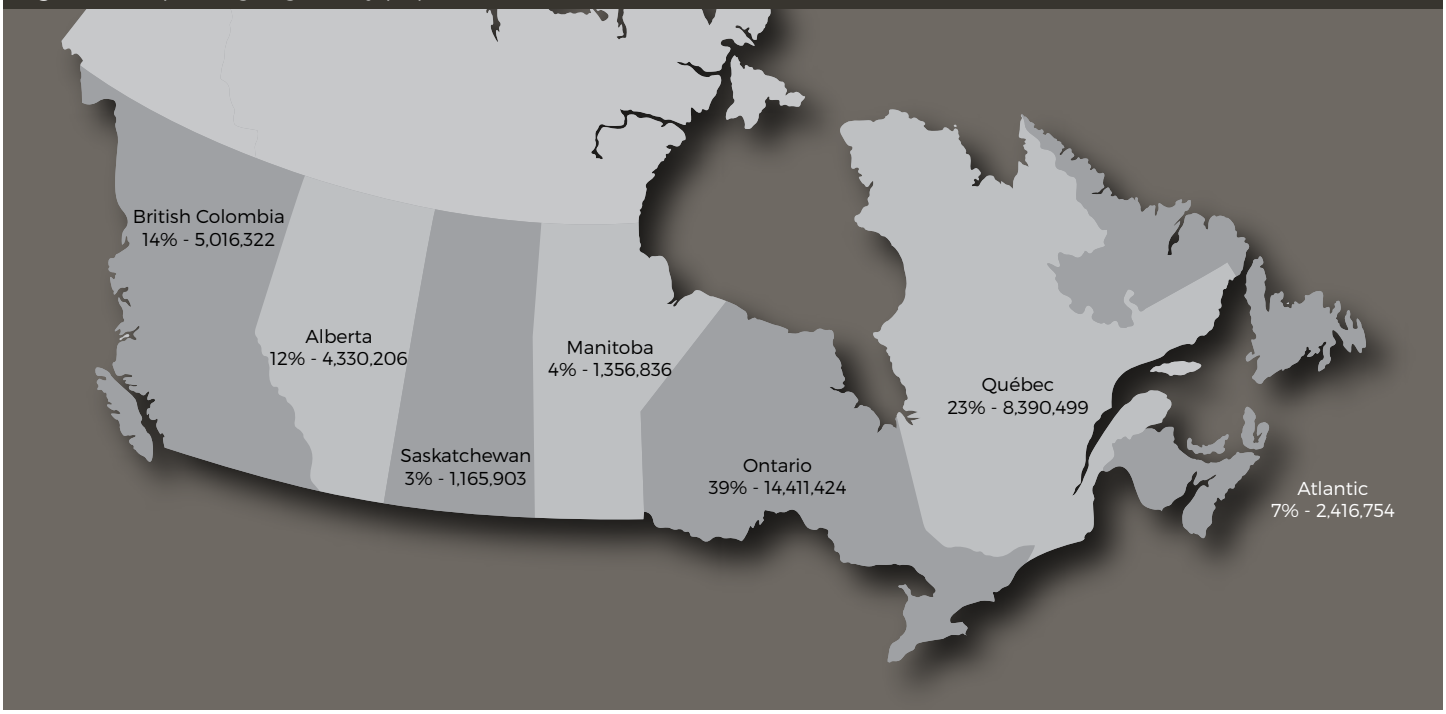
2018 Highlights

- More than **47** damages occurred per work day.
- The total number of damages Canada-wide, totalled **11,693**, which is **2.6%more** than in 2017.
- Natural gas and telecommunication facilities were affected in **82%** of damages, **42%** and **40%** respectively.
- Hoe/trencher was the most common equipment type used in damages (**68%**). Equipment type was omitted in almost one third (**29%**) of reported damages.
- Work on water and sewer systems accounted for **31%** of damages.
- The most common known root cause of damages was excavation issue (**38%**).
- **RECALL**: Note that damages are reported to DIRT on a voluntary basis and thus do not reflect the total number of damages that take place in a year in Canadian provinces.

Introduction

In 2018, seven Canadian regions reported damages via the DIRT system.
The regions and their respective population values are shown in Figure 1.

Figure 1 - Reporting regions by population



In 2018, the number of damages reported via DIRT for Canada totalled 11,693, which is 2.6% more than in 2017.
Table 1 presents a summary of key performance indicators related to damages by province/region.
Canada-wide, there were on average 47 damages per work day (assuming 254 work days per year).

Table 1 - Damages, requests, notifications, by province/region, 2018

Province/Region	Damages	Damages per Work Day	Damage Ratio per 1,000 Locate Requests*	Damage Ratio per 1,000 Notifications**
British Columbia	1,414	6	7	2
Alberta	3,194	13	9	2
Saskatchewan	478	2	3	1
Manitoba	222	1	4	1
Ontario	5,077	20	5	1
Quebec	1,262	5	5	2
Atlantic	46	0.3	0.6	0.5
Canada	**11,693**	**47**	**5**	**1**

* 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.

Location and Year of Damages

Table 2 illustrates the total number of reported damages per year (2016-2018) by province/region and the percent of total damages by province/region.

Table 2 - Total damages per year, by province/region, 2016-2018

Province/Region	2016	2017	2018	2016	2017	2018
	Number of Damages			Percent of Total Damages		
British Columbia	1,269	1,477	1,414	**10%**	**13%**	**12%**
Alberta	4,356	2,764*	3,194	**36%**	**24%**	**27%**
Saskatchewan	634	483	478	**5%**	**4%**	**4%**
Manitoba	-	177	222	**-**	**2%**	**2%**
Ontario	4,806	5,365	5,077	**40%**	**46%**	**43%**
Quebec	1,118	1,232	1,262	**9%**	**11%**	**11%**
Atlantic	17	66	46	**0.1%**	**0.6%**	**0.4%**
Canada	**12,200**	**11,564**	**11,693**	**100%**	**100%**	**100%**

* Note that 2017 data for Alberta does not include damages from a large stakeholder.

In 2018, 43% of reported damages were in Ontario, followed by Alberta (27%), British Columbia (12%), Quebec (11%), Saskatchewan (4%), Manitoba (2%) and Atlantic Canada (0.4%). Manitoba did not start collecting data until 2017.

In Table 3 bellow, we have broken out the near misses that are part of the overall Damage numbers.
A near miss as defined in the CCGA Best Practices 3.0 glossary is, "An event where damage did not occur, but a clear potential for damage was identified". These numbers have historically been part of the data and Near Misses are also mandated as needing to be reported under the Canada Energy Regulator Event Reporting Guidelines.

