INFORMATION ITEMS

Week Ending July 14, 2017

REPORTS

1. Revisions to Wellbeing Grant Policy
2. Salt Management Plan

INTERGOVERNMENTAL CONSULTATIONS

1. Low Impact Development (LID) Stormwater Management Guidance Manual
2. 2016 Review of the Accessibility Transportation Standards
3. Addressing Food and Organic Waste in Ontario
4. Bill 139 – The Proposed Building Better Communities and Conserving Watersheds Act, 2017

CORRESPONDENCE

1. GRCA Current, July 2017

BOARDS & COMMITTEES

1. None

ITEMS AVAILABLE IN THE CLERK'S OFFICE

1. None

Information Report

Service Area	Public Services
Date	Friday, July 14, 2017
Subject	**Revisions to Wellbeing Grant Policy**
Report Number	PS-17-20

Executive Summary

Purpose of Report

To update Council on annual changes to the Wellbeing Grant Policy to ensure transparency of the program.

Key Findings

A number of changes to the program were reviewed in consultation with the Wellbeing Grant Community Allocation Panel. Upon review, the program will move to a single stream of funding to ensure clarity and efficiency for applicants and assessment while encouraging the same range of applications as in previous years.

Financial Implications

Changes made to the Wellbeing Grant Policy will not have a financial impact as the total granting amount is unchanged by the policy.

Background

The City works with and supports many local organizations in the community to improve the wellbeing of Guelph residents. These organizations deliver a range of services from organizing sports and recreational activities, to staging arts and culture events, to meeting basic human needs such as food and shelter.

The Council-approved Community Investment Strategy (CIS) provides the City with a strategy for providing funding and in-kind supports to local not-for-profit organizations. The Wellbeing Grant Program is one funding method of the CIS. The grant program is designed to direct City funding to not-for-profit, non-governmental community organizations which promote the wellbeing of Guelph residents.

Eligible organizations can apply for small grant funding on an annual basis. Funds for the grant program are approved as part of the City of Guelph's annual budget process. Authority to make grant allocation decisions on behalf of City Council was delegated to a panel of community members with appropriate skills and knowledge. This panel helps ensure that the grant program is supporting areas of importance to

Guelph residents and increases community participation in municipal decision-making.

The panel's decisions are guided by a set of guidelines outlined in the Wellbeing Grant Policy, and funding decisions are aligned to the community's wellbeing priorities, as defined by the community. The Wellbeing Grant Program has grant goals covering the eight domains of wellbeing outlined in the Canadian Index of Wellbeing.

- Community Vitality
- Democratic Engagement
- Education
- Environment
- Healthy Populations
- Leisure and Culture
- Living Standards
- Time-use

Report

The Wellbeing Grant Policy is reviewed annually by staff and in consultation with the Wellbeing Grants Community Allocation Panel. Suggestions for changes to the policy are typically received from applicants, panel members, councillors and staff.

The following is a summary of suggested changes reviewed by staff and the rationale as to whether the policy was revised as a result:

Suggested change	**Rationale**	**Revisions**
Reducing the number of categories of funding	In the past, applicants could apply under one of three streams of funding: operating, project, or capital. While between 80 – 90% of applications typically come under the operating grant stream, the division of categories often results in confusion on the part of applicants on the type and level of financial and other information to include in the application.	Policy revised to include a single category of funding as "operating grant". Changed wording is under the Purpose section on page 1 of the policy. The application will be clarified by creating one stream of funding "operating" and allowing applicants to describe how they would use the grant funds specifically. This is planned to create less confusion, and

		more efficiency in completing and assessing applications.
Allowing of secondary allocations	Currently, applicants cannot apply for secondary allocation, meaning that an organization cannot access grant funding to then redistribute to other organizations or individuals. Opening up grant applications to allow for secondary allocation could have the risk to the City of not being accountable for how those funds were used or what their impact is, and could create a loophole for organizations that do not meet the eligibility requirements of the Wellbeing Grant program, or were unsuccessful in the Wellbeing Grant Program, to gain access to City funds indirectly. Limiting the grant program for primary allocations helps ensure the integrity of the program and responsible stewardship of City resources.	No revisions made on this consideration.
Ensuring political organizations are not eligible for funding	Currently, organizations that are considered “political” are not eligible for funding. This includes organizations that are “established for a political purpose”. Under the policy, organizations can “engage in some activities to retain, oppose, or change the law, policy or decision of any level of government” as long as the activities are “non-partisan – not supporting a candidate or political party”. There are existing ways within the application to identify whether the applying organization is political through self-identification and through an assessment of the applicant’s mission and mandate. Language in the policy around exemptions for some activities of non-political organizations ensures that eligible organizations can continue to speak on behalf of their clients and offer their expertise to policy makers.	While the language in the policy is designed to ensure political organizations are not eligible for funding, the application will be strengthened with questions to ensure the integrity of the grant program.

Allowing of funding allocations beyond the limit of $15,000	Currently, there is a limit of funding requests of a maximum of $15,000. While it is recognized that some organizations may be in need of funds beyond this and could have a substantial impact with those additional funds, the limit was determined to encourage organizations to leverage additional funds from other resources and given the amount in the granting envelope, could ensure that other eligible applications are able to receive funds. In the 2017 grant cycle, no organizations received the current maximum of $15,000.	No revisions made on this consideration.

Financial Implications

Changes made to the Wellbeing Grant Policy will not have a financial impact as the total granting amount is unchanged by the policy.

Consultations

Suggested changes to the Wellbeing Grant Policy were discussed with the Wellbeing Grants Community Allocation Panel as stakeholders most familiar with the grant allocation process.

Corporate Administrative Plan

Overarching Goals
Service Excellence
Innovation

Service Area Operational Work Plans
Our People- Building a great community together
Our Resources - A solid foundation for a growing city

Attachments

ATT-1 Corporate Policy and Procedure: Wellbeing Grant Program

Departmental Approval

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CORPORATE POLICY AND PROCEDURE

POLICY	**Wellbeing Grant Program**
CATEGORY	Public Services
AUTHORITY	Public Services
RELATED POLICIES	
APPROVED BY	Deputy Chief Administrative Officer, Public Services
EFFECTIVE DATE	September 2013
REVISION DATES	July 2014 July 2015 July 2017

POLICY STATEMENT

The City of Guelph believes that community benefit organizations play an essential role in improving the wellbeing of Guelph residents. The City's role in supporting these organizations is guided by the Community Investment Strategy (CIS). The Wellbeing Grant Program is part of this strategy and enables the City to proactively invest in this important work which makes Guelph proud and contributes to achieving the City's Strategic Plan and the community's goals for wellbeing.

PURPOSE

The purpose of this policy is to:

- Improve the wellbeing of individuals, neighbourhoods and Guelph as a whole through directing City grant funding to eligible organizations that can demonstrate their positive contribution to the achievement of the community wellbeing goals.
- Provide eligible organizations with Operating grants to support operations, activities, programs, and services
- Ensure that the process to review and allocate grant funding is transparent, consistent and achieves the maximum impact for the investment provided.
- Involve Guelph residents in the process of allocating grant funding.

VALUES AND GUIDING PRINCIPLES

The Wellbeing Grant Program, its policy and procedures will be guided by the CIS values and guiding principles:

Integrity
The Integrity principle refers to a transparent, defensible and consistent process that is free of conflicts of interest.

Responsiveness
The responsiveness principle refers to a timely process that enables innovation, adapts to changing community needs, and is well suited to Guelph.

Engagement
The engagement principle refers to a user-friendly and inclusive process that facilitates connections among community groups, in order to strengthen relationships between the City and Guelph's community benefit sector.

Inspiration
The inspiration principle refers to a visionary approach that demonstrates compelling leadership, fosters creativity, and brings about a community where people are proud to live.

Stewardship
The stewardship principle refers to a system that maintains guardianship of taxpayers' resources, taking into account the complete cost benefits of the City's community investments, as well as leveraging resources from other sources.

Impact
The impact principle refers to a process that monitors and evaluates community impact based on the wellbeing indicators, and promotes a culture of learning and celebration of the City and community benefit sector's collective efforts.

WELLBEING GRANT PROGRAM GOALS

The Wellbeing Grant program is designed to support community goals. These community goals will be reviewed in 2018 to ensure that they continue to be relevant to the community, the CIS and the Wellbeing Grant Program.

Organizations must demonstrate in their application how they will support **two** of the following wellbeing domains. Applicants must show how they contribute to one goal from each of their chosen domains. The Wellbeing Grant Panel will use this information to help assess applications and make decisions about grant allocations/awards:

1. **Community Vitality Domain**
   Residents...
   - Connect, understand and celebrate Guelph and its diversity
   - Feel safe and respected
   - Have opportunities to discuss and resolve issues together
   - Support and care for each other

2. **Democratic Engagement Domain**
   Residents...

- Are heard and their needs are valued
- Experience a culture and environment of comfort and trust so that people can collaborate and engage
- Are more involved in civic life and have ownership of what is happening in Guelph

3. **Environmental Domain**

   Residents...
   - Use active transportation methods to get around and enjoy Guelph
   - Enjoy a healthy and integrated natural heritage system that values ecological infrastructure strengthening
   - Reduce residential energy, water consumption and household waste

4. **Healthy Population Domain**

   Residents...
   - Are physically, mentally and emotionally healthy
   - Have equitable, affordable, accessible, effective and appropriate resources to support and maintain their health

5. **Leisure and Culture Domain**

   Residents...
   - Enjoy arts, culture, heritage, sport and recreation opportunities that are accessible, affordable and contribute to individual and community identity
   - Have opportunities through sport, recreation, arts, cultural activities to gather, stay connected and celebrate community
   - Have access to a range of local cultural and recreational spaces for meeting, sharing and participating

6. **Living Standards Domain**

   Residents...
   - Live in housing that is affordable and adequate for their needs
   - Eat good quality nutritious, affordable and accessible food
   - Have access to and benefit from economic opportunities
   - Can move around the community to participate in community life

7. **Education Domain**

   Residents...
   - Have access to informal opportunities to learn new skills that support their wellbeing

8. **Time Use Domain**

   Is about...
   - Optimizing the flow of residents around the City to maximize availability of personal time

ELIGIBILITY REQUIREMENTS

In order to apply to the grant program, applicant organizations and funding request must meet ALL of the following eligibility requirements:

1. Both the organization and the investment sought must benefit Guelph residents.
2. The organization must be an incorporated not-for-profit organization. This means that it is under provincial or federal legislation, with or without charitable status.
3. The organization must have a volunteer board of directors with the exception of ex-officio members.
4. The organization must release annual audited financial statements or where audited financial statements are not available the applicant must provide financial statements that have been verified as correct by two signing officers from the organization.
5. The organization has been in operation for at least one year.
6. The organization is in good standing with the City and, if applicable, its own governing bodies.

WHO THE GRANT PROGRAM WILL NOT FUND

The Wellbeing Grant Program will not fund the following:

1. Individuals
2. For profit organizations
3. Organizations that have a current signed agreement with the City that states that they are not eligible for other City funding sources
4. Other levels of government
5. Political organizations
6. Organizations whose activities may breach the Ontario Human Rights Code or Charter of Rights

WHAT THE WELLBEING GRANT PROGRAM WILL NOT FUND

1. Programs that other levels of government have legislated responsibility for funding. This includes funds to 'top up' shortfalls for government mandated programs. Some examples would include school board educational programs, public health programs, provincially mandated child care/services or social assistance programs and health care services.
2. Funding requests of more than $15,000 per organization in any single grant cycle
3. Debt retirement, deficit reduction, depreciation or financing charges
4. Retroactive payments. These are activities or costs incurred before grants are approved
5. 100% of the budget of an activity
6. Secondary allocations. "Secondary allocations" refers to the process where funds received through the Wellbeing Grant Program are allocated to another organization by the applicant or a third party via a funding allocation process such as a grant program. In addition, the Wellbeing

Grant Program will not support funding requests for activities that have the primary purpose of raising funds for a secondary allocation process. This includes fundraising activities carried out on behalf of or in support of a provincial or national organization/campaign that will then reallocate the raised funds to others.

APPLICATION ASSESSMENT CRITERIA

All applications that are submitted by eligible organizations will be assessed against the following criteria:

1. Anticipated positive community impact against the Wellbeing Grant Program goals. Organizations must demonstrate how their application positively contributes to **two** of the goal areas. Applications must state clear performance measures that will show the anticipated impact of the activities.
2. Additional financial and non-financial resources being leveraged from other sources.
3. Evidence of community support. This support could include:
    - details of the number of volunteers that will be involved in the work, and the number of hours they will bring
    - collaboration or partnership with other organizations
4. Evidence that the organization needs the funding. Organizations that have budgets or financial statements indicating a surplus will be required to provide explanations of the surplus and how the organization intends to use it. The level of organizational reserves may be considered.
5. Sound organizational track record. This considers if the organization has the ability, skills and capacity to undertake the work.
6. That the activities do not unnecessarily duplicate successful efforts that already exist in the community.
7. Sustainability of the organization and activity as applicable.
8. The amount of funding requested by applicants and the funding available in the program.

REPORTING REQUIREMENTS

Successful applicants who receive funding from the program must report on how the funding was spent and the impact the funding achieved. **Reports must be submitted to the City by November 30th** of the same year for which the grant is awarded. For example, if a grant is awarded in January 2017, the grant recipient must provide a completed report by November 30, 2017.

If the grant recipient fails to fully complete and submit the report to the City within the stated time, that organization will not be eligible for future grant funding until such a time that the City is satisfied that the report has been submitted in full.

TERMS AND CONDITIONS OF GRANT AWARDS

Successful grant recipients (Grantees) will be subject to terms and conditions relating to the grant. All applicants will be expected to acknowledge their

agreement to be bound by the following terms and conditions at the time of application.

1. Confirmation by the Grantee that the information contained in the Grant Application and supporting documentation is true and correct in every respect.
2. Confirmation that the Grant shall be used by the Grantee for the activities set out in the Grant Application (Part 2 and 3 of the Wellbeing Grant Program Application Form).
3. The Grantee shall immediately notify the City, if the funds cannot be used for the approved activities, or if all or part of the Grant funds has not been spent after completion of the activities. The City may, at its sole discretion, permit the Grantee to use the remaining Grant funds for a different, related purpose, or may require their immediate return.
4. The Grant shall comply with all laws, regulations, by-laws and other governmental directives or orders in the course of spending the Grant.
5. The Grantee shall indemnify and hold harmless the City against any claims, costs, causes of action, fines, or any other losses or other penalties the City suffers relating to the giving of the Grant to the Grantee
6. The Grantee shall notify the City immediately, in writing, of its impending or actual bankruptcy, insolvency, appointment of a receiver, dissolution, cessation of carrying on business or bulk sale of assets.
7. The Grantee shall acknowledge the financial support of the City in all publicity material related to the services and the Grant.
8. The Grantee shall immediately notify the City, in writing, if any of the information provided by the grantee to the City is determined to be inaccurate in any material respect, or if there has been any material adverse change in any of the information provided.
9. The Grantee must comply with all the reporting requirements as outlined in Section 9 of the Wellbeing Grant Program Policy.
10. The Grantee consents to the City using information regarding the details of the grant awarded, including the name of the Grantee, the activities carried out and the community impact of the activities in reports and on the City's website and other relevant media, provided that the City shall not release any information, including financial information and personal information of members or Board members, which is confidential pursuant to the provisions of the Municipal Freedom of Information and Protection of Privacy Act.

GRANTS PROCESS AND PROCEDURE

1. The City will advertise an annual call for funding on the City website (guelph.ca) and other relevant media. The funding call will occur once per year, usually commencing in the month of September. Grants awarded will cover the period January – December of the following year
2. Organizations are advised to read the full Wellbeing Grant Policy and attend any information sessions provided by the City
3. Organizations must download the grant application form, supporting policy and other guidance materials by accessing guelph.ca/grants

4. All organizations must complete the application form in full which means that each question must be answered and all the requested supporting documentation must be submitted. Incomplete applications may not be considered. The City reserves the right to contact any organization for information which requires clarification
5. Applications must be received by the City on or before 4:00pm on the advertised submission deadline. No late applications will be considered. It is the sole responsibility of the applicant to ensure that the City receives completed applications
6. Applications must be submitted electronically via e-mail to: wellbeinggrants@guelph.ca
7. Eligible organizations can submit only one (1) application per year
8. Funding requests cannot exceed $15,000 per application
9. Applications will be screened for their eligibility by staff and provided to the Wellbeing Grant Panel for review
10. The Manager of Community Investment, or equivalent staff, will convene the required series meetings of the Wellbeing Grant Panel who will review each eligible application using the 'application assessment criteria' outlined in this policy
11. Following these deliberations Panel members will compile a list of approved grant applications and their respective funding allocations
12. All applicants will receive notification via mail of whether or not their application was successful
13. Following annual Council budget approval, the Finance Department will issue grant cheques to successful applicants
14. The Wellbeing Grant Program does not have an appeals process for unsuccessful applications
15. All grant cheques must be cashed within three (3) months of the date of issue. Cheques that are not cashed within three (3) months of the date of issue will be cancelled, stopped and will not be replaced. Failure to cash cheques may impact the review of an organization's future grant application

POLICY REVIEW

The Grant Allocation Policy and Procedure will be reviewed annually by Community Investment Staff.

DEFINITIONS

Activities

Specifically what the applicant has requested grant funding for (e.g. programs and services of an organization).

Benefit to Guelph Residents

Organization's service boundaries include Guelph or portion of Guelph, and at least one service, program, or activity location is in the City, or 50% or more of individuals served reside in the City.
Grant requests must be able to demonstrate that they will positively impact Guelph residents in two wellbeing goal areas.

Community Benefit Organization
Community Benefit Organizations possess five defining features; they are:

1. Organized - they have some structure and regularity to their operations, as reflected in regular meetings, a membership, and procedures for making decisions that participants recognize as legitimate, whether they are formally constituted or legally registered or not. This includes informal groups as well as legally incorporated ones.
2. Private - they are institutionally separate from government, even though they may receive financial support from government
3. Not profit distributing - they do not distribute profits to individuals
4. Self-governing - they have their own mechanisms for internal governance and are able to cease operations on their own authority
5. Voluntary - membership or participation is not compulsory or coerced. The term community benefit sector used in this study refers to all groups and organizations that meet this description.

Community Investment Strategy
The Community Investment Strategy lets people know how the City will support and work with Community Benefit Organizations. It aims to ensure the City makes clear, consistent and open decisions.

Incorporated Not-for-profit Organization
Incorporated not-for-profit organization refers to entities incorporated under either federal or provincial not-for-profit legislation. These organizations may or may not have charitable status. Registered charities are included.

In Good Standing
This means that the organization is not in litigation with the City. The organization must be current on accounts receivable. The organization must have all relevant City taxes paid.

In operation for at least one year
An organization declares the date on which their organization began operating as a Community Benefit Organization.

Ontario Human Right's Code
The Ontario Human Rights Code (*Code*) is a provincial law that gives everybody equal rights and opportunities without discrimination in the social areas of:

- employment
- accommodation
- goods, services and facilities
- contracts
- membership in vocational associations and trade unions

The *Code's* goal is to prevent discrimination and harassment because of:

- race
- ancestry
- place of origin

- colour
- ethnic origin
- citizenship
- creed (religion)
- sex (including pregnancy and gender identity)
- sexual orientation
- disability
- age (18 and over, 16 and over in occupancy of accommodation)
- marital status (including same sex partners)
- family status
- receipt of public assistance (in accommodation only)
- record of offences (in employment only)

Operating Grant
A financial grant provided to support part of an organization's operating expenses or on-going program/service costs (e.g. day-to-day costs.)

Other Levels of Government
Other levels of government including:
- Crown Agencies and Corporations (Federal and Provincial)
- Hospitals
- School Boards
- Universities, Colleges of Applied Arts and technology and Post Secondary institutions
- Approved agency designated as a Children's Aid Society
- Community Care Access Centres
- Local Boards
- Boards of Health

Performance Measure
A performance measure is something that helps quantify the achievement of a desired result. For the purposes of this policy, applicants will be required to provide some performance measures on the application that, if they are successful, will help show what was done with the grant funding and what was achieved for residents. Successful grant recipients will be expected to report the actual performance results after the grant has been spent. Measures should answer (as much as possible) each of the three following questions:

- **how much work was done** (e.g. the number of participants who attended the 6 week mentorship program)
- **how well was the work done** (e.g. the number of participants who successfully completed the 6 week mentorship program)
- **what difference did it make** (e.g. the percentage of program participants who reported that their quality of life improved as a result of the mentorship program).

Political organization
An organization established for a political purpose;

- to further the interests of a particular political party; or support a political party or candidate for public office; or
- to retain, oppose, or change the law, policy, or decision of any level of government in Canada or a foreign country.

Not-for-profit organizations that are not established for a political purpose can engage in some activities to retain, oppose, or change the law, policy or decision of any level of government in Canada or a foreign country. These activities must be non-partisan – not supporting a candidate or political party.

Wellbeing

The presence of the highest possible quality of life in its full breadth of expression, focused on but not necessarily exclusive to: good living standards, robust health, a sustainable environment, vital communities, an educated populace, balanced time use, high levels of democratic engagement and access to and participation in leisure and culture.

Information Report

Service Area	Public Services
Date	Click here to enter a date
Subject	**Salt Management Plan**
Report Number	PS-17-19

Executive Summary

Purpose of Report

To provide Council information on the City's Salt Management Plan, a policy and procedural framework for delivery of winter maintenance activities.

Key Findings

The updated Salt Management Plan utilizes best management practices to deliver winter maintenance in an environmentally responsible manner.

Financial Implications

There are no financial implications.

Background

The Canadian Environmental Protection Act identified high releases of road salts as having an adverse effect on freshwater ecosystems, soil, vegetation and wildlife. As a result in 2004, a Code of Practice to ensure environmental protection while maintaining roadway safety was published. This Code of Practice recommended the development of salt management plans and implementation of best management practices. In compliance with the recommendations in the code, in 2005 City staff developed and implemented a Salt Management Plan (SMP). As per best practice, SMPs are to be reviewed on a regular basis, in 2009 a review and update of the City's SMP was conducted.

Report

In 2016 City staff began the process of reviewing and updating the Salt Management Plan. This review coincided with the completion of the City's new salt storage facility and new regulations under the Source Water Protection Act. As part of this review, staff also utilized the Transportation Association of Canada's (TAC) Synthesis of Best Practices which outlined items that should be included in a salt management plan.

While the City's 2005/2009 SMP met the basic requirements, in 2016/2017 it was expanded to meet the current operational needs. Specifically, the scope of the Salt Management Plan has been expanded to include:

- Winter control service levels for roads, sidewalks, bus stops and City owned parking facilities
- Winter patrol standards and reporting
- Through GIS, mapping all locations requiring winter control maintenance
- Recommended application rates based on winter events for roads, sidewalks and City parking facilities/lots
- Identification of all activities related to winter control
- Management of winter control materials such as salt, brine and sand
- Training requirements for winter control staff and contractors

It should also be noted that in July of 2016, the Grand River Source Protection Plan came into effect requiring Salt Management Plans for municipalities within the Grand River watershed. The Grand River Source Protection Plan required affected municipalities to ensure the future handling and storage of road salt never becomes a significant drinking water threat within vulnerable areas. As such, the City's SMP has also been updated to identify wellhead protection areas along with best management practices for the storage of salt.

Environment and Climate Change Canada Code of Practice requires the annual submission of a Road Salts Report. Included in this report is an update on the City's SMP, winter operations, material used, salt storage, salt application, snow disposal and management of salt in vulnerable areas. The updated SMP reflects these annual reporting requirements.

Financial Implications

There are no financial implications.

Consultations

Engineering – Source Water Risk Management
We would also like to acknowledge the assistance of Andrew Betts, who reviewed the SMP and provided recommendations that staff incorporated. Mr. Betts, a Water Resource Engineer with 10 years of experience is a member of Environment Canada's Road Salt Working Group and Salt Vulnerable Area Subgroup. His area of expertise is Water Resources and Salt Management.

Corporate Administrative Plan

Overarching Goals
Service Excellence
Innovation

Service Area Operational Work Plans
Our Services - Municipal services that make lives better
Our Resources - A solid foundation for a growing city

Attachments

ATT-1 City of Guelph Salt Management Plan

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Salt Management Plan

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Updated April, 2017

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1. Introduction

The Salt Management Plan is both a policy and procedural framework for ensuring that the City utilizes ***best management practices*** while delivering the program through an ***environment management system*** approach. The Salt Management Plan is meant to be a dynamic document allowing the City of Guelph to evaluate and phase-in any changes, new approaches and technologies in winter maintenance activities in a fiscally sound manner. This Salt Management Plan was developed for the City of Guelph utilizing the Transportation Association of Canada Synthesis of Best Practices as outlined in Environment and Climate Change Canada's Code of Practice for the Environmental Management of Road Salts.

1.1. Policy Statement

The City of Guelph will provide efficient and effective winter maintenance to ensure the safety of users of the municipal road and sidewalk network in keeping with applicable provincial legislation and accepted standards while striving to minimize adverse impacts to the environment. These commitments will be met by:

- Adhering to the procedures contained within the Salt Management Plan;
- Reviewing and upgrading the Salt Management Plan on an annual basis to incorporate new technologies and new developments;
- Incorporating the requirements of the Grand River Source Protection Plan[1] by July 1, 2018.
- Committing to ongoing winter maintenance staff training and education; and
- Monitoring on an annual basis, the present conditions of the winter maintenance program, as well as the effectiveness of the Salt Management Plan.

1.2. Background

Due to concerns about the large quantities of chlorides being released to the environment, road salts underwent a comprehensive five-year scientific assessment under the Canadian Environmental Protection Act, 1999 beginning in 1995. The assessment report, published on December 1, 2001 concluded that high releases of road salts were having an adverse effect on freshwater ecosystems, soil, vegetation and wildlife. The publication of this report initiated the risk management process to address the impacts to the environment by road salts. The outcome was a Code of Practice to ensure environmental protection while maintaining roadway safety. There are two main recommendations in this Code:

- The development of salt management plans, based on a review of existing road maintenance operations, identification of means and goal-setting to achieve reductions of the negative impacts of salt releases; and
- The implementation of best management practices in the areas of salt application, salt storage and snow disposal, as outlined in the Transportation Association of Canada's Syntheses of Best Practices.

To aid users in developing salt management strategies, Environment and Climate Change Canada has published a Code of Practice for the Environmental Management of Road Salts, along with an associated implementation guide. Through the Code of Practice, the

1 Grand River Source Protection Plan, July 2016. Section 13. The Handling and Storage of Road Salt.

Transportation Association of Canada, (TAC), has developed a Salt Management Guide, which includes a series of synthesis of best practices related to salt management.

In 2009 the City of Guelph created a Salt Management Plan based on the TAC Guide. The goals set out in that Plan have been achieved and will be reflected in the existing program. The 2016 Salt Management Plan endeavors to establish new best practices as goals and implement formal monitoring activities to gage the effectiveness.

1.3. Salt Management - Objective

The Salt Management plan strives to constantly evolve to capture salt best management practices while ensuring the City's obligation to provide safe transportation systems in a fiscally responsible manner is met. The plan is based on the following principles;

- This is a corporate wide plan reviewed and implemented in all Service Areas that impact the salt usage and monitoring within the Municipality.
- It is activity based, with standards and objectives established for each activity with minimal environmental impact.
- It is flexible with deficiencies identified and corrective actions implemented.
- Policies and Procedures are well documented and communicated both within the organization and to outside contractors.
- Activities are recorded, monitored, audited and reported on.
- Policies, procedures and best practices are a part of training for all staff.
- Through corrective actions and evolving best practices the Salt Management Plan will be a fluid document.

2. Winter Maintenance Program

2.1. The System Maintained

The City provides winter maintenance including; patrolling, weather monitoring, anti-icing, plowing of snow accumulation, de-icing and snow removal for the following facilities;

- All City owned vehicle transportation systems[2]
  - 201 lane km of Class 2 roadways,
  - 140 lane km of Class 3 roadways,
  - 182 lane km of Class 4 roadways,
  - 585 lane km of Class 5 roadways,
  - 20 lane km of unpaved roadway,
  - 3.2 km both paved and unpaved laneways;
- All Pedestrian transportation systems
  - 696 km of sidewalks,
  - steps,
  - crosswalks
  - multi-use pathways
- Bus Stops

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2 Ontario roads have been classified (Class 1, 2, 3, 4, 5 and 6) as per Ontario Reg. 239/02 of the Ontario Municipal Act 2001, Table A, which is based on the posted/regulated speed and annual average daily traffic (AADT).

    - 659 Bus pads without shelters
    - 96 Bus pads with shelters
- City owned public parking lots
- City owned facility parking lots

2.2. Level of Service

The level of service for City operations is established by both legislated standards and Council approved standards. Where the two standards conflict the legislated standards will govern.

The Municipal Act has created legislation specific to the Minimum Maintenance Standards for Municipal Highways through Ontario Regulation 239/02 (MMS). These standards provide protection for the municipality against claims for property damage or bodily injury by defining "gross negligence". The clauses within establish the service levels for winter activities on roadways which if met the City cannot be deemed grossly negligent. Currently, there are no legislated service levels in place for sidewalk winter maintenance.

The Council of the City of Guelph have approved levels of service proposed by Operations for the maintenance of City roadways and sidewalks. These exceed the legislated standards in regards to ploughing activities. The service levels were last presented and approved February 2005 for roadways and November 2009 for sidewalks. In the budget deliberation of 2008 the level of service for Class 5 roadways was reduced from responding at 8 cm accumulation to 10 cm accumulation. This meets the service level established in Ontario Regulation 239/02.

In 2015, the Operations Department, during a review of road classifications, identified 93 lane kilometres (km) of Class 5 roadways had evolved to class 4 roadways due to increased traffic. The legislated standard for Class 4 roadways is to respond at 8 cm. A cost review was completed with two options. First, adding an additional route at the higher service level to accommodate the additional class 4 roadways. Second, returning the level of service to 8 cm snow accumulation for the existing class 5 roadway routes thus meeting the legislated standard for class 4 roadways and exceeding the legislated standard for class 5 roadways. The second option was found to be most cost effective so the higher level of service, responding at 8cm accumulation was adopted for those routes that combine class 4 and class 5 roadways.

However, the MMS does not speak to environmental impacts of salts. The proposed Grand River Source Protection Plan introduced by the Ontario Ministry of Environment sets out policies to protect drinking water sources.

The following table provides the current level of service for Winter Operations.

Winter Operations Level of Service

Legend	Text in Blue	Council Approved Standard
	Text in Red	Ontario Regulation 239, Minimum Maintenance Standards

Route	Description	Response Standard	Response Time	Activity	Accepted condition	Standard Reference	# kms
Impending Winter Event							
Roads Primary Route	Class 2 roadway and Class 3 roadway with hills or sharp curves	Prior to event	12 hours	pre-treat with salt brine mix		TAC-Syntheses of Best Practices Road Salt Management	170 km
Secondary Salt Route	Class 3 Roadway and Class 4 roadway with hills or sharp curves	Prior to event	12 hours				116 km
Snow Conditions							
Roads Primary Route	Class 2 roadway and Class 3 roadway with hills or sharp curves	>=2.5 cm accumulation	Begin operation when aware accumulation exceeds 2.5 cm, complete within 6 hours after accumulation ended	Plow and treat	2 lanes bare, minimum 6 m	Council Approved Standard, February 2005 O.Reg. 239 Section 4	170 km
Roads Secondary Route	Class 3 Roadway and Class 4 roadway with hills or sharp curves	>=2.5 cm accumulation	Begin operation when aware accumulation exceeds 8 cm, complete within 12 hours after accumulation ended	Plow and treat			116 km
Roads Residential Route	Class 4 and 5 roadways	>=8 cm accumulation	Begin operation when aware accumulation exceeds 8 cm, complete within 16 hours after accumulation ended	Plow treat 90% sand/10% salt mix			268 km
Downtown	All sidewalks, steps, walkways and platforms	<= 1 cm	By 9am	mechanical snow plowing	bare concrete	Council Approved Standard, November 2009	11
City owned steps, walkways	Outside of the downtown area	<= 1 cm	12 hours from end of event	manual shoveling and sanding	bare concrete		181 locations
High priority sidewalks	Sidewalks with highest volume, near schools,	>= 4cm	completed within 20 hours of end of storm	mechanical snow plowing	snow packed and treated		331.58
Residential sidewalks	Low pedestrian volume	>= 8cm	completed within 20 hours of end of storm				350.5
Bus Stops		>= 4 cm	completed within 20 hours of end of storm		bare concrete		755 bus stops
City Owned Public Parking Facilities		>= 4 cm		plow and treat 90% sand/10% salt mix	bare surface		8 locations

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Table 1 Snow Event Levels of Service

Winter Operations Level of Service							
Legend	**Text in Blue**	**Council Approved Standard**					
	Text in Red	**ario Regulation 239, Minimum Maintenance Standards**					
Potential Icy Conditions							
Brine Application Route	Bridge Decks and troubled areas	Substantial probability of ice forming on roadway	24 hours period preceeding the formation of ice on roadways	pre-treat with 23.3% salt brine or salt	material applied to roadway	O.Reg. 239 Section 5.1	97km
Icy Conditions							
Roads Primary Route	Class 2 roadway and Class 3 roadway with hills or sharp curves	aware of icy conditions	4 hours from when the Municipality becomes aware of icy conditions	treat with salt	material applied to roadway	O.Reg. 239 Section 5	170 km Center line
Roads Secondary Route	Class 3 Roadway and Class 4 roadway with hills or sharp curves	aware of icy conditions	8 hours from when the Municipality becomes aware of icy conditions	treat with salt	material applied to roadway		116 km Center line
Roads Residential Route	Class 4 and 5 roadways	aware of icy conditions	12 hours from when the Municipality becomes aware of icy conditions	treat with 90% sand/10% salt mix	material applied to roadway		268 km Center line
Downtown sidewalks	All sidewalks, steps, walkways and platforms	icy / freezing rain	pre-treat with salt brine, and patch sand as necessary	mechanical sanding	ice melted or traction provided	Council Approved Standard, November 2009	11
City owned steps, walkways & crosswalks	Outside of the downtown area	icy / freezing rain	all sanded by 9am	manual sanding	ice melted or traction provided		181 locations
High priority sidewalks and Bus stops	Sidewalks with highest volume: on bus routes, near schools, university, seniors facilities	icy / freezing rain	completed within 6 hours	mechanical sanding	ice melted or traction provided		219
Residential sidewalks	Low pedestrian volume	icy / freezing rain	completed with 24 hours	mechanical sanding	ice melted or traction provided		337
Winter Maintenance							
All roads, sidewalks, steps, bus stops and crosswalks		in between winter events, staff continue to monitor routes, plow drifts, patch sanding, removing snow banks, etc		as required			

Table 2 Icy Conditions Level of Service

3. Winter Maintenance Activities

3.1. Winter Patrol

Winter Patrol is carried out in three separate programs. Each entails a trained patroller monitoring weather forecasts. The forecasts are provided at 12:00am, 6:00am, 12:00pm and 6:00pm by a contracted weather forecast service provider through a brief "Smartphone Forecast" and a 7-day forecast. As well, the Patroller travels designated areas to monitor current weather conditions including air temperature, surface temperature, atmosphere conditions, precipitation, wind and surface conditions. The patroller is responsible for deploying the appropriate response. Staff's patrol is then recorded in an online digital form and/or a logbook. City wide coverage for all winter control activities is provided by the following patrols:

Winter Patrol Activities				
Patrol	***Area of Coverage***	***Month***	***Hours of Operation***	***Frequency of Patrol***
Road Patrol	Roads, lanes, sidewalks when sidewalk staff not scheduled.	December 1 to April 30th	7 days a week, 24 hours a day	Every 2 hours
		October 1 to November 30th	7 days a week 6am to 6pm, 6pm to 6am if weather monitoring indicates	
Sidewalk Patrol	Sidewalks, steps, crossings, multi-use pathway	October 1 to April 30th	Monday to Friday 7am to 3pm, remaining coverage by Road Patroller	Every 6 hours
Downtown Patrol	Downtown sidewalks, transit hub and downtown parking lots	October 1 to April 30th	Downtown Patroller 5am to 10 pm-7 days a week, By-Law Patroller 7 days a week-24 hours a day.	Every 6 hours

Table 3 Winter Patrol

3.2. Plowing Operations

3.2.1. Roads

The City's plowing operations commence when the thresholds identified in the Level of Service have been met. The intent is to return the roadway to a safe condition while minimizing the need for material application by removing the snow or slush first. The City has developed routes for both plowing operations and treating of roadways based on multiple factors such as road class, steep slopes, sharp curves and known trouble areas. The routes are then broken up based on geographic zone and appropriate equipment; front end plow with wing or underbody plow. The routes are reviewed annually prior to Winter Control. They are updated with additional inventory and reviewed by Supervisor, Lead Hands and Operators. The following chart shows the City's current winter control routes, the criteria for the route and number in each category. Routes are mapped (Appendix A) and provided to operators.

