



## DIGGING SAFELY

# One-call Notification Systems and the Prevention of Damage to Canada's Buried Infrastructure

Report of the Standing Senate Committee  
on Energy, the Environment and Natural Resources

The Honourable Richard Neufeld, Chair

The Honourable Paul J. Massicotte, Deputy Chair

December 2014

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(Committee Business – Senate – Reports)

41<sup>st</sup> Parliament – 2<sup>nd</sup> Session

## **TABLE OF CONTENTS**

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<b>MEMBERS</b> .....	i
<b>ORDER OF REFERENCE</b> .....	ii
<b>EXECUTIVE SUMMARY</b> .....	iii
<b>LIST OF RECOMMENDATIONS</b> .....	iv
<b>CHAPTER ONE: INTRODUCTION</b> .....	1
<b>CHAPTER TWO: DAMAGE TO BURIED INFRASTRUCTURE</b> .....	3
<b>CHAPTER THREE: ONE CALL NOTIFICATION SERVICES</b> .....	5
A.    Excavators and One-call Centres .....	5
B.    One-call in Canada .....	6
C.    One-call in the United States .....	8
i.    Common Best Practices .....	9
ii.   8-1-1 Dialing Code .....	10
<b>CHAPTER FOUR: ISSUES RELATED TO ONE-CALL CENTRES IN CANADA</b> .....	10
A.    Common Standards .....	10
B.    Access to One-call Centres .....	11
C.    Expanding One-call Service .....	12
D.    One-call Membership and Operations .....	13
i.    Buried Infrastructure on Federal Property .....	15
ii.   Federally-regulated Infrastructure .....	15
iii.  One-call Funding .....	17
<b>CHAPTER FIVE: CONCLUSION</b> .....	18
<b>APPENDIX A: WITNESSES</b> .....	19
<b>APPENDIX B: BRIEFS SUBMITTED TO THE COMMITTEE</b> .....	19
<b>APPENDIX C: ENDNOTES</b> .....	20

## **MEMBERS**

The Honourable Richard Neufeld, Chair  
The Honourable Paul J. Massicotte, Deputy Chair

and

The Honourable Douglas Black, Q.C.  
The Honourable Pierre-Hugues Boisvenu  
The Honourable Michael L. MacDonald  
The Honourable Grant Mitchell  
The Honourable Dennis Glen Patterson  
The Honourable Pierrette Ringuette  
The Honourable Judith G. Seidman  
The Honourable Nick G. Sibbeston  
The Honourable John D. Wallace

*Ex-officio members of the Committee:*

The Honourable Senators Claude Carignan, P.C., (or Yonah Martin) and James S. Cowan (or Joan Fraser).

*Other Senators who have participated from time to time in the study:*

The Honourable Senators Linda Frum, Joseph A. Day, Pierre Claude Nolin and David Tkachuk

*Parliamentary Information and Research Service, Library of Parliament:*

Sam Banks and Marc LeBlanc, Analysts.

*Clerk of the Committee:*

Lynn Gordon

*Senate Committees Directorate:*

Monique Régimbald, Administrative Assistant

## ORDER OF REFERENCE

Extract from the *Journals of the Senate*, Thursday, February 13, 2014:

The Honourable Senator Wallace, for the Honourable Senator Neufeld, moved, seconded by the Honourable Senator MacDonald:

That the Standing Senate Committee on Energy, the Environment and Natural Resources be authorized to examine and report on the current state of "One Call" programs that identify critical underground infrastructure in Canada. In particular, the committee shall be authorized to:

Examine the ease of access to One Call programs and their damage prevention procedures, with a view to facilitating One Call services;

Examine best practice harmonization of underground protection practices and call-before-you-dig initiatives across federal, provincial, territorial and municipal government levels;

Recommend specific measures to enhance harmonization of best practices and the development of a national one call service; and

That the committee submit its final report no later than December 31, 2014 and that the committee retain all powers necessary to publicize its findings until 180 days after the tabling of the final report.

After debate,

The question being put on the motion, it was adopted.

Gary W. O'Brien

*Clerk of the Senate*

## **EXECUTIVE SUMMARY**

Every year thousands of buried wires, cables, pipelines, water mains, and sewer lines are damaged in Canada by uncontrolled excavation. In most cases, these damages result in an interruption in service but sometimes they lead to injury, death and/or environmental contamination. Even if no one is harmed, each time a buried facility is struck it strains public resources such as emergency response personnel and/or results in economic costs, such as construction delays, repairs and traffic congestion. Together, these incidents are an unnecessary risk to the public, a waste of economic resources and a strain on the taxpayer/ratepayer.

Canadian one-call centres are all non-profit entities created by utilities that make it easier for excavators to contact owners and/or operators of underground infrastructure before digging. Instead of separately calling numerous utilities that could have facilities under a work-site, the excavator makes a single call to a one-call centre which then facilitates line locating services from multiple registered utilities.

Unfortunately, one-call centres are not present in every province and territory. There are six one-call centres in Canada (Quebec, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia). Even in provinces that have a one-call centre, utilities are not mandated to be members of the one-call service, except in Ontario and for oil and gas pipelines in British Columbia and Alberta. Additionally, in Ontario, utilities on federal lands are not subject to provincial law to register with the province's one-call centre.

The Committee considered the American experience with damage prevention, since the United States was an early adopter of one-call centres and the U.S. federal government has programs that encourage overall improvements in damage prevention through one-call notification systems including mandatory membership in state one-call centres.

Based on testimony from 15 witnesses representing utility and construction associations, regulators, one-call centres and Canadian and U.S. Common Ground Alliances, the Committee makes four recommendations to the federal government to improve public and worker safety and to prevent damage to buried facilities in Canada.

