



OPERATIONS COMMITTEE AGENDA

Operations Committee Meeting
Monday, December 7, 2015
Tom Davies Square

COUNCILLOR ROBERT KIRWAN, CHAIR

Evelyn Dutrisac, Vice-Chair

4:00 p.m. OPERATIONS COMMITTEE MEETING
COMMITTEE ROOM C-11

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DECLARATIONS OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF

PRESENTATIONS

1. Report dated November 23, 2015 from the General Manager of Infrastructure Services regarding Drinking Water Backflow By-Law. **5 - 35**
(ELECTRONIC PRESENTATION) (RECOMMENDATION PREPARED)
(This report recommends a By-law for Drinking Water Backflow Prevention.)
2. Report dated November 23, 2015 from the General Manager of Infrastructure Services regarding 2015 Water Wastewater Tactical Plan Progress Report. **36 - 85**
(ELECTRONIC PRESENTATION) (FOR INFORMATION ONLY)
(This report is to address a budget "parking lot" request from Council.)

CONSENT AGENDA

(For the purpose of convenience and for expediting meetings, matters of business of repetitive or routine nature are included in the Consent Agenda, and all such matters of business contained in the Consent Agenda are voted on collectively.

A particular matter of business may be singled out from the Consent Agenda for debate or for a separate vote upon the request of any Councillor. In the case of a separate vote, the excluded matter of business is severed from the Consent Agenda, and only the remaining matters of business contained in the Consent Agenda are voted on collectively.

Each and every matter of business contained in the Consent Agenda is recorded separately in the minutes of the meeting.)

CORRESPONDENCE FOR INFORMATION ONLY

- C-1. Report dated November 23, 2015 from the General Manager of Infrastructure Services regarding Water & Wastewater Emergency Response Plan Thawing Improvements. **86 - 113**
(FOR INFORMATION ONLY)
(Improvements to Water & Wastewater Services Emergency Response Plan (ERP) in order to promote effective response particularly tailored to a Frozen Services Emergency.)
- C-2. Report dated November 23, 2015 from the General Manager of Infrastructure Services regarding Water Production & Metered Consumption History 2006-2014. **114 - 117**
(FOR INFORMATION ONLY)
(This report is to address a budget "parking lot" request to update Council on the historical pattern of water production and metered consumption.)

REGULAR AGENDA

MANAGERS' REPORTS

- R-1. Report dated November 17, 2015 from the General Manager of Growth & Development regarding Full Sidewalk Patio Update. **118 - 120**
(RECOMMENDATION PREPARED)
(The purpose of this report is to provide the Committee with a recommendation regarding fees associated with the full sidewalk patio program.)
- R-2. Report dated November 25, 2015 from the General Manager of Infrastructure Services regarding Sanitary Sewer & Water Service Line Warranty Protection Plan. **121 - 122**
(RECOMMENDATION PREPARED)
(Service Line Warranty programs provide residents optional and affordable protection from the unexpected costs of repairing or replacing non-functioning private water and sewer services lines. All customers will be serviced by licensed, local contractors. Service Line Warranty programs also provide cost containment savings for the City through fewer calls for service and involvement of City personnel regarding infrastructure that is the responsibility of property owners.)
- R-3. Report dated November 13, 2015 from the General Manager of Infrastructure Services regarding Safety Concerns - LaSalle Boulevard at LaSalle Court Mall / 901 LaSalle Boulevard. **123 - 128**
(RECOMMENDATION PREPARED)
(At the September 21, 2015 Operations Committee meeting, staff was asked to prepare a report with additional options for westbound left turning vehicles at the intersection of LaSalle Boulevard and 901 LaSalle Boulevard and the LaSalle Court Mall. This report will present the available options, their impact on the road network and provide an appropriate recommendations.)

ADDENDUM

CIVIC PETITIONS

QUESTION PERIOD AND ANNOUNCEMENTS

NOTICES OF MOTION

ADJOURNMENT

Presented To:	Operations Committee
Presented:	Monday, Dec 07, 2015
Report Date	Monday, Nov 23, 2015
Type:	Presentations

Request for Decision

Drinking Water Backflow By-Law

Recommendation

THAT the City of Greater Sudbury directs staff to develop an appropriate by-law (Drinking Water Backflow Prevention By-law) to regulate and protect safe and clean water delivery to the citizens of Greater Sudbury including an implementation plan, communication plan, and financial consideration, for further consideration at Operations Committee.

Background

The purpose of this report is to enhance Water/Wastewater Services commitment to maintain the delivery of safe, clean water to the residents of the City of Greater Sudbury (CGS). The development of a new by-law is required to oversee the appropriate installation and regular maintenance of devices which are designed to protect the CGS water systems from the risk of backflow contamination events.

In recognition of the potential risks involved with backflow contamination, the Ministry of Municipal Affairs and Housing amended the Ontario Building Code in 2014 to require the installation of backflow prevention devices in all new Industrial, Commercial and Institutional buildings. The Ontario Building Code is not retroactive and therefore cannot insist on backflow prevention device installations in existing facilities.

To address the existing facilities which may pose a threat to municipal drinking water, over 18 other municipalities in Ontario, including Toronto, Ottawa, London, Hamilton and Guelph, presently have Backflow By-laws in effect. Staff is recommending that a Backflow Prevention By-law for the City of Greater Sudbury be introduced to prevent contamination from entering our City drinking water systems.

What is Backflow?

In municipal drinking water systems, backflow is the undesired reversal of water flow against normal direction, which can cause contaminants to enter into the drinking water supply system. There are two causes for backflow: Back-pressure and Back-siphonage. Back-pressure occurs when the pressure in a

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private water system is greater than the pressure in the City's water supply system. If this happens, water from a private water system can force its way into the City water supply system. This can be caused by a pump, elevated tank, temperature increase in boiler systems, or other events causing an increase in local pressure.

Back-siphonage is the reversal of normal flow. This is caused by a reduction in the pressure in the local water supply system which can result from nearby fire-fighting water consumption or a water-main break. Back-siphonage can cause contaminated water to be pulled into the municipal water supply system. Both situations pose risks to the integrity of the water supply and the safety of the water supply system.

Key Elements

The City of Greater Sudbury W/WW Services delivers safe and clean drinking water through our distribution systems. The Safe Drinking Water Act and Ontario Ministry of the Environment and Climate Change (MOECC) regulations mandate water purveyors to protect the water supply to the point of delivery. The proposed program would involve the isolation of private plumbing systems from the public waterworks in situations which present a risk to the municipal water supply. This is typically done through the installation of a backflow prevention device connected immediately after the water meter. This is called premise isolation.

The Safe Drinking Water Act places expectations upon everyone involved with the production and distribution of the municipal drinking water supply. Due to the fact that there have been documented backflow incidents in Ontario, staff recommends firm action to mitigate these backflow risks in our community.

The proposed Drinking Water Backflow Prevention By-law will require the installation and maintenance of backflow prevention devices in existing facilities that present risks to the drinking water supply. Also, the proposed by-law will monitor and confirm that the required annual maintenance on all existing backflow prevention devices within the City of Greater Sudbury is completed.

Recently staff has consulted with local stakeholders, such as the local office of the Ministry of The Environment and Climate Change and the Sudbury District Health Unit, concerning the need for a Drinking Water Backflow Prevention By-law. All parties agree that the development of this by-law would be beneficial in protecting our municipal drinking water supplies.

Who will be affected by this bylaw?

The proposed by-law will affect customers whose activities pose a backflow risk to the municipal water supply. This could include various Industrial, Commercial and Institutional customers as well as specific residential customers (i.e. with swimming pools and/or irrigation systems) where there is a greater potential for backflow and contamination to the drinking water supply.

The proposed program would commence with a focus on Education and Outreach and voluntary compliance with the by-law. This would be followed by a prioritized implementation of the by-law according to levels of risk, (highest to lowest) once the by-law receives approval.

Conclusion

That the City of Greater Sudbury support and approve the development of a Drinking Water Backflow

Prevention By-law and implementation program to protect our City's drinking water systems.

Staff will then draft a proposed by-law and implementation program which will be presented for Council's review in early 2016 at the Operations Committee. The implementation program will include the following:

- communications plan
- financial plan / new business plan
- information on cost to community

A Guide for Drinking Water System Owners Seeking To Undertake a Backflow Prevention Program

**MINISTRY OF THE ENVIRONMENT AND CLIMATE
CHANGE**

PIBS #9676e

Disclaimer:

This guide is for information purposes only and is intended to provide suggested parameters for the development and implementation of backflow prevention programs should a drinking water system owner decide it wishes to undertake such a program. It is not intended to provide specific advice or recommendations in any circumstances. Moreover, this guide is not, and should not be construed as, legal advice. It is intended for information and educational purposes only and must be read in light of any applicable Acts, regulations and other provincial publications related to backflow prevention programs that are currently in use or as may be published from time to time. If you have any questions about the application or interpretation of referenced legislation or regulations or have other legal questions, including authority for backflow prevention programs, you should consult a lawyer.

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1.0 Background

Backflow incidents have caused contamination of drinking water distribution systems around the world and have not only resulted in a loss of confidence by the public as to the safety of the water that comes from their taps, but also numerous health-related issues. Justice O'Connor also considered their impacts during the Walkerton Inquiry. On pages 236 and 237 of Part Two - Report of the Walkerton Inquiry, he noted that "In addition, as part of their comprehensive distribution program, water providers should have active programs, working together with building inspectors and public health agencies, to detect and deter cross-contamination" and "Distribution systems should have regularly tested backflow prevention valves that can prevent or at least isolate incursions."

Ontario is recognized by many as being a world leader in issues pertaining to drinking water. Stakeholders have consistently highlighted the need for backflow prevention programs. On March 7, 2005 a drinking water advisory was issued to the 30,000 residents of the City of Stratford after a red, foamy substance from a car wash was discovered in the drinking water system. Businesses and schools shut down and some residents were unable to drink the water that came from their taps for a number of days. Upon investigation it was discovered that a properly installed and functioning backflow prevention device could have prevented this event from happening. This incident is just one of many that have occurred in Ontario over the last twenty years that have been reported.

The ministry, responding to the Stratford incident, established a multi-stakeholder working group which included staff and representatives from the Ministry of Municipal Affairs and Housing, the Ontario Water Works Association (OWWA) and the Ontario Municipal Water Association (OMWA). Membership within the working group grew to include representatives from a number of other ministries, building/plumbing associations/organizations, training groups and municipalities which have direct experience with cross-connection control/backflow prevention. The working group was tasked with reviewing existing information and developing ideas/concepts for reducing the frequency and risk of cross-connection/backflow incidents and the impacts they have on drinking water systems.

The working group and many other jurisdictions have recognized that backflow prevention programs are needed. They have also recognized that the prevention of backflow is a critical component in ensuring the safety of the drinking water supply and ultimately public health.

To proactively assist our ministry program partners and regulatory stakeholders in understanding and adapting to issues raised by the working group and in response to requests from stakeholders, the ministry's Chief Drinking Water Inspector requested the development of a document which could serve as a

guide for those partners seeking to develop or implement backflow prevention programs.

The efforts of the working group resulted in the development of this document. It provides technical guidance to the owners of drinking water systems who have moderate and severe hazard facilities (as defined within the Canadian Standards Association (CSA) B64.10-11) connected to their drinking water systems. Though primarily focused on owners/operators of municipal drinking water systems, the information contained within this guide can be used by any owner of a drinking water system seeking to develop and implement a backflow prevention program.

This guide is not intended to be a detailed engineering or procedural manual. However, it is intended to address aspects pertinent to the design of water treatment units, as well as cross-connection control considerations that may help protect drinking water consumers in a more standardized and consistent manner.

2.0 Introduction

Cross-connections are present in every drinking water supply system and, depending on the size of the system, hundreds or thousands of potential cross-connections can exist. Cross-connections that are not protected against backflow are potentially a dangerous source of contamination. When backflow occurs through an unprotected cross-connection, pollutants and contaminants can enter the private plumbing system and the municipal water distribution system and be delivered to other consumers or locations. The task of eliminating, mitigating or reducing the risks created by cross-connections is enormous.

Water typically flows within a drinking water system in one direction. If the water within the system begins to flow in the opposite direction as a result of back pressure (pressure greater than water supply pressure) or back-siphonage (caused by negative pressure within a water system), there is a possibility for contamination as a result of a backflow. This possibility can be increased if there are potential cross-connections within/to the system. These can occur in any building, structure or property - whether industrial, commercial, institutional, multi-residential or residential - connected to the drinking (potable) water supply distribution system. Problems can be caused by breaks or repairs to watermains, fire fighting activities or reductions to or stoppages of the main water supply pressure.

Backflow as a result of actual or potential cross-connections between a drinking water system and any source of pollution or contamination (such as pathogens or chemicals) has the potential to impact the users of the drinking water system. The purpose of backflow prevention programs is to ensure that the drinking water supply is protected against the entry of contaminants, pollutants, infectious agents (pathogens) and other materials and substances from cross-connections which could harm users and negatively impact the water supply distribution network.

NOTE: *The terms cross-connection control and backflow prevention are often used interchangeably.*

It is important to understand that for a drinking water supply to become contaminated via a cross-connection three things need to happen simultaneously:

1. an open source of drinking water supply piping must be unprotected (or improperly protected) from a cross-connection;
2. a physical cross-connection must be made between the drinking water supply piping and a contaminant source; and
3. hydraulic event/backflow conditions must occur.

In general terms, plumbing codes attempt to address backflow prevention. They do so in various ways. The method can be as simple as the provision of an air gap or as complex as requiring the installation of a backflow prevention device. Within any building, it is possible to have interconnections between the drinking water supply and any fixture, appliance, system, or process which has a drinking water supply. These connections are defined as cross-connections and some form of backflow prevention device should be in place to prevent backflow (including back-siphonage and back pressure) from impacting the drinking water supply.

Regulatory requirements under the Building Code are supplemented by good engineering practices as outlined in CSA B64.10- 11/ CSA B64.10.1-11 as amended, the AWWA M14 Manual and the AWWA – Canadian Cross Connection Control Manual, as amended. In the case of a conflict between the provisions of the Building Code and a standard referenced in the Building Code, the provisions of the Building Code prevail (Division A, Article 1.5.1.2, Ontario Regulation 332/12).

2.1 Methods for Backflow Prevention

Water distribution systems - due to their size, complexity and variety of users - are often exposed to potential health risks. Sources of such health risks include cross-connections and backflow. Implementing a backflow prevention program is one way in which a drinking water system owner can minimize water quality degradation from a source connected to the distribution system.

There are several ways to mitigate the potential for backflow:

- provide a physical separation between drinking and non-drinking water systems
- install backflow prevention devices and assemblies
 - **NOTE:** *The choice depends on the health hazard of the actual or potential cross-connection and the plumbing hydraulics using a risk based approach.*
- maintain positive pressures in the distribution system
- implement backflow prevention programs

Three primary methods (individual [point of use], zone/area, and premise) are available to protect the drinking water supply. The method used is dependent upon the degree of the hazard. Through the incorporation of the available protection methods the property owner is able to implement a multi-barrier approach that is designed to not only protect the drinking water supply but also the users within the building.

Individual (Point of Use) Protection

Individual (point of use) protection is a means by which backflow devices are installed on each potential source of backflow within the piping of a building/facility in order to protect the rest of the piping within that building/facility from potential contamination.

Zone/Area Protection

Zone or area protection is practiced within buildings/facilities where there exist both drinking and non-drinking water piping systems. This type of protection may also be practised within the distribution system of a drinking water system in order to protect individual zones or areas from possible contamination from another zone or area within the distribution system.

Premise Isolation

Backflow preventers in this instance are typically installed within the facility on the service line connection to the drinking water supply.

NOTE: Overall, water distribution system operations, including maintaining chlorine residuals, maintaining positive pressures, performing appropriate levels of distribution system maintenance and procedures for responding to customer complaints about water aesthetics, should be covered under a municipality's or drinking water system owner's total water quality management program. A backflow prevention program complements these other aspects of the multi-barrier approach to providing safe drinking water.

Based on the number of actual and potential cross-connections in a drinking water system, and the potential resulting health hazards, it is important that effective cross-connection control measures be in place. This guide sets out some comprehensive measures that can be adopted into any backflow prevention program established by a drinking water system owner. These include:

- Establishing the need;
- Reviewing regulations and standards;
- Establishing program policy and authority;
 - Obtaining legal advice on what is authorized if the program will be established through a by-law or involves measures that are more than merely voluntary for owners of pre-existing buildings;
- Assessing hazards and classifying them;
- Fire Protection Systems
- Conducting a review of records to identify hazards;
- Establishing a budget and a source of funding;
- Establishing program requirements – including roles and responsibilities

- for the drinking water system owner and property owners; and
- Implementing and maintaining the program.

These measures are detailed further under individual headings within the body of this guide.

2.2 Establishing Need

Drinking water system owners/operators need to review the types of facilities that are connected to the drinking water supply and the potential hazard that each one presents in order to determine if and what kind of a backflow prevention program is needed. Each type of facility (industrial, commercial, institutional) and residential building (multi-tenant vs. single family) presents different hazards. For example, a single family residential property presents a different set of potential hazards compared to those typically associated with an industrial connection to the drinking water supply. Backflow prevention programs should be flexible enough to address the hazard present rather than treating all connections in the same manner.

2.3 Reviewing Regulations and Standards

When undertaking the task of establishing a backflow prevention program, drinking water system owners should consider the following legislation and standards.

- *Building Code Act, 1992*
 - Ontario Regulation 332/12, Building Code
 - Canadian Standards Association (CSA) (B64 Series Standards)
– *standard referenced in the Code for the selection and installation of backflow prevention devices*
- *Safe Drinking Water Act, 2002*
 - Ontario Regulation 170/03 Drinking Water Systems Regulation,
 - Ontario Regulation 248/03 Drinking Water Testing Services,
 - Ontario Regulation 169/03 Ontario Drinking Water Quality Standards,
- *Municipal Act, 2001*
- *Fire Protection and Prevention Act, 1997*
 - Ontario Regulation 213/07, Fire Code

The Building Code includes provisions to prevent the contamination of the drinking water in plumbing. The Building Code is a regulation made under the *Building Code Act, 1992* and sets out technical and administrative requirements that must be met when a building is constructed, renovated or undergoes a change of use.

The Building Code contains objectives and provisions to limit the probability that, as a result of the design or construction of a building:

- a person in or adjacent to the building will be exposed to an unacceptable risk of injury,
- a person will be exposed to an unacceptable risk of illness,
- a person in the building will be exposed to an unacceptable risk of illness due to unsanitary conditions caused by consumption of contaminated water; or
- the public will be exposed to an unacceptable risk of illness due to the release of hazardous substances from the building.

Part 7 of the Building Code specifically deals with plumbing and requirements associated with plumbing. Section 7.6 of Part 7 addresses the requirements for potable water systems and includes provisions to protect potable water systems from contamination. This includes the requirements that potable water systems be designed, fabricated and installed in accordance with good engineering practices (Article 7.6.3.1.), and that connections to potable water systems be designed and installed so that non-potable water or substances that may render the water non-potable cannot enter the system (Article 7.6.2.1.).

The Building Code also generally requires backflow preventers where either backflow or back-siphonage may occur from a source of potential contamination (e.g. Articles 7.6.2.2. and 7.6.2.3.). Premise isolation is covered in Article 7.6.2.6. of the Building Code. Article 7.6.2.4. deals with backflow from fire protection systems.

Section 20 of the *Safe Drinking Water Act, 2002* expressly prohibits any person from causing or permitting any thing to enter a drinking water system if it could result in,

- a drinking water health hazard;
- a contravention of a prescribed standard; or
- interference with the normal operation of the system.

Persons who allow contaminants to enter a municipal drinking water system and interfere with its normal operation have been successfully prosecuted under section 20 of the *Act*.

The CSA B64 standards require that the cross-connection control requirements meet all local, provincial and national building permit and code requirements. In Ontario, this includes the Building Code and local by-laws.

NOTE: *There are a number of reference manuals also available to assist with program development. These include the InfraGuide Methodology for Setting a Cross Connection Control Program, AWWA M-14 and the AWWA Canadian Cross Connection Control Manual.*

2.4 Establishing Program Policy and Authority

In the event a drinking water system owner (e.g. a municipality) decides to implement a backflow prevention program, the drinking water system owner may wish to develop policies containing detailed information about the program and its goals and make them available to all parties involved in the program (drinking water system owner staff, customers, installers and testers, engineers, mayor and council, and other interested parties).

NOTE: *The terms backflow prevention device tester and cross-connection control specialist are often used interchangeably.*

Drinking water system owners/operators may also want to consider developing a separate policy document detailing an education and outreach campaign designed to increase the level of awareness around the issue and the potential impacts to the drinking water supply.

Stakeholders that have developed backflow prevention programs have raised questions about the legal authority for certain aspects of programs which may go beyond Building Code requirements for new construction or changes in use, or may involve more than voluntary actions on the part of owners of existing buildings. Section 35 of the *Building Code Act, 1992* provides that the Act and the Building Code supersede all municipal by-laws respecting the construction or demolition of buildings. Legal advice should be sought in respect of questions associated with more comprehensive backflow prevention programs, including those that are proposed to be established by municipal by-law in light of Section 35 of the Act.

2.5 Assessing and Classifying Hazards

A backflow prevention program should include a method to assess the risk or “hazard” of each potential cross-connection to the drinking water supply and whether the property owner has implemented the appropriate protections for that category of risk. The CSA B64.10-11 standard defines hazards to the drinking water system in three categories; Severe, Moderate and Minor.

- Minor is nuisance to the water supply and results in a reduction in only the aesthetic quality of the water.
- Moderate is any minor hazard connection that has a low probability of being a severe hazard.
- Severe is any type of cross-connection or potential cross-connection involving water that has additives or substances that, under any concentration, can create a danger to health.

Each type of facility (industrial, commercial, institutional) and residential building (multi-tenant vs. single family) connected to a drinking water system presents

different hazards. For each hazard category, the backflow prevention program should be explicit about the kinds of protections needed. For example, a fulsome program may require protection at the fixture as well as zone/area and premise isolation, plus monitoring and tracking of backflow devices and assemblies. A more minimal program may only require premise isolation and monitoring, leaving other requirements up to the owner of the facility.

NOTE: *There are a variety of backflow prevention assemblies and devices designed to protect the levels of hazard. The CSA B64.10-11 standard and the Canadian Cross Connection Control Manual provide a guide for the assessment of hazards and the selection of backflow preventers for both internal and premise protection.*

The hazards present within industrial, commercial and institutional facilities are well known but it is also important to consider the hazard that multi-tenant residential buildings may present. Policies may be developed to address multi-tenant residential building connections and the potential for backflow from such buildings. However, it is important to note that the Building Code states “Buildings of residential occupancy within the scope of Part 9 are not required to be isolated unless they have access to an auxiliary water supply.” In most cases residential connections would fall in the moderate or minor categories.

2.6 Conducting a Records Review to Identify Hazards

Once the categorization of hazards and level of protection required has been established the owner of the drinking water system can begin the process of identifying sites that may present a hazard to the drinking water system. This process can begin with an internal review of records associated with water billings, building permits, business licences, and planning and zoning.

NOTE: *Other local officials (e.g., works, local fire department) may also have information as to the hazard potential that a site may present which could be useful in the identification of sites.*

The list of sites that is compiled as a result of this process should also be divided into specific categories associated with industrial, commercial, and institutional connections and then by the level of potential hazard that each may present. The adoption of such an approach allows the drinking water system owner to focus its resources on those facilities which present the highest hazard.

NOTE: *Protecting all services the same way may have hidden costs – For drinking water system owners who choose to protect all services (industrial, commercial, institutional and residential) at the service connection/meter, inspection costs for their program may be higher than necessary. By treating all facilities in the same manner, regardless of the level of hazard presented by the cross-connection, inspections cannot be tailored to best*

meet the risks posed.

2.7 Establishing a Budget

A backflow prevention program requires an established budget. Costs associated with program development, implementation and maintenance (including adequate staff time and resources) should be defined, and any additional funding requirements identified. Typical budget costs include:

- survey and hazard assessment
- records/data management
- education and outreach
- training

The drinking water system owner should also budget for implementation of the backflow prevention program requirements for its own facilities at the initial phase of the program. This would demonstrate to affected facility and property owners that the drinking water system owner is supportive of and committed to the success of the program.

The cost of implementing a successful backflow prevention program can vary significantly depending on the type of program the municipality decides to implement and the number of identified potential hazard connections. A municipality's historical cost for water quality incident responses associated with potential backflow events could be applied to the implementation costs of a backflow prevention program, since hazards are now being assessed, controlled, and reduced (assuming the municipality can tabulate these historical costs).

2.8 Fire Protection Systems

Devices installed in fire suppression systems, as required by the Fire Code, should be maintained and tested in accordance with the requirements of the associated Fire Code standards.

- Fire suppression systems, as required by the Fire Code, should have check valve(s) or equivalent installed to ensure that the system is "charged" and ready for use. If this assembly is determined to be functioning as designed, no additional device would be required.
- If a hazard from the fire suppression system is identified during the survey of the facility, an assessment of the fire suppression system should be conducted by a qualified person, prior to the installation of a device.
- Any devices that are found to be non-functional should be replaced with a similar device by a qualified person.

When implementing a backflow prevention program, the drinking water system owner should be aware of requirements for backflow preventers on certain types

of fire protection systems. These are outlined in CSA B64.10–11, CSA B64.10.1–11 and Article 7.6.2.4. of the Building Code.

It is recommended that retrofitting older fire protection systems to apply backflow prevention devices be done only with a comprehensive evaluation of each system by a qualified, competent person (such as a professional engineer). This qualified person will be able to ensure adequate flow and pressure through the device(s) to meet fire protection needs, and to address the thermal expansion issues associated with installing backflow prevention devices on sections of the fire protection system that include anti-freeze.

NOTE: *AWWA Research Foundation (AwwaRF), Impact of Wet-Pipe Fire Sprinkler Systems on Drinking Water Quality (AwwaRF, 1998) provides more information on the application of backflow preventers to new fire protection systems, as well as possible hydraulic problems associated with retrofitting existing wet-pipe fire sprinkler systems.*

3.0 Establishing Program Requirements

Backflow prevention programs should set out the roles and responsibilities of the drinking water system owner and the property owner.

3.1 - Drinking Water System Owners - Roles and Responsibilities

Drinking water system owner responsibilities would typically include:

- providing safe water to all drinking water users, including facilities that may present a risk through cross-connections
- providing staff to administer the backflow prevention program
- providing resources to assess facilities connected to the drinking water supply
- reporting back to the property owner the results of the assessment and recommended actions for the protection, installation and ongoing testing of the backflow prevention assemblies and devices (see 3.1.7); and
- developing an education and outreach awareness program (see 3.1.1)

3.1.1 - Education and Outreach / Awareness

Raising awareness of the issues associated with cross-connections and the potential for contaminating and damaging the drinking water supply and public health is critical to the success of the backflow prevention program. Support for and credibility of the program depends on the participation of those implementing the program as well as those affected by it (e.g., industry, plumbers, design engineers, suppliers and other related agencies).

The public relations and education components of a backflow prevention program are also essential to its success. Many groups should be targeted, including municipal staff (e.g., works, fire department), councillors, the mayor, and administrators; residential, commercial, and industrial consumers; and stakeholders such as professional, trade, and technical groups including private house/business inspection firms.

Municipal staff, councillors, the mayor, and administrators should be educated about the drinking water system and backflow prevention program so they can communicate effectively with consumers and the public.