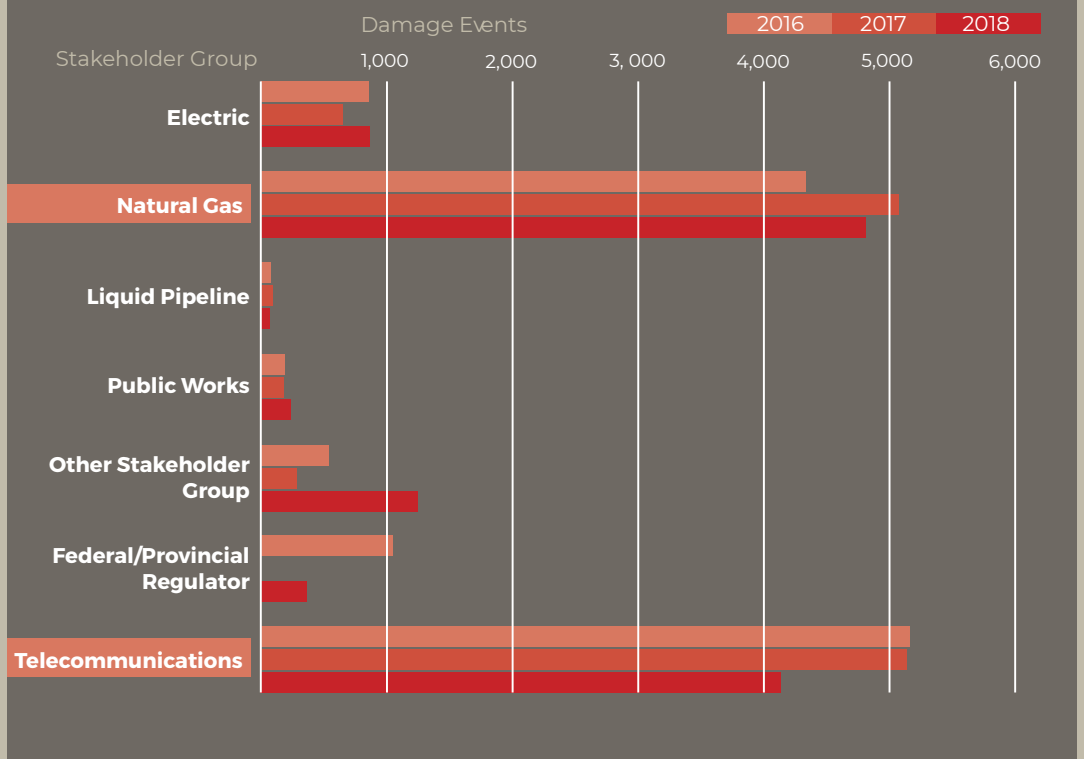
Table 3 - Total near miss per year, by province/region, 2016-2018

Type of Failities	2016	2017	2018	2016	2017	2018
	Number of Near Miss			Percent of Near Miss by Type of Facility		
Electric	36	16	60	4%	2%	6%
Natural Gas	130	107	78	3%	2%	2%
Liquid Pipeline	66	78	43	8%	82%	10%
Telecommunications	153	96	82	3%	2%	2%
Unknown/Other	186	77	108	30%	14%	17%
Canada	**571**	**374**	**371**			

Reporting Stakeholders

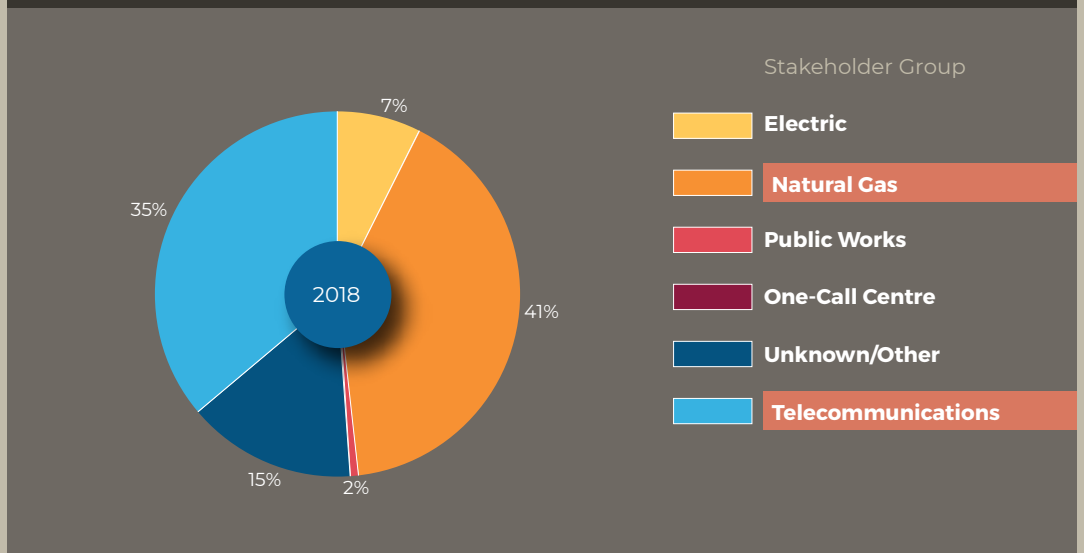
Stakeholders involved with telecommunications and natural gas report damages most often. Figure 2 shows total damages by the seven most common stakeholder groups for the 2016-2018 period.

Figure 2 - Damages by stakeholder group, 2016-2018



As shown in Figure 3, 76% of total damages were reported by stakeholders in the natural gas and telecommunication sectors in 2018. For 15% of damage reports, no stakeholder group was listed.

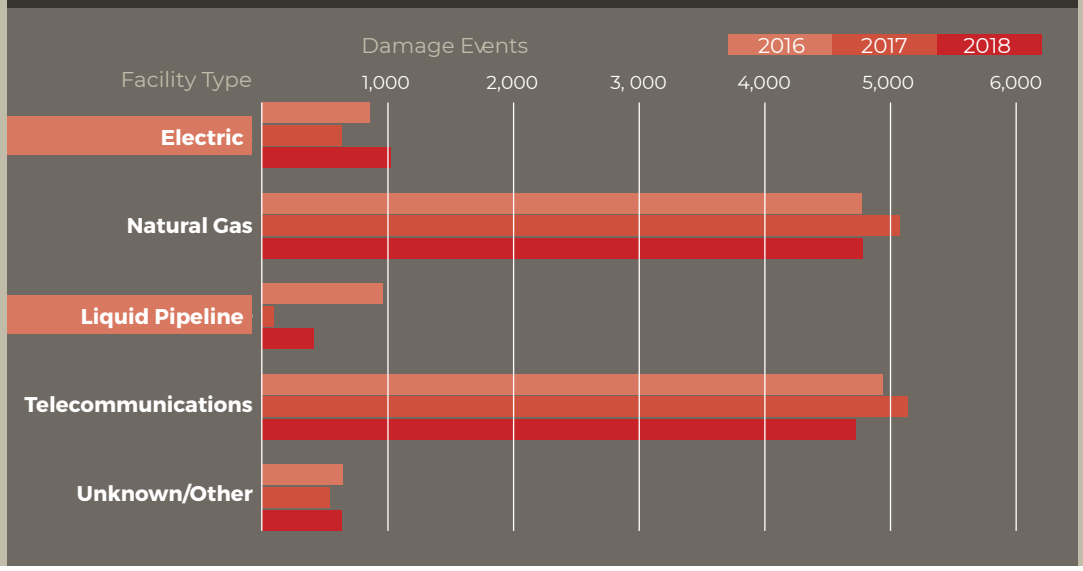
Figure 3 - Percentage of damages by stakeholder group, 2018



