2014 DIRT Report

British Columbia
BCCGA
Common Ground Alliance

ABCGA
Alberta Common Ground Alliance

SCGA
Saskatchewan Common Ground Alliance

Contents

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Executive Summary

The Western Canada 2014 Damage Information Reporting Tool (DIRT) Report provides detailed analyses and recommendations pertaining to the submitted buried asset damage event reports in British Columbia, Alberta, and Saskatchewan.

Highlights

- There were **4,931 damage event reports** in western Canada. The damage events were split among the provinces with 1,315 in BC, 2,934 in AB and 682 in SK.
- **Contractors** were responsible for the majority of damage events in BC and AB.
- **Peak damage events in June and July.** Not surprisingly peak damage events occurred during the summer when construction activity is high. Peak damage occurred in the month of June in BC and the month of July in AB.
- **Natural gas and telecommunications** were the most commonly damaged asset types in all three provinces.
- **Urban areas** experienced the highest number of damage events.
- Most damage events occurred on **Private land** in BC and AB, but there were also a significant number of damage events reported on **Federal land** in AB.
- **One-Call Practices Not Sufficient** was the primary root cause of damage events in BC – meaning that either no call was made, incorrect information was provided, or notification was made, but was not sufficient. In comparison, locating practices were a larger root cause in AB and excavation practices were not sufficient in SK.
- **Inconsistency in reporting** is a concern as is the anonymous nature of reporting and the voluntary nature of many of the data fields.

Recommendations

- **Improve reporting consistency** through a focus on regulations, guidelines, and the development of improved tools and technology for damage reporting (e.g. a one stop automated tool). Currently data availability is limited in SK. Enhanced efforts to work with public works and associations may enhance data collection and analysis.
- **Focus education and awareness campaigns** on target regions (i.e. urban areas), excavator groups (i.e., contractors), months prior to peak seasons (i.e. spring), and land owners (i.e. private and federal). In addition, it may be necessary to work directly with field staff as there is a lack of consistency with who is filling out damage reports (e.g. excavator versus health and safety officer). Targeted session may be necessary on how to fill out the damage reporting field form.
- **Consider the development of benchmarks** in line with those used in industry (e.g. incidence per kilometer of buried asset).
- **Uniformity in the data groupings** used for reporting across all jurisdictions will improve comparability and allow for more standardized reporting.

Introduction

The Damage Information Reporting Tool (DIRT) is the result of the efforts of the Common Ground Alliance (CGA) to gather meaningful data regarding the occurrence of buried asset damage events. An event is defined by the CGA DIRT User's Guide as "the occurrence of downtime, damages, and near misses." DIRT allows industry stakeholders to submit data anonymously to a comprehensive database that is used to analyze the factors leading to events.

Various levels of data and quality have been provided by the three regions reflecting the stages that they are at in their efforts in data collection through DIRT (e.g. the majority of damage events in British Columbia were reported by one stakeholder, whereas in Saskatchewan the stakeholders are public utilities and the events represent both who is reporting and who is affected. This report is seen as a good start to gather, report, and analyse incident data for Western Canada. This combined DIRT report is the first of its kind for western Canada and is seen as a good start to gather, report, and analyze damage event data for British Columbia, Alberta and Saskatchewan. For 2014, 4,931 events were submitted, with the majority of the events (60%) reported in Alberta.

In addition to providing key analyses of the damage events in 2014, this report provides a baseline and template for future reporting initiatives. The report is organized as follows: The first section provides a brief summary and comparison of the three western provinces. Individual sections follow for each province starting with British Columbia and moving east to Saskatchewan. Each unique provincial section contains an introduction, data analysis, and a summary and recommendations. Data groupings for each province and the DIRT field reporting form are provided in Appendices to the report.

The information below (as well as that contained in each provincial section) is organized to match the structure of the Damage Information Reporting Field Form. More specifically, the regional comparison of the data is organized around the following section headings:

- Part A: Information Providers
- Part B: Date and Location of Events
- Part C: Affected Facilities
- Part D: Excavation Information
- Part E, F, H & G: Notification, Locating and Marking, Excavator Downtime, and Cost of Damage
- Part I: Root Causes

British Columbia BCCGA Common Ground Alliance

ABCGA Alberta Common Ground Alliance

SCGA Saskatchewan Common Ground Alliance

Regional Comparison

In total, there were 4,931 damage events reported in the western provinces in 2014. The Figure below provides a summary of the events by province. From west to east there were 1,315 (26.7%) damage events reported in British Columbia (BC), 2,934 (59.5%) events reported in Alberta (AB), and 682 (13.8%) events reported in Saskatchewan (SK).

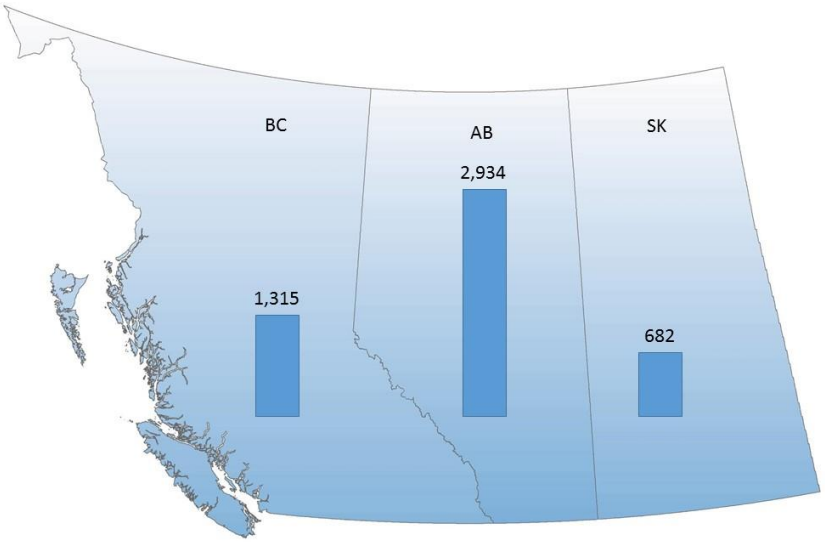


Figure 1. Summary of damage event reports by province.

Part A: Information Providers

In BC, 79.3% of the damage event reports originated from Natural Gas. This is in stark contrast to AB, where the majority of damage reports were fairly evenly split between Liquid Pipelines (37.0%) and Telecommunications (34.6%). Saskatchewan was more in line with AB with 45.0% of damage reports originating from Telecommunications.

Part B: Date and Location of Events

The main season for damage events in BC ranged from April to October with the peak number of events occurring in June. In AB, the main season took place from June to November with the peak number of damage events occurring in July. No seasonal information was available for SK.

In both, BC and AB, the percent of total damage events was highest around urban areas with 38.4% reported in the Greater Vancouver Area in BC and 33.1% reported in the Edmonton region in AB. No regional information was available for SK.

Part C: Affected Facilities

The type of facilities affected varied more in AB than in BC. In BC, 79.3% of the facilities affected were Natural Gas, whereas in AB Telecommunications were the largest category of facilities affected at 34.9%. Similar to AB, the majority of damage event reports in SK were related to telecommunications.

Part D: Excavation Information

Damage event reports were fairly evenly distributed across the Work Performed categories in both BC and AB. Construction/Development and Water were the top two categories of Work Performed in BC, while Water and Energy/Telecommunications were the top two categories in AB.

Part E, F, G, & H: Notification, Locating and Marking, Excavator Downtime, and Cost of Damage

The DIRT data allows for the easy comparison of various ratios across jurisdictions. The Table below provides a brief summary of the damage ratio per 1,000 locates, the ratio of notifications to locate requests, and the damage ratio per 1,000 notifications.

Table 1. DIRT data ratios by jurisdiction

Ratio	BC	AB	SK
Damage events per 1,000 locates	8.9	7.0	5.0
Ratio of notifications to locate requests	4.6	4.5	2.6
Damage events per 1,000 notifications	1.9	1.6	1.9

Part I: Root Causes

The damage event root causes varied by province. In BC, the most common root cause (52.8%) was One-Call Practices Not Sufficient. In contrast, the most common root cause in AB was the Miscellaneous/Other category (78.0%) reflecting the need for improved data collection. Among the more specific root cause categories in AB, Locating Practices Not Sufficient was the most common at 14.2%. In SK, the most common root cause was Excavation Practices Not Sufficient (37.8%).

Summary Recommendations

British Columbia

1. **Improved Reporting**. Emphasis should continue to be placed on increasing the number of DIRT submissions so as to provide a more accurate representation of all events within BC in a given year. In BC, the data quality of the reported events was generally high (for example, in comparison to AB), though there is always room for improvement. Areas of emphasis for improved reporting include:
    a. Part B: the Location and timing of events;
    b. Part G: Excavator downtime;
    c. And to a lesser extent Part E/F: Notifications, locating and marking.
2. **Focus on Seasons**. While damage events occurred throughout the year, the peak season for damage events occurred from April to October with the peak month in June. There should be

ongoing education initiatives throughout the year with maximum educational efforts focused on April and May as the excavation activity ramps up for the summer.

3. **Focus Locations**. The majority of events occurred in the Greater Vancouver Area, followed by the Interior. Significant improvement could be possible with initiatives targeted at the two leading regions for volume of damage events.
4. **Focus on Land Owners and Contractors**. The majority of events occurred on private land and to a lesser extent city streets. In addition, contractors were responsible for reporting the majority of damage events. Educational messaging should be focused towards private land owners and contractors. This could include a messaging program focused on large scale suppliers of landscape materials and tools. Similarly, Hoe/Trencher equipment was involved in the majority of events and safety messages should be emphasized during equipment training.
5. **Focus on Construction/Development and Water Work**. Construction/Development and water were the two most prominent categories of events by type of work performed. As is stated above, educational messaging should be targeted towards these categories for maximum impact.
6. **Improving One-Call Practices.** One-Call Practices Not Sufficient was the root cause in over half of all the reported damage events and appears to be a major factor in damage to underground infrastructure. Increased awareness of safe excavating practices and the use of One-Call by all responsible parties (for example, home owners and contractors) is imperative to reducing the number of damage events.

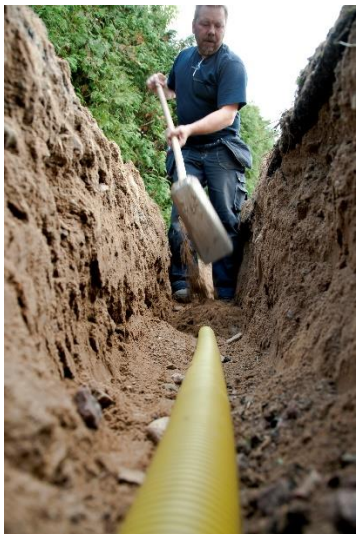
Alberta

1. **Improve Data Quality**. Efforts should be made to improve the overall quality of data with a greater emphasis placed on Part I: Root Causes in particular. Better information on the root causes of damage events would enhance the ability to focus education efforts in future campaigns. Emphasis should also continue to be placed in increasing the number of DIRT submissions so as to provide a more accurate representation of all events within Alberta in a given year.
2. **Focus on Seasons**. While damage events occurred throughout the year, the peak season for damage events occurred from May to November with the peak month in July. There should be ongoing education initiatives throughout the year with maximum educational efforts focused on May and June as the excavation activity ramps up for the summer.
3. **Focus Locations**. The majority of events occurred in the Edmonton Area, followed by the North. Significant improvement could be possible with initiatives targeted at the two leading regions for volume of damage events.
4. **Focus on Land Owners, Federal Land, and Contractors**. The majority of events occurred on private land and to a lesser extent Federal Land. In addition, contractors were responsible for the majority of damage events. Educational messaging should be focused towards private land owners and contractors. This could include a messaging program focused on large scale suppliers of landscape materials and tools. Similarly, Hoe/Trencher equipment was involved in the majority of events and safety messages should be emphasized during equipment training.
5. **Focus on a Variety of Work Performed**. Damage events were fairly uniformly distributed over the different types of work performed and there is no one area to concentrate efforts to achieve maximum impact of education efforts.

6. **Improving Practices.** The data quality is insufficient for making targeted recommendations around improving practices. Where data were collected Locating Practices Not Sufficient was the root cause in the majority of damage events. This must be interpreted with caution and improvements in data quality will allow a focused recommendation in future reporting.

Saskatchewan

1. **Improve Data Availability**. Efforts should be made to improve the overall availability of data in line with other jurisdictions. This may require enhanced efforts to work with public works and associations to improve data collection and availability.
2. **Education**. The damage events were fairly evenly spread over the different utility types suggesting there is a greater need for a broad spectrum of education and safety efforts.
3. **Improving Excavation Practices.** Excavation Practices Not Sufficient was the root cause in the majority of the reported damage events. Educational efforts should be focused on increasing awareness of safe excavating practices by all responsible parties (for example, home owners and contractors) and is imperative to reducing the number of damage events in SK.