Roads Winter Maintenance Routes				
Route Name	***Criteria***	***# Routes***	***Personnel***	***Equipment***
Primary Salt Route	1. Class 2 Roadways 2. Class 3 Roadways with Steep grade and/or sharp curves 3. Known trouble areas	8	City Operators	• 2-Single Axle w/front plow & wing • 2-Single Axle w/underbody plow • 8-Tandem w/front plow & wing • 1-Flat bed w/Front Plow & Wing • 1-Grader • 2-3 Yard Loader
Secondary Salt Route	1. Class 3 Roadways 2. Class 4 Roadways with Steep grade and/or sharp curves 3. Known trouble areas	8		
Residential Route Sand Route	1. Class 4 Roadways 2. Class 5 Roadways	8		
Wing Route	Roadways with gravel shoulder or no curb	3		
280 Route	Public Laneways	1		4x4 Pick up w/Front Plow
Brine(Trouble) Route	• Bridges • Class 2, 3 or 4 Roadways with steep grades	1	City Operators	• 2-Tandem w/Liquid Anti-icing • 1-F-450 w/Liquid Anti-icing
Residential Contractor Plow Route	1. Class 4 Roadways 2. Class 5 Roadways	• 22 Street • 19 Cul de Sac and Dead End	Contracted Operators	• 14 Contracted Graders • 12 Contracted Loaders

Table 4 Road Winter Maintenance Routes

3.2.2. Sidewalks-City Wide

The City maintains all sidewalks, multiuse pathways, walkways and steps owned by the City. As of 2009 there have been 9 routes based on geographic zones. Each route has High Priority and Residential sidewalks which set the level of service performed by staff. The priority of sidewalk is based on pedestrian traffic, proximity to schools, Senior Facilities, bus routes and medical facilities. In the 2015/2016 winter season a tenth route was added to address new multiuse pathways. All plow routes are maintained by City Staff with Trackless sidewalk plows. In addition to the plow routes there are 3 lists of steps, 3 lists of school crossings, 2 lists for blower locations and one list of Pedestrian Crossings. Maps and lists provided in Appendix B.

3.2.3. Downtown Sidewalks and Parking Lots

Due to the higher pedestrian traffic and on street parking the downtown is maintained at a higher level of service. The 11 km of sidewalk are maintained by City Staff with 2 trackless units as well as hand shovelling and material application at transit platforms and on street accessibility parking spaces. During regular hours; Monday to Friday 5am to 10pm, Saturday 5am to 5pm, Sunday 5am to 3pm, City staff also maintains 13 municipal parking lots and 2 laneways. Maps of these activities are provided in Appendix C.

3.3. Material Applications

3.3.1. Roads

Material utilized for maintaining traction on Primary and Secondary routes include rock salt, 23% Brine solution and an enhance chloride liquid for temperatures below -15°C. Residential routes which have a level of service of snow packed use a 90% rock salt to 10% sand mix.
Timing is crucial in applying salt. Material can be used as a proactive measure by Anti-icing a roadway. Anti-icing prevents bonding of the snow to the road surface. The melting action of the salt applied early in a storm works from the pavement surface up so snow and ice do not form hard pack.[3] Anti-icing can be accomplished by either spraying a brine solution to the road surface prior to the storm's arrival or applying salt as soon as the storm begins so it creates brine with the initial layer of snow. Salt is usually applied at the rate 75 to 200 kg/2-lane km. As temperatures drop either the quantity of salt or frequency of application must increase. The following table is a guideline for fighting major types of winter events.[4] The rates listed are guidelines only.

3 The Snow Fighter's Handbook, A Practical Guide for Snow and Ice Control (2013) Published by the Salt Institute, Chapter 7 Recommendations for Salt Application.
4 The Snow Fighter's Handbook, A Practical Guide for Snow and Ice Control (2013) Published by the Salt Institute, Chapter 5 Stormfighting Practices

Snow Type	*Temperature*	*Material*	*Rate*	*Notes*
Frost	Holding near -1°C	23% brine	80 litres/lane km	Apply only on bridges and trouble areas
Anti-icing	Above -15°C	23% brine	80 litres/lane km	Apply only on bridges,trouble areas, Primary route
Wet Snow with freezing rain	Holding near -1°C	Rock Salt with 23% brine pre-Wet	50 to 125 kg/2-lane km	Plow and repeat application as required
Snow, sleet	Below -1°C and falling	Rock Salt with 23% brine pre-Wet	75 to 200 kg/2-lane km	
Freezing Rain	Below -1°C and falling	Rock Salt with 23% brine pre-Wet	50 to 100 kg/2-lane km	Increase quantities where more than 2 hrs between application
Dry Snow	Below -6°C and falling	Rock Salt with 23% brine pre-Wet	50 to 125 kg/2-lane km	Plow only, apply material only at snow packed or icy locations
Snow, sleet, freezing rain	Below -6°C and falling	Rock Salt with 23% brine pre-Wet	150 to 200 kg/2-lane km	Plow and repeat application as required
Snow, sleet, freezing rain	Below -6°C and rising	Rock Salt with 23% brine pre-Wet	125 to 150 kg/2-lane km	Plow and repeat application as required
Snow, sleet, freezing rain	Below -15°C	Rock Salt with Caliber M100 pre-wet	125 to 150 kg/2-lane km	Plow and repeat application as required

Table 5 Material Application Rates for Winter Events

Further factors may have an impact on how long the material stays in place resulting in increased material application. These factors include the rate of the runoff, slope of the roadway and quantity of vehicular traffic dispersing the material. In part these factors can be addressed by applying the material at the centerline of the roadway. As well the Operator must be relied on to have the training and experience to adjust the rates as required to be effective in maintaining traction.

3.3.2. Sidewalks-City Wide

City sidewalks are treated during plow operations or to address icy conditions with a 50% salt to 50% sand mix.

3.3.3. Downtown Sidewalks and Parking Lots

Downtown sidewalks are treated during plow operations or to address icy conditions with a 50% salt to 50% sand mix.
Downtown parking lots are treated with rock salt. The application rate varies with the temperature, vehicle traffic volume, surface type and type of snow accumulating. The following table provides application rates and adjustment factors based on a recent study performed by the University of Waterloo.[5] Section 7 Quick Guide for optimal Snow and Ice controls (Appendix D) provides tables and details for establishing the best material and application rate for snow and ice control within parking lots.

Application Rates Based on Temperature		
Condition	**Temperature Range**	**Rate (kg/m2)**
Regular Fresh Snow	-1°C to -3°C	75
Regular Fresh Snow	-4°C to -6°C	200
Regular Fresh Snow	-7°C to -9°C	400
Adjustment Rates		
Condition		**Adjustment Factor**
Snow Type - Loose snow		0.75
Snow Type - Packed Snow		1.50
Snow Type - Freezing Rain & Ice		8.00
Traffic Volume-No Vehicular Traffic		1.00
Traffic Volume-Low to Medium Traffic		0.45
Traffic Volume-High Traffic		0.30
Pavement Type-Asphalt Concrete		1.00
Pavement Type-Portland Cement		1.20
Pavement Type-Interlocked Concrete		1.20

Table 5 Application Rates for Parking Lots

3.3.4. Total Material Usage

The material usage by type of application commenced being tracked in 2012. The following table documents the material used for road application based on type of material.

5 Optimal Snow and Ice control of Parking Lots and Sidewalks, A Final Summary Report, iTSS Lab Department of Civil and Environmental Engineering, University of Waterloo. January 2015

Season	ANTIICING		PRE/WET		Fusion	SALT	A-SAND			B-SAND		TOTAL SALT	TOTAL SAND
	Total Material (L)	Total Salt (tonne)	Total Material (L)	Total Salt (tonne)	Total Material (L)	Total Salt (tonne)	Total Material (tonne)	Total Salt (tonne)	Total Sand (tonne)	Total Material (tonne)	Total Sand (tonne)		
2012/2013	565,305	209	150,369	56	11,444	10,002	465	233	233	1,820	1,820	10,500	2,053
2013/2014	82,107	30	356,852	132	-	12,000	731	365	365	1,495	1,495	12,527	1,860
2014/2015	165,658	61	441,197	163	2,549	19,758	1,944	972	972	1,210	1,210	20,955	2,182
2015/2016		-	257,025	95		6,792	734	367	367	542	542	7,254	909

Table 6 Material Used based on application type

3.4. Wind and Drifting Snow Control

Wind is a key factor in winter weather conditions. It can reduce visibility and cause drifting during a snow event. More importantly it can cause these same issues when there is no snow fall occuring. To reduce the impact of wind, snow fencing is utilized. Snow fence is porous, allowing both wind and air borne snow to pass through. It acts as a windbreak slowing the wind and changing it from laminar flow to turbulent flow. The disarrayed wind then drops the snow it has gathered.
Snow fencing provides three key functions:

- It keeps the road clear by causing the snow to gather on the downside of the structure instead of on the roadway.
- It increases visibility along the roadway for drivers.
- It allows the placement of stockpiled snow created in drifts near storm water management facilities such as ditches so the clean melt can dilute the salt contaminated water entering the system.

Currently snow fencing is installed in areas (Appendix E) identified with drifting issues prior to the winter operations. The intent is to replace these fences in the future with living snow fences utilizing trees and shrubs where possible.

3.5. Snow Removal and Disposal

When the accumulation of piled snow impedes pedestrian or vehicular traffic within the business districts and on bridges staff removes and hauls snow to one snow disposal site. The downtown Business District windrow removal maximum accumulation threshold is currently set as 30 centimetres of height. Criteria attributable to this designated threshold include pedestrian mobility to and from roadside parking areas, which effect delivery of goods, solid waste curbside collection activities and general safety of the public.

Snow is removed throughout the City when windrows become a sightline issue as defined by Transportation Association of Canada Geometric Design Guide for Canadian Roads, Section 2.3 Intersections.

The snow disposal facility is located on City lands on the north side of Wellington Street, west of the Hanlon Expressway, adjacent to the City's Wastewater Treatment Facility. City equipment is complemented by contacted equipment in order to carry out the snow removal task.

3.6. Equipment

The City maintains and operates various types of equipment for both road and sidewalk winter control activity (Appendix F).

3.6.1. Automated Vehicle Locator System (AVL)

All winter control equipment is equipped with Automated Vehicle Locator Systems (AVL) which monitors vehicle global position, Date, time, speed, and ignition status. Heavy trucks which apply material and/or plow roads are equipped with advanced AVL units which provide type of material applied and application rate.

3.6.2. Material Application Systems

All heavy equipment utilized for road winter maintenance has been equipped with electronic spreader controls and infrared thermometers for monitoring road surface temperature. They are also fitted with liquid storage capacity for pre-wetting rock salt prior to application. When liquid anti-icing application is required there are 2 tandem trucks and one heavy duty pick up fitted with tanks and electronic spreader controls.

All other equipment utilized for sidewalks and parking lots that have spreader capacity have mechanical controls for application rates and no capacity for pre-wetting material.

3.6.3. Equipment Calibration

Properly calibrated equipment is one of the keys to the effective placement of de-icer material on municipal roads.

- Prior to the start of each winter season, all spreaders will be calibrated. During the winter season the equipment will be checked and recalibrated minimum once mid-season and each time there has been work on the vehicle's hydraulic system.
- All trucks applying material to roadways and/or parking lots will be loaded by a loader using a scale on the bucket. The quantity loaded will then be compared to the total applied based on the spreader quantities. Variations of more than 5% will require recalibration of the truck.
- Utilizing the AVL System application rates will be monitored during the winter season, for each route. Application rates will be compared by route and by operator across the city.

3.6.4. Equipment Washing

It is intended to reduce the amount of chlorides, oil, grease and grit that is discharged back into the environment. All winter equipment is currently washed down after use, utilizing the wash facility at the city owned terminal in the Operations Yard at 45 Municipal Street or 50 Municipal Street. Both wash facilities are tied into the sanitary system. This will ensure no discharge of contaminated water to the environment.

3.7. Communications

All winter maintenance vehicles are equipped with two way communications consisting of radios. Public Works staff is responsible for reporting changing winter weather and/or road conditions. Digital reports from Roads, Sidewalks and Downtown are submitted coinciding with weather forecasts when staff is scheduled. These provide information on a number of conditions including current weather and road/sidewalk conditions as well as activity to respond. The reports are automatically distributed by email to Lead hands, Supervisors, Manager and General Manager. (Appendix G)

The City Operations facility on Municipal Street, serves as the main hub for in/outgoing calls from staff, emergency services and the general public. At this location the office is staffed between 8:00am and 4:00pm Monday through Friday. Outside of these hours, the City of Guelph utilizes the services of a contracted after hours call centre to field and direct incoming calls. The call centre uses a direct line link from our Operations switchboard. The Operations switchboard number is 519-837-5628.

External communication with the general public consists of media press releases, twitter, local radio announcements and information posted on the City of Guelph web site regarding winter maintenance activities.

Note: There are many ways for a municipality and its staff to receive notice that a winter storm event has commenced. In order to meet the requirements for MMS, response is required (upon receipt by a member of staff, council or the public). After becoming aware of the fact, the person receiving notice shall inform the Operations Department Supervisor or Lead hand immediately.

4. Training

The City has developed internal training programs for all equipment operators which are enhanced by training through the Ontario Good Roads association. There is a testing component to each program which operators must pass.

WINTER CONTROL TRAINING			
Role	***Program***	***Description***	***Frequency***
All Operators	Smart About Salt	Understanding the right amount of material to use in response to existing conditions.	Annually
All Senior Operators, Lead Hands and Supervisors	Ontario Good Roads Association Winter Patroller	Role and responsibilities of a winter patroller.	Bi-Annually
Sidewalk Operators	Classroom Theoretical Training	Salt basics	Annually
		Hazards	
		Safety and warning symbols	
		Equipment design and function	
		Dimensions and stability	
		Common damages	
		Pre-trip inspections	
		Starting procedures	
		Shut-down procedures	
		General operation and safety	
		Plowing best practises	
		Maintenance safety	
		Defensive Driving	
		Hours of Service	
	Practical Equipment Training	Equipment and attachment familiarization	
		Equipment pre-trip demonstration test	
		Obstacle course test-consists of 9 obstacles	
Road Operators	Classroom Theoretical Training	Weather	Annually
		Equipment preparation	
		Environment Canada's code of practise	
		Salt & sand	
		Equipment operation & safety	
		Attachment mounting & set up	
		Plowing techniques	
		Pre-trip inspection	
		Plowing Techniques	
		Loading trucks	
		Defensive Driving	
		Hours of Service	
	Practical Equipment Training	Vehicle and equipment familiarization	
		Vehicle pre-trip inspection test	
		On road driving evaluation	
		Obstacle course test-consists of 3 obstacles	

Table 7 Winter Control Training Requirements

5. Winter Operations Facilities

5.1. Operations Yard

Winter operations yard consists of two facilities.

At 45 Municipal Street material storage, fuel supply and indoor truck washing facilities are available. (Appendix H-SP1) The site is in a Wellhead Protection Area–B with a high vulnerability score of 8 in most areas and 10 in a small area. [6] Given the potential risk to source water the site has been designed to direct all storm water runoff to an oil grit separator before leaving the site. (Appendix H-SP2) The oil grit separator is cleaned minimum two times per year.

Directly across is 50 Municipal Street which has a wash bay and storage for winter equipment. (Appendix H-SP3)

5.2. Vehicle Maintenance

The property at 45 Municipal Street also houses the City's Fleet Maintenance Division. All winter control equipment undergoes preseason checks to ensure safe operation. During winter operations the Fleet Division has staff schedule 24 hours a day, 7 days a week to ensure equipment has minimal downtime if breakdowns occur.

There are two sites available for staff to wash equipment after use; 45 Municipal Street within the Fleet Division building and 50 Municipal Street adjacent to the vehicle storage area. Due to the higher concentrations of salt in runoff resulting from washing winter control equipment the two wash bays drain directly into the City's sanitary system.

5.3. Material Storage

In 2014 the City began design of a new salt storage facility to replace the existing domes that had reached end of lifecycle. Part of the design criteria included compliance with the then proposed Grand River Source Protection Plan, Clause CG-MC-30 ensure "the storage of salt never becomes a significant drinking water threat within vulnerable areas" (Appendix I). This was addressed through preparation of a memo which provided a review of ground water resources in relation to the development of the proposed facility. (Appendix J). The review identified the site to be within a WHPA-B Zone with a high vulnerability score of 8 and a small area rated as 10. The site is partially located within a Significant Groundwater Recharge Area with a rating of 4, Moderate Vulnerability. With these and other considerations the facility has been designed to ensure all salt laden runoff is prevented from infiltrating the ground water on site or leaving the site to infiltrate elsewhere. This protection is accomplished through the construction of a fully lined, enclosed building with all runoff within the structure directed to the City's sanitary system.

In February 2016 the City began use of a new Salt Storage Facility (Appendix H-SP4 to 6) with a design based on TAC Best Practices. The facility allows for delivery of salt through a separate structure off-loading directly into a hopper with a conveyor which transports the

6 Part V of the Ontario Clean Water Act 2006 Technical Rules.

material directly to the salt storage area. Access to the material is restricted to trained operators to best control material inventory. Standard Operating Procedures control material access and distribution. The total capacity of the Salt Storage Facility can accommodate 4,400 tonne rock salt, 1100 tonne salt/sand mix and 150,000 L salt brine.

The facility is cleaned annually immediately after winter operations utilizing an air compressor pressure washer. Prior to restocking the facility with winter material in the fall there is a thorough inspection ensuring all equipment is operational and there are no infarctions in the material containment that would allow runoff to infiltrate ground water.

A spill control plan has been implemented for the facility which identifies the primary potential spills resulting from equipment leaks of fuel or hydraulic fluid. (Appendix K)

5.4. Snow Storage

Historically, both City operations and Contractors for a fee have utilized the property at 530 Wellington Street for snow disposal. This operation was identified as a bad practice due to a number of risk factors to the natural environment. Of particular concern is impact to the surface water (Eramosa River) and soils, in and around the site from years of snow and street sweeping disposal. This can lead to a major financial impact since any existing potential environmental threat can significantly reduce the usefulness of the land. The site is situated in a WHPA B with a vulnerability score of 10. Based on the footprint, the activity and MOECC Tables of Drinking Water Threats circumstances indicate that this would be a significant drinking water threat.

In 2015 the consultant, GHD was awarded the contract to complete a feasibility study of proposed sites for a Snow Disposal Facility (SDF). A report was submitted to the Council on June 8, 2016 with recommendations from the staff for site selection based on the consultant GHD's Snow Disposal Site Selection; Feasibility Evaluation (dated November 27, 2015). The report identified Site #1 Wellington Street, the existing snow disposal site as the preferred location. Council's acceptance of the report triggered the initiation of necessary pre-design/pre-construction activities associated with Site #1, Wellington Street.

In 2016 design began of a Snow Disposal Facility (SDF) to conform to the Ministry of Environment and Climate Change (MOECC) Best Management Practices (BMPs) and Salt Management requirements newly legislated through Clean Water Act.

The existing facility and its operations are under MOECC's review precipitating the commencement of construction of the SDF in 2017. The "high-level" cost estimate for the project, from pre-design tasks to construction of the site, is approximately 5 million dollars. This funding does not include any infrastructure upgrades for site access.

In order to mitigate the risk, contractors that previously paid to dispose of snow at the site will no longer to permit to do so. The site will be utilized for the City's operation only.

6. Material Record Keeping

6.1. Incoming

All material delivered is recorded through the records provided by the vendor.

6.2. Roads

Operators after each run are documenting the material used as identified through the spreader head and the material loaded according to the loader scale. Variances of more than 5% require the calibration of the applicable system to be checked. The quantities from the spreader are recorded for inventory control. In 2016 the ESRI AVL system was incorporated, this system will also record the quantity of material distributed in a specified area to assist with risk management and identify source water impact.

6.3. Sidewalks and Parking Lots

Piles of salt or salt/sand mixes specific to the activity are weighed using the loader scale. The quantities of material are recorded for inventory control. Operators record estimated quantity and type of materials used based on capacity of equipment on route maps.

7. Continuous Improvement Strategies for the Future

The City of Guelph through monitoring of Best Practices is consistently striving to improve winter control operations. The City completes or participates in municipal comparators annually to identify new best practices. As well the City utilizes Smart about Salt and Transportation of Canada's Best Practices to identify improvement strategies. Over the next 5 years, budget permitting, the City will phase in the following improvements.

7.1. ESRI AVL implementation of material tracking:

In July of 2016 the Source Water Protection Act was implemented. This Act requires municipalities to monitor and when possible reduce the salt impact on protected source water areas. By using AVL records Staff will identify over application of salt in specific areas. Partnering this information with monitoring of surface water in vulnerable areas can identify where the run off control from hard surfaces may be an issue as opposed to material application.

7.2. Construction and implementation of Snow Storage Facility:

Budget has been approved for construction of a snow storage facility utilizing TAC Best Practices including;

- Non-permeable storage area
- Oil-Grit separator
- Settling and dilution pond to reduce particulates entering the water system and dilute salts

7.3. Implementation of equipment for liquid anti-icing in parking facilities.

Current, the City's available equipment does not have the capacity for liquid application. Staff will investigate whether there are opportunities to modify existing

equipment, incorporate underutilized suitable equipment or the purchase of equipment is required.

7.4. Modification of road plows to allow for more liquid anti-icing operations by adding a liquid application bar.

Currently the use of brine specific equipment limits the capacity to anti-ice prior to a winter event. At minimum the goal would be to provide anti-icing to Primary, Secondary and environmentally vulnerable areas to reduce material application after the event.

7.5. Incorporation of liquid chloride blends:

Chloride blends can be used to increase the effectiveness of solid material application at lower temperatures thus reducing the amount of material required.
Investigation of the effectiveness of surrounding Municipalities use of Chloride blended products instead of salt brine for anti-icing and pre-wetting will be investigated and identified best practices incorporated.

7.6. Smart about Salt Training:

One of the City's goals is to expand training requirements such as Smart About Salt to contractors applying material to City facilities.

7.7. Identify Salt Vulnerable Areas (SVA):

In 2012 Environment Canada[7] noted the identification and protection of salt vulnerable areas as a missing component in more than 70% of Municipal Salt Management Plans. SVAs are localized areas that may be particularly sensitive to road salts such as wetlands, lakes and ponds. Working with the City's Source Water Protection team, Staff is looking at methodologies for identifying salt vulnerable areas. This would take into account additional considerations beyond source water;

- Sensitive species and/or habitats
- Flow rate as it impacts the ability to dilute incoming salt laden runoff
- Surrounding land use, in particular heavy commercial or industrial zones where there may be significant run off from parking facilities.

Once a methodology recognized by the MOECC and Environment Canada as best practice is selected the City will proceed with identification and monitoring of Salt Vulnerable Areas. Methods for mitigating impact to protect these areas will also be investigated and established, these methods could include utilization of ditches or storm water management ponds prior to entering the SVA.

The Environment Canada report also noted that municipal road organizations have indicated they do not have the expertise to address SVAs without further guidance. This statement demonstrates this is a fairly new practice.

7 Environment Canada Five Year Review of Progress: Code of Practice for Environmental Management of Road Salts, March 31, 2012

8. Conclusion

The City of Guelph currently budgets over 4.9 million dollars annually to ensure roads, sidewalks and parking lots are safe for use during winter weather. At the same time a significant portion of the City is identified as being in a source water vulnerable area. The 2017 Salt Management Plan is the current snap shot of policies, programs and practices within the City which balance the need for safe travel with the protection of our drinking water. The intent of the City is for these practices to evolve maintaining ongoing continuous improvement.

Definitions

Anti-icing. means the application of liquid de-icers directly to the road surface in advance of a winter event.

De-icing.. means the application of solids, liquids, pre-treated material to the road surface after the on-set of the winter event.

Paved Road.. is a road with an asphalt surface, concrete surface or composite pavement,

Pre-treat.. means the application of liquids (calcium chloride, sodium chloride, etc) to the sand pile or salt pile as the sand or salt is loaded into the storage facility.

Pre-wetting.. means the application of liquids (calcium chloride, sodium chloride, etc) at the spinner of the truck just prior to application to the road surface.

Surface Treated Road.. is road with bituminous surface treatment comprised of one or two applications of asphalt emulsion and stone chips over a gravel road.

Unpaved Roads.. is a road with a gravel, stone or other loose traveling surface.

Winter Event.. is a weather condition affecting roads such as snowfall, wind blown snow, sleet, freezing rain, frost, black ice, etc to which a winter event response is required.

Winter Event Response .. is a series of winter control activities performed in response to a winter event.

- ***Continuous Winter Event Response..*** is a response to a winter event with full deployment of manpower and equipment that plow/salt/sand the entire system.

- ***Spot Winter Event Response..*** is a response to a winter event with only a part deployment of manpower and equipment or with full deployment to only part of the system.

Winter Event Response Hours .. are the total number of person-hours per year (plowing, salting/sanding, winging back, etc.) to respond to winter events.

Appendix;

Appendix A: Roads Winter Control Route Maps

Appendix B: Sidewalk Winter Control Route Maps

Appendix C: Downtown Winter Control Route Maps

Appendix D: University of Waterloo iTSS Lab-Optimal Snow and Ice Control of Parking Lots and Sidewalks, A Summary Final Report, Section 7 Quick Guide for Optimal Snow and Ice Controls

Appendix E: Snow Fence Locations 2017

Appendix F: Sidewalk and Road Winter Equipment List

Appendix G: Digital Patrol Reports for Roads and Sidewalks.

Appendix H: Facility Plans

Appendix I: Grand River Source Protection Plan

Appendix J: MTE Technical Memorandum Source Water Protection Considerations

Appendix K: Spill Control Plan

Appendix A:

1. **Primary Salt Route**
2. **Secondary Salt Route**
3. **Residential Sand Route**
4. **Wing Route**
5. **Brine Route**
6. **Residential Contractor Route**

City of Guelph
Primary Salt Routes

Revisions				
Date	Description	No.	Submitted By	Approved By
October 19, 2015	New inventory verified by Roads	1	MB	ME
October 20, 2015	Routes reviewed by Leads and adjusted	2	Lead Hands	SP
October 29, 2015	Routes verified with Transit Routes	3	ME	SP
October 6, 2016	Reviewed and updated as required	4	ME	ME

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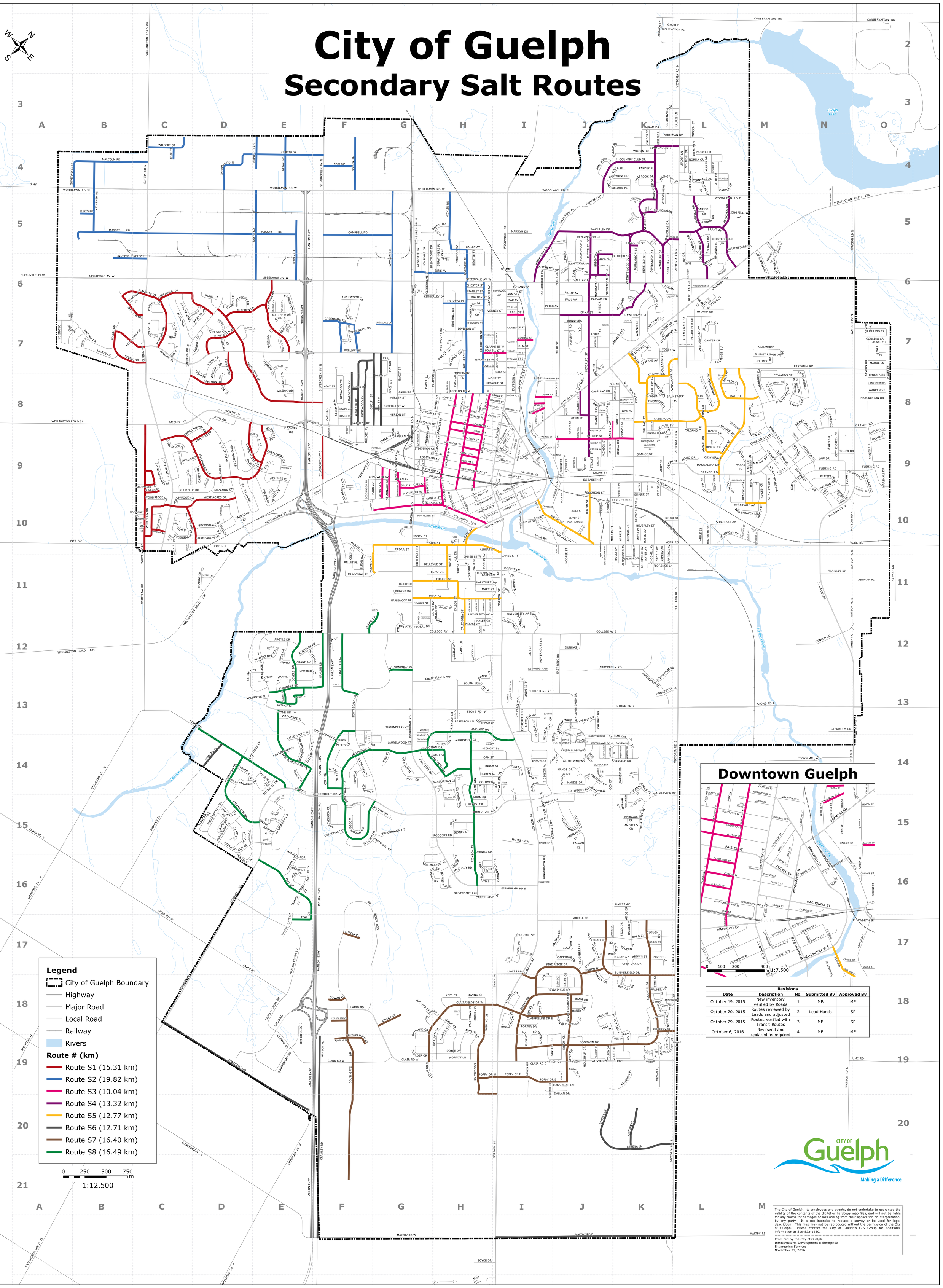
Infrastructure, Development & Enterprise
Engineering Services
November 21, 2016