Awareness can happen through personal contact and presentations as well as written letters, brochures and bill stuffers to customers. To date some very successful approaches have included:

- presentations;
- advertising;

- displays;
- brochures;
- bill stuffers;
- letters;
- articles in newspapers and electronic publications; and
- information on the drinking water system owner's web page.

Presentations made at related organizational conferences and seminars as well as advertising in print, radio and TV media can be used as a way to get the message out to a large number of customers in a relatively short time. Displays at fairs, malls, hardware stores or home shows are another venue to publicize the program. A key message to share in the materials generated and distributed is that the program is designed to protect the drinking water supply from potential contamination and the health of all users.

Stakeholders are an important part of a successful program, since they are directly involved with the piping systems where cross-connections can occur. Architects, engineers, contractors, builders and trades associated with the installation/maintenance of irrigation systems, sprinkler systems, fire protection systems, HVAC (heating, ventilation and air conditioning) and plumbing should all be educated about the drinking water system owner's requirements for cross-connection control. Trade associations can be an effective venue through which to educate these stakeholders.

Establishing a backflow prevention committee and having stakeholders as members of the committee will increase awareness of the program and enable more groups to be reached. Representatives for a backflow prevention committee could include a drinking water system owner's staff, building/plumbing inspectors, bylaw/legal representatives, health department representatives, plumbing contractors, cross-connection control instructors from local accredited schools, and other interested parties (e.g., industrial, commercial, institutional, multi-unit residential, etc.).

Approaches such as these will foster a greater level of buy-in from these stakeholders, as they will feel some ownership in the process and become champions of the program within their respective local community, organizations and associations.

3.1.2 - Supporting Documentation Currently Available

Information concerning explanations of cross connection control and backflow prevention can be found on:

ABPA video, (2010) available on YouTube or through www.abpa.org;

ABPA Michigan Chapter video, “Mission: Educating the Public”, available on YouTube or by contacting the Michigan Chapter through www.abpa.org;

AWWA video, “Backflow Prevention and Cross-Connection Control” (AWWA, 2003).

***NOTE:** Each video presents the concepts of how backflow can occur, methods to prevent backflow, and elements of a cross-connection control program. It should be noted that these videos use American terminology, which in some cases is different than Canadian terminology.*

3.1.3 - Records Management

A document and record control system should be developed to track the facilities assessed/inspected, assessment/inspection records and requirements, the devices and assemblies installed and the testing requirements of those assemblies.

***NOTE:** Municipal drinking water system owners should use Ontario’s Drinking Water Quality Management Standard - Pocket Guide (Element 5) to develop this system.*

Drinking water system owners/operators should also consider requiring that property owners make documentation associated with backflow prevention program requirements available for inspection by the system owner or its agent.

As part of a backflow prevention program, a drinking water system owner may need to track licensed testers and equipment, and be able to develop and generate standard templates, letters and notifications. To help with these tracking activities, manual and/or computerized systems could be developed internally or available data management packages used.

***NOTE:** The drinking water system owner should assess its end requirements at the start of the program to develop a tracking system that will meet its needs and will be flexible enough to evolve as the program develops.*

3.1.4 - Qualified Persons

The program should outline not only the requirements for hazard assessment and device inspection and testing, but who can perform such activities. In most cases, the property owner will retain a registered or licensed tester who meets the requirements established by the drinking water system owner.

Many tasks associated with cross-connection control and backflow prevention require training. These include program administration, survey and hazard

assessment, device selection and installation, inspection, testing, repair and potentially enforcement. While a drinking water system owner may wish to conduct its own in-house training for some elements, especially for administration of its program, an increasing number of accredited schools and colleges are offering cross-connection control survey courses, and backflow prevention device tester certification and re-certification courses.

NOTE: *The requirements for the selection and installation of backflow preventers for new construction or changes in use are set out in the Building Code and this work should be conducted by persons qualified for those purposes. The working group has identified that the testing of backflow preventers should also be carried out by qualified persons, as identified within the CSA B64 standards.*

Backflow prevention device testers can obtain certification through an accredited school or college, and will have to attend a recertification course within the period specified by the certification body after the issuance of the certificate. In addition to certification, a municipality registering or licensing the tester should require a calibration certificate for its testing equipment, another trade or professional qualification (e.g., plumbing certificate), and current liability insurance coverage (CSA B64.10.1-11).

Testers of backflow prevention devices/cross-connection control equipment should meet the requirements outlined within the CSA B64.10.1-11 standard; which states that a tester should be a journeyman/apprentice plumber, pipefitter or equal professional and certified cross connection control specialist from an accredited school. The testing equipment used should be verified and calibrated on an annual basis to maintain and confirm its accuracy. The regular testing and inspection of the backflow prevention assemblies should be carried out by journeyman/apprentice plumbers registered/licensed by the drinking water system owner (typically the municipality) to perform that work. Licensed testers should be certified by a recognized training institution, in the proper testing and maintenance of backflow prevention assemblies. In Ontario that training is available through commercial training organizations.

NOTE: *Proper training of staff in the area of cross-connection control/backflow prevention and experience/knowledge of plumbing principles and systems would be an asset. Cross-connection control courses, offered by accredited schools or colleges, also provide guidance on hazard assessment.*

When undertaking a backflow prevention program it would be helpful to provide a central contact for any inquiries that may arise (e.g., who the drinking water system owner accepts as “qualified persons”).

Representatives of the drinking water system owner involved with a cross-connection survey and hazard assessment, inspection, and testing should also be trained in safety procedures, including access issues associated with entry into private buildings, dealing with difficult customers, use of special tools to inspect and test backflow preventers, and access to hazardous locations for both municipal and private property applications. They should also be familiar with relevant Occupational Health and Safety Act requirements.

NOTE: *The AWWA has implemented a Cross Connection Control Specialist course and facilitates its delivery through accredited teaching institutions. In Ontario, this and other accredited courses are provided through third party training providers and local colleges. It is up to the drinking water system owner to ensure that testers working in the system owner's jurisdiction are qualified and that the testers' test equipment is verified and/or calibrated on a regular basis. The drinking water system owner could maintain a list of qualified testers and make it available to those customers installing and/or testing backflow prevention assemblies.*

3.1.5 - Registering / Licensing Device Testers

When making application to the drinking water system owner for licensing or registration as a backflow prevention device tester, the applicant should have the following qualifications:

- a certificate as a backflow prevention device tester that has been issued by an accredited organization or association or renewed by that organization or association following completion by the applicant of a re-certification course;
- a current calibration certificate for test equipment (dated within the 12 months before the date of application for licensing or registration);
- another trade or professional qualification (i.e., as per the authorized functions list within the CSA standard); and
- current liability insurance coverage (with an expiry date no less than 6 months after the date of application for licensing or registration).

NOTE: *The regulatory authority administering the cross-connection control program should license or register backflow prevention device testers who have the above-noted qualifications.*

3.1.6 - Survey and Hazard Criteria

Although the Building Code mandates that a drinking water supply be protected from cross-connections, backflow incidents still occur both within the internal plumbing of buildings and externally into the drinking water supply. A cross-connection survey and hazard assessment can identify any actual or potential cross-connections, the potential risk of contamination, the probability that backflow could occur, and a determination of the appropriate backflow preventer

to use.

The drinking water system owner, or an acceptable third party, would conduct this assessment to ensure appropriate backflow preventers are identified, and to satisfy itself that adequate protection of the drinking water supply has been provided.

The primary focus of the assessment should be based on the hazards that a facility may pose to the drinking water supply. A systematic approach needs to be taken. Typically, the municipality would identify each facility to determine the types of industrial, commercial and institutional uses that exist, and conduct a cross-connection survey and hazard assessment, focusing first on the types of uses with the highest potential for contamination. Connection size may also be a consideration when deciding which facilities to assess first as this can impact whether a service connection needs be isolated.

NOTE: *The drinking water system owner is normally responsible for preparing the survey and hazard assessment templates to be used and accepting the templates completed by those authorized in the program. Using templates is desirable in order to maintain consistency of information and ensure the proper protection of drinking water systems.*

The drinking water system owner, or its representative conducting the assessment, would begin by contacting the property/building owner either directly or in writing to make arrangements to conduct the assessment.

NOTE: *The majority of water services a drinking water system owner will have will be in the single family residential sector. The Building Code exempts residential buildings within the scope of Part 9 from having premise isolation unless an auxiliary water supply is present. A municipality may choose to educate these property owners through an awareness campaign.*

The assessment should identify the cross-connections found and whether the required protection is in place. The assessment results should be documented and provided to the property owner. The assessment results could include information such as when installations are needed and the device testing frequency.

NOTE: *The type of survey conducted and accepted by the drinking water system owner (i.e., owner self-report; registered/licensed external qualified person conducting assessment on behalf of owner; assessment by qualified staff of drinking water system owner) should recognize the potential hazards present and the manner in which backflow prevention devices may have been previously installed. It should also identify any changes made since original construction that may require that action be taken to protect*

the drinking water supply within the facility, or the connection between the drinking water supply and the facility.

For the hazard assessment, Clause 5.1.4 of CSA B64.10-11 requires identification of:

- the probability that back siphonage will cause backflow;
- the probability that back pressure will cause backflow;
- the severity of any hazard; and
- the type of building.

NOTE: *Assessment of the probability of backflow and severity of the hazard is a very subjective task, since there is no simple formula to apply.*

New building permits need to be reviewed and backflow prevention requirements need to be identified as part of the process in accordance with the Building Code. Educating building officials and building inspectors with respect to Building Code requirements and the objectives of the backflow prevention program may improve the success of the program.

The CAN/CSA B64.10-11 Standard, AWWA Canadian Cross Connection Control Manual, and AWWA Manual M14 all provide guidance on the type of backflow prevention device and level of hazard protected against (i.e., minor, moderate, or severe), and the type of cross-connection and level of hazard (e.g., Annex B of CSA B64.10-11 where photo lab sinks are considered a severe hazard).

NOTE: *Many of the standards and manuals use different terminology for some aspects. For example, AWWA Manual M14 uses the classification of health hazard, or non-health hazard, while the Canadian publications use a three-tiered classification of minor, moderate, or severe. The AWWA Manual M14 provides guidance on the “recommended protection for water purveyor’s hazards,” which covers the distribution system, treatment plants, offices, and work areas.*

The assessment process should also include the inspection of facilities owned by the drinking water system owner. It is a good idea to carry out these inspections, and any resulting installation and testing of the required backflow prevention devices prior to implementing the program with respect to other potentially affected property owners. Doing so demonstrates that the drinking water system owner has proactively conducted a review of its facilities and addressed the potential hazards. Through such an approach the drinking water system owner can ensure that its assessment/inspection reporting processes are working and foster increased “buy in” from other property owners.

NOTE: *In accordance with the CSA B64.10-11 standard as referenced in the Building Code for the selection and installation of devices, it would be appropriate to isolate the premise as a preventative measure where access*

to a facility is restricted. If the facility owner refuses to install the required protection, then the drinking water system owner may use the tools available, based upon the advice of legal counsel, to protect the drinking water supply.

Survey and hazard assessments should be conducted every five (5) years or as warranted by a change in ownership or facility operations.

3.1.7 - Regular Inspection and Testing (Device)

Regular inspection and testing of backflow prevention devices should be carried out according to recognized industry standards, including CSA B64.10.1-11 Maintenance and Field Testing of Backflow Preventers. There are many other sources for inspection and testing standards, including the AWWA Canadian Cross Connection Control Manual. Generally, backflow prevention assemblies should be tested on installation, when repaired or relocated and at least once a year following installation.

NOTE: *A unit that has been taken out of service for maintenance should be tested prior to putting it back in service.*

Temporary water connections to hydrants should not be allowed unless protected as well as being metered. The protection required would be a Reduced Pressure backflow (RP) preventer supplied by the applicant with test results indicating it is in good working order, or an RP backflow preventer supplied by the drinking water system owner as part of a hydrant use permit process.

3.1.8 - Incident Response Planning and Reporting

Municipal drinking water system owners must have a plan in place to respond to adverse water quality incidents and other problems (other drinking water system owners should also consider having a plan in place). This would include appropriate and expeditious communication to the customers in the affected area, and between the different personnel involved in sampling, flushing, lab analysis, and on-site inspections. This plan should be expanded to incorporate information specific to backflow incidents. This would include procedures municipal staff should follow to isolate and sample the affected area. An on-site cross-connection survey and hazard assessment of the facilities to determine the source of contamination should also be performed. By isolating and flushing the contaminant, it can typically be removed from the system in a timelier manner.

NOTE: *There is an obligation under s.18 of the Safe Drinking Water Act, 2002 to report adverse drinking water test results prescribed in the Drinking Water Systems Regulation, Ontario Regulation 170/03, to the Ministry of the Environment and Climate Change and the medical officer of*

health, and to take such other steps as are directed by the medical officer of health under that regulation.

In instances where detected backflow incidents may result in severe hazards such as depletion of disinfection potential or danger to consumer health, priority measures are required of the drinking water system owner/operator to notify water consumers and resolve the situation. Detection of backflow related to severe hazards that could adversely affect the quality of drinking water must be reported as an “other observation” in accordance with section 16-4 of the Drinking Water Systems Regulation.

The plan should provide for collection of as much information as possible, including licensed laboratory results to determine the type of contamination and the required measures based on health impacts (e.g., boil water advisory, drinking water advisory, etc.). A data management system can be used to identify the addresses where existing backflow prevention devices are installed. This will help reduce or narrow the facilities that may require an on-site inspection for determination of the origin of the contaminant.

While the contaminants can come from facilities with unknown cross-connections that are not protected by backflow prevention devices, they can also come from malfunctioning backflow preventers. In these cases, it is important for the drinking water system owner to have the proper authority available to require immediate testing during a water quality incident to check if a backflow preventer is malfunctioning.

As a follow-up to a backflow incident, the drinking water system owner should promptly review its records and where it is identified that unprotected facilities may have caused the incident, work to have proper backflow preventers installed and tested, and that malfunctioning backflow preventers are repaired or replaced, and re-tested, all in a manner consistent with the policy.

Although the Ontario Ministry of Environment and Climate Change does not specifically regulate or require backflow prevention programs, where such programs exist, operating them in accordance with this guideline will help promote continuous improvement of drinking water safety and security of drinking water distribution systems and provide a consistent approach across the province when dealing with backflow prevention.

3.1.9 - Program Compliance

When a drinking water system owner decides to put in place a backflow prevention program, it will also need to consider ways to promote compliance with affected stakeholders. Backflow prevention programs include selection, installation, inspection (maintenance), testing and reporting requirements that will need to be monitored. In situations where stakeholders refuse to participate the

drinking water system owner will need to consider whether mechanisms are available to it that will promote compliance such as notifications, work orders, fines, etc. If so, these should be clearly detailed within the policy, and communicated in the education program.

3.1.10 - Quality Assurance

The program should be flexible enough to provide for changes due to technology and new innovations in the industry. Program administrators should review their processes and refine them to best suit the requirements of the drinking water system owner on a regular basis.

A process could be put into place that allows the drinking water system owner to review the performance of testers and the validity of test results submitted. The drinking water system owner should maintain a historical record of test results. If need be the drinking water system owner should have a means of revoking a tester's registration/licence. Another quality assurance component would be to maintain records that may verify performance and the impact that the backflow prevention devices may have on local water quality.

3.1.11 - Program Maintenance

The drinking water system owner should be responsible for program maintenance and administration. This includes maintaining ongoing testing records and information as to the location of the devices.

3.2 - Property Owners - Roles and Responsibilities

Property Owner/Customer responsibilities may typically include:

- developing and implementing an internal program to meet insurance and legal requirements (e.g., availability of Material Safety Data Sheet (MSDS));
- deciding on a voluntary basis whether to provide the drinking water system owner or its agent with access to the facility in order for the system owner to determine appropriate cross connection control measures;
- protecting cross-connections found on property or within facility in accordance with the assessment/inspection report provided by the drinking water system owner or its agent;
- receiving approval from the drinking water system owner prior to the removal of any devices;
- advising the drinking water system owner of any changes to its backflow prevention devices so that the hazard survey can be updated;
- the purchase, installation and testing of the backflow prevention devices and assemblies;

- providing the drinking water system owner with a copy of test results; and
- conducting ongoing testing (usually annually) and maintenance of the unit (e.g., as per manufacturer directions or CSA B64.10.1-11 Maintenance and Field Testing of Backflow Preventers).
 - **NOTE:** *If a unit fails the testing process it should be repaired or replaced within a certain time period set out by the drinking water system owner.*

3.2.1 - Device Ownership

In most programs, the property owner is the owner of the backflow prevention devices and assemblies. The rationale is that the potential cross-connection was created by the property owner, or its tenant, and therefore the property owner should be responsible for providing the protection.

In this case, as owner of the device, the property owner is responsible for maintaining and testing the backflow prevention device in accordance with best practices and/or the backflow prevention programs requirements.

NOTE: *In some cases the drinking water system owner may supply a water meter and backflow preventer for premise isolation and thus retain ownership. In such instances the drinking water system owner would also assume the ongoing maintenance and testing responsibilities associated with the device and any implemented backflow prevention program requirements.*

3.2.2 - Education and Outreach

Raising awareness of the issues associated with cross-connections and the damage to the drinking water supply and public health is critical if a backflow prevention program is to succeed. A strong commitment to education and outreach on the part of those that have decided to implement such a program is integral to ensuring that affected property owners are aware of the risks associated with cross-connections and the role that they play in ensuring that they are protected. For these reasons, if a drinking water system owner establishes a backflow prevention committee, affected property owners should be encouraged to actively participate in and become involved with the committee.

3.2.3 - Survey and Hazard Assessment

The property owner should ensure that a survey and hazard assessment is conducted in accordance with the drinking water system owner's backflow prevention program and that any piping and process changes are conducted under a building/plumbing permit issued by the municipality.

3.2.4 - Selection and Installation of Devices

The property owner should ensure that backflow prevention devices are selected and installed in accordance with the requirements of the Building Code and outlined within CSA B64.10–11 Selection and Installation of Backflow Preventers.

***NOTE:** The requirements for the selection and installation of backflow preventers for new construction or changes in use are set out in the Building Code and this work should be conducted by persons qualified for those purposes.*

3.2.5 - Regular Inspection and Testing (Device)

Generally, annual testing of each backflow prevention device is recommended as a minimum; however this should be evaluated on a case-by-case basis depending on the risks to the drinking water system. The drinking water system owner may have special testing requirements and the property owner should discuss these with the drinking water system owner.

***NOTE:** Inspection and testing should be carried out according to the requirements as detailed within the backflow prevention program and should recognize industry standards, such as CSA B64.10.1-11 Maintenance and Field Testing of Backflow Preventers.*

3.2.6 - Records Management

The property owner should maintain copies of the survey and hazard assessment, inspection, testing, maintenance and repair records on the premises where the devices are located. The property owner should also make records available in accordance with any requirements contained in the backflow prevention program.

Reference Materials

- Ontario Water Works Association (OWWA) - Cross Connection Control Committee
- AWWA Canadian Cross Connection Control Manual
- Ontario Backflow Prevention Association (OBPA) Model By-Law
- American Water Works Association (AWWA) M14 Manual Recommended Practice for Backflow Prevention and Cross Connection Control
- InfraGuide – Methodology for Setting a Cross Connection Control Program
- *Municipal Act, 2001*
- *Building Code Act, 1992*
 - Building Code, Ontario Regulation 332/12
- *Safe Drinking Water Act, 2002*
 - Drinking Water Systems Regulation, Ontario Regulation 170/03
- Ontario's Drinking Water Quality Management Standard – Pocket Guide Ontario Ministry of the Environment (July 2007 – PIBS 6278e)
- *Fire Protection and Prevention Act, 1997*
 - Fire Code, Ontario Regulation 213/07
- NFPA Standards
- Canadian Standards Association (B64 Series Standards)
- Canadian Standards Association (CSA) B64.10-11 Selection and Installation of Backflow Preventers
- Canadian Standards Association (CSA) B64.10.1-11 Maintenance and Field Testing of Backflow Preventers
- CAN/CSA-B125-12 Plumbing Fittings
- Saskatchewan Ministry of Environment - Cross Connection Control and Backflow Prevention Guidelines (February 2010 – EPB #422)
- Ontario Ministry of the Environment - Guidance Document Preparing for Corrosion Control Plans for Drinking Water Systems (December 2009 – PIBs #7463)

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For Information Only

2015 Water Wastewater Tactical Plan Progress Report

Recommendation

For Information Only

Background

The purpose of this report is to address a budget "parking lot" request to update Council on the progress on strategic tactics in the current version (2013-2015) of the Water Wastewater Services Tactical Plan and provide the 2015 -2018 version for the Committee's review.

Staff will present the highlights of the new document followed by a brief question period.

2013 -2015 Plan Progress

The 2013 -2015 version of the Plan includes 66 defined tactics arranged under 10 goals and 6 key focus areas. Analysis of progress indicates that 55 tactics (or 83%) can be categorized as either in-progress or complete. The remaining 11 tactics (or 17%) have been categorized as carrying forward.

The attached spreadsheet shows the detailed list of tactics and progress assessments.

2015 -2018 Plan

The 2015 - 2018 Water & Wastewater Services Tactical Plan is enclosed for the Committee's review.

Signed By

Report Prepared By

Nick Benkovich
Director of Water/Wastewater Services
Digitally Signed Nov 23, 15

Division Review

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Recommended by the Department

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Key Focus Area # 1- Health & Safety

Tactic Number	Tactic	Action Steps	Target Completion Date	Project Lead	Status			Comments
					In-progress	Complete	Carry Forward	

Goal 1.1- Enhance current safety practice to reduce risk for all W/WW employees

1.1.1	Complete illegal entry alarm, confined space, traffic control, fall protection, hot work permits and trench rescue	New protocols in place	2 nd quarter 2014	GC	☑			
1.1.2	Improve depot and facility security systems	New systems in place	2 nd quarter 2014	BJ		☑		Key locks & security cameras in place
1.1.3	Develop field audit procedures to audit compliance with recommended protocols, documentation and legislated requirements	Audit results	2 nd quarter 2014	DB	☑			
1.1.4	Shoring, trench rescue, implement compliance programs for shoring and working alone. Improve near miss and incident reporting and tracking systems	New protocols in place		GC	☑			

Goal 1.2- Comply to Health and Safety Legislation

1.2.1	Assess and prioritize health and safety gaps and outsource resources to develop, implement and train employees	Improved Program in place	2014	Section Heads	☑			implemented several new programs - bullying / harassment training
1.2.2	Develop a mandatory contractor safety and orientation program for all W/WW contractors	New Program in place	2015	Section Heads		☑		in collaboration with CGS H & S - course content updated and new monitoring tools created
1.2.3	Use a risk management approach to prioritize health and safety program development	Safety Risk assessments in place	2014	Section Heads	☑			
1.2.4	Provide improved depot facilities for showers and lockers for all required employees	Centralized depot system in place with improved occupational health facilities	2014	CB			☑	tied to corporate depot rationalization study

Key Focus Area #2 - Financial Sustainability

Goal 2.1- Review and enhance asset management program

2.1.1	Complete the W/WW Master Plan	Completed W/WW Master Plan document	31-Dec-14	AB	☑			Project work underway
2.1.2	Integrate condition and replacement programs into 2014 Capital Budget	2014 Capital Program	30-Sep-13	PJ		☑		Condition assessment & replacement initiatives included in 2014 capital program
2.1.3	Review options for detailed asset management plan framework and confirm as CGS W/WW template	Complete detailed Asset Management Plan	Oct-14	BJ	☑			project work underway to develop & implement an enhanced system
2.1.4	Enhance and use capital prioritization tool	Risk assessment based prioritization tool	Aug-13	NB	☑			risk based prioritization tool integrated into capital program prioritization
2.1.5	Capital priorities influenced by operational consequence/condition based indicators	Prioritized Capital list linked to Key Performance Indicators	2017	NB		☑		operational impact considered when prioritizing projects

Goal 2.2- Improve financial control for W/WW operational and capital expenses

2.2.1	Complete refinement of all operational accounts for the 2014 budget cycle	All accounts done	30-Sep-13	DD		☑		collaborative review undertaken between Section Heads & Financial Coordinator
2.2.2	Continue to focus efforts on non-revenue water reduction	5% reduction from April 2013	31-Dec-14	PJ		☑		
2.2.3	Finalize capital project monthly status report format and procedure. Provide monthly status reports to General Manager.	Produce Monthly status reports to GM	Jan-14	NB		☑		regular project updates provided to GM by project managers

Key Focus Area # 3- Infrastructure stability

Tactic Number	Tactic	Action Steps	Target Completion Date	Project Lead	Status				
					In-progress	Complete	Carry Forward		

Goal 3.1- Define and document service levels

3.1.1	List of activities and define service levels, including resourcing plan (i.e. staff, budget)	List & plan for Distribution & Collection activities with achievable goals	2014	CB	☑			Project work underway
3.1.2	Get council endorsement for service levels	achieve Council endorsement	2014	CB	☑			Tied to completion of project
3.1.3	Measure ability to comply with service levels	KPI's showing compliance with service levels	2015	CB	☑			Tied to completion of project

Goal 3.2- Enhance prevention programs to comply with environmental legislation

3.2.1	Enhance the source control program: a) Septage Receiving b) Hauled Liquid Waste c) Backflow / Cross Connection d) Staffing (succession & populating)	a) Ability to receive b) Ability to receive c) Amend Bylaw & develop program d) Redundancy/replacement ability	2015 Dependent on biosolids	DB DB DB DB		✓		project work complete
3.2.2	Develop and implement a W/WW efficiency plan	Reduction in water and waste water volumes	2015	PJ			✓	

Goal 3.3- Build operational resiliency (e.g. capital priorities)

3.3.1	Operational expenses: review I/I in downtown sanitary sewer system as part of sewer use bylaw review	I/I study included in 2014 capital budget review	2014 capital budget	PJ			✓	
3.3.2	Continuously improve emergency management preparations (support, practice, inter-departmental)	Mitigate negative impacts to environment, citizens and infrastructure at conclusion of emergency	ongoing	NB		✓		Plan review & updating completed - Regular training / simulations ongoing
3.3.3	Complete the As-Built project	Usable, accurate As-builts	2015	WM	✓			project underway
3.3.4	Develop fleet renewal strategy	Report complete	2014	RS / EB			✓	

Goal 3.4- Support operations work programs via necessary enabling business applications

3.4.1	Complete Implement of CityWorks CMMS	Replacement of ANTERO	2014-18	MJ			✓	Tied to corporate CMMS implementation
3.4.2	Select & Implement Contractor & Supplier Management solution	Output Reports of Contractor / Supplier compliance	2014	NB			✓	
3.4.3	Development of SCADA master plan	Project Report	2015	BJ	✓			Project work underway
3.4.4	Envista	Monitoring projects in right of way	2015	TC			✓	Tied to in-house corporate solution
3.4.5	Locates Software (mobile)	System configured, installed, & active		PJ		✓		
3.4.6	Automated Vehicle Locating	All W/WW vehicles equipped	2nd quarter 2014	NB		✓		

Key Focus Area # 4- Communications and Marketing

Tactic Number	Tactic	Action Steps	Target Completion Date	Project Lead	Status			
					In-progress	Complete	Carry Forward	