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British Columbia DIRT

This section of the report provides a high-level snapshot of damage statics related to British Columbia's underground infrastructure. The goal of this report is to help improve worker and public safety and protect underground infrastructure in BC. A comprehensive picture of contributing issues is vital to the creation of a stronger culture of underground safety.

This report utilizes information collected using the Common Ground Alliance (CGA) USA's Damage Information Reporting Tool (DIRT). The British Columbia Common Ground Alliance (BCCGA) encourages all interested parties to submit their damage reports to the BC Virtual Private DIRT by visiting www.cga-dirt.com. Once registered, users can submit damage information or generate reports on the existing data. This report presents the data collected from the AB Virtual Private DIRT website in 2014.

The following limitations should be noted with regards to the presentation of the 2014 data:

- While every effort has been made to ensure that the most up to date information is employed in this report, the voluntary nature of DIRT reporting means that this report does not include all of the events that occurred in BC in 2014. It is clear that not all stakeholders in BC have chosen to report in this edition. The information is statically relevant for the purposes of a high-level analysis.
- The BC Virtual Private DIRT is still relatively new and it appears that some operators did not collect information pertaining to certain prescribed DIRT fields. As such, in a number of cases some fields have not been completed. The BCCGA will continue to improve the quality of data by educating users on what information is most valuable to collect.
- This report is focused only on damage events for 2014. The BCCGA may provide a year-over-year comparison in future reports.

As a principle, the BCCGA is committed to improving the data collection process.

About the BCCGA

The BC Common Ground Alliance (BCCGA) is a unique consensus-driven organization with a direct conduit to regulatory innovation. It is open to any individual or organization with an interest in safety and underground infrastructure. The BCCGA considers that all involved with underground infrastructure or disturbance are responsible and accountable for the safety of their own procedures. It acknowledges, however, that it is in everyone's best interest to work together to develop safe and consistent practices.

The BCCGA works to offer practical tools and to foster an environment in which anyone resident or doing business in British Columbia is aware of and compliant with best practices in regard to underground infrastructure or disturbance in order to ensure the safest possible environment for the citizens and workers of the province.

BCCGA is coordinating working groups to develop and deliver:

- Best Practice Guidelines for Safe Excavation
- Safety Recognition – City of Excellence Award

- Education – DigSafe Workshops
- National level priorities
- Advocacy for use of the DIRT tool (statistical database of hits)
- Networking and collaborating
- Improving stakeholder engagement
- Responding to calls for input into regulatory amendments
- Circulation of relevant information regarding safety and industry practice.

In BC, quantifying hits to underground infrastructure has been uneven at best. In some cases, statistics have not been maintained. As a result, stakeholders have not been able to effectively determine how many damage events occur each year, the causes of these events or the circumstances surrounding, causing or preventing these events. The Damage Information Reporting Tool allows the BCCGA to generate a high-level picture of safety and damage prevention in relation to excavation practice and the protection of underground infrastructure. This, in turn, should help all involved improve worker and public safety and protect underground infrastructure in BC.

The primary purpose in collecting underground facility damage data is to analyze data, learn why events occur and determine what actions by industry can prevent them in the future, thereby ensuring the safety and protection of people and infrastructure. The use of BC Virtual Private DIRT allows the BCCGA to identify root causes, perform trend analyses, and ultimately help educate all stakeholders so that damages can be reduced through more effective practices and procedures.

Data Analysis

The information provided in this report is generally organized to match the structure of the Damage Information Reporting Field Form of the BC Virtual Private DIRT. More specifically the analysis of the data is organized around the following section headings:

- Part A: Information Providers
- Part B: Date and Location of Events
- Part C: Affected Facilities
- Part D: Excavation Information
- Part E, F, G, and H: Notification, Locating and Marking, Excavator Downtime, and Cost of Damage
- Part I: Root Causes

Part A: Information Providers

Table 2 indicates the number and percent of damage events reported by stakeholder group. Natural gas represents the largest reporting stakeholder group in 2014 with 1,043 events (79.3%).

Table 2. The number of damage events by stakeholder group

Stakeholder Group	Events	%
Electric	92	7.0%
Liquid Pipeline	59	4.5%
Natural Gas	1,043	79.3%
One-Call Center	1	0.1%
Public Works	1	0.1%
Telecommunications	87	6.6%
Unknown/Other	32	2.4%
Total	1,315	100.0%

Part B: Date and Location of Events

The total of 1,315 damage event reports in 2014 translates to a monthly average of approximately 110 events/month. Figure 2 below demonstrates the actual distribution of event reports per month. The peak season for reported damage events (i.e. greater than the average of 110 events/month) extended from April through October with a peak of 154 events in the Month of June.

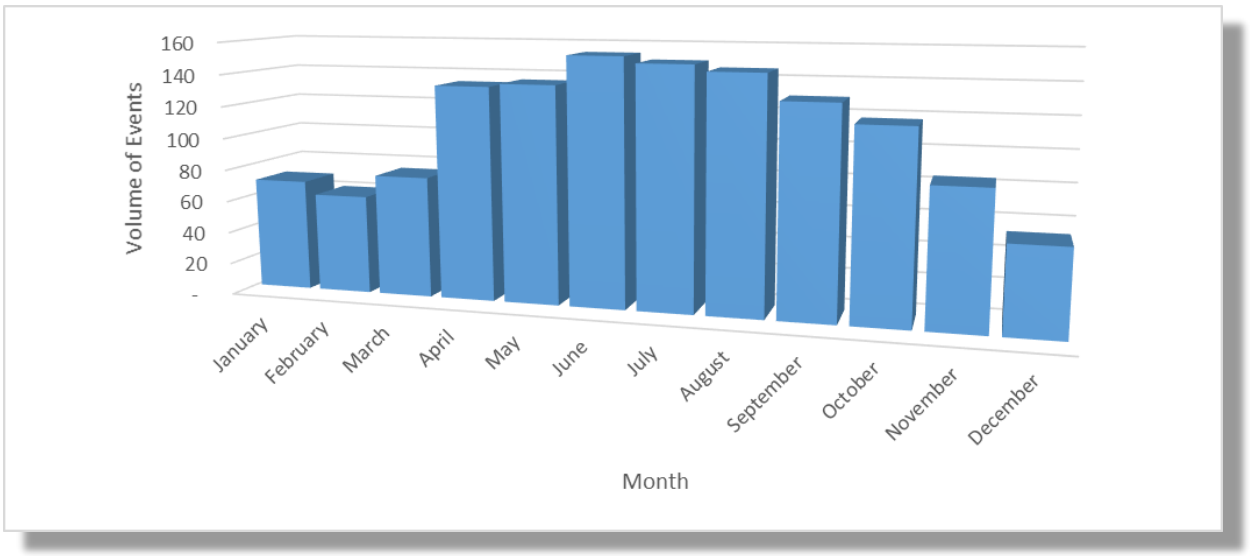

Figure 2. Volume of events by month.

Figure 3 below provides the distribution of reported damage events by region within British Columbia in 2014. The most events were experienced in Greater Vancouver (38.4%), followed by the Interior (27.1%).

The Fraser Valley and Coastal BC and Vancouver Island reported a similar number of damage events (12.7% and 12.9%, respectively).

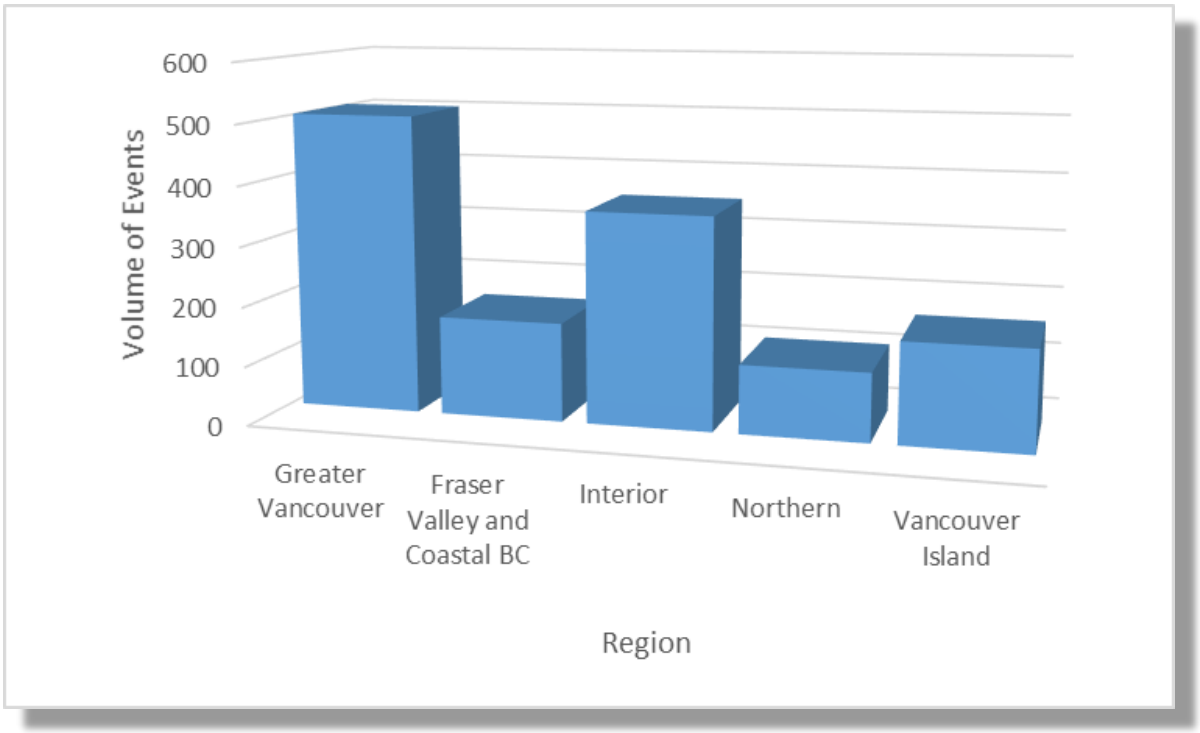

Figure 3. Volume of events by region.

The distribution of damage events was spread across all land types (Table 3) with events on Private – Land Owner (45.9%) and Public – City Street (249%) representing the majority of the events.

Table 3. Volume of events by land type (right of way)

Land Type	Events	%
Data Not Collected	158	12.0%
Pipeline	45	3.4%
Power/Transmission Line	1	0.1%
Private - Business	42	3.2%
Private - Land Owner	603	45.9%
Private Easement	1	0.1%
Public - City Street	328	24.9%
Public - County Road	4	0.3%
Public - Other	108	8.2%
Public - State Highway	11	0.8%
Unknown/Other	14	1.1%
Total	1,315	100.0%

Part C: Affected Facilities

As is demonstrated in Figure 4, most of the facilities affected in 2014 were Natural Gas (1,043 events or 79.3%). This was followed in sequence from highest to lowest by Electric (92 events or 7.0%), Telecommunications (87 events or 6.6%), Liquid Pipeline (59 events or 4.5%), Unknown/Other (32 events or 2.4%), and Sewer and Steam facilities (1 event or 0.1%).