Facilities Affected

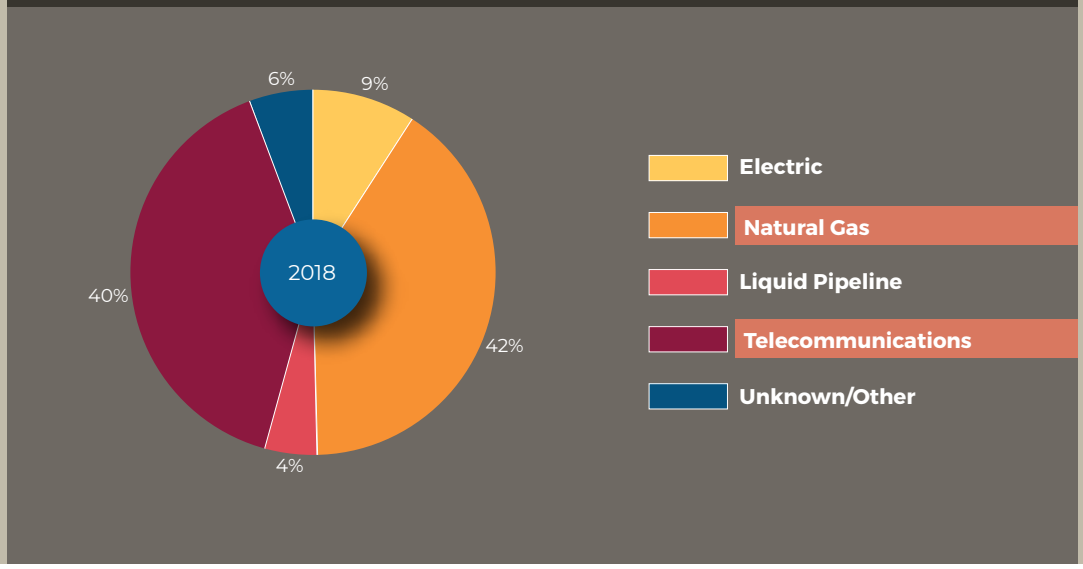
This section describes the facility operation whose operation was affected by damages. Between 2016 and 2018, the number of damages reported increased by 58% in electric facilities and by 359% in liquid pipeline facilities.
The number of damages declined by 6% in telecommunication facilities and by 5% in natural gas facilities (Figure 4).

Figure 4 - Number of damages by facility type, 2016-2018



Of the 11,693 damages that occurred in 2018, natural gas and telecommunication facilities were affected in 82% of the incidents (Figure 5).

Figure 5 - Damages by facility affected, 2018



Facilities Affected

Shown in Table 3, is the percent of damages by facility type affected at a provincial level.

- In British Columbia, for example, 90% of damages affected natural gas facilities.
- In Atlantic Canada, 63% of damages affected telecommunication facilities.
- Manitoba had a high number of damages affecting electric facilities.

Table 4 - Percentage of damages by facility type, by province/region, 2018

Province/Region	Electric	Natural Gas	Liquid Pipeline	Telecommunications
Alberta	7%	25%	14%	54%
British Columbia	0%	90%	3%	8%
Manitoba	61%	39%	0%	0%
Ontario	8%	47%	0%	44%
Quebec	3%	39%	0%	58%
Saskatchewan	57%	1%	1%	42%
Atlantic	0%	37%	0%	63%
Canada	**9%**	**44%**	**4%**	**43%**

Note: Table does not include unknown.

Excavator Information

This section describes the type of excavator and the type of excavator equipment involved in damages.

Excavator Type

Figures 6 and 7 report the number and percentage of damages by type of excavator, respectively.
Contractor damages increased year over year from 2016 to 2018, while municipalities experienced an increase in damages from 2016 to 2017 and then a small decline in damages in 2018.
Occupant, utility and other/unknown experienced a decline in damages in 2018 from 2017 levels.

Figure 6 - Percentage of damage reports by type of excavator, 2018

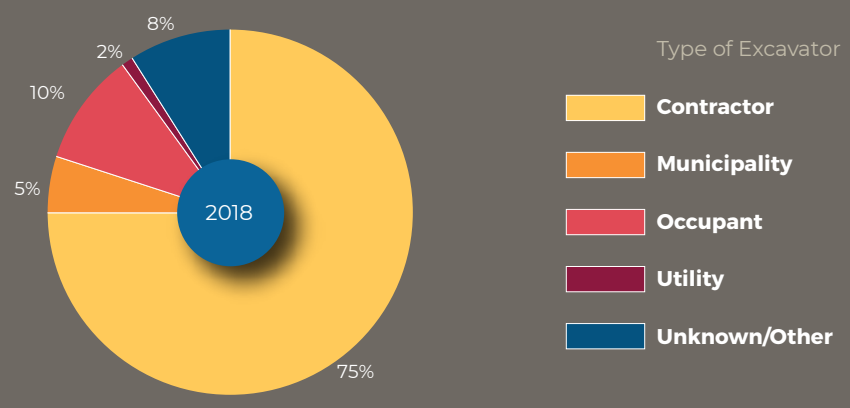
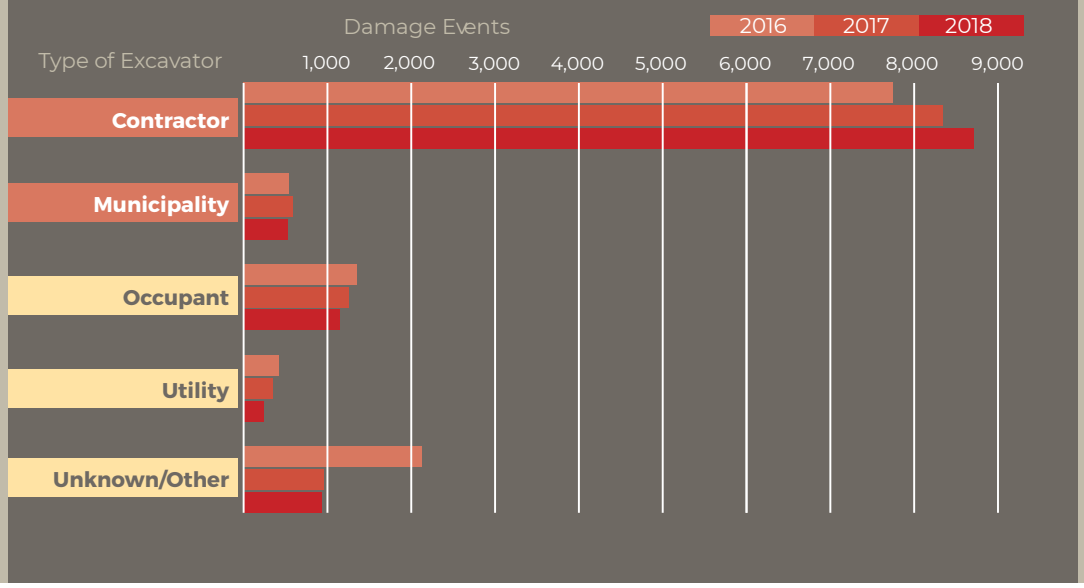