## **LIST OF RECOMMENDATIONS**

- 1. That the federal government reference the CSA Z247 standard for protection and prevention of damage to buried infrastructure in relevant federal legislation and encourage provinces and territories to reference the standard in legislation.**
- 2. That buried facilities on federal land be registered with a provincial or territorial one-call service; and that the federal government require anyone undertaking construction or excavation on federal land to call a one-call service, where one exists.**
- 3. That the federal government require all owners of federally regulated buried infrastructure to become members of a provincial or territorial one-call service, where one exists.**
- 4. That the federal government introduce a conditional provincial/territorial grant dependent on the adoption of legislation requiring the mandatory participation of all owners and/or operators of underground facilities and excavators in a prescribed one-call service. The grant would be available to assist one-call centres with training, innovation, education and public awareness.**

## CHAPTER ONE: INTRODUCTION

Hidden from public view are complex networks of buried cables, wires, pipelines, water mains and sewer lines. This infrastructure delivers heat, electricity, water, phones and Internet, making modern life possible. Although these networks are more extensive in cities and towns, buried infrastructure, such as transmission pipelines, also traverse great distances across remote regions of the country.

Every year, thousands of buried facilities are accidentally damaged by excavators.<sup>1</sup> Services are interrupted in nearly every case and sometimes incidents lead to injury, death and/or significant environmental contamination. Even minor marks or dents can compromise a pipeline system's overall integrity.

In addition to the threat to health, worker and public safety, these incidents are a social and economic burden on society. They strain emergency response resources and can cause disruptive evacuations, property damage, road and construction project delays and traffic congestion. Utility damages can result in costly repair, mitigation and remediation, and increased insurance expenses. Together, these incidents represent an unnecessary risk to the public, a waste of economic resources and a strain on the taxpayer.

Accidents are avoidable if excavators adopt safe digging practices and notify facility owners or operators prior to digging, so that buried infrastructure can be located prior to excavation.<sup>2</sup> One-call notification services (or one-call centres) were created by utilities to provide a single window of access for requesting the location of buried infrastructure. Unfortunately, third party damages continue to be a problem in Canada and the risk grows as our urban centres increase in population and this is why the Committee felt that this issue merited further examination.

The Committee first encountered this issue as part of a larger study of hydrocarbon transportation in Canada, in its *Moving Energy Safely* report released in August 2013.<sup>3</sup> In the report, the Committee recommended that the federal government facilitate efforts to establish a



national access point for information on the location of buried infrastructure, as well as promote one-call centres and call-before-you-dig initiatives.

The Committee felt one-call issues deserved further consideration. Therefore, on February 25<sup>th</sup>, 2014, it launched a study to examine one-call notification services in Canada and to consider options where the federal government could contribute to preventing damages to buried infrastructure.

The Committee held seven hearings, heard from 15 witnesses and received two written submissions. Witnesses represented a wide range of stakeholders including utility and construction associations, regulators, one-call centres and the Canadian One Call Centers Committee (COCCC), which is the national advocate of Canada's six existing provincial call centres.

It also heard from the Canadian and United States Common Ground Alliances, as well as the Ontario Regional Common Ground Alliance.<sup>4</sup> Common Ground Alliances are organizations that bring together buried facility owners and operators, one-call centres, excavators, regulators and emergency services for the common goal of damage prevention. They help identify, adopt and promote damage prevention best practices. It is worth noting that the Canadian Common Ground Alliance (CCGA) works closely with the COCCC to strengthen one-call systems across Canada.

The report first examines buried infrastructure damages from available statistics and describes a typical operation of a one-call centre in Canada. The American system is then illustrated because the United States (U.S.) has had a longer history with damage prevention through one-call centres and their operations and can provide insights for one-call systems in Canada. Finally, the report outlines concerns heard during the course of the study and provides recommendations to improve the damage prevention process in Canada.

## CHAPTER TWO: DAMAGE TO BURIED INFRASTRUCTURE

The risk of damage to buried infrastructure by uncontrolled excavation is a daily public safety concern across Canada and is the leading cause of damage to buried infrastructure.<sup>5</sup> Jim Tweedie, Director of Operations, Safety and Integrity Management for the Canadian Gas Association (CGA), told the Committee that while natural gas pipeline hits have been decreasing over the last five years, roughly half of these incidents were due to excavators failing to notify utility owners or operators prior to digging.<sup>6</sup> This means that out of the 5,149 third party damages to natural gas pipeline systems in 2012, 2,638 could have been avoided by making a call before digging.<sup>7</sup>

Canada-wide statistics on damages to all forms of buried infrastructure do not exist. Collection of this type of data is in its early phase. In 2013, the Canadian Common Ground Alliance (CCGA) released, for the first time, benchmark damage statistics from three provinces: Ontario, Quebec and British Columbia.<sup>8</sup> Underground damage incidents are voluntarily reported via the Damage Information Reporting Tool (DIRT)<sup>i</sup> developed by the United States Common Ground Alliance (USCGA). The CCGA updated its damage report in 2014 which also included a small sample of damages from Alberta for information purposes.<sup>9</sup>

In 2013, 7,264 damage incidents to buried infrastructure were reported in Ontario, Quebec and British Columbia.<sup>ii</sup> This translates to 29 damages for every business day in 2013. While not providing a complete picture, the figures are a starting point in understanding the nature of damage incidents.<sup>iii</sup> Notably, they indicate that damages are often preventable. For example, in 40% of reported incidents, the excavator failed to make a locate request, and 41% were due to poor excavation practices.<sup>10</sup> Another cause of these incidents was insufficient line locating practices.<sup>iv</sup> In 2013, 87% of reported damage events caused an interruption in service.