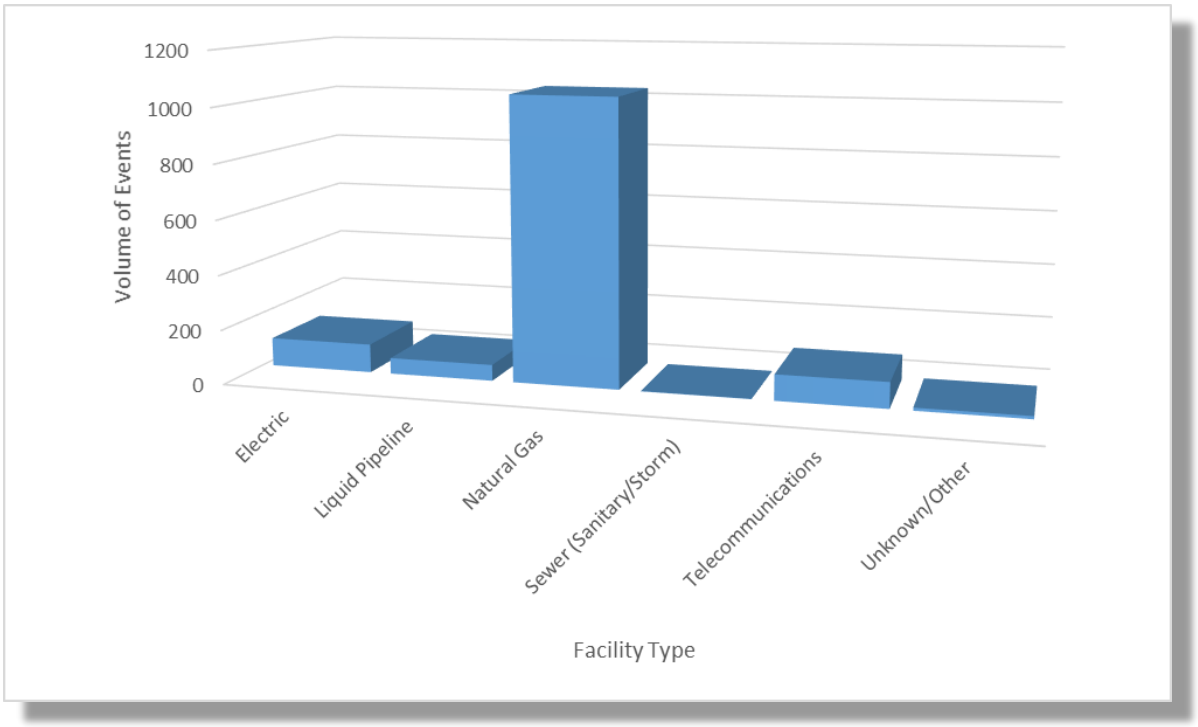

Figure 4. Volume of events by facility operation type.

Part D: Excavation Information

Among the events associated with known excavator type, Contractor represented the majority of the damage events (761 events, or 57.9%), followed by Occupant (249 events, or 18.9%) (Figure 5).

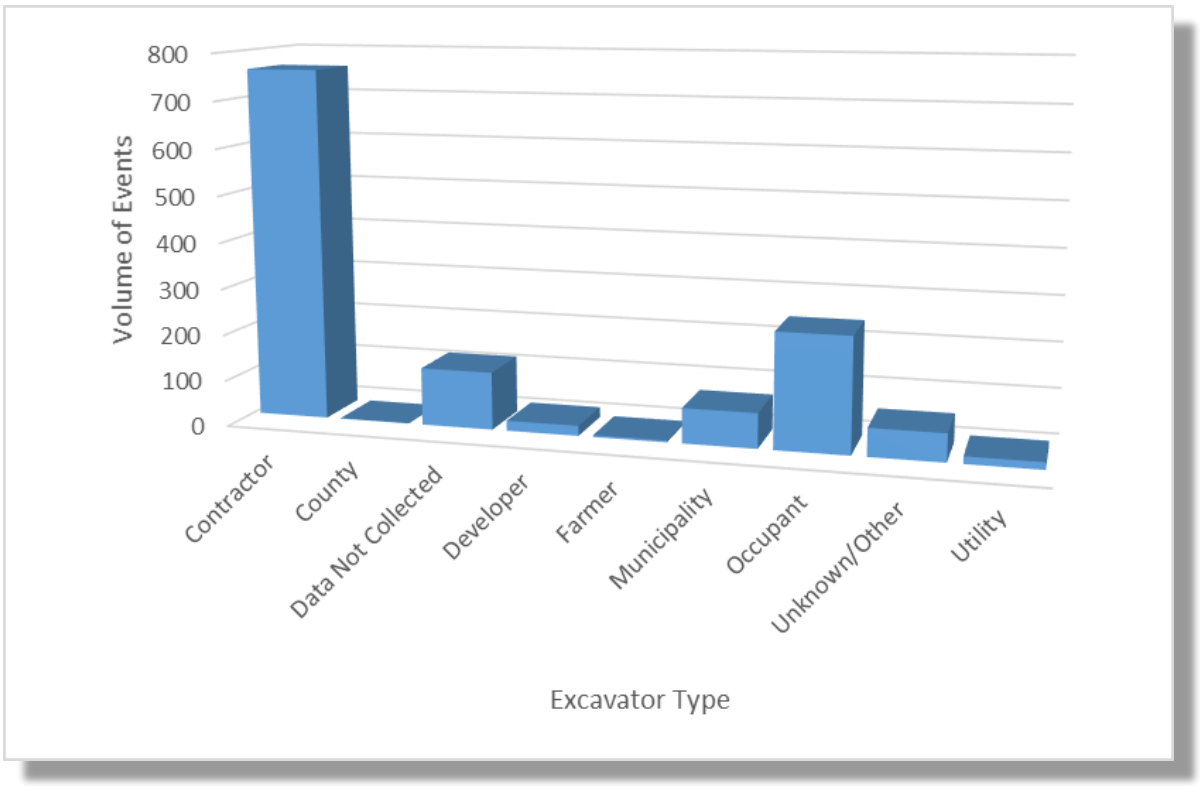

Figure 5. Volume of work by excavator type.

Figure 6 below indicates that the Hoe/Trencher category of excavation equipment was involved in 794 events representing 60.4% of the total. Figure 7 below shows that Construction/Development dominated the volume of event records for the type of work performed (412 events, or 31.3%). This was followed by Water (312 events, or 23.7%).

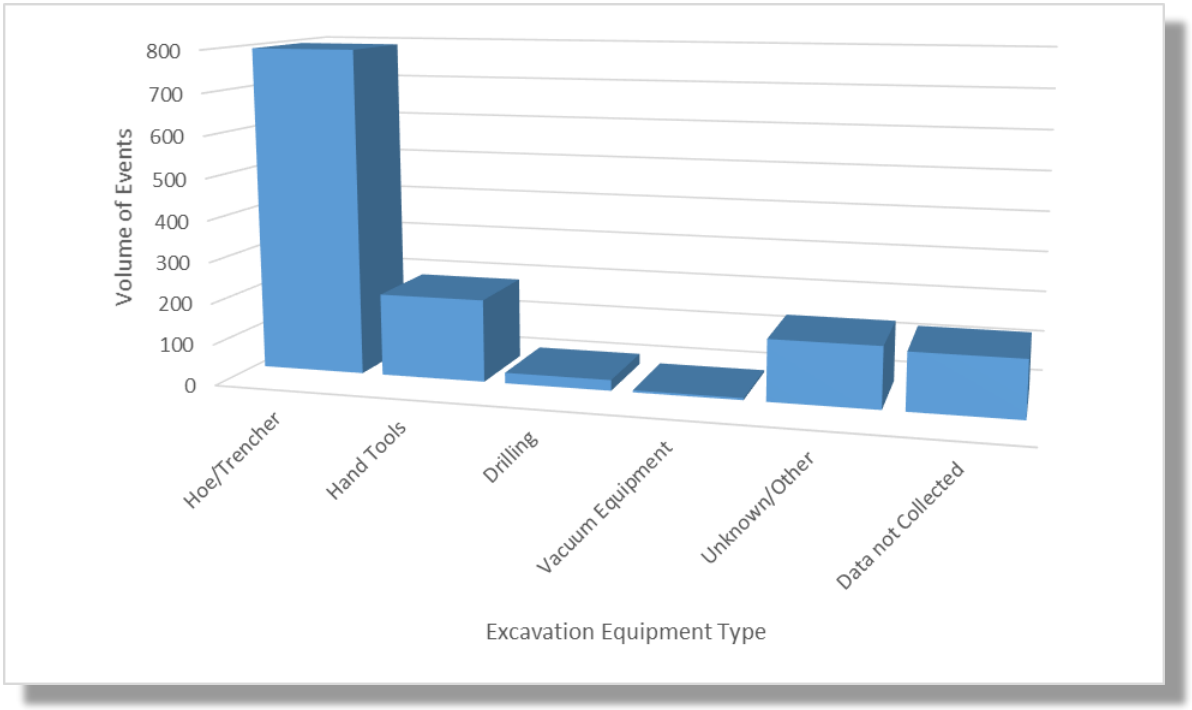

Figure 6: Volume of events by excavation equipment.

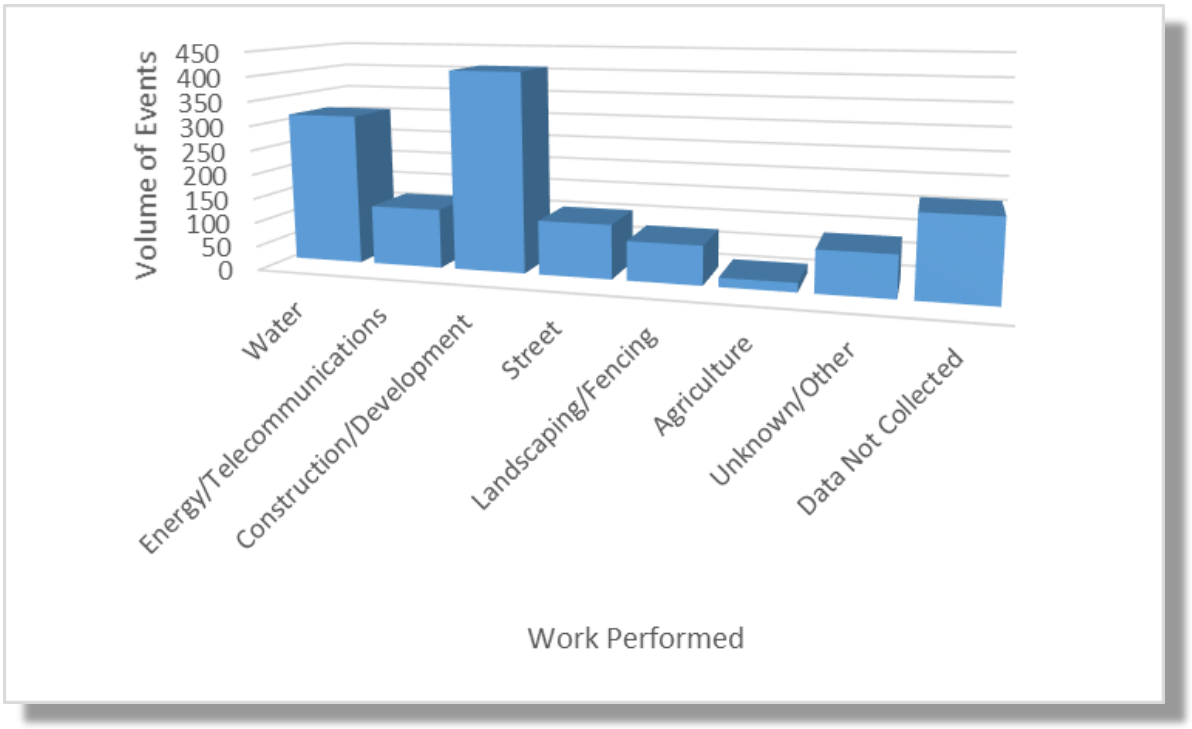

Figure 7. Volume of events by work performed.

Part E, F, G & H: Notification, Locating and Marking, and Excavator Downtime

As is stated above, there were 1,315 damage events reported in British Columbia in 2014. Table 4 contains statistics on damage events, locates, notifications, and the calculated ratios of damage events to 1,000 locates and damage events to 1,000 notifications. In total, there were 148,100 locate requests to BC One-Call and 688,274 notifications yielding a ratio of 4.6 notifications per locate request. The ratio of damage events per 1,000 locates was 8.9, and there was a ratio of 1.9 damage events per 1,000 notifications.

Table 4. One-Call notifications, locates, and damage ratios

One-Call Notification	2014
Number of Events (Damages)	1,315.0
Number of Locates	148,100.0
Damage Ratio per 1000 locates	8.9
Ratio of Notifications per Locate Request	4.6
Number of Notifications	688,274.0
Damage Ratio per 1000 Notifications	1.9

Part I: Root Causes

Table 5 provides the volume of damage event records by root cause. The majority of the damage events (52.8%) were categorized as One-Call Practices Not Sufficient. The second most common root cause (32.0% of events) was Excavation Practices Not Sufficient.

Table 5. Volume of events by root cause

Damage by Root Cause	Events	%
One-Call Practices Not Sufficient	694	52.8%
Locating Practices Not Sufficient	19	1.4%
Excavation Practices Not Sufficient	421	32.0%
Miscellaneous Root Cause	181	13.8%
Total	1,315	100.0%

Data Quality

The Data Quality Index (DQI) is a measure of data quality and consists of the evaluation of submitted damage event records, including an overall DQI for each of the 1,315 submitted events in BC for 2014.