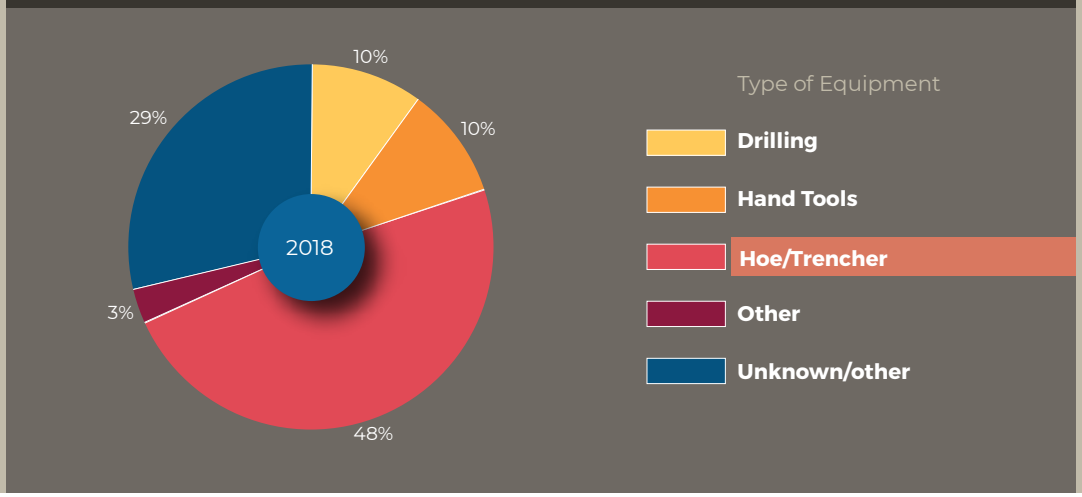
Figure 7 - Damages by excavator type, 2016-2018



Excavator Equipment Type

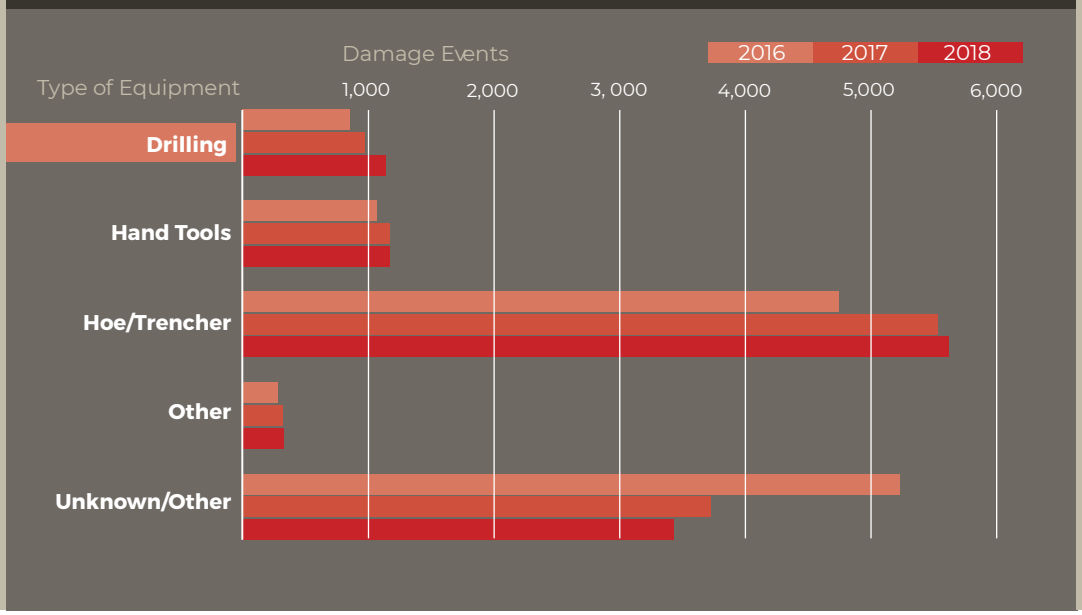
As shown in the graphic below, the hoe/trencher category remains, once again, the most common equipment type cited in damage reports (48%) in 2018.

Figure 8 - Percentage of damage reports by excavator equipment type, 2018



All categories of equipment type increased in the year 2018 compared to 2017, with drilling increasing the most in percentage terms (17%) (Figure 9).

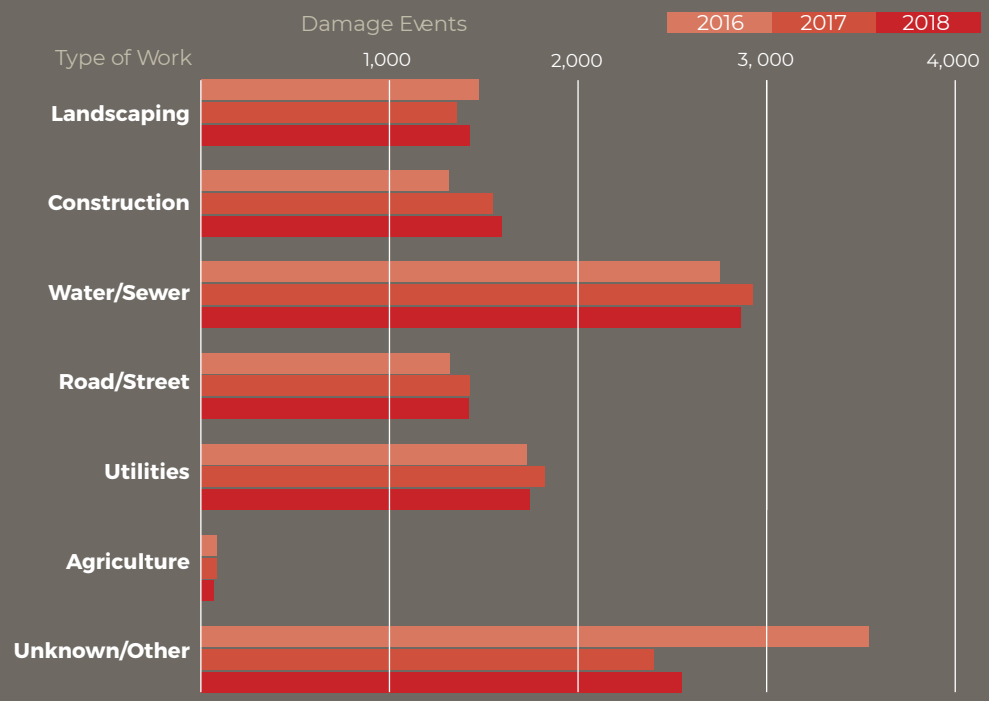
Figure 9 - Damages by excavation equipment type, 2016-2018