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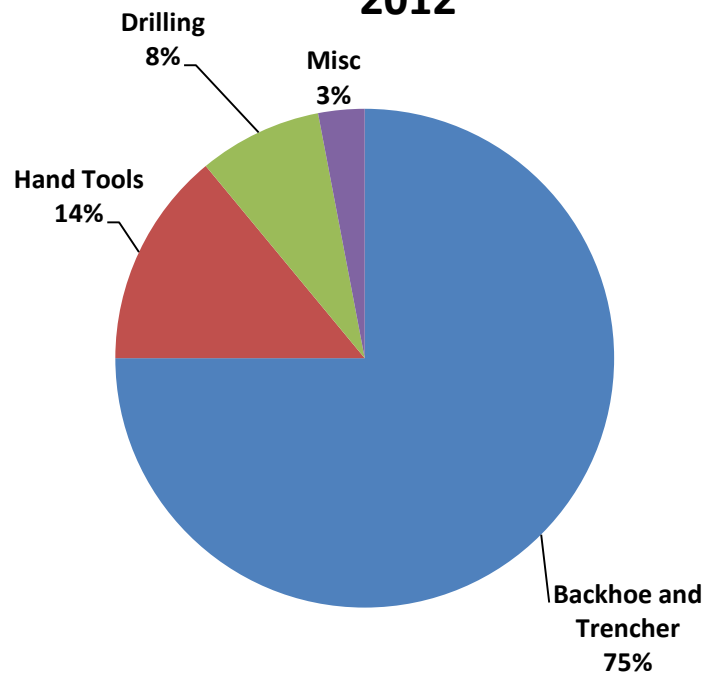
<sup>i</sup> DIRT is a web-based application for collecting and reporting buried infrastructure damage information. Users voluntarily submit damage and near miss reports and the data are aggregated for analysis.

<sup>ii</sup> It is the committee's view that the Canadian Common Ground Alliance's (CCGA) DIRT reported damages for Alberta were too small to be considered representative of the province.

<sup>iii</sup> The data is collected voluntarily therefore it does not reflect *all* damages that occurred in the three provinces.

<sup>iv</sup> Includes insufficient facility markings, incorrect facility records/maps and/or facilities was not found or located.

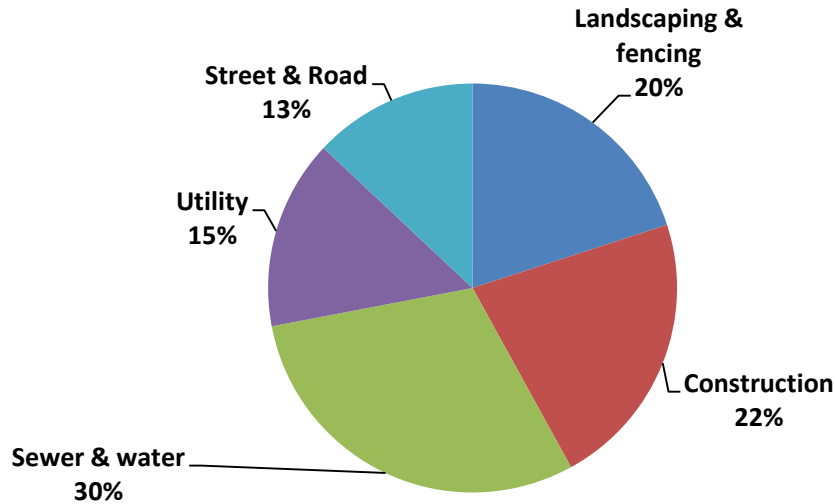
**Figure 1**  
**British Columbia, Ontario and Quebec**  
**Cause of Damage by Excavation Equipment**  
**2012**



*Source: Canadian Common Ground Alliance, Damage Infrastructure DIRT Report, 2011-2012 Highlights, figure prepared by the Library of Parliament.*

In 2012, damage was caused by a backhoe or a trencher (75%) followed by hand tools (14%) and drilling (8%) (see figure 1). In 2013, approximately one third of the damages occurred during work on sewer and water systems. Other common work categories causing damage include: Landscape and fencing (20%), utilities (15%), construction projects (22%), and street and roadwork (13%) (see figure 2).

**Figure 2**  
**British Columbia, Ontario and Quebec**  
**Percentage of Damages by Type of Work Performed**  
**2013**



*Source: Canadian Common Ground Alliance, National Report on Damage to Underground Infrastructure, Highlights 2012 and 2013, figure prepared by the Library of Parliament.*

### **CHAPTER THREE: ONE CALL NOTIFICATION SERVICES**

Many elements contribute to the safety of underground facilities. These include the way the facilities are designed, constructed and buried. These factors relate to urban planning and the use of utility corridors. Data collection on the location of these facilities and maps are essential, as are best practices adopted by excavators, locators, and road builders. Other safety factors include training, damage reporting, inspections, regulatory frameworks, emergency response procedures and public education & awareness. One-call centres play an important role in tying these safety elements together because they link excavators and facility owner/operators in preventing damage to underground facilities.

#### **A. Excavators and One-call Centres**

Excavators in Canada are legally required to identify the location of buried infrastructure on the worksite prior to digging –this obligation is found in provincial and territorial occupational,

health and safety legislation. However, it does not mean there is a legal requirement to contact a one-call centre. Ontario is the only jurisdiction that specifies by law that excavators must contact its provincial one-call centre.<sup>11</sup>

Excavators in other jurisdictions identify the location of buried infrastructure through any reasonable means possible which may include calling one-call centres in jurisdictions where they exist, or contacting owners/operators of underground facilities directly and/or speaking with landowners, as well as acquiring as-built plans and other documentation.

Witnesses pointed out that, in absence of one-call centres with broad participation from buried utility owners/operators, the task of identifying underground facilities means that excavators are expected to contact *all* utilities that could be present below the worksite. In some cases, the contact information is not readily available or known to the excavator. If it is difficult to make contact with the owner/operator, or if utilities are slow in responding, it increases the risk of digging without fully knowing what is underground.

## **B. One-call in Canada**

Canada's first one-call centre began operating in Alberta in 1984. Its creation was prompted by a series of near misses and incidents to the province's expanding network of pipelines.<sup>12</sup> Today, six provinces have one-call centres; the most recent one opened in Manitoba in 2013 (see table 1). These one-call centres have different coverage, capacity and operating procedures.