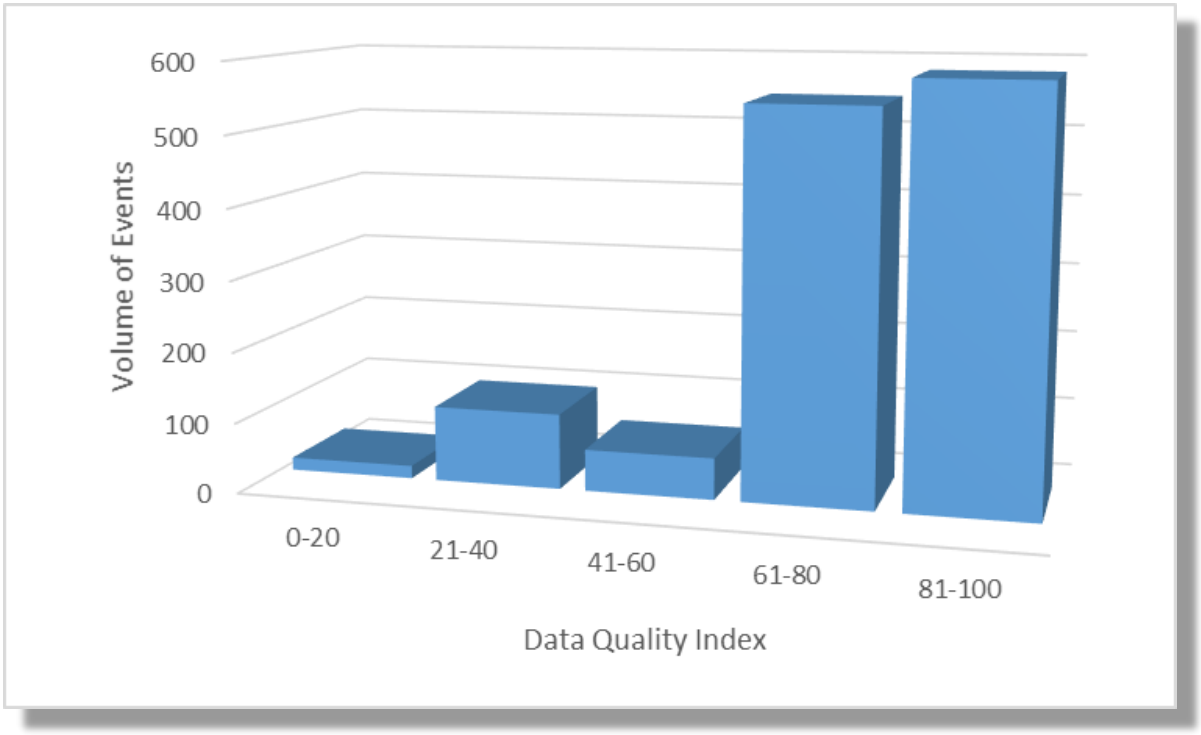

Figure 8. Volume of event records by DQI category.

The majority (over 85%) of the 1,315 damage event records fell within a DQI range of 61-80 or above on a scale of 0-100, with 100 being the highest data quality (Figure 8). In most cases the individual DQIs for each part of the damage event records were medium to high with the exception of Part G (Excavator Downtime).

Recommendations

The following recommendations are intended to enhance industry efforts to reduce damage events and standardize the data collection process. Based on the analysis of the 2014 DIRT data, the recommendations are:

1. **Improved Reporting**. Emphasis should continue to be placed on increasing the number of DIRT submissions so as to provide a more accurate representation of all events within BC in a given year. In BC, the data quality of the reported events was generally high (for example, in comparison to AB), though there is always room for improvement. Areas of emphasis for improved reporting include:
    a. PartB: the Location and timing of events;
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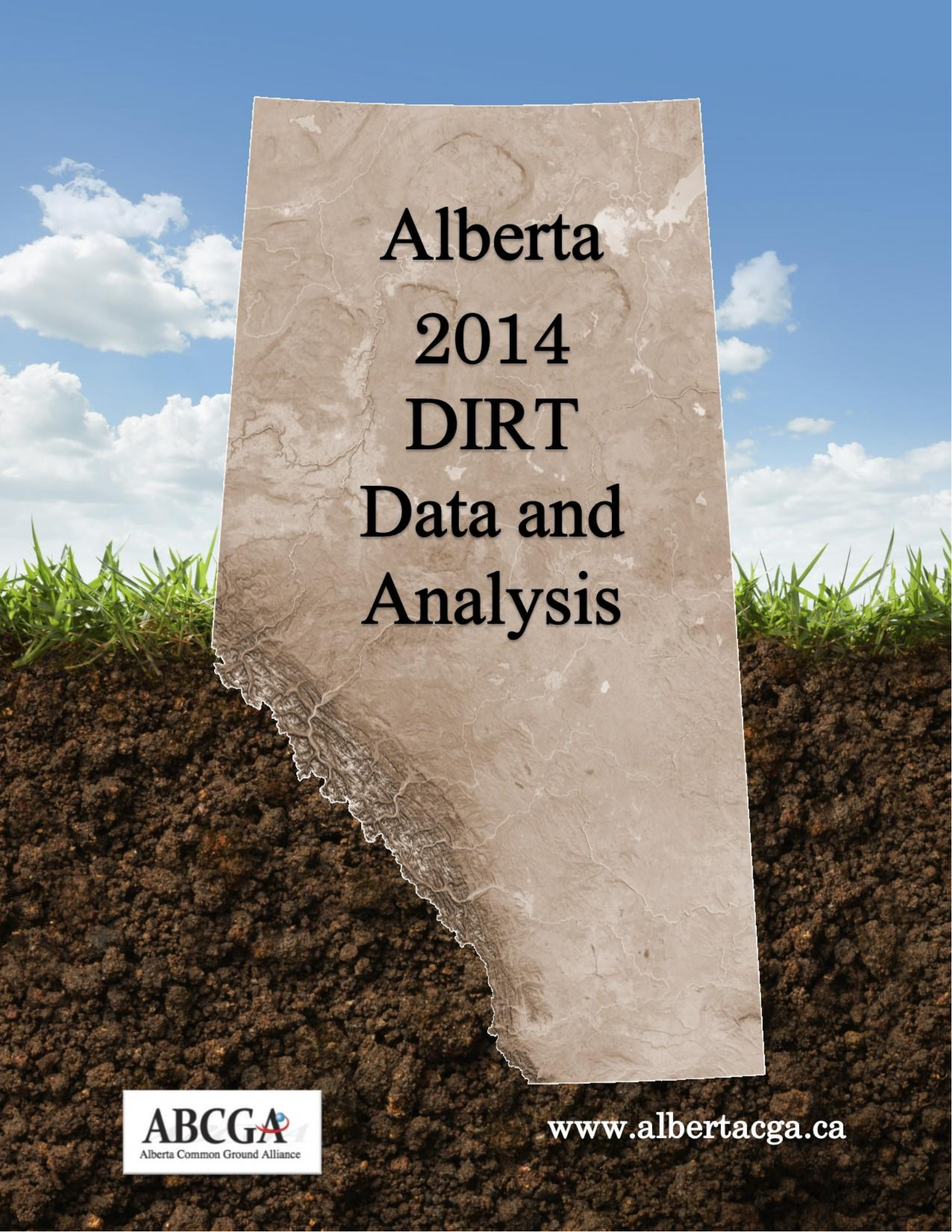
6. **Improving One-Call Practices.** One-Call Practices Not Sufficient was the root cause in over half of all the reported damage events and appears to be a major factor in damage to underground infrastructure. Increased awareness of safe excavating practices and the use of One-Call by all responsible parties (for example, home owners and contractors) is imperative to reducing the number of damage events.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Alberta DIRT

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- AB DIRT is still relatively new and it appears that some operators did not collect information pertaining to certain prescribed DIRT fields. As such, in a number of cases, some fields have not been completed. The ABCGA will continue to improve the quality of data by educating users on what information is most valuable to collect.
- This is the first year of reporting in this manner in Alberta. Therefore, a year-over-year comparison is not possible at this time. The ABCGA will provide a year-over-year comparison in future reports.[1]

About the ABCGA

The Alberta Common Ground Alliance is an open membership organization dedicated to improving worker safety, public safety, community safety, protection of the environment and preservation of the integrity of the infrastructure that provides goods and services that are essential to today's society by identifying, validating and promoting the adoption of effective ground disturbance and damage prevention practices.

The prevention of damage to buried facilities has many stakeholders who are mutually dependent upon the successful execution of one another's roles and responsibilities in the overall process. The exchange of accurate and timely information during the damage prevention process, together with a genuine interest by all stakeholders for a successful outcome is critical. Prevention of damage to buried facilities is a responsibility shared among the stakeholders.

What is now the ABCGA was originally formed in the 1970s as the Alberta Utility Location and Coordination Council (AULCC) of the Alberta Chapter of the American Public Works Association and known

[1] The ABCGA captured a limited amount of data in 2013 and the damage report summary was published here: http://www.canadiancga.com/Resources/Documents/National%20Report%202012-2013C_eng_UPDATED.pdf

most recently as the Alberta Damage Prevention Council (ADPC) of the Alberta Chapter of the American Public Works Association. In 2004 it was recognized as a Regional Partner of the Common Ground Alliance. The ABCGA was incorporated as a society in July 2011.

The Ground Disturbance Stakeholders Committee, which was originally established in 1998, became part of the ABCGA in 2006. During its 30+ years of activity, the ABCGA has become recognized as the voice of buried facility damage prevention in Alberta. It provides the 'table' to which issues related to damage prevention may be brought for discussion among the stakeholders and ultimate resolution. The ABCGA works with industry stakeholders and regulators to produce stronger, more effective results through cooperation, collaboration and the pursuit of common goals in damage prevention.

The objectives of the ABCGA are:

- To prevent damage from ground disturbance activities by identifying, validating and promoting the adoption of damage prevention best practices among all stakeholders in the buried facility damage prevention process;
- To define and promote recognition and acceptance of the roles, responsibilities and expectations of all the stakeholder groups in the buried facility damage prevention process;
- To establish and maintain minimum program content for ground disturbance training programs;
- To establish and maintain a ground disturbance training program assessment and endorsement process to ensure minimum content consistency and relevance;
- To foster a cooperative approach to the resolution of issues among all the stakeholders in the buried facility damage prevention process;
- To foster a sense of shared responsibility for the prevention of damage to buried facilities;
- To advocate the development and implementation of fair, reasonable and practical damage prevention regulation that is based on best practices and acceptable to all stakeholder groups;
- To sponsor, promote and participate in public awareness, education and training programs related to the prevention of damage to buried facilities and safe ground disturbance activities;
- To evaluate publications, programs and services that are or may be of interest to members;
- To conduct activities that advance the purposes of the ABCGA and enhance the quality of the services provided to the members;
- To promote membership in the ABCGA and participation in achieving its objectives;
- To establish and maintain liaison with other related interest groups and organizations; and
- To serve as the provincial voice for buried facility damage prevention and ground disturbance training.

Data Analysis

The information provided in this report is generally organized to match the structure of the Damage Information Reporting Field Form of the AB Virtual Private DIRT. More specifically, after a brief discussion of the overall quality of the data collected in 2014, the analysis of the data is organized around the following section headings:

- Part A: Information Providers
- Part B: Date and Location of Events
- Part C: Affected Facilities
- Part D: Excavation Information
- Part E, F, H & G: Notification, Locating and Marking, Excavator Downtime, and Cost of Damage
- Part I: Root Causes

Part A: Information Providers

Table 6 indicates the number and percent of damage events reported by stakeholder group. Liquid pipelines and telecommunications represented the two largest reporting stakeholder groups in 2014 with 1,086 events (37.0%) and 1,015 events (34.6%), respectively.

Table 6. The number of damage events by stakeholder group

Stakeholder Group	Events	%
Electric	143	4.9%
Excavator	5	0.2%
Liquid Pipeline	1,086	37.0%
Natural Gas	180	6.1%
One-Call Center	350	11.9%
Private Water	9	0.3%
Telecommunications	1,015	34.6%
Unknown/Other	146	5.0%
Total	2,934	100.0%

Part B: Date and Location of Events

The total of 2,934 damage event reports in 2014 translates to a monthly average of 245 events/month. Figure 9 below demonstrates the actual distribution of event reports per month. The peak season for reported damage events (i.e. greater than the average of 245 events/month) extended from June through November with a peak of 377 events in the month of July.