Work Details

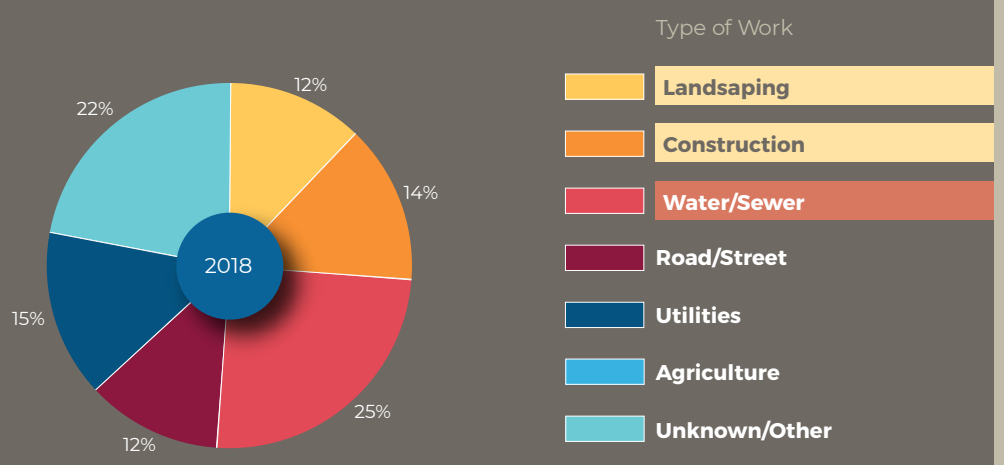
Figure 10 displays the number of damages by the type of work performed for the years 2016 to 2018.

Figure 10 - Damages by type of work performed, 2016-2018



As shown in Figure 11, work on water and sewer systems accounted for 25% of damages in 2018. For landscaping and construction, the number of damages increased in 2018 compared to 2017.

Figure 11 - Percentage of damages by type of work performed, 2018



Work Details

Table 4 reports damages by type of work performed and type of excavator for the year 2018.

- The top cause of damages was by contractors (74% of total damages).
- The second highest rate of damages (10% of total damages), was work performed by occupants, with landscaping being the most common type of work.

Table 5 - Damages by type of work performed and type of excavator, 2018

Type of Work Performed	Contractor	Municipality	Occupant	Utility	State	Unknown/ Other	**Total**
Agriculture	27	0	30	0	0	2	**59**
Construction	1,341	11	175	5	0	71	**1,603**
Landscaping	854	31	453	5	0	79	**1,422**
Road/Street	1,168	117	27	16	0	89	**1,417**
Utilities	1,394	25	90	125	2	112	**1,748**
Water/Sewer	2,141	330	180	54	1	163	**2,869**
Unknown/ Other	1,784	69	224	32	0	462	**2,575**
Total	**8,709**	**583**	**1,179**	**237**	**3**	**978**	**11,693**

The leading type of damage varied by province. The leading cause of damages in Saskatchewan (SK) was unknown (n=128). Damages attributed to work performed on water and sewer systems were the most frequent in Ontario (ON) (n=1,267), Alberta (AB) (n=579), Quebec (QC) (n=446), British Columbia (BC) (n=400), Manitoba (MB) (n=86) and the Atlantic Provinces (n=17).

Table 5 reports damages by type of work performed by province.

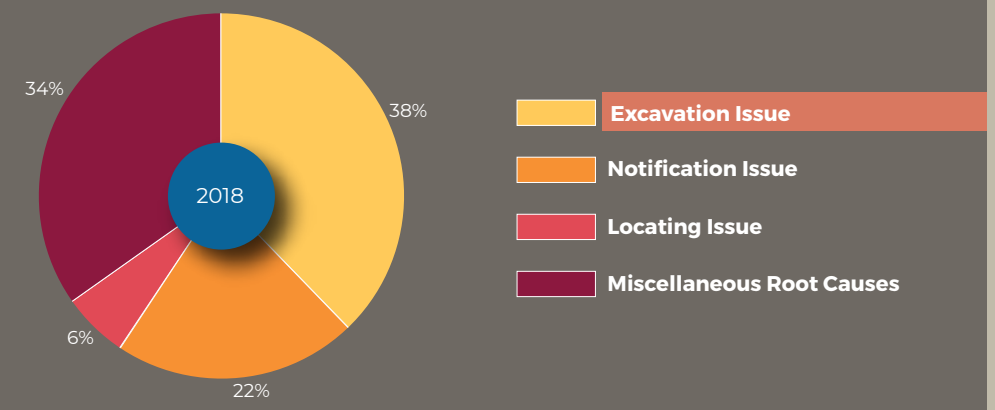
Table 6 - Damages by type of work performed, by province, 2018

Type of Work Performed	BC	AB	SK	MB	ON	QC	Atlantic	**Canada**
Agriculture	28	3	21	0	1	6	0	**59**
Construction	189	317	32	17	896	153	5	**1,609**
Landscaping	112	299	46	31	818	115	4	**1,425**
Road/Street	131	426	59	48	490	259	9	**1,422**
Utilities	167	408	113	38	935	83	4	**1,748**
Water/Sewer	400	579	79	86	1,267	446	17	**2,874**
Unknown/ Other	387	1,162	128	2	666	200	7	**2,552**
Total	**1,414**	**3,194**	**478**	**222**	**5,073**	**1,262**	**46**	**11,693**

Root Cause

Root cause describes the reason for reported damages.
Figure 12 provides a breakdown of known root causes in 2018.

Figure 12 - Known root causes



The most common known root cause was excavation issues.

Due to changes to the 2018 Field Form, the year-to-year comparisons are less appropriate to use.