However, they are all non-profit corporations that process, free of charge, 24 hours day/seven days a week, locate requests from excavators. Their operating costs are recovered through service fees charged to a one-call centre's registered membership, which is comprised of owners and operators of buried infrastructure.<sup>13</sup>

The notification process is set in motion once a one-call centre receives dig information such as the location, type and time of planned work. This information is then used to create a work ticket. Using maps and other data, a centre then identifies and notifies operators that have facilities near the proposed dig site.

Usually, a single locate request results in multiple utility notifications. In 2013, Canadian one-call centres processed 1.7 million locate requests resulting in nearly 8.2 million notifications (see Table 1).<sup>14</sup> Once notified, the facility owner/operator provides dig clearances or arranges line locate services to mark the work site with water-soluble paint or flags prior to excavation.<sup>v</sup> This is done within prescribed timeframes after the locate request is received.

Typically, the facility owners/operators respond within two to five working days depending on the province. The locate remains valid for a limited period, typically 30 days. Excavators are responsible for identifying buried facilities on the work site that are not registered with the one-call centre.

<b>Table 1 Canadian One-call Centres</b>				
<b>One-call Centres</b>	<b>Established</b>	<b>Members (as of Jan 2014)</b>	<b>Annual Locate Requests (2013)</b>	<b>Annual Notifications to Facility Owner/operators (2013)</b>
Alberta	1984	738	391,250	1,703,410
Quebec	1993	200	200,000	750,000
British Columbia	1994	265	127,275	585,120
Ontario	1996	378	833,820	4,776,629
Saskatchewan	2003	57	131,721	338,727
Manitoba	2013	14	18,838	36,518
<b>Total</b>			<b>1,702,904</b>	<b>8,190,404</b>

*Source: Canadian One-Call Centres Committee*

A one-call centre's registered membership varies by province, but it generally includes oil and gas pipeline companies, electricity distributors, municipalities and telecommunication/cable carriers. Membership in a provincial one-call centre is voluntary in Canada except in Ontario where owners and operators of buried facilities are mandated to register with the province's one-

<sup>v</sup> A locate can be in the form of maps, drawings, numeric descriptions or any other type of documentation that identifies the location of buried utilities.

call service. However, there are still notable exceptions in Ontario such as facilities buried on federal land in the province.

### **C. One-call in the United States**

The U.S. was an early adopter of one-call notification systems. Sher Kirk, Chair of the Canadian One Call Centres Committee told the Committee that the first one-call system in the United States began operating in the 1960s.<sup>15</sup> Currently, every U.S. state has a one-call centre and some states have multiple call centres servicing different geographical regions in a state. All states require by law that excavators contact one-call centres before digging.<sup>16</sup> These centres either operate on a for-profit or non-profit basis, but all play the same role in providing notification services to prevent facility damage.<sup>17</sup>

The U.S. Department of Transportation provides a number of grant programs aimed at improving damage prevention at the state level. These programs are delivered through the Pipeline and Hazardous Materials Safety Administration (PHMSA). The Pipeline Safety Base Grant program is the largest of such programs because it provides up to 80% of the costs of state pipeline safety activities. The funding covers costs such as personnel, equipment, inspections and enforcement.<sup>18</sup> The program obliges states to ensure owners and operators of pipelines register with a one-call notification service.

In a completely separate program from the Pipeline Safety Base Grant, PHMSA funds the One Call Grant Program to promote state one-call notification programs and encourages the adoption of state one-call notification legislation. States are eligible for a maximum of \$45,000 per year to support initiatives such as compliance activities, training and public education.<sup>19</sup> In 2013, over \$1 million in funding under the program was awarded to 32 states.<sup>20</sup>

The One Call Grant Program sets out minimum standards such as mandatory participation of owners of underground infrastructure and excavators along with enforcement provisions. States have the ability to exempt participation if a facility or a type of excavation activity poses a low risk to public safety or the environment. However, municipalities and state agencies cannot be

exempted.<sup>21</sup> The program also encourages states, call centres, excavators and facility owners to work together to identify, adopt and implement best practices and to publish these practices in an annual report.<sup>22</sup>

The American example is particularly relevant to the Canadian case. With relatively little incentive funding, the U.S. government has had success in the adoption of nation-wide coverage of best-practices and mandatory one-call service systems. It appears that these efforts are having an impact in reducing damages in the United States. Bob Kipp, President of the United States Common Ground Alliance, told the Committee that damages in the U.S. have declined from roughly 700,000 in 2004 to 360,000 in 2012.<sup>23</sup> While reductions in construction activity over that period may have had an impact on the figures, it is nonetheless an indication that U.S. damage prevention policies are working.

#### **i. Common Best Practices**

The idea for a U.S. Common Ground Alliance originated in the U.S. in 1998 when the U.S. Congress passed the *U.S. Transportation Equity Act for the 21<sup>st</sup> Century*. The U.S. Department of Transportation was instructed to conduct a nationwide study of damage prevention best practices. As a result, the Office of Pipeline Safety (OPS) which is now the PHMSA invited industry stakeholders to identify common best practices.<sup>24</sup> This led to the creation of the Common Ground Alliance and the crafting of best practices for damage prevention. These best practices are regularly updated and many states have adopted them into law.

Since its inception, US Common Ground Alliance has worked closely with one-call centres to improve damage prevention. It is the primary resource for one-call center data collection, analysis and dissemination and it raises public awareness in “call-before-you-dig” campaigns. It was instrumental in creating the national 8-1-1 “call-before-you-dig” dialing code in the United States.