Goal 4.1- Market and promote W/WW Services

4.1.1	Develop brand strategy (e.g. new mediums); create promotional graphics on key messages; add messaging on mobile equipment / fleet (vector); retain marketing consultant to develop comprehensive report & plan.	1 video annually	2015	CB, DB	✓			Collaboration with EarthCare Sudbury & Corporate communications
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Goal 4.2- Improve internal communication processes (e.g. Council)

4.2.1	Share good news and project updates	Media / communication bulletins	Ongoing	NB	✓			
4.2.2	Offer to Hold W/WW Services annual open house for public, SMT, and Council	Participation rate	2014 Ongoing	NB, Corp Comm & Earthcare		✓		

Goal 4.3- Community education and outreach

4.3.1	Improve information availability on City website	# of site visits	2015	CB		✓		
4.3.2	Develop 5 education and outreach tools each year	# of new tools developed	2016	DB, Corp Comm & Earthcare		✓		
4.3.3	Improve Education & Outreach initiatives	Attend 3 promotional events	2014 -15	DB, Corp Comm & Earthcare		✓		
4.3.3	Enhance information available at 3-1-1	# of business process questions added	2014	JD		✓		ACR now active / Enhancements underway
4.3.4	Develop recruitment strategy in cooperation with colleges/schools including local schools	# of recruits from colleges	2015	CB		✓		

Key Focus Area # 5- Employee & Team Development

Tactic Number	Tactic	Action Steps	Target Completion Date	Project Lead	Status			
					In-progress	Complete	Carry Forward	

Goal 5.1- Develop programs to improve staff accountability and commitment at both management and operational level

5.1.1	Annual reviews of all employees	Annual reviews completed for 100% of employees	Annually	Section Heads		✓		
5.1.2	Review opportunity for employee incentive program	Incentive program initiative reviewed	Jan 2015	TC			✓	
5.1.3	Disseminate information from monthly staff meetings to workers	Minutes of safety minutes	Monthly	Section Heads		✓		

Goal 5.2- Organizational culture built on pride, ownership and an entrepreneurial attitude

5.2.1	Follow-up on employee feedback survey	Follow up and implement recommendations of results	Jan-14	NB		✓		
5.2.2	Presentation/information re pride in Your Work	Leadership in Changing Times (Ian Hill) presentation - offsite management and presentations to all	Fall 2013	WM			✓	
5.2.3	Involve staff in capital project development	Meet with staff onsite and involve in design and onsite meetings	Ongoing	Staff Engineers		✓		
5.2.4	Employee recognition program (WISE)	Recognize outstanding staff with WISE awards	Ongoing	ALL		✓		
5.2.5	Review potential for Ian Hill's internet training for employees	Discuss with directors and make go/no go decision.	Fall 2013	WM		✓		

Goal 5.3- Review Water/Waste Water organization alignment

5.3.1	Supervisors to review opportunities for job efficiencies within section	Review done, plan developed, submit to GM/SMT for approval	Dec-13	Section Heads		✓		
5.3.2	Review associated job descriptions	Review done, plan developed, submit to GM/SMT for approval	Dec-13	Section Heads		✓		
5.3.2	Expand shift presence in key areas	Additional shiftwork implemented	Jan-14	NB		✓		

Goal 5.4- Expand staff training programs

5.4.1	Involve key personnel in conferences and advancement training opportunities (leadership training, conflict resolution training, etc)	additional staff & employees trained	Dec-14	NB		✓		
5.4.2	Encourage participation in talent management program (HR)	Program begins implementation (HR)	Dec-14	NB		✓		
5.4.3	Expand & formalize On-the-Job-training programs	Program developed	Dec-17	MJ		✓		

Key Focus Area # 6- Business Strategies

Tactic Number	Tactic	Action Steps	Target Completion Date	Project Lead	Status			
					In-progress	Complete	Carry Forward	

Goal 6.1- Complete capital project management methodology (e.g. training, tools, software, process)

6.1.1	Document, present new capital project design and delivery using objective logic- involving stakeholders i.e. finance, W/WW, R/T, engineering (Aim- develop consistent project delivery methodology)	# of process reviews completed	Schedule sessions late 2013 or 2014	BJ		✓		
6.1.2	Produce monthly project key performance indicators using dashboard format to track project progress	Review of monthly KPI delivery	2 nd quarter 2013	AB	✓			
6.1.3	Obtain software to enable consistent use of methodology for project delivery		After 6.1.1 & 6.1.2 are complete	AB		✓		Tied to departmental initiative - Eclipse
6.1.4	Develop a consultants procedural manual for CGS projects	Complete manual for review and implementation	2015	BJ	✓			Project work underway

Goal 6.2- Identify opportunities to develop and/or improve divisional, departmental and inter-departmental business processes

6.2.1	Develop a "Management of Change" business process and policy	Implement Change control processes	2014	NB			✓	
6.2.2	Identify and prioritize business processes with greatest potential (ROI) or risk reduction benefit	Develop list for improvement	4 th quarter 2013	NB		✓		
6.2.3	Participate in the National Water & Wastewater Benchmarking Initiative	Active membership in program; attendance at seminars and forum	2013-14 data cycle	NB		✓		

Goal 6.3- Review and update bylaws

6.3.1	Inventory W/WW bylaws and prioritize list for review - identify & assign primary or lead on review	Completed, prioritized list	By Q1 2014	DB		✓		
6.3.2	Complete updates and approvals for amended bylaws	Revised bylaws	By 2014	DB		✓		Several Bylaws amended

Goal 6.4- Expand quality management systems (e.g. ISO, DWQMS)

6.4.1	Migrate QMS focus to C65 WW and Distribution / Collection areas	New / additional elements and system in place	Start during 2014	DB		✓		Distribution & Collection included in QMS framework / internal auditing training completed
6.4.2	Migrate QMS for ISD usage across the department		Start During 2014	TC			✓	

Goal 6.5- Improve productivity and efficiencies from technological investments

6.5.1	Leverage SCADA system capability to generate process and operational efficiencies	Savings- by comparison to baseline monitoring	Start During 2014	BJ		✓		Planned improvements made at several facilities
6.5.2	Leverage "mobile" applications to generate efficiencies & prioritize implementation projects	Increased value for money	Start During 2014	PJ	✓			tied to AVL implementation & CMMS

Totals	66	16	36	9	
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WATER & WASTEWATER SERVICES

TACTICAL PLAN 2015 – 2018





WATER and WASTEWATER SERVICES TACTICAL PLAN 2015 – 2018

This copy belongs to: _____ If found, please contact:

City of Greater Sudbury

CGS WATER & WASTEWATER Services

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About this Document

Terminology: customer, community, citizen and other terms are used where appropriate to identify the client base.

This document has been designed with a user-friendly, resource workbook approach, rather than an academic tool. Point form, visuals and white space are ample, providing opportunity for jotting down notes for the next re-fresh. The document serves as a dynamic guide, planning and orientation tool. We are honoured to support the CGS WATER & WASTEWATER Services Division in its successful service to our community.

Thank you, [VisionarEase & associates](#)

Image Sources: all images are either owned by the City of Greater Sudbury/various public documents, VisionarEase Inc. (or in its public domain resource collection), and herein shared with CGS WATER and WASTEWATER SERVICES DIVISION for the purpose of its Mission.

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City of Greater Sudbury

WATER & WASTEWATER SERVICES

TACTICAL PLAN 2015 – 2018

Our Mission

The City of Greater Sudbury's Water & Wastewater Services Division is committed to providing its community with safe, reliable, and environmentally responsible municipal water and wastewater services, through a sustainable, cost effective approach.

Our Focus Areas

- Know customers' priorities and expectations
- Foster trust through open and transparent interactions with customers
- Engage the citizen, community and partner organizations for increased awareness, participation & support in operations and environmental sustainability

Customer

Employee

- Improve employee personal wellness, success and job satisfaction
- Ensure the safety of each employee in their work environment
- Recognize that the success of the team is dependent on the result of each employee's individual contribution to the team

Business

- Strive for 100% compliance with all regulations
- Complete work, with planned effectiveness, based on risk mitigation and resource optimization
- Operations reflect best practices, including environmental stewardship

Our Vision

A growing, world-class community bringing talent, technology and a great northern lifestyle together.

Our Values

As stewards of the community, we provide high quality service with a citizen focus. We manage the resources in our trust efficiently, responsibly and effectively. We encourage innovation and accepting risks. We maintain honest and open communication. We create a climate of trust and a collegial working environment.
We act today in the interests of tomorrow.

WATER & WASTEWATER SERVICES

Mission

The City of Greater Sudbury's
Water & Wastewater Services Division is committed to:

- Providing its community with safe, reliable, and environmentally responsible municipal water and wastewater services, through a sustainable, cost effective approach.

About our Mission

As residents of Northern Ontario, and in particular of a city which boasts over 300 lakes within its limits - we appreciate the abundance of water that surrounds us. Yet we may not often think about the services required for water and wastewater management and service delivery. We are proud of this fact, which points to the significant successes achieved through the work of our Water and Wastewater Services Division team. We highly value our community's trust and our ability to accomplish our Mission, "24/7 – 365".

Customers within the community served by the City of Greater Sudbury's Water & Wastewater Services Division expect access to safe, reliable and environmentally responsible municipal water and wastewater services. In providing these services, we are expected to do so through a sustainable, cost effective approach. Embedding these expectations within our Mission guides our decisions and each member of our team, in continuing to provide excellent services.

We look forward to continued success in the delivery of excellent water and wastewater services to our customers.

The Water / Wastewater Services Leadership Team

- Nick Benkovich, Director
- Paul Javor, Supervisor III – Water Treatment
- Mike Jensen, Supervisor III – Wastewater Treatment
- Cheryl Beam, Supervisor III - Distribution & Collection
- David Brouse, Supervisor III – Compliance & Operational Support
- Glenda Marcoux, Administrative Assistant
- Brad Johns, Facilities Engineer (Water)
- Akli Ben-Anteur, Projects Engineer (Wastewater)
- Wendi Mannerow, Water / Wastewater Engineer
- Brittany Hallam, Operations Coordinator
- Dion Dumontelle, Financial Coordinator
- Karen Matthies, Human Resources Coordinator



Back row, left to right: Dion Dumontelle, Nick Benkovich, Akli Ben-Anteur, David Brouse, Ron Milks, Paul Javor

Sitting, left to right: Brittany Hallam, Wendi Mannerow, Mike Jensen

Missing from above photo: Cheryl Beam, Glenda Marcoux, Brad Johns, Karen Matthies

Tactical Planning Context



The City of Greater Sudbury is dedicated to the supply and delivery of high quality potable water and to the effective collection and treatment of wastewater to meet the current and future needs of our community. As one of our most precious resources, we are committed to working with our residents and partners to protect water in all of its forms.

Delivering services in a dynamic municipal environment requires a core management tool which defines the key elements from which work plans can be successfully carried out. With the last two-year Tactical Plan term completed, the City of Greater Sudbury's Water & Wastewater Services Division Leadership Team regrouped to plan its approach to service delivery and programs for 2015-2018.



A client and solution-focused, Appreciative Inquiry¹ approach was used as the framework for the planning session. This positive yet realistic approach supported the Leadership Team in exploring the traditional SWOT (Successes Weaknesses Opportunities Threats) areas used in organizational planning, as well as Success Stories, Resources Required and Aspirations for the Future.

This Tactical Plan is one of a significant number of guiding documents with which services will be delivered over the coming years.² (Click image above to access all City of Greater Sudbury Plans) These documents include regulatory framework and legislation. The Leadership Team is charged with the alignment and articulation of pertinent regulations, directives and plans in order to best serve all customers within the community, in the light of current and emerging challenges. Data from these documents, division metrics, key indicator information as well as other decision support materials were used in the development of this plan. Fiscal allocations, constraints and opportunities will continue to provide framework for operational decisions.

A Mission review served as the opening exercise for the Leadership Team's work. Minor terminology improvements were made to the Mission, highlighting the importance of community.

¹ See: Case Western University <https://appreciativeinquiry.case.edu/intro/whatisai.cfm>

² <http://www.greatersudbury.ca/inside-city-hall/strategic-plans1/>

The Focus areas highlighted in the previous Tactical Plan, 2013 to 2015, were discussed and evaluated for currency. All six areas continue to have value, with most Tactical initiatives complete and/or now part of day-to-day operations. However, remaining or ongoing initiatives related to the six 2013-2015 Focus Areas are now seen as appropriate for embedding within the new plan's Tactics, day-to-day operational functions and/or work plans.³

Both the revised Mission and new Tactical Plan were addressed within the context of transformation occurring within the organization. In particular, the 2015-2018 plan is in alignment with the City of Greater Sudbury's priorities as recently stated:

"The overarching priorities for the organization over the coming years are:

1. To emphasize the customer and the employee experience of City Hall by reviewing each of our processes and operations to ensure citizen satisfaction and organizational sustainability,
2. To foster a culture of openness and transparency in all our operations by actively embracing and enacting the principles of open government,
3. To develop the leadership and strategic capacity of our organization by empowering our teams to engage in identifying opportunities and implementing solutions to meet the business goals of the organization, and
4. To measure progress made towards our goals and the quality of our service delivery by developing and executing business plans and implementing benchmarking programs"

The Water & Wastewater Master Plan drivers also align with our plan:

"The population is expected to grow from 166,300 in 2011 to 176,800 in 2036, or 6.3% over 25 years. As a result, the Water & Wastewater Master Plan is not driven by growth, but instead by safety, reliability, environmental responsibility, and cost effectiveness."

In other words, this is not the time for a massive change in direction but rather, a time to build on our strengths. This is a time to take action based on evidence and for the benefit of our Customer, our Employees and our Business.

Next: Tactical Plan At-a-Glance

Notes - When viewing the following table onscreen, click on "Focus" titles to quickly access detail sections in the document. For ease of reading, bullets are used in the table. Letters and/or numbers are used in the details section. Some Tactics apply to multiple Goals and are spread accordingly across the columns.

³ Business Strategies, Communications and Marketing, Employee and Team Development, Financial Sustainability, Health and Safety, Infrastructure Stability

Mission: The City of Greater Sudbury's Water & Wastewater Services Division is committed to providing its community with safe, reliable, and environmentally responsible municipal water and wastewater services, through a sustainable, cost effective approach.

Our Focus >	<u>EMPLOYEE</u>			<u>CUSTOMER</u>			<u>BUSINESS</u>		
Goals >	1. Improve employee personal wellness, success and job satisfaction	2. Ensure the safety of each employee in their work environment	3. Recognize that the success of the team is dependent on the result of each employee's individual contribution to the team	1. Know customers' priorities and expectations	2. Foster trust through open and transparent interactions with customers	3. Engage the citizen, community and partner organizations for increased awareness, participation & support in operations and environmental sustainability	1. Strive for 100% compliance with all regulations	2. Complete work, with planned effectiveness, based on risk mitigation and resource optimization	3. Operations reflect best practices, including environmental stewardship
Tactics >	Educate, encourage and promote wellness and healthy lifestyles by: <ul style="list-style-type: none"> Role modeling Integrating key health and wellness content in staff meetings, following planned topics Enhance engagement and motivation through acknowledgment including WISE 	Educate, encourage and promote safety by: <ul style="list-style-type: none"> Role modeling Integrating key safety content in staff meetings, following planned topics Implement mechanism for verification of contractor training on site 	Evaluate current competency-based training and further develop, ensuring consistency Develop mentorship approach	Explore and implement various effective mechanisms to obtain customer feedback regarding expectations, priorities and satisfaction	Implement formal Service Level documentation Utilize effective marketing materials, including online and traditional paper information tools Educate the customer: where we were > where we are now > where we plan on going. Share examples of past successes including prevention of disasters Work with council to develop standards and service protocols, response times and implications of decisions made	Develop an education, outreach and engagement strategy, including "Campaign" approach	Develop mechanism to Embed regulation-based practices in day to day work.	Explore potential new and increased revenue streams Implement cost reduction strategies Capital project(s): implement in current fiscal year	Research and determine available best practices. Select practical options for approval, roll-out and evaluation
	Improve communication to and from staff by: <ul style="list-style-type: none"> Increasing opportunities to contribute and participate in the decision process Increasing information shared with staff including: statistics, KPIs, trends, fiscal realities, and mechanisms for change and improvements Revise and utilize bi-annual employee survey, to further improve organizational culture 			Update and improve website information Develop embedded programs to increase customer access to information.			Develop mechanism to Embed all Plans*, documentation, and processes in day to day work, to ensure alignment and prevent omissions. Develop and implement technological solution(s) to support use of best practices, compliance, risk management matrix, quality assurance, and decision-making. Include NWWBI, and continue follow through. <small>*Ensure utilization and alignment of processes and services delivered, with all official Plans: WWW Financial Plan, Master Plan, Operational Plan, as well as Quality Management System, Official City Plan, Roads Plan, Environmental Management, Asset Management etc.</small>		

Decision Support

Successes – Challenges - Opportunities

As part of June 2015 tactical planning exercises, the Water & Wastewater Services Division Leadership Team identified key factors which support the expectation of success in the Focus, Goals and Tactics

areas chosen for 2015-2018. These factors are informed by data as well as feedback and dialogue with staff, our customers, the community and other stakeholders.



[The Biosolids Management Story - Click the image above to learn more.](#)

Success Factors:

The following were highlighted as examples of successes, emphasizing the team's skill, commitment and ability to complete projects and meet targets:

1. A sense of pride and respect within the organization and leadership
2. Awareness and alignment with industry trends
3. Backflow prevention By-law schedule for council soon
4. Energy and process efficiencies via better influent flow control
5. Commissioning process for new facilities and equipment
6. Improved Community awareness of many aspects of the Division's work
7. High level of transparency and Community Connection – new alert system via e-mail or online, reaching out to alert of wastewater spill, in place
8. Community spills response and mitigation plan
9. Completion of Biosolids project on budget and ahead of schedule winning two national awards
10. Council, city and staff leadership aware of need to meet Regulated requirements
11. Enhanced treatment at Wastewater Plant for Hauled Liquid waste and sludge
12. High level of success and completion of previous Tactical Plan
13. Consistently achieve high Ministry of Environment inspection scores
14. High prioritization of safety and health needs
15. History of success with emergency responses
16. Innovation and ideas for positive change are supported
17. Licensing of all employees in Distribution and Collection Section
18. Operational resiliency – fitness
19. Safe, reliable services currently in place

20. Source Protection Program implementation underway, protecting drinking water quality and quantity
21. High level of staff commitment and knowledge
22. Strong risk mitigation processes in place
23. Successes and lessons learned from the severe winter weather of 2015
24. Successful implementation of sewer use bylaw to better control pollution at source



Turning Challenges into Opportunities

The following were highlighted as areas of opportunity, with challenges acknowledged yet triggering ideas for positive change:

1. Need for and possibility of positive change in employee health and wellness, (Safety remains a priority, embedded, and should now be focused-on in tandem with health and wellness.)
2. Communication, internal and external: a dynamic area always requiring updating and improvement (What styles, methods, dialogue strategies etc., may best serve the customer, community and employees?)
3. Document alignment, control and management (seeking ideas and solutions for quality/control, risk management, improving consistency and effectiveness in this area and making data available for decision support.)

Challenge areas include those which many public and large organizations are now struggling with:

1. Constantly changing political environment
2. Economic constraints coupled with high customer expectations
3. Time – Workload balance
4. Ensuring that all programs and services are delivered with quality, consistency and accountability (common understanding, embedded, while still supporting organizational culture “Pride in our work”.)
5. Moving from paper based systems to more efficient technological solutions
6. Possibility of labor unrest is common in the public sector
7. Possibility of unforeseen, mandated changes in the field
8. Sustainability: operating costs - a significant challenge across the sector
9. The aging of municipal infrastructure is an issue province-wide
10. The impact of changing workforce demographics (What initiatives will support recruitment, retention and success for diverse employees of all ages, with varying personal health status realities?)



Emergency Preparedness

Within the Water & Wastewater Services sector, the possibility of unforeseen events such as inclement and even emergency-level weather events is a reality.

Preparedness for water-related emergencies is embedded in day to day operations, as well as within all plans for community and corporate emergency preparedness.

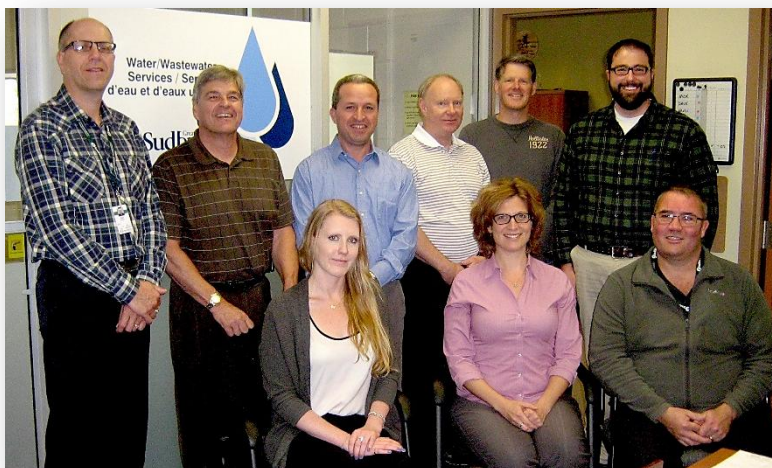
Resources Required

To succeed with any Tactical Plan, sourcing out the resources required is a standard function, yet increasingly challenging. The Leadership Team agreed that for 2015-2018, these include not only Financial Resources but also the following:

1. Ability to organizationally retool if required
2. Access to appropriate facilities, vehicles and equipment
3. Human resource capacity
4. Time
5. Training

Accountability

The Water and Wastewater Services Leadership Team is keenly aware of the requirement for a clear and common understanding of current and future needs in service and program delivery. To this end, the Leadership Team receives regular statistical data and reports from staff about all services and programs. This data supports decision-making on a daily basis, and will inform any adjustments to this Tactical Plan through to 2018.



The ongoing reporting dialogue with senior leaders of the City of Greater Sudbury organization, including City Council, as well as provincial ministries is highly valued and embedded in day-to-day operations.

The 2011 City of Greater Sudbury Financial Plan for Water and Wastewater Services highlights key “Congruence with suggested sustainability principles” elements “built in”. Click to see: [Alignment with Provincial Sustainability Principles, in Appendix section](#). Building further on this financial plan foundation, the Water & Wastewater Services Leadership Team will continue to make budget and operational decisions flowing from its Tactical Plan, in alignment with the Financial Plan. In addition to the Water/Wastewater 10 Year Financial Plan and Master Plan, decisions are made and actions taken in alignment with the City of Greater Sudbury Official Plan, Roads and other plans. The Operational Plan, Quality Management System and Asset Management Plan further support the team in providing leadership for customer service and program delivery.

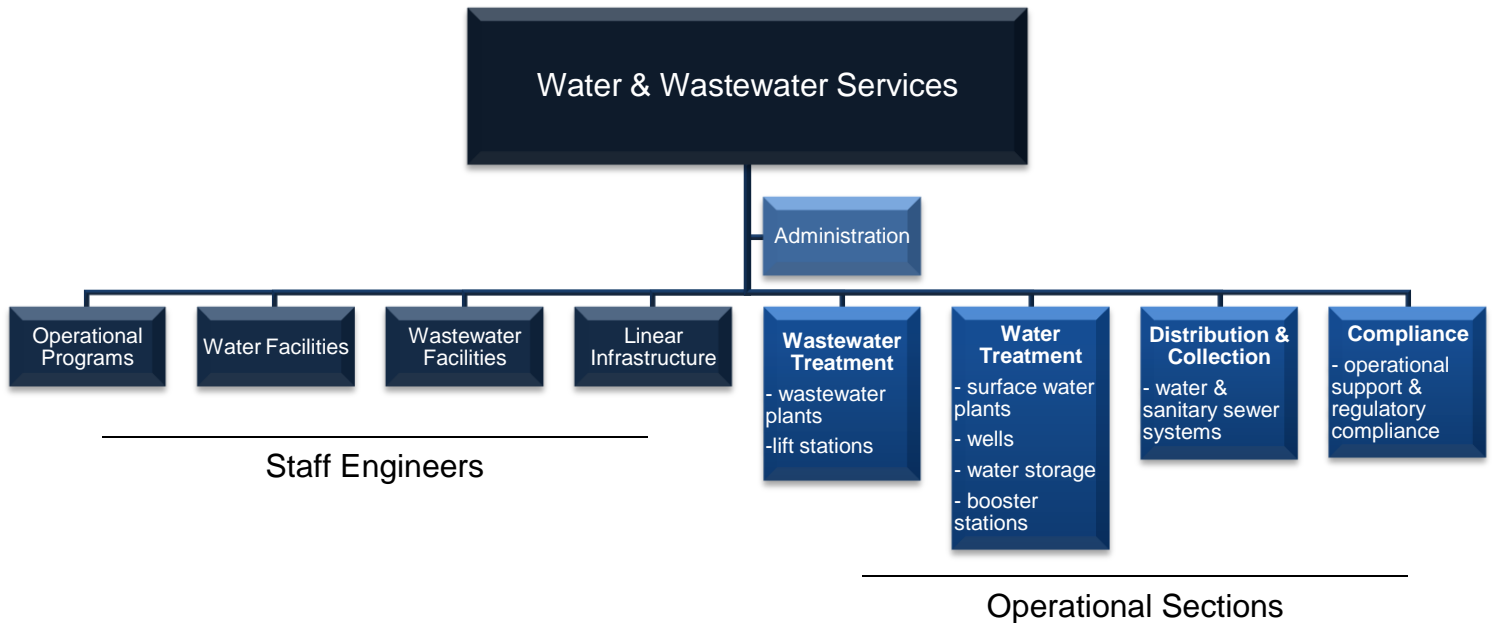
Measuring Success - As we look to the future, this Plan will be monitored for its success in addressing needs in the three focus areas of Employee, Customer and Business. Metrics are part of all services and programs’ day-to-day operations. Tracking methods include internal tools such as the Tactical Plan Report Card*, which has the capacity to present data in status terms for each Goal, Tactic and related project planned. *Results are categorized as “In Progress, Complete, and Carry Forward”, showing status at a glance. Action Steps, Target Completion Date and Project Lead are included in the documentation. A Comments field is included, supporting communication, clarity, and organizational memory access.

Staff skills in benchmarking and other strategies for measuring success, are supported by involvement with the National Water and Wastewater Benchmarking Initiative (NWWBI).



About Us

City of Greater Sudbury Water & Wastewater Services Division Organizational Structure



Programs and Services

Services Provided:



- Services provide an essential foundation for a healthy & prosperous community;
- Supply & distribute dependable, high quality drinking water
- Provide consistent, effective wastewater collection & treatment services
- Contribute to Fire Protection
- Environmental & lake water protection

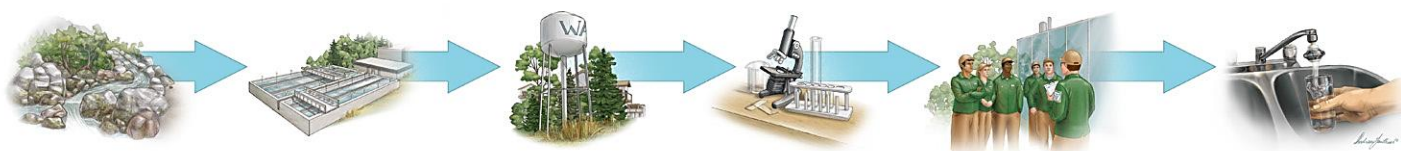
Stakeholder Relationships (listed alphabetically)

External:

- Customers
- Environment Canada
- First Nations- Whitefish Lake First Nations,
- Glencore
- Greater Sudbury Watershed Alliance
- Hauled Liquid Waste Haulers
- Industry Associations (OMWA, OWWA, WEAO, NEOWWC)
- Lake Stewardship Groups
- Ministry of Environment & Climate Change
- Ministry of Labour
- National Water & Wastewater Benchmarking Initiative (NWWBI)
- Neighbouring Municipalities – Markstay-Warren, Espanola, West Nipissing
- Nickel District Conservation Authority
- Ontario Water Wastewater Certification Office
- Regional Public Works Commissioners of Ontario
- Sudbury & District Health Unit
- Vale
- Walker Industries

Internal

- Administration
- Employees
- Local Union
- Mayor & Council
- Other CGS Departments & Divisions



Increasingly uppermost on the minds of customers and communities is Source Water Protection. Click the image above for more information for stakeholders.