Of the 22% of damages attributed to no notification made to One-Call Centres, 73% occurred at an electric or natural gas facility posing a high risk to the public, worker and community safety (Table 6).
This demonstrates that notifying One-Call Centres is a critical measure in preventing workplace injury.

Workers and public safety would be better ensured by making mandatory the locate request for all underground infrastructures

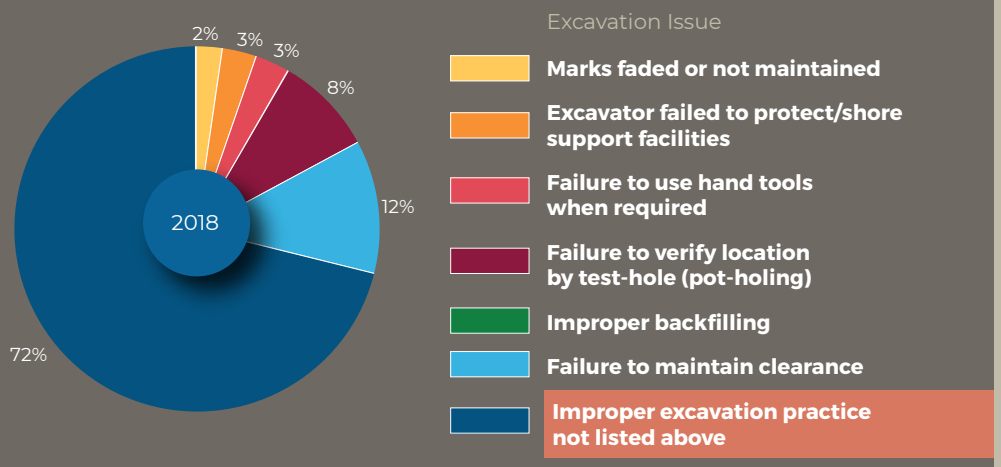
Table 7 - Breakdown of **no notification** made to One-Call Centres

Province/Region	No Notification to One-Call Centres	No Locate Request, Electric	No Locate Request, Natural Gas	Percent of Total – No Locate, Electric, Natural Gas
Alberta	241	17	167	76%
British Columbia	618	0	586	95%
Manitoba	41	18	23	100%
Ontario	1282	16	859	68%
Quebec	267	3	104	40%
Saskatchewan	71	68	1	97%
Atlantic	29	0	0	0%
Canada	**2,549**	**122**	**1,740**	**73%**

Root Cause

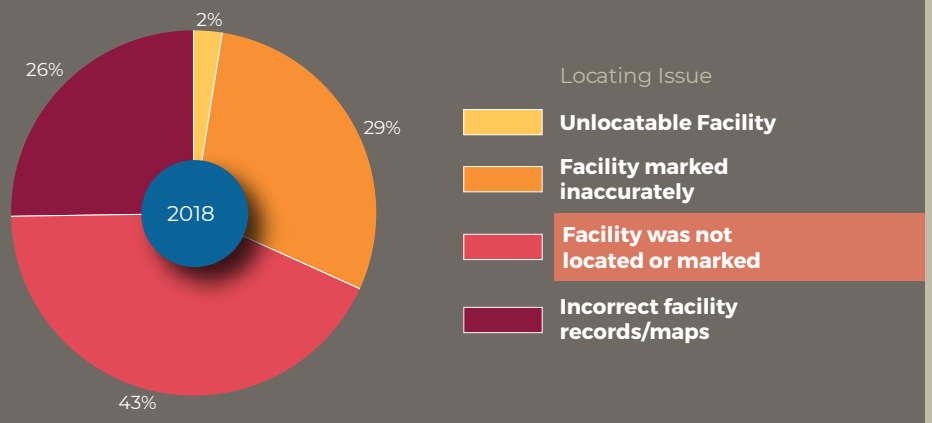
Of the 4,401 known root causes attributed to excavation issues, more information would be needed to understand the 72% that were indicated.
Figure 13 presents known root causes attributed to excavation issues.

Figure 13 - Known root cause by excavation issue



Of the 687 known root causes attributed to location issues, 43% were caused by a buried facility not located or marked, followed by inaccurate markings (31%) and incorrect facility records (9%).
Figure 14 presents known root causes attributed to location issues.

Figure 14 - Known root cause by location issue



Additional information per province

Over and above the data collected in the DIRT system, One-Call Centres provide important information related to data found in locate requests made in every province. Members such as owners of underground infrastructures, including utilities and municipalities, provide One-Call-Centres with the mapping data of their buried facilities.

Regular mapping updates are key for providing valid information for each locate request made to One-Call Centres. With the exception of Ontario, where legislation exists, there is no comprehensive obligation that requires infrastructure owners to update the mapping of their utilities and file it with their provincial One-Call Centre.

Table 7 shows the breakdown of locate requests placed via telephone versus the Web, as well as the number of registered members of One-Call Centres by province/region.

Table 8 - Registered members at One-Call Centres and percent of phone versus web locate requests

Province/Region	Registered Members	Phone Locate Requests (%)	Web Locate Requests (%)
Alberta	869	22	77
British Columbia	347	29	71
Manitoba	39	28	72
Ontario	831	21	79
Quebec	253	9	91
Saskatchewan	90	49	51
Atlantic	30	14	86
Canada	**2,459**	**25**	**75**

Table 9 - Summary 2018 per region

Province/Region	% of Population*	Damages 2018		Nb of Locate Requests	Damages per 1000 Requests	Nb of **Notific**ations	Nb of Events per 1,000 **Notific**ations Sent to Member Companies (underground infrastructure owners)
		Nb	%				
Alberta	12%	3194	27%	351,934	9	1 477,711	2
British Columbia	13%	3,194	12%	203,758	7	821 445	2
Manitoba	4%	222	2%	64,090	3	173,292	1
Ontario	39%	5,077	43%	1,077,815	4	6,698,205	1
Quebec	23%	1,262	11%	275,000	5	595,000	1
Saskatchewan	3%	478	4%	148,166	5	466,764	2
Atlantic	7%	46	0.4%	45,000	0.6	53,700	0.5
Canada	**100%**	**11,693**	**100%**	**2,165,763**	**5**	**10,286,117**	**1**

*Statistic Canada (2017)

Societal Costs

The cost of damage to underground infrastructures is estimated to be over **$1 billion** per year.

Year after year, the societal costs related to damages are significant. In Canada, this type of cost is estimated to be over $1 billion per year.