## ii. 8-1-1 Dialing Code

The U.S. has had a national “call-before-you-dig” number since 2005. Congress enacted the *Pipeline Safety Improvement Act of 2002*, mandating the establishment of a national, call-before-you-dig, three-digit telephone number. Accordingly, in 2005, the U.S. Federal Communications Commission established and adopted the 8-1-1 dialing code as the national call-before-you-dig number.<sup>25</sup> A call to the 8-1-1 number from anywhere in the country is routed to a local one-call centre.

A national 8-1-1 campaign to raise awareness over safe digging practices is run by the U.S. Common Ground Alliance. The U.S. has *National 811 Day* every August 11th to raise awareness to the “call before you dig” campaign. A national single dialing code has the advantage of capitalizing from advertisements in multiple forms by various stakeholders across the U.S. including state one-call centres, excavator equipment manufacturers and government announcements.

## **CHAPTER FOUR: ISSUES RELATED TO ONE-CALL CENTRES IN CANADA**

Witnesses told the committee that Canada’s damage prevention process and one-call notification systems need improving. The following issues were discussed during committee hearings.

### **A. Common Standards**

A standard for the *Damage Prevention for the Protection of Underground Infrastructure (CSA Z247)* is being developed through the Canadian Standards Association (CSA). The committee was told that the CSA Z247 technical committee<sup>26</sup>, whose membership includes buried utility owners and operators, locators, regulators, one-call centres and excavators, is the largest technical committee ever created at the CSA.<sup>27</sup>

The CSA Z247 standard builds from national harmonized best practice guidelines already produced by the Canadian Common Ground Alliance<sup>28</sup> and from the existing CSA Z662 standard which sets out minimum requirements for pipeline systems.

A draft of the CSAZ247 standard was released for review in June 2014 and the goal is to publish a final standard by mid-2015.<sup>29</sup> The standard specifies minimum requirements for damage prevention encompassing planning, mapping, notification, reporting, locating and excavation practices. It also specifies training, education and public awareness guidelines. The purpose is to outline elements that protect and prevent damage to buried infrastructure, and enhance public safety, as well as address the inconsistent application of damage prevention practices across the country.

Michael Sullivan, Executive Director of the Canadian Common Ground Alliance, who also chairs the CSA Z247 technical committee, explained that the goal is to have the standard referenced in both federal and provincial legislation so that the damage prevention process is harmonized and enforced across Canada.<sup>30</sup>

**Recommendation:**

**That the federal government reference the CSA Z247 standard for protection and prevention of damage to buried infrastructure in relevant federal legislation and encourage provinces and territories to reference the standard in legislation.**

**B. Access to One-call Centres**

Unlike the U.S., Canada does not have a single national three-digit toll free number to route calls to one-call centres, such as an 8-1-1 dialing code. In Canada, the 8-1-1 code is currently used for non-emergency telehealth triage services. In 2012, the CCGA applied to the Canadian Radio-television and Telecommunications Commission (CRTC) for shared use of the 8-1-1 dialing code. However, the application was turned down because the CRTC found that the public benefits of a common North American “call before you dig” code did not outweigh the confusion of having two unrelated services in Canada using the same dialing code.<sup>31</sup>

A Canadian 8-1-1 number would assist damage prevention efforts since it could capitalize on sizable advertisements and “call before you dig” public awareness campaigns south of the border. However, Mr. Sullivan of the CCGA saw value in the CRTC refusal. He told the

committee that the trend in notification requests is moving towards online applications, as they are quicker, less costly to process and not subject to peak time call congestion. Mr. Sullivan explained:

*In December 2013, for example, 74.6 per cent of all of our locate requests in Alberta came through the web. Quebec, where its Info-Excavation, has the highest percentage of web locate requests of any One Call centre in North America with more than 80 per cent. That is where technology is going. That is what the public expects. Quebec launched an app for locate requests, and Alberta is launching one in the fall.*<sup>32</sup>

Mr. Sullivan told the committee that although a call centre's toll free number may always be needed, growth in one-call access is tied to on-line applications or other innovations in technology. He indicated that it is important to provide a combination of access options to attract a wide scope of excavators. On this point, CCGA introduced the *Call, Click or Tap the App Before You Dig*<sup>vi</sup> brand on April 30<sup>th</sup>, 2014 and made it freely available to “unify promotion of the damage prevention process and promote simplified access.”<sup>33</sup>

The Canadian One Call Centres Committee (COCCC), an organization representing the six existing one-call centres in Canada established a [website](#) in April 2013 providing in both official languages, a single window access to provincial one-call centres in Canada. This is the first instance where a portal for locate requests was provided on a national basis. The website provides contact information and links the user to each province's one-call centre, where one exists.



### **C. Expanding One-call Service**

One-call centres are not present in the Atlantic Provinces or in the three northern territories, with the exception of a centre servicing the City of Saint John, New Brunswick. Witnesses speculated that this is because of the comparably fewer natural gas distribution pipelines in those regions. One-call centres are typically spearheaded by members representing gas distribution utilities

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<sup>vi</sup> Currently, only Quebec's call centre Info-excavation has a mobile application.

because of their extensive pipeline networks and elevated risk to public safety and property damage caused by digging accidents. Amongst jurisdictions without a provincial one-call centre, New Brunswick and Nova Scotia are the only provinces with buried natural gas distribution lines. While natural gas consumption is expanding, it is relatively new to those two provinces.<sup>vii</sup>

The CCGA is working with the Atlantic CGA and regional utilities to explore options in establishing a call centre for the region. In the case of Saint John, New Brunswick, the municipality collaborated with certain local utilities to introduce a toll-free notification service in 2012.

As one-call centres provide a communication and information service, it is not necessary for them to be physically present in the region they serve. In fact, Alberta One Call is currently managing Manitoba's locate notification services, [Click Before You DigMB](#). These types of arrangements provide opportunities for economies of scale and additional options for jurisdictions that do not presently have call centres.

#### **D. One-call Membership and Operations**

A one-call centre's strength rests on having wide participation by facility owners and operators. High membership in one-call centres simplifies locate requests for excavators since they can use the service as a one-stop access for notifications from multiple facilities.