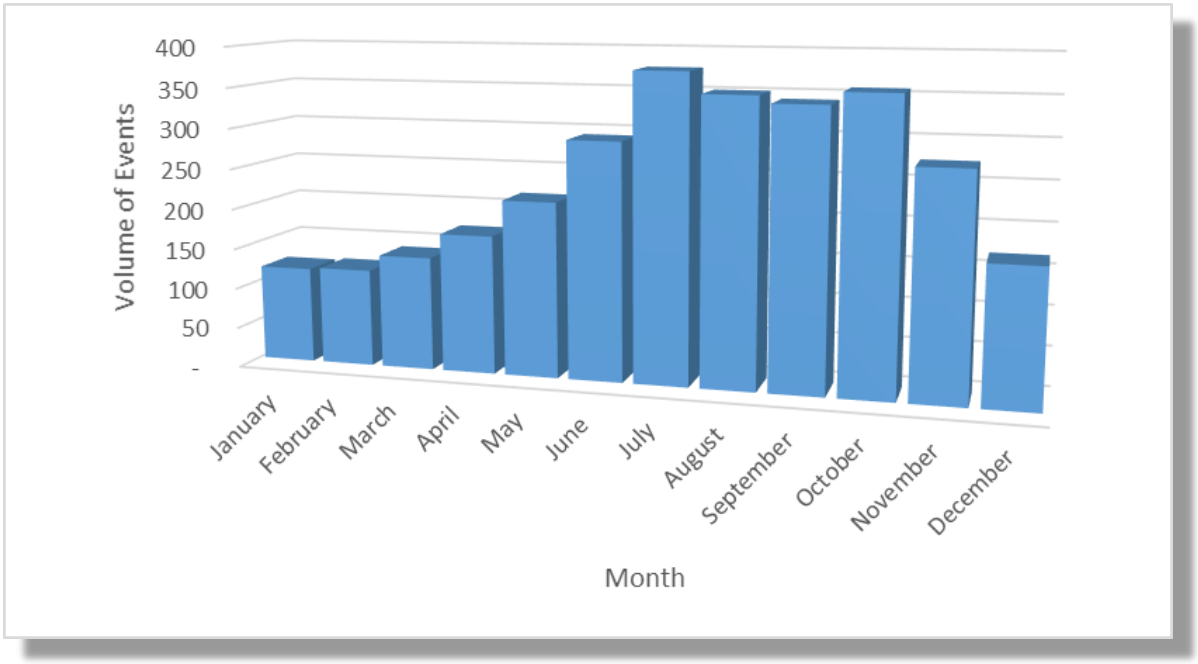


Figure 9. Volume of events by month.

Figure 10 below provides the distribution of reported damage events by region within Alberta in 2014. The most events were experienced in the Edmonton region (33.1%), followed by the North region (24.6%), the Calgary region (20.9%), the Central region (11.9%), and the South region (9.5%).

The distribution of damage events was widely spread across all land types (Table 7) with events on Private Land – Land Owner (21.2%) and Federal Land (20.9%) representing the majority of the events. Damage events on Public Property – City Street (15.1%) and Private Easement (14.1%) also represented significant proportions of the total events.

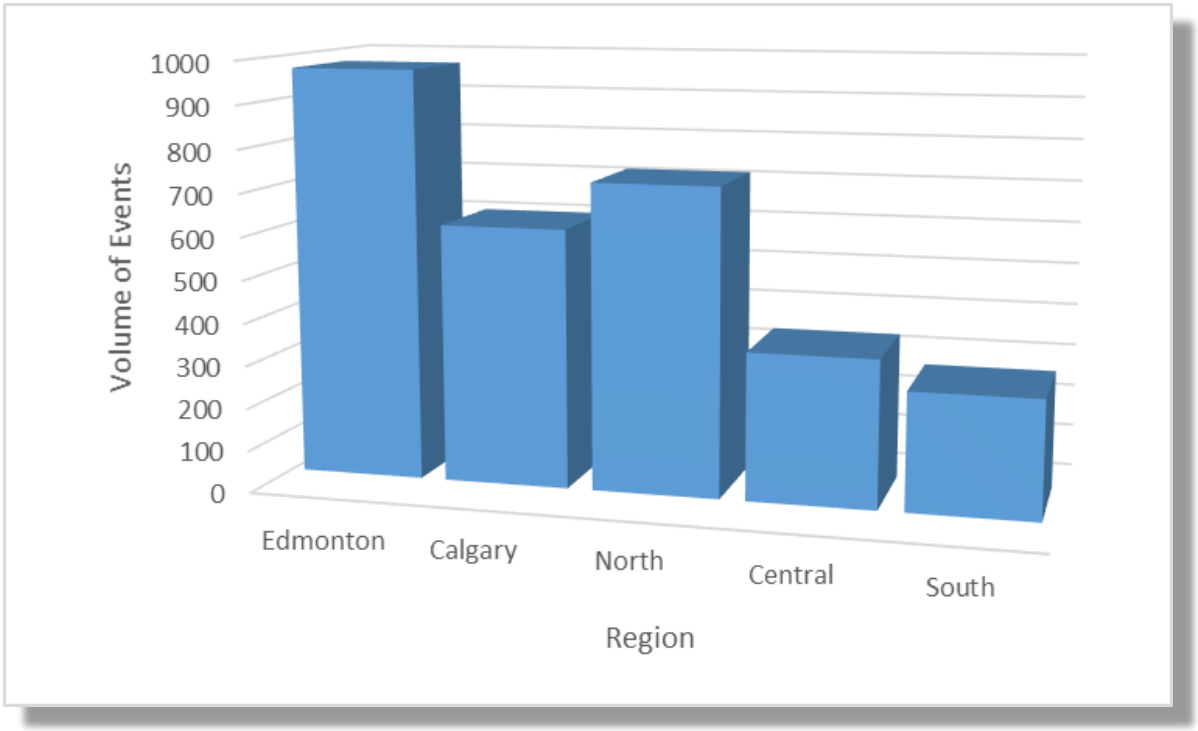


Figure 10. Volume of events by region.

Table 7. Volume of events by land type (right of way)

Land Type	Events	%
Data Not Collected	110	3.7%
Dedicated Public Utility Easement	147	5.0%
Federal Land	614	20.9%
Pipeline	34	1.2%
Power/Transmission Line	7	0.2%
Private - Business	53	1.8%
Private - Land Owner	621	21.2%
Private Easement	414	14.1%
Public - City Street	444	15.1%
Public - County Road	261	8.9%
Public - Other	108	3.7%
Public - Highway	45	1.5%
Railroad	1	0.0%
Unknown/Other	75	2.6%
Total	2934	100.0%

Part C: Affected Facilities

As is demonstrated in Figure 11, most of the facilities affected in 2014 were Telecommunications (1,025 events or 34.9%). This was followed in sequence from highest to lowest by Liquid Pipeline (624 events or 21.3%) and Natural Gas (599 events or 20.4%). The remaining facilities affected were Water (286 events or 9.7%), Unknown/Other (251 events or 8.6%), and Electric (144 events or 4.9%). Sewer and Steam facilities represent the remaining 5 events (0.1%).

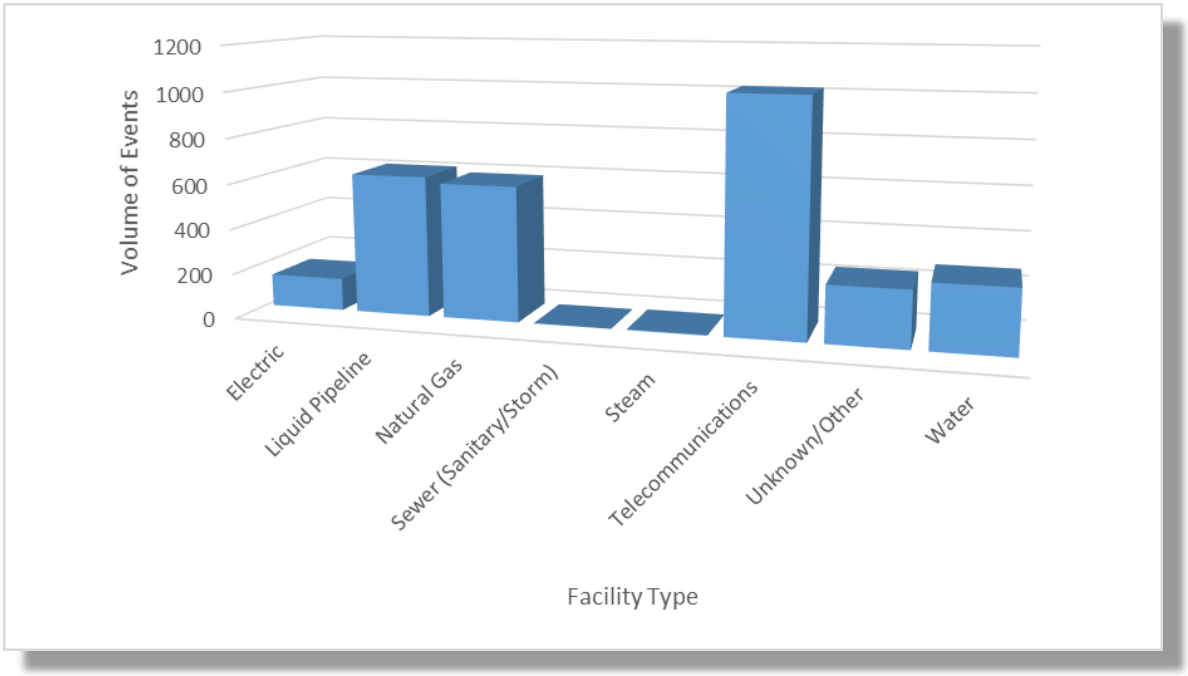


Figure 11. Volume of events by facility operation type.

Part D: Excavation Information

Among the events associated with known excavation equipment type, Hoe/Trenchers represented the majority of the damage events, followed by Drilling, Hand Tools, and Vacuum Equipment in descending order of volume of events (Figure 12 below).

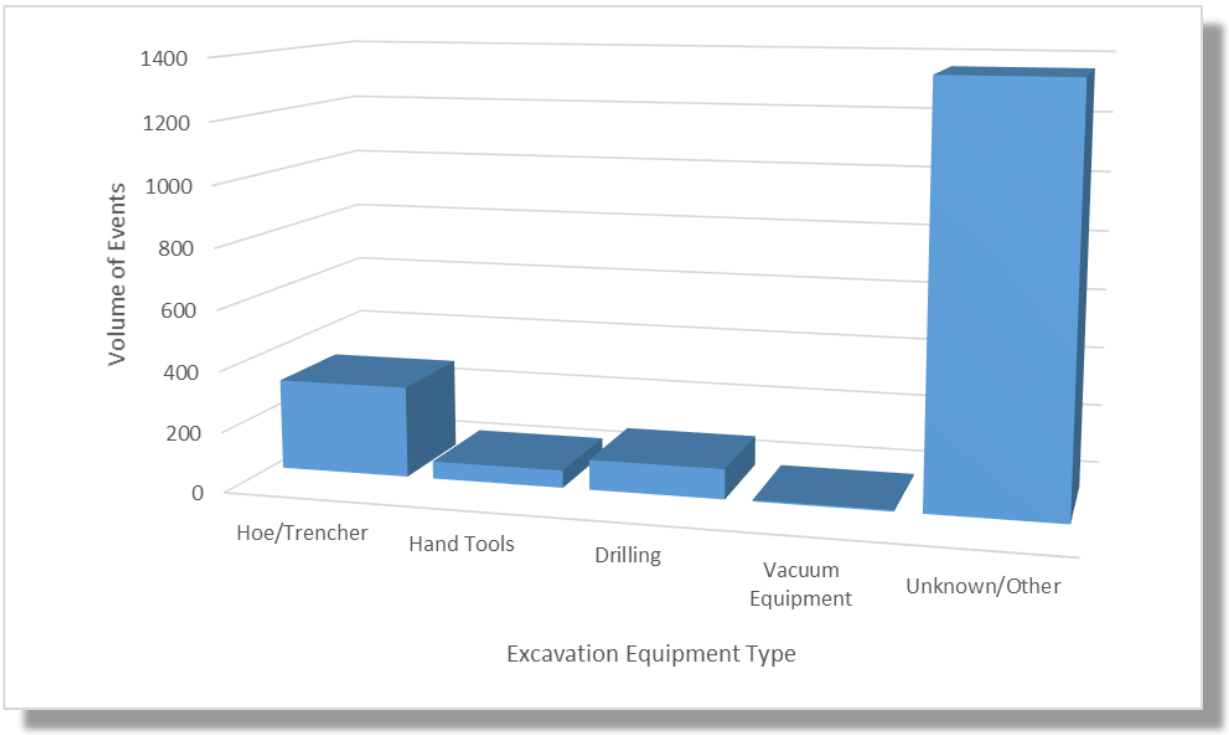


Figure 12. Volume of events by excavation equipment type.

Table 8. Volume of events by excavator type

Excavator Type	Events	%
Contractor	1,160	39.5%
County	30	1.0%
Data Not Collected	1,107	37.7%
Developer	6	0.2%
Farmer	17	0.6%
Municipality	26	0.9%
Occupant	267	9.1%
Unknown/Other	27	0.9%
Utility	294	10.0%
Total	2,934	100.0%

Table 8 indicates that data was not collected for the many of the damage events. Among the reports where data was collected, Contractors were involved in the majority of damage events.