They reflect both direct costs (e.g., cost to repair damaged underground infrastructures) and indirect costs (e.g., lost of productivity due to downtime resulting from damages) including but not limited to:

- Service disruption
- Deployment of emergency services
- Evacuation
- Loss of product
- Environmental impact and mitigation
- Economic impact
- Work delays
- Administrative and legal costs

Conclusion

This report presents 2018 data by region and as reported via the DIRT system. Care must be taken when interpreting trends over time or when comparing between regions due to the voluntary aspect of reporting damages in the system. Adopting best practices is also critical in reducing public risk and preventing workplace injury. Nonetheless, a number of useful observations can be taken from this report.

1 Increase the number of Stakeholders submitting to DIRT

A focused effort made to Stakeholder groups encouraging them to collect and input data into the DIRT database. This will help stakeholder communities better target education and increase awareness to reduce damages to buried utilities. This will allow us to confidently use this information in detecting trends and reacting to them.

2 Improper Excavation Practices

Excavation Practices Not Sufficient remains a large cause of events. Excavators notified the One-Call Centre to have underground utilities marked, but damages still occurred due to the lack of careful excavation practices:

- 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 when required

Targeted outreach and educational information should be provided to excavators to reduce damages resulting from this root cause.

3 No Notification to One-Call Centres

No Locates remains a significant issue year after year even if every province has a One-Call Centre where rapid, simple and free service is given to all excavators that are involved in ground disturbances.

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 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 :
digsafeab.ca

Atlantic :
atlanticdigsafe.ca

British Columbia :
commongroundbc.ca

Manitoba :
manitobacga.com

Ontario :
orcga.com

Quebec :
info-ex.com

Saskatchewan :
scga.ca

Regional Profiles

The series of tables below provide summaries of damage data, along with some contextual economic data, for each of the regions currently reporting via the DIRT system in Canada. Time series data is provided for relevant provinces. For each province/region, a summary of whether damage prevention/One-Call legislation exists is also provided.

Also, at the end of each profile, you will find the Web page of the Common Ground Alliance and the One-Call centre for that region.

British Columbia BCCGA Common Ground Alliance

	2016	2017	2018
PROFILE			
Population	4,757,658	4,817,160	5,016,322
Land area	922,503	922,503	922,503
Population density	5.2	5.2	5.4
Housing starts*	41,843	43,664	40,857
Employment in construction	211,300	228,600	228,600
Construction GDP ($ millions)	18,142	19,936	21,110
SUMMARY			
Locate requests	180,285	190,312	203,758
Notifications	793,254	880,229	821,445
Locate requests to notifications ratio	1:4.4	1:4.6	1:4.6
Damages	1,269	1,477	1,414
Damages per work day	5.0	5.8	5.6
Damage ratio per 1,000 notifications	1.6	1.7	1.7
Damage ratio per 1,000 locate requests	7.04	7.76	6.9
DAMAGES BY TYPE OF WORK			
Landscaping	112	114	112
Construction	196	190	189
Water/Sewer	332	458	400
Road/Street	123	110	131
Utilities	127	148	167
Agriculture	27	30	28
Unknown/other	352	427	387
DAMAGES BY FACILITY TYPE			
Electric	0	0	0
Distribution Natural Gas	1,137	1,325	1,233
Liquid Pipeline	45	56	35
Telecommunications	52	70	108
ROOT CAUSE			
Excavation Issue	460	516	657
No notification made to the One Call Centre	710	845	618
Locating Issue	10	13	4
Miscellaneous Root Causes	17	20	135
Unknown	72	83	0
Damage Prevention/One Call Legislation			

British Columbia CGA:
commongroundbc.ca

BC One-Call:
bc1c.ca

Partial legislation:
BC Oil and Gas Commission and the Canadian Energy Regulator governed pipelines are required to register with BC One-Call

*Note that not all housing starts will be associated with an excavation; in the case of condo developments, for example, one excavation will be associated with numerous housing starts.

ABCGA
Alberta Common Ground Alliance

	2016	2017	2018
PROFILE			
Population	4,236,376	4,286,134	4,330,206
Land area	640,330	640,330	640,330
Population density	6.6	6.7	6.8
Housing starts	24,533	29,457	26,085
Employment in construction	251,900	241,000	245,400
Construction GDP ($ millions)	26,366	26,183	27,100
SUMMARY			
Locate requests	366,766	378,360	351,934
Notifications	1,615,061	1,649,307	1,477,711
Locate requests to notifications ratio	1:4.4	1:4.4	1:4.4
Damages	4,356	2,764	3,194
Damages per work day	17.1	10.9	12.5
Damage ratio per 1,000 notifications	2.7	1.7	2.2
Damage ratio per 1,000 locate requests	11.88	7.31	9.1
DAMAGES BY TYPE OF WORK			
Landscaping	399	216	299
Construction	265	255	317
Water/Sewer	672	502	579
Road/Street	375	321	426
Utilities	604	486	408
Agriculture	9	7	3
Unknown/other	2,032	977	1,162
DAMAGES BY FACILITY TYPE			
Electric	207	152	179
Natural Gas	813	714	697
Liquid Pipeline	899	15*	381
Telecommunications	1,967	1,502	1,486
ROOT CAUSE			
Excavation Issue	577	576	553
No notification made to the One-Call Centre	395	303	241
Locating Issue	682	505	300
Miscellaneous Root Causes	137	112	2,100
Unknown	2,565	1,268	0
Damage Prevention/One-Call Legislation			

Alberta CGA:
digsafeab.ca
Alberta One-Call:
albertaonecall.com

Partial legislation:
Alberta Energy Regulator and the Canadian Energy Regulator governed pipelines are required to register with Alberta One-Call.

*Note that 2017 data for Alberta does not include dam-ages from a large stakeholder.

SCGA Saskatchewan Common Ground Alliance

	2016	2017	2018
PROFILE			
Population	1,148,588	1,163,925	1,165,903
Land area	588,244	588,244	588,244
Population density	2.0	2.0	2.0
Housing starts	4,775	4,904	3,610
Employment in construction	51,300	50,700	49,500
Construction GDP ($ millions)	4,176	4,043	4,150
SUMMARY			
Locate requests	130,622	144,855	148,166
Notifications	385,795	448,874	466,764
Locate requests to notifications ratio	1:3.0	1:3.1	1:3.1
Damages	634	483	478
Damages per work day	2.5	1.9	1.9
Damage ratio per 1,000 notifications	1.6	1.1	1.0
Damage ratio per 1,000 locate requests	4.85	3.33	3.2
DAMAGES BY TYPE OF WORK			
Landscaping	53	33	46
Construction	79	144	32
Water/Sewer	88	82	79
Road/Street	30	35	59
Utilities	85	98	113
Agriculture	26	24	21
Unknown/other	273	67	128
DAMAGES BY FACILITY TYPE			
Electric	220	1	271
Natural Gas	131	128	4
Liquid Pipeline	6	7	3
Telecommunications	277	347	197
ROOT CAUSE			
Excavation Issue	253	166	227
No notification made to the One-Call Centre	170	104	71
Locating Issue	168	144	41
Miscellaneous Root Causes	30	69	139
Unknown	13	0	0
Damage Prevention/One-Call Legislation			