City of Guelph
Secondary Salt Routes



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CITY OF Guelph
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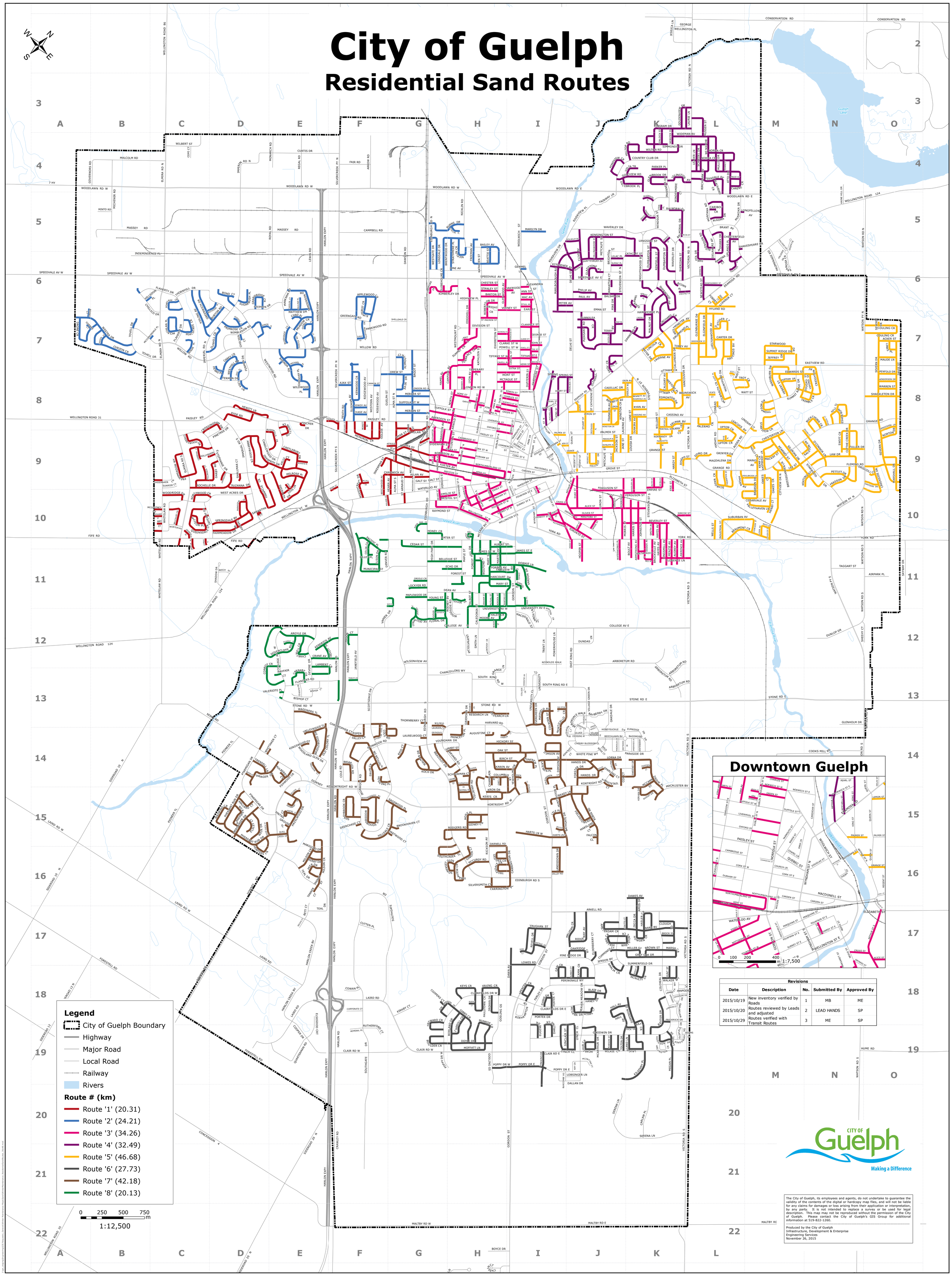
City of Guelph

Residential Sand Routes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ROYAL RD
HANLON EXPY
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DAVIDSON RD
INDEPENDENCE PL
LEWIS RD
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NICKLIN RD
BURNS DR
EDINBURGH RD N
WESTGATE DR
LONSDALE DR
BRENTWOOD DR
SHOALMERE PL
SUN CR
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LINE AV
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BAILEY AV
KATHLEEN ST
BEATTIE ST
WOOLWICH ST
MARILYN DR
GEMMEL LN
KENSINGTON ST
WAVERLEY DR
RIVERVIEW PL
RIVERVIEW DR
Speed River
FAIRWAY LN
WINDERMERE CT
INVERNESS CT
WINDSOR ST
BALMORAL DR
CARIBOU CR
MONTANA CR
ALGOMA DR
MUSKOKA DR
LONGFELLOW AV
BRANT AV
CHESTERFIELD AV
SHAKESPEARE DR
WELLINGTON ROAD 124
MARIE HILL DR
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NEWSTEAD ST
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EASTVIEW RD
HYLAND RD
CARTER DR
STARWOOD
SUMMIT RIDGE DR
JEFFREY
EDWARDS ST
SUMMIT RIDGE CR
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WATT ST
GREGORY DR
MAUDE LN
PENFOLD DR
HENDERSON DR
WARREN ST
SHACKLETON DR
SEVERN DR
COULING CR
ACKER ST
SCOUTING CR
GRANGE RD
NORTON CR
LAW DR
FULLER DR
SWIFT CR
CLOTHE CREEK DR
FLEMING RD
PETTITT DR
ERASON DR
DAVISON DR
CREEKSIDE DR
MARSHALL DR
CITYVIEW DR N
BRESSEMER WAY
KEATING CR
STANSFORD DR
LEE ST
KEARNEY ST
SILURIAN DR
MACKAY ST
MARKS AV
CEDARVALE AV
VALLEYHAVEN LN
HAVEN CT
SUBURBAN AV
BEAUMONT CR
WELLS ST
INDUSTRIAL ST
TAGGART ST
AIRPARK PL
SKYWAY DR
DUNLOP DR
SHEEHY CT
COOKS MILL RD
GLENHOLM DR
HUME RD
WATSON PKY N
WATSON RD S
WATSON PKY S
WATSON AV N
WATSON AV S
SEVERN DR
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City of Guelph
Wing Routes



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NICKLIN RD
BURNS DR
EDINBURGH RD N
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BRENTWOOD DR
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FREEMAN AV
BAILEY AV
BEATTIE ST
KATHLEEN ST
KIMBERLY DR
HIGHVIEW PL
EDGEHILL DR
WESTMOUNT RD
SUMMIT CR
TORRANCE CR
KATHLEEN ST
TIPPERARY PL
LYON AV
HAMEL AV
CAMPION AV
GARDNER AV
DUFFERIN ST
DELHI ST
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MARILYN DR
GEMMEL LN
WOODLAWN RD E
RIVERVIEW PL
FAIRWAY LN
Speed River
RIVERVIEW DR
KITCHENER AV
MARLBOROUGH RD
DELHI ST
CLIVE AV
WOLSELEY RD
COLLINGWOOD ST
METCALFE ST
GLADSTONE AV
SHAFTESBURY AV
BRIGHTON ST
KENSINGTON ST
WAVERLEY DR
LILAC PL
SUMAC PL
CATHCART ST
LANGSIDE ST
KNIGHTSWOOD BV
DUMBARTON ST
RENFIELD ST
DUMBARTON ST
WAVERLEY DR
SHERIDAN ST
VICTORIA RD N
OTA DR
DAVIS DR
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VICTORIA RD N
GOLDENVIEW DR
LAURIE LN
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INGRAM DR
KINLOCK ST
WEBSTER ST
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HILLTOP RD
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COUNTRY CLUB DR
VISTA TR
PARKER PL
GOLFVIEW RD
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DALEBROOK PL
INVERNESS DR
WINDERMERE CT
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SCHEIDEL DR
BOWEN DR
NORMA CR
KILLIN DR
BIRCHBANK BV
FERNDALE AV
ATTO DR
PRICE ST
CAREWE CR
DONCASTER CR
BALMORAL DR
WINDSOR ST
ETON PL
BALMORAL DR
DELTA ST
CARIBOU CR
MONTANA DR
ALGOMA DR
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LONGFELLOW AV
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CHESTERFIELD AV
SHAKESPEARE DR
DELAWARE AV
MOHAWK DR
UPLANDS PL
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HILLSIDE DR
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PIONEER TL
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WELLINGTON ROAD 35
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COOPER DR
QUARTERMAN RD
ELMSCOOD CR
CLAIR RD W
CLAIR RD E
CORPORATE CT
KIRKBY CT
RUTHERFORD CT
ADMIRAL PL
COWAN PL
CITTEN PL
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SOUTHGATE
HANLON RD
CRAWLEY RD
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POPPY DR E
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DALLAN DR
MALTBY RD W
MALTBY RD E
BOYCE DR
MAYCOCK CT
ARKELL RD
VAUGHAN ST
REVELL DR
HERITAGE DR
MALVERN CR
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COULTS CT
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HASLER CR
BARD BV
CLOUGH CR
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WHEELER CT
HOLSTEIN CT
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BROWN ST
MARSH ST
GREY OAK DR
JENSON BV
SUMMERFIELD DR
MCNULTY LN
PERIWINKLE WY
GAN CR
BURKE CT
LAMM CR
MATWAY CR
DAWN AV
SPENCER CR
FAXLEY DR
EVANS DR
PORTER CT
BLAIR DR
HANEY DR
CLAIRFIELDS DR E
CLAIRFIELDS DR W
KEYS CR
IRVING CR
COOPERS CT
HAYWARD CR
BORLAND DR
CARROLL CR
GIBBS CR
PAULSTOWN CR
DROHAN DR
GOSLING GS
MUNROE CR
DOYLE DR
MOFFATT LN
ROEHAMPTON
PORTER DR
EUGENE CR
DARLING CT
SINCLAIR ST
LYNCH CL
MCARTHUR DR
MCCANN CR
GOODWIN DR
DUCK LN
TOLTON DR
LLAND LN
WILKIE CR
LACEY CR
DOMINION DR
HALL AV
BAXTER CR
FREDERICK DR
HARDY ST
JOSEPH ST
OOMO DR
MAGDALENA DR
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EMPIRE ST
CEDARVALE AV
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SIMCOE ST
BEVERLEY ST
YORK RD
WATERWORKS PL
MORRIS ST
HARRIS ST
JOHNSTON ST
SMITH AV
HAYES AV
BOULT AV
ARMSTRONG AV
BALSARROCH PL
DODDS AV
BROCKVILLE AV
KINGSMILL AV
MENZIE AV
AUDREY AV
LAWRENCE AV
FLORENCE LN
ALBERT ST
JAMES ST W
JAMES ST E
MARY ST
MARTIN AV
DORMIE LN
FORBES AV
FAIRVIEW DR
HARCOURT DR
DEAN AV
MAPLEWOOD DR
YOUNG ST
RODNEY BV
TALBOT ST
CALEDONIA ST
UNIVERSITY AV W
UNIVERSITY AV E
MACDONALD ST
LEMMON LN
HALES CR
MOORE AV
COLLEGE AV W
COLLEGE AV E
FLORAL DR
LYNWOOD AV
VANIER DR
HEATHER AV
SKYE PL
DUNDAS
TRENT LN
POWERHOUSE LN
REYNOLDS WALK
EAST RING RD
ARBORETUM RD
ARBORETUM RD
ARBORETUM RD
WILSONVIEW AV
CHANCELLORS WY
SOUTH RING RD W
SOUTH RING RD E
STONE RD W
STONE RD E
UNIVERSITY CL
COLLEGE DR
GRANGE LN
SCOTTSDALE DR
HANLON EXPY
JANEFIELD AV
TORCH LN
ARGYLE DR
KENDRICK AV
HARVEY PL
HANLON RD
CRANE AV
LAMBERT CR
DEVERE DR
CHARA PL
DOVERCLIFFE RD W
DOVERCLIFFE RD
COLLEGE AV
MAYFAIR CT
CONROY CR
FLANDERS RD
VALERIOTE PL
BISHOP CT
WAGONERS TL
NISKAYUNA RD
THORNBERRY CT
ASPEN VALLEY CR
LAURELWOOD CT
IRONWOOD RD
EDINBURGH RD S
RESEARCH LN
HARVARD RD
AUGUSTINE CT
PRINCETON PL
YOUNGMAN DR
MART ST
HARVARD RD
HICKORY ST
OAK ST
BIRCH ST
KAREN AV
COLUMBUS DR
KRON DR
KEATS CR
SCHUURMAN CT
CROWN ST
THOMPSFIELD DR
BROMBALL DR
MCCLELLAND RD
CHAMPLAIN PL
YELLOWHEAD DR
BYRON CT
KOCH DR
MALKIN DR
REID CT
BRIAR DR
COLE RD
ERVIN CR
HOSKING PL
WOODBRIDGE RD
SAGEWOOD PL
DEERCHASE CT
BROOKHAVEN CT
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HARTWOOD CT
SHADYBROOK CR
BROUGH RD
MOSS PL
SIDNEY CR
RODGERS RD
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FALCON CL
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MARSLAND CT
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NORFOLK ST S
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REGENT ST
QUEBEC ST
ERIE ST
WATER ST
GUELPH ST
MORRIS ST
STEVENSON ST S
SUBURBAN AV
BEAUMONT CR
WELLS ST
WOODSTREAM ST
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CLARK CT
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AIRPARK PL
SKYWAY DR
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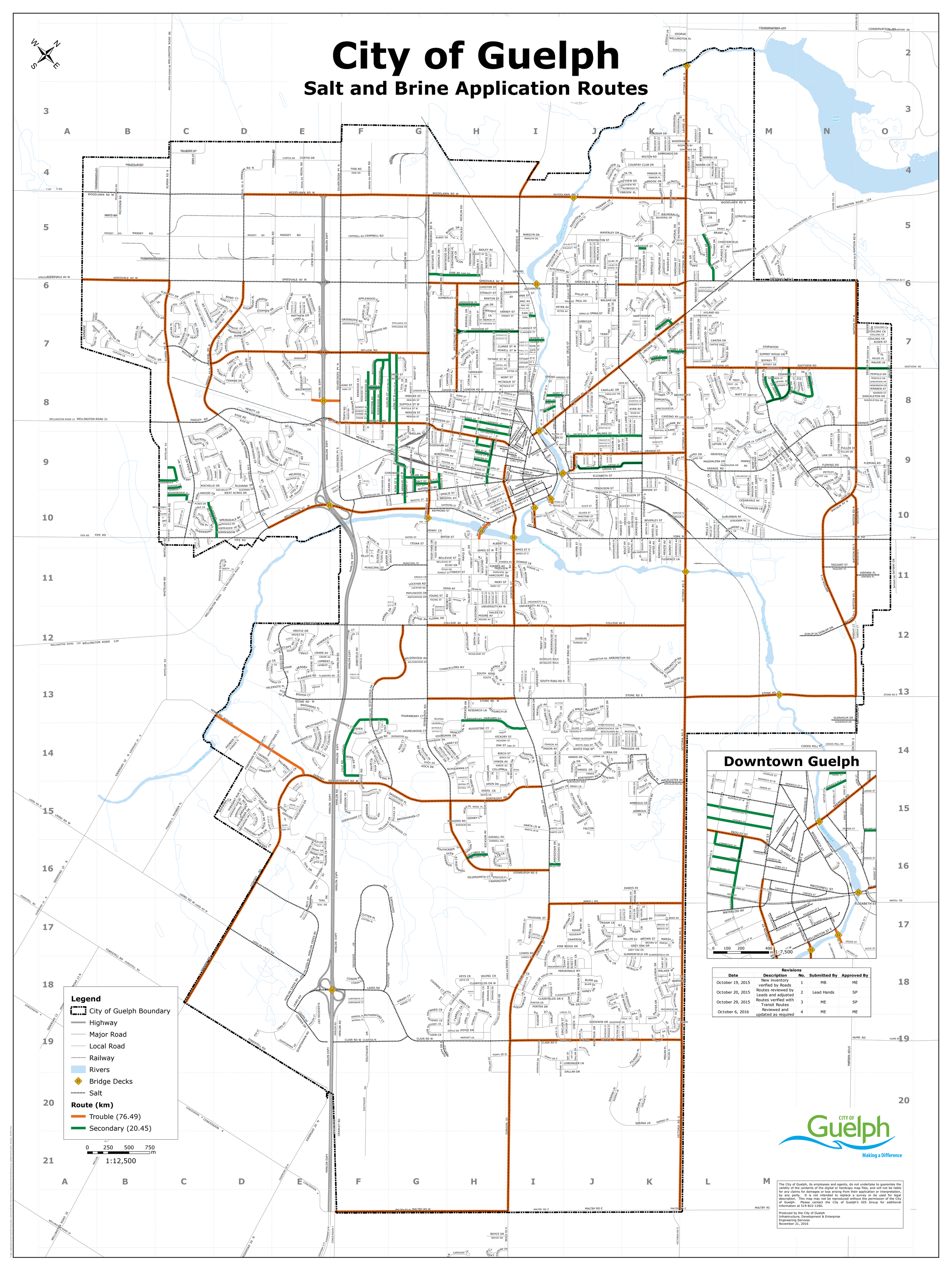
HUME RD
STONE RD E
SEVERN DR
COULING CR
ACKER ST
MAUDE LN
PENFOLD DR
HENDERSON DR
WARREN ST
SHACKLETON DR
DAVIS ST
GRANGE RD
SANDCREEK LN
NORTON DR
SEVERN DR
FULLER DR
SWIFT CR
CLITHE CREEK DR
LAW DR
FLEMING RD
PETTITT DR
FRASSON DR
DAWSON DR
MARSHALL DR
CRESCENT RD
OSBORNE CRES
OSBORNE ST
OSBORNE PL
CITYVIEW DR N
OAKES CR
OAKES CT
TRAILBROOK LN
BRABSON DR
HADLEY AV
HOLLY CT
KEMP CR
MORPHET LN
MARKS AV
MACKAY ST
KEARNEY ST
LEE ST
KEATING DR
STARWOOD DR
O'CONNOR LN
RALSTON ST
KENNEDY ST
SILLIMAN DR
HOLLIDAY DR
HOLLIDAY ST
GALEN CR
MOSA CR
ERAMOSA RD
CARDIGAN ST
KING ST
QUEEN ST
PALMER ST
LEMON ST
GRANGE ST
ELIZABETH ST
WOOLWICH ST
WYNDHAM ST N
NORFOLK ST
QUEBEC ST
CHURCH LN
CORK ST W
CORK ST E
DURHAM ST
NORTHUMBERLAND ST
CARDEN ST
MACDONELL ST
KENT ST
WATERLOO AV
ESSEX ST
NOTTINGHAM ST
FOUNTAIN ST W
FOUNTAIN ST E
SURREY ST E
WELLINGTON ST E
CROSS ST
ALICE ST
ONTARIO ST
HARRIS ST
PARK LN
CHAPEL LN
CAMBRIDGE ST
OXFORD ST
PAISLEY ST
LIVERPOOL ST
SUFFOLK ST E
GREEN ST
CHARLES ST
NORWICH ST W
NORWICH ST E
PEARL ST
GARTH ST
KIRKLAND ST
PARK AV
GLASGOW ST N
DUBLIN ST N
EDWARD ST N
KING ST
ARTHUR ST N
MITCHELL ST
QUEEN ST
OUELET ST
LEMON ST
PALMER ST
GRANGE ST
CARDIGAN ST
ERAMOSA RD
SPEED RIVER
WOOLWICH ST
WYNDHAM ST N
NORFOLK ST
QUEBEC ST
DOUGLAS ST
VICTORIA RD S
WATSON RD S
WATSON PY N
TAGGART ST
AIRPARK PL
DUNLOP DR
SHEEHY CT
EASTVIEW RD
GLENHOLM DR
HUMPHREY DR
COOKS MILL RD
HUME RD
STONE RD E
SEVERN DR
COULING CR
ACKER ST
MAUDE LN
PENFOLD DR
HENDERSON DR
WARREN ST
SHACKLETON DR
DAVIS ST
GRANGE RD
SANDCREEK LN
NORTON DR
FULLER DR
SWIFT CR
CLITHE CREEK DR
LAW DR
FLEMING RD
PETTITT DR
FRASSON DR
DAWSON DR
MARSHALL DR
CRESCENT RD
OSBORNE CRES
OSBORNE ST
OSBORNE PL
CITYVIEW DR N
OAKES CR
OAKES CT
TRAILBROOK LN
BRABSON DR
HADLEY AV
HOLLY CT
KEMP CR
MORPHET LN
MARKS AV
MACKAY ST
KEARNEY ST
LEE ST
KEATING DR
STARWOOD DR
O'CONNOR LN
RALSTON ST
KENNEDY ST
SILLIMAN DR
HOLLIDAY DR
HOLLIDAY ST
GALEN CR
MOSA CR
ERAMOSA RD
CARDIGAN ST
KING ST
QUEEN ST
PALMER ST
LEMON ST
GRANGE ST
ELIZABETH ST

City of Guelph

Salt and Brine Application Routes



Downtown Guelph

Revisions				
Date	Description	No.	Submitted By	Approved By
October 19, 2015	New inventory verified by Roads	1	MB	ME
October 20, 2015	Routes reviewed by Leads and adjusted	2	Lead Hands	SP
October 29, 2015	Routes verified with Transit Routes	3	ME	SP
October 6, 2016	Reviewed and updated as required	4	ME	ME

Legend

- City of Guelph Boundary
- Highway
- Major Road
- Local Road
- Railway
- Rivers
- Bridge Decks
- Salt

Route (km)

- Trouble (76.49)
- Secondary (20.45)

0 250 500 750 m

1:12,500

CITY OF Guelph

Making a Difference

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Produced by the City of Guelph
Infrastructure, Development & Enterprise
Engineering Services
November 21, 2016

City of Guelph

Contractor Plow Routes

Cox - 1 Grader

Cox - 2 Loader

Cox - 3 Loader

Cox - 4 Grader

Cox - 5 Grader

Cox - 6 Grader

Cox - 7 Loader

Hewitson - 16 Grader

Hewitson - 17 Grader

Hewitson - 18 Grader

Hewitson - 19 Grader

Hewitson - 20 Loader

Hewitson - 26 Loader

McLean - 8 Loader

McLean - 9 Loader

McLean - 10 Loader

McLean - 21 Loader

McLean - 25 Loader

Capital - 13 Grader

Capital - 14 Grader

Capital - 22 Loader

Cleansweep - 15 Grader

Cleansweep - 21 Grader

D & J Lockhart - 11 Grader & Loader

D & J Lockhart - 12 Grader & Loader

Tri-City - 20 Grader

Legend

- City of Guelph Boundary
- Highway
- Major Road
- Local Road
- Railway
- Rivers

Route # - Contractor - Type

- 2 - Cox Construction - Cul de Sac
- 7 - Cox Construction - Cul de Sac
- 7 - Cox Construction - Dead End
- 19 - Hewitson - Cul de Sac
- 19 - Hewitson - Dead End
- 20 - Hewitson - Cul de Sac
- 20 - Hewitson - Dead End
- 21 - McLean - Cul de Sac
- 21 - McLean - Cul de Sac
- 22 - Capital Paving - Cul de Sac
- 22 - Capital Paving - Dead End
- 23 - D & J Lockhart - Cul de Sac
- 23 - D & J Lockhart - Dead End
- 24 - D & J Lockhart - Cul de Sac
- 24 - D & J Lockhart - Dead End
- 25 - McLean - Cul de Sac
- 25 - McLean - Dead End
- 26 - Hewitson - Cul de Sac
- 26 - Hewitson - Dead End

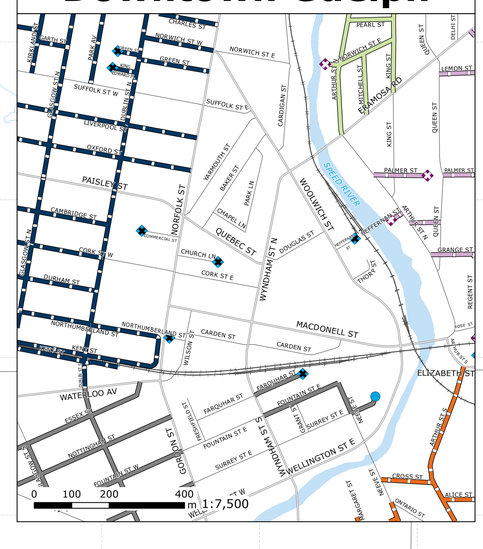
Route # - Contractor (km)

- 1 - Cox Construction (13.81 km)
- 2 - Cox Construction (13.65 km)
- 3 - Cox Construction (10.99 km)
- 4 - Cox Construction (15.20 km)
- 5 - Cox Construction (14.53 km)
- 6 - Cox Construction (23.65 km)
- 7 - Cox Construction (13.90 km)
- 8 - McLean (5.88 km)
- 9 - McLean (6.93 km)
- 10 - McLean (4.48 km)
- 11 - D & J Lockhart (15.28 km)
- 12 - D & J Lockhart (15.01 km)
- 13 - Capital Paving (10.74 km)
- 14 - Capital Paving (7.67 km)
- 15 - Cleansweep (11.74 km)
- 16 - Hewitson (15.94 km)
- 17 - Hewitson (11.52 km)
- 18 - Hewitson (10.58 km)
- 19 - Hewitson (15.49 km)
- 20 - Tri-City (18.10 km)
- 21 - Cleansweep (7.09 km)
- 22 - Capital Paving (13.14 km)

0 0.25 0.5 1 km

1:12,500

Downtown Guelph



Revisions				
Date	**Description**	**No.**	**Submitted By**	**Approved By**
2015/10/19	New inventory verified by Roads	1	MB	ME
2015/10/20	Routes reviewed by Leads and adjusted	2	LEAD HANDS	SP
2015/10/29	Routes verified with Transit Routes	3	ME	SP

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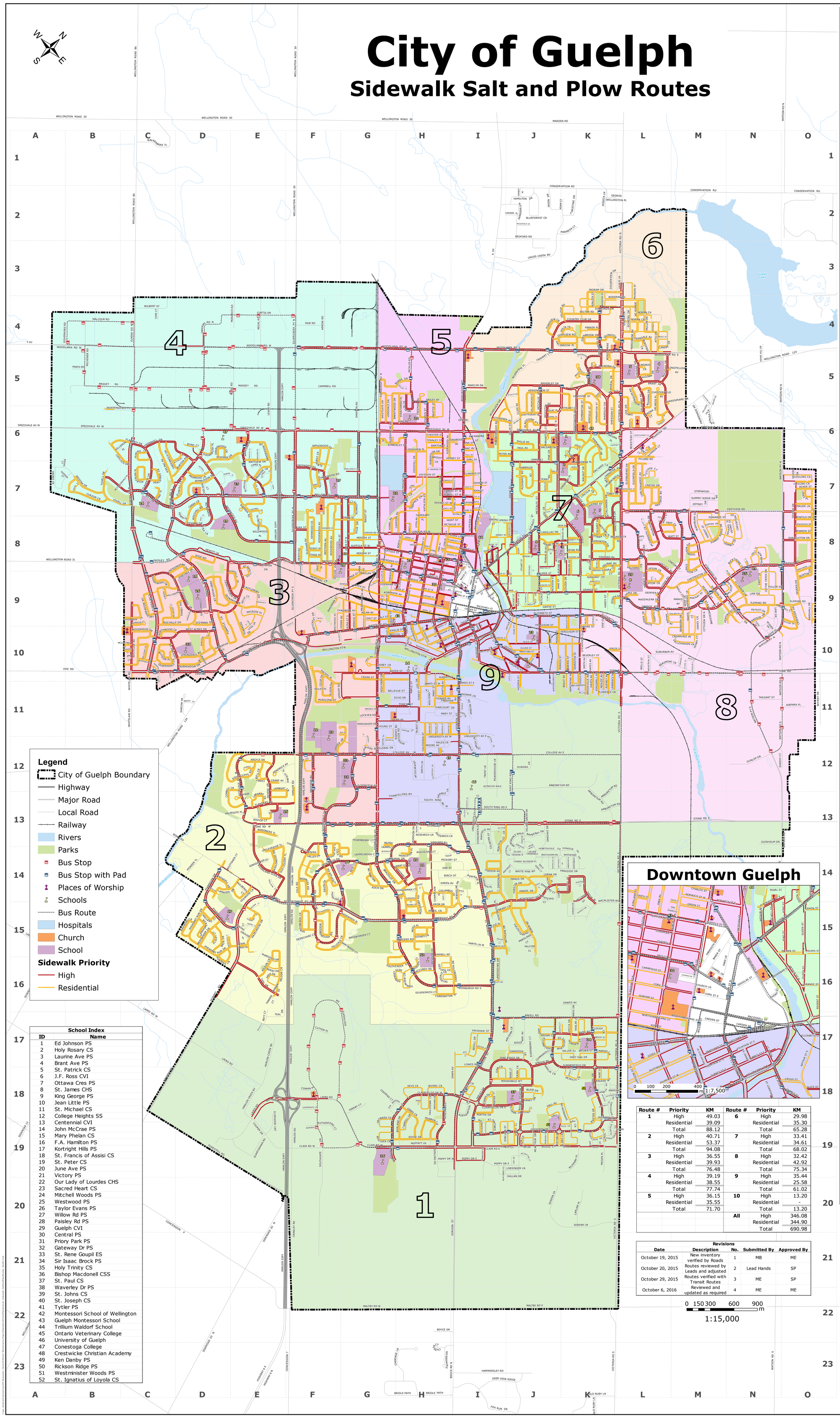
Produced by the City of Guelph
Infrastructure, Development & Enterprise
Engineering Services
December 13, 2016

Appendix B:

1. **Sidewalk Salt and Plow Routes**
2. **Steps List 1**
3. **Steps List 2**
4. **Steps List 3**
5. **Blower List 1**
6. **Blower List 2**
7. **Pedestrian Crossings**

City of Guelph

Sidewalk Salt and Plow Routes



Legend

- City of Guelph Boundary
- Highway
- Major Road
- Local Road
- Railway
- Rivers
- Parks
- Bus Stop
- Bus Stop with Pad
- Places of Worship
- Schools
- Bus Route
- Hospitals
- Church
- School

Sidewalk Priority

- High
- Residential

School Index	
ID	Name
1	Ed Johnson PS
2	Holy Rosary CS
3	Laurine Ave PS
4	Brant Ave PS
5	St. Patrick CS
6	J.F. Ross CVI
7	Ottawa Cres PS
8	St. James CHS
9	King George PS
10	Jean Little PS
11	St. Michael CS
12	College Heights SS
13	Centennial CVI
14	John McCrae PS
15	Mary Phelan CS
16	F.A. Hamilton PS
17	Kortright Hills PS
18	St. Francis of Assisi CS
19	St. Peter CS
20	June Ave PS
21	Victory PS
22	Our Lady of Lourdes CHS
23	Sacred Heart CS
24	Mitchell Woods PS
25	Westwood PS
26	Taylor Evans PS
27	Willow Rd PS
28	Paisley Rd PS
29	Guelph CVI
30	Central PS
31	Priory Park PS
32	Gateway Dr PS
33	St. Rene Goupil ES
34	Sir Isaac Brock PS
35	Holy Trinity CS
36	Bishop Macdonell CSS
37	St. Paul CS
38	Waverley Dr PS
39	St. Johns CS
40	St. Joseph CS
41	Tytler PS
42	Montessori School of Wellington
43	Guelph Montessori School
44	Trillium Waldorf School
45	Ontario Veterinary College
46	University of Guelph
47	Conestoga College
48	Crestwicke Christian Academy
49	Ken Danby PS
50	Rickson Ridge PS
51	Westminster Woods PS
52	St. Ignatius of Loyola CS

Route #	Priority	KM	Route #	Priority	KM
1	High	49.03	6	High	29.98
	Residential	39.09		Residential	35.30
	Total	88.12		Total	65.28
2	High	40.71	7	High	33.41
	Residential	53.37		Residential	34.61
	Total	94.08		Total	68.02
3	High	36.55	8	High	32.42
	Residential	39.93		Residential	42.92
	Total	76.48		Total	75.34
4	High	39.19	9	High	35.44
	Residential	38.55		Residential	25.58
	Total	77.74		Total	61.02
5	High	36.15	10	High	13.20
	Residential	35.55		Residential	-
	Total	71.70		Total	13.20
			All	High	346.08
				Residential	344.90
				Total	690.98

Revisions

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October 29, 2015	Routes verified with Transit Routes	3	ME	SP
October 6, 2016	Reviewed and updated as required	4	ME	ME