One-call centre membership is voluntary in every province except in Ontario. The province of Ontario introduced legislation, *Underground Infrastructure Notification System Act, 2012*, in June 2012 requiring mandatory membership in Ontario One Call (ON1Call) for most buried utilities operating in the

It is essential that Canada evolves to a system of mandatory membership in one-call programs and enforceable rules for safe ground disturbance.

*Ziad Saad, Canadian Energy Pipeline Association*

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<sup>vii</sup> The town of Inuvik in the Northwest Territories is serviced with natural gas through utilidors which are above ground pipelines. Digging snow near the utilidors is prohibited.

province.<sup>34</sup> Oil and gas regulators in Alberta and British Columbia require pipeline companies to register with a one-call centre.

Many utilities voluntarily join one-call centres because it helps reduce damage incidents. The committee was told that one-call centres generate much higher volumes of calls than what a member would have received through its in-house calling system. Also, members benefit from positive public image, the pooling of advertisement budgets, the fostering of a consistent safety awareness message for all buried facilities, as well as efficiencies of sharing operations through economies of scale. Despite this, many utilities do not participate.

The committee heard that some utilities were unaware of a one-call centre's operations or they mistakenly assumed that their facility maps were automatically transferred to the centre by a regulator. Some utilities argue that their existing internal notification systems managed requests less expensively than a one-call centre and other utilities simply did not have the resources to process more notifications. The committee learned that some utilities lacked records of their assets which is common for older infrastructure, such as water and sewer lines, and for newer facilities, such as telecommunication wires, because of the rapid pace at which they were buried.<sup>35</sup>

In a letter submitted to the Committee, the Association of Municipalities of Ontario (AMO) raised concerns over the province's move to a mandatory model for one-call registration. They cited the extra costs of locate requests and mapping information on the municipal taxpayer. The committee was told that options in Ontario are being explored to accommodate these concerns.

A common view presented by witnesses was that current voluntary registration in provincial one-call centres lacked facility coverage and therefore was insufficient to ensure worker and public safety. Many echoed the sentiment expressed by Frank Zechner of the Canadian Construction Association that Ontario serves as an example to other provinces:

*Ontario recently legislated mandatory one-call participation. While it is still in its early days, we are hopeful that this model will prove effective and that eventually other provinces will adopt similar legislation.*<sup>36</sup>

Witnesses also pointed to the U.S. system as a potential model for Canada given that a majority of states have mandatory participation in one-call services. Bob Kipp, President of the United States Common Ground Alliance, told the committee that DIRT statistics indicate that if a call is made to a U.S. call centre “99 per cent of the time the job gets done with no damage.”<sup>37</sup>

#### **i. Buried Infrastructure on Federal Property**

Provinces and territories can authorize owners and operators of the facilities they regulate to join a one-call notification centre. These include facilities that are in the vicinity of, or cross a public right of way.<sup>viii</sup> However, a province/territory cannot require facilities on federal Crown properties or land to belong to a one-call centre. Witnesses believed the federal government could set an example by requiring facilities on federal land to be part of a one-call centre and require anyone participating in excavation activities on federal property to call an existing one-call service, where one exists. This measure would also extend damage prevention protection to First Nation reserves.

#### **Recommendation:**

**That buried facilities on federal land be registered with a provincial or territorial one-call service; and that the federal government require anyone undertaking construction or excavation on federal land to call a one-call service, where one exists.**

#### **ii. Federally-regulated Infrastructure**

A number of buried facilities are federally regulated including pipelines regulated by the National Energy Board (NEB), telecommunication and cable lines regulated by the CRTC and railway communication and signalling facilities regulated by Transport Canada. Many witnesses

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<sup>viii</sup> [Ontario One Call Interpretation Bulletin 1.0](#) describes a public right of way as a “highway”. Specifically, a “highway” means a common and public highway and includes any bridge, trestle, viaduct or other structure forming part of the highway and includes a portion of a highway and includes provincial highways. A “highway” also includes all road allowances made by the Crown surveyors that are located in municipalities and all road allowances, highways, streets and lanes shown on a registered plan of subdivision, sidewalks and road shoulders.

recommended that the federal government mandate owners and operators of federally-regulated buried facilities to join a provincial one-call centre.

The committee notes that several – but not all - owners of these types of facilities have already voluntarily registered with provincial one-call centres. On November 18<sup>th</sup>, 2013, the NEB proposed a regulation to require NEB-regulated pipeline companies to be a member of a one-call centre in geographic areas where one exists.<sup>38</sup> It would also require anyone planning construction or excavation activities within certain areas set out in the *National Energy Board Act* and its regulations to make a locate request by contacting a one-call centre at least three working days before beginning those activities.<sup>39</sup> Gaétan Caron, then Chair and CEO, National Energy Board of Canada explained:

*A mandatory requirement to contact a one-call centre best ensures that all underground facilities are considered in a decision to proceed with construction or excavation in areas over or near a pipeline.*<sup>40</sup>

Under the *Telecommunications Act*, the CRTC has broad powers to regulate telecommunication services including the construction, operation and maintenance of a carrier's transmission line. While damage to these lines may not pose an immediate threat to public safety on par with oil and gas pipelines, witnesses pointed out that interruption of communication services elevates public risk and should not be treated casually. For example, damage to a transmission line could disable 9-1-1, banking and other critical services. Also, the growth in digital products and services has made the Internet nearly essential for public institutions, businesses and households, a trend that is likely to grow in the future.

In response to the committee's request, the Commission provided background information related to factors it would consider in examining a proposal to require carriers to become members of one-call centres. The Commission pointed to past decisions on specific cases where it declined to impose conditions on carriers such as membership in a one-call centre or mandatory standards in responding to locate requests.