Examples of how our Division maintains dialogue with customers, our key stakeholder group, include the [Emergency notification webpage](#).

Fast Facts

Did you know?

The City of Greater Sudbury's Water & Wastewater Services Division:

1. Was established through corporate re-organization in 2005.
2. Uses tactical strategic planning to align our work in meeting our organizational performance targets.
3. Operates & maintains 875 kilometers of watermain & 8200 valves within our water systems.
4. Operates and maintains 14 treatment facilities, 69 lift stations, 723 kilometers of sewer mains and 11,700 manholes within our sanitary systems
5. Oversees the biosolids management facility, which produces 30,000 tons of a Class A Biosolids product called N-Rich ® annually.
6. Ensures that municipally treated drinking water is available at four city filling stations.
7. Operates under a water/wastewater services financial plan, which the city is required by legislation to have in place.

Water System Facts

The City of Greater Sudbury Water System provides safe drinking water and fire protection to over 51,000 homes and businesses.

The City's water infrastructure includes:

- Six water systems
- Two surface water treatment plants
- Two fluoridation facilities
- 21 wells
- Nine pumping stations
- 10 treated water storage facilities
- 873 km of watermain

Total volume treated:

21,439,334 m³/year, or 147 m³/capita/year

Operation & maintenance cost:

\$31.84 million/year, or \$1.485/m³

Water System Facts (2012)

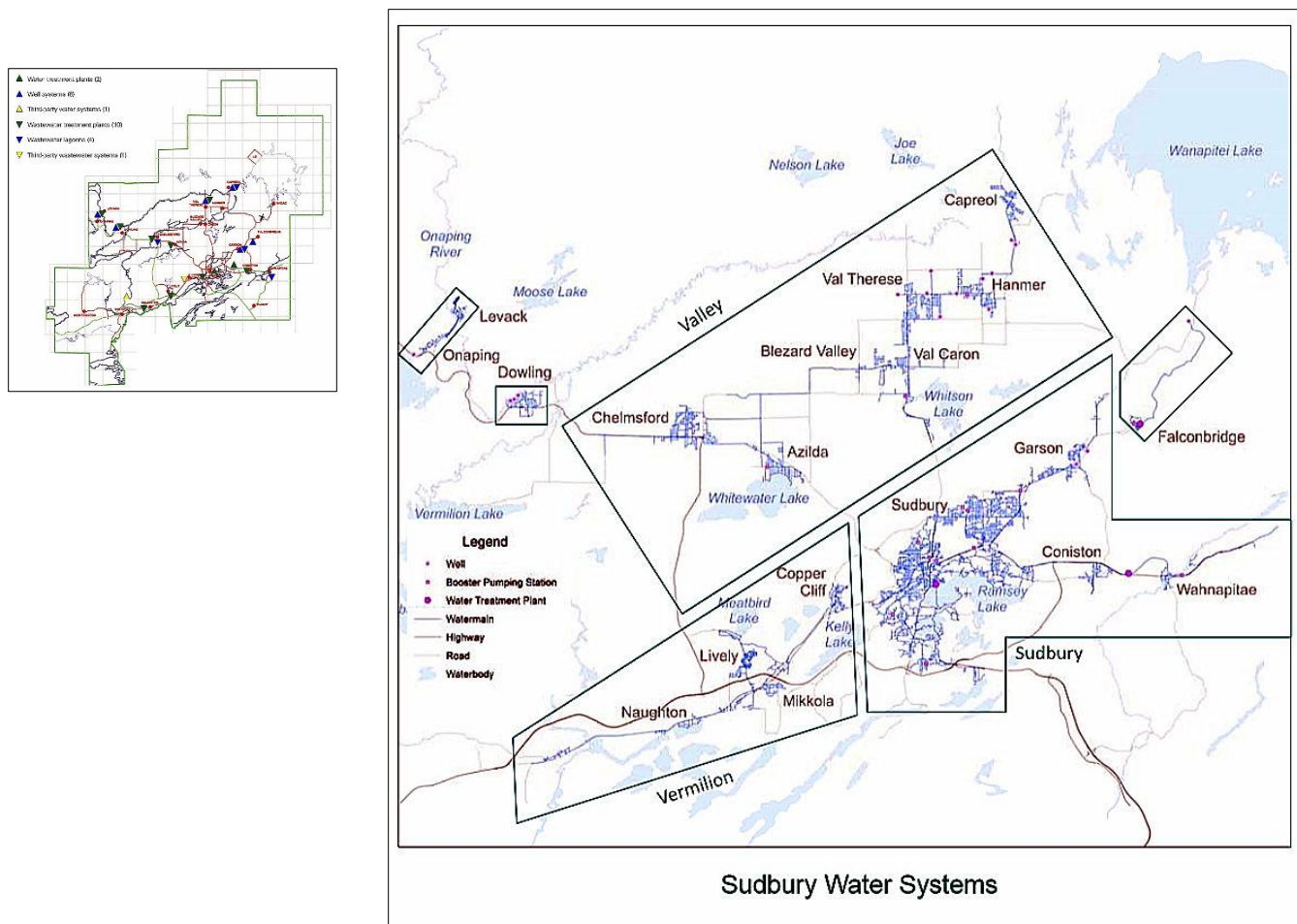
Source: [Water & Wastewater Master Plan](#)

City of Greater Sudbury's Water Systems & Geography

The City operates and maintains 2 water treatment plants, 24 wells, 14 booster stations, supplying 6 separate water supply systems and also 11 wastewater collection systems including 69 lift stations feeding 13 wastewater treatment facilities (plants or lagoons), which are distributed across Greater Sudbury. The number and distribution of water and wastewater systems reflects



both the geographical expanse of the City as well as operation of individual community systems prior to the formation of the Regional Municipality of Sudbury in 1972.⁴



Source: [Water & Wastewater Master Plan](#)

Also click smaller image, for an Overview of Municipal water and wastewater facilities, from the City of Greater Sudbury 10 year Financial Plan for Water and Wastewater Services, 2011.

Greater Sudbury's land area and population counts impact all planning with city programs. The map below highlights its comparison to Southern Ontario cities.

⁴ <http://www.greatersudbury.ca/sudburyen/assets/File/08%20-%20Water%20Wastewater%2010-year%20Financial%20Plan.pdf>

Greater Sudbury vs. Southern Ontario Cities

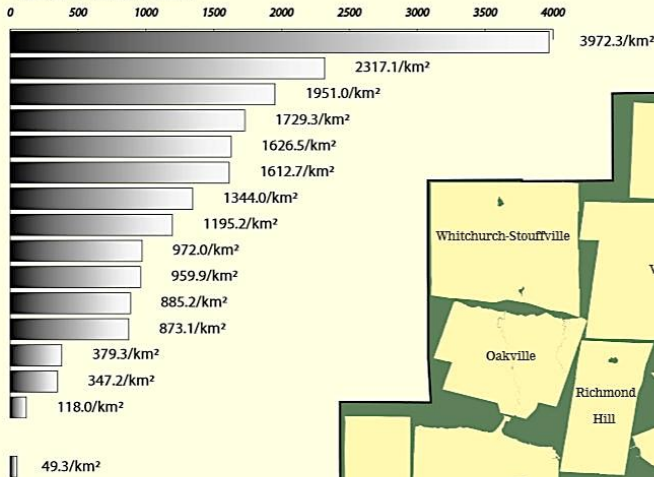
Land Area & Population Comparison

	Sq. Km	Pop. (2006)
Toronto	630.2	2,503,281
Mississauga	288.5	668,549
Newmarket	38.1	74,295
Orangeville	15.6	26,925
Brampton	266.7	433,806
Richmond Hill	100.9	162,704
Ajax	67.1	90,167
Oakville	138.6	165,613
Oshawa	145.7	141,590
Aurora	49.6	47,629
Burlington	185.7	164,415
Vaughan	273.6	238,866
Pickering	231.6	87,838
Grimsby	68.9	23,937
Whitchurch	206.7	24,390
Total (not incl. Sudbury)	2,707.5	4,854,005
Greater Sudbury	3,200.6	157,857

Greater Sudbury Infrastructure

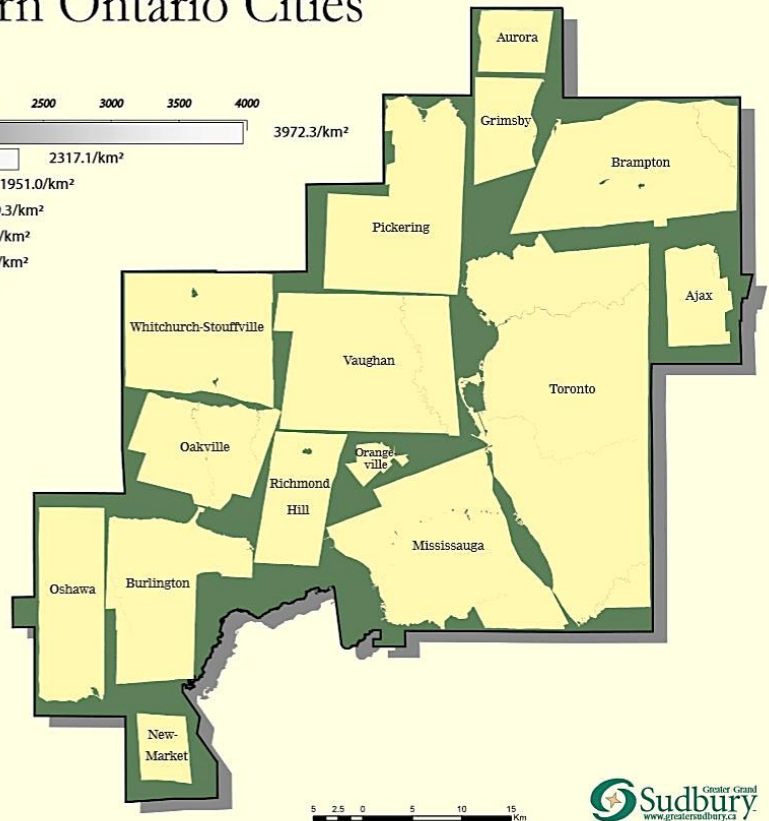
Road Lanes	3600+ km
Water System	886 km
Sanitary System	723 km
Arenas	14
Libraries	13
Lift Stations	75
Fire Stations	25
Lakes (over 10 ha.)	330
Licensed Daycares	107

Population Density Chart



Municipal Buildings	620
Ambulance Stations	11
Citizen Service Centres	7
Parks/Fields/Playgrounds	406

Southern Ontario Cities
 City of Greater Sudbury



Source: http://www.greatersudbury.ca/content/div_mayor/documents/sud_map_tabloid_june08.pdf



Snapshot Sudbury

Encompassing more than 3,600 sq. km. of land and water resources, Greater Sudbury is the largest municipality in Ontario based on total area. Recognized for its diversity of urban, rural and natural landscapes, the City possesses a valuable resource base that includes minerals, forestry and agriculture.

There are a number of settlements of varying size spread over a large geographic area, with the largest proportion of population and employment concentrated in the former City of Sudbury.

The historical development of Greater Sudbury is rooted in mining and the railways, both of which remain important to the local economy. Since the region was first settled in the late nineteenth century, both sectors have played an important role in shaping the existing settlement pattern.

The City of Greater Sudbury contains one of the largest mining industrial complexes in the world, as well as a growing mining and supply services sector that offers tremendous opportunities for export.

development. While the minerals sector remains the foundation of the local economy, the City has diversified significantly in recent years to become a major centre of financial and business services, health care and research, education, government and tourism. This transition reflects Greater Sudbury's function as the service hub for Northeastern Ontario, with a population of 550,000.

Customers served by the Water & Wastewater Services Division live in:

<ul style="list-style-type: none"> • Azilda • Blezard Valley • Capreol • Chelmsford • Coniston • Copper Cliff • Dowling • Falconbridge • Garson • Hanmer • Levack 	<ul style="list-style-type: none"> • Lively • Markstay-Warren • McRae Heights • Mikkola • Naughton • Onaping • Sudbury • Valley East Urban Area • Wahnapiatae • Whitefish Lake First Nation • Whitefish
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Changing Needs - Effective Response

Water consumption volumes are decreasing, with commercial consumption decreasing at a faster rate (11%) than residential consumption (7%). Residential customers account for two-thirds of water consumption in Greater Sudbury.⁵ In 2011, on an annual basis, our residential customer averaged a monthly consumption of 20 cubic meters of water.

We need to continue to respond with programming that is evolving and meets the specific needs of Stakeholders including customers, funders, and community partners. We must work together, with the best available data, to meet service objectives, achieve our Mission and meet the future - prepared.

Key Points: City of Greater Sudbury Official Plan

⁵ <http://www.greatersudbury.ca/sudburyen/assets/File/08%20-%20Water%20Wastewater%2010-year%20Financial%20Plan.pdf>

Our smaller communities, outside the city core, are fully serviced urban areas that offer a mix of employment and residential uses. The predominant housing form is low and medium density in nature. Town Centres in these Communities provide mostly local services to surrounding residential neighbourhoods and rural areas.

Like Canada as a whole, the population of Greater Sudbury is aging. There will be a substantial increase in the proportion of the population over the age of 54 during the planning period. Decreasing household sizes and changing housing preferences will continue to create demand for new housing units.

Over half of the total population of Greater Sudbury resides in the former City of Sudbury. The former City of Sudbury, as the location of three quarters of the jobs in the Greater City, is the main employment centre.

The challenges faced in addressing infrastructure needs are particularly relevant to Greater Sudbury. Our vast geographic area, combined with new obligations imposed under amalgamation and other provincial directives, have resulted in a necessarily complex network of infrastructure that needs to be maintained, upgraded, and in some situations, expanded. Given the number of dispersed Communities and Non-Urban Settlements, servicing costs are disproportionate to our population base compared to other cities in Ontario. Although there is no intention by the City to extend services to Rural Areas, development in these areas will continue to create pressure to expand municipal services.

Water Quality Model: A qualified consultant will be retained to develop and/or apply a lake-wide water quality model calibrated to Whitewater Lake and its unique characteristics. An appropriate model will provide the ability to assess the probable water quality and biological impacts of future development within the community of Azilda and on existing unserviced waterfront lots around the lake. The model shall also provide an accurate means of predicting the benefits of various measures (e.g., storm sewer improvements) in mitigating water quality degradation. Among other considerations, the model should consider what the tributaries contribute to Whitewater Lake, anticipate the growth of the community of Azilda to a population of 6,000, and anticipate the development of existing vacant lots around the lake.⁶

Tactical Plan Details

The following section includes:

- A point-form textual outline of the Tactical Plan's three Focus Areas, and the corresponding Goals and Tactics. Approaches and Projects are described where applicable in general terms, under each Tactic.
- Alignment and Priority of Project Tables
- Prioritized Project Summary Table

⁶ <http://www.greatersudbury.ca/sudburym/Assets/File/FINAL%20VERSION%20REVISED%20TO%20OP53%20-%20to%20SEPTEMBER%204%202014%20%28FINAL%29.pdf>

Focus: **EMPLOYEE****EMPLOYEE GOAL 1: Improve employee personal wellness, success and job Satisfaction**[SEE PAGE 38 FOR PROJECT TABLE](#)

We will achieve this goal through the following Tactics, approaches and operational Projects.

Tactic 1 - Educate, encourage and promote wellness and healthy lifestyles by:

A. Role modeling – Based on previous successes, initiatives such as the following will be included:

- Ongoing participation by W/WW employees in charitable events promoting a healthy, active lifestyle such as Sudbury Rocks, Big Bike, for Heart & Stroke,

Canadian Mental Health Walk, & Ice Bucket Challenge for MS.

B. Integrating key health and wellness content in staff meetings, following planned topics–
Approach & Projects may include:

- Joint venture with Health & Wellness from Human Resources to develop and deliver health and wellness content and integrate preventative physical worksite exercise programs into daily routines.

C. Enhancing engagement and motivation through acknowledgment, including WISE – Approach & Projects:

- Recognize internal leaders through the WISE program and other internal & external venues as appropriate.

Tactic 2 - Improve communication to and from staff by:

A. Increasing opportunities to contribute and participate in the decision process – Approach & Projects:

- Consistently disseminate information to employees fully & promptly;
- Use polling and other input & feedback mechanisms to obtain employee contributions and opinions when appropriate.

- B. Increasing information shared with staff including: statistics, KPIs, trends, fiscal realities, and mechanisms for change and improvements – Approach & Projects:
- Develop and utilize existing (NWWBI) routine key performance indicators to inform employees of progress and benchmark standards.
- C. Revising and utilizing bi-annual CGS employee survey to further improve organizational culture – Approach & Projects:
- Develop response strategy to remedy employee survey priority issues.

Note: Some Tactics apply to more than one Goal.

EMPLOYEE GOAL 2: Ensure the safety of each employee in their work environment[SEE PAGE 38 FOR PROJECT TABLE](#)

We will achieve this goal through the following Tactics, approaches and operational Projects.

Tactic 1. Educate, encourage and promote safety by:**A. Role modeling – Approach & Projects:**

- Maintaining and actively ‘living’ high standards of health & safety.

B. Integrating key safety content in staff meetings, following planned topics – Approach & Projects:

- Working collaboratively with CGS Health & Safety Department and other partner agencies to develop high standards of topical relevant safety content, for integration into routine Section safety meetings.

C. Implement mechanism for verification of contractor training on site - Approach & Projects:

- Follow through with NORCAT validation protocol to check all site staff for compliance with stated safety requirements.

Tactic 2 - Improve communication to and from staff by:**D. Increasing opportunities to contribute and participate in the decision process – Approach & Projects:**

- Consistently disseminate information to employees fully & promptly;
- Use polling and other input & feedback mechanisms to obtain employee contributions and opinions when appropriate.

E. Increasing information shared with staff including: statistics, KPIs, trends, fiscal realities, and mechanisms for change and improvements – Approach & Projects:

- Develop and utilize existing (NWWBI) routine key performance indicators to inform employees of progress and benchmark standards.

F. Revise and utilize bi-annual CGS employee survey to further improve organizational culture – Approach & Projects:

- Develop response strategy to remedy employee survey priority issues.

EMPLOYEE GOAL 3: Recognize that the success of the team is dependent on the result of each employee's individual contribution to the team

[SEE PAGE 38 FOR PROJECT TABLE](#)

We will achieve this goal through the following Tactics, approaches and operational Projects.

Tactic 1. Evaluate current competency-based training and further develop, ensuring Consistency – Approach & Projects:

- Further refine system of competency based training and develop maintenance protocols as well as mechanisms for continuous improvement.

Tactic 2. Develop mentorship approach – Approach & Projects:

- Develop a formal program for seasoned employees to actively mentor inexperienced employees.

Tactic 3 - Improve communication to and from staff by:

A. Increasing opportunities to contribute and participate in the decision process – Approach & Projects:

- Consistently disseminate information to employees fully & promptly;
- Use polling and other input & feedback mechanisms to obtain employee contributions and opinions when appropriate.

B. Increasing information shared with staff including: statistics, KPIs, trends, fiscal realities, and mechanisms for change and improvements – Approach & Projects:

- Develop and utilize existing (NWWBI) routine key performance indicators to inform employees of progress and benchmark standards.

C. Revise and utilize bi-annual CGS employee survey to further improve organizational culture – Approach & Projects:

- Develop response strategy to remedy employee survey priority issues.



Focus: **CUSTOMER**



CUSTOMER GOAL 1: Know customers' priorities and expectations

[SEE PAGE 39 FOR PROJECT TABLE](#)

We will achieve this goal through the following Tactics, approaches and operational Projects.

Tactic 1. Explore and implement various effective mechanisms to obtain customer feedback regarding expectations, priorities and satisfaction – Approach & Projects:

A. Collaborate with internal partners such as Corporate Communications and Earthcare Sudbury to seek out and refine customer feedback mechanisms.

B. Develop program to analyse feedback for improvement opportunities and redesign work flow and processes to take advantage of opportunities.

Tactic 2. Update and improve website information – Approach & Projects:

- Seek out input on opportunities and develop improved content to address stakeholder requirements and preferences.

Tactic 3. Develop embedded programs to increase customer access to information – Approach & Projects:

- Improve data management to move from data collection & warehousing centric focus, to obtaining value added data opportunities and more fully accrue organizational benefits from data.

Note: Some Tactics apply to more than one Goal.

CUSTOMER GOAL 2: **Foster trust through open and transparent interactions with customers**

[SEE PAGE 39 FOR PROJECT TABLE](#)

We will achieve this goal through the following Tactics, approaches and operational Projects.

Tactic 1. **Implement formal Service Level documentation** – Approach & Projects:

- A. Develop suite of Council approved service standards for W/WW business processes involving customer interactions. Document & publish the standards.
- B. Provide documented standards to internal stakeholders and train employees so they are able to consistently explain and routinely conform to the standards.
- C. Collaborate to prepare and distribute Education and Outreach materials for affected customers.

Tactic 2. **Utilize effective marketing materials, including online and traditional paper information tools** - Approach & Projects:

- A. Seek out opportunities to improve and streamline workflow through the use of improved technology.
- B. Follow through to ensure value added processes are achieved and re-tool and re-allocate resources to improve operational effectiveness.

Tactic 3. **Educate the customer: where we were > where we are now > where we plan on going. Share examples of past successes including prevention of disasters** - Approach & Projects:

Collaborate with Corporate Communications to develop education materials on key topics and processes;

- A. Develop materials to help customers understand key drivers and ways that they can contribute to lower rates and improved services (inflow / infiltration reduction, backflow, responsible use of wastewater systems)
- B. Seek out opportunities to highlight successful projects and program statistics (i.e. source control, drinking water source protection, spills, HLW/Sludge diversion from environment)



Tactic 4. Work with council to develop standards and service protocols, response times and implications of decisions made

Tactic 5. Update and improve website information – Approach & Projects:

- Seek out input on opportunities and develop improved content to address stakeholder requirements and preferences.

Tactic 6. Develop embedded programs to increase customer access to information – Approach & Projects:

- Improve data management to move from data collection & warehousing centric focus, to obtaining value added data opportunities and more fully accrue organizational benefits from data.

CUSTOMER GOAL 3: Engage the citizen, community and partner organizations for increased awareness, participation & support in operations and environmental sustainability

[SEE PAGE 39 FOR PROJECT TABLE](#)

We will achieve this goal through the following Tactics, approaches and operational Projects.

Tactic 1. Develop an education, outreach and engagement strategy, including “Campaign” approach

Tactic 2. Educate the customer: where we were > where we are now > where we plan on going. Share examples of past successes including prevention of disasters

Tactic 3. Work with council to develop standards and service protocols, response times and implications of decisions made

Tactic 4. Update and improve website information – Approach & Projects:

- Seek out input on opportunities and develop improved content to address stakeholder requirements and preferences.
-

Tactic 5. Develop embedded programs to increase customer access to information – Approach & Projects:

- Improve data management to move from data collection & warehousing centric focus, to obtaining value added data opportunities and more fully accrue organizational benefits from data.

Focus: **BUSINESS**

BUSINESS GOAL 1: Strive for 100% compliance with all regulations

[SEE PAGE 40 FOR PROJECT TABLE](#)



We will achieve this goal through the following Tactics, approaches and operational Projects.

Tactic 1 - Develop mechanism to validate existing compliance programs and refine system of embedding regulation-based practices in day to day work – Approach & Projects:

- Strengthen compliance programs and protocols as well as mechanisms for continuous improvement.

Tactic 2 - Develop mechanism to Embed all Plans, documentation, and processes in day to day work, to ensure alignment and prevent omissions – Approach & Projects:

- Ensure utilization and alignment of processes and services delivered, with all official Plans: WWW Financial Plan, Master Plan, Operational Plan, as well as Quality Management System, Official City Plan, Roads Plan, Environmental Management, Asset Management etc.

Tactic 3 - Develop and implement technological solution(s) to support use of best practices, compliance, risk management matrix, quality assurance, and decision-making. Include NWWBI, and continue follow through – Approach & Projects

- Explore automated data management and business intelligence tools and solutions

Note: Some Tactics may apply to more than one Goal.

BUSINESS GOAL 2: Complete work, with planned effectiveness, based on risk mitigation and resource optimization

[SEE PAGE 40 FOR PROJECT TABLE](#)

We will achieve this goal through the following Tactics, approaches and operational Projects.

Tactic 1 - Explore potential new and increased revenue streams - Approach & Projects:

- A. Continue to explore opportunities to develop customer base and revenue capture from new value added customer services such as Hauled Liquid Waste, Sludge Receiving, and other similar initiatives.
- B. Explore grant and rebate opportunities through participation in programs such as the electrical Demand Reduction Program.

Tactic 2 - Implement cost reduction and containment strategies - Approach & Projects:

- A. Focus on reducing cost of inputs into treatment processes such as chemicals and energy by exploring optimization opportunities;
- B. Review opportunities to use new technologies that can help to reduce costs;
- C. Explore opportunities to streamline work flow to control costs of services.

Tactic 3 - Capital project(s): implement in current fiscal year - Approach & Projects:

- Collaborate with internal stakeholders to explore ways to ensure that Capital funding is expended in the year expected

Tactic 4 - Develop mechanism to Embed all Plans, documentation, and processes in day to day work, to ensure alignment and prevent omissions

Tactic 5 - Develop and implement technological solution(s) to support use of best practices, compliance, risk management matrix, quality assurance, and decision-making. Include NWWBI, and continue follow through - Approach & Projects:

- Explore automated data management and business intelligence tools and solutions

BUSINESS GOAL 3: **Operations reflect best practices, including environmental stewardship**



[SEE PAGE 40 FOR PROJECT TABLE](#)

We will achieve this goal through the following Tactics, approaches and operational Projects.

Tactic 1 - Research and determine available best practices. Select practical options for approval, roll-out and evaluation

Tactic 2 - Develop mechanism to Embed all Plans, documentation, and processes in day to day work, to ensure alignment and prevent omissions

Tactic 3 - Develop and implement technological solution(s) to support use of best practices, compliance, risk management matrix, quality assurance, and decision-making. Include NWWBI, and continue follow through - Approach & Projects:

- Explore automated data management and business intelligence tools and solutions

Alignment and Priority of Project Tables

PROJECT Alignment with Tactical Plan: Employee Focus

Focus >	EMPLOYEE		
Goals >	1. Improve employee personal wellness, success and job satisfaction	2. Ensure the safety of each employee in their work environment	3. Recognize that the success of the team is dependant the result of each employee's individual contribution to the team
Actions >	High Priority Projects		
	Seeking improvements to employee physical fitness (3)	Implementation of Health, Safety and Wellness programs across the division (1)	
	Follow up on priorities from corporate employee survey (4)		
	Take a leadership role as an example through support for active living events & opportunities (18)	Development of wellness content for tailgates & safety meetings(19)	Use talent management systems to identify & groom employees (17)
			Give annual evaluations with feed back from employees as first step. (21)
	Medium Priority Projects		
			Recognize those that go above and beyond regular duties by issuing WISE awards as appropriate/occasion arises. (24)
	Low Priority Projects (nil at this time)		
The numbers in brackets () beside each of the projects reflect the overall priority of the project, out of a Total of 34 Projects.			
Click to go back to narrative.			