0 150 300 600 900 m

1:15,000

A
ABBEYWOOD CR....9D
ABERDEEN ST....8G,8H
ACKER ST....7G
ACORN PL....6K
ADAMO LR....19K,19L
ADMIRAL PL....19F
AIRPARK PL....11D
AJAX ST....8F
ALBERT ST....10H,10I
ALEXANDRA ST....6I
ALGOMA DR....5L
ALGONQUIN RD....5L
ALICE ST....10J,10K
ALLAN AV....9G
ALLISON PL....10C
ALMA ST N....7G,8G,9G
ALMA ST S....9G,10G
AMALIA CR....17J,18J
AMBERWOOD DR....14K
AMOS DR....16K,17K
AMSTERDAM CR....17J
AMY CT....10C
ANN ST....6I
ANNMOORE CR....18K
ANTHONY AV....8K
APPLEWOOD CR....6F,7F
ARBORDALE WALK....13J
ARBORETUM RD....12J,12K,12L,13K,13L
ARDMAY CR....8J
ARGYLE ST....12E
ARRELL RD....17I,17J,17K,17L
ARLINGTON CR....13K
ARMSTRONG AV....10K,11K
ARNOLD ST....8H
ARROW RD....4F
ARROW WOOD CT....13J
ARTHUR ST N....8I,9I,9J
ARTHUR ST S....9J,10J
ASHCROFT CT....14J
ASPEN VALLEY CR....13F,14F
ASPENWOOD PL....9D
ATTO DR....4L,5L
AUDEN RD....7M,8M,9L,9M
AUDREY AV....10K,11K
AUGUSTINE CT....14H
AVONDALE AV....7N,7I
AVRA CT....7E
B
BAGOT ST....7G,8G
BAILEY AV....5H,6H
BAKER ST....8I,9I
BALFOUR CT....15I
BALMORAL DR....15E
BALSAM DR....6J
BALSARROCH PL....11K
BARBER AV....8H
BARD AV....17J,17K,17L
BARTON ST....6H
BASSWOOD DR....14K
BATES RD....14D
BATHGATE DR....15I,15J
BAXTER DR....18K,19K
BAYBERRY DR....13J
BEATTIE ST....5H,6H
BEAUMONT CR....10L,10M
BEAVER MEADOW DR....18J,19J
BEECHLAWN BV....14J,14K
BEECHWOOD AV....9F,10F
BELCOURT CR....10C
BELL AV....11K
BELLEVUE ST....11G,11H
BENNETT AV....8J,8K
BERKLEY PL....5K
BERRY DR....14E
BETT CT....16E,17E
BEVERLEY ST....10J,10K
BIRCH ST....14H,14I
BIRCHBANK AV....4L
BIRMINGHAM ST....9H,10H
BISHOP CT....13E
BLACKBIRD CR....4L
BLAIR DR....18J
BLUERIDGE CT....7E
BOHAN PL....7C
BOND ST....6D
BORDEN ST....11H,12H
BORLAND DR....18H,19H
BOULDER CR....19G
BOULT AV....10K,11K
BOWEN DR....4L
BRABSON DR....9M,10M
BRADY LN....14J,15J,15J
BRAID PL....9J
BRANT AV....5L,6L,6M
BRAZILOT DR....14G,14H
BREESEGARDEN LN....9M
BRENTWOOD DR....5E,5G
BRIARLEA RD....14F
BRIDLEWOOD DR....14E
BRIGHT LN....9J
BRIGHTON ST....6J
BRISTOL RD....10G,10H
BROCK ST....17K
BROCKVILLE AV....10K,11K
BROMBAL DR....15H
BROOKE PL....9K
BROOKHAVEN CT....15G
BROWN ST....17K
BRUNSWICK DR....8K,8L
BRYDGES CT....8N
BUCKTHORN CR....8N,9N
BURCOMBE CROSSING....19I
BURNE ST....16J
BURNS DR....5G,5H
BURTON RD....6D,7D,7G
BUSHMILLS CR....9G,9H
BYRON CT....14I
C
CABOT CT....14H
CADILLAC DR....8J
CALEDONIA ST....11H,12H
CALGARY AV....8K
CALLANDER DR....6E,7E,8E
CAMBRIDGE ST....9N
CAMERON ST....16J
CAMPBELL RD....5F,5G
CAMPION AV....7N,8N
CANDLEWOOD DR....8D,9D,9E
CANNON ST....8F
CARDEN ST....9I
CARDIFF WY....10D
CARDIGAN ST....7J,8J
CARENE CR....4L
CAREY CR....7G,8G
CARIBOU CR....5L
CARLAW PL....20K
CARMINE PL....6L
CARNABY CR....13E
CAROLYN CT....6E
CARRINGTON DR....16H,16I
CARRINGTON PL....16H,16I
CARROLL CR....18H,19H
CARTER DR....7L
CASSINO AV....8K,8L
CASTLEKIRK DR....19K
CATHCART ST....6K
CAVELL AV....7N,7I
CEDAR ST....10G,10H
CEDARCROFT PL....13J
CEDARVALE AV....10L,11L
CELIA CR....10F,11F
CENTRAL ST....7I
CHAD PL....7E
CHADWICK AV....9F,9G
CHAMPLAIN TR....19K,19L
CHANCELLORS WY....13G,13H
CHAPEL LN....9K
CHARLES ST....8H,8I
CHARTWELL CR....12E
CHASE AV....8F
CHELSEA CT....7D
CHESTNUTWOOD AV....7L
CHERRY BLOSSOM CL....13J,14J
CHESAPEAKE DR....9C
CHESTER ST....6H
CHESTERFIELD AV....5L
CHESTERTON LN....9L,9M
CHESTNUT PL....6L
CHILLICO DR....6H,6G,7G
CHRISTIE LN....11I
CHRISTOPHER CT....14J
CHURCH LN....9I
CITYVIEW DR N....9M,10M
CITYVIEW DR S....10M,10N
CLAIR RD E....9I,9J,19J,19L
CLAIR RD W....19F,19G,19H,19I
CLAIRFIELDS DR E....18I,18J
CLAIRFIELDS DR W....18G,18H,18I,19I
CLARA ST....9J
CLARENCE ST....5K,6K
CLARKE ST E....7I
CLARKE ST W....7I
CLEARVIEW ST....10M
CLINTON ST....16K
CLIVE AV....5J,6J
CLOUGH CR....17K
CLUTHE CREEK DR....8N,9N
COLBORN ST....13I,14I
COLE RD....13F,14F,14G
COLLEGE AV E....12I,12J,12K,12L
COLLEGE AV W....12E-I,13E
COLLEGE CR....13I
COLLINGWOOD ST....5J,6J
COLONIAL DR....17N,18N
COLUMBUS CR....14H,14I,15I
COMMERCIAL ST....17N,18N
CONRAD CT....8L
CONROY CR....13H,13I,13J
COOPER DR....18E,19E
COOPERS CT....18G
CORE CT....4C
CORK ST E....9I
CORK ST W....9I,9J
CORPORATE CT....18F
COTE DR....4L
COULING CR....7D
COUNTRY CLUB DR....4J,4K
COUTTS CR....17K
COVENTRY DR....13E
COWAN PL....7J
COX CT....14J
CRANBERRY CT....9C
CRANE AV....12E,12F
CRAWFORD ST....11H
CRAWLEY RD....19F,20F,21F,22F
CREEKSIDE DR....19C,19D
CREIGHTON AV....7N,7M,8N,8M
CRESTWOOD PL....8J,9J
CRIMEA ST....9G
CROSS ST....10I,10J
CROSSINGHAM DR....8C,8D,9C
CROWE ST....14H
CUMMINGS CT....17J
CURRIE CR....4D,4E,4F
CURZON CR....7B
CUTTEN PL....17F
D
DAKOTA DR....5L,6L
DALEBROOK PL....4J,4K
DALLAN DR....19I,19J
DARMOOR PL....7E
DARBY RD....9C,9D
DARLING ST....18I,19I
DARNELL RD....15M
DAVIS ST....7G,8G
DAVISON DR....9D
DAWES AV....16K
DAWN AV....17I,18I
DAWSON RD....4G,5G,6G,7G
DEAN AV....11H,11I,11J
DEERCHASE CT....15F
DEERFIELD PL....10C
DEERPATH DR....9D,9E,10E
DELAMARE AV....5L,6L
DELHI ST....51,52,62,71,72
DELMAR BV....8M,8L,9K
DELTA ST....5K,5L
DENVER RD....10G,11G
DERRY ST....8J,8J
DESHANE ST....4L
DEVERE CR....12E,13E
DEVONSHIRE PL....7K
DIMSON AV....14I
DIVISION ST....7N,7I
DODDS AV....10K,11K
DOMINION DR....18K,19K
DOMO DR....9L
DOOLEY PL....14J
DORMIE LN....11I
DOUGALL ST....8N,8M
DOUGLAS ST....9I
DOVERCLIFFE RD....12D,12E
DOWNEY RD....14E,15E-F,16D-E,17D-E,18D
DOYLE DR....19G,19H
DREW ST....8F,8G
DRIFTWOOD DR....14J
DRISCOLL ST....9D
DRONAN DR....8M
DRONE CR....7A,7B
DROMORE PL....7K,7L
DUBLIN ST N....8H,9H
DUBLIN ST S....9H,10H
DUCK LN....19K
DUDLEY DR....15K
DUFFERIN ST....6I,7I,8I
DUKE ST....9J,10J
DUMBARTON ST....5K,6K
DUNDAS LN....12J
DUNLOP DR....7G,7H
DUNSMIRE AV....8K,9K
DUNTON CR....12H
DURHAM ST....9H
E
EARL ST....7I
EAST RING RD....12J,13J
EASTVIEW RD....7L,7M,7N,7O
ECHO DR....11G,11H
EDEN ST....9F,10F
EDGEHILL DR....6H,7H
EDINBURGH RD N....4G,5G,6G,7G,8G,9G
EDINBURGH RD S....9-14G,14-16H,16I
EDMONTON DR....8K
EDWARDS ST....8N,8O
EDWIN ST....8H,8I
ELDERBERRY CR....17J
ELEANOR CT....6L
ELGINFIELD DR....6L,7L
ELIOT PL....8L
ELIZABETH ST....9J,9K,9L,10L
ELMERFIELD CR....6F,7F
ELMIRA RD N....4C,5C,6C,7C,8C
ELMIRA RD S....8C,9C,10C
ELMRIDGE DR....14J,14K
ELORA ST....9G,9H
ELSLEY CT....15D
ELSON DR....11F
EMMA ST....6K,7I,7J,7K
EMPIRE ST....9K
ENGLISH ST....10G,10H
ERAMOSA RD....6L,6M,7J,7K,7L,8I,8J,9I
ERIC CT....6L
ERIE ST....9K,10K
ERIN AV....8J,8K
ERVIN CR....14F
ESKER RUN....8N
ESSEX ST....9H,10H
ETON PL....5K
EUGENE DR....15H
EVANS DR....18I
EVERGREEN DR....7K,7N,8N,8M
EXHIBITION ST....6M,7M,8M
EXTRA ST....7I
F
FAIR RD....4F
FAIRMEADOW CR....11H,11I
FAIRVIEW BV....11H,11I
FAIRWAY LN....5J
FALCON CR....13J
FARLEY DR....18I,18J,19I
FARQUHAR ST....9I,10I
FERGUS ST....9G
FERGUSON ST....10J,10K
FERMAN DR....7D,8C,8D
FERNBANK PL....15E
FERNDALE AV....4L,5L
FEW ST....19D
FIELDSTONE RD....14J,15J
FIFE RD....10C,10D
FISCHER DR....8E
FLAHERTY DR....6H,6C,7C
FLANCHES RD....13K,13F
FLEMING RD....9N,9O
FLETCHER CT....7L
FLORAL DR....12D
FLORENCE LN....11K,11L
FORBES AV....11H,11I
FOREST HILL DR....10H,11H
FOREST ST....11G,11H
FORESTELL RD....18C,19C,19D,19E,20E
FOSTER AV....9O,9N
FOUNTAIN ST E....9I,10I
FOUNTAIN ST W....10H,10I
FOXWOOD CR....14E
FRANCHETTO BV....9K
FRANKLIN AV....8J
FRASSON DR....9N
FREDERICK DR....18K,18L
FREEMAN AV....5H,6H
FRESHFIELD ST....9I,10I
FRESHMEADOW WY....9C,9D
FULLER DR....9N,9O
G
GALT ST....9G,9H
GARDENVIEW CT....13J
GARIBALDI ST....9K
GARTH ST....8H
GATEWAY DR....10D
GAW CR....18I
GEDDES CR....16H
GEMMEL LN....6I
GEORGE ST....7I
GIBBS CR....18N,19N
GINGER CT....16H
GLADSTONE AV....6J
GLASGOW ST N....8H,9H
GLASGOW ST S....9H,10H
GLENBROOK DR....4K
GLENHORNIE DR....7L
GLENDA CT....7E
GLENGARRY ST....8F,9F
GLENHILL PL....7J,8J
GLENHOLM DR....13N
GLENWOOD AV....6H
GOLDENVIEW DR....3K,3L
GOLDIE AV....8F,9F
GOLDS CT....17E
GOLFVIEW RD....6J,6K
GOMBAS PL....10C
GOODWIN DR....18K,19J,19J,19K
GORDON ST....9N,9-221
GORMAN CT....7A
GOSLING GR....18N,19N,19I
GOVERNORS RD....4B
GOWDY AV....8F
GRAHAM ST....11H
GRANDRIDGE CR....13J,14J
GRANGE LN....12H,13H
GRANGE RD....8N,8O,9L,9M,9N
GRANGE ST....9J,9K,9L
GRANT ST....9I,10I
GREEN ST....8H,8I
GREENGATE RD....7F
GREENVIEW ST....7J
GREENWICH DR....6C,7C,7D
GREGORY PL....6E
GREY OAK DR....17K
GREY ST....9G
GRIERSON DR....13H
GRINYER DR....9L
GROOSE TL....6I
GROVE ST....9J,9K
GRYPHON TR....14G
GUELPH ST....7G,8G
H
HADATI RD....8L,9L
HAGAN AV....9L,9M
HALES CR....12H
HALESMANOR CT....14I
HALL AV....18G,18H,19J,19K
HAMEL AV....8G,8H
HANDS DR....14J,14J
HANEY DR....18J
HANLON CREEK BV....16D,16E,17E,18E
HANLON RD....12F,13F,19F,19F
HANLON EXPY....4-10E,10-21F,22E
HARCOURT DR....11H,11I
HARDY ST....9K
HARRIS ST....10K
HARRISON AV....9G
HARROW CT....14H,14I
HARTS LN E....15I
HARTS LN W....15I
HARTWOOD CT....15G,15H
HARVARD RD....13G,13H,14G,14H,14I
HASLER CR....17K
HASTINGS BV....7L
HAVELOCK ST....8J
HAWKINS DR....19J,20I
HAWTHORNE PL....7K
HAYES AV....10K,11K
HAYWARD CR....18G,19G
HAZELWOOD DR....15E
HEARN AV....9G,10G
HEATH RD....8F
HEATHER AV....12G
HEBERT ST....8M
HEFFERMAN ST....9F
HENDERSON DR....8G
HENRY CT....10M
HEPBURN AV....10K,11K
HERITAGE DR....17I
HERRITT LN....8G
HICKORY ST....14H,14I
HIGH PARK DR....10G,11G
HIGHVIEW PL....6H
HILL TL....8N
HILLCREST DR....10K,11K
HILLDALE CR....15F,15G
HILLEDON PL....6H,6G
HILLTOP RD....4K
HODGSON DR....19K
HOLLAND CR....17J
HOLLIDAY ST....10M
HOLLY CT....9M
HOLLYBERRY PL....9C,9D
HOME ST....8H
HONEY CR....10G
HONEYSUCKLE DR....14J
HOOD ST....10J
HOOPER ST....10J,11J
HOSKING PL....14F,14G
HOWDEN CR....17K
HOWITT ST....10I,11I
HUNT ST....18K
HUNTERS LN....15D,15D
HUNTINGTON PL....14I,15I
HURON ST....8J,10J
HYLAND RD....6L
I
IMPERIAL RD N....4D,5D,6D,7C,7D,8C
IMPERIAL RD S....8C,8D,9D,10D
INDEPENDENCE PL....7D,8D,8G
INDUSTRIAL ST....10I
INGRAM DR....3K,4K,4L,5K
INKERMAN ST....9F,9G
INVERNESS CR....4K,5K
IRELAND PL....9M,9N
IRONWOOD RD....14F,14G,15F,15G
IRVING CR....7J,8I
ISLINGTON AV....4K,4L
J
JACKSON ST....9J
JAMES ST E....11I,12I
JAMES ST W....11H,11I
JANE ST....9J
JANEFIELD AV....12F,13F
JEAN ANDERSON CR....18D,18H
JEFFREY DR....16H,16I
JENSON BV....17J
JOCO PL....8F,10F
JOHN ST....7I
JOHNSTON ST....10K,10L
JOSEPH ST....9K,9L
JOYCE PL....9L
JULIA DR....8G
JUNE AV....6G,6H
K
KARA LEE CT....8K,9K
KAREN AV....14L,14K
KATELYNN DR....14J
KATEMORE DR....18H,18I
KATHLEEN ST....3K,4K,7L,7M,8J
KAY CR....19A,7B
KEARNEY DR....19K,19L
KEATING ST....9N
KEATS CR....14H,15H
KELLY CT....9E
KEMP CR....9M
KENDRICK AV....12E,12F
KENSINGTON ST....52,53,62,63
KENT CR....9C
KENWOOD CR....8F
KERR ST....11H
KEYS CR....18H
KILKENNY BV....14G,15G
KIMBERLEY DR....6G,6H
KING EDWARD PL....8H
KING ST....8I,9I
KINGSBURY SQ....11K
KINGSLEY CT....14H
KINGSMILL AV....10K,11K
KINGSWOOD GT....14J
KINLOCK ST....3K,4K
KIPLING AV....6C,7C
KIRKLAND ST....8H
KIRKPATRICK DR....17J
KIRVAN DR....15K
KITCHENER AV....6J,6K
KNEVITT PL....12E,12F
KNIGHTSWOOD BV....5K,6K
KOCH DR....17J,18J
KORTRIGHT RD E....14J,14K,15I
KORTRIGHT RD W....15H,15I,15J
KRON DR....15H,15I
L
LAIRD RD....17D-E,18E-G,19D-E,19G
LAMBERT AV....12E,12F,13E,13F
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LANE ST....8K,9K
LANGSIDE ST....5K
LATIMER PL....14I
LAUGHLAND LN....19K
LAURELWOOD CL....14G
LAURIE LN....3L
LAURINE AV....8J,9J
LAVERNE AV....9K
LAW DR....9N
LAWRENCE AV....10K,11K
LEACOCK AV....8L,9L
LEADER LN....4K
LEE ST....9M,9N
LENNOX ST....8J
LEWIS RD....5E,6E
LILAC ST....6J
LINCOLN CR....7K
LINDEN PL....7K
LINDSAY CT....8M,9M
LINNE ST....7O
LISA LN....8D
LIVERPOOL ST....8G,8H,8I
LOBSINGER LN....17J
LOCKYER RD....11G
LOIS DR....9E,10E
LONDON RD E....8I
LONDON RD W....8G,8H,8I
LONGFELLOW AV....5L
LONSDALE DR....5G,6G
LORNA DR....7K
LOUISA DR....9K
LOWES RD....17I,18I
LYLE PL....15I
LYNCH CL....18J,19J,19J
LYNNMORE ST....18E
LYNWOOD AV....12G
LYNWOOD PL....10G,12G
LYON AV....7H,8H
M
MAC AV....6I
MACALISTER BV....15L,16L
MACDONALD ST....12I
MACDONELL ST....9I,9J
MACKAY ST....10K,11K
MAGDALENA DR....9L
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MALCOLM RD....4B,4C
MALLARD CT....11G,11H
MALTBY RD E....22I,22J,22K
MALTBY RD W....22E,22F,22G,22H,22I
MALVERN CR....15J
MANHATTAN CT....6J
MANITOBA ST....10J,11J
MANOR PARK CR....10G
MAPLE ST....10H,11H
MAPLEWOOD DR....11G
MARCON ST....7I
MARGARET ST....10I
MARIGOLD DR....16E
MARILYN DR....5J,6J
MARKS AV....9K,9L
MARSAC RD....6C,6D
MARSHALL DR....19K,19L
MARSLAND CT....15J
MARTIN AV....10K,11K
MARY ST....10H,11H,11I
MASON CT....14J
MASSEY RD....5B,5C,5D,5E
MATTHEW DR....14K,14J
MAUDE LN....7O
MAYPAIR CT....13E
MAYFIELD AV....13K,13L
MCARTHUR CR....19J
MCARTHUR DR....9K,9L
MCCALL CR....9F
MCCANN ST....14K,15K
MCCARTNEY RD....10C
MCCORRINGLE PL....10C
MCCRAE BV....10K,11H
MCCURDY RD....16H
MCELDERRY RD....14H,15H
MCGARR CT....18J
MCGARR DR....18J,19J
MCGEE ST....10G
MCGILVRAY ST....12H,13I
MCILWRAITH CR....8L
MCINTOSH LN....12H
MCINTYRE CT....18J,19J
MCLACHLAN PL....7C
MCNULTY LN....18K
MCTAGGUE ST....8H,8I
MEADOW CR....14K,15K
MEADOWVIEW AV....9G,10G
MEGAN PL....19K
MELROSE PL....9K
MEMORIAL CR....8F,9F
MENZIE AV....10K,11K
MERCER ST....8G
MERGANSER DR....15D
MERION ST....8G
MERRITT RW....5G,6G
METCALFE ST....52,62,72,82,92
MEYER DR....7K,8K
MICHAEL PL....7E
MICHENER RD....4B,5B
MILLER ST....17J,17K
MILLWOOD CT....9C
MILTON CR....15E,16E
MINTO RD....15D
MITCHELL ST....8I
MOFFATT LN....19J
MOHAWK DR....5L,6L
MOLLISON CT....14K,15K
MONARCH RD....4E
MONT ST....8J,8K
MONTANA RD....5L
MONTGOMERY ST....6L
MONTICELLO CR....13J,13J,14J
MONTREAL RD....8K
MOORE AV....10K,11K
MORRIS ST....9J,10J
MOSS PL....15H
MOUNTFORD DR....7L,8L
MULBERRY CT....14J
MULLEIN DR....4L
MUNICIPAL ST....10F,11F,11G
MUNRO CR....14J
MURPHY CT....18H
MURPHY RD....18H
MUSSEN ST....3L,4L
MUTUAL ST....11H
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NELSON RD....6J
NEW ST....9I,9J
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NICKLIN CR....5H,6H
NICKLIN RD....4H,5H
NISRA RD....13G,14G,14H
NORFOLK ST....8I,9H,9I
NORMA CR....4L
NORMANDY DR....9K
NORRAH RD....6E,7E
NORTHUMBERLAND ST....9H,9I
NORTHWOOD CR....10C,10D
NORTON DR....8O,9O
NORWICH ST E....8I
NORWICH ST W....8H,8I
NOTTINGHAM ST....10H,10I
O
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OAKDALE DR....13J,14J
OAKES CR....9M,10M
OAKES CT....9M
OAKRIDGE CR....17J
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OLD COLONY TL....13E,14E
OLD STONE CT....13I
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ORIOLE CR....11G
OTTAWA CR....8K
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P
PACIFIC PL....10F,11F
PADDISON CT....14K
PAISLEY RD....8B,8C,8D,8E,8F,8G
PAISLEY ST....8G,9H,9I
PALERMO CR....9L
PALMER ST....9I,9J,9K
PAMELA PL....10C
PARK AV....8H
PARK LN....8I,9I
PARKER PL....8K
PARKHOLM AV....9J
PARKSIDE DR....14J,14K
PARKVIEW CR....10D
PARKWOOD RD....7F
PAUL AV....4L,5J
PAULINE PL....6E
PAULSTONE CR....18H
PEACHTREE CR....7C
PEARL ST....8I
PEARSON ST....19J
PEARTREE CR....6C
PEER DR....16E
PENFOLD DR....8O
PENNI PL....7O,8O
PERIWINKLE WY....18I,18J
PETER AV....5J,6J
PETROLIA ST....9F,9G
PETTITT DR....8N
PHEASANT RUN DR....15D,15E
PHELAN CT....18E,19E
PHILIP AV....6J
PICADILLY PL....12E
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PINE RIDGE DR....17I,17J,18I,18J
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PINNACLE CR....9D,10D,10E
PINTAIL CT....15E
PIONEER TR....14D
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POKIVIEW CR....6J
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POPPY DR E....19I,19J
POPPY DR W....19G,19H,19I
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PORTER DR....18I
POWELL ST E....7I
POWELL ST W....7H,7I
POWERHOUSE LN....12I,13I
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PRINCESS ST....7I
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Q
QUAIL CREEK DR....15E
QUAISER CT....14H
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QUEEN ST....8I,8J
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RAGLAN ST....8G,9G
RALSTON DR....9M,9N
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RAYMOND ST....10G,10H
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REGENT ST....9J
REID CT....14G
RENFIELD ST....5K,6K,7K
RENFREW PL....14I
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REVELL DR....17I
REYNOLDS WALK....12I
RHONDA RD....17E,8E
RICHARDSON ST....10I
RICKSON AV....13H,14H,15H,16H
RIDGEWAY AV....17J
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RIVERVIEW PL....5J
ROBERTSON DR....6H,7H
ROBIN RD....15J
ROBINSON AV....9G,9H
ROCHELLE DR....9C,9D
ROGERS RD....9G,15G
ROONEY BV....11G,12G
ROSAMPTON CR....10I
ROSLAND ST....10K,10L
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ROSANNE ST....8K
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ROSEDALE AV....14J,14K
ROSEWOOD AV....7F,8F
ROYAL RD....4E,5E,6E
ROTHERFORD CT....19F
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S
SACKVILLE ST....10J
SAGEWOOD PL....15F,15G
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SHARON PL....7D,7E
SHERRY CT....7J,8I
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SIDNEY CR....15H
SILURIAN DR....16H,16I
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SILVERCREEK PY S....9F,10F
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SKOV CR....10J,10K
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SOUTH RING RD W....13H,13I
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SOUTHCREEK TL....15H,16G,16H
SOUTHGATE DR....17F-G,17H-G,18F-G
SPARLING CT....14J
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SPROCE PL....6K
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ST ARNAUD ST....9G,10G
ST CATHERINE ST....9I
STANLEY ST....6H
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STEFFLER DR....8N,9N
STEPHANIE DR....8E,9C,9D
STEPHEN DR....6D,6E,7D
STEVENSON ST N....3K,4K,6K,7K
STEVENSON ST S....9K,10K
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SUMMIT CR....7M,8M
SUMMIT RIDGE DR....7M,8M
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SUNRISE CT....9C
SUNSET RD....7F
SUNSET ST....9I,10I
SURREY ST E....9I,10I
SURREY ST W....10H,10I
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SWAN DR....9N-10N
SWEENEY DR....14J,14K
SWIFT CR....9M,9N
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T
TAGGART ST....11N,11O
TALBOT ST....11H
TAMARACK PL....6K
TANAGER CR....14G,14H
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TANNER ST....7O
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TERRAVIEW CR....16H
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THOMASFIELD DR....16H
THOMPSON DR....8M
THORNBERRY CT....13J
THORNHILL DR....6C,6D,7D
THORNTON ST....9L
THORP ST....9I
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TIFFANY ST W....7H,7I
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TOBEY AV....7K,7L
TOLTON DR....19J
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TORRANCE CR....7H
TOTH DR....8N-10N
TOVELL DR....7B,7C
TRAILBROOK LN....9L,9M
TRAYMORE DR....6G
TRENDELL LN....14D
TRENT LN....14J,15J
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TROY CR....8L,8M
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U
UNIVERSITY AV E....11I
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UPTON CR....8L,9L
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VAUGHAN ST....11G,11H,12G,12H
VAUGHN ST....17I
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VILLAGE CROSSING W....14J
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VIMONT ST....8N
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WAGONERS TL....13E
WALKER ST....9K
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WALNUT DR....6K,7J,7K
WALTER ST....9K
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WASHBURN DR....7K,8K
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WATERFORD CR....8K
WATERLOO AV....9G,9H,10F,10G
WATERWORKS PL....10J,11J
WATSON LN....12I
WATSON PY N....6O,7O,8O,9O,9N,10N
WATSON PY S....10N,10M,10L,10K,10J,10I
WATSON RD N....10N,10O
WATSON RD S....10O,11O,12N,12O,13N,13O
WATT ST....7L,8L,8M
WAVERLEY DR....5J,5K,6K
WAXWING CR....15D
WEBSTER ST....3K,4K
WEIR DR....14J,15J
WELLINGTON ST E....9I,10I
WELLINGTON ST W....10G-I
WELLS ST....10L
WEST ACRES DR....15D
WESTERN AV....7F,7G,8F
WESTGATE DR....5G,6G
WESTHILL RD....7D,8D
WESTMINSTER AV....7K,7L
WESTMOUNT RD....6H,7H,8H
WESTOBY PL....8K
WESTPARK PL....7J,8J
WESTWIND CL....14I,15I
WESTWOOD DR....7F,8F
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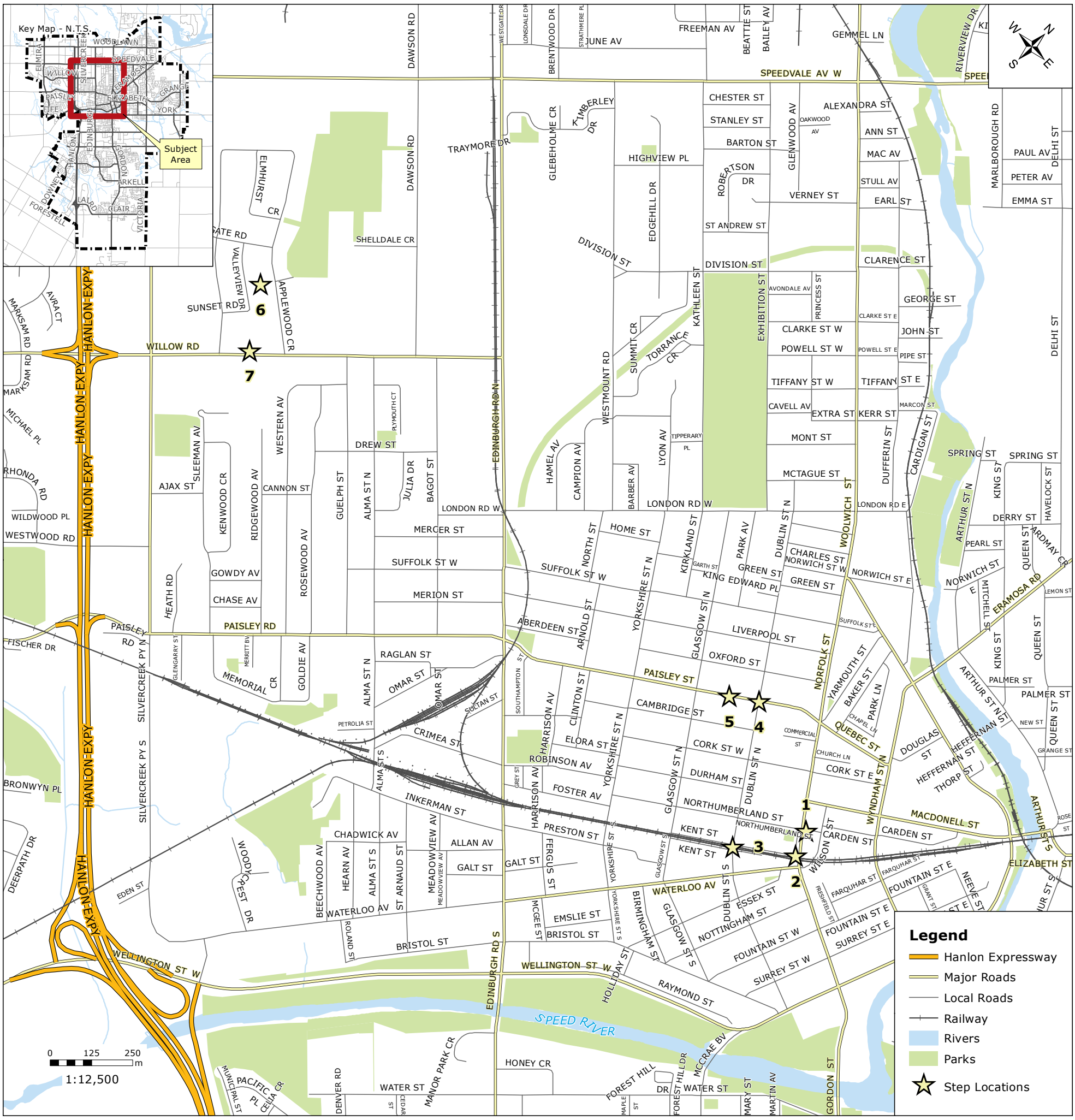
WHISPERING RIDGE DR....17K,18K
WHITE PINE WY....14J
WHITE PL....7I,8I
WHITELAW RD....8C,9C,10C
WHITET



No.	Date (mm/dd/yy)	Locations	Start Time	Shovel	Sand	Salt	Finish Time
1		Norfolk Overpass - Steps on east and Ramp to Norfolk on west					
2		Kent at Norfolk - Steps					
3		Dublin at Railroad - 2 Sets of Steps and 3 Ramps					
4		Paisley at Dublin - Four Corners					
5		Paisley - North Side, Steps to Roadway					
6		Valleyview to Applewood - Walkway					
7		PXO at Willow - Between Applewood - Both Sides					

No.	Date	Employee Name	Employee Number
1			
2			
3			

Truck Number _____

Blower Number _____

Lead Hand (Print) _____

Lead Hand (Signature) _____

Date Checked _____

Please make sure buttons for walk signals are clear. Record all totals for materials and equipment used. Report any operational concerns.

PLEASE CALL LEAD HAND WHEN DONE - THANK YOU.

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Produced by the City of Guelph
Infrastructure, Development & Enterprise
Engineering and Capital Infrastructure Services
March 21, 2017

City of Guelph
Steps - List #1

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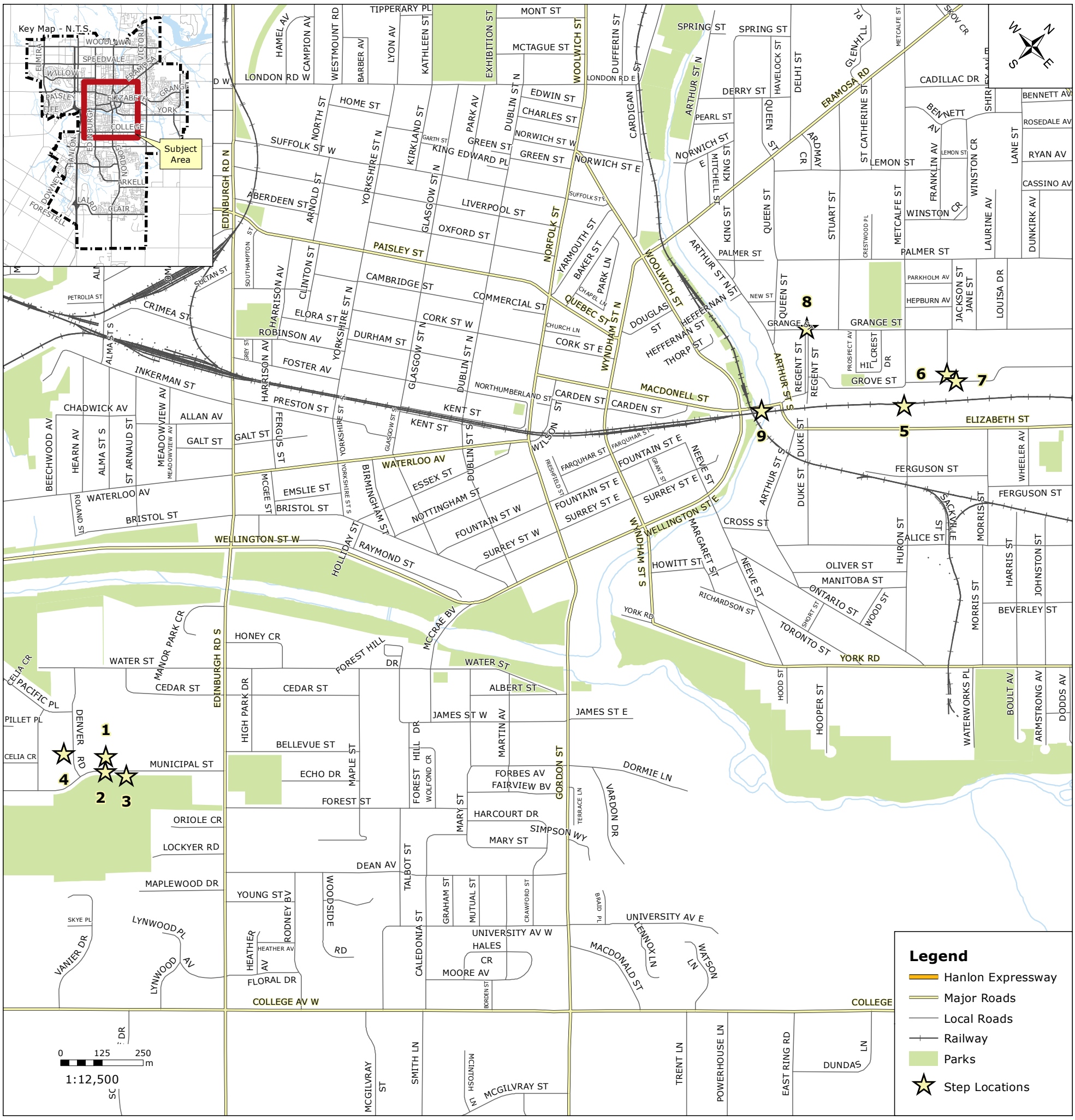

No.	Date (mm/dd/yy)	Locations	Start Time	Shovel	Sand	Salt	Finish Time
1		Public Works - Gas Pumps					
2		Public Works - Walks and Two Auto Gates					
3		Annex - 50 Municipal Street, Front Walk					
4		4 Man Doors At The Salt Management Facility					
5		100 Steps - Elizabeth Street to Grove					
6		Clara Street - Steps and Walk to Grove Street					
7		Grove Street - Steps, North Side					
8		Grange Street and Regent Street - Steps and Walk to Queen Street					
9		Allen's Bridge - South Side From Tracks to Arthur Street (North side of bridge)					

No.	Date	Employee Name	Employee Number
1			
2			
3			

Truck Number _____

Blower Number _____

Lead Hand (Print) _____

Lead Hand (Signature) _____

Date Checked _____

Please make sure buttons for walk signals are clear.
Record all totals for materials and equipment used.
Report any operational concerns.