It is the view of some witnesses that the Commission's lack of a damage prevention mandate prohibits it from introducing rules similar to the NEB's proposed regulation. Unfortunately, by

not requiring carriers to join a one-call centre, it reduces the overall effectiveness of these centres in preventing damage because excavators must call multiple numbers if carriers do not voluntarily join.

**Recommendation:**

**That the federal government require all owners of federally-regulated buried infrastructure to become members of a provincial or territorial one-call service, where one exists.**

**iii. One-call Funding**

In a perfect world, all buried facility owners and operators would voluntarily join one-call centres; unfortunately, this is not the case. It is the committee's view that one-call notification services provide a valuable public benefit in preventing damage to buried infrastructure. The committee also believes it is up to each province to decide whether owners and operators of the buried facilities they regulate should be required to join a one-call centre. That being said, the federal government can play an enabling role in preventing damage across Canada.

The U.S. One Call Grant Program is funded by the U.S. federal government to promote state one-call notification programs. The program sets out minimum standards which include mandatory participation of all underground facilities and excavators, along with enforcement provisions.

The committee believes that Canada could introduce a similar federal program to promote damage prevention initiatives linked to a provincial/territorial one-call centre, where one exists. The program would provide incentives to provinces/territories with existing one-call centres to introduce mandatory membership and to encourage the adoption of the CSA Z247 standard when it is formally introduced in 2015. The program would also encourage the establishment of provincial/territorial one-call centres where none currently exist.



## **Recommendation**

**That the federal government introduce a conditional provincial/territorial grant dependent on the adoption of legislation requiring the mandatory participation of all owners and/or operators of underground facilities and excavators in a prescribed one-call service. The grant would be available to assist one-call centres with training, innovation, education and public awareness.**

## **CHAPTER FIVE: CONCLUSION**

The risk to underground infrastructure will become a greater problem as the density of underground networks expands due to urban growth. This means that risk to public and worker safety will also grow if steps are not taken to improve the damage prevention process in Canada. The most effective way to improve the process is through one-call centres.

At the heart of what one-call centres do is provide communication services and raise awareness of safe digging practices. They do so by linking excavators with facility owners/operators. To be effective, all operators/owners of buried facilities must register their assets with one-call centres. Access to one-call centres must be easy and convenient, and practices and standards must be consistently applied.

Safety is a public good and a shared responsibility between utility owners/operators, government and those who dig near buried infrastructure. While industry has worked together to establish one-call centres, the committee has concluded after careful deliberation that governments can also contribute by providing incentives and legislation to help advance the work that has already taken place.

Access to readily available information is a defining characteristic of today's society and providing simplified access to information on buried infrastructure is a public expectation. To this end, all participants must continuously adopt new technologies, practices and regulatory frameworks that improve, in a cost effective manner, public and worker safety.

## APPENDIX A: WITNESSES

### Meeting of April 3, 2014 at 8:03 AM

- Bob Kipp, President (*Common Ground Alliance*)

### Meeting of April 1, 2014 at 6:04 PM

- Lloyd Chiotti, Interim Executive Director (*Ontario One Call*)
- Ben Hamilton, Special Advisor (*Ontario One Call*)
- Sher Kirk, Chair (*Canadian One Call Centres Committee*)

### Meeting of March 27, 2014 at 8:46 AM

- Frank Zechner, Representative (*Canadian Construction Association*)

### Meeting of March 25, 2014 at 5:39 PM

- Francis Bradley, Vice President, Policy Development (*Canadian Electricity Association*)
- Jim Donihee, Chief Operating Officer (*Canadian Energy Pipeline Association*)
- Ziad Saad, Vice-President, Safety and Sustainability (*Canadian Energy Pipeline Association*)
- Geoff Smith, Director, Government Relations (*Canadian Electricity Association*)

### Meeting of March 6, 2014 at 8:01 AM

- Gaétan Caron, Chair and CEO (*National Energy Board of Canada*)

### Meeting of February 27, 2014 at 8:48 AM

- Paula Dunlop, Director, Public Affairs and Strategy (*Canadian Gas Association*)
- Jim Tweedie, Director, Operations, Safety and Integrity Management (*Canadian Gas Association*)

### Meeting of February 25, 2014 at 5:32 PM

Robert Bailey, M.P.P., Sarnia-Lambton (*Legislative Assembly of Ontario*)  
Bryon Sackville, President and Chief Executive Officer (*Ontario Regional Common Ground Alliance*)  
Michael Sullivan, Executive Director (*Canadian Common Ground Alliance*)

## APPENDIX B: BRIEFS SUBMITTED TO THE COMMITTEE

Association of Municipalities Ontario (AMO)  
(2014-04-01)

Canadian Radio-television and Telecommunications Commission (CRTC)  
(2014-04-17)

