

National Report on Damage to Underground Infrastructure

DAMAGE PREVENTION SYMPOSIUM



Highlights 2013, 2014 and 2015



The Common Ground Alliance (CGA) created the Damage Information Reporting Tool (DIRT) in 2003 to document damages to underground infrastructure. Six Canadian regions currently report damages into the DIRT database.

INTERPRETING THE DATA

- Reporting in DIRT is voluntary; therefore, the data analyzed is not representative of incidents that have occurred.
- A significant number of queries were left unanswered in the damage reports completed by DIRT users. Despite those questions left blank, this report provides aggregate data from the participating provinces. Data is normalized where appropriate.
- The term “damage” refers to damages to underground infrastructure and near hits.(There are few near hit reports in DIRT.)

	Number of damages			Damages per business day*			Population 2015*	Damages per 1,000 locate requests	Damages per 1,000 notifications
	2013	2014	2015	2013	2014	2015			
B.C.	1,188	1,315	1,131	5	5	4.5	4,683,100	6.9	1.9
Alberta	30	2,934	2,645	-	12	10.4	4,196,500	6.4	1.6
Saskatchewan	1,037	682	788	4	3	3.1	1,133,600	5.6	1.9
Ontario	4,836	3,809	4,434	19	15	17.5	13,792,100	4.9	0.7
Quebec	1,240	1,198	1,088	5	5	4.8	8,214,900	4.8	2.3
Atlantic	-	-	21	-	-	0.8	2,371,100	0.7	0.7
TOTAL	8,331	9,938	10,107	33	40	40	35,851,800	5.7	1.5

* 254 business days per year **Source: StatisticsCanada

Across Canada, the number of damages being reported has increased; however, it is likely a reflection of increased awareness and use of the DIRT reporting tool. Atlantic Canada is reporting for the first time and data is not yet widely collected in that region.

The breakdown of the number of damages in each province is determined by a variety of contributing factors such as the level of economic activity and population. Accordingly, the majority of damages are reported primarily in Ontario, the most populous province.

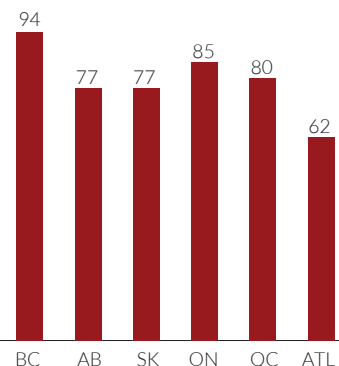
The ratio of the number of damages per 1,000 notifications can be compared between the reporting provinces. The reference criteria used for the comparison illustrates, for example, that while the number of damages are higher in Ontario, the ratio of damages to activity is lower than that of other provinces.

SOCIETAL COSTS IN CANADA WERE ESTIMATED IN EXCESS OF \$1 BILLION

Significant impact of damage to underground infrastructure relates to societal costs including, emergency response, evacuation, environmental contamination, down-time, interruption / loss of production and sales, and redirection of safety services such as 9-1-1. Damage to natural gas infrastructure requiring deployment of First Responders represent 32% of the damages in Quebec, 48% in Ontario, 47% in Alberta and 15% in British Columbia.

In each case, Responders are deployed to the incident initiating a cost to the community tax base Cirano** developed a cost calculation tool for Info-Excavation. When applied to Canada-wide data, the result is a conservative estimate of the annual cost of damages to underground infrastructure.

79% of Damages Caused Service Disruption



**Center for Interuniversity Research and Analysis of Organizations (www.cirano.qc.ca/en)

37% OF DAMAGES WERE THE RESULT OF INSUFFICIENT EXCAVATION PRACTICES

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

British Columbia reported 63% of damages caused by failure to request a locate. The most frequent cause of damage in Quebec and Ontario remained insufficient excavation practices.

In the Excavation Practices Not Sufficient category, the most frequent cause of damage is Failure to use hand tools where required (70% of category) which underlines the need for more education around safely hand-exposing facilities.

In Locating Practices Not Sufficient category, 55% reported Facility Not Marked as the root cause, which raises questions about how data may be interpreted. If the number of reports of Facility Not Marked and Locate Not Requested are combined, the data shows that 43% of damages occurred when the facility was not marked.

Education of DIRT users remains a top priority for Alberta, as only 37% of reports indicated a definitive cause in the Root Cause categories.

30% OF DAMAGES OCCUR DURING WORK ON SEWER AND WATER SYSTEMS

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

Regardless of the type of work, backhoes and track hoes remain the excavation equipment most often used in all provinces when damage occurs (70%). Hand tools were the second highest most common equipment used when damage occurred (16%).

		Locate Request Not Made	Excavation Practices Not Sufficient	Locating Practices Not Sufficient	Miscellaneous Root Causes
B.C.	2013	72%	26%	0%	2%
	2014	60%	37%	1%	1%
	2015	63%	36%	1%	0%
Alberta	2013	40%	20%	10%	30%
	2014	15%	20%	63%	1%
	2015	27%	13%	41%	16%
Saskatchewan	2013	28%	33%	23%	17%
	2014	28%	39%	22%	11%
	2015	7%	40%	52%	1%
Ontario	2013	33%	42%	6%	19%
	2014	33%	43%	3%	1%
	2015	35%	42%	4%	2%
Quebec	2013	33%	58%	7%	2%
	2014	34%	58%	5%	3%
	2015	31%	53%	14%	2%
Atlantic	2015	5%	81%	14%	0%
5 Provinces*		33%	37%	22%	4%

*Note: Atlantic Region data excluded from national totals

		Landscaping	Construction	Water / Sewer	Utility	Streets / Road Work
British Columbia	2013	32%	45%	13%	3%	7%
	2014	10%	38%	30%	13%	9%
	2015	12%	47%	23%	8%	14%
Alberta	2013	21%	21%	26%	11%	21%
	2014	14%	16%	31%	25%	14%
	2015	19%	13%	27%	4%	14%
Ontario	2013	19%	18%	33%	20%	11%
	2014	17%	18%	33%	22%	10%
	2015	18%	16%	38%	20%	9%
Quebec	2013	15%	13%	37%	10%	25%
	2014	14%	19%	40%	10%	19%
	2015	14%	16%	45%	8%	18%

Register with DIRT and Be Part of the Damage Prevention Solution

The Canadian Common Ground Alliance (CCGA) invites you to register with your 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.

THE MORE INFORMATION WE HAVE ON DAMAGES, THE MORE EFFECTIVELY WE CAN TARGET OUR DAMAGE PREVENTION EFFORTS.

Alberta: cga-dirt.com/ab
 British Columbia: cga-dirt.com/bc
 Ontario: cga-dirt.com/orcga
 Quebec: cga-dirt.com/qcvpd
 Saskatchewan: www.cga-dirt.com/scga