PLEASE CALL LEAD HAND WHEN DONE - THANK YOU.

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Infrastructure, Development & Enterprise
Engineering and Capital Infrastructure Services
March 21, 2017

City of Guelph
Steps - List #2

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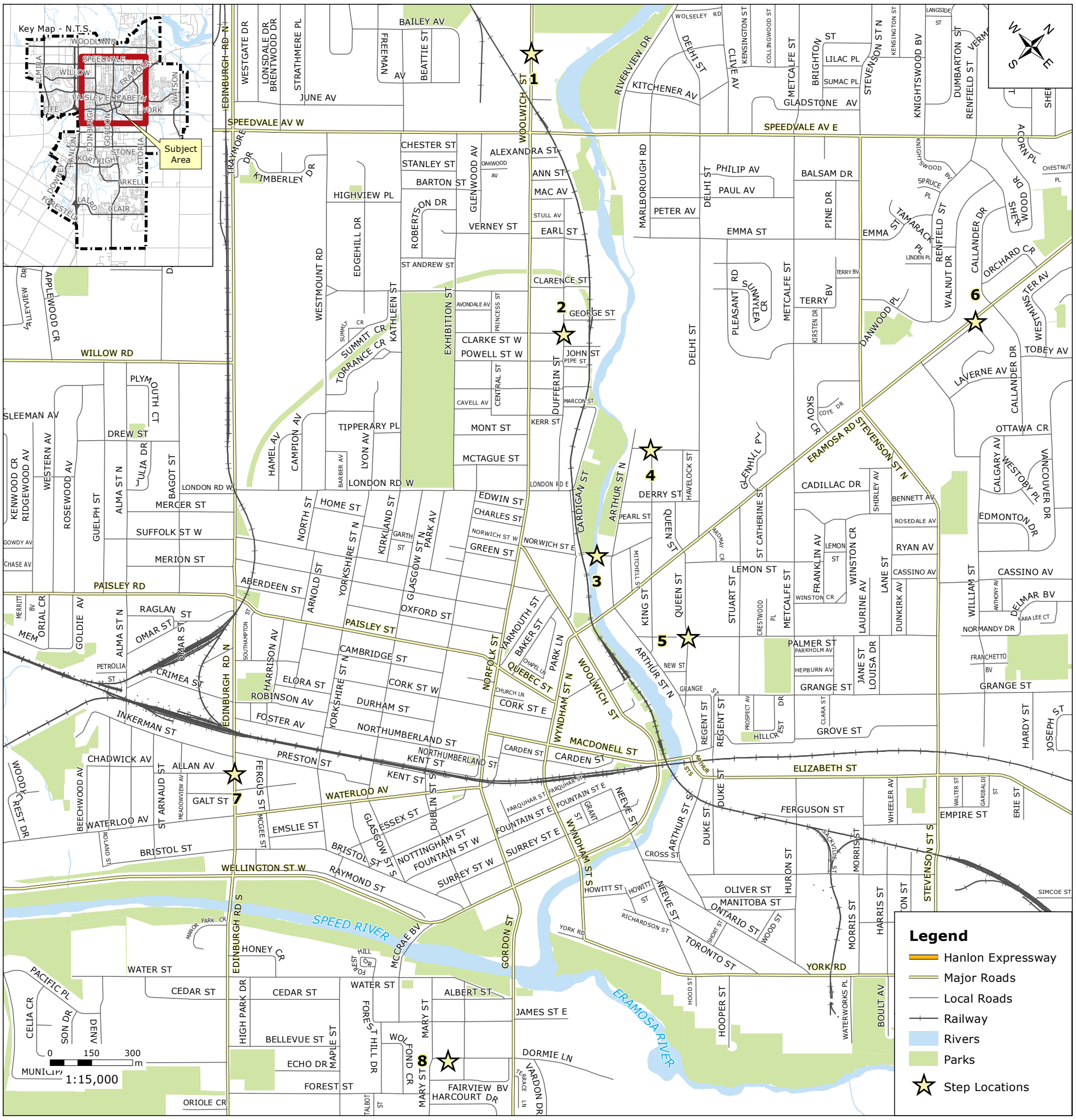

No.	Date (mm/dd/yy)	Locations	Start Time	Shovel	Sand	Salt	Finish Time
1		Woolwich Street @ Evergreen - Four Corners and Bus Stop					
2		Dufferin Street @ Clark - Two Sets of Steps					
3		Norwich Street Bridge					
4		Arthur St N to Spring St - Steps and Ramp and CB at 230 Spring St					
5		Queen Street @ Palmer - Ramps and Steps					
6		Eramosa Rd @ Lincoln Cres - Steps					
7		Allan Ave @ Edinburgh Rd					
8		Steps on 80-82 Forbes Avenue and Sidewalk					

No.	Date	Employee Name	Employee Number
1			
2			
3			

Truck Number _____

Blower Number _____

Lead Hand (Print) _____

Lead Hand (Signature) _____

Date Checked _____

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Engineering and Capital Infrastructure Services
November 23, 2016

City of Guelph
Steps - List #3

Making a Difference

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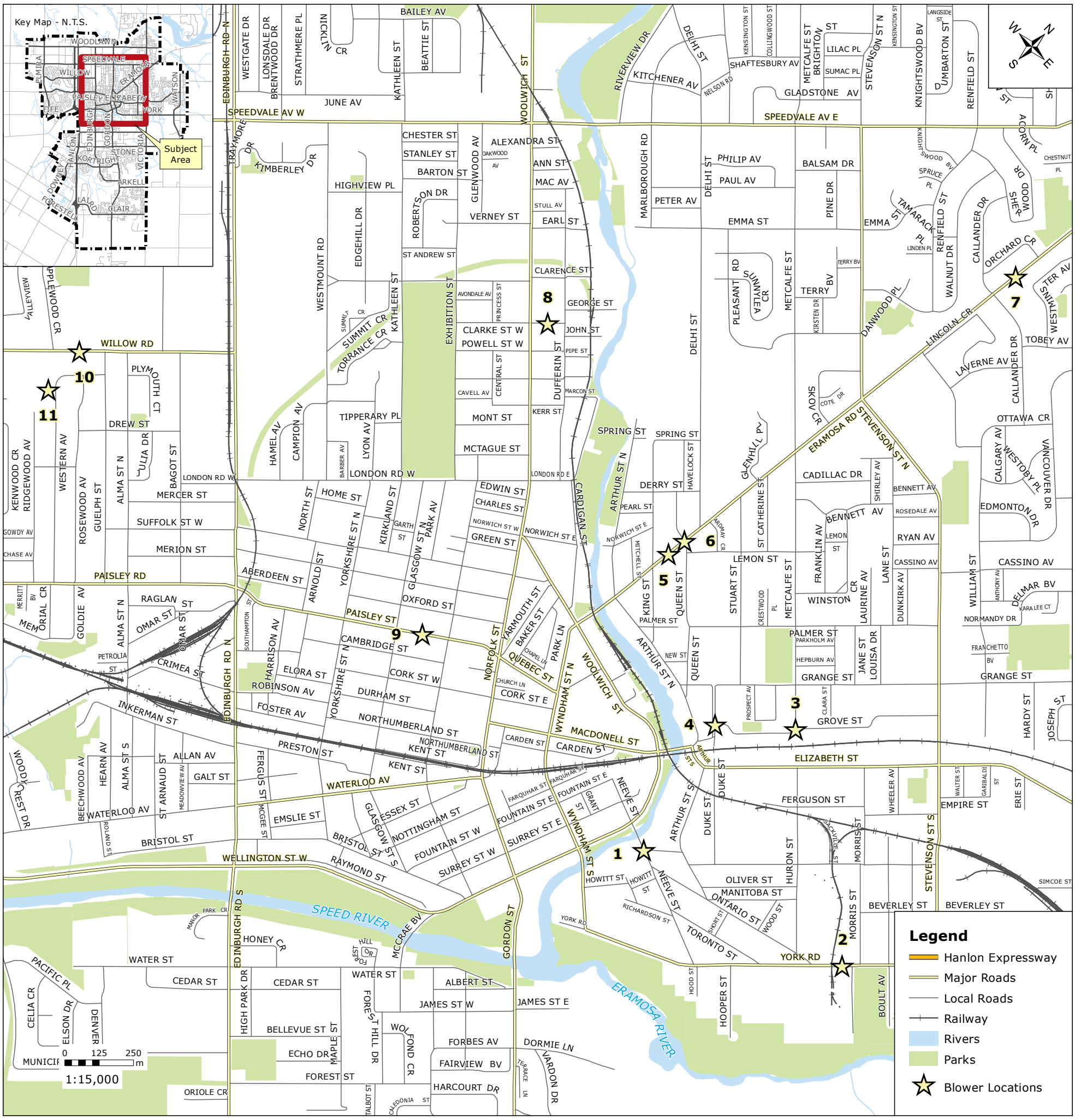

No.	Date (mm/dd/yy)	Locations	Start Time	Shovel	Sand	Salt	Finish Time
1		Neeve St - Wellington to Ontario, Both Sides					
2		York Rd - Ontario St to Morris St, North Side					
3		Grove St - Metcalfe to 178 Grove, North Side					
4		Grove St - At Regent to Top of Hill					
5		Eramosa - King to Queen, North Side					
6		Eramosa - King to Ardmay, South Side					
7		Eramosa - Callander to Orchard, Both Sides					
8		Clarke St E - Woolwich to Dufferin					
9		Paisley Rd - Dublin to Glasgow, Both Sides					
10		Willow Rd - Crosswalk to Bus Shelter, South Side					
11		Walkway: Royal City Baptist Church					

No.	Date	Employee Name	Employee Number
1			
2			
3			

Truck Number _____

Blower Number _____

Lead Hand (Print) _____

Lead Hand (Signature) _____
Date Checked _____

Please make sure buttons for walk signals are clear. Record all totals for materials and equipment used. Report any operational concerns.

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Engineering and Capital Infrastructure Services
February 16, 2017

City of Guelph
Blower - List #1

Making a Difference

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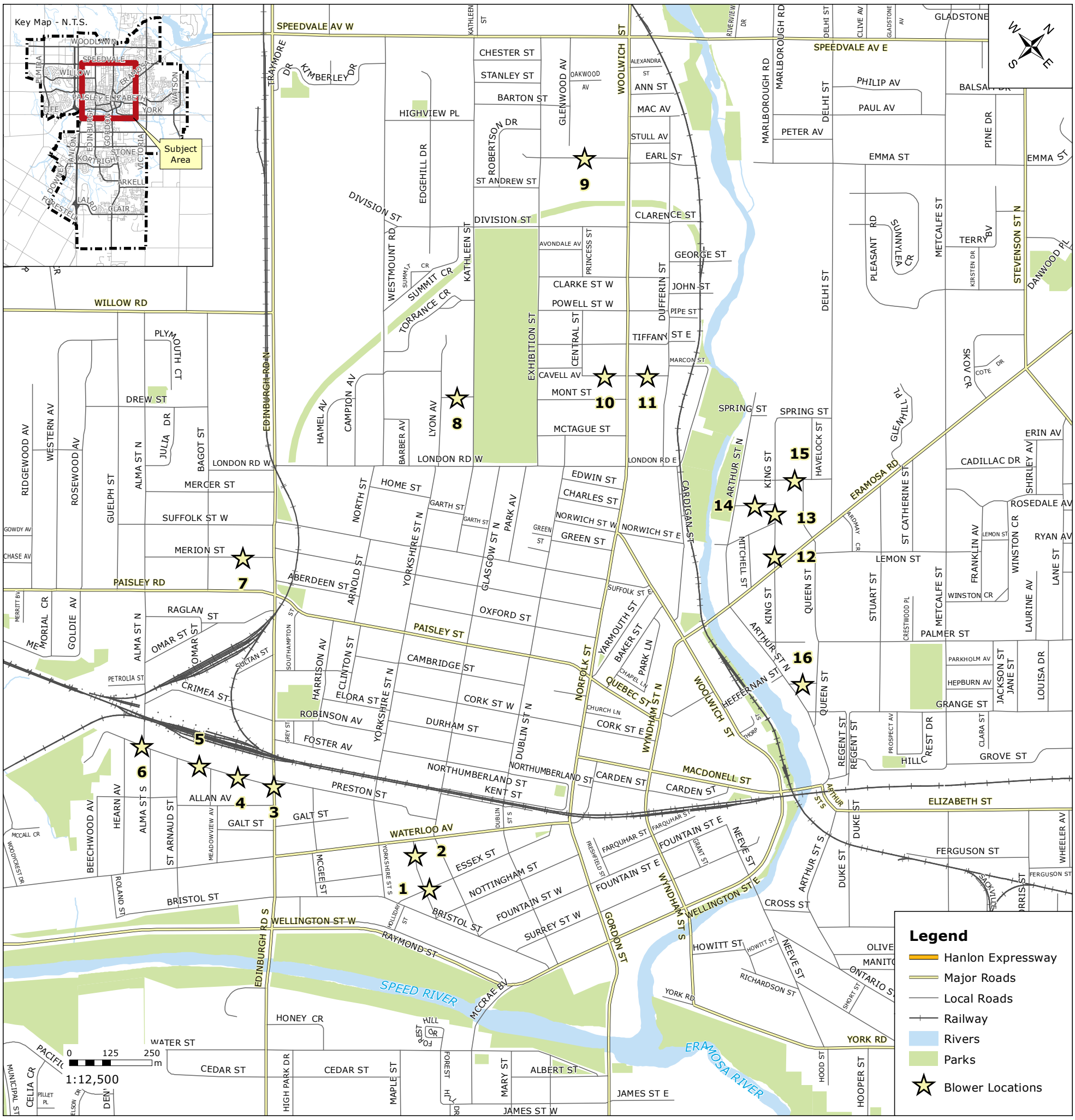

No.	Date (mm/dd/yy)	Locations	Start Time	Shovel	Sand	Salt	Finish Time
1		122 Essex (on Birmingham St) N/B to Essex St					
2		11 Birmingham St S/B to Essex St					
3		Edinburgh & Inkerman W/B to 11 Inkerman					
4		43 Inkerman W/B to 47 Inkerman					
5		71 Inkerman W/B to 91 Inkerman					
6		156 Inkerman E/B to Meadowview					
7		Merion St - Between Bagot and Edinburgh					
8		Tipperary Pl					
9		Verney St					
10		Extra St					
11		Kerr St					
12		114 King St					
13		King St - Spring to Eramosa					
14		Pearl St - Arthur to King, Both Sides					
15		Derry St - King to Havelock, North Side					
16		New St					

No.	Date	Employee Name	Employee Number
1			
2			
3			

Truck Number _____

Blower Number _____

Lead Hand (Print) _____

Lead Hand (Signature) _____

Date Checked _____

Please make sure buttons for walk signals are clear. Record all totals for materials and equipment used. Report any operational concerns.

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Engineering and Capital Infrastructure Services
January 27, 2017

City of Guelph
Blower - List #2

Making a Difference

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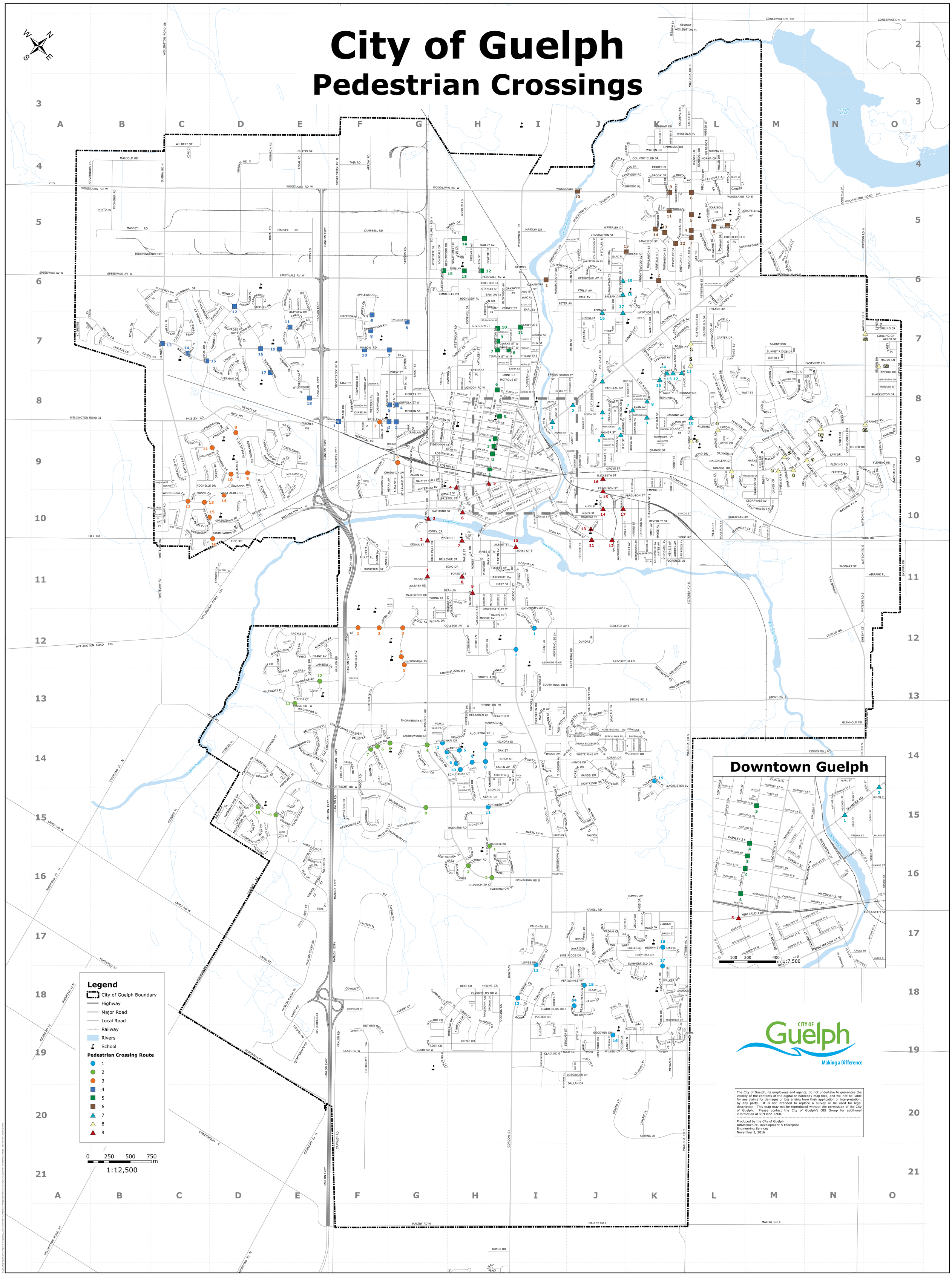
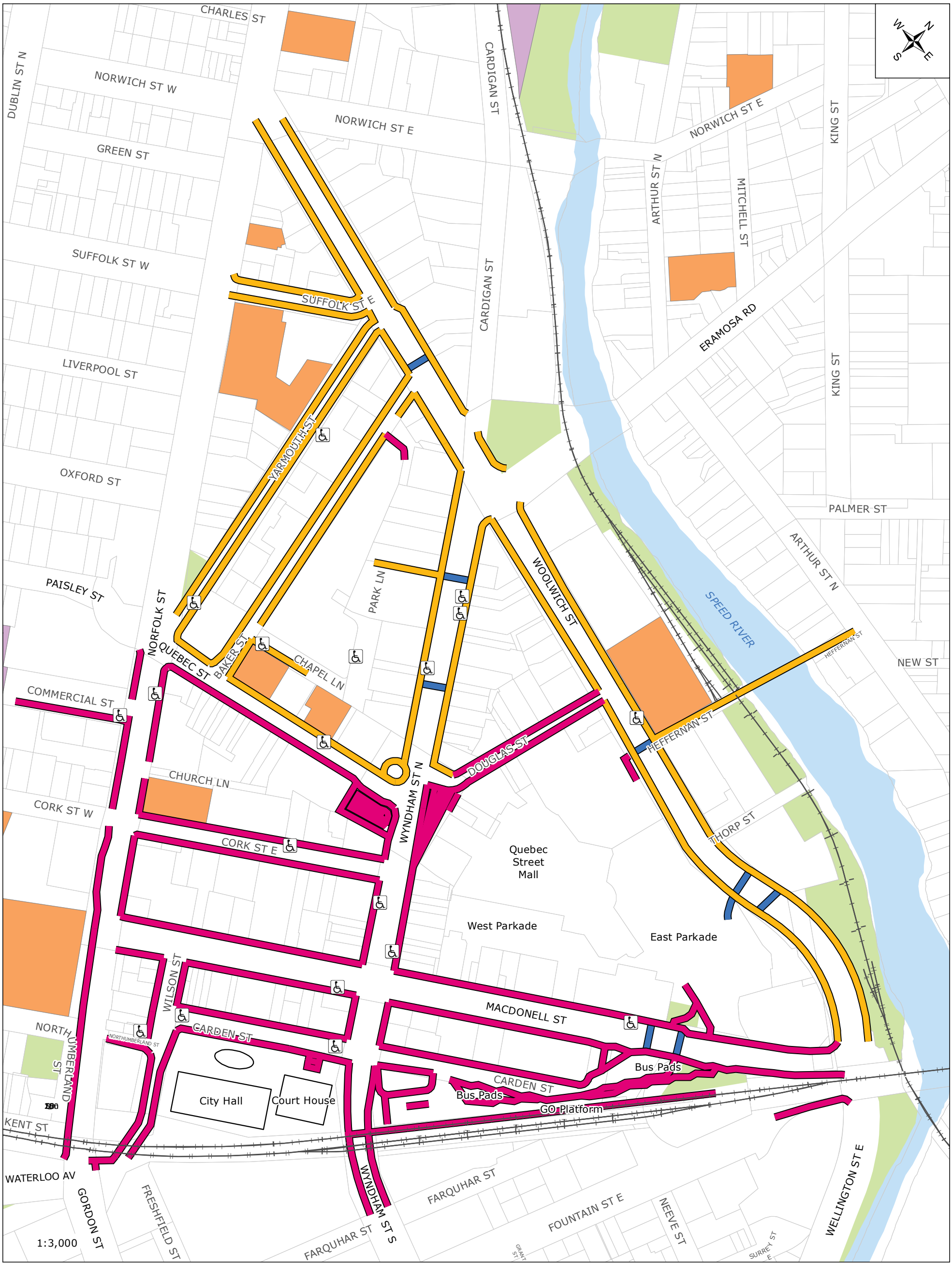
City of Guelph
Pedestrian Crossings



Appendix C:

1. **Sidewalk Plow and Sand Downtown**
2. **Downtown Parking Lots**



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Produced by the City of Guelph
Infrastructure, Development & Enterprise
Engineering and Capital Infrastructure Services
March 20, 2017

City of Guelph
Sidewalk Plow and Sand
Downtown

Making a Difference

Unit #: _____
Operator: _____
Date: _____
Times (In-Out) AM/PM:
_____
Weather: _____
_____
_____

Sanded: ☐
Plowed: ☐
Magnesium: ☐
Shovelled ☐
Loads: ☐
Passes: ☐
Salted: ☐

Comments: _____
_____
_____
_____
_____
_____
_____

Legend

- City of Guelph Boundary
- Property Boundary
- Railway
- Parks
- Waterbody
- Church
- School
- Accessibility
- Zone 1
- Zone 2
- Hand Shovel

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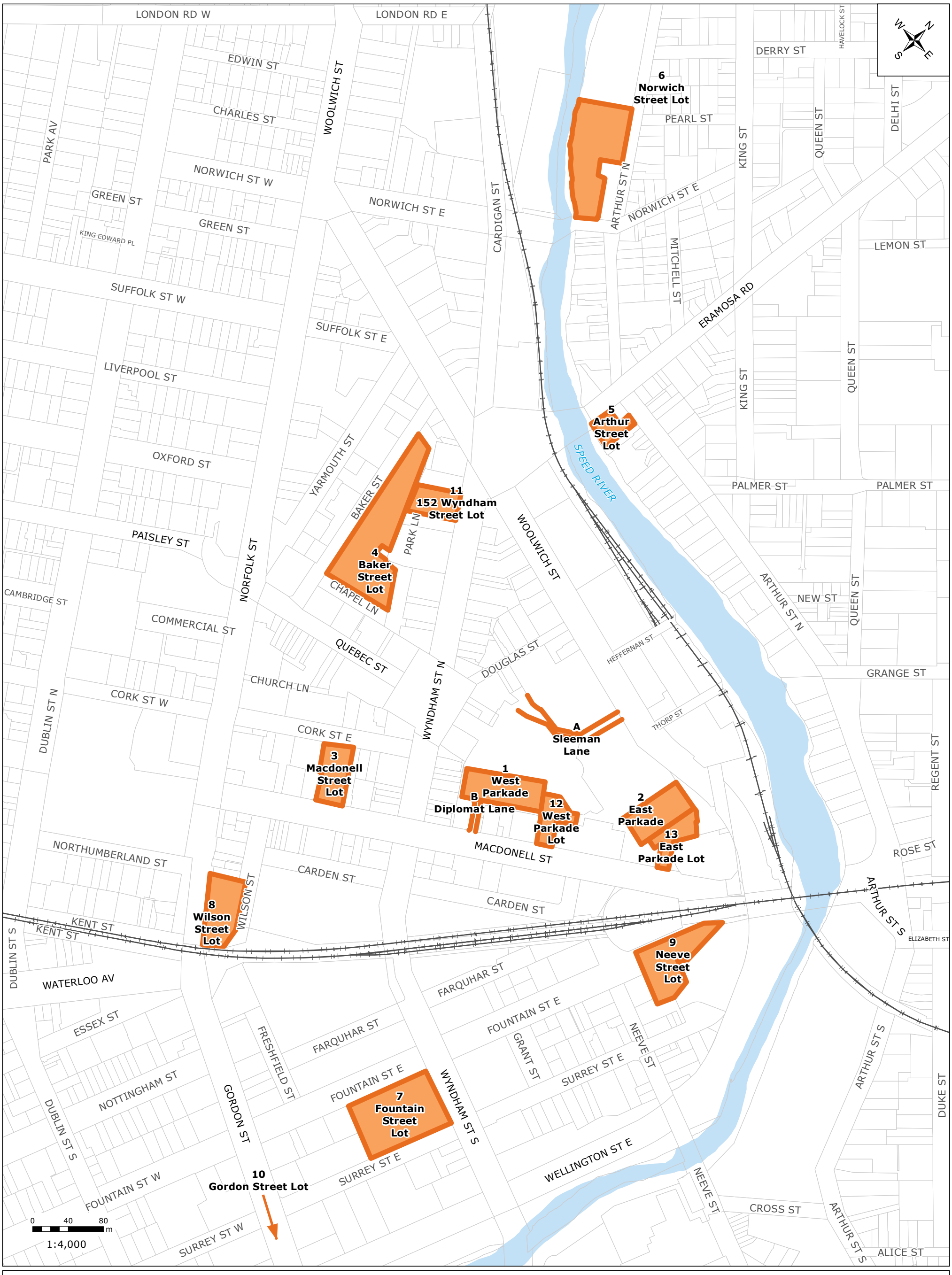

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Produced by the City of Guelph
Infrastructure, Development & Enterprise
Engineering and Capital Infrastructure Services
October 12, 2016

City of Guelph
Sidewalk Plow and Sand
Downtown Parking Lots

Unit #: _____
Operator: _____
Date: _____
Times (In-Out) AM/PM:
_____
Weather: _____
_____
_____

Sanded: ☐
Salted: ☐
Plowed: ☐

Comments: _____
_____
_____
_____
_____
_____
_____
_____

Legend
- City of Guelph Boundary
- Railway
- Property Boundary
- Rivers
- Parking Lots
- Parking Access Lanes

I:\gis_staging\Engineering\GIS Requests_General\Winter Maintenance Maps\Sidewalks\WinterMaintenance_ParkingLots_2016_Downtown.mxd

Appendix D:

University of Waterloo iTSS Lab-Optimal Snow and Ice Control of Parking Lots and Sidewalks, A Summary Final Report, Section 7 Quick Guide for Optimal Snow and Ice Controls

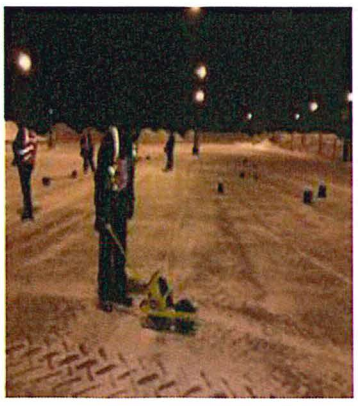
Appendix D

UNIVERSITY OF WATERLOO iTSS LAB









Optimal Snow and Ice Control of Parking Lots and Sidewalks

A Summary Final Report

iTSS Lab
Department of Civil & Environmental Engineering
University of Waterloo, Waterloo, N2L3G1
Ontario, Canada

January, 2015

7. QUICK GUIDE FOR OPTIMAL SNOW AND ICE CONTROLS

This section summarizes the major recommendations and guidelines that have been developed on the basis of an extensive literature review, two large-scale surveys, and a large number of field tests. These guidelines can help the maintenance industry responsible for snow and ice control of parking lots, sidewalks and transit platforms to optimize maintenance operations and minimize salt usage.

7.1. Set Appropriate Level of Service (LOS) Targets

Any maintenance program for a transportation facility starts with establishing the desired level of service (LOS) that should be delivered during winter events or the winter season. The desired LOS must be realistic and cost-effective due to the random nature of winter events. As a result, it is preferable that each LOS standard includes a probability quantifier. For example, MTO's Maintenance Quality Standards (MQS) designates that all Class I highways must reach bare pavement within 8 hours for 90% of the events over a season, i.e., the LOS requirement for Class I highway is 8 hrs. Standards of this type also make sense from the users' point of view, as it would understandably be too cost prohibitive to maintain a facility in a bare pavement condition at all times and under all types of events. Another consideration in setting LOS targets is the need to strike a balance between costs and benefits. An ideal LOS policy for a parking lot should take into account the types of snow events that are to be expected in the area where the site is located as well as the service demand of the parking lot/establishment type (e.g., shopping plaza, restaurants, emergency buildings etc.). As a result, it may make sense to have different LOS standards for different types of parking lots/sidewalk sections.

7.2. Select the Right Treatments and Application Rates

In responding to any upcoming event, maintenance operators must choose the right maintenance strategy such as anti-icing or deicing and the application rate for each treatment. If an anti-icing operation is to be implemented, solid or liquid salt should be selected on the basis of a business strategy and the expected event conditions. The recommended application rate should then be applied before the event begins. Because the purpose of anti-icing is to prevent bonding between the pavement and surface contaminant and to ease the plowing operations, it is not necessary to apply different application rates for different weather conditions. It should however be noted that anti-icing may not be effective and thus should not be recommended for some event conditions. Table 7-1 summarizes the key information required in anti-icing treatments.

For deicing operations, a number of weather conditions should be determined at the time of treatment. First, the average representative pavement surface temperature should be either measured using a portable infrared (IR) thermometer or estimated on the basis of air temperature and site conditions. Secondly, the type of snow and the total amount of the snow (depth) that is expected to accumulate during the event should be determined. The snow accumulation should include snow already present on ground in addition to the forecasted precipitation. Finally, the desired level of service should be determined in terms of bare pavement regain time, based on the LOS requirements of the facility. Table 7-2 provides the recommended base application rates derived on the basis of snow melting models developed using the field test data. It is important to note that these rates are highly aggregated, representing the average amount of salt needed for a given range of conditions as defined by these factors. They should therefore

be adjusted according to actual conditions and requirements (as discussed in the following section - Section 7.3). More accurate application rates are provided in Appendix A. Note that when snow accumulation is more than 2cm, snow need to be first plowed for best results in deicing treatment.

Table 7-1: Anti-icing Treatment Matrix for Best Results

	With Liquid Salts[1]	With Regular Solid Salt
Lowest Practical Temperature (°C)	-7	-9
Event Conditions	Less effective for wet snow and heavy event	Less effective for dry snow and heavy event
Recommended Application Rate	3 L per 1000 sq. ft.	5 lbs per 1000 sq. ft.
Additional Treatments	To make most of the anti-icing operation, snow should be plowed timely. After the site is plowed, a low amount of salt could be applied subsequently to melt the remaining snow.	
Other Notes	Liquid salts are typically more effective than solid salt for anti-icing	

[1]Liquid salts tested were Brine, Caliber M1000, Snowmelt, and Fusion.