## APPENDIX C: ENDNOTES

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- <sup>1</sup> In some cases damages are caused by heavy vehicles crossing over buried infrastructure.
- <sup>2</sup> The term excavator in this report means any “ground disturber” from a digging contractor or do-it-yourself home owner. A ground disturbance includes a wide range of activities, such as digging, trenching, tunnelling, quarrying, blasting and driving fence posts.
- <sup>3</sup> Senate, Standing Committee on Energy, the Environment and Natural Resources, Moving Energy Safely, [A Study of the Safe Transport of Hydrocarbons by Pipelines, Tankers and Railcars in Canada](#), Final Report, 1<sup>st</sup> Session, 41<sup>st</sup> Parliament, August 2013.
- <sup>4</sup> The Canadian Common Ground Alliance represents regional Common Ground Alliance groups. They include the Alberta Common Ground Alliance, Atlantic Canada Common Ground Alliance, British Columbia Common Ground Alliance, Manitoba Regional Common Ground Alliance, Ontario Regional Common Ground Alliance, Québec Common Ground Alliance and the Saskatchewan Regional Common Ground Alliance.
- <sup>5</sup> Senate, Standing Committee on Energy, the Environment and Natural Resources, [Evidence](#), 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, 25 March 2014 (Jim Donihee, Chief Operating Officer, Canadian Energy Pipeline Association).
- <sup>6</sup> Senate, Standing Committee on Energy, the Environment and Natural Resources, [Evidence](#), 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, 27 February, 2014 ( Jim Tweedie, Director, Operations, Safety and Integrity Management, Canadian Gas Association). This figure is associated with members of the Canadian Gas Association which represent the natural gas distribution industry in Canada.
- <sup>7</sup> Figures were supplied by the Canadian Gas Association.
- <sup>8</sup> Canadian Common Ground Alliance, [Damage to Underground Infrastructure, British Columbia, Ontario and Quebec](#), Highlights from 2011 and 2012.
- <sup>9</sup> Canadian Common Ground Alliance, [National Report on damage to Underground Infrastructure](#), Highlights 2012 and 2013
- <sup>10</sup> Poor excavation practices include failure to maintain clearance, to maintain marks, to support exposed facilities, to use hand tools where required, to test-hole and improper backfilling practices.
- <sup>11</sup> Government of Ontario, [Ontario Underground Infrastructure Notification System Act, 2012](#), June 19, 2012
- <sup>12</sup> Senate, Standing Committee on Energy, the Environment and Natural Resources, [Evidence](#), 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, 1 April, 2014 (Sher Kirk, Chair, Canadian One Call Centres Committee).
- <sup>13</sup> *Ibid.*
- <sup>14</sup> Senate, Standing Committee on Energy, the Environment and Natural Resources, Speaking Notes Provided to the Committee, 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, 1 April, 2014 (Sher Kirk, Chair, Canadian One Call Centres Committee).
- <sup>15</sup> *Ibid.*
- <sup>16</sup> U.S. Department of Transportation, Pipeline & Hazardous Materials Safety Administration, [Call Before You Dig!](#)
- <sup>17</sup> Senate, Standing Committee on Energy, the Environment and Natural Resources, [Evidence](#), 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, 3 April, 2014 (Bob Kipp, President, U.S. Common Ground Alliance).
- <sup>18</sup> U.S. Department of Transportation, Pipeline & Hazardous Materials Safety Administration, [Pipeline Safety Grant Programs](#)
- <sup>19</sup> U.S. Department of Transportation, Pipeline & Hazardous Materials Safety Administration, [Grant Management Process](#)
- <sup>20</sup> U.S. Department of Transportation, Pipeline & Hazardous Materials Safety Administration, One Call Grants, [2013 One Call Grant Awards](#)
- <sup>21</sup> U.S. Code: Title 49 Transportation, General and Intermodal Programs, [Chapter 61 One-Call Notification Programs](#)
- <sup>22</sup> *Ibid.*
- <sup>23</sup> Senate, Standing Committee on Energy, the Environment and Natural Resources, [Evidence](#), 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, 3 April, 2014 (Bob Kipp, President, U.S. Common Ground Alliance).
- <sup>24</sup> U.S. Common Ground Alliance, [CGA Best Practices 2014](#)
- <sup>25</sup> Call 811, [FAQ](#).
- <sup>26</sup> The standard is being prepared by CSA’s Technical Committee on Damage Prevention for the Protection of Underground Energy and Utility Infrastructure.
- <sup>27</sup> Senate, Standing Committee on Energy, the Environment and Natural Resources, [Evidence](#), 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, 25 February 2014 (Michael Sullivan, Executive Director, Canadian Common Ground Alliance).
- <sup>28</sup> In October 2014, the Canadian Common Ground Alliance released its [National Harmonized Best Practices Version 1.0](#) based on the Ontario Regional Common Ground Alliance Best Practices 8.0.
- <sup>29</sup> The review period was from 28 June 2014 to 26 August 2014.
- <sup>30</sup> *Ibid.*
- <sup>31</sup> Canadian Radio-television and Telecommunication Commission, [Telecom Decision CRTC 2012-167](#), 22 March 2012.
- <sup>32</sup> Senate, Standing Committee on Energy, the Environment and Natural Resources, [Evidence](#), 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, 25 February 2014 (Michael Sullivan, Executive Director, Canadian Common Ground Alliance).
- <sup>33</sup> Canadian Common Ground Alliance, [CCGA Rolls-Out National Brand to Trigger the Damage Prevention Process](#)

<sup>34</sup> Government of Ontario, Regulatory Registry, [Regulatory Proposals under the Ontario Underground Infrastructure Notification System Act](#) Non-municipal owners and operators of underground facilities had to join 9 June 2013, and municipalities by 19 June 2014.

<sup>35</sup> Senate, Standing Committee on Energy, the Environment and Natural Resources, [Evidence](#), 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, 1 April, 2014 (Sher Kirk, Chair, Canadian One Call Centres Committee). Without a mapping of buried assets the one-call service is forced to take a broad area for locate notifications which could be expensive since the service cost is per notification. Sher Kirk told the Committee that it was Alberta One Call's practice to negotiate fee reductions in these cases.

<sup>36</sup> Senate, Standing Committee on Energy, the Environment and Natural Resources, [Evidence](#), 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, 27 March, 2014 (Frank Zechner, Representative, Canadian Construction Association).

<sup>37</sup> Senate, Standing Committee on Energy, the Environment and Natural Resources, [Evidence](#), 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, 3 April, 2014 (Bob Kipp, President, U.S. Common Ground Alliance).

<sup>38</sup> National Energy Board, Notice of Proposed Regulatory Change –NEB Damage Prevention Regulations, 18 November, 2013.

<sup>39</sup> If a one-call centre is not established in the area, parties would be required to contact the pipeline companies directly.

<sup>40</sup> Senate, Standing Committee on Energy, the Environment and Natural Resources, [Evidence](#), 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, 6 March, 2014 (Gaétan Caron, Chair and CEO, National Energy Board of Canada).