Saskatchewan CGA:
scga.ca

Sask 1st Call:
sask1stcall.com

Partial legislation:
Canadian Energy Regulator governed pipelines are required to register with Sask 1st Call

MCGA
Manitoba Common Ground Alliance

	2017	2018
PROFILE		
Population	1,338,109	1,356,836
Land area	552,371	552,371
Population density	2.4	2.5
Housing starts	7,501	7,376
Employment in construction	48,300	47,200
Construction GDP ($ millions)	4,638	5,000
SUMMARY		
Locate requests	61,885	64,090
Notifications	136,024	173,292
Locate requests to notifications ratio	1:2.2	1:2.2
Damages	177	222
Damages per work day	0.7	0.9
Damage ratio per 1,000 notifications	1.3	1.3
Damage ratio per 1,000 locate requests	2.86	3.5
DAMAGES BY TYPE OF WORK		
Landscaping	58	31
Construction	10	17
Water/Sewer	41	86
Road/Street	16	48
Utilities	28	38
Agriculture	0	0
Unknown/other	24	2
DAMAGES BY FACILITY TYPE		
Electric	77	135
Natural Gas	100	87
Liquid Pipeline	0	0
Telecommunications	0	0
ROOT CAUSE		
Excavation Issue	116	147
No notification made to the One-Call Centre	40	41
Locating Issue	14	20
Miscellaneous Root Causes	7	14
Unknown	0	0
Damage Prevention/One-Call Legislation		

Manitoba CGA
manitobacga.com

One-Call:
clickbeforeyoudigmb.com

Partial legislation:
Canadian Energy Regulator governed pipelines are required to register with ClickBeforeYouDigMB

	2016	2017	2018
PROFILE			
Population	13,976,320	14,193,384	14,411,424
Land area	908,699	908,699	908,699
Population density	15.4	15.6	15.9
Housing starts	74,952	79,123	78,742
Employment in construction	503,700	512,500	525,100
Construction GDP ($ millions)	38,002	39,763	41,400
SUMMARY			
Locate requests	983,326	1,041,610	1,077,815
Notifications	7,295,368	7,498,270	6,698,205
Locate requests to notifications ratio	1:7.4	1:7.2	1:6.2
Damages	4,755	5,184	5,077
Damages per work day	19.1	21.1	20
Damage ratio per 1,000 notifications	0.7	0.7	0.8
Damage ratio per 1,000 locate requests	4.9	5.2	4.7
DAMAGES BY TYPE OF WORK			
Landscaping	804	793	818
Construction	654	798	896
Water/Sewer	1,365	1,439	1,267
Road/Street	531	640	490
Utilities	856	992	935
Agriculture	3	4	1
Unknown/other	644	699	666
DAMAGES BY FACILITY TYPE			
Electric	350	343	339
Natural Gas	2,341	2,404	2,374
Liquid Pipeline	12	17	17
Telecommunications	2,102	2,546	2,224
ROOT CAUSE			
Excavation Issue	1,460	2,498	2,222
No notification made to the One-Call Centre	1,220	1,225	1,282
Locating Issue	228	271	277
Miscellaneous Root Causes	723	244	1,296
Unknown	1,226	1,127	0
Damage Prevention/One-Call Legislation			

Ontario CGA:
orcga.com

One-Call:
on1call.com

Provincial legislation:
Canadian Energy Regulator governed pipelines and all buried infrastructure within public rights of way are required to register with Ontario One-Call

	2016	2017	2018
PROFILE			
Population	8,321,888	8,394,034	8,390,499
Land area	1,667,712	1,667,712	1,667,712
Population density	6.1	6.2	6.5
Housing starts	38,935	46,495	46,874
Employment in construction	236,000	245,800	249,600
Construction GDP ($ millions)	19,830	20,489	21,090
SUMMARY			
Locate requests	231,385	259,670	275,000
Notifications	515,186	569,826	595,000
Locate requests to notifications ratio	1:2.2	1:2.2	1:2.2
Damages	1,118	1,232	1,262
Damages per work day	4.4	4.9	5
Damage ratio per 1,000 notifications	2.2	2.2	2.1
Damage ratio per 1,000 locate requests	4.83	4.74	4.6
DAMAGES BY TYPE OF WORK			
Landscaping	113	127	115
Construction	131	152	153
Water/Sewer	301	394	446
Road/Street	269	289	259
Utilities	76	65	83
Agriculture	4	10	6
Unknown/other	224	195	200
DAMAGES BY FACILITY TYPE			
Electric	77	74	37
Natural Gas	372	467	451
Liquid Pipeline	10	0	0
Telecommunications	557	592	676
ROOT CAUSE			
Excavation Issue	450	500	579
No notification made to the One-Call Centre	245	320	267
Locating Issue	64	48	48
Miscellaneous Root Causes	41	41	368
Unknown	318	323	0
Damage Prevention/One-Call Legislation			
Quebec CGA and One-Call: info-ex.com	**Partial legislation:** Pipelines governed by the Canadian Energy Regulator are required to register with Info-Excavation.		

ATLCGA
Atlantic Canada Common Ground Alliance

	2017	2018
PROFILE		
Population	2,394,362	2,416,754
Land area	500,531	500,531
Population density	4.8	4.8
Housing starts	8,619	9,299
Employment in construction	82,400	82,300
Construction GDP ($ millions)	6,226	6,900
SUMMARY		
Locate requests	35,451	45,000
Notifications	54,422	53,700
Locate requests to notifications ratio	1:1.5	1:1.2
Damages	66	46
Damages per work day	0.3	0.2
Damage ratio per 1,000 notifications	1.2	0.9
Damage ratio per 1,000 locate requests	1.86	1.0
DAMAGES BY TYPE OF WORK		
Landscaping	4	4
Construction	7	5
Water/Sewer	13	17
Road/Street	18	9
Utilities	8	4
Agriculture	0	0
Unknown/other	16	7
DAMAGES BY FACILITY TYPE		
Electric	0	0
Natural Gas	14	17
Liquid Pipeline	0	0
Telecommunications	52	29
ROOT CAUSE		
Excavation Issue	60	13
No notification made to the One-Call Centre	4	29
Locating Issue	0	0
Miscellaneous Root Causes	2	4
Unknown	0	0
Damage Prevention/One-Call Legislation		

Altantic Canada CGA:
atlanticdigsafe.ca

One-Call:
info-ex.com

Partial legislation:
Pipelines governed by the Canadian Energy Regulator are required to register with Info-Excavation.

info@canadiancga.com

CanadianCGA.com
clickbeforeyoudig.com
digsafecanada.com

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