PROJECT Alignment with Tactical Plan: Customer Focus

Focus >	CUSTOMER		
Goals >	1. Know customers priorities and expectations	2. Foster trust through open and transparent interactions with customers	3. Engage the citizen , community and partner organizations for increased awareness, participation & support in operations and environmental sustainability.
Actions >	High Priority Projects		
	Implementation of Community Engagement program - Develop improved education & outreach information, education and outreach program at schools and community groups; offer facility tours at various times of the year; (2 & 22)		
	Use home shows, children's water festival to open dialogue with customers. (20)	Implement improved Sewer backup process(9)	
		Service level review & documented service standards, Create and implement response times for services such as water main breaks, and sewer back up response; set standard of service level(10)	
	Medium Priority Projects (nil at this time)		
	Low Priority Projects		
		ACR implementation, ACR can assist in identifying key areas for service improvement response time ex. Ex. Restoration response time , also opportunity to identify for areas needed for engagement and communication (30)	
	The numbers in brackets () beside each of the projects reflect the overall priority of the project, out of a Total of 34 Projects. Click to go back to narrative.		

PROJECT Alignment with Tactical Plan: Business Focus

Focus >	BUSINESS		
Goals >	1. Strive for 100% compliance with all regulations.	2. Complete work, with planned effectiveness, based on risk mitigation and resource optimization	3. Operations reflect best practices , including environmental stewardship
Actions >	High Priority Projects		
		Complete the automated meter reading business plan by the end of 2015. (6)	Data Management process improvement (5)
	Deliver Council Report & Implement Backflow / cross connection bylaw and program by end of 2015 (7)		Implement CGS community spills program (8)
		Develop a framework & execute a plan to use existing data to reduce non-revenue water in the Vermillion Distribution System (12)	Use of previous reports and data to prioritize Inflow; Infiltration Reduction target areas, water loss control / leakage reduction
		Scada master plan (15)	Develop a standard protocol & reporting standard for I&I studies (13)
		Implement Sewer & Water Line insurance program (16)	Presenting more operational kpis; preventive maintenance quarterly reporting by activity (14)
	Medium Priority Projects		
		W&WW Facility Security upgrades plan (23)	Continue re-tooling organizational structure to respond to changing task requirements (25)
			Consultant procedural manual (26)
			Improved Contract Services Oversight (27)
	Low Priority Projects		
		GIS Business Plan (28)	
		Facility design standards (29)	
			Energy Savings with new monitoring / billing (31)
		Continued Creation of new wos to ensure accountability (32)	
		Develop sludge treatment partnerships with neighbouring municipalities (33)	
		Cityworks implementation, , completion of hydraulic trailer project (34)	
	The numbers in brackets () beside each of the projects reflect the overall priority of the project, out of a Total of 34 Projects.		
	Click to go back to narrative.		

Prioritized Project Summary

The following Operational Tool is a “first column(s)” section of the actual Excel document. Please see full document for complete summary - Not shown here are the following columns:

- Estimated Project Budget
- What resources will help to complete this project?
- When can the project be implemented?
- Additional notes / thoughts in regards to this project

Priority		Project Description	Goals and Deliverables
High	1	Implementation of Health, Safety and Wellness programs across the organization	Commitment to pre-start health & safety processes, Commitment to providing high quality safety training, proper equipment updated/inspected, renewed and staff trained on same as required, Revamping monthly H and S meetings & Daily tailgate meetings content; and training program content.
High	2	Implementation of Community Engagement program	Improved web information availability & transparency, Participation in open houses / input sessions, increased public input opportunities, Review and update of handouts delivered to customers and develop a survey of customer input / satisfaction
High	3	Seeking improvements to employee physical fitness,	To improve employee wellness through employees improving levels of personal physical fitness
High	4	Follow up on priorities from corporate employee survey	Complete a Divisional response to the latest CGS Corporate Employee Survey and communicate the response to employees.
High	5	Data Management process improvement	Update data management practices to eliminate dual entry and other low value tasks and provide improved reporting capability to support decision making.
High	6	Complete the automated meter reading business plan by the end of 2015.	The introduction of "smart water meters" will provide a record of how much water is consumed by an account and then wireless transmit that information to computer systems at CGS. The new system will save the CGS annual operating costs recovered from the elimination of staff currently required to manually read the water meters and an expected savings from lost revenue due to unregistered water consumption.
High	7	Deliver Council Report & Implement Backflow / cross connection bylaw and program by end of 2015	Introduction of backflow prevention by-law will address issues which require immediate attention in order to protect our drinking water from contamination. ICI customers will be required to install and maintain the backflow devices - responsibility will be placed on the user to comply with the by-law ensuring safe and clean drinking water

Priority		Project Description	Goals and Deliverables
High	8	Implement CGS community spills program	To ensure prompt and efficient response to minor, moderate and large spills within the City of Greater Sudbury boundaries and enabling credible key stakeholders to perform tasks to protect our environment
High	9	Implement improved Sewer backup process,	New contract, new process, corporate communications materials, reimbursement policy
High	10	Service level review & documented service standards, Create and implement response times for services such as water main breaks, and sewer back up response; set standard of service level	1) Input session with council to find out what service levels they would like to see 2) Public input session to find out what service levels the public would like to see (i.e. sewer backup response time, hydrant painting, watermain break, curb box raise/lower, water on/off) 3) Report that matches budget and human resources to service level (cost to provide that service level and if it's an increase or decrease from current practice) 4) Council meeting to present report and give options for implementation discussing funding changes phase in and any required human resources change phase in 5) Project implementation plan after council endorsement of service standards and phase in timelines 6) Make changes to work order systems to align service standards with maintenance schedule
High	11	Use of previous reports and data to prioritize Inflow & Infiltration Reduction target areas, water loss control / leakage reduction	"Develop/document procedures for collecting, analyzing, and establishing project recommendations for Capital work."
High	12	Develop a framework & execute a plan to use existing data to reduce non-revenue water in the Vermillion Distribution System	"Determine data gaps/requirements and recommend studies that need to be undertaken to identify sources of non-revenue water in the Vermillion Distribution System."
High	13	Develop a standard protocol & reporting standard for I&I studies	Develop and document a standard framework for I & I Studies which will produce more efficient and better tracked I&I reductions throughout the City.
High	14	Presenting more operational kpis; preventive maintenance quarterly reporting by activity	1) creating standard reports 2) identifying what information is most meaningful to measure 3) identifying what information is most meaningful to present to all of our employees 4) determining how to phase in presentation of information to entire division so that it is not overwhelming setting priorities for what PM activities are going to be reported on in the beginning and what can wait until later

Priority		Project Description	Goals and Deliverables
High	15	Scada master plan	SCADA Master Plan - address immediate needs, short-term goals and long-range objectives of all users of systems, data and information provided by the SCADA and Instrumentation & Control systems. Clearly and effectively present a long-term vision for leveraging a SCADA, Controls & Instrumentation system for effective and efficient system-wide operation; Identify potential of human resource re-allocation resulting from implementation of Master Plan recommendations. Address immediate concerns and issues in the control systems; Review the multitude of system configuration, architectures and communication options available. Develop business cases for the integration of SCADA with other systems. Make recommendations on how the system can or should be changed to improve data collection, storage and reporting; Make recommendations regarding the use of, types of, and potential of implementing Dash Board Reporting to the various levels of end-users; Can strategically plan implementation of recommendations as, if possible, part of a larger capital project. The cost through existing data collection efforts can be reduced by automation of data collection.
High	16	Implement Sewer & Water Line insurance program	Tender/RFP council endorsement/selection of their preferred option new option to present to the community
High	17	Use talent management systems to identify & groom employees	Use the CGS talent management framework to improve operational resiliency across the Division.
High	18	Take a leadership role as an example through support for active living events & opportunities	Continue to support & enhance participation in active living events & wellness initiatives such as Sudbury Rocks (diabetes), Big Bike for Heart & Stroke, Mental Health Walk, etc
High	19	Development of wellness content for tailgates & safety meetings	Wellness related content to promote employee wellness & healthy lifestyle choices.
High	20	Use home shows, children's water festival to open dialogue with customers.	Education and outreach program to get message out to younger residents of the City about how water is produced and how important it is to protect our City resources.
High	21	Give annual evaluations with feed back from employee's as first step.	Follow through with the completion of annual evaluations and continuously improve process.

Priority		Project Description	Goals and Deliverables
High	22	Develop improved education & outreach information, education and outreach program at schools and community groups; offer facility tours at various times of the year;	Create a standard education and outreach program highlighting Water/Wastewater facilities; Source Protection; Source Control; and other common programs that we deal with that the Public should be aware of
Med	23	W&WW Facility Security upgrades plan	Deliverable - W&WW Facility Security Implementation Plan Goal - to work with CGS's Brendan Adair and a consultant to develop a facility security plan that coincides with the City's long term security goals. Presently, W&WW facilities use key and/or combination locks. Over the years, contractors and various others have obtained keys that allow them to have access to numerous facilities. The Plan will look at how we can implement technology similar to, if not the same as, what is presently in use corporately. We will ultimately know who comes and goes from each facility and increase the level of safety for our own staff. We will also be able to easily restrict access to others who may have been given temporary access to a facilities, once their need to access it has ended. A priority listing and approx. cost to implement this level of security will also be created.
Med	24	Recognize those that go above and beyond regular duties by issuing WISE awards as appropriate/occasion arises.	Employee Recognition
Med	25	Continue re-tooling organizational structure to respond to changing task requirements	Continue alignment efforts to ensure the internal organizational structure supports business requirements and balance with contracted external resources.
Med	26	Consultant procedural manual	The deliverable will be the Consultant Procedural Manual. The goal of developing the Manual is to create a common understanding of Water & Wastewater Services expectations of the tasks to be performed by the consulting engineers at each stage of water & wastewater facility projects.
Med	27	Improved contract services oversight	Forms for contractor auditing Filing system Audit schedule/frequency defined Tie into Norcat system

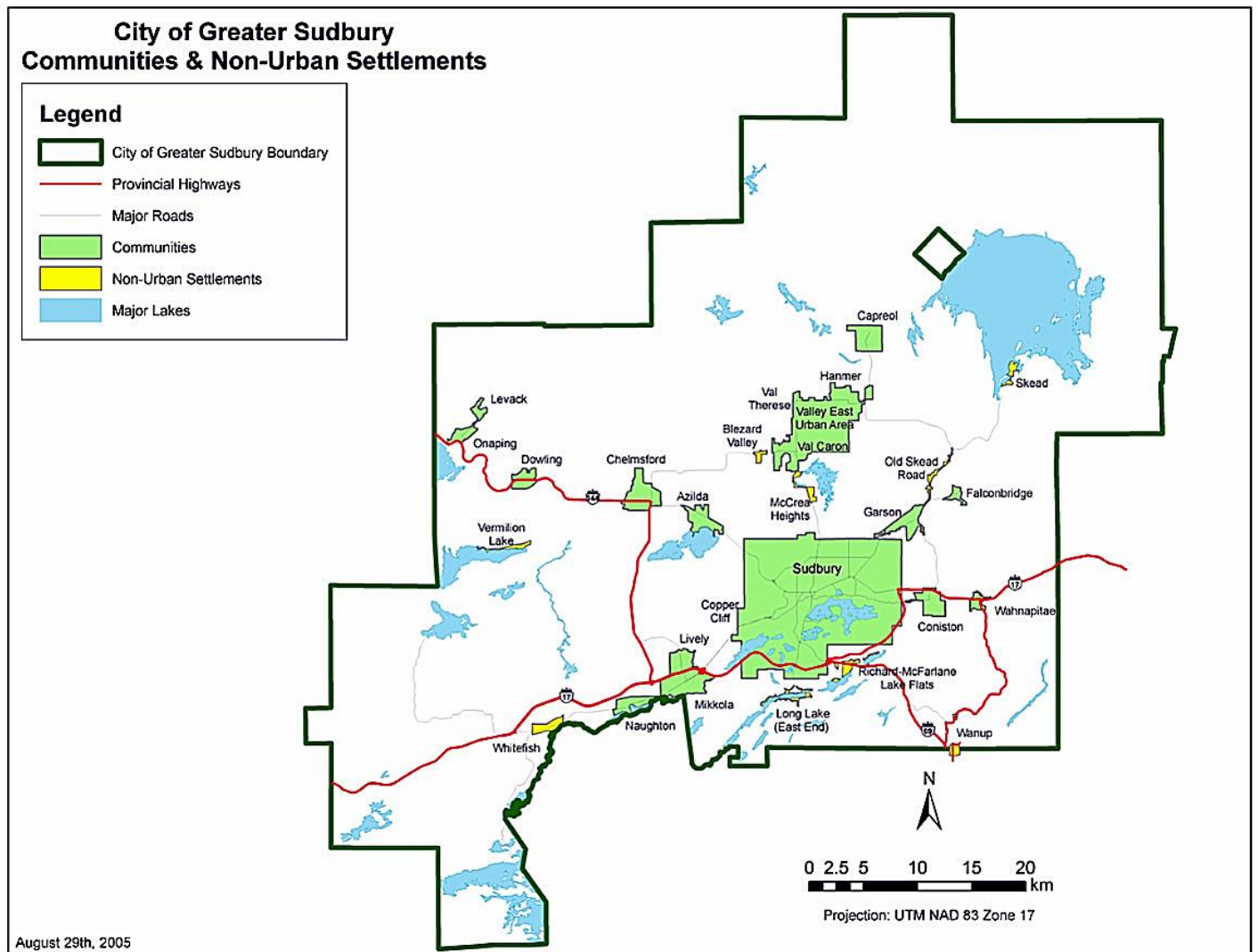
Priority		Project Description	Goals and Deliverables
Low	28	GIS Business Plan	Deliverable - W&WW GIS Business Plan Goals - to determine how GIS can evolve in W&WW Services as a strategic part of the decision-making process. - understanding the costs and benefits of the technology, along with opportunities for expansion and improvement based on industry best practices. The GIS Strategic Business Plan will examine the use of GIS technology, as it stands now and in the future, throughout W&WW Services and determine additional areas within our Operations that can be supported with GIS in the future.
Low	29	Facility design standards	The goal is that the W&WW Facilities Design Manual will be used by both Consulting Engineering firms and CGS staff involved in the implementation of water & wastewater facility capital works projects. The deliverable will be the W&WW Facilities Design Manual
Low	30	ACR implementation, ACR can assist in identifying key areas for service improvement response time ex. Ex. Restoration response time , also opportunity to identify for areas needed for engagement and communication	Complete
Low	31	Energy Savings with new monitoring / billing	Objectives not clear at this time, more information is required
Low	32	Continued Creation of new wos to ensure accountability	Objectives not clear at this time, more information is required
Low	33	Develop sludge treatment partnerships with neighbouring municipalities	Objectives not clear at this time, more information is required
Low	34	Cityworks implementation, completion of hydraulic trailer project	Objectives not clear at this time, more information is required

Tactical Plan NoteSheet Blank

Focus - Goal -	
Tactic	Notes & ideas for operationalizing.

Appendices

City of Greater Sudbury Map



[Click Map to see THE CITY OF GREATER SUDBURY OFFICIAL PLAN](#)

Questions for 2015-2018

The following sample questions should be explored during planning, re-fresh of Tactical Plan and on an ongoing basis:

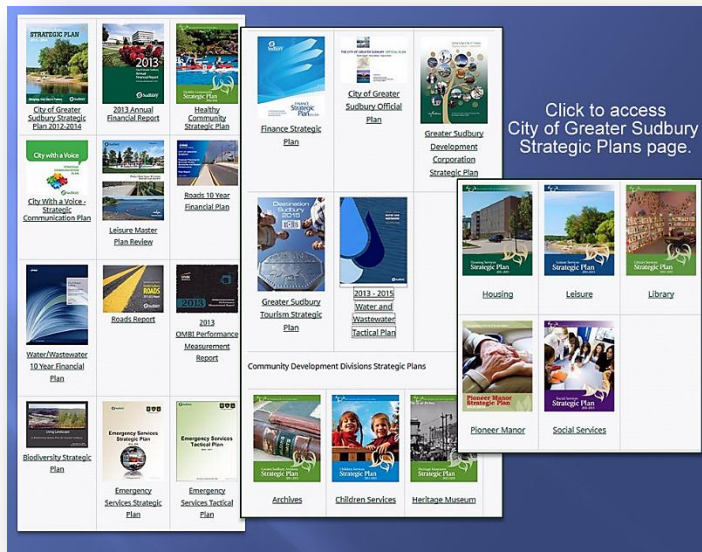
1. What are our results to date?
2. Who is our customer now?
3. What quality measures and initiatives need to be in place to drive positive outcomes for our customer?
4. How are trends perceived: opportunity or threat?
5. How can programs, services, organizations, or resources be redesigned and adjusted to accommodate changes and trends?
6. How can we best work with the issues of capacity, mandates and the needs of customer?
7. How can we engage the community partners other ministries, agencies or governments in supporting our Tactical Plan?
8. How can we ensure that changes have the most positive impact possible on customers?
9. How will we meet capital challenges?
10. What are our human resource requirements now and for each of the next four years?
11. What existing By-law articles, policies and programs need to be revised?
12. What key forces will affect our operations through the 2015-2018 period?
Example: collective agreements, staffing issues, organizational cultural issues, work and family balance, workforce demographics, technological requirements, expectations, intergovernmental relations, statutory obligations.
13. What knowledge, skills and abilities do we have or lack?
14. What technological challenges and opportunities exist with regards to moving strategies forward?
15. Will there be opportunity to improve infrastructure?

Alignment with Provincial Sustainability Principles

The table below indicates the degree of congruence between the City's Water Wastewater Financial Plan and the Ministry Guidelines.

Principle	How Addressed	Conclusion
1. Public engagement and transparency	<ul style="list-style-type: none"> Financial plan will be presented at public council meeting Public access to financial plan will be provided consistent with the Regulation 	Achieved
2. Integrated approach to planning	<ul style="list-style-type: none"> Financial plan extends beyond water services and includes wastewater services 	Achieved
3. Revenues should be used to meet water and wastewater needs	<ul style="list-style-type: none"> Financial model is full user pay with no excess cash flow 	Achieved
4. Life cycle planning with mid-course corrections is preferable	<ul style="list-style-type: none"> Planning is a long-term forecast based on the useful life of infrastructure assets 	Achieved
5. Asset management plan is a key input	<ul style="list-style-type: none"> The City is commencing asset management planning with consideration given to the useful life of assets 	Achieved
6. Sustainable level of revenue considers operating and capital requirements	<ul style="list-style-type: none"> Revenue is sufficient to fund all operating costs as well as ongoing capital asset replacement, growth and regulatory changes 	Achieved
7. Users pay for services they receive	<ul style="list-style-type: none"> No subsidization of water and wastewater services by non-users 	Achieved
8. Financial plans are living documents	<ul style="list-style-type: none"> City intends to regularly update the financial plan 	Achieved
9. Financial plans benefit from close collaboration	<ul style="list-style-type: none"> Preparation included involvement from infrastructure and finance groups, as well as external advisors 	Achieved

Resource Links



All City of Greater Sudbury Plans can be located by clicking image.

1. Greater Sudbury Source Protection Area Assessment Report:

http://www.greatersudbury.ca/sudburyen/assets/File/AR_all_Introduction_Sept2_2014.pdf

For Information Only

Water & Wastewater Emergency Response Plan Thawing Improvements

Presented To: Operations Committee

Presented: Monday, Dec 07, 2015

Report Date: Monday, Nov 23, 2015

Type: Correspondence for
Information Only

Recommendation

For Information Only

Background

The purpose of this report is to update the Committee on improvements to response procedures and processes related to thawing frozen services.

Water & Wastewater Services uses an Emergency Response Plan (ERP) to provide a framework to safely and effectively respond to emergencies and other significant events. The "all hazards" format of the Plan was designed to be flexible and applicable to a wide variety of emergencies. The Plan is intended to be a "living document" that will be improved over time based on experience.

The Plan was established to achieve the following objectives:

- To respond safely and within applicable guidelines (such as the Safe Drinking Water Act and the Employment Standards Act);
- To prevent injuries and save lives;
- To minimize the impact on customers;
- To protect City infrastructure; and,
- To protect the natural environment

2014-2015 - Significant Winter Weather Event:

During the winter of 2014-2015 CGS experienced a significant winter weather event that caused an unprecedented number of issues with frozen water services, water mains, and sewer services.

In accordance with the Continuous Improvement & Change procedures identified in the Plan, "after action" meetings were held shortly after return to normal operations and many staff who participated in the event response were debriefed. A list of potential communication, work flow, resource, and preparation improvements were noted on the recent experiences of responders. The debrief sessions yielded

Signed By

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significant value and since that time staff has been working to modify the Plan to benefit from the experience gained in 2015 and incorporate the suggested improvements.

Staff suggestions for improvements were reviewed and evaluated. Once accepted, suggestions were collated into an Appendix tailored to promote an effective response specifically tailored to a Frozen Services Emergency. The specific & unique response framework for a frozen water services event requires a modified version of both the Emergency Operations Centre and field staff roles & responsibilities.

Summary of Improvements Specific to Frozen Water Services Event:

Many "after action" suggestions were evaluated and several important specific enhancements to the ERP response framework include:

- **Work Flow:**

Business processes have been streamlined to improve the customer experience and modified to improve transparency. Customers will now access thawing services via a single call and customer agreements have been introduced on the initial visit to authorize any thawing work. Agreements will also be used to authorize the installation of temporary services (bib hose).

- **Equipment & Preparations:**

Additional hot water/steam thawing units have been procured and critical spare parts inventories have been replenished. The CGS electrical thawing unit was been fully refurbished including both the trailer and the electrical components. A substantial inventory of temporary service hose and fittings is being made ready.

- **Water Wastewater Services (Frobisher EOC):**

Additional phone lines and upgraded computer systems including additional monitors have been configured. Emergency response resource allocations have been enhanced and integrated into the Water Wastewater Services EOC organizational structure to promote improved information, oversight, and records availability.

- **Integrations with 311/Active Citizen Request System:**

Improvements will promote more accurate and timely tracking of service activity information for customers current to end of the calendar day so staff can track progress and predict wait times more accurately. A suite of preconfigured reports is now available to facilitate reporting of key performance indicators to customers, council, senior management, and other interested stakeholders.

- **Integrations with CityWorks Computerized Maintenance Management System:**

With the implementation of Cityworks, work flow improvements will be supported by work requests and work orders that will aid in deployment, monitoring, and facilitating improved information flow & reporting to customers and other stakeholders.

- **Communications:**

A number of new communication instruments have been developed both to assist in proactively averting potential frozen services and improving the understanding and transparency with customers who experience a frozen service issue.

Staff has completed the necessary transitional steps to implement these changes in time to take effect for the upcoming winter season. It is expected that the improvements will enhance the customer experience and mitigate the operational impacts should an extreme event reoccur.

Water/Water Emergency Response Plan (ERP) For A Frozen Water Services Event

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Introduction

This Appendix has been designed as supplement to the Water/Water Emergency Response Plan (ERP) to assist in the specific response required for a Frozen Water Services event.

History has shown that extreme frozen service events have occurred relatively infrequently and have been correlated to weather conditions combining an unusually wet fall (that saturates the ground) combined with / followed by stretches of extreme cold winter weather.

Planning

ANNUAL PREPARATIONS

Preplanning Requirements:

Each year cycle of preplanning should be conducted prior to the winter conditions to ensure the organization has completed the required proactive activities necessary to be ready for frozen services responses.

Equipment Storage & Maintenance:

The maintenance plan should be updated to include work orders to complete preparatory tasks during the off-season so all equipment & supplies necessary to conduct an effective response are located, inventoried and ready to go prior to the season.

Such tasks would include a review of the state of readiness of equipment such as the location & condition of the CGS' inventory of steam/hot water thawing machines, electrical thawing machine (including trailer), temporary service hoses & fittings, & peripherals.

Annual Planning Meeting:

A planning meeting should be held each November to confirm readiness for the upcoming thawing season while there remains ample time to correct any deficiencies prior to the onset of winter conditions.

The goals of this meeting should be to review & confirm that equipment, training, and other proactive actions are under way to prepare for the upcoming season. This agenda may include the following items:

- Review of W/WW Emergency Response Plan c/w refresher sessions for staff on ERP roles & responsibilities;
- Update on training for electrical employees relating to safe & effective operations of DBH, reading & interpreting as-built drawings and customer service;

- Status update on the MFW policy, list & mail out;
- Review / report on condition of operational state of readiness of thawing tendered contracted services;
- Review / report on condition of operational state of readiness of thawing equipment, temporary service hoses & fittings, forms etc;
- Discussion with 311 staff and review of ACR case types & system protocols;
- Confirmation of public communications strategy, materials and schedule for proactive PSA's

Meeting minutes of all preparations should be kept & circulated to all attendees.