Table 7-2: Recommended Base Rates (lbs/1000 sqft) for Deicing Treatment for upto 2cm snow

Average Pavement Temp of the Event, °C	Bare Pavement Regain Time (hours)		
	1 ~ 2	3 ~ 4	5 ~ 6
-1 to -3	15	6	4
-4 to -6	45	15	10
-7 to -9	85	35	20

7.3. Adjusting Salt Application Rates for Other Factors

The application rates provided in Table 7-2 are appropriate only for the base conditions and therefore must be adjusted when the actual conditions deviate from these base conditions. This section summarizes the adjustment factors developed on the basis of the field testing results.

1) Snow Type Adjustment Factor

The base application rates listed in Table 7-2 were determined for new snow with an average density in the range of 100 kg/m^3. The base rates must therefore be adjusted according to snow density, which is captured by the snow-melting model (Hossain et al. 2014). For convenience of application, Table 7-3 gives the adjustment factor for some typical types of snow.

2) Traffic Adjustment Factor

Vehicular traffic is known to have a positive effect on the snow melting performance of salts. Our field tests under a wide range of controlled settings have provided quantitative evidence on the relative benefit of traffic. This means that lower amounts of salt are needed for parking lots with higher traffic volumes or areas of higher traffic in a given parking lot (e.g., driveways versus parking stalls). Table 7-4 shows the adjustment factors that were developed on the basis of the field test results (Hossain et al. 2014). In combination with the base application rates presented in the Table 7-2, these traffic adjustment factor values can be used to determine the appropriate application rate for a specific facility of known traffic level. For example, under the same LOS requirement, a high traffic parking lot such as shopping plaza requires only 30% of the application rate of a facility with no vehicular traffic (e.g., sidewalk).

3) Pavement Type Adjustment Factor

Pavement type also affects the snow melting performance of salt, due to thermodynamic properties. Our field tests indicated that Portland cement concrete (PCC) and interlocked concrete requires approximately 20% more salt to achieve the same LOS as compared to an asphalt concrete pavement (Hossain et al. 2014). An adjustment factor is therefore recommended for a PCC or interlocked concreted pavement facility, as shown in Table 7-5.

4) Adjustment Factors for Pre-wetting

Pre-wetted salt has been shown to be more effective than regular dry salt in the road maintenance sector. This performance advantage of pre-wetting was also confirmed in our field study (Hossain et al. 2014). Based on our field test results, the application rates could be reduced by 20% if pre-wetted salt is applied, as shown in Table 7-6. It should be noted that the relative advantage of pre-wetting decreases as the precipitation intensity or the amount of snow to be melt increases.

5) Adjustment Factors for Alternative Salts

In this research, several alternative products were also tested for their relative performance as compared to regular rock salt. It was found that most of these alternatives had better snow melting performance than regular salt although their relative advantage varied widely. Table 7-7 summarizes the recommended adjustment values for four different alternatives under three ranges of pavement temperatures.

Table 7-3: Adjustment for Snow Type

Snow Type	Adjustment Factor
Loose snow (Density = ~75 kg/m^3)	0.75
Regular fresh snow (Density = ~100 kg/m^3)	1.00
Packed snow (Density = ~150 kg/m^3)	1.50
Freezing rain and ice (Density = ~800 kg/m^3)	8.00

Table 7-4: Adjustment for Different Traffic Loads

Traffic Volume	Adjustment Factor
No vehicular traffic (e.g., stalls, sidewalks and platforms)	1.00
Low to Medium Traffic (10-50 veh/hr) (e.g., staff parking lots, restaurants)	0.45
High Traffic (50-70 veh/hr) (e.g., shopping plaza)	0.30

Table 7-5: Adjustment for Different Pavement Types

Pavement Type	Adjustment Factor
Asphalt Concrete	1.00
Portland Cement Concrete (PCC)	1.20
Interlocked Concrete (IC)	1.20

Table 7-6: Adjustment Factor for Pre-wetting

Salt Form	Adjustment Factor
Regular dry salt	1.00
Pre-wetted salt (with a recommended pre-wetting ratio of 20~30 % brine by weight)	0.80

Table 7-7: Adjustment Factors for Alternative Salts

Average Pavement Temperature (°C)	Slicer	Blue	Green	Jet Blue
-1 to -3	0.74	N/A	0.53	0.64
-4 to -6	0.79	N/A	0.52	0.68
-7 to -9	0.83	0.84	0.65	0.72

7.4. Guideline Application Example

This section provides a hypothetical example to illustrate how the recommended guidelines described in the previous section can be applied by the users to select the most appropriate snow and ice control methods and to determine the appropriate application rates under the specific site and event conditions.

Site and Event Description

A contractor is hired to provide winter maintenance service for an 8000 sqft parking lot at a shopping plaza. The parking lot has an asphalt pavement and its required level of service is essentially bare pavement with a maximum bare pavement regain time of 2 hours for majority of the events. A snow storm is forecasted with the following event characteristics:

- Total snowfall = 4 cm
- Average air temperature = -4 C ~ -6 C
- Expected start and end time: 3am~11am

The following is a sequence of decisions that could be made following the proposed guidelines:

Step 1: Decide on whether or not to perform anti-icing or pre-application and if so what should be the application form, rate and time.

Because of the high LOS requirement of the parking lot, anti-icing is recommended for facilitating the subsequent plowing and deicing operations. Based on the anticipated air temperature, regular rock salt with the recommended application rate of 5 lbs/1000 sqrt should be applied. The total amount of salt needed to cover the whole parking lot is 40 lbs (8000 sqft x 5 lbs/1000 sqrt). The salt can be applied at any time before the event starts (3am).

Step 2: Decide on plowing and deicing operations

The event is expected to start around 3am and continue until 11am, which means that there will be noticeable accumulation by the time when the shopping plaza opens (9am). Assume that, to meet the service requirements, the contractor would decide to start plowing operation at 7am and then treat the site with salt, which should be done by 8am. The question is: how much salt should be applied, or what should the appropriate application rate? To determine the optimal application rate, the following information is collected:

- Pavement temperature: -~-6 measured by a portable IR thermometer
- Snow/ice remaining on the pavement surface after plowing: 0.5 cm
- Anticipated future snow fall: 1.5 cm
- Bare pavement regain time: 2 hour
- The contractor will not return to the site, which means all accumulated snow must be melted off by salt

From Table 7-2, we can obtain the base application rate of 15 lbs/1000sqft. The base rate needs to be adjusted to account for the busy traffic with $f_{traffic} = 0.30$. The final application rate for the driveways is therefore 4.5 lbs/1000sqft. The total amount of salt needed for the whole parking can be decided on the basis of the arear of the total driveways.

Appendix E:

Snow Fence Locations 2017

Lockyer Road:

Date Installed	Date Removed

Off Edinburgh Rd. S. between Municipal Street and College Ave.

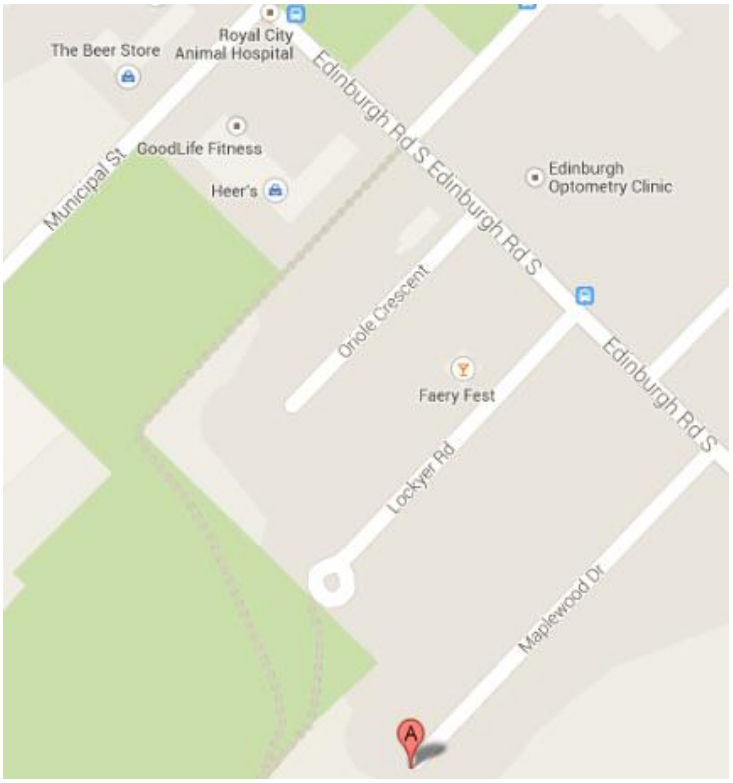




Maplewood Drive:

Date Installed	Date Removed

Off Edinburgh Rd. S. between Municipal Street and College Ave.





University Village Park:

Date Installed	Date Removed

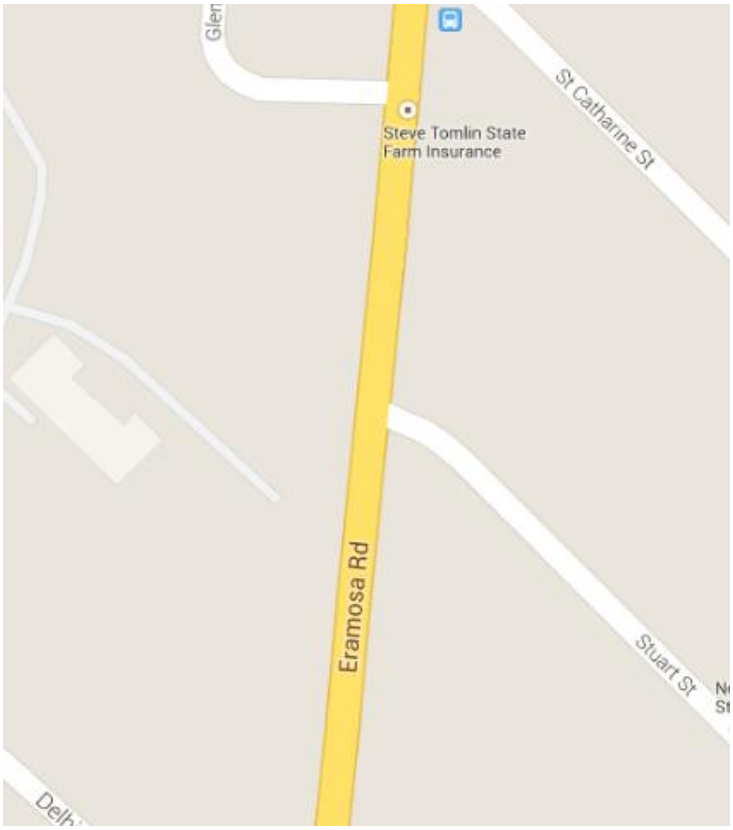
Ironwood Rd. off Edinburgh Rd S. south of Stone Road West.

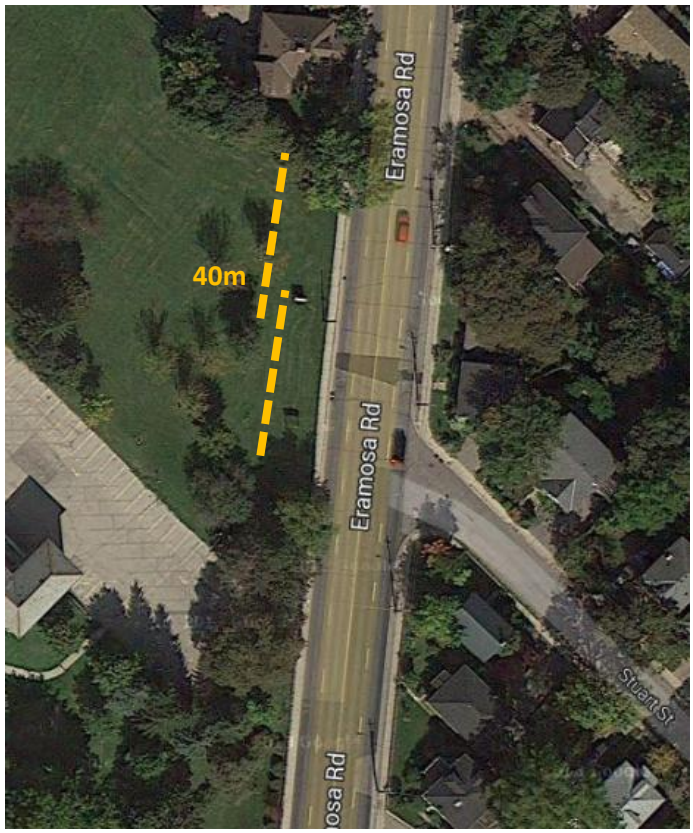




Eramosa Road at Delhi Rec. Center Park:

Date Installed	Date Removed



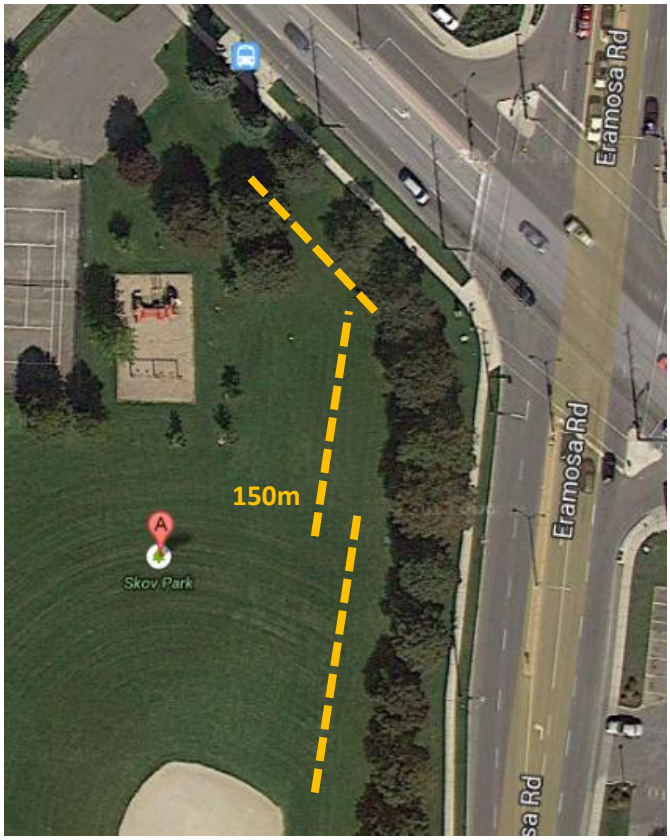


Scov Park:

Eramosa Road and Victoria Road North

Date Installed	Date Removed

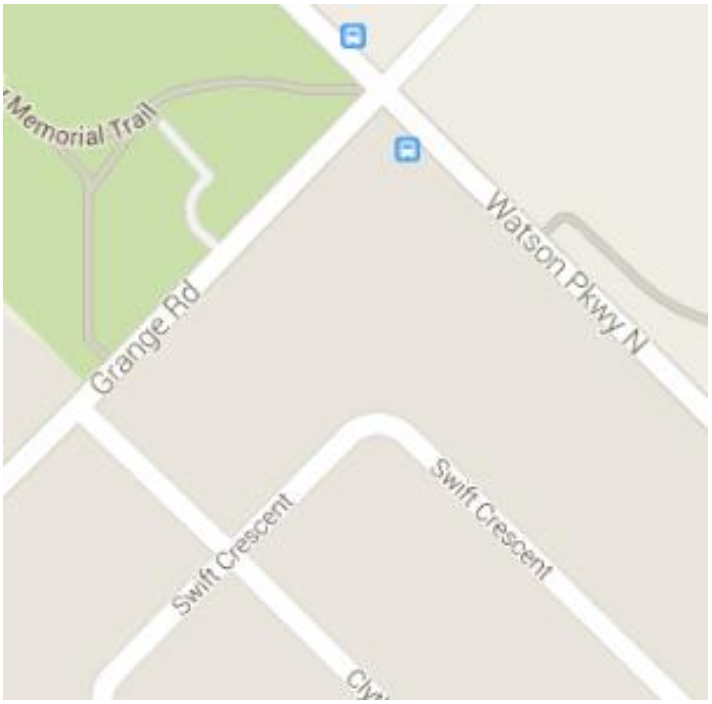


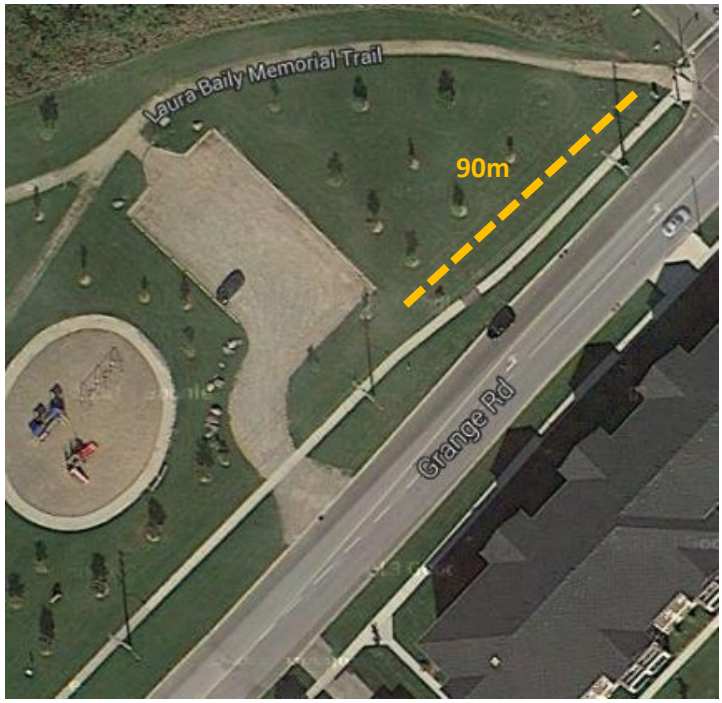


Grange Park:

Grange Road and Watson Pkwy N

Date Installed	Date Removed





Summit Ridge Park:

Date Installed	Date Removed

Summit Ridge Drive south of Eastview Rd.





Dakota Park:

Date Installed	Date Removed

Dakota Dr. off Victoria Rd. N. north of Speedvale.



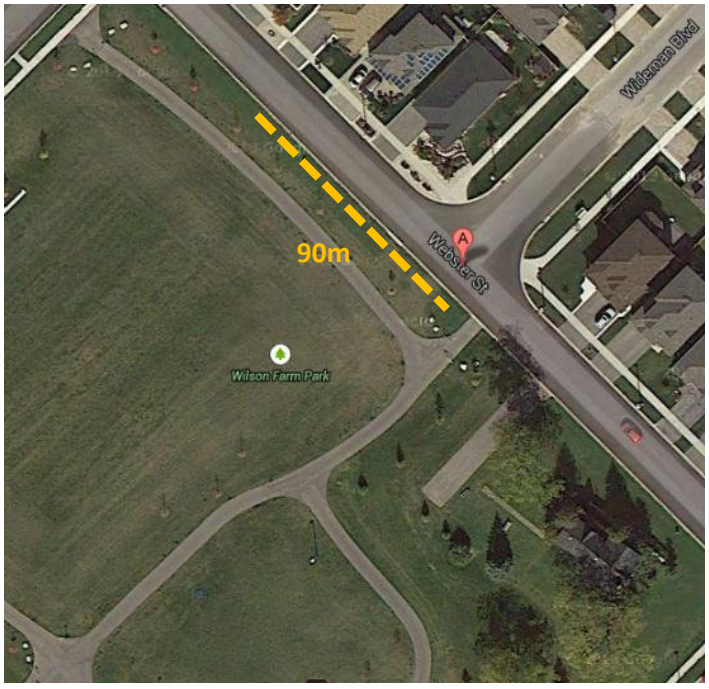


Wilson Farm Park

Webster Street at Wideman Blvd. east of Victoria Rd. N.

Date Installed	Date Removed

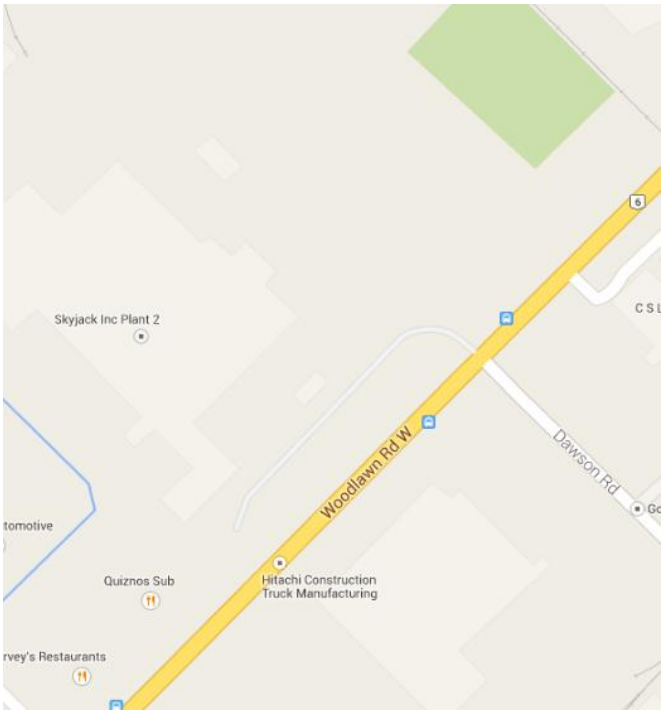




Skyjack Plant:

Woodlawn Rd. W. at Dawson Rd.

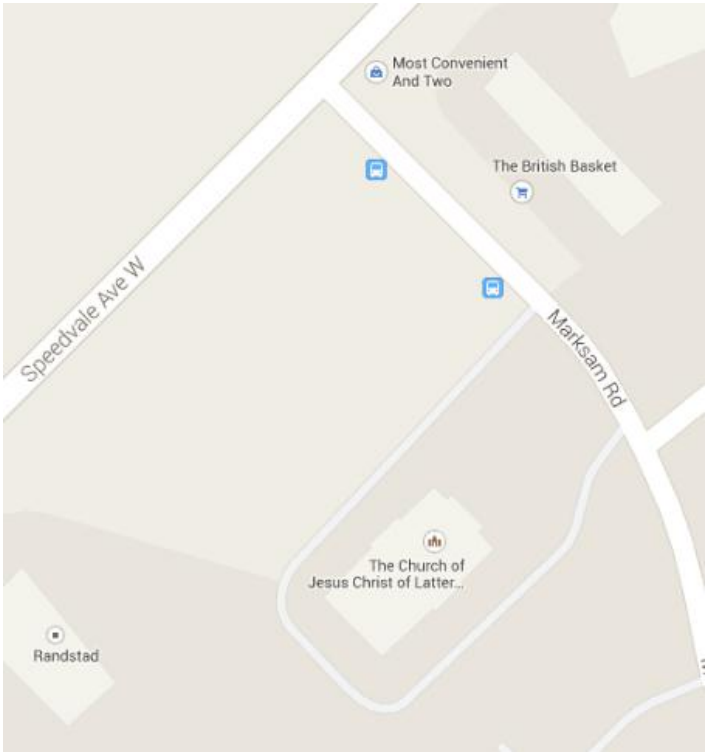
Date Installed	Date Removed

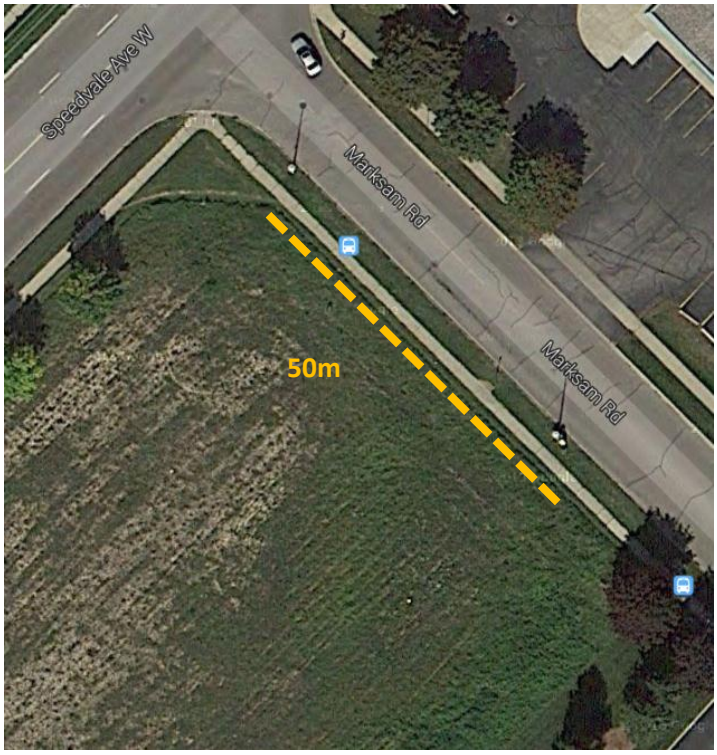




Marksam Rd. at Speedvale:

Date Installed	Date Removed

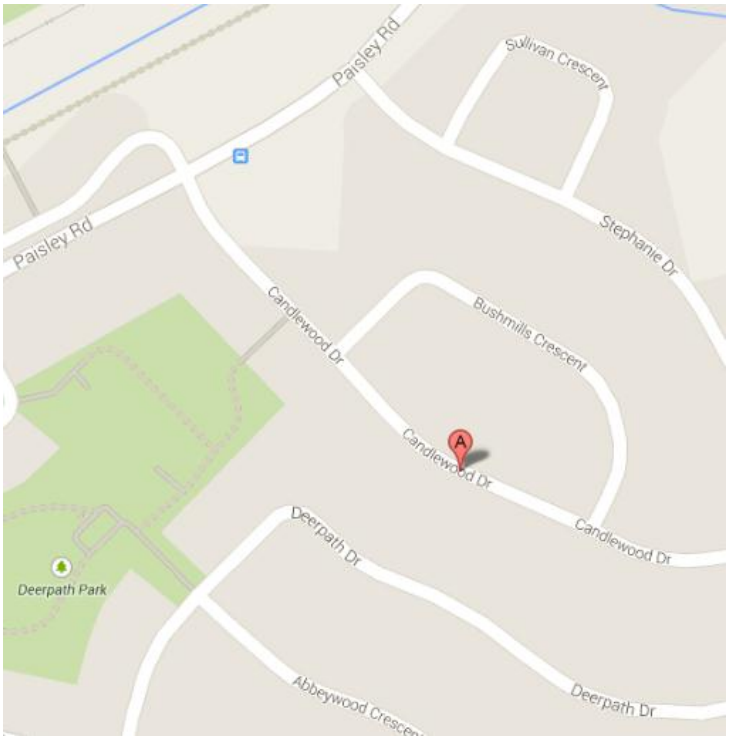


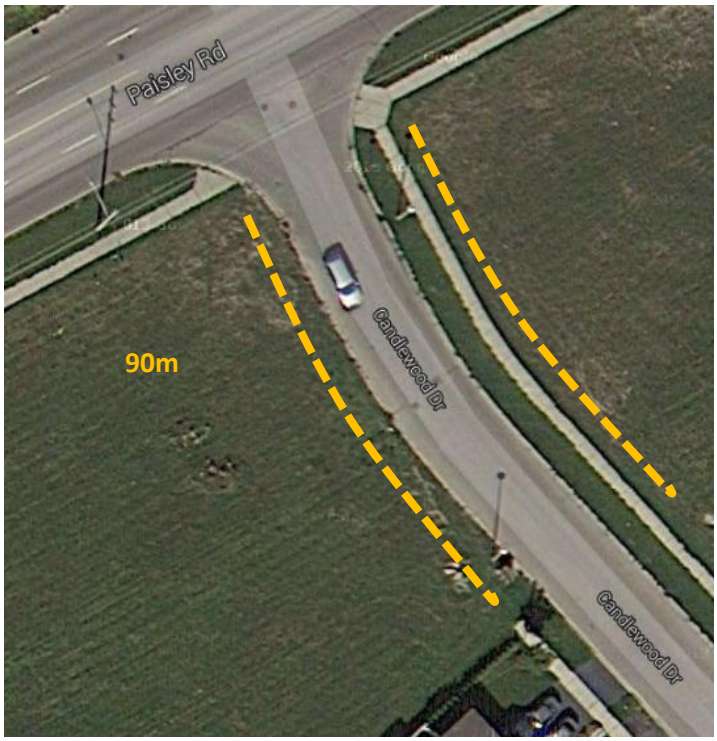


Candlewood Dr.:

Date Installed	Date Removed

At Paisley Rd. east of the Hanlon Pkwy.

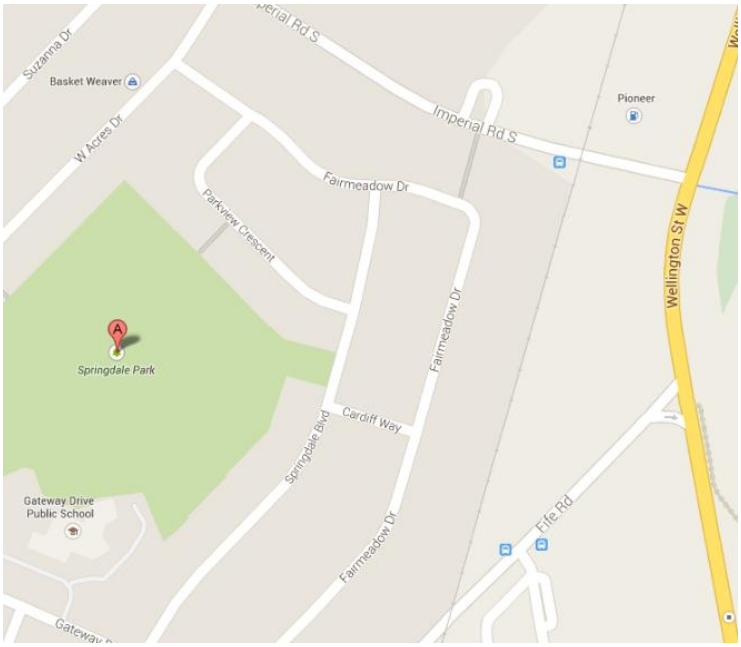




Springdale Park:

At Springdale Blvd.

Date Installed	Date Removed



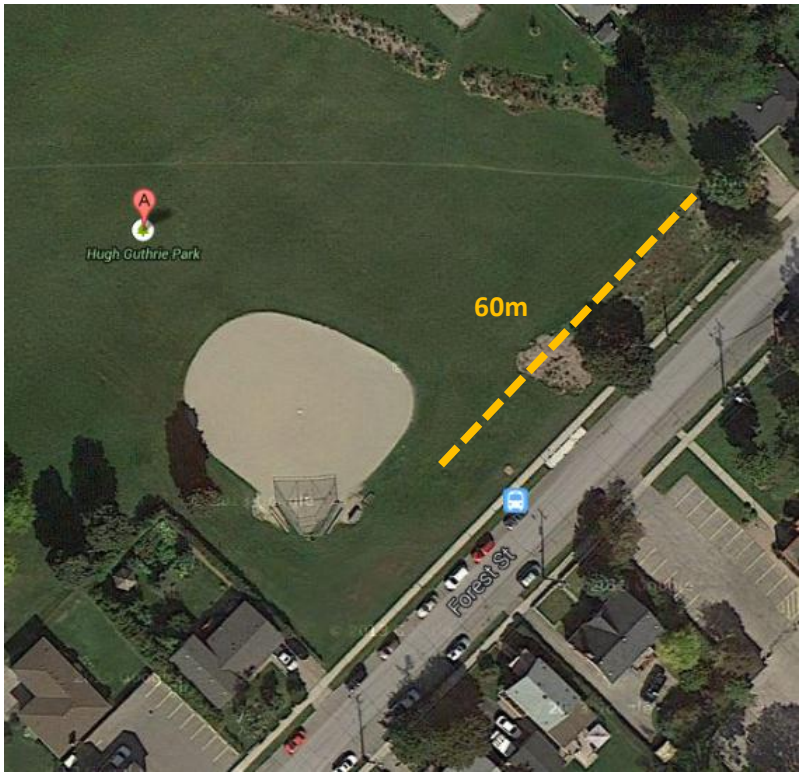


Hugh Guthrie Park:

Forest Street off Edinburgh Rd. S.

Date Installed	Date Removed

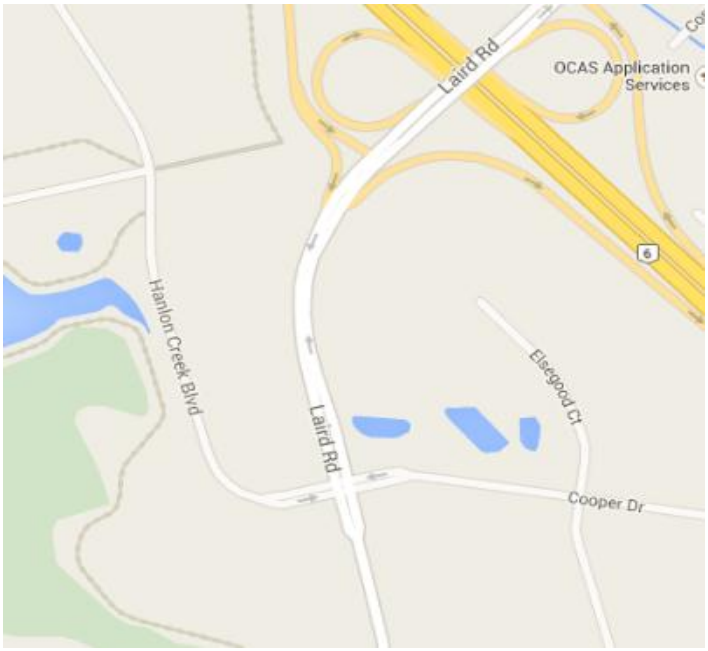


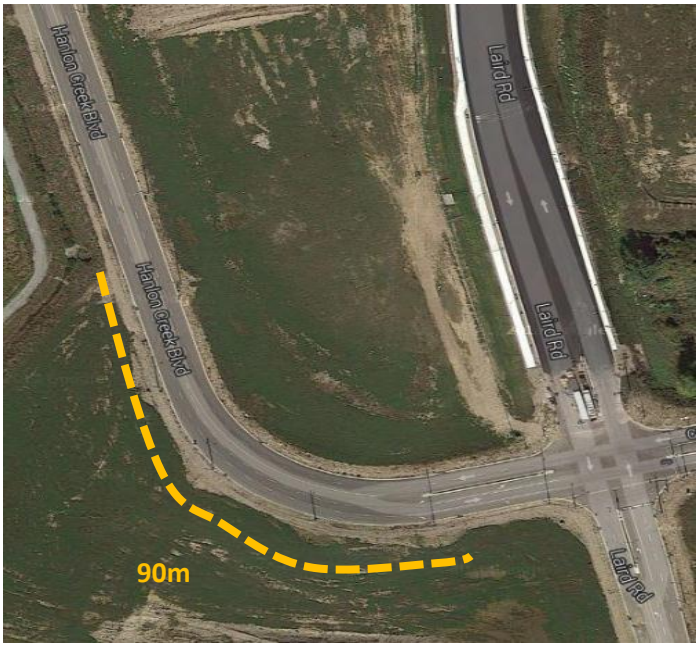


Hanlon Creek Blvd.