Figure 13 shows that Data Not Collected dominated the volume of event records for the type of work performed. Among the event records where data were collected, there was a fairly even distribution of damage events across the categories of work performed. Water was the single largest category of damage events, followed closely by the combination of Energy/Telecommunications. Caution must be used in interpreting these data as Data Not Collected and/or the Unknown/Other category represent the vast majority of damage events.

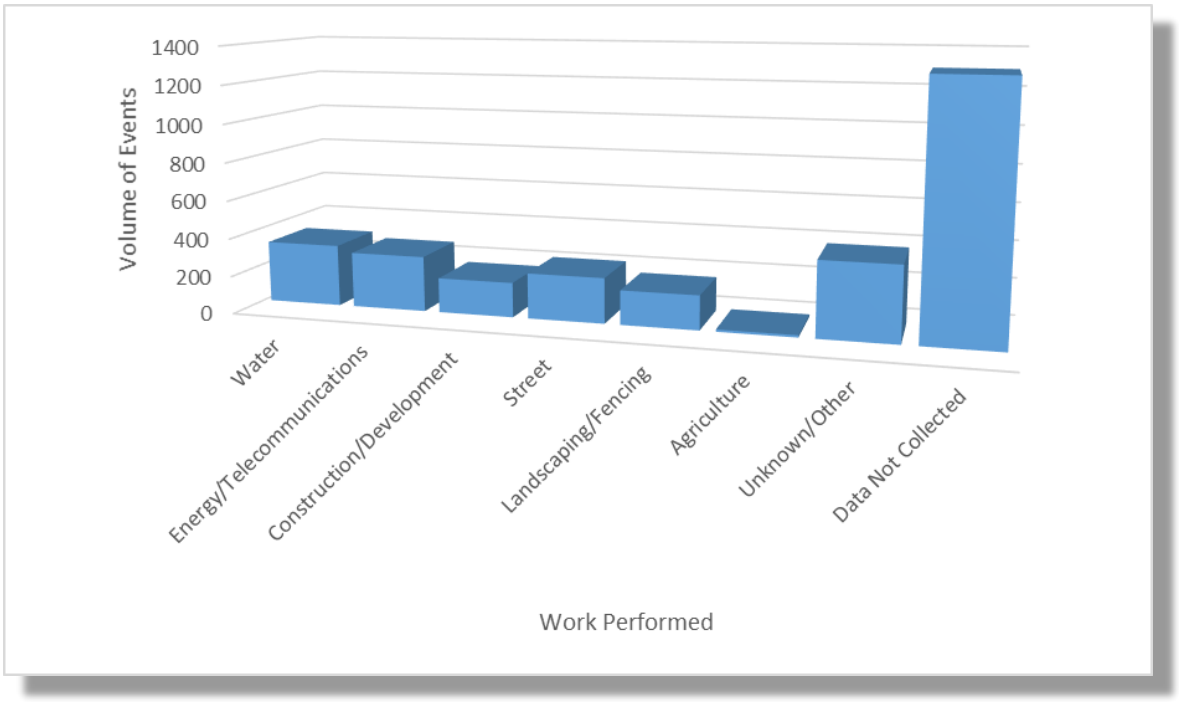


Figure 13. Volume of events by work performed.

Part E, F, G & H: Notification, Locating and Marking, and Excavator Downtime, and Cost of Damage

As is stated above, there were 2,934 damage events reported in Alberta in 2014. Table 9 contains statistics on damage events, locate requests submitted, the number of notifications, and the calculated ratios of damage events to 1,000 locates and damage events to 1,000 notifications. In total, there were 416,429 locate requests and 1,889,150 notifications to Alberta One-Call members yielding a ratio of 4.5 notifications per locate request. The ratio of damage events per 1,000 locates was 7.0, and there was a ratio of 1.6 damage events per 1,000 notifications.

Table 9. One-Call notifications, locates, and damage ratios

One-Call Notification	2014
Number of Events (Damages)	2,934.0
Number of Locates	416,429.0
Damage Ratio per 1000 locates	7.0
Ratio of Notifications per Locate Request	4.5
Number of Notifications	1,889,150.0
Damage Ratio per 1000 Notifications	1.6

Part I: Root Causes

Table 10 provides the volume of damage event records by root cause. The majority of the damage events (78.0%) were categorized as a miscellaneous root cause. There were 646 damage event records identified with more specific root causes. Locating Practices Not Sufficient was identified as the highest volume of damage events (416 or 64.4%) followed by Excavation Practices Not Sufficient (130 or 20.1%) and One-Call Practices Not Sufficient (100 or 15.5%).

Table 10. Volume of events by root cause

Damage by Root Cause	Events	%
One-Call Practices Not Sufficient	100	3.4%
Locating Practices Not Sufficient	416	14.2%
Excavation Practices Not Sufficient	130	4.4%
Miscellaneous Root Cause	2288	78.0%
Total	2934	100.0%

Figure 14 below provides greater detail around the breakdown of the miscellaneous root cause category and it should be noted that a large number of events were categorized as Data Not Collected. It should also be noted that the Other category includes unknown root causes.

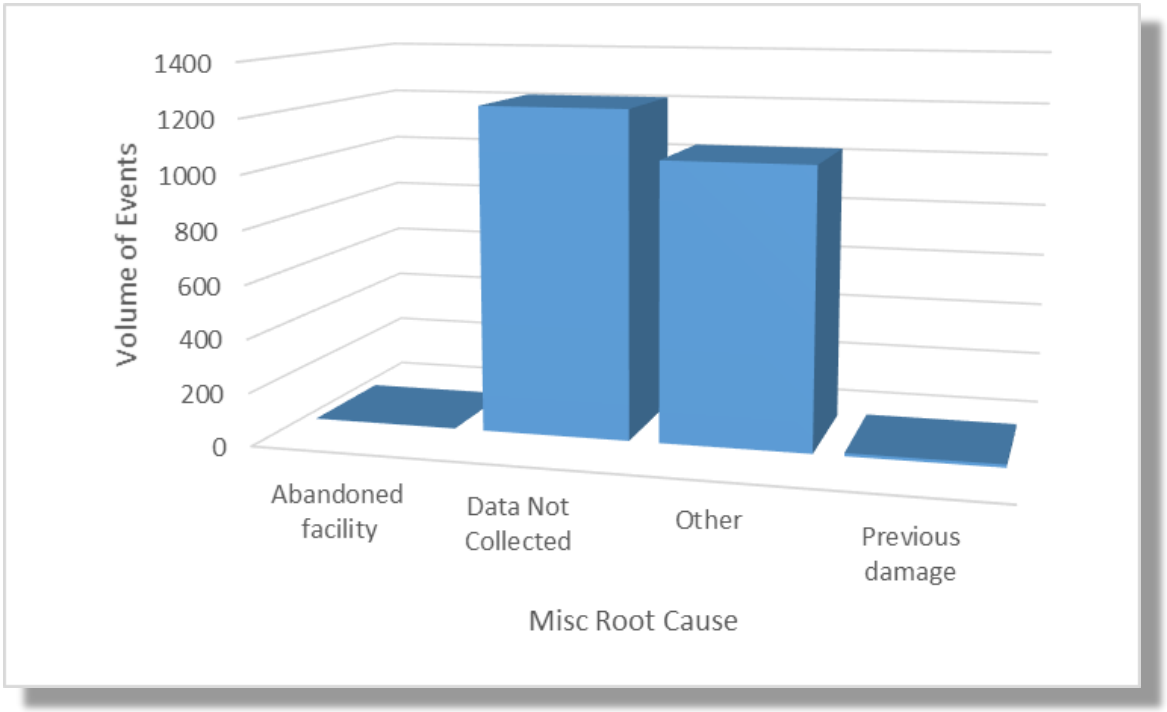


Figure 14. Volume of events by miscellaneous root cause subcategory.

Data Quality

In 2014, there was a total of 2,934 events reported to AB Virtual Private DIRT. The Data Quality Index (DQI) is a measure of data quality and consists of the evaluation of submitted damage event records, including an overall DQI for each of the 2,934 submitted events in Alberta for 2014.

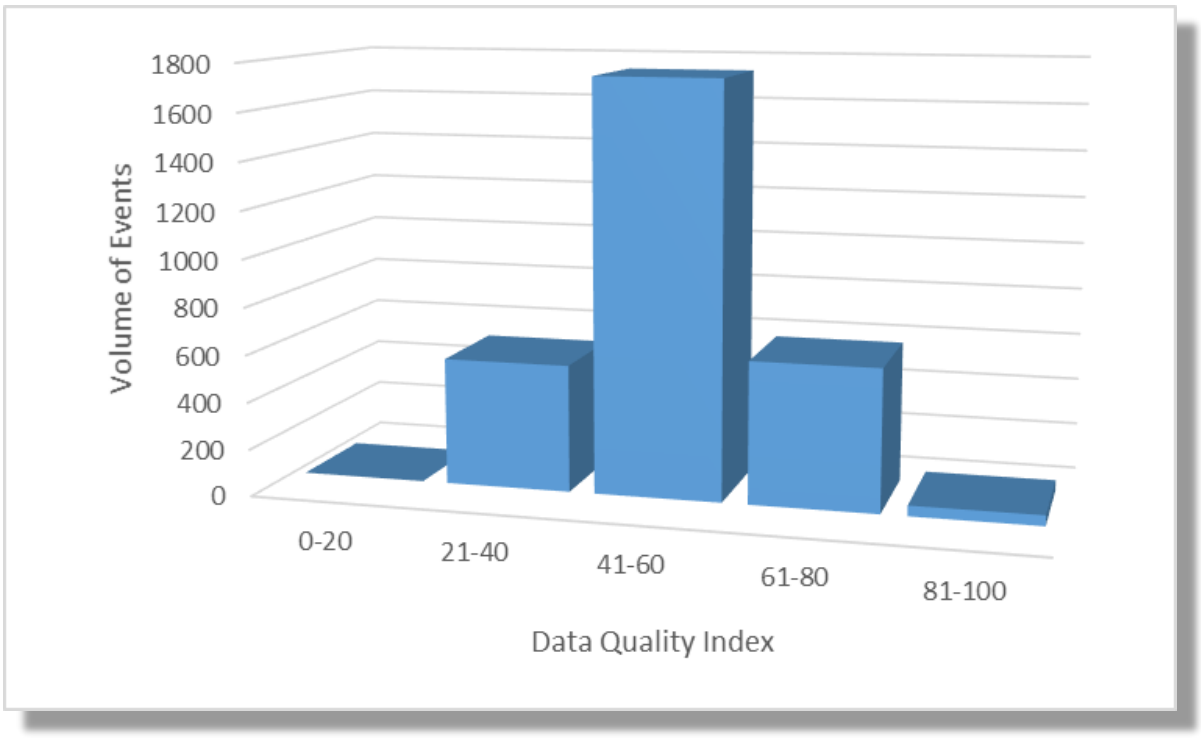


Figure 15. Volume of event records by DQI category.

As shown in Figure 15, the majority (approximately 60%) of the 2,934 damage event records fell within a DQI range of 41-60 on a scale of 0-100, with 100 being the highest data quality. The individual DQIs for each part of the damage event records were generally medium to high with the exception of Part I (Root Cause).

Recommendations

The following recommendations are intended to enhance industry efforts to reduce damage events and standardize the data collection process. Based on the analysis of the 2014 DIRT data, the recommendations are:

1. **Improve Data Quality**. Efforts should be made to improve the overall quality of data with a greater emphasis placed on Part I: Root Causes in particular. Better information on the root causes of damage events would enhance the ability to focus education efforts in future campaigns. Emphasis should also continue to be placed in increasing the number of DIRT submissions so as to provide a more accurate representation of all events within Alberta in a given year.
2. **Focus on Seasons**. While damage events occurred throughout the year, the peak season for damage events occurred from May to November with the peak month in July. There should be ongoing education initiatives throughout the year with maximum educational efforts focused on May and June as the excavation activity ramps up for the summer.
3. **Focus Locations**. The majority of events occurred in the Edmonton Area, followed by the North. Significant improvement could be possible with initiatives targeted at the two leading regions for volume of damage events.
4. **Focus on Land Owners, Federal Land, and Contractors**. The majority of events occurred on private land and to a lesser extent Federal Land. In addition, contractors were responsible for reporting the majority of damage events. Educational messaging should be focused towards private land owners and contractors. This could include a messaging program focused on large scale suppliers of landscape materials and tools. Similarly, Hoe/Trencher equipment was involved in the majority of events and safety messages should be emphasized during equipment training.
5. **Focus on a Variety of Work Performed**. Damage events were fairly uniformly distributed over the different types of work performed and there is no one area to concentrate efforts to achieve maximum impact of education efforts.
6. **Improving Practices.** The data quality is insufficient for making targeted recommendations around improving practices. Where data were collected Locating Practices Not Sufficient was the root cause in the majority of damage events. This must be interpreted with caution and improvements in data quality will allow a focused recommendation in future reporting.