W/WW Emergency Operations Centre

W/WW EOC Activation Trigger Criteria

In accordance with Section 2 (p2-3) the W/WW Emergency Response Plan criteria:

1. Should the response require resources beyond the scope of Section or personnel available, activate the Emergency Response Plan;

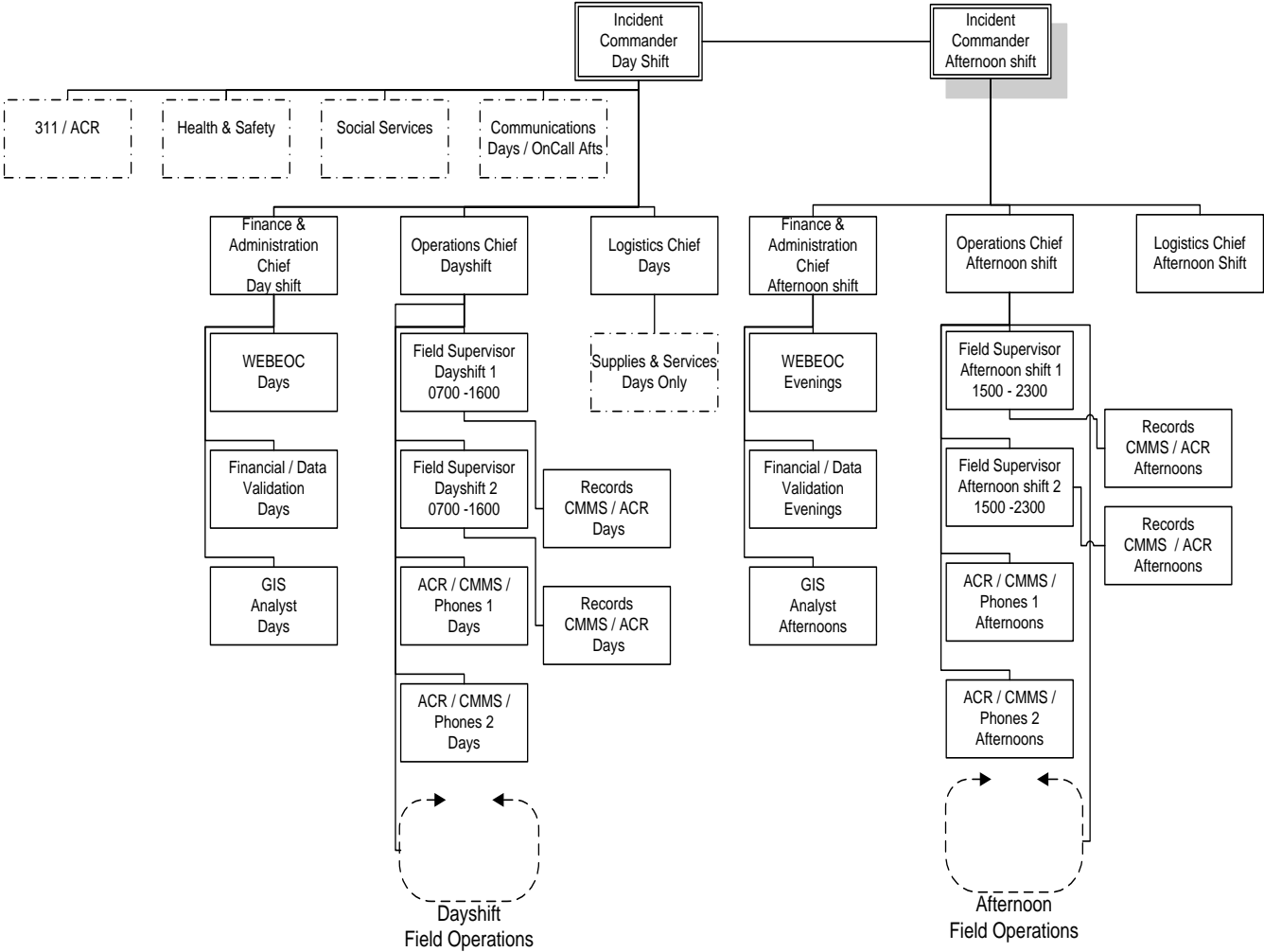
Further, Notification of the designated Emergency services Department contact in relation to the Corporate Early Notification Protocol. Such notifications should be considered for any incidents where the service EOC is activated as per the SOP WWS-GE-S008 – Reporting significant Incidents.

Organizational Structure

Due to the specific requirements of a significant frozen services event a modified version of the EOC & field roles & responsibilities is recommended to support an effective response framework. The recommended organizational structure is laid out in the Diagram below.

CGS Frozen Services Response Organization Structure Chart

CGS Frozen Services Response Organization Structure (v.07/08/2015)



Emergency Standard Operating Procedures

Procedures governing the operations at the EOC are found in Appendix A (Emergency SOP's) of the W/WW ERP. It is vital that these procedures are followed to ensure critical information is logged and available during and after the event.

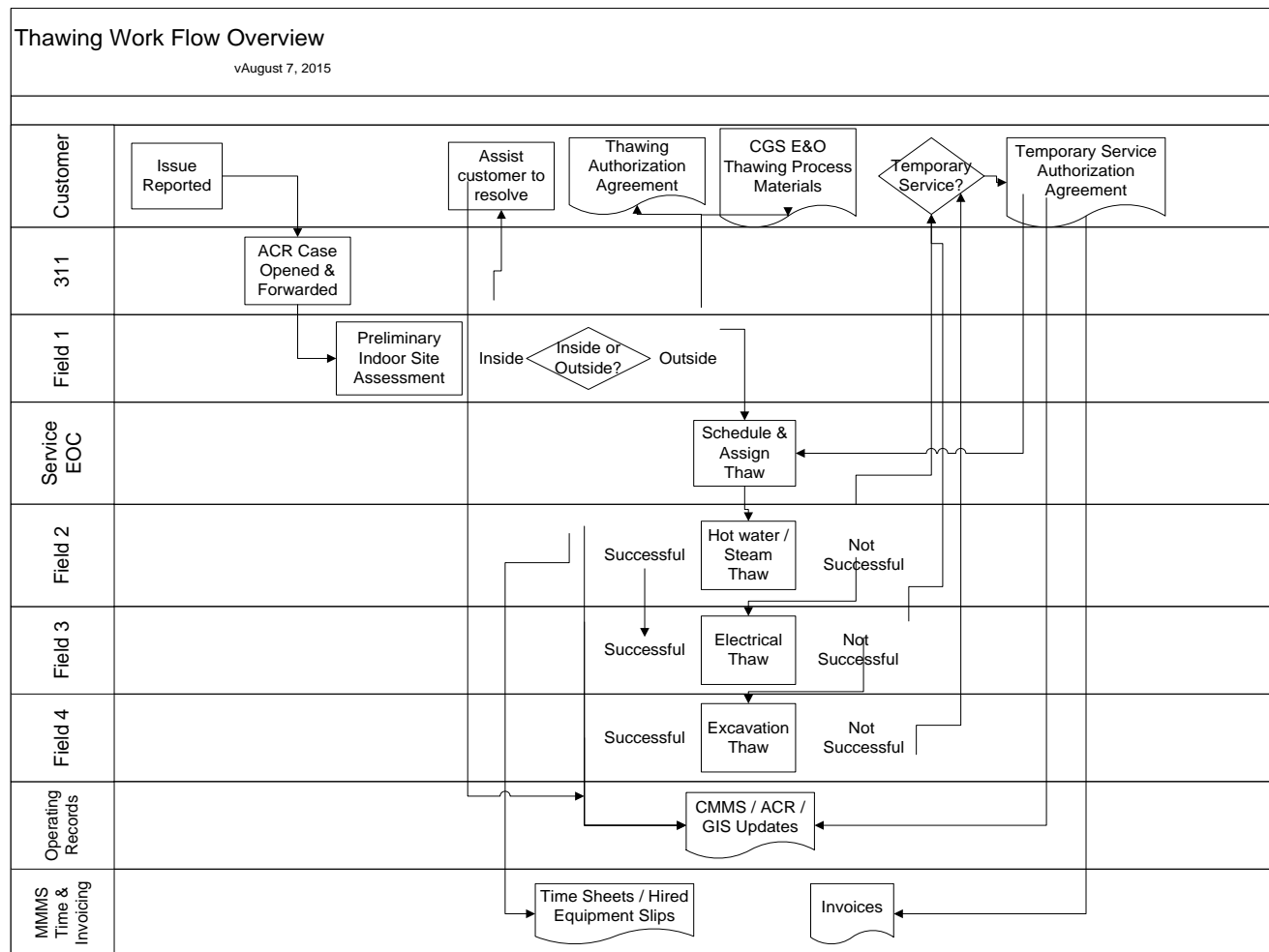
Role Guidance

Guidance for individuals with specific roles & responsibilities can be found in the ERP checklists covering the major expectations of their role in the response framework. These checklists are found in Appendix B of the W/WW ERP (Checklists)

Individuals should access and refer to these checklists and fulfill their roles accordingly.

Work Flow Diagram

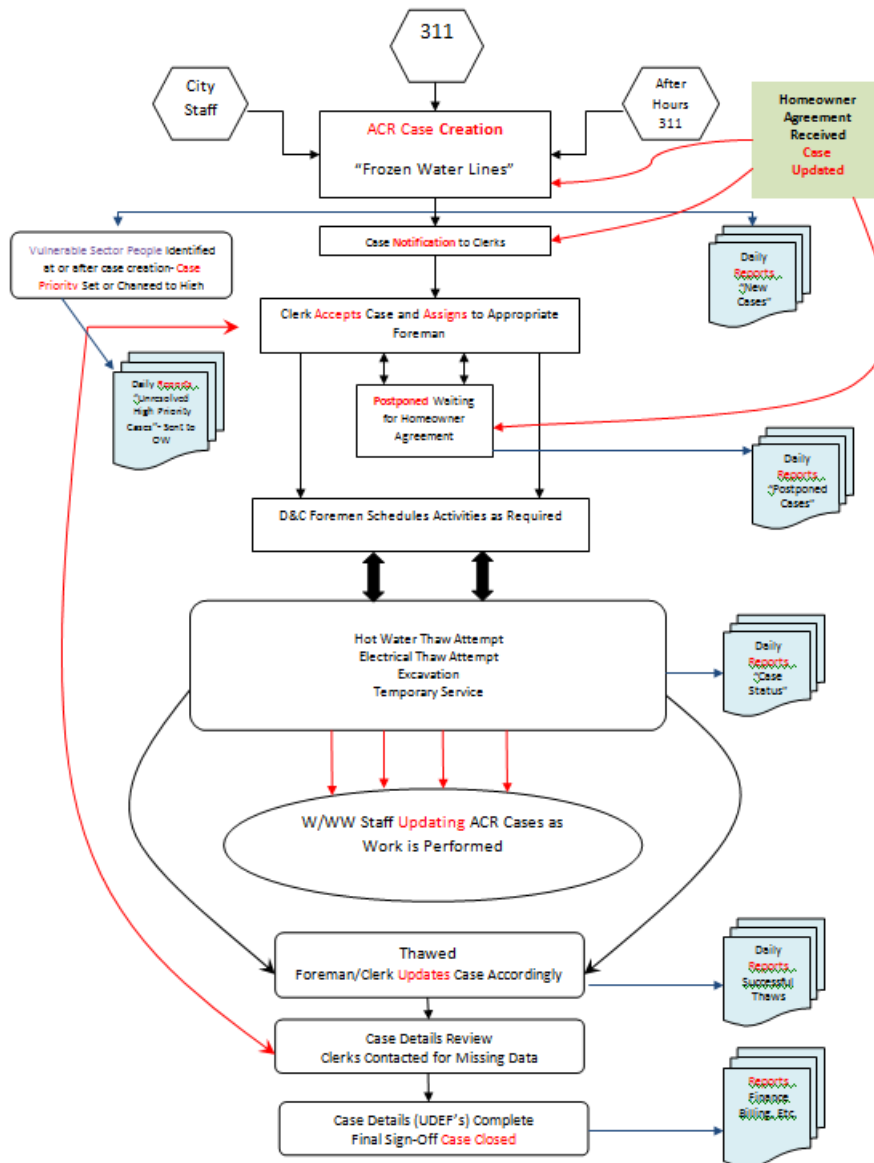
Due to the specific requirements of a significant frozen services event a specific work flow has been designed to streamline the customer experience as well as facilitate an effective response. The specific work flow is depicted in the diagram below:



Integrations with the Active Citizen Request System (ACR)

311 - ACR Frozen Water Lines Work Flow

ACR Frozen Water Lines Flow Chart



Frozen Water Lines Case Creation

Resident calls in 'No Water/Frozen Water' during business hours, 311 staff will submit a new case. Resident calls in 'No Water/Frozen Water' after business hours or on a weekend, Northern staff will submit a new case. W/WW staffs that become aware of a Frozen Water Line while in the field are responsible to submit a new case.

Homeowner Agreement Required

Irrespective of how the ACR case was created, whether the caller/resident is the tenant, homeowner(as listed on the tax roll) or family member of homeowner, they are advised that prior to any work commencing a homeowner agreement must be signed and received by the City'.

The agreement can be faxed, e-mailed, dropped off in person at Frobisher or the TDS-CSC or signed while staff is on site and will be attached, by the receiving party, to the existing ACR Frozen Water Lines case and update the case details reflecting receipt of agreement.

Case Notification/Acceptance

All EOC clerks assigned to assist the Operations Chief / Field Supervisors will receive an e-mail notification when a new case is created. The clerk will accept the case and then forward the case to the Supervisor responsible to oversee/schedule the work provided that the homeowner agreement has been received.

Case Postponement

The clerks are not to forward cases to the Supervisors if the homeowner agreement has not been received, instead they are to postpone the case with the reason code "Homeowner Agreement Required". In the event the resident calls back, 311 staff will be able to reiterate that the homeowner agreement has not yet been received and that no work can commence without it.










Case Assignment

Any new cases received that have the homeowner agreement attached can immediately be assigned through the EOC to the Supervisor responsible to oversee/schedule the work. The clerks will also be responsible to regularly check their postponed cases to verify which ones are in receipt of the homeowner agreement, these cases will then be forwarded to the Supervisors.

Case Updated Regularly While Work Performed

As the work is being performed, EOC clerical support staff will be responsible to update the case with all pertinent information. User Defined Fields, which are all reportable, are included in the Additional Case Information section of each case (see below). These fields should be updated by the end of each shift so that the resident and all pertinent City Staff are kept apprised of the progress. If there is a lag in the inputting of information, the daily reports will be inaccurate and 311 will not be able to provide residents with up to date information creating additional calls to the W/WW Department.

Additional Case Information

Homeowner Agreement Received:	<input type="text"/>	
Hot Water Thaw Attempt Date:	<input type="text"/>	
Hot Water Thaw Attempt Crew:	<input type="text"/>	
Hot Water Thaw Attempt Successful?:	<input type="radio"/> Yes <input type="radio"/> No	
Electrical Thaw Attempt Date:	<input type="text"/>	
Electrical Thaw Attempt Crew:	<input type="text"/>	
Electrical Thaw Attempt Successful?:	<input type="radio"/> Yes <input type="radio"/> No	
Excavation Thaw Attempt Date:	<input type="text"/>	
Excavation Thaw Attempt Crew:	<input type="text"/>	
Excavation Thaw Attempt Successful?:	<input type="radio"/> Yes <input type="radio"/> No	
Distance Service Thawed?:	<input type="text"/>	
Temporary Service Required:	<input type="radio"/> Yes <input type="radio"/> No	
Temporary Service Installed Date:	<input type="text"/>	
Temporary Service Installed Crew:	<input type="text"/>	
Donor START - Meter Reading:	<input type="text"/>	
START Date Donor:	<input type="text"/>	
Donor END - Meter Reading:	<input type="text"/>	
END Date Donor:	<input type="text"/>	
Donor Address:	<input type="text"/>	
Receiver START - Meter Reading:	<input type="text"/>	
START Date Receiver:	<input type="text"/>	
Receiver END - Meter Reading:	<input type="text"/>	
END Date Receiver:	<input type="text"/>	
Service Restored:	<input type="radio"/> Thawed - City <input type="radio"/> Thawed - Private <input type="radio"/> Owner Hired Private Contractor	

Successful Thaw

Upon service restoration the clerk will update the case by indicating whether the line was thawed on City or Private property. If the case is abandoned due to the resident hiring their own contractor, this is to be noted in the file and the case is to be closed.

Case Details Review

Designated EOC staff member(s) (see Financial / Data Validation role above) will be responsible to review all case data where service has been restored and ensure that all pertinent information is included in the case prior to closing it. They will advise the EOC clerks of any missing data and obtain it in a timely manner.

Final Signoff- Case Closed

The EOC staff member(s) responsible for ensuring that all of the required case details have been entered into the system will sign off on the case as being fully completed and close it in ACR.

Vulnerable Population Referrals

In some cases, field staff may encounter customers who may be unprepared or unable to provide water for consumption and / or sanitation purposes because of an infirmity, age or other circumstances or be in need of some special assistance that could have health related implications if left unaddressed. Such customers have been referred to as 'vulnerable'.

Should field staff identify a vulnerable customer or if a customer requests assistance of a non-operational nature, such customers should be referred through the eoc command structure as soon as practically possible to the designated cgs social services / ow contact person(s) so assistance can be arranged.

Vulnerable Sector People that are identified at any stage of a Frozen Water Line case will have their cases changed to "High Priority" in ACR. Daily ACR reports will then be made available to Ontario Works staff on all unresolved high priority cases. CGS Social Services / OW will be able to ascertain from the reports what stage each case is at and act accordingly.

Reporting on Event progress

Update reports will be tailored to the specific event however information should be readily available to support the development & release of daily reports of thawing related key performance indicators (KPI's), historical comparison information, and cumulative statistics.

ACR Reports

Provided that the case details are continually updated in a timely manner, the automatic reporting feature in ACR will produce accurate weekly, daily or hourly reports and distribute them via email to the appropriate staff. Automated reports can be modified as required. See attached flow chart for examples of reports to be run and distributed daily.

Integrations with the Cityworks computerized maintenance management system

When a resident calls 311 for low water pressure / no water a service request in ACR will be created and an investigation work order will be created in City Works.

The issue will be investigated (typically by a Trouble Investigator) and a determination will be made as to whether the frozen issue is inside the residence or outside.

If thawing is required the property owner will decide whether to have the work completed by their own contractor or request City involvement. If they decide to involve the City, the property owner must authorize the work by completing and signing a thawing agreement as noted above.

Once the Agreement is completed it should be appended to the work request for thawing to enable a work order to be made and provided to the Emergency Operations Centre for distribution to field crews. The EOC operations group will then create a thawing work order and close the Investigation work order in City Works, which will automatically update and close the ACR case.

Once the thawing work order is complete and closed in City Works a clerk will enter the pertinent information into the original ACR case by the end of business that day to ensure that 311 has current information and is equipped to provide informative updates to customers and accurate reports to track event activity.

Field Operations

Field operations should be consistently conducted in accordance with the city's applicable bylaws, policies, and standard operating procedures as outline in this appendix and the erp.

Hiring Contractors without Contracts in an Emergency

Purpose

In the event of a W/WW emergency additional contract resources that do not have an existing contract with W/WW may be required. This procedure will outline the how to hire these additional resources and reduce the risk to the City.

Background

Examples of additional contract resources may be hiring plumbers to thaw frozen pipes or hiring additional contractors to repair watermain breaks that do not have contracts with the City. Hiring these additional contractors without contracts opens the City to high levels of risk associated with health and safety, indemnification, WSIB and confidentiality for example.

The City has standard terms and conditions for all contracts, whether capital or service contract, additionally there are terms and conditions for Purchase Orders (PO) (included in Appendix A) that would cover the majority the City's risk. In the event of an emergency the City would not have to ask for quotes, we could contact additional contractors capable of completing the required work and ask them for rates. If we are agreeable with their proposed rates we could issue a PO and the contractor could begin working under the PO. In working under the PO the contractor is held to the terms and conditions of PO's. In addition we could add specific terms to the scope of work of the PO.

Procedure

1. Determine what additional contract resources are required beyond the established contracts in place.
2. Contact contractors able and qualified to complete the work to determine if they are available and interested.
3. If the contractor is interested and able to do the work, complete a scope of work and establish unit items for the contractor to provide rates for. A scope of work and unit items is included in Appendix B, current contract scopes could be utilized to develop scopes for emergency situations.

Note: The scope included in Appendix B is suitable for use in situations where additional contractors may be required to make buried infrastructure repairs. There are many items included in the scope; some can be crossed out if not applicable to the tasks.

4. Provide the contractor the scope of work and unit items to fill out their rates.
5. Once the contractor provides their rates provide the information to purchasing to have a PO created.

6. Issue the PO to the contractor; do not authorize the contractor to initiate any work until they have been issued the PO number. Agreeing to complete the work under the PO implies that they are working under the terms and conditions of the PO and the City has reduced their risk.
7. Direct the contractor to initiate work and supervise as required.
8. Payment of invoices are to be processed only if they reference the PO number, if there is no reference to the PO number return the invoice to the contractor to be corrected.
9. Report to council any work completed by contractors that did not follow a competitive process as described in the purchasing bylaw due to the nature of the emergency.

CGS Standard Terms & Conditions for POs (November 2014)

PURCHASE ORDER/STANDING OFFER STANDARD TERMS AND CONDITIONS

- 1) **APPLICATION OF TERMS AND CONDITIONS:** The Goods or Services specified on the Purchase Order are hereby purchased by the City of Greater Sudbury (the "City") subject to the terms and conditions (the "Terms") contained herein (the "Contract"). The provision of any Goods or Services hereunder by the Supplier shall constitute acceptance of the Purchase Order and Terms.
- 2) **PAYMENT AND INVOICING:** Unless stated otherwise, all amounts stated herein are in Canadian dollars and the terms of payment for all invoices are net 30 days. Invoices shall be mailed to: **City of Greater Sudbury – attention Accounts Payable, P.O. Box 5000, Station A, Sudbury, ON P3A 5P3**. Failure to indicate the Purchase Order number and any Contract number, where applicable, on invoices may result in the delay or non-payment of invoices.
- 3) **VARIATIONS/SUBSTITUTIONS:** There shall be no variation or substitution from the Purchase Order unless approved in writing by the City's Purchasing Agent or his or her authorized designates. The City shall not be liable for payment of any quantities in excess of those required in the Purchase Order.
- 4) **TIME OF THE ESSENCE:** The time of delivery, provision or completion of the Goods or Services shall be of the essence and any failure by the Supplier to deliver or provide the Goods or Services at, by or within the time specified shall entitle the City, at its sole discretion, to terminate the Purchase Order upon notice in writing effective immediately without any liability for doing so.
- 5) **TERMINATION FOR CONVENIENCE:** The City shall have the right, in its sole discretion and without any liability for doing so, to terminate or cancel all or part of the Purchase Order upon 30 days notice in writing for convenience at any time in relation to any Goods or Services not delivered or provided to that time.
- 6) **TERMINATION FOR CAUSE:** The City may, by notice in writing, terminate the Purchase Order effective immediately, and without any liability for doing so, in the event the City, in its sole discretion, determines that the Supplier has contravened any of its obligations hereunder.

7) **NON-EXCLUSIVITY:** The City makes no guarantee of the value or volume of Goods or Services to be purchased from the Supplier. This Purchase Order is not an exclusive contract for the provision of the stated Goods or Services. The City may contract with others for the same or similar Goods or Services to those described or may obtain the same or similar Goods or Services internally. Standard T&Cs for POs November 2014

Provisions Specific to Purchase of Goods

8) **QUALITY OF GOODS:** Unless specifically stated otherwise herein, Goods of any type purchased by the City shall be compliant with stated requirements, new and unused, of good quality and free from defects in workmanship, material and design. Receipt by the City of any Goods shall not waive any of the Supplier's obligations and any defective Goods shall be returned and replaced by the Supplier at its sole expense.

9) **MATERIAL SAFETY DATA SHEETS:** Material Safety Data Sheets must accompany each shipment of controlled products ordered.

10) **SALVAGE GOODS:** Unless otherwise stated, where the provision of Goods or Services herein involves the removal or replacement of any materials or equipment that may be of some continuing value, such materials or equipment shall remain the property of the City.

Provisions Specific to Purchase of Services

11) **INCLUDED SERVICES:** The Services described in the Purchase Order shall include all those Services necessarily incidental to those identified in order to complete the scope of Services described therein.

12) **COMPETENCE:** The Supplier represents that it has the expertise, experience, facilities, skilled personnel and knowledge necessary or required to deliver the Services in a competent and professional manner. The Supplier acknowledges that the City is relying upon this representation in issuing this Purchase Order.

13) **RECORD KEEPING:** The Supplier will maintain proper records and prepare and submit to the City, upon request, comprehensive reports or any other documentation related to the Services provided. The Supplier shall permit the City or its representatives to enter at all reasonable times any facilities used by the Supplier for the provision of the Services for the purpose of observing and evaluating the Services.

General Provisions

14) **INDEMNIFICATION:** The successful Proponent shall indemnify and save harmless the City, its elected and unelected officials, officers, employees and agents (the "Indemnified Parties") from and against all costs (including, without limitation, legal fees, disbursements and administrative costs), claims, actions, losses, injuries, expenses, damages, fines, judgments or recoveries suffered by or made, brought or recovered against the Indemnified Parties, or any of them, resulting from any act or omission, willful misconduct or errors of the successful Proponent, its directors, officers, employees, agents, assigns or anyone for whom at law the successful Proponent is Standard T&Cs for POs November 2014 responsible in connection with the Work provided, purported to be provided or required to be provided hereunder unless the injury, loss or damage is caused solely by the negligence of the Indemnified Parties while acting within the scope of their respective employment, roles or duties.

15) **INSURANCE:** The Supplier shall maintain insurance coverages stated in the Purchase Order. In the absence of any stated insurance requirements the Supplier shall, at minimum, have commercial general liability and automobile policies containing standard industry wording and coverages of no less than two million dollars, respectively. The City shall be added as an additional insured with respect to the Supplier's obligations pursuant to the Purchase Order. Throughout the duration of the Purchase Order, the Supplier shall ensure that the City is provided with certificates of insurance on the City's standard form showing that the Supplier is maintaining the necessary insurance coverages.

16) **SET-OFF:** The City reserves the right to set-off any indebtedness of the Supplier to the City, regardless of how such indebtedness arises, against amounts owed to the Supplier hereunder.

17) **COMPLIANCE WITH LAW:** In providing the Goods or Services hereunder the Supplier shall comply with all applicable laws, regulations, rules and bylaws of the federal, provincial and municipal governments. This Contract shall be construed in accordance with the laws of the province of Ontario and any legal proceeding shall be commenced before the Superior Court of Justice in the District of Sudbury.

18) **HEALTH AND SAFETY:** The Supplier acknowledges that it has read, understood and shall at all times comply and ensure compliance by its workers and any subcontractors with all applicable federal, provincial or municipal legislation relating to occupational health and safety, all applicable regulations thereunder and any and all applicable industry standards and guidelines pertaining to the provision of the Goods or Services. The Supplier shall be responsible for taking every precaution in the circumstances for the protection of all workers associated with the provision of the Goods or Services, whether employed by the Supplier or a third party. Unless stated otherwise, where the work hereunder involves Construction the Supplier shall be the constructor for the purposes of the *Occupational Health and Safety Act*.

19) **WORKPLACE SAFETY AND INSURANCE BOARD:** The Supplier shall, at all times during the provision of the Goods or Services hereunder ensure that the City is provided with a current certificate of clearance from the Workplace Safety and Insurance Board. Standard T&Cs for POs November 2014

20) **CONFIDENTIALITY:** The Supplier agrees that all personal information, including any personal health information where applicable, that it acquires knowledge of as a result hereof will be used, retained, protected, disclosed and disposed of in accordance with all applicable municipal, provincial and federal laws and regulations governing the collection, use, retention, disclosure and disposal of such information, including but not limited to the *Municipal Freedom of Information and Protection of Privacy Act* and the *Personal Health Information Protection Act*. The Supplier shall not at any time before, during or after the provision of the Goods or Services hereunder, use or disclose any personal information, personal health information or confidential information communicated to it or acquired by it in the course of providing the Goods or Services herein for any other purpose than the provision of the Goods or Services, in accordance with applicable law or as specifically agreed in writing by the City.

21) **DELIVERABLES:** Unless otherwise stated and to the extent permitted by law any deliverables prepared, compiled and submitted to the City shall be the exclusive property of the City. The City shall own all rights of copyright and such deliverables shall not be used, copied or modified by anyone without the prior written permission of the City.

22) **ACCESSIBILITY:** The Supplier shall comply and ensure compliance with all applicable regulations under the *Accessibility for Ontarians with Disabilities Act, 2005* in providing the Goods or Services.

23) **FAIR WAGE:** The Supplier agrees that it shall comply with the City's Fair Wage Policy where the Services involve new building and renovation construction in excess of \$160,000.00.

24) **CONFLICT OF INTEREST:** The Supplier shall not engage in any activity or provide any Services to the City where such activity or the provision of such Services would create an actual or perceived conflict of interest pursuant to this Contract.

25) **WARRANTY:** All Goods must carry a minimum one year warranty from the later of time of receipt or installation by the City.

26) **ASSIGNMENT:** The Supplier will not assign this Contract, or any part thereof, without the prior written approval of the City, which approval may be withheld by the City, in its sole discretion, or may be given subject to such terms and conditions as the City may impose.