Date Installed	Date Removed

At Laird Rd.

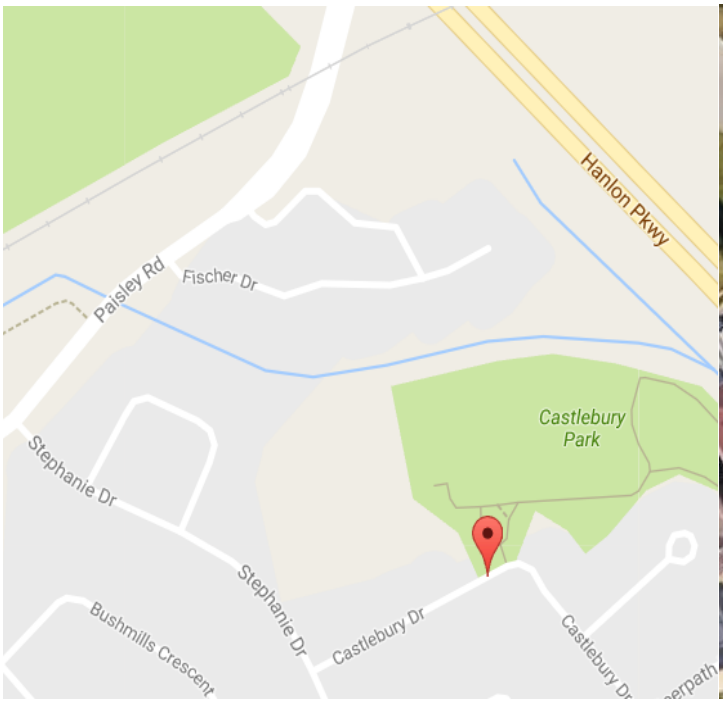




Hugh Guthrie Park:

Date Installed	Date Removed

Forest Street off Edinburgh Rd. S.





Appendix F:

Sidewalk and Road Winter Equipment List

APPENDIX F - WINTER CONTROL EQUIPMENT					
Vehicle #	***Year***	***Description***	***Activity***	***Spreader Type***	***Plow Type***
351	2007	Case 3 YD Loader 621D	Material Handling	None	Bucket Only
352	2012	Case 3 YD Loader 621F	Snow Removal	None	Front plow w/wing
432	2015	Caterpillar 3 YD Loader	Snow Removal	None	Front plow w/wing
358	2004	John Deere Grader 770 CH	Snow Removal	None	
664	2006	Tandem Dump - Navistar International Workstar 7400	Liquid Anti-Icing	Force America	No Plow Operation
314	2010	Tandem Dump - Navistar International Workstar 7400	Liquid Anti-Icing	Parker Sys.	Front plow w/wing
325	2011	Dump Truck - Ford F-450	Liquid Anti-Icing	Electric Pump	No Plow Operation
305	2006	Single Axle Dump - Sterling Acterra	Plow/Treat	Force America	Front plow w/wing
312	2006	Single Axle Dump - Sterling Acterra	Plow/Treat	Force America	Front plow w/wing
304	2009	Tandem Dump - Navistar International Workstar 7400SBA	Plow/Treat	Parker Sys.	Front plow w/wing
311	2009	Tandem Dump - Navistar International Workstar 7400SBA	Plow/Treat	Parker Sys.	Front plow w/wing
316	2009	Tandem Dump - Navistar International	Plow/Treat	Parker Sys.	Front plow w/wing
338	2009	Flat Bed Truck - Navistar International	Plow/Treat	E-Poke	Front plow w/wing
308	2010	Tandem Dump - Navistar International 7400 SBA 26 GVW	Plow/Treat	Parker Sys.	Front plow w/wing
302	2012	Tandem Dump - Navistar International 7400 SBA	Plow/Treat	Schmitt	Front plow w/wing
306	2012	Tandem Dump - Navistar International 7400 SBA	Plow/Treat	Schmitt	Front plow w/wing
307	2012	Single Axle Dump - Navistar International 2654	Plow/Treat	Parker Sys.	Underbody/Front Plow
310	2012	Single Axle Dump - Freightline 108SD	Plow/Treat	Parker Sys.	Underbody/Front Plow
303	2009	Tandem Dump - Navistar International	Plow/Treat	Parker Sys.	Front plow w/wing
301	2011	Single Axle Dump - International	Plow/Treat		
615	2006	Trackless MT5T	Plow/Treat		
602	2007	Trackless MT5T	Plow/Treat		
603	2007	Sidewalk plow/sander	Plow/Treat		
604	2007	Sidewalk plow/sander	Plow/Treat		
632	2009	Sidewalk plow/sander	Plow/Treat		
354	2011	sidewalk plow with V plow & sander+blower	Plow/Treat		
383	2011	sidewalk plow with V plow & sander	Plow/Treat		
384	2011	sidewalk plow with V plow & sander	Plow/Treat		
628	2012	sidewalk plow with V plow & sander	Plow/Treat		
330	2012	Sidewalk plow/sander	Plow/Treat		
379	2012	sidewalk plow with V plow & sander	Plow/Treat		
327	2014	Kubota tractor	Plow/Treat		
241	2014	Pick-up w/sander	Material application		
595	2014	Pick Up Truck ¾ ton w/Plow	Snow Removal		
327	2004	Sidewalk plow/sander	Snow Removal		
601	2007	Sidewalk plow/sander	Snow Removal		
608	2011	Haiko	Snow Removal		

Appendix G:

1. **Roads – Sample of distributed email report**
2. **Sidewalk – Sample of distributed email report**

APPENDIX G DIGITAL PATROL REPORT SAMPLE EMAIL DISTRIBUTED

New response for Roads 2016/17 Reporting - 175380808

Polldaddy Response <no-reply@polldaddy.net>

Sent: Mon 27/03/2017 1:45 PM

To: Tamara Engel

Completed at:	2017-03-27 12:44:00

Page 1
Report Submitted By Report
John Smith
Air Temperature Report
-5 Degrees Celcius
Road Temperature Report
-7 Degrees Celcius
Current Precipitation Report
Snow
Atmosphere Conditions Report
Overcast
Wind Report
20 km/hr to 49 km/hr (Strong Breeze-Dust and loose paper lifted, large branches in motion)
Surface Condition Report
Downtown = Center Bare Primary Route = Track Bare Secondary Route = Track Bare Secondary Route = Snow Covered Residential Route = Snow Covered Lanes = Snow Covered
Winter Activity Occuring Report
Yes

APPENDIX G DIGITAL PATROL REPORT SAMPLE EMAIL DISTRIBUTED

Page 2
Current Activity Report
Downtown = Complete Primary Route = Plow Primary Route = Treat Secondary Route = Plow Secondary Route = Treat Residential = Pending Lanes = Pending Bridges = Complete
Response to snow accumulation complete. Report
No
Number of Staff on overtime. Report
4 Operators
Number of City trucks operating. Report
12 Plows
On-Call Sidewalk Lead Called Report
Yes
Page 3
Number of Trucks out of Service Report
1 Plows
Staff absent from Crew Report
Additional Notes Report
Residential Plow by contractors to commence at 4pm.

APPENDIX G DIGITAL PATROL REPORT SAMPLE EMAIL DISTRIBUTED

New response for Sidewalk 2016/17 Reporting - 175381510

Polldaddy Response <no-reply@polldaddy.net>

Sent: Mon 27/03/2017 1:59 PM

To: Tamara Engel

Completed at:	2017-03-27 12:58:50

Page 1
Report Submitted By Report
SAMPLE
Air Temperature Report
-5 Degrees Celcius
Sidewalk Temperature Report
-3 Degrees Celcius
Current Precipitation Report
Sleet
Atmosphere Conditions Report
Ice Fog
Wind Report
50 km/hr to 88 km/hr (Gale-whole trees in motion, twigs broke, car veers on road)
Surface Condition Report
High Priority Routes = Bare & Wet High Priority Routes = Ice Covered Residential Routes = Ice Covered Steps = Bare & Wet PXO & School crossing = Bare & Wet Bus Stops = Track Bare Bus Stops = Ice Covered
Winter Activity Occuring Report
Yes

APPENDIX G DIGITAL PATROL REPORT SAMPLE EMAIL DISTRIBUTED

Page 2
Current Activity Report
High Priority Route = De-icing Residential = No Activity Steps = Spot Treatment School Crossing/PXO = Spot Treatment Blower List = No Activity Bus Stops = De-icing Service Requests = No Activity
Route Status Report
High Priority Routes = 75% Complete Residential Routes = Activity Pending
Number of Staff Report
27
Staff absent from Crew Report
Number of Sidewalk Staff called in. Report
9 Operators
Number of Roads, Fleet or Traffic Staff Called in on overtime: Report
4
Number of Temporary Staff Called in: Report
14
Number of sidewalk plows operating. Report
10Sidewalk Plows
Operators assigned per activity; Report
Primary Route = 10 Residential Route = Pending Route Material Supply = 6 Steps Lists = 2 School/Pedestrian Crossings = 2 Bus Stops = 7

APPENDIX G DIGITAL PATROL REPORT SAMPLE EMAIL DISTRIBUTED

Page 3
Number of sidewalk plows out of Service Report
0Sidewalk Plows
Additional Notes Report

Appendix H:

1. SP1 – 45 Municipal Street Winter Operations Plan
2. SP2 – 45 Municipal Street Storm Water Control Plan
3. SP3 – 50 Municipal Street Winter Operations Plan
4. SP4 - Salt Storage Facility Material Storage Plan
5. SP5 – Salt Storage Facility Drainage Plan
6. SP6 – Salt Storage Facility Site Servicing Plan



TRUCK LOADING TRAFFIC CIRCULATION

TRUCK UNLOADING TRAFFIC CIRCULATION

Key Plan:



No.	Date	DESCRIPTION	By:	CH'KD

ISSUES/REVISIONS

OWNER: CITY OF Guelph Making a Difference

FACILITY:

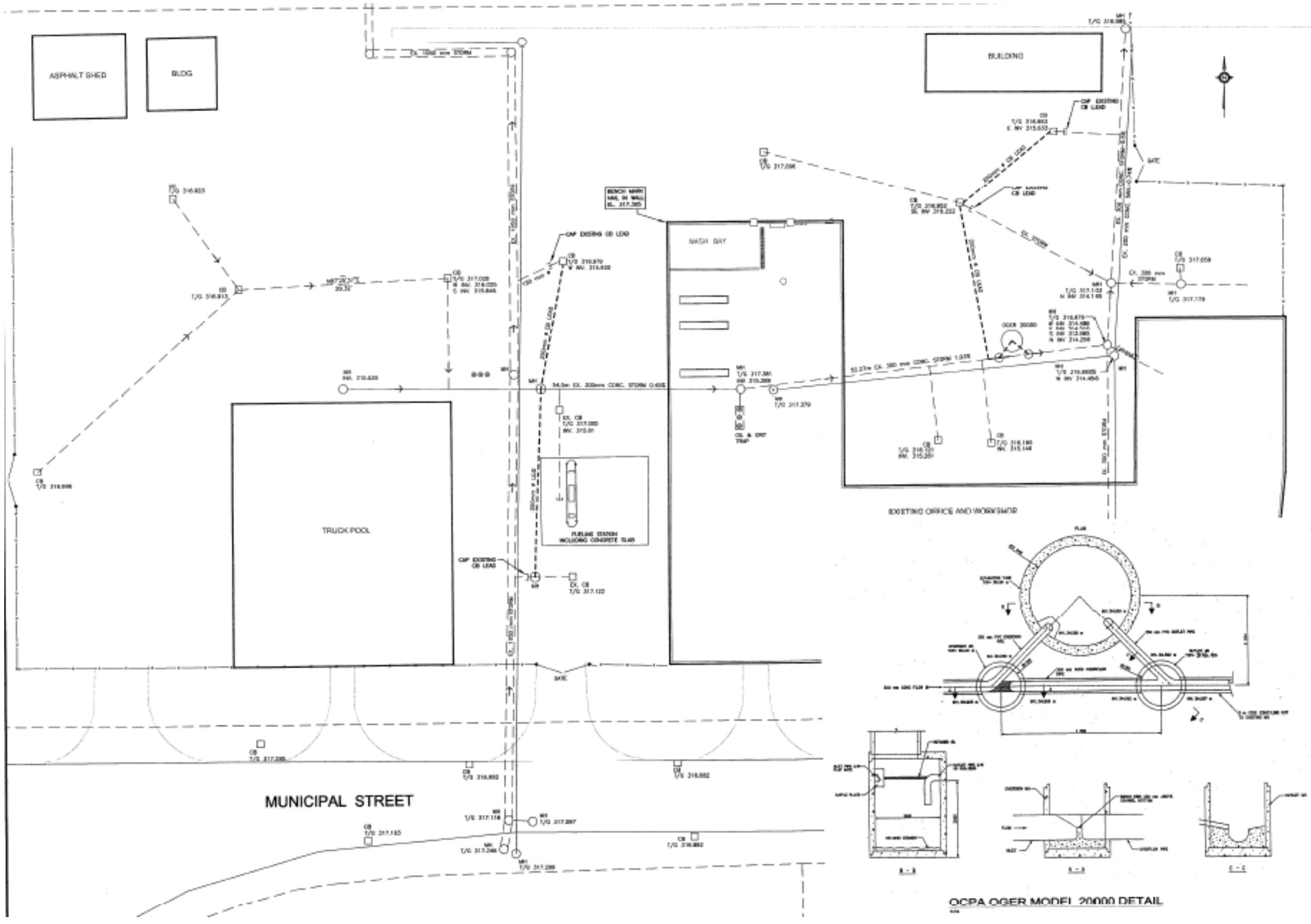
PUBLIC WORKS

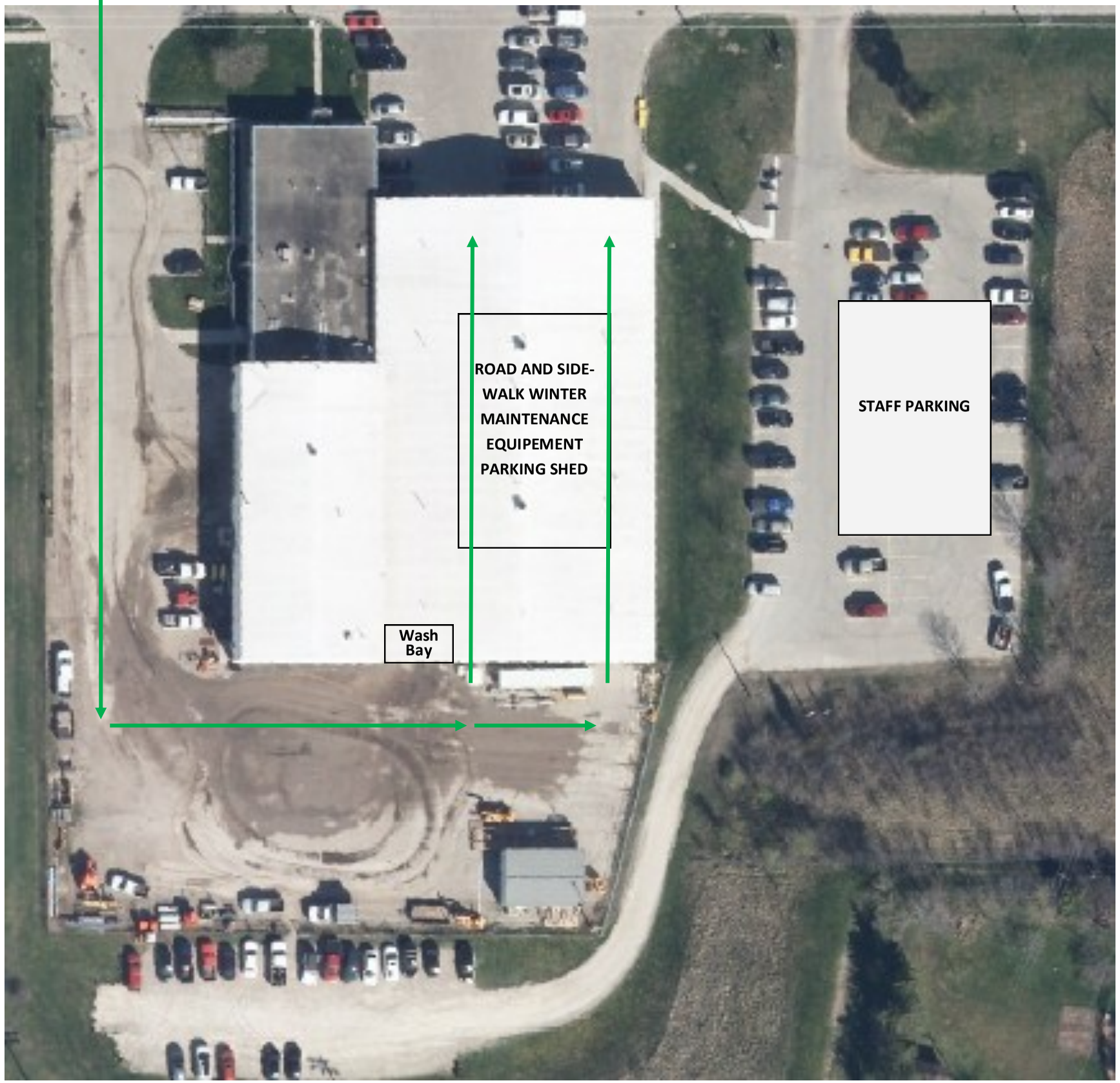
DRAWING:

45 MUNICIPAL STREET

WINTER OPERATIONS PLAN

DATE DRAWN:	SCALE:	
JANUARY 2017	NTS	
DRAWN BY: M. ENGEL	CHECKED BY:	DWG No. SP1


ASPHALT SHED
BLDG.
BUILDING
WASH BAY
TRUCK POOL
MUNICIPAL STREET
EXISTING OFFICE AND WORKSHOP
FUELING STATION INCLUDING CONCRETE SLAB
GATE
OIL & GRIT TRAP
BENCH MARK NAIL IN WALL EL. 317.365
CAP EXISTING CB LEAD
EX. 1050 mm STORM
EX. 300 mm STORM
EX. 250 mm CONC. SANITARY
EX. 525 mm CONC. STORM
EX. 375 mm CONC. STORM
EX. 200 mm CONC. STORM
EX. 150 mm STORM
EX. 200mm ø CB LEAD
EX. 250mm ø CB LEAD
EX. 300mm ø CB LEAD
EX. CB T/G 317.000 SE INV. 315.222
EX. CB T/G 317.122
EX. CB T/G 317.059
EX. CB T/G 316.998
EX. CB T/G 316.882
EX. CB T/G 316.180 INV. 315.148
EX. CB T/G 316.875 W INV. 314.486 S INV. 313.980 N INV. 314.256
EX. CB T/G 317.035 W INV. 316.025 S INV. 315.848
EX. CB T/G 317.380 INV. 315.289
EX. CB T/G 316.875 W INV. 314.486 S INV. 313.980 N INV. 314.256
EX. CB T/G 317.000 INV. 315.91
EX. CB T/G 316.882
EX. CB T/G 317.380
EX. CB T/G 317.185
EX. CB T/G 317.299
EX. MH T/G 317.379
EX. MH T/G 317.053 N INV. 314.103
EX. MH T/G 316.882
EX. MH T/G 317.118
EX. MH T/G 317.246
EX. MH T/G 317.897
EX. MH T/G 316.882
EX. MH T/G 316.882
EX. MH T/G 316.882



WINTER EQUIPMENT TRAFFIC CIRCULATION

Key Plan:



No.	Date	DESCRIPTION	By:	CH'KD

ISSUES/REVISIONS

OWNER:

CITY OF Guelph Making a Difference

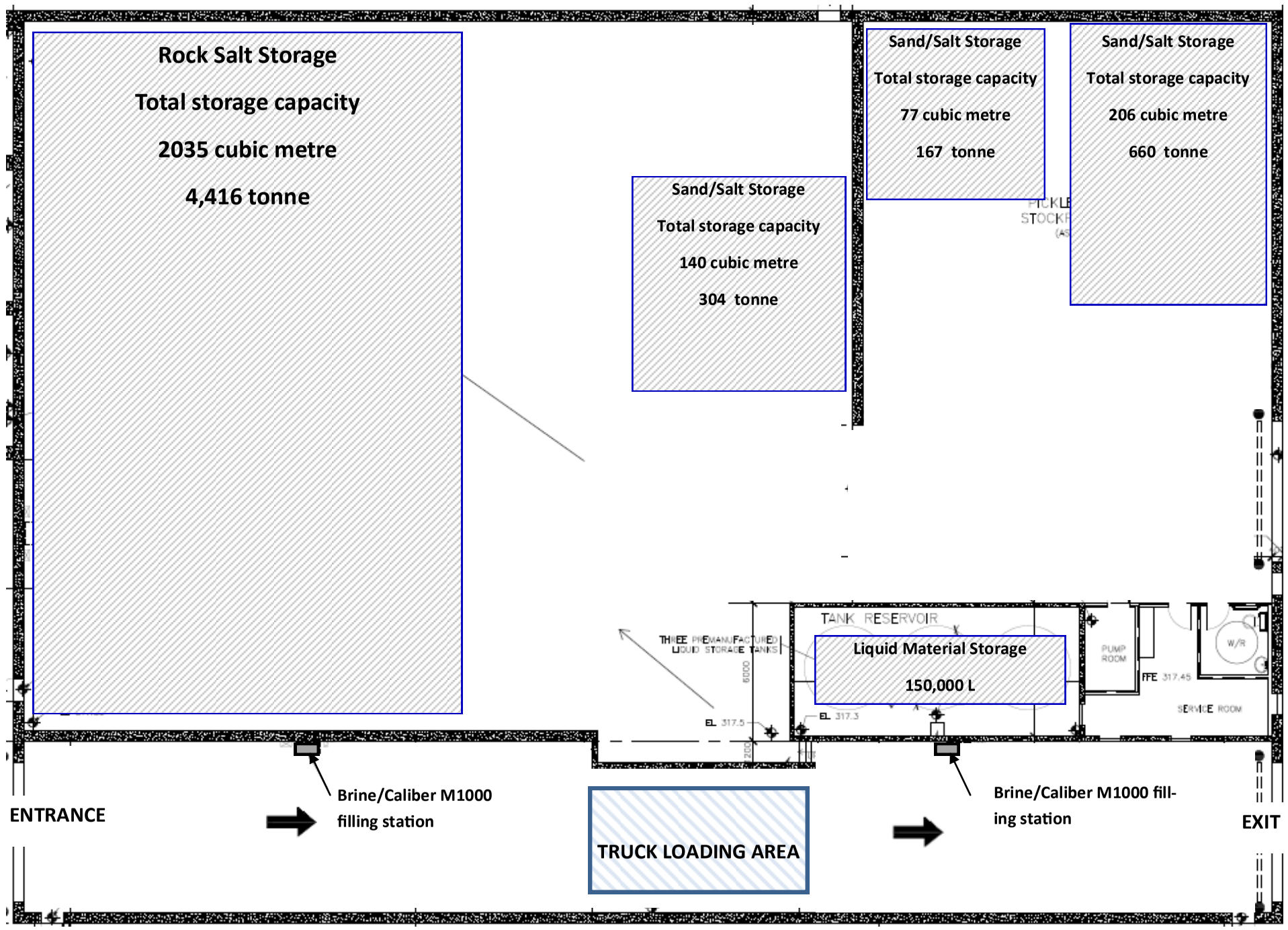
FACILITY:

PUBLIC WORKS

DRAWING:

50 MUNICIPAL STREET
WINTER OPERATIONS PLAN

DATE DRAWN:	SCALE:	
JANUARY 2017	NTS	
DRAWN BY: M. ENGEL	CHECKED BY:	DWG No. SP3



Key Plan:



No.	Date	DESCRIPTION	By:	CH'KD

ISSUES/REVISIONS

OWNER: CITY OF Guelph Making a Difference

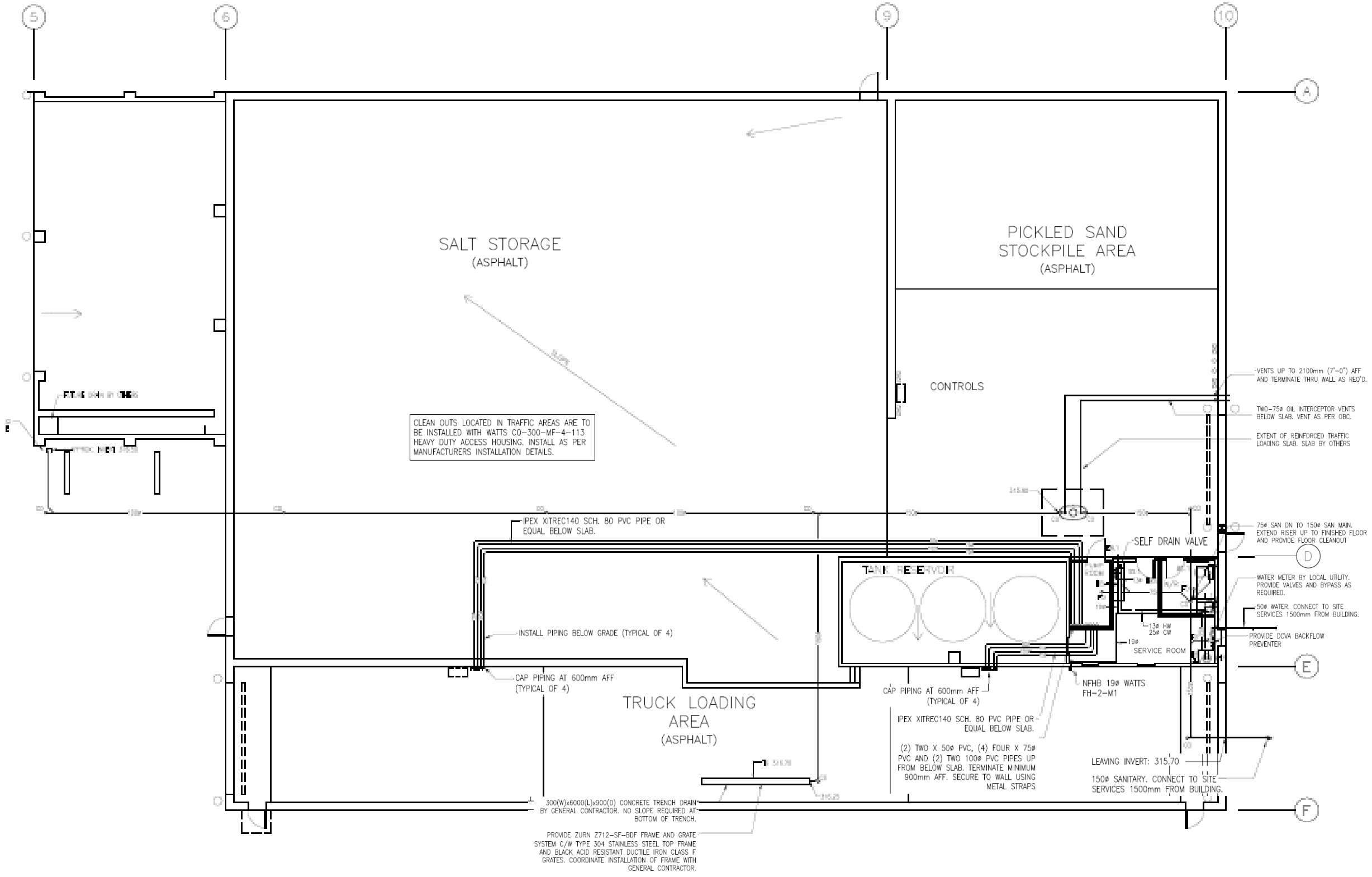
FACILITY:

PUBLIC WORKS

DRAWING:

SALT STORAGE FACILITY
MATERIAL STORAGE PLAN

DATE DRAWN:	SCALE:	
JANUARY 2017	NTS	
DRAWN BY: M. ENGEL	CHECKED BY:	DWG No. SP4



Key Plan:



No.	Date	DESCRIPTION	By:	CH'KD

ISSUES/REVISIONS

OWNER:

CITY OF Guelph Making a Difference

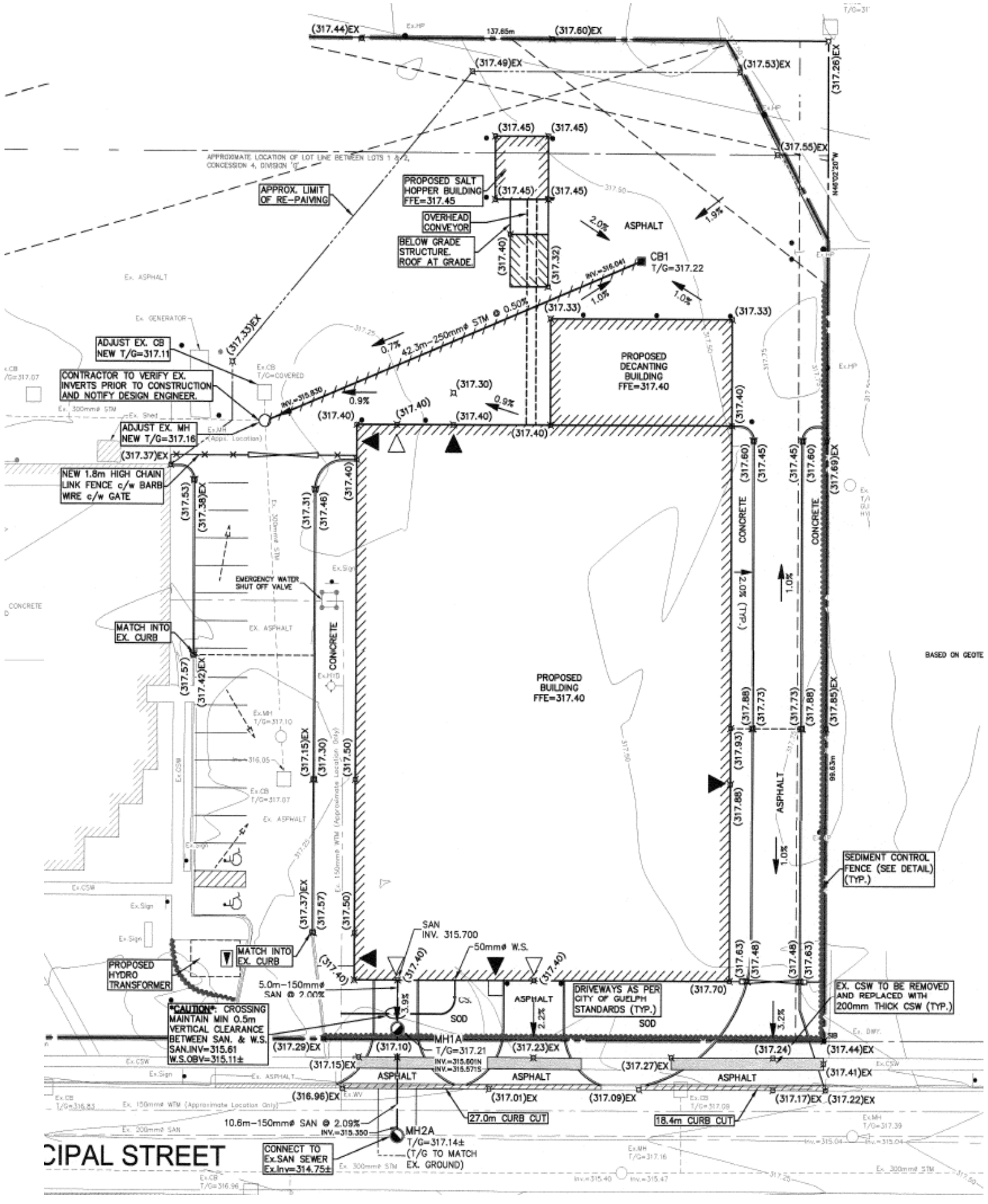
FACILITY:

PUBLIC WORKS

DRAWING:

SALT STORAGE FACILITY
DRAINAGE PLAN

DATE DRAWN:	SCALE:	
JANUARY 2017	NTS	
DRAWN BY: M. ENGEL	CHECKED BY:	DWG No. SP5



Key Plan:



No.	Date	DESCRIPTION	By:	CH'KD

ISSUES/REVISIONS

OWNER:

CITY OF Guelph Making a Difference

FACILITY:

PUBLIC WORKS

DRAWING:

SALT STORAGE FACILITY

SITE SERVICING PLAN

DATE DRAWN:	SCALE:	
JANUARY 2017	NTS	
DRAWN BY: M. ENGEL	CHECKED BY:	DWG No. SP6

Appendix I:

Grand River Source Protection Plan

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8.0 CITY OF GUELPH

The following City of Guelph policies apply to the City of Guelph water supply system located within the City of Guelph city limits as presented in the following schedules. Reference should be made to the County of Wellington and Regional Municipality of Halton policies for the portions of the City of Guelph vulnerable areas located within those municipalities.