Saskatchewan
2014
DIRT
Data and
Analysis
SCGA
Saskatchewan Common Ground Alliance
www.scga.ca

Saskatchewan DIRT

This report provides a high-level snapshot of damage statics related to Saskatchewan's underground infrastructure. The goal of this report is to help improve worker safety, public safety and protect underground infrastructure in Saskatchewan (SK). A comprehensive picture of contributing issues is vital to the creation of a stronger culture of underground safety. In presenting this report, it is important to note its limitations. Only a limited and high level summary of data is available for Saskatchewan thereby limiting the analysis and comparability to other jurisdictions.

About the SCGA

The Saskatchewan Common Ground Alliance (SCGA), through shared responsibility among all key stakeholders, is committed to enhancing public and worker safety while reducing damage to buried facilities. The Common Ground Alliance is a member-driven association dedicated to ensuring public safety, environmental protection, and the integrity of services by developing and promoting effective damage prevention practices which we refer collectively to Best Practices. Promoting a spirit of shared responsibility, the CGA welcomes all stakeholders who would like to be a part of the identification and promotion of best practices. In recent years, the CGA has established itself as the leading organization in North America through shared responsibility among all stakeholders. The CGA currently has seven Regional Partnerships throughout Canada including British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec and the Maritimes.

In order to successfully develop and promote effective damage prevention practices, any persons or companies who may be involved in ground disturbance activities such as excavators, locators, road builders, electric, telecommunications, oil, gas, water, One-Call, public works, regulators, fencing contractors, landowners, engineering and design are encouraged to participate.

The underground facility network in Saskatchewan is growing and as a result the stakes are higher for employers and workers as buried facilities become increasingly congested. Stakeholders in the underground community include excavators, locators, planners as well as facility owners. To date, there has been tremendous effort given to enhancing the safety of various underground operations focusing on both facility and worker protection by a number of individual groups. The CGA will give Saskatchewan the opportunity to play a part in a new collective approach to damage prevention and worker safety in the province. Following the lead of many jurisdictions across North America, several key employers in Saskatchewan have been looking for ways to collectively renew and enhance our approach to damage prevention and underground worker safety in the Province through the creation and promotion of Best Practices.

Understanding the value of a collective approach, Saskatchewan industry partners are committed to adopt the model established in most North American jurisdictions. This member driven association is dedicated to ensuring public safety, worker safety, environmental protection and the integrity of facilities and services by promoting effective damage prevention practices.

Data Analysis

The information provided in this report is generally organized to match the structure of the Damage Information Reporting Field Form. Data for Saskatchewan are limited to that provided by the main public utility companies of SaskEnergy (natural gas), SaskPower (electricity), and SaskTel (telephone). In 2014, the number of damage events reported totalled 682.

Part A, B, and C: Information Providers, Date and Location & Affected Facilities

Part A, B, and C account for stakeholder groups, the date and location of events, and the facilities affected. The data for Saskatchewan provide details of the number of damage events by underground utility type. The majority of damage events reported affected telephone lines (307 of 682, or 45%) (Table 11). Damage to electrical lines accounted for 195 events (28.6%), followed by natural gas with 180 events (26.4%).

Table 11. The number of damage events by stakeholder group/facility affected

Stakeholder Group/Facility Affected	Events	%
Natural Gas	180	26.4%
Electricity	195	28.6%
Telephone	307	45.0%
Total	682	100.0%

Part D, E, F, G & H: Notification, Locating and Marking, and Excavator Downtime, and Cost of Damage

Part D, E, F, and G account for excavation type, notification, locating and marking, and excavator downtime. As is stated above, there were 682 damage events reported in SK in 2014. Table 12 contains statistics on damage events, locate requests, the number of notifications, and the calculated ratios of damage events to 1,000 locates and damage events to 1,000 notifications. In total, there were 137,427 locate requests and 356,733 notifications to Saskatchewan One-Call members yielding a ratio of 2.6 notifications per locate request. The ratio of damage events per 1,000 locates was 5.0, and there was a ratio of 1.9 damage events per 1,000 notifications.

Table 12. One-Call notifications, locates, and damage ratios

One-Call Notification	2014
Number of Events (Damages)	682
Number of Locates	137,427
Damage Ratio per 1000 locates	5.0
Ratio of Notifications per Locate Request	2.6
Number of Notifications	356,733
Damage Ratio per 1000 Notifications	1.9

Part I: Root Causes

The volume of damage events by root cause is summarized in the Table below. The primary root cause of reported damage events in Saskatchewan was "Excavation Practices Not Sufficient" with 258 of 682 events or 37.8%. One-Call Practices Not Sufficient was the second highest root cause category with 27.7% of the total followed closely by Locating Practices Not Sufficient with 21.3% of the events. The Miscellaneous Root Cause category accounted for the remaining 13.2% of reported damage events.

Table 13. Volume of events by root cause

Damage by Root Cause	Events	%
One-Call Practices Not Sufficient	189	27.7%
Locating Practices Not Sufficient	145	21.3%
Excavation Practices Not Sufficient	258	37.8%
Miscellaneous Root Cause	90	13.2%
Total	682	100.0%

Recommendations

At this time it is difficult to make recommendations for SK. The following recommendations are intended to enhance industry efforts to reduce damage events and standardize the data collection process. Based on the analysis of the 2014 DIRT data, the recommendations are:

1. **Improve Data Availability**. Efforts should be made to improve the overall availability of data in line with other jurisdictions.
2. **Education**. The damage events were fairly evenly spread over the different utility types suggesting there is a greater need for a broad spectrum of education and safety efforts.
3. **Improving Excavation Practices.** Excavation Practices Not Sufficient was the root cause in the majority of the reported damage events. Educational efforts should be focused on increasing awareness of safe excavating practices by all responsible parties (for example, home owners and contractors) and is imperative to reducing the number of damage events in SK.

Appendix A: British Columbia Category Groupings

Geographic Area

Group	Administrative Region
Greater Vancouver	Greater Vancouver
Fraser Valley and Coastal BC	Central Kootenay, Fraser Valley, Powell River, Sunshine Coast
Interior	Cariboo, Central Okanagan, Columbia-Shuswap, East Kootenay, Kootenay Boundary, North Okanagan, Okanagan-Similkameen, Squamish-Lillooet, Thompson-Nicola
Northern	Fraser-Fort George, Northern Rockies, Peace River
Vancouver Island	Alberni-Clayquot, Capital, Comox-Strathcona, Cowichan Valley, Nanaimo

Excavator Grouping

Group	Type of Excavator
Contractor	Contractor
County	County
Data Not Collected	Data Not Collected
Developer	Developer
Farmer	Farmer
Municipality	Municipality
Occupant	Occupant
Unknown/Other	Unknown/Other
Utility	Utility

Excavation Equipment Grouping

Group	Type of Equipment
Hoe/Trencher	Backhoe, Trackhoe, Trencher
Hand Tools	Hand Tools, Probe
Drilling	Auger, Bore, Directional Drill, Drill
Vacuum Equipment	Vacuum Equipment
Other	Farm Implement, Grader, Scraper, Road Milling Equipment, Explosives

Work Performed

Group	Type of Work
Water	Sewer, Water
Energy/Telecommunications	Natural gas, Electric, Steam, Liquid Pipe, Telecom, Cable TV
Construction/Development	Construction, Site Development, Grading, Drainage, Driveway, Demolition, Engineering, Railroad, Waterway
Street	Roadwork, Curb/Sidewalk, Storm drainage, Milling, Pole, Traffic Signals/Signs, Streetlight, Public Transit
Landscaping/Fencing	Landscaping, Fencing
Agriculture	Agriculture, Irrigation

Root Cause

Group	Root Cause
Excavation Practices Not Sufficient	Failure to maintain clearance, Failure to support exposed facilities, Failure to use hand tools where required, Failure to test hole (pot-hole), Improper backfill practices, Failure to maintain marks
One-Call Practices Not Sufficient	No notification made to One-Call centre, Notification made but not sufficient, Wrong information provided
Locating Practices Not Sufficient	Incorrect facility records/maps, Marking or location not sufficient, Facility not located or marked, Facility could not be found or located
Misc. Root Cause	Abandoned, One-Call centre error, Deteriorated, Previous Damage

Appendix B: Alberta Category Groupings

Geographic Area

Group	County
Edmonton	Barrhead, Westlock, Thorhild, Smoky Lake, St Paul, Bonnyville, Lac St Anne, Sturgeon, Lamont, Strathcona, Two Hills, Minburn, Vermillion, Brazeau, Parkland, Leduc, Wetaskiwin, Camrose, Beaver
Calgary	Bighorn, Mountain View, Kneehill, Starland, Special Area 2, 3 and 4, Kananaskis Country, Foothills, Rocky View, Wheatland
North	Mackenzie, Wood Buffalo, Northern Lights, Clear Hills, East Peace, Saddle Hills, Birch Hills, Smoky River, Big Lakes, Lesser Slave, Athabasca, Lakeland, Greenview, Woodlands
Central	Yellowhead, Clearwater, Ponoka, Lacombe, Stettler, Flagstaff, Wainright, Paint Earth, Provost, Red Deer
South	Newell, Pincher Creek, Willow Creek, Lethbridge, Taber, Cardston, Warner, 40 Mile

Excavator Grouping

Group	Type of Excavator
Contractor	Contractor
County	County
Data Not Collected	Data Not Collected
Developer	Developer
Farmer	Farmer
Municipality	Municipality
Occupant	Occupant
Unknown/Other	Unknown/Other
Utility	Utility

Excavation Equipment Grouping

Group	Type of Equipment
Hoe/Trencher	Backhoe, Trackhoe, Trencher
Hand Tools	Hand Tools, Probe
Drilling	Auger, Bore, Directional Drill, Drill
Vacuum Equipment	Vacuum Equipment
Unknown/Other	Farm Implement, Grader, Scraper, Road Milling Equipment, Explosives