27) **ENTIRE CONTRACT:** Unless specifically incorporated herein, the Purchase Order, the Terms and any schedules or documentation attached hereto shall constitute the entire Contract between the City and the Supplier.

Standard Operating Procedures

THE SOP FOLDER ON THE CGS INTRANET IS AVAILABLE AT:

J:\S_PLANTS\COMPLIANCE\SOP'S\WEB\D&C

Investigating Suspected Frozen Water Services:

City staff called upon to investigate suspected frozen services should conduct their investigation in accordance with SOP #WWS-DC-S016 v2.0. Any questions should be brought to the immediate Supervisor and/or EOC Operations Chief.

Customer Agreements

Prior to attempting any thaw any suspected frozen service authorization must be obtained from the owner of the account as thawing attempts may generate a financial commitment for the account owner.

Legal Services has coordinated with W/WW to develop a CGS "Thawing Agreements" for the purpose of authorizing work to be done and documenting the arrangements between the account owner and the City. No work should be commenced until such time as the agreement has been completed fully and signed by the account owner. The agreement can be found at the following link:

Thawing Agreement



AGREEMENT FOR THAWING SERVICES BY THE CITY OF GREATER SUDBURY

Instructions: To be completed by the Property Owner(s) or Authorized Representative of the Property Owner(s) prior to commencement of thawing services by the City of Greater Sudbury.

Service Request Reference # _____ Date service requested: _____

Property Owner Name(s): _____ Authorized Representative Name: _____

Property Owner(s) Contact Address/Telephone Number: _____

Contact Name/Telephone Numbers: (H) _____ (C) _____ W) _____

Billing name & address: _____

Property Address: _____

Date of thawing service: _____ Start Time of thawing service: _____

Completion time of thawing service (to be completed after thawing service): _____ Property Owner Initials: _____

I/We, the Property Owner(s), understand, acknowledge and agree that:

- a) I/We have requested that the City of Greater Sudbury thaw the Property's frozen water service(s);
- b) I/We am under no obligation to use the City of Greater Sudbury's services to thaw the frozen water service(s);
- c) If it is decided, in the sole discretion of the City of Greater Sudbury, that the water service is frozen, not on the City's property but on my/our Property, I/We will be charged the hourly amount described on the reverse for each two person crew conducting the thawing services provided by the City of Greater Sudbury, including interest where applicable;
- d) It is advisable to keep a faucet open, with the opening being the size of a standard pencil top eraser, and to ensure that exterior facing interior water pipes are warm in an effort to reduce the possibility of the water service(s) freezing, and that I/We open the faucet and run the water at my/our expense;
- e) Additional charges may apply should the water service freeze again; and
- f) I/We indemnify and save the City and its elected and unelected officials, directors, officers, employees, representatives and agents harmless from any and all manners of action, causes of action, suits, damages, losses, costs, claims and demands of any nature whatsoever arising out of the thawing service, including such by its employees, contractors, agents and representatives, including:
 - i) Any breach, violation or non-performance of any covenant, condition or agreement set forth in this Agreement to be fulfilled, kept, observed or performed by the City pursuant to this Agreement;
 - ii) any injury to person or persons, including death resulting at any time from such; and
 - ii) any damage to or loss of property, except to the extent that such causes of action, suits, damages, losses, costs, claims and demands are due to the negligence or wrongful acts or omissions of the City or persons for whom they are responsible for under law.

Signature of Property Owner(s)/Authorized Representative: _____ Date: _____

Witness Signature: _____ Witness Print Name: _____

RATES

(Charged in accordance with By-law 2015-5, *A By-law of the City of Greater Sudbury to Establish a Water and Wastewater Policy and Water and Wastewater Rates and Charges in General and for Special Projects*) Hourly rate for each 2 person crew for thawing of water service at request of Owner:

a. per hour, regular hours rate: \$ _____ * b. per hour, after hours rate: \$ _____ *

*Hourly rates for each 2 person crew shall be prorated to the nearest half hour on site

Temporary Service Agreement

Legal Services has coordinated with W/WW to develop a CGS "Acknowledgement of Temporary Service Installation" Agreement for the purpose of authorizing the installation of a temporary service. This document identifies the parties to the agreement, authorizes the work to be done, and documents the arrangements between the account owner and the City. No temporary service installation work should be undertaken until such time as the agreement has been completed fully and signed by the donor account owner, and receiver account owner. The agreement can be found at the following link:

Temporary Service Agreement



AGREEMENT FOR THE INSTALLATION OF A TEMPORARY WATER SERVICE BY THE CITY OF GREATER SUDBURY

Instructions: To be completed by the Property Owner(s) or Authorized Representative of the Property Owners prior to commencement of the installation of a temporary water service between two properties.

Receiving Property Owner Name(s): _____ Receiving Authorized Representative Name: _____

Receiving Property Address: _____

Contact Name/Phone #'s: (H) _____ (C) _____ (W) _____

Billing name & address: _____

Receiving address meter reading at install: _____ Receiving address meter reading at removal: _____

Supply Property Owner Name(s): _____

Supply Property Owner Authorized Representative Name: _____

Supply Property Address: _____

Contact Name/Phone #'s: (H) _____ (C) _____ (W) _____

Supply address meter reading at install: _____ Supply address meter reading at removal: _____

Date and Time of Installation of temporary water service: _____ Property Owner Initials: _____

Date and Time of Removal of temporary water service (to be completed upon removal): _____ Property Owner Initials: _____

Signature of Receiving Property Owner(s)/Authorized Representative: _____ Print Name: _____

Signature: _____ Date: _____ Witness Signature: _____ Witness Print Name: _____

Signature of Supply Property Owner/Authorized Representative: _____ Print Name: _____

Signature: _____ Date: _____ Witness Signature: _____ Witness Print Name: _____

RATES

(Charged in accordance with By-law 2015-5, A By-law of the City of Greater Sudbury to Establish a Water and Wastewater Policy and Water and Wastewater Rates and Charges in General and for Special Projects)

Installation or removal of temporary water service system per hour during regular hours: \$ _____ per hour after hours: \$ _____ .

Hourly rates for installation or removal of the service shall be prorated to the nearest half hour on site. Disconnect/Re-connect
Water usage to be charged out at a rate of \$_____/m3

AGREEMENT FOR RECEIVING PROPERTY OWNER(S)

I/We, the Receiving Property Owner(s), understand, acknowledge and agree that:

- g) I/We have requested that the City of Greater Sudbury install a hose that runs from the Receiving Property to the Supply Property to provide water service(s) to the Receiving Property (a "temporary water service") while the water service is unavailable at the Receiving Property;
- h) I/We will be charged at the rate specified on the reverse to install, maintain and remove the temporary water service;
- i) For each day that the temporary water service is operational, I/We will be charged an amount the same as the amount charged for water service based on consumption based on the daily average last year in the same calendar month for water service to the Receiving Property ("Consumption Rate"), in addition to a monthly fixed charge, both of which are determined by the City;
- j) Commencing on the date that the temporary water service is no longer operational, I/We will resume being charged the Consumption Rate, in addition to the monthly fixed charge and including interest where applicable;
- k) It is advisable to keep a faucet open, with the opening being the size of a standard pencil top eraser, and to ensure that exterior facing interior water pipes are warm in an effort to reduce the possibility of the water service(s) freezing and that I/We open the faucet and run the water at my/our expense;
- l) The temporary water service should not be tampered with and that I/We will be held liable for any demands, losses, damages or claims resulting from tampering with the temporary water service; and
- m) Additional charges may apply should a temporary water service be required again; and
- n) I/We indemnify and save the City and its elected and unelected officials, directors, officers, employees, representatives and agents harmless from any and all manners of action, causes of action, suits, damages, losses, costs, claims and demands of any nature whatsoever arising out of the installation, use or removal of the temporary water service, including such by its employees, contractors, agents and representatives, including:
 - i) any breach, violation or non-performance of any covenant, condition or agreement set forth in this Agreement to be fulfilled, kept, observed or performed by the City pursuant to this Agreement;
 - ii) any injury to person or persons, including death resulting at any time from such; and
 - iii) any damage to or loss of property, except to the extent that such causes of action, suits, damages, losses, costs, claims and demands are due to the negligence or wrongful acts or omissions of the City or persons for whom they are responsible for under law.

AGREEMENT FOR SUPPLY PROPERTY OWNER(S)

I/We, the Supply Property Owner(s), understand, acknowledge and agree that:

- a) The Receiving Property Owner(s) have requested that the City of Greater Sudbury install a hose that runs from the Receiving Property to the Supply Property to provide water service(s) to the Receiving Property (a "temporary water service") while the water service is unavailable at the Receiving Property;
- b) For each day that the temporary water service is operational, I will not be charged the Consumption Rate for water service;
- c) For each day that the temporary water service is operational, I will be charged an amount the same as the amount charged for water service based on consumption based on the daily average in the same calendar month last year for water service to the Receiving Property, in addition to the monthly fixed charge and including interest where applicable;
- d) The temporary water service should not be tampered with and that I/We will be held liable for any demands, losses, damages or claims resulting from tampering with the temporary water service;
- e) I/We indemnify and save the City and its elected and unelected officials, directors, officers, employees, representatives and agents harmless from any and all manners of action, causes of action, suits, damages, losses, costs, claims and demands of any nature whatsoever arising out of the installation, use or removal of the temporary water service, including such by its employees, contractors, agents and representatives, including:
 - i) any breach, violation or non-performance of any covenant, condition or agreement set forth in this Agreement to be fulfilled, kept, observed or performed by the City pursuant to this Agreement;
 - ii) any injury to person or persons, including death resulting at any time from such; and
 - iii) any damage to or loss of property, except to the extent that such causes of action, suits, damages, losses, costs, claims and demands are due to the negligence or wrongful acts or omissions of the City or persons for whom they are responsible for under law.

Thawing Frozen Services by Hot Water Recirculation Machine:

City staff called upon to thaw frozen services using the Hot Water Recirculation Machine should conduct the thawing operation in accordance with SOP #WWS-DC-S037 v1.0. Any questions should be brought to the immediate Supervisor and/or EOC Operations Chief.

Thawing Frozen Services by Electrical Thawing Machine:

City staff called upon to thaw frozen services using the Electrical Thawing Machine should conduct the thawing operation in accordance with SOP #WWS-DC-S036 v1.0. Any questions should be brought to the immediate Supervisor and/or EOC Operations Chief.

Installing a Temporary Service (Bib) Line Hose:

City staff called upon to install a temporary service should conduct the installation / operation in accordance with SOP #WWS-DC-S035 v1.0. Any questions should be brought to the immediate Supervisor and/or EOC Operations Chief.

Public Communications

Communications Plan

During a thawing event situation all public communications must be coordinated through CGS Corporate Communications.

Public Service announcements

The following Public Service Announcements (PSA's) have been developed to help customers prevent and deal with frozen service lines.

Public Service Announcement

Winter is Coming: What you can do to Protect your Pipes from Freezing

As winter approaches, it's a good time to prepare your home's pipes for cold weather. The City of Greater Sudbury is encouraging residents to take a few steps to keep their pipes protected in cold temperatures.

- Ensure everyone in your home knows where the main water shut-off valve is located inside your home so water can be turned off in an emergency.
- Mark your valve with an identification tag to make it easy for others in your home to locate it. Typically the valve is located where the water line enters your home, and this could be in the basement, crawlspace or utility closet.
- If you have unheated rooms, check for pipes, such as in crawlspaces, and areas in your basement.
- Protect exposed pipes by wrapping them with heat tape, pre-molded foam rubber sleeves or fiberglass insulation. These can all be found at your local hardware store.
- Drain all outdoor garden hoses and roll them up inside to prevent cracking.
- If you have an indoor valve for outside faucets, shut it off and drain water from pipes leading to the faucet. Also, turn off your irrigation system.
- If you are going away on vacation for an extended period of time, leave your thermostat at 13 degrees Celsius to prevent freezing.
- If you are away, have someone check your home regularly.
- Alternatively, you can consider hiring a plumber to drain your system and turn your water off. That way, if your furnace stops working, there will be no water in your pipes to freeze.

For those residents who have consistently experienced freezing over several winters, consider allowing a small trickle of water to run overnight to keep pipes from freezing. The cost of the extra water is typically lower than the cost of repairing a broken or frozen pipe.

If your pipes do freeze, turn off your water immediately. Do not attempt to thaw frozen pipes unless the water is shut off. Call 3-1-1 to report the incident. If you are calling after hours, your message will be forwarded to the appropriate supervisor on call. Please note that during cold weather, crews may be required to service many locations. It may be several days before crews can visit your property.

For more information about frozen water services, or tips to help prevent freezing pipes please visit www.greatersudbury.ca/frozenwater

Customer handouts


The following customer handouts have been developed to help customers understand work processes and other relevant information:

Frozen Water Services Brochure

Municipal Water
Every Drop Counts

Frozen Water Services

Note your case number here
for future reference:
Case # _____



Greater | Grand Sudbury
www.greatersudbury.ca

If you have any questions about
the status of your service thawing
or billing, please dial 3-1-1.

What should I do if I suspect a Frozen Water Service?

If you experience a frozen water service, please contact the City of Greater Sudbury by dialing 3-1-1. If you are calling after hours, your message will be forwarded to the appropriate supervisor on call. Please note that during cold weather, crews may be required to service many locations. It may be several days before crews can visit your property.

Why Did my Service Freeze?

Most water services in the City of Greater Sudbury are deeply buried for protection against frost. Some water service lines, however, are at a shallow depth by today's standards. Extremely cold temperatures, or fluctuations between warm and cold temperatures, can sometimes push frost to a depth that will freeze water services.

How can I reduce the risk of frozen water pipes this winter?

- When the temperature is below freezing, you can leave a cold water tap running at a steady stream of about 6 mm or ¼ inch (approximate thickness of a drinking straw).
- Leave the cupboard doors under your kitchen and bathroom sinks open if piping is located next to exterior walls. Please take care to remove household cleaners and other items that could harm children or pets while the cupboard doors are open.
- Do not turn your furnace below 13 degrees C (55°F) at night or when the house is vacant.
- Shut off and drain pipes leading to outside faucets.
- Wrap foam pipe insulation around pipes most susceptible to freezing (e.g. near outside walls, crawl spaces, attics).
- Seal air leaks in your home and garage, especially in areas where pipes are located.
- If you are away, have someone check your home regularly.

I've got a temporary service connection installed (bib system). What should I expect?

You will be asked to continuously run your water, the width of a pencil, to ensure that the temporary service connection does not freeze. It's very important to keep the water running because the temporary service has a high risk of freezing and the moving water decreases that risk.

IMPORTANT: Never use an open flame to thaw a frozen water pipe. Always use caution when applying any heat source near insulation or other flammable materials.

I was told to run my water, how will this affect my water bill?

If frozen on the private (owner's) side, the owner will be responsible for the full cost of running the water. The charges will appear on the next water bill. Each thaw request will be billed to owner.

If frozen on the public (City) side, a meter reading is taken and your billing type will change to the rate that was billed over the same period last year.

Thawing Methods

Can I do the work myself?

If you are able to determine that the frozen section of water pipe is located inside your home, you can try the following methods. If you are unable to locate the frozen section of pipe or are unsure what to do, please contact a licensed plumber.

- Open a cold water tap nearest the frozen section so you will know when the pipe is thawed.
- Apply heat using an electric heating pad wrapped around the pipe or an electric hair dryer.
- You may also use a portable heater with caution, especially around flammable materials.

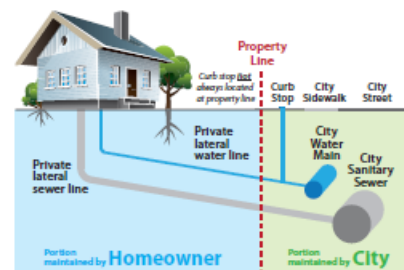
Steam/Hot Water Thawing: This process involves inserting a hose into the frozen pipe from one end and injecting hot water and steam.

Electrical Thawing: This approach involves passing an electric current between two connection points. It is capable of thawing larger areas at greater distances.

Temporary Service Connections: If both thawing approaches fail to work, a bib system may be implemented which involves running a hose from your neighbour's home to yours.

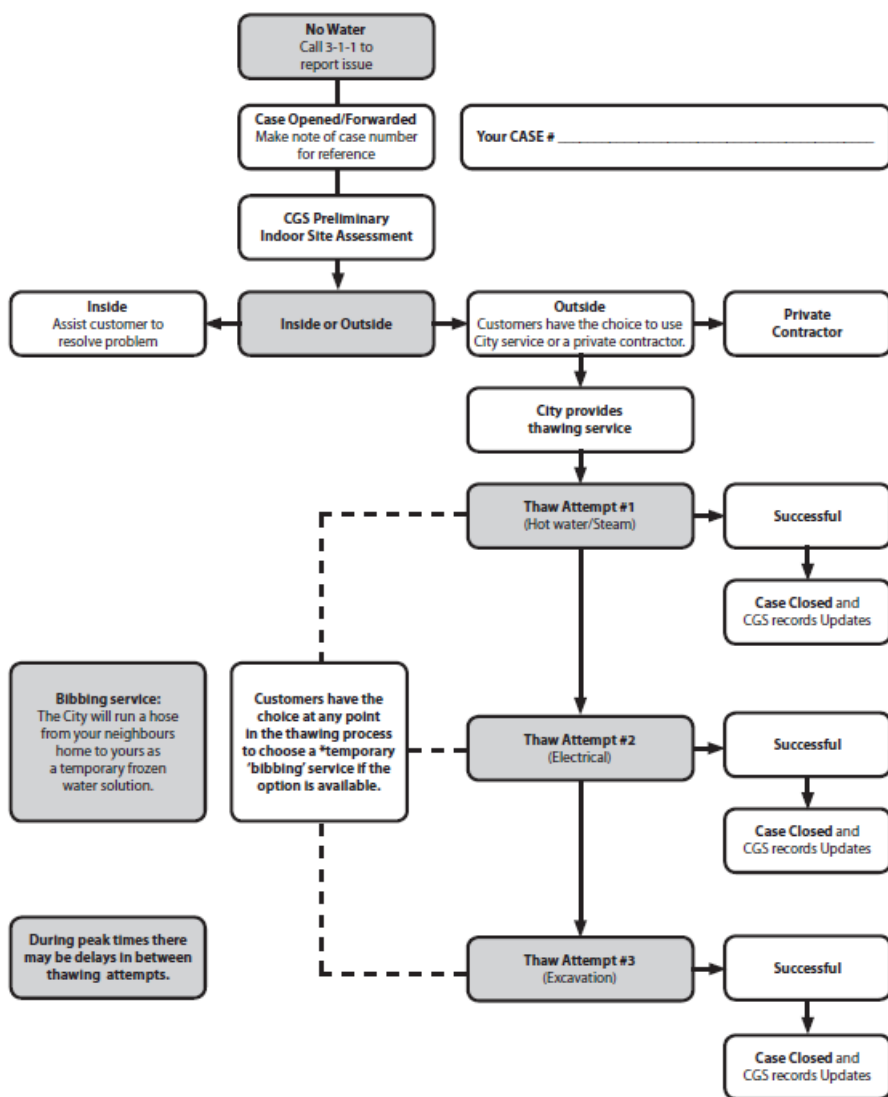
A Shared Responsibility

Maintenance of the private portion of the water service that supplies water to your premises is the owner's responsibility.



Thawing Work Flow Diagram

Residential Water Line Thawing Work Flow



Are you prepared?

Below is a list of basic items that you should have in your home so you can take care of yourself and your family for a minimum of 72 hours (3 days).

- Water - at least 4 litres of water per person per day for drinking, cooking, cleaning and bathing.
- Change of clothing which are seasonally appropriate
- Toilet paper

For Information Only

Water Production & Metered Consumption History 2006-2014

Presented To: Operations Committee

Presented: Monday, Dec 07, 2015

Report Date Monday, Nov 23, 2015

Type: Correspondence for
Information Only

Recommendation

For Information Only

Signed By

Report Prepared By

Nick Benkovich
Director of Water/Wastewater Services
Digitally Signed Nov 23, 15

Division Review

Nick Benkovich
Director of Water/Wastewater Services
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Recommended by the Department

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Digitally Signed Nov 25, 15

Recommended by the C.A.O.

Kevin Fowke
Acting Chief Administrative Officer
Digitally Signed Nov 25, 15

Water Production & Metered Consumption History 2006 - 2014

Background

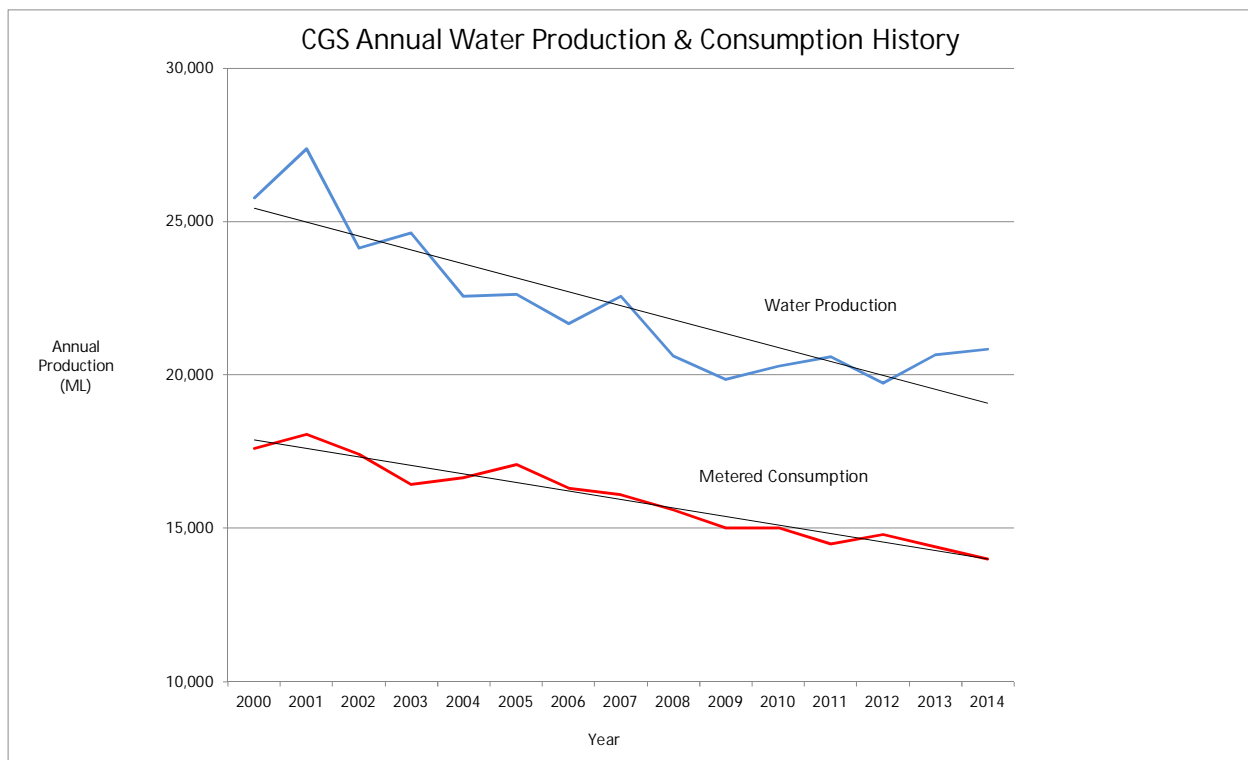
The purpose of this report is to address a budget 'parking lot' request to update Council on the historical pattern of water production and metered consumption recorded in CGS' 8 potable water systems.

Differences between Plant production and metered consumption is often referenced as non-revenue water. Some of that water difference is a necessary cost of operating the water system, such as fighting fires or maintaining high quality water through flushing pipes. Some differences are less desirable, such as watermain breaks and are referred to as "water loss"

Gaps between water production and consumption are a common problem observed in most public water supply systems in Ontario. It is desirable to reduce the volume of loss because the costs for variable resources such as energy and chemicals used to produce the water still need to be covered by the overall water rates. It is not possible to accurately determine the volumes of water within the various categories of non-revenue water.

Production & Consumption Trends

The trends for the period 2000 – 2014 are depicted in the graph below:



The data in Table 1 below indicates that during this period the values range from a low of 24% to a high of 34% with an average difference between production and metered consumption of 28%.

Table 1 – CGS Water Production & Consumption Data

Year	Production (ML)	Metered Consumption (ML)	Difference (%)
2000	25,780	17,604	32
2001	27,374	18,073	34
2002	24,135	17,416	28
2003	24,624	16,421	33
2004	22,566	16,636	26
2005	22,626	17,092	24
2006	21,654	16,300	25
2007	22,566	16,100	29
2008	20,621	15,600	24
2009	19,857	15,000	24
2010	20,274	15,000	26
2011	20,594	14,500	30
2012	19,726	14,800	25
2013	20,646	14,400	30
2014	20,834	14,000	33

Reasons for Differences between Production and Metered Consumption:

The American Water Works Association defines & lists several categories of production water losses that form non-revenue water including:

- Unbilled Authorized Consumption – the volume taken by registered customers, the water supplier, and others authorized to do so;
 - Unbilled Metered Consumption – ie. system flushing & maintenance activities, maintaining minimum chlorine residuals and reducing frequency of brown water events.
 - Unbilled Unmetered Consumption – ie. fire fighting & practice
- Apparent Losses
 - Unauthorized Consumption – theft, unauthorized use of hydrants
 - Customer Metering Inaccuracies – ie. meter errors
 - Systemic Data Handling Errors
- Real Losses
 - Leakage on Transmission & Distribution Mains
 - Leakage and overflows on water storage facilities
 - Leakage on service connections prior to the meter

Factors Influencing Losses:

- Age & condition of linear public infrastructure – The average age of CGS infrastructure is 48 years and as infrastructure ages more resources including flushing water are required for maintenance activities such as flushing hydrants to maintain compliance with regulations & quality parameters. Also, leaks and water main breaks tend to become more frequent occurrences as systems age.
- Age & condition of private service connections – Aging private infrastructure is also more prone to leaks and losses occur when leaks occur before the water is metered;
- Extreme Weather Events – Extreme weather events mean that many customers run water to prevent freezing service lines and although much of that water is authorized a portion of is unbilled. Extreme weather also correlates to increased breaks where water is lost as well.

Loss Control:

Reducing the gap between production and consumption is an ongoing task for CGS Water & Wastewater Services. Staff plans to continue loss reduction programs in the future. Ultimately reinvestment in infrastructure renewal will be the key tool in making significant long term and sustained gains in loss control.

Presented To:	Operations Committee
Presented:	Monday, Dec 07, 2015
Report Date	Tuesday, Nov 17, 2015
Type:	Managers' Reports

Request for Decision

Full Sidewalk Patio Update

Recommendation

THAT the City of Greater Sudbury creates a new administrative fee of \$400 for the full sidewalk patio program;

AND THAT the City phases in the fees over a 4-year period, as outlined in the November 17, 2015, report from the General Manager of Growth and Development;

AND FURTHER THAT the City charges 50% of the cost of parking spaces associated with the full sidewalk patio program.

Finance Implications

If approved the City would implement a gradual escalating payment fees structure for the those patios with the first year waiving of 100%, 2nd year waiving of 75%, 3rd year waiving of 50% and 4th year waiving of 25%. Any road occupancy permit fees or building permit fees would continue to be charged.