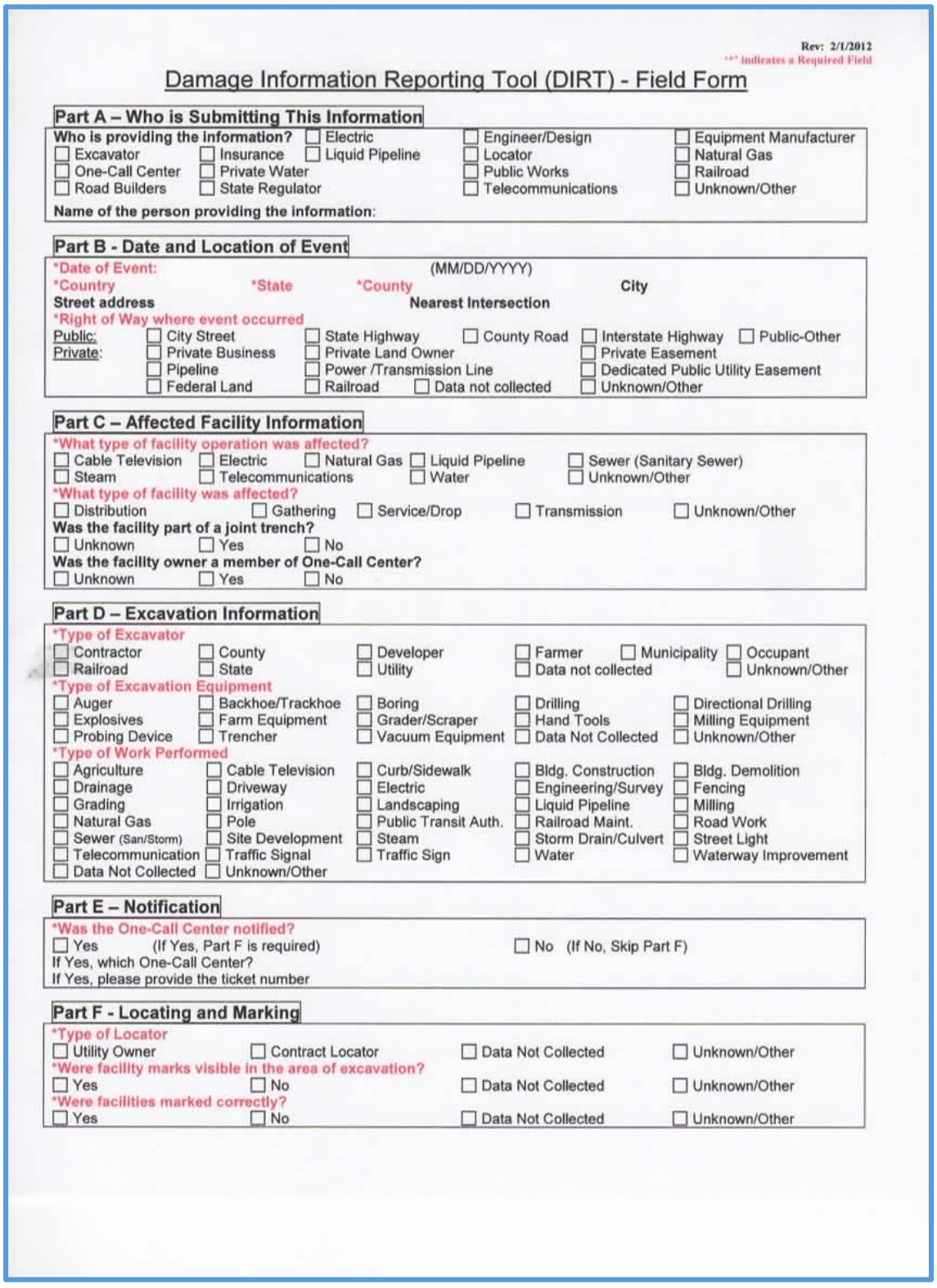
Work Performed

Group	Type of Work
Water	Sewer, Water
Energy/Telecommunications	Natural gas, Electric, Steam, Liquid Pipe, Telecom, Cable TV
Construction/Development	Construction, Site Development, Grading, Drainage, Driveway, Demolition, Engineering, Railroad, Waterway
Street	Roadwork, Curb/Sidewalk, Storm drainage, Milling, Pole, Traffic Signals/Signs, Streetlight, Public Transit
Landscaping/Fencing	Landscaping, Fencing
Agriculture	Agriculture, Irrigation
Unknown/Other	Unknown/Other

Root Cause

Group	Root Cause
Excavation Practices Not Sufficient	Failure to maintain clearance, Failure to support exposed facilities, Failure to use hand tools where required, Failure to test hole (pot-hole), Improper backfill practices, Failure to maintain marks
One-Call Practices Not Sufficient	No notification made to One-Call centre, Notification made but not sufficient, Wrong information provided
Locating Practices Not Sufficient	Incorrect facility records/maps, Marking or location not sufficient, Facility not located or marked, Facility could not be found or located
Misc. Root Cause	Abandoned, One-Call centre error, Deteriorated, Previous Damage

Appendix C: Damage Information Reporting Field Form



Rev: 2/1/2012
"*" Indicates a Required Field

Damage Information Reporting Tool (DIRT) - Field Form

Part A – Who is Submitting This Information

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

Name of the person providing the information:

Part B - Date and Location of Event

*Date of Event: (MM/DD/YYYY)
*Country *State *County City
Street address **Nearest Intersection**
*Right of Way where event occurred
Public: ☐ City Street ☐ State Highway ☐ County Road ☐ Interstate Highway ☐ Public-Other
Private: ☐ Private Business ☐ Private Land Owner ☐ Private Easement
☐ Pipeline ☐ Power /Transmission Line ☐ Dedicated Public Utility Easement
☐ Federal Land ☐ Railroad ☐ Data not collected ☐ Unknown/Other

Part C – Affected Facility Information

*What type of facility operation was affected?
☐ Cable Television ☐ Electric ☐ Natural Gas ☐ Liquid Pipeline ☐ Sewer (Sanitary Sewer)
☐ Steam ☐ Telecommunications ☐ Water ☐ Unknown/Other
*What type of facility was affected?
☐ Distribution ☐ Gathering ☐ Service/Drop ☐ Transmission ☐ Unknown/Other
Was the facility part of a joint trench?
☐ Unknown ☐ Yes ☐ No
Was the facility owner a member of One-Call Center?
☐ Unknown ☐ Yes ☐ No

Part D – Excavation Information

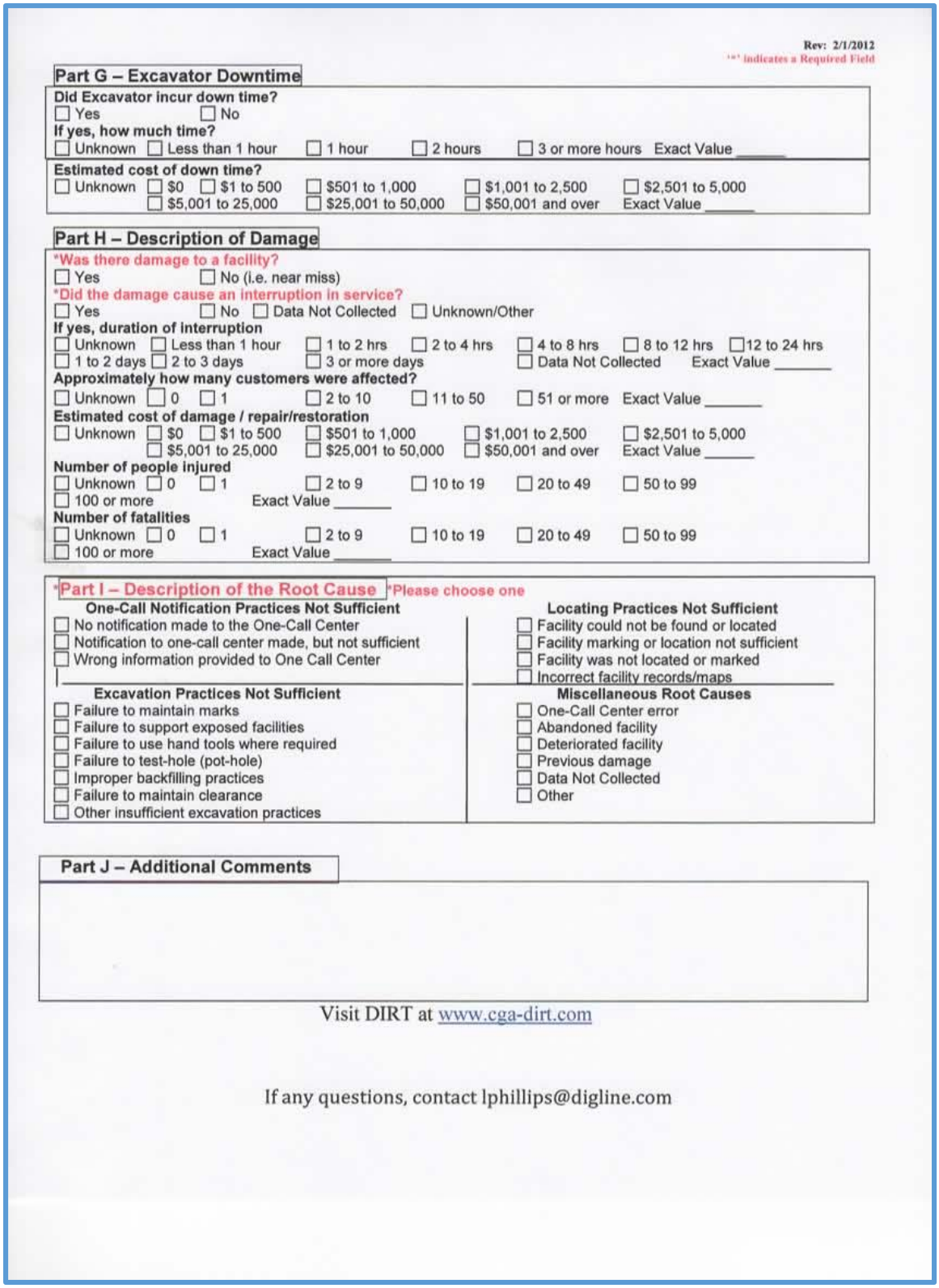
*Type of Excavator
☐ Contractor ☐ County ☐ Developer ☐ Farmer ☐ Municipality ☐ Occupant
☐ Railroad ☐ State ☐ Utility ☐ Data not collected ☐ Unknown/Other
*Type of Excavation Equipment
☐ Auger ☐ Backhoe/Trackhoe ☐ Boring ☐ Drilling ☐ Directional Drilling
☐ Explosives ☐ Farm Equipment ☐ Grader/Scraper ☐ Hand Tools ☐ Milling Equipment
☐ Probing Device ☐ Trencher ☐ Vacuum Equipment ☐ Data Not Collected ☐ Unknown/Other
*Type of Work Performed
☐ Agriculture ☐ Cable Television ☐ Curb/Sidewalk ☐ Bldg. Construction ☐ Bldg. Demolition
☐ Drainage ☐ Driveway ☐ Electric ☐ Engineering/Survey ☐ Fencing
☐ Grading ☐ Irrigation ☐ Landscaping ☐ Liquid Pipeline ☐ Milling
☐ Natural Gas ☐ Pole ☐ Public Transit Auth. ☐ Railroad Maint. ☐ Road Work
☐ Sewer (San/Storm) ☐ Site Development ☐ Steam ☐ Storm Drain/Culvert ☐ Street Light
☐ Telecommunication ☐ Traffic Signal ☐ Traffic Sign ☐ Water ☐ Waterway Improvement
☐ Data Not Collected ☐ Unknown/Other

Part E – Notification

*Was the One-Call Center notified?
☐ Yes (If Yes, Part F is required) ☐ No (If No, Skip Part F)
If Yes, which One-Call Center?
If Yes, please provide the ticket number

Part F - Locating and Marking

*Type of Locator
☐ Utility Owner ☐ Contract Locator ☐ Data Not Collected ☐ Unknown/Other
*Were facility marks visible in the area of excavation?
☐ Yes ☐ No ☐ Data Not Collected ☐ Unknown/Other
*Were facilities marked correctly?
☐ Yes ☐ No ☐ Data Not Collected ☐ Unknown/Other



Rev: 2/1/2012
'*' indicates a Required Field

Part G – Excavator Downtime

Did Excavator incur down time?
☐ Yes ☐ No

If yes, how much time?
☐ Unknown ☐ Less than 1 hour ☐ 1 hour ☐ 2 hours ☐ 3 or more hours Exact Value _____

Estimated cost of down time?
☐ Unknown ☐ $0 ☐ $1 to 500 ☐ $501 to 1,000 ☐ $1,001 to 2,500 ☐ $2,501 to 5,000
☐ $5,001 to 25,000 ☐ $25,001 to 50,000 ☐ $50,001 and over Exact Value _____

Part H – Description of Damage

*Was there damage to a facility?
☐ Yes ☐ No (i.e. near miss)

*Did the damage cause an interruption in service?
☐ Yes ☐ No ☐ Data Not Collected ☐ Unknown/Other

If yes, duration of interruption
☐ Unknown ☐ Less than 1 hour ☐ 1 to 2 hrs ☐ 2 to 4 hrs ☐ 4 to 8 hrs ☐ 8 to 12 hrs ☐ 12 to 24 hrs
☐ 1 to 2 days ☐ 2 to 3 days ☐ 3 or more days ☐ Data Not Collected Exact Value _____

Approximately how many customers were affected?
☐ Unknown ☐ 0 ☐ 1 ☐ 2 to 10 ☐ 11 to 50 ☐ 51 or more Exact Value _____

Estimated cost of damage / repair/restoration
☐ Unknown ☐ $0 ☐ $1 to 500 ☐ $501 to 1,000 ☐ $1,001 to 2,500 ☐ $2,501 to 5,000
☐ $5,001 to 25,000 ☐ $25,001 to 50,000 ☐ $50,001 and over Exact Value _____

Number of people injured
☐ Unknown ☐ 0 ☐ 1 ☐ 2 to 9 ☐ 10 to 19 ☐ 20 to 49 ☐ 50 to 99
☐ 100 or more Exact Value _____

Number of fatalities
☐ Unknown ☐ 0 ☐ 1 ☐ 2 to 9 ☐ 10 to 19 ☐ 20 to 49 ☐ 50 to 99
☐ 100 or more Exact Value _____

***Part I – Description of the Root Cause** *Please choose one

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

Excavation Practices Not Sufficient
☐ Failure to maintain marks
☐ Failure to support exposed facilities
☐ Failure to use hand tools where required
☐ Failure to test-hole (pot-hole)
☐ Improper backfilling practices
☐ Failure to maintain clearance
☐ Other insufficient excavation practices

Locating Practices Not Sufficient
☐ Facility could not be found or located
☐ Facility marking or location not sufficient
☐ Facility was not located or marked
☐ Incorrect facility records/maps

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

Part J – Additional Comments

Visit DIRT at www.cga-dirt.com

If any questions, contact lphillips@digline.com

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