Background

On May 4, 2015, Operations Committee made the following recommendation:

"OP2015-07 THAT the City of Greater Sudbury approves the Downtown Sudbury Business Improvement Area Association's request to make the full sidewalk patio pilot program a permanent program;

AND THAT staff be directed to prepare an amendment to By-Law 2011-218 to allow for full sidewalk patios based on the considerations outlined in the [April 22, 2015 report from the General Manager of Growth and Development]

AND FURTHER THAT the City implements an incremental fee structure as proposed by the Downtown Sudbury Business Improvement Area Association, and amend By-Law 2011-218 accordingly."

Subsequent to this meeting, on May 26, 2015, Greater Sudbury Council passed By-law 2015-109, which effectively made the full sidewalk patio pilot program a permanent program.

A full sidewalk patio involves the occupation of the entire sidewalk adjacent to the business establishment and the construction of a replacement sidewalk around the patio area in the travelled portion of the municipal right-of-way. These replacement sidewalks typically occupy on-street parking spaces.

Signed By

Report Prepared By

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Division Review

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Recommended by the Department

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Recommended by the C.A.O.

Kevin Fowke
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Purpose:

This report discusses the current fees associated with the establishment of a full sidewalk patio. The report further outlines considerations regarding the collection of fees regarding full sidewalk patios, under an incremental fee-structure.

Discussion:

The *Downtown Master Plan and Action Strategy* defines downtowns as “the historic and symbolic heart of a community, the reflection of a city’s image, pride and prosperity. They are the meeting place for the entire city, where all types of different people come together to celebrate and share common experiences. A healthy, active, successful downtown makes a positive statement about the prosperity of a city, sending a confident message to future residents, businesses and investors.” As expressed through the master plan, the City’s vision for the Downtown is a “renewed and re-energized Downtown that has become a confident advertisement to the world about the city’s rich offer.”

The full sidewalk patio pilot program generated positive reviews and has added to the vitality of the Downtown. The full sidewalk patio program is consistent with the broad goals of the official plan, and with the vision outlined in the Downtown Master Plan. As such, on May 26, 2015, City Council made the full sidewalk patio pilot program a permanent program. At that time, staff was directed to implement a 4-year incremental fee structure and to amend the appropriate by-laws accordingly.

The following is a discussion of the fees associated with By-law 2011-218 (A By-law of the City of Greater Sudbury to Regulate Road Occupancy Including Road Cuts, Temporary Closures and Sidewalk Cafes). These fees include, but are not limited to, the cost of the road occupancy permit and the sidewalk lease rate. Other potential costs include the cost of parking spaces, and, if applicable, the cost of the removal and replacement of parking meter heads.

Discussion of Individual Elements of a Fee**The Road Occupancy Permit**

The City of Greater Sudbury currently charges \$36 for a road occupancy permit. This fee is set by the City’s Miscellaneous User Fee By-law. Any change to the fee would require an amendment to the by-law.

The Administrative Fee

The City of Greater Sudbury does not currently charge an administration fee for the full sidewalk patio program. The City of Barrie, who is widely touted as a strong example of a successful full sidewalk program, has taken a cost-recovery approach to these full sidewalk patios. The costs associated with processing and issuing a permit at the City of Barrie is \$400.00. Barrie’s fee includes the Right-of-way Activity Permit (the equivalent to the City of Greater Sudbury’s Road Occupancy Permit) and one inspection visit.

City of Greater Sudbury staff concurs that a fee similar to that of Barrie would represent an appropriate amount of staff hours required to issue the permit and inspect the site. The introduction of an administrative fee would require an amendment to the City’s Miscellaneous User Fee By-law.

The Sidewalk Lease Rate

The City of Greater Sudbury currently charges \$1.50 per square meter per month for a sidewalk lease rate.

For example, the patio at 63 Cedar is approximately 34 square meters in size (approx. 365 sq feet). This would result in a sidewalk lease in the region of \$51 per month (and \$250 for the season).

The Cost of Parking Spaces

The City charges \$13/day to bag a parking meter. The City's revenue for one parking space during the 2016 patio season would be \$1,521 (calculated at \$13/day for 117 days – May 1 to October 15, 2016, excluding weekends).

A decision point for the City of Greater Sudbury is whether to charge for the lost revenue of the on-street parking spaces. Staff presents the following options for the Committee's consideration:

Option a - charge 0% of the parking rate (\$0 for 2016 season)

Option b - charge 50% of the parking rate (\$760.50 per space for the 2016 season)

Option c - charge 100% of the parking rate (\$1521 per space for the 2016 season)

In 2010, IBI Group conducted surveys to determine the utilization of all on-street parking spaces for the City's Strategic Parking Plan. As indicated in that report, daily occupancy rates for streets in the downtown area ranged from 36% (Elgin Street, from Cedar to Paris Street) to 90 percent (Cedar Street, from Elgin Street to Paris Street).

City Staff recommends that the City charge 50% of the cost of the parking spaces.

Business Improvement Area Request

At their November 5, 2015 board meeting, the Downtown Business Improvement Area (BIA) recommended that the fee structure for the full sidewalk patio program follow the City of Barrie example, whereby first-time applicants would pay an administrative fee but not the sidewalk lease rate. Second-time applicants would pay the administrative fee and the sidewalk lease rate. The BIA further recommended that no other fees be charged.

Summary and Recommendations

This report presents options regarding the establishment of a fee for full sidewalk patios and options regarding the recovery of on-street parking revenue, under a 4 year incremental fee structure.

Staff recommends that the sidewalk lease rate be maintained, and that 50% of the costs of the parking spaces be collected. Staff also finds that the establishment of a new administrative fee is reasonable given the staff time required in reviewing the plans, conducting a site visit, and administering the permit. Staff recommends phasing in the fees over a 4-year period, as originally recommended at the May 4, 2015 Operations Committee.

Request for Decision

Sanitary Sewer & Water Service Line Warranty Protection Plan

Presented To: Operations Committee

Presented: Monday, Dec 07, 2015

Report Date: Wednesday, Nov 25, 2015

Type: Managers' Reports

Recommendation

THAT the City of Greater Sudbury endorses the development and delivery of an optional water & sewer utility service line warranty program available to residential properties within the City of Greater Sudbury.

Background

The purpose of this report is to obtain authorization for staff to proceed with the procurement of a service provider and the implementation of a sewer & water service line warranty program for subscribed residential property owners within Greater Sudbury.

Over time the private portion of the water and sewer utility service lines fail from normal wear and tear. Homeowners are responsible for covering the costs of the utility service lines on their property although they are often unaware of this responsibility. Often such failures could lead to expensive repairs for homeowners.

Optional warranty programs for homeowners are currently available in the marketplace in some communities. These programs protect residents from the possible financial stress of costly repairs while helping municipalities control non-revenue water leakage and extraneous water inflow from damaged private infrastructure.

Typically, the warranty service provider handles all aspects of the program, including marketing, billing, customer service, contractor management and completion of all repairs to all applicable codes. Homeowners can access service using a streamlined business process to affect the required repairs. Contractors are thoroughly vetted through a third-party compliance management vendor that performs background checks.

The City of Hamilton and EPCOR (an Edmonton based provider of water, wastewater and power services in Alberta and western Canada) both have similar programs in place as well as many municipalities across the United States. The City of Hamilton was the first municipality in Canada to introduce a Service Line

Signed By

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Recommended by the C.A.O.

Kevin Fowke
Acting Chief Administrative Officer
Digitally Signed Nov 25, 15

Warranty Program. Since the launch of the Hamilton program, the Association of Municipalities (AMO) has endorsed the use of sewer and water service warranty program.

Products Offered

It is anticipated that a service provider would be selected using a competitive process in accordance with the City's Purchasing bylaw to provide:

- a sewer service warranty protection plan, and
- a water service warranty protection plan, and
- an interior plumbing and drainage warranty protection plan.

Marketing and Division of Responsibility

The successful proponent will be responsible for marketing the program typically by direct mail and public relations to generate awareness and interest among property owners. The municipality will endorse the Sewer and Water Line Warranty Service and permit the use of the municipality's logo as well as pre-approving all marketing materials. The use of the municipality's logo alerts local residents to the legitimacy of the warranty program, resulting in larger numbers of enrollments. Pre-approving ensures that the City is satisfied with all marketing materials with the municipal logo before it is sent out. Furthermore, the warranty plan provider is responsible for covering all costs of producing and mailing marketing materials. The warranty provider also has to administer and perform all aspects of marketing, billing, customer service and performing all repairs to standards specified in agreement.

Costs to the Resident

Customers would typically have the option to either pay a monthly or single annual payment. The actual fee paid by the resident will be set through an RFP process where the proponents will be evaluated on their abilities to deliver the service and the fees of the program. The successful warranty provider will also pay annual commission based revenue to the City in exchange for the use of the CGS logo and to cover our administration costs from all active enrolled customers in any or all of the warranty plans within the geographical boundaries of the City of Greater Sudbury. A minimal annual subscription revenue will be earned.

Conclusion & Timelines

The sewer and water line warranty program should be in place to assist customers in early 2016.

Presented To:	Operations Committee
Presented:	Monday, Dec 07, 2015
Report Date	Friday, Nov 13, 2015
Type:	Managers' Reports

Request for Decision

Safety Concerns - LaSalle Boulevard at LaSalle Court Mall / 901 LaSalle Boulevard

Recommendation

THAT no changes be made at this intersection and that traffic volumes continue to be monitored to determine if an advanced left turn phase for westbound traffic becomes warranted, all in accordance with the report from the General Manager of Infrastructure Services dated November 12, 2015.

Background

At the September Operations Committee meeting, the following motions were passed:

THAT the City of Greater Sudbury continues to monitor traffic volumes at the intersection of LaSalle Boulevard and 901 LaSalle Boulevard to determine if an advanced left turn signal for westbound traffic becomes warranted, all in accordance with the report from the General Manager of Infrastructure Services dated July 14, 2015;

AND THAT staff prepare alternative signal configurations by the December 2015 Operations Committee meeting.

Signed By

Report Prepared By

Joe Rocca
Acting Co-ordinator of Transportation &
Traffic Engineering Services
Digitally Signed Nov 13, 15

Division Review

David Shelsted
Director of Roads & Transportation
Services
Digitally Signed Nov 13, 15

Recommended by the Department

Tony Cecutti
General Manager of Infrastructure
Services
Digitally Signed Nov 19, 15

Recommended by the C.A.O.

Kevin Fowke
Acting Chief Administrative Officer
Digitally Signed Nov 25, 15

LaSalle Boulevard is a secondary arterial roadway that carries an average annual daily traffic (AADT) volume of 34,000 vehicles near the LaSalle Court Mall. LaSalle Boulevard, at its signalized intersection with LaSalle Court Mall/901 LaSalle Boulevard, is constructed with two through lanes and a separate left turn lane for both approaches. The intersection itself is located in New Sudbury and is currently controlled with traffic signals (Exhibit 'A'). Eastbound traffic at this intersection currently has an advanced left turn phase. This intersection is also a part of a coordinated traffic signal system. The system extends from Somers Street to just east of Holland Road, a distance of 2.3 km. There is a total of eight signalized intersections within the system, all interconnected and operated by an on-street master. The intent of coordinating traffic signals is to provide smooth flow of traffic along a corridor in order to reduce travel times, stop and delay. By minimizing delays, you are able to increase the capacity of the roadway without having to widen the road.

Westbound Advanced Left Turn Phase

A separate left turn phase is required when the left turn volume is greater than the capacity of the left turn lane. The Ontario Ministry of Transportation has provided a method to calculate the number of vehicles that can turn left during the green and amber phases. The capacity of the left turn lane is calculated based on the gap acceptance behavior of left turning drivers, signal timing, gap in opposing traffic flow and geometry. The City uses a more conservative value than recommended by the province. For westbound traffic at this intersection, approximately 30 vehicles will be able to make a left turn during the peak hour of traffic.

City staff conducted another 8-hour turning movement count at the above intersection on October 14, 2015 in order to compare the differences between the turning movements that were conducted in May 25, 2015.

The new count indicated that there were a total of three (3) vehicles that made a left turn during the afternoon peak period as compared to ten (10) vehicles during the same peak period conducted on May 25, 2015. Based on the new turning movement count conducted on October 14, 2015, the analysis again concludes that a left turn phase is not currently warranted.

Collision History

The request for a left turn phase indicated that safety was a concern at this intersection. A review of City's collision records for this intersection, between 2009 to 2015 inclusive, indicates that there were no collisions that involved westbound left turning vehicles at this intersection during the 6 1/2 year period. It is unlikely that safety would be improved with the addition of a separate left turn phase. When warranted, separate left turn phases do provide a benefit for left turning traffic while they increase delays to all other movements at the intersection.

Impact of Adding the Westbound Left Turn Phase

In order to assess the projected impact that an advanced left turn phase would have on the capacity of this intersection, two simulation models, Synchro and SimTraffic, were used to evaluate various traffic parameters. These parameters include delay, total number of stops, maximum length of queue, average speed and travel time. Comparisons of these parameters were made in terms of performance or measures of effectiveness, before and after the simulated scenario.

Synchro is primarily used for modeling traffic flow, traffic signal progression, and optimization of traffic signal timing. SimTraffic uses the outputs of the Synchro program to model the entire road network and can provide an animation of vehicular and pedestrian related traffic. They are commonly used by traffic engineers to provide detailed performance data or measures of effectiveness (MOE).

The results of the before and after scenarios are tabulated in Table 1 for the intersection of LaSalle Boulevard and the LaSalle Court Mall and in Table 2 for the coordinated traffic signal system from Somers Street to just east of Holland Road.

Table 1 - LaSalle Boulevard at LaSalle Court Mall Intersection Performance

Parameter	Before	After	Difference
Delay per vehicle (second/vehicle)	15.1	16.7	1.6
Total Stops (vehicle/hour)	210	259	49
Total Delay (minute)	138	144	6
Average speed (km/h)	23	21	-2
95th percentile queue length for the eastbound through lane (m)	163	189	26

Table 2 - Total Network Performance – Somers Street to East of Holland Road

Parameter	Before	After	Difference
Delay per vehicle (second/vehicle)	80.6	91.1	10.5
Total Stops (vehicle/hour)	1660	1835	175
Total Delay (hr)	21.4	23.4	2.0
Average speed (km/h)	26	24	-2

When reviewing the impact of adding the westbound advanced left turn has on the intersection, the impact is best demonstrated by the effect on the 95th percentile queue length for eastbound traffic. For eastbound traffic, a queue length of 189 meters will extend close to the intersection of LaSalle Boulevard and Montrose Avenue (see Exhibit 'B'). This demonstrates the impact on the capacity of roadway that a small change in signal timing will have. With a small growth in traffic, the vehicle queue length from this intersection will spill into Montrose Avenue intersection.

When considering the impact on the network from Somers Street to just east of Holland Road the most commonly used parameter is delay. By adding the westbound advanced left turn, each vehicle travelling on LaSalle Boulevard during the afternoon peak hour will be delayed by 10.5 seconds. This delay summed across all vehicles totals 2.0 hours.

The cost of this increased delay to the community can be expressed in three ways:

1. Increased travel time cost (\$)
2. Increased fuel consumption (litres and \$)
3. Increased vehicle emissions (tonnes)

A summary of these costs can be found in Table 3 below. The detailed calculations can be found in Exhibit 'C'.

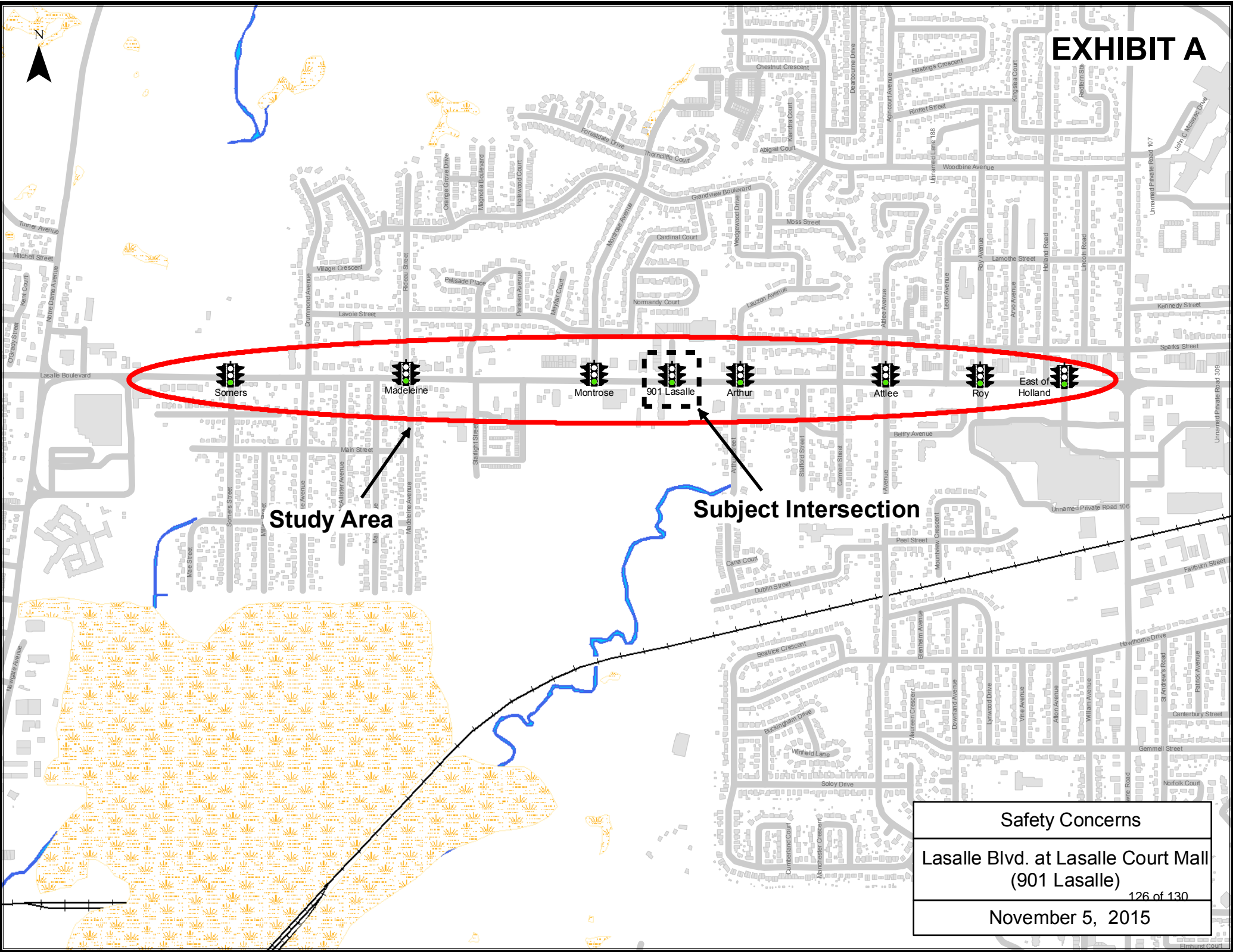
Table 3 - Annual Impact of Increased Delay During the Afternoon Peak Hour

Annual travel time cost of all peak hour(\$)	\$65,854
Annual Fuel Consumption during afternoon peak hour (Litres)	8,320
Annual Vehicle emission Increase (tonnes)	19.5

Based on the above table, the annual cost increase of travel time through the coordinated system during the afternoon peak hour only is approximately \$66,000. Increased delay through the network will result in an additional 8,320 litres of fuel consumed per year. An increase in fuel consumption through the network will also increase vehicle emissions by approximately 20 tonnes per year. Additional delay would also be introduced during the remainder of the day. The costs associated with the additional delay would be in addition to those in Table 3.

Based on the traffic volumes, collision history and capacity analysis, staff recommend that no changes be made at this intersection and that traffic volumes continue to be monitored to determine if an advanced left turn phase for westbound traffic becomes warranted in the future.

EXHIBIT A



Safety Concerns
Lasalle Blvd. at Lasalle Court Mall (901 Lasalle)
126 of 130
November 5, 2015



Montrose Avenue

Lasalle Court Mall

Scenario 1: Existing Condition

Lasalle Boulevard

163 m

189 m

Scenario 2: Adding Westbound Left Turn Phase at the Intersection

901 Lasalle

Afternoon Peak Hour Vehicle Queue Lengths	
Lasalle Boulevard at Lasalle Court Mall (901 Lasalle)	
November 10, 2015	

EXHIBIT C

Annual Impact of Increase Delay Calculations

Total travel time cost

Total annual travel time cost = $[TRP * (TDA - TDB) / 3600 * OCCP * D * WP] + [TRT * (TDA - TDB) / 3600 * OCCT * D * WT]$

TR = PM peak hour traffic volume = 5166 vehicle per hour

Truck traffic = 5%

TRP = PM peak hour passenger volume = 4908 vehicle / hour

TRT = PM peak hour truck volume = 258 truck per hour

TDB = Existing total Delay per vehicle = 80.6 second/vehicle

TDA = Total Delay per vehicle with westbound advanced left turn phase = 91.1 second/vehicle

OCCP = average person occupancy rate for passenger vehicle = 1.2

OCCT = average person occupancy rate for passenger truck = 1

WP = Passenger car average hourly wage = \$13.71 (50% of full time wages for passenger cars)

WT = Truck average hourly wage = \$23.62 (100% of full time wages for trucks)

D = Number of weekdays during a year = 260 days

Total Travel Time Cost = $[4908 * (91.1 - 80.6) / 3600 * 1.2 * 260 * 13.71] + [258 * (91.1 - 80.6) / 3600 * 1 * 260 * 23.62]$
= \$65,854

Fuel Consumption

Annual Fuel Consumption = (Fuel used After – Fuel used Before) * 260 day/year

Fuel used before pilot project = 232.4 litres (from Simtraffic)

Fuel used after pilot project = 264.4 litres (from Simtraffic)

Annual Fuel consumption = $(264.4 - 232.4) * 260$
= 8,320 Litres

Vehicle Emissions

1 Litre of gasoline burned creates 2,348 grams of CO₂ (United States Environmental Protection Agency)

Annual CO₂ emissions = $(8,320 * 2,348) / 1,000,000$
= 19.5 tonnes



City of Greater Sudbury Charter

WHEREAS Municipalities are governed by the Ontario Municipal Act, 2001;

AND WHEREAS the City of Greater Sudbury has established Vision, Mission and Values that give direction to staff and City Councillors;

AND WHEREAS City Council and its associated boards are guided by a Code of Ethics, as outlined in Appendix B of the City of Greater Sudbury's Procedure Bylaw, most recently updated in 2011;

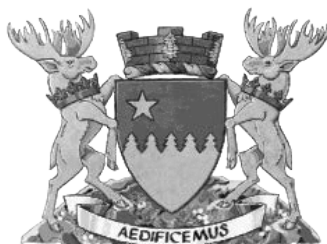
AND WHEREAS the City of Greater Sudbury official motto is "Come, Let Us Build Together," and was chosen to celebrate our city's diversity and inspire collective effort and inclusion;

THEREFORE BE IT RESOLVED THAT Council for the City of Greater Sudbury approves, adopts and signs the following City of Greater Sudbury Charter to complement these guiding principles:

As Members of Council, we hereby acknowledge the privilege to be elected to the City of Greater Sudbury Council for the 2014-2018 term of office. During this time, we pledge to always represent the citizens and to work together always in the interest of the City of Greater Sudbury.

Accordingly, we commit to:

- Perform our roles, as defined in the Ontario Municipal Act (2001), the City's bylaws and City policies;
- Act with transparency, openness, accountability and dedication to our citizens, consistent with the City's Vision, Mission and Values and the City official motto;
- Follow the Code of Ethical Conduct for Members of Council, and all City policies that apply to Members of Council;
- Act today in the interest of tomorrow, by being responsible stewards of the City, including its finances, assets, services, public places, and the natural environment;
- Manage the resources in our trust efficiently, prudently, responsibly and to the best of our ability;
- Build a climate of trust, openness and transparency that sets a standard for all the City's goals and objectives;
- Always act with respect for all Council and for all persons who come before us;
- Ensure citizen engagement is encouraged and promoted;
- Advocate for economic development, encouraging innovation, productivity and job creation;
- Inspire cultural growth by promoting sports, film, the arts, music, theatre and architectural excellence;
- Respect our historical and natural heritage by protecting and preserving important buildings, landmarks, landscapes, lakes and water bodies;
- Promote unity through diversity as a characteristic of Greater Sudbury citizenship;
- Become civic and regional leaders by encouraging the sharing of ideas, knowledge and experience;
- Work towards achieving the best possible quality of life and standard of living for all Greater Sudbury residents;



Charte de la Ville du Grand Sudbury

ATTENDU QUE les municipalités sont régies par la Loi de 2001 sur les municipalités (Ontario);

ATTENDU QUE la Ville du Grand Sudbury a élaboré une vision, une mission et des valeurs qui guident le personnel et les conseillers municipaux;

ATTENDU QUE le Conseil municipal et ses conseils sont guidés par un code d'éthique, comme l'indique l'annexe B du Règlement de procédure de la Ville du Grand Sudbury dont la dernière version date de 2011;

ATTENDU QUE la devise officielle de la Ville du Grand Sudbury, « Ensemble, bâtissons notre avenir », a été choisie afin de célébrer la diversité de notre municipalité ainsi que d'inspirer un effort collectif et l'inclusion;

QU'IL SOIT RÉSOLU QUE le Conseil de la Ville du Grand Sudbury approuve et adopte la charte suivante de la Ville du Grand Sudbury, qui sert de complément à ces principes directeurs, et qu'il y appose sa signature:

À titre de membres du Conseil, nous reconnaissons par la présente le privilège d'être élus au Conseil du Grand Sudbury pour le mandat de 2014-2018. Durant cette période, nous promettons de toujours représenter les citoyens et de travailler ensemble, sans cesse dans l'intérêt de la Ville du Grand Sudbury.

Par conséquent, nous nous engageons à :

- assumer nos rôles tels qu'ils sont définis dans la Loi de 2001 sur les municipalités, les règlements et les politiques de la Ville;
- faire preuve de transparence, d'ouverture, de responsabilité et de dévouement envers les citoyens, conformément à la vision, à la mission et aux valeurs ainsi qu'à la devise officielle de la municipalité;
- suivre le Code d'éthique des membres du Conseil et toutes les politiques de la municipalité qui s'appliquent à eux;
- agir aujourd'hui pour demain en étant des intendants responsables de la municipalité, y compris de ses finances, biens, services, endroits publics et du milieu naturel;
- gérer les ressources qui nous sont confiées de façon efficiente, prudente, responsable et de notre mieux;
- créer un climat de confiance, d'ouverture et de transparence qui établit une norme pour tous les objectifs de la municipalité;
- agir sans cesse en respectant tous les membres du Conseil et les gens se présentant devant eux;
- veiller à ce qu'on encourage et favorise l'engagement des citoyens;
- plaider pour le développement économique, à encourager l'innovation, la productivité et la création d'emplois;
- être une source d'inspiration pour la croissance culturelle en faisant la promotion de l'excellence dans les domaines du sport, du cinéma, des arts, de la musique, du théâtre et de l'architecture;
- respecter notre patrimoine historique et naturel en protégeant et en préservant les édifices, les lieux d'intérêt, les paysages, les lacs et les plans d'eau d'importance;
- favoriser l'unité par la diversité en tant que caractéristique de la citoyenneté au Grand Sudbury;
- devenir des chefs de file municipaux et régionaux en favorisant les échanges d'idées, de connaissances et concernant l'expérience;
- viser l'atteinte de la meilleure qualité et du meilleur niveau de vie possible pour tous les résidents du Grand Sudbury.