- Schedule A City of Guelph: Guelph Waterworks Well Supply Index Map
- Schedule B City of Guelph: Guelph Waterworks Well Supply Map A
- Schedule C City of Guelph: Guelph Waterworks Well Supply Map B
- Schedule D City of Guelph: Guelph Waterworks Well Supply Map C
- Schedule E City of Guelph: Guelph Waterworks Well Supply Map D
- Schedule F City of Guelph: Guelph Waterworks Well Supply Map E
- Schedule G City of Guelph: Guelph Waterworks Issue Contributing Areas (North)
- Schedule H City of Guelph: Guelph Waterworks Issue Contributing Areas (South)

8.1 Definitions

General definitions are provided in Volume I of the Source Protection Plan or the *Clean Water Act, 2006*. Defined terms are intended to capture both the singular and plural forms of these terms.

The following definitions shall apply to the City of Guelph Source Protection Plan policies:

Conditions: Are referred to in section 15(2)(g) of the *Clean Water Act, 2006* and are identified in the Grand River Source Protection Area Assessment Report as resulting from past activities and that are significant drinking water threats.

Condition Sites: Locations where conditions are present.

Existing:

a. An activity engaged in at a particular location in a vulnerable area on the effective date of this Source Protection Plan; or
b. When an activity was engaged in at a particular location within a vulnerable area at any time within five (5) years prior to the effective date of this Source Protection Plan but not on the day before the effective date of this Source Protection Plan and such activity has been resumed within 5 years following the effective date of this Source Protection Plan; or
c. A replacement facility or structure of similar size and capacity to service an existing activity.

Future or New: An activity that is not an existing activity as defined within the City of Guelph Source Protection Plan policies.

8.2 City of Guelph Source Protection Plan Policies

Policy Number	Source Protection Plan Policies within the City of Guelph
Implementation Timing	
CG-CW-1.1 *Implement. & Timing*	Except as set out below, the policies contained in this Source Protection Plan shall come into effect on the date set out by the Minister. a. For Section 57 of the *Clean Water Act, 2006*, if an activity was engaged in

Policy Number	Source Protection Plan Policies within the City of Guelph
	at a particular location before this Source Protection Plan took effect, policies regarding prohibited activities do not apply to a person who engages in the activity at that location until 180 days from the date the Source Protection Plan takes effect; b. For Section 58 of the *Clean Water Act, 2006,* if an activity was engaged in at a particular location immediately before this Source Protection Plan took effect and the Risk Management Official gives notice to a person who is engaged in the activity at that location that, in the opinion of the Risk Management Official, policies regarding regulated activities should apply to the person who engages in the activity at that location on and after a date specified in the notice that is at least 120 days after the date of the notice; c. For Section 59 of the *Clean Water Act, 2006,* policies regarding restricted land uses shall come into effect the same day the Source Protection Plan takes effect; and d. Where the Source Protection Policies require the City of Guelph and/or the Source Protection Authority to develop and implement education and outreach programs, incentive programs or other specified action for significant drinking water threats, such programs and actions shall be developed and implemented within five (5) years from the date the Source Protection Plan takes effect.
CG-MC-1.2 *Implement. & Timing*	Except as set out below, the policies contained in this Source Protection Plan shall come into effect on the date set out by the Minister. a. For Section 43 of the *Clean Water Act, 2006*, if an activity was engaged in at a particular location immediately before this Source Protection Plan took effect, amendments to Prescribed Instruments shall be completed within three (3) years from the date the Source Protection Plan takes effect; b. For Sections 40 and 42 of the *Clean Water Act, 2006,* the Official Plan and Zoning By-Laws must be amended to conform with the significant threat policies within five (5) years from the date the Source Protection Plan comes into effect or the next Official Plan review required under Section 26 of the *Planning Act* and the Zoning By-law within (2) years from the adoption of the Official Plan conformity amendment.
CG-CW-1.3 *Municipal Act Specify Action*	The City of Guelph shall consider passing a by-law to assist in the ongoing identification of persons and/or locations engaged in significant threat activities identified in these policies.
Use and Areas Designated as Restricted Land Use Policies	
CG-CW-1.4 *Part IV -RLU*	In accordance with Section 59(1) of the Clean Water Act, 2006, the following land uses identified within the City of Guelph Official Plan are hereby designated as land uses to which the restricted land uses provisions of the Clean Water Act, 2006 apply where activities are or would be a significant drinking water threat: a. All land uses, except solely residential uses, in all areas where the establishment, operation and maintenance of a waste disposal site within the meaning of Part V of the Environmental Protection Act is or would be a significant drinking water threat; b. All agricultural land uses in all areas where the application of Agricultural Source Material to land and the storage of Agricultural Source Material is or would be a significant drinking water threat;

Policy Number	Source Protection Plan Policies within the City of Guelph
	c. All land uses, except solely residential, in all areas where the application, handling and storage of commercial fertilizer is or would be a significant drinking water threat; d. All land uses, except solely residential uses, in all areas where the application of pesticide to land and the handling and storage of pesticides is or would be a significant drinking water threat; e. All land uses, except solely residential uses, in all areas where the storage of snow is or would be a significant drinking water threat; f. All land uses in all areas where handling and storage of fuel is or would be a significant drinking water threat. g. All land uses, except solely residential uses, in all areas where the handling and storage of dense non-aqueous phase liquids is or would be a significant drinking water threat; h. All land uses, except solely residential uses, in all areas where the activity of handling and storage of an organic solvent is or would be a significant drinking water threat; i. All agricultural land uses in all areas where the use of land as livestock grazing or pasturing land, an outdoor confinement area, or a farm-animal yard is or would be a significant drinking water threat; and j. All land uses in all areas where the application of Non-Agricultural Source Material to land and the storage of Non-Agricultural Source Material is or would be a significant drinking water threat. Despite the above policy, a Risk Management Official may issue written direction specifying the situations under which a planning authority or building official may be permitted to make the determination that a site specific land use is not designated for the purposes of section 59. Where such direction has been issued, a site specific land use that is the subject of an application for approval under the Planning Act or for a permit under the Building Code Act is not designated for the purposes of Section 59, provided that the planning authority or building official, as applicable, is satisfied that: a. The application complies with the written direction issued by the Risk Management Official; and b. The applicant has demonstrated that a significant drinking water threat activity designated for the purposes of section 57 or 58 will not be engaged in, or will not be affected by the application.
Official Plan Amendment(s) Policies	
CG-MC-1.5 *Future Land Use Planning*	The City of Guelph shall adopt an amendment to the Official Plan, where necessary to conform to the significant drinking water threat policies in accordance with Section 40 of the *Clean Water Act, 2006*, to: a. Identify the vulnerable areas in which drinking water threats prescribed under the *Clean Water Act, 2006* are or would be significant; b. Indicate that within the areas identified, any land use that is or would be a significant drinking water threat is required to conform with all applicable Source Protection Plan policies and, as such, may be prohibited, restricted or otherwise regulated by those policies; and c. Incorporate any other amendments required to conform to the threat specific land use policies identified in this Source Protection Plan.
Education and Outreach and Incentive Programs Policies	
CG-CW-1.6	To support the significant drinking water threat policies contained within this Source

Policy Number	Source Protection Plan Policies within the City of Guelph
Existing/Future Education&Outreach	Protection Plan, the City of Guelph, in collaboration with other bodies where possible, may develop and implement education and outreach programs where such programs are deemed necessary and/or appropriate by the City of Guelph and where there is available funding. Such programs may include, but not necessarily be limited to, increasing awareness and understanding of significant drinking water threats and promotion of best management practices.
CG-CW-1.7 *Existing/Future Incentive*	The City, in collaboration with other bodies and levels of government where possible, may develop and implement incentive programs directed at significant drinking water threat activities, where such programs are deemed necessary and/or appropriate by the City of Guelph and subject to available funding.
CG-NB-1.8 *Existing/Future Incentive*	The Ministry of Environment and other Provincial Ministries shall consider providing funding for incentive programs, such as the Ontario Drinking Water Stewardship Program, to protect existing and future drinking water sources and address significant drinking water threats.
Annual Reporting Policies	
CG-CW-1.9 *Monitoring*	The City of Guelph shall provide a report to the Source Protection Authority, by February 1st of each year, summarizing the actions taken to implement the Source Protection Plan policies, where specifically required by the policies.
CG-CW-1.10 *Monitoring*	The Risk Management Official shall provide a report to the Source Protection Authority, by February 1st of each year, summarizing the actions taken to implement the Source Protection policies, in accordance with the *Clean Water Act, 2006* and associated regulations.
CG-CW-1.11 *Monitoring*	Where the Source Protection Plan policies require a provincial ministry to undertake an action regarding an activity under the Environmental Compliance Approval process or review, issue, amend or create a new Prescribed Instrument, the applicable Ministry shall provide a copy of the amended or approved Prescribed Instrument to the City of Guelph. The applicable ministry shall provide a written report summarizing the relevant information to the Source Protection Authority by February 1st of each year.
CG-CW-1.12 *Monitoring*	Where the Source Protection Plan policies prohibit an activity that results in the denial of a Prescribed Instrument, the applicable ministry shall summarize the action taken in the previous year to implement the policies and provide a written report summarizing this information to the Source Protection Authority by February 1st of each year.
Issue Contributing Areas	
CG-NB-1.13 *Existing/Future Specify Action ICA(NIT)*	To better understand the contributing source of contaminants within the Issue Contributing Areas (ICA) with respect to the applicable existing and future significant drinking water threats, the Grand River Conservation Authority in collaboration with the City of Guelph is encouraged, under the Source Water Protection Program funding, to find opportunities to research in the future nitrogen and/or pathogen issues to determine whether application and/or storage of Agricultural Source Materials is a contributing source of contaminant in the Issue Contributing Areas (ICA).
Local Threat: The Conveyance of Oil by way of Underground Pipelines	

Policy Number	Source Protection Plan Policies within the City of Guelph
CG-NB-1.14 *Future* *Specify Action* *WHPA-A-v.10* *WHPA-B-v.10* *Monitoring*	To ensure this activity never becomes a significant drinking water threat, for the conveyance of oil by way of underground pipeline, within the meaning of O. Reg. 210/01 under the *Technical Safety and Standards Act* or that is subject to the *National Energy Board Act,* the National Energy Board, and Ontario Energy Board, in their consideration of any pipelines within vulnerable areas where the activity would be a significant drinking water threat, are encouraged to ensure the applicant has complied with or included appropriate design standards and monitoring and maintenance practices, where applicable, to reduce the risk to drinking water sources. The Source Protection Authority shall document in the annual report the number of new pipelines proposed within vulnerable areas.
Conditions Policies	
CG-MC-1.15 *a)Existing* *Prescribed Instr.* *Condition Sites* *Identified* *b)Monitoring*	To address conditions resulting from past activities that are significant drinking water threats, the Ministry of the Environment shall a. Ensure that all Prescribed Instruments issued for Condition Sites include terms and conditions, as appropriate, to ensure that the risk to drinking water sources is managed. Appropriate conditions may include requirements for source control, remediation to provincial standards, monitoring and Contaminant Management Plans; b. Ensure that Prescribed Instruments include a condition requiring the instrument holder to report on the actions taken and the status of the site to the Ministry of Environment, Source Protection Authority and the municipality on an annual basis; and c. Provide to the City of Guelph a copy of the new or revised Prescribed Instrument.
CG-NB-1.16 *Existing* *Specify Action* *Condition Sites* *Identified*	To address Conditions resulting from past activities that are significant drinking water threats, the Ministry of the Environment should prioritize abatement activities on Conditions Sites located within the Wellhead Protection Area A, Wellhead Protection Area B and Issues Contributing Areas.
CG-MC-1.17 *Existing* *Land Use Planning* *Condition Sites* *Identified*	The City of Guelph shall require as a component of a complete application under the *Planning Act* the completion of an environmental screening process using a contaminated sites protocol. The contaminated sites protocol will outline the criteria when a Record of Site Condition (RSC) will be required as part of the *Planning Act.*
CG-CW-1.18 *Existing* *Specify Action* *Education&Outreach* *Condition Sites* *Identified*	To address Conditions resulting from past activities that are significant drinking water threats, the City of Guelph shall: a. Continue to support environmental investigation, remediation and redevelopment through the incentives provided through the City of Guelph Brownfield Redevelopment Community Improvement Plan; and b. Implement an education program on drinking water issues associated with contaminated sites in conjunction with the implementation of the City of Guelph's Brownfield Community Redevelopment Program including the protection of drinking water sources and the use of the Record of Site Condition process as a best management practice to address Condition Sites.

Policy Number	Source Protection Plan Policies within the City of Guelph
CG-NB-1.19 *Existing Conditions Specify Action*	To address conditions resulting from past activities that are significant drinking water threats the Ministry of Environment and the City of Guelph : a. Shall meet at a minimum frequency of every six months for the purpose of mutually sharing information on Condition sites; and b. Should mutually share information related, as appropriate, to technical investigations or remediation, technical data, actions taken by Ministry of Environment or by the City of Guelph, inspections, other relevant information; and c. Should develop an Information-Sharing Process document including requirements, if any, for meeting agendas, participants, the nature and format for the types of information to be mutually shared, and the Information-Sharing Process document should be developed within six months from the date the Source Protection Plan takes effect.
Strategic Actions Policies	
Spill Prevention, Spill Contingency or Emergency Response Plans	
CG-NB-1.20 *Existing/Future Specify Action*	To ensure Emergency Response Plans are updated for the purpose of protecting drinking water sources with respect to spills that occur within a Wellhead Protection Area along highways or railway lines, the following policies apply: a. Within five (5) years of the Source Protection Plan coming into effect, the City of Guelph is requested to incorporate the location of Wellhead Protection Areas into the Emergency Response Plan to protect drinking water sources when a spill occurs along highways or rail lines; and b. The Ministry of the Environment is requested to provide mapping of vulnerable areas to assist the Spills Action Centre in responding to reported spills along transportation corridors within two years of the source protection plan coming into effect.
Transport Pathways	
CG-NB-1.21 *Future Specify Action Incentive Land Use Planning*	To protect municipal water supplies from increased vulnerability due to transport pathways where activities could be a significant drinking water threat, the following policies apply: a. The Ministry of the Environment is requested to provide ongoing funding for incentive programs focused on facilitating the abandonment of wells in accordance with O. Reg. 903; b. The Ministry of the Environment is requested as a priority to enforce the requirements of O. Reg. 903 with respect to the abandonment of wells and to enforce Section 33(1), (2) and (3) of the *Ontario Water Resources Act* once it comes into full force and effect; c. The City of Guelph is requested to incorporate conditions of approval for *Planning Act* and *Condominium Act* applications to ensure private wells that are no longer in use are abandoned in accordance with O. Reg. 903; and d. The City of Guelph is requested to ensure best management practices are utilized to protect the quantity and quality of groundwater sources during the installation of new municipal infrastructure.
CG-NB-1.22 *Existing/Future Specify Action*	The City of Guelph should amend its Official Plan to require the assessment and mitigation of impacts of the establishment of transport pathways associated with *Planning Act* applications in Wellhead Protection Areas A and B where the vulnerability equals ten (10).

Policy Number	Source Protection Plan Policies within the City of Guelph
Interpretation	
CG-CW-1.23 *Interpretation of Source Protection Plan*	The Source Protection Plan provides policies to meet the objectives of the *Clean Water Act, 2006.* The Source Protection Plan consists of the written policy text and Schedules. a. The Schedules in the Source Protection Plan identify the areas where the policies of the Source Protection Plan apply. The boundaries for the circumstances shown on the Plan Schedules are general. More detailed interpretation of the boundaries relies on the mapping in the approved Assessment Report and the Specific Circumstances found in the Tables of Drinking Water Threats, *Clean Water Act, 2006*; and b. Where any Act or portion of an Act of the Ontario Government or Canadian Government is referenced in this Plan, such reference shall be interpreted to refer to any subsequent renaming of sections in the Act as well as any subsequent amendments to the Act, or successor thereof. This provision is also applicable to any policy statement, regulation or guideline issued by the Province or the municipality.
Provincial Ministry Review of Prescribed Instruments	
CG-NB-1.24 *Existing/Future Prescribed Instruments*	The Ministry of Environment, The Ministry of Agriculture, Food and Rural Affairs, and the Ministry of Natural Resources, for Prescribed Instruments and Conditions for significant drinking water threats within vulnerable areas, should consider advising the City of Guelph regarding applications under review and that the City of Guelph be provided an opportunity to provide comments on these applications. The relevant Ministry shall have due regard to the comments submitted by the City of Guelph.
CG-MC-1.25 *Existing/Future Prescribed Instruments*	Any Prescribed Instrument issued under the *Nutrient Management Act* that is created or amended or is used for the purposes of obtaining an exemption from a Risk Management Plan under section 61 of O. Reg. 287/07 shall incorporate terms and conditions that, when implemented, manage the activities they regulate such that those activities cease to be or never become, a significant drinking water threat. OMAFRA is expected to review all Prescribed Instruments issued under the *Nutrient Management Act* in areas where the activities they regulate are, or would be, significant drinking water threats to ensure the Prescribed Instruments contain such terms and conditions, including the Prescribed Instruments that are not directly created or issued by OMAFRA, such as Nutrient Management Plans.
CG-NB-1.26 *Existing/Future Specify Action*	OMAFRA, and other creators/issuers of Prescribed Instruments under the *Nutrient Management Act*, are expected to consult with the Risk Management Official with respect to any modifications or requirements that may need to be incorporated into such Prescribed Instruments to ensure the activities they regulate cease to be or never become significant drinking water threats.

8.3 Transition Policies

Policy Number	Source Protection Plan Policies within the City of Guelph
Transition Policies	
CG-CW-2.1 *Transition*	For the purposes of the City of Guelph Source Protection Plan policies, where one or more of the following has been received prior to the Source Protection Plan coming into effect: a. A complete application for site plan approval under the *Planning Act*; b. A complete application for Environmental Compliance Approval; or c. A complete application for a Building Permit;

	A related significant threat activity shall be permitted subject to the policies pertaining to existing significant threat activity as well as any further applications required under the *Planning Act*, *Condominium Act*, Building Permit or Prescribed Instruments required to implement the development proposal associated with this significant threat activity. Where the above noted applications have lapsed or been withdrawn, this policy shall no longer apply.

8.4 Policies Addressing Prescribed Drinking Water Threats

Policy Number	Policies Addressing Prescribed Drinking Water Threats within the City of Guelph
1. Establishment, Operation or Maintenance of a Waste Disposal Site, within the Meaning of Part V of the *Environmental Protection Act*	
CG-MC-3 *a) b) Existing/Future Prescribed Instr. WHPA-A-v.10; WHPA-B-v.10; WHPA-B-v.8; WHPA-C-v.8; ICA (NIT/TCE)* *c) Future Prescribed Instr. WHPA-A-v.10; WHPA-B-v.10; WHPA-B-v.8; WHPA-C-v.8; ICA (NIT)* *d) Existing/Future WHPA-A-v.10*	For waste disposal sites within the meaning of Part V of the *Environmental Protection Act* within vulnerable areas where this activity is or would be a significant drinking water threat: a. For an existing waste disposal site, the Ministry of Environment shall ensure that the Environmental Compliance Approval that governs the waste disposal site includes terms and conditions, as appropriate, to ensure the activity ceases to be a significant drinking water threat; b. For future waste disposal sites including discharges from future mine tailings ponds under the *Ontario Water Resource Act* and/or for future waste disposal sites within the meaning of Part V of the *Environmental Protection Act*, except for waste disposal sites-storage, the Ministry of the Environment shall prohibit these activities within the Environmental Compliance Approvals process so that these activities never become a significant drinking water threat; and c. For future waste disposal sites - storage, the Ministry of Environment shall ensure that the Environmental Compliance Approval that governs the waste disposal site - storage includes appropriate terms and conditions to ensure that the waste disposal site never becomes a significant drinking water threat. d. The Ministry of Environment shall ensure that the Environmental Compliance Approval that governs an existing or new temporary waste destruction unit for Polychlorinated biphenyl contains appropriate terms and conditions to ensure that the activity ceases to be or does not become be a significant drinking water threat. The Environmental Compliance Approval shall include annual reporting to the Ministry of the Environment of water quality monitoring in related groundwater monitoring wells and surface water monitoring locations as appropriate.
CG-CW-4 *Existing/ Future Part IV-RMP WHPA-A-v.10; WHPA-B-v.10; WHPA-B-v.8; WHPA-C-v.8; ICA (NIT/TCE)*	The establishment, operation and maintenance of a waste disposal site within the meaning of Part V of the *Environmental Protection Act* and/or storage facility exempt from Environmental Compliance Approvals under Section 39 of the *Environmental Protection Act* within vulnerable areas where this activity is or would be a significant drinking water threat has been designated for the purpose of Section 58 of the *Clean Water Act, 2006* and a Risk Management Plan is required except for the following. For the storage of hazardous or liquid industrial waste or waste as described in clauses (p), (q), (r), (s), (t) or (u) of the definition of hazardous waste for Wellhead Protection Areas A and B where the vulnerability is equal to ten (10), the City of Guelph shall develop and implement an education and outreach program and encourage the appropriate handling and disposal of these wastes.

Policy Number	Policies Addressing Prescribed Drinking Water Threats within the City of Guelph
2. Establishment, Operation or Maintenance of a System That Collects, Stores, Transmits, Treats or Disposes of Sewage	
Sewage System or Sewage Works- Septic System Sewage System or Sewage Works- Septic System Holding Tank	
CG-MC-5 *Future Land Use Planning WHPA-A-10*	To ensure that on-site septic systems never become a significant drinking water threat, new lots that rely on servicing by septic systems with a design flow of less than or equal to 10,000 Litres per day and regulated under the Ontario *Building Code Act* are prohibited within a Wellhead Protection Area A.
CG-CW-6 *Existing/Future Specify Action WHPA-A-v.10; WHPA-B-v.10; ICA (NIT)*	Within vulnerable areas where on-site septic systems and holding tanks are or would be significant drinking water threats, the City of Guelph shall implement an on-site septic system maintenance inspection program, as required under the Ontario *Building Code Act* with a priority for inspections on those systems in closest proximity to the municipal drinking water supply to ensure this activity ceases to be and/or never becomes a significant drinking water threat.
CG-CW-7 *Existing Education&Outreach WHPA-A-v.10 WHPA-B-v.10 ICA (NIT)*	For existing on-site septic systems and holding tanks within the City of Guelph, the City of Guelph shall encourage landowners through an education and outreach program to connect to a municipal sewage system, when an on-site septic systems and holding tank is used within a vulnerable area, where this activity is a significant drinking water threat, and where municipal services are provided in the immediate vicinity, to ensure this activity ceases to be a significant drinking water threat.
CG-MC-8 *Future Land Use Planning WHPA-A-v.10; WHPA-B-v.10; ICA (NIT)*	To ensure that future on-site septic systems and holding tanks never become a significant drinking water threat, the City of Guelph shall require all new development to connect to municipal services except where private services are specifically permitted within the Official Plan on the date when the Source Protection Plan comes into effect.
CG-NB-9 *Existing Incentive WHPA-A-v.10; WHPA-B-v.10; ICA (NIT)*	To ensure existing on-site septic systems and holding tanks cease to be a significant drinking water threat, the Grand River Conservation Authority, in consultation with the City of Guelph, will deliver available cost share incentive programs, where such an activity is a significant drinking water threat, as long as the Grand River Conservation Authority has such programs and outreach staff available, and work with affected land owners to implement best management practices.
CG-MC-10 *Existing/Future Prescribed Instr. WHPA-A-v.10; WHPA-B-v.10; ICA (NIT)*	For existing and future septic systems regulated under the *Ontario Water Resources Act* located within vulnerable areas where they are or would be a significant drinking water threat, the Ministry of the Environment shall ensure that the Environmental Compliance Approval that governs the septic system includes appropriate terms and conditions to ensure this activity ceases to be and/or never becomes a significant drinking water threat.
Sewage System or Sewage Works- Storage of Sewage (e.g., treatment plant tanks) Sewage System or Sewage Works- Sewage Treatment Plant Effluent Discharges (includes lagoons)	
CG-MC-11 *Existing/Future Prescribed Instr.*	For existing and future sewage treatment plants located within vulnerable areas where the activities are or would be a significant drinking water threat, the Ministry of the Environment shall ensure that the Environmental Compliance Approval that governs the sewage treatment plant includes appropriate terms and conditions to

Policy Number	Policies Addressing Prescribed Drinking Water Threats within the City of Guelph
WHPA-A-v.10; WHPA-B-v.10; WHPA-B-v.8; WHPA-C-v.8; ICA (NIT/TCE)	ensure that these activities cease to be and/or do not become a significant drinking water threat.
CG-MC-12 *Future Land Use Planning WHPA-A-v.10; WHPA-B-v.10; WHPA-B-v.8; WHPA-C-v.8; ICA (NIT/TCE)*	To ensure sewage treatment plant effluent discharges (including lagoons) never become a future significant drinking water threat related to a sewage treatment plant, the City of Guelph shall require that, for any *Planning Act* application, for a new Industrial/ Commercial/ Institutional use that a Waste Survey Report be filed as part of the complete application requirements.
CG-CW-13 *Existing Education&Outreach WHPA-A-v.10; WHPA-B-v.10; WHPA-B-v.8; WHPA-C-v.8; ICA (NIT/TCE)*	To ensure sewage treatment plant effluent discharges (including lagoons) cease to be a significant drinking water threat related to a sewage treatment plant, the City of Guelph shall encourage the existing Industrial/ Commercial/ Institutional Sector to complete the Waste Survey Report as part of a new education and outreach program.
Sewage System or Sewage Works- Sanitary Sewers and Related Pipes	
CG-MC-14 *Existing/Future Prescribed Instr. WHPA-A-v.10; WHPA-B-v.10; ICA (NIT)*	For existing and future sanitary sewers and pipes within vulnerable areas where this activity is or would be a significant drinking water threat, the Ministry of the Environment shall ensure that the Environmental Compliance Approval that governs the sanitary sewer and related pipes includes appropriate terms and conditions to ensure the activity ceases to be and/or never becomes a significant drinking water threat.
Sewage System or Sewage Works- Discharge of Stormwater from a Stormwater Management Facility	
CG-MC-15 *Existing/Future Prescribed Instr. WHPA-A-v.10; WHPA-B-v.10; ICA (NIT)*	For the existing or future discharge of stormwater from a stormwater management facility within vulnerable areas where this activity is or would be a significant drinking water threat, the Ministry of the Environment shall ensure that the Environmental Compliance Approval that governs the stormwater management facility includes appropriate terms and conditions to ensure that the activity ceases to be and/or never becomes a significant drinking water threat.
3. The Application of Agricultural Source Material to Land **4. The Storage of Agricultural Source Material**	
CG-MC-16 *Existing/Future Prescribed Instr. WHPA-A-v.10; WHPA-B-v.10; ICA (NIT)*	To ensure existing and future application or storage of agricultural source material ceases to be and/or never becomes a significant drinking water threat, for operations which are managed by Nutrient Management Plans and Strategies under the *Nutrient Management Act* and located within a vulnerable area where the application or storage is or would be a significant drinking water threat, the Ministry of Agriculture, Food and Rural Affairs shall ensure that Nutrient Management Plans and Strategies include appropriate terms and conditions to ensure that the risk to drinking water sources is appropriately managed and that required contingency plans contain the requirement for notification of the appropriate municipal official and the Spills Action Centre if a leak is discovered from an agricultural source material facility or there is a spill.
CG-NB-16.1 *Existing/Future Specify Action WHPA-A-v.10;*	To ensure existing and future application or storage of agricultural source material ceases to be and/or never becomes a significant drinking water threat, for operations which are managed by Nutrient Management Plans and Strategies under the *Nutrient Management Act* and located within a vulnerable area where the

Policy Number	Policies Addressing Prescribed Drinking Water Threats within the City of Guelph
WHPA-B-v.10; ICA (NIT)	application or storage is or would be a significant drinking water threat The Ministry of Environment shall consider prioritizing and conducting regular compliance inspections of agricultural operations, as appropriate, where significant drinking water threat activities exist, and shall consider guiding farmers to improve compliance performance, when needed.
CG-CW-17 *Existing/Future Part IV-RMP. WHPA-A-v.10; WHPA-B-v.10; ICA (NIT)*	To ensure existing and future application or storage of agricultural source material ceases to be and/or never becomes a significant drinking water threat on properties not phased in under the *Nutrient Management Act* within vulnerable areas where this activity is or would be a significant drinking water threat, the existing and future application or storage of agricultural source material within a vulnerable area is designated for the purpose of Section 58 of the *Clean Water Act, 2006*; and a Risk Management Plan will be required. A Risk Management Plan, if necessary, shall be based upon the regulatory requirements of a Nutrient Management Plan or Strategy under the *Nutrient Management Act* scoped to address these specific threats.
CG-NB-18 *Existing/Future Specify Action WHPA-A-v.10; WHPA-B-v.10; ICA (NIT)*	To provide further guidance to the agricultural community about the importance of source water protection to ensure the application or storage of agricultural source material ceases to be and/or never becomes a significant drinking water threat, the Ministry of Agriculture, Food and Rural Affairs is requested to review and amend, if necessary, the information provided to the agricultural community to include information about source water protection, the location of Wellhead Protection Areas and the appropriate use of agricultural source material within vulnerable areas where this activity is or would be a significant water threat. The information provided should encourage farm operators located within these vulnerable areas to complete an Environmental Farm Plan.
6. The Application of Non-Agricultural Source Material (NASM) to Land 7. The Handling and Storage of Non-Agricultural Source Material (NASM)	
CG-MC-19 *Existing/Future Prescribed Instr. WHPA-A-v.10; WHPA-B-v.10; ICA (NIT)* *Applies only to the application of NASM containing materials from a meat plant or sewage works*	Where the existing application, or handling and storage of non-agricultural source material in a Wellhead Protection Area A is or where the future application, or handling and storage of non-agricultural source material in a Wellhead Protection Area or where a nitrate issue has been identified would be a significant drinking water threat, the Ministry of Agriculture, Food and Rural Affairs and Ministry of the Environment shall ensure all non-agricultural source material plans (NASM plans) and Environmental Compliance Approvals required under the *Nutrient Management Act* and *Environmental Protection Act* include appropriate terms and conditions to ensure the activity ceases to be and/or never becomes a significant drinking water threat.
CG-CW-20 *Future Part IV-Prohibit WHPA-A-v.10* *Applies only to the application of NASM containing materials from a meat plant or sewage works*	To ensure the future application, or handling and storage of non-agricultural source material in a Wellhead Protection Area A never becomes a significant drinking water threat, these activities are designated for the purpose of Section 57 of the *Clean Water Act, 2006* and are therefore prohibited.
CG-NB-21	To ensure compliance with non-agricultural source material plans and the existing and future application, or handling and storage of non-agricultural source material

Policy Number	Policies Addressing Prescribed Drinking Water Threats within the City of Guelph
Existing/Future Specify Action WHPA-A-v.10; WHPA-B-v.10; ICA (NIT) *Applies only to the application of NASM containing materials from a meat plant or sewage works*	cease to be and/or never become a significant drinking water threat, where these activities are or would be a significant drinking water threat, the Ministry of the Environment shall consider prioritizing inspections based on proximity to the wellhead and conduct regular compliance inspections of operations, as appropriate.
8. The Application of Commercial Fertilizer to Land **9. The Handling and Storage of Commercial Fertilizer**	
CG-MC-22 *Existing/Future Prescribed Instr. WHPA-A-v.10 WHPA-B-v.10 ICA (NIT)* *Does currently not apply to the application of commercial fertilizer due to percent managed land and livestock density calculation*	Where the existing or future application of commercial fertilizer is or would be a significant drinking water threat within a vulnerable area, the Ministry of Agriculture, Food and Rural Affairs shall ensure that Nutrient Management Plans required under the *Nutrient Management Act* include appropriate terms and conditions to ensure that the activity ceases to be and/or never becomes a significant drinking water threat.
CG-CW-23 *Existing/Future Part IV- RMP WHPA-A-v.10 WHPA-B-v.10 ICA (NIT)* *Does currently not apply to the application of commercial fertilizer due to percent managed land and livestock density calculation*	To ensure the existing or future application and storage of commercial fertilizer cease to be or never become significant drinking water threats for properties not phased in under the *Nutrient Management Act,* and/or the existing storage of commercial fertilizer of greater than 2,500 Kilograms of commercial fertilizer in Wellhead Protection Area A and B, and/or new or expanded storage of commercial fertilizer of greater than 2,500 Kilograms of commercial fertilizer outside of a Wellhead Protection Area A, this activity is designated for the purpose of Section 58 of the *Clean Water Act, 2006* and a Risk Management Plan is required. The Risk Management Plan for the application and storage of commercial fertilizer for agricultural operations shall be based upon, as a minimum, the regulatory requirements of a Nutrient Management Plan under the *Nutrient Management Act* and scoped to address this specific threat.
CG-MC-24 *Future Land Use Planning WHPA-A-v.10*	To ensure that the new storage of fertilizer never becomes a significant drinking water threat within vulnerable areas where this activity would be a significant drinking water threat, the storage of greater than 2,500 Kilograms of commercial fertilizer, new or expanded manufacturing and wholesale warehousing facilities with storage of greater than 2,500 Kilograms of commercial fertilizer is prohibited within a Wellhead Protection Area A using tools under the *Planning Act*.
10. The Application of Pesticide to Land **11. The Handling and Storage of Pesticides**	
CG-MC-25 *Existing/Future Prescribed Instr.*	To ensure that the existing or future application, or handling and storage of pesticide cease to be and/or never become significant drinking water threats within a vulnerable area, where these activities are or would be significant drinking water

Policy Number	Policies Addressing Prescribed Drinking Water Threats within the City of Guelph
WHPA-A-v.10 *WHPA-B-v.10*	threats, the Ministry of the Environment shall ensure that all permits under the *Pesticide Act* include appropriate terms and conditions.
CG-CW-26 *Existing/Future* *Part IV-RMP* *WHPA-A-v.10* *WHPA-B-v.10*	To ensure that the existing or future application, or handling and storage of pesticide cease to be and/or never become a significant drinking water threat within a vulnerable area, where these activities are or would be significant drinking water threats, excluding the future handling and storage of greater than 2,500 Kilograms of pesticide or the storage of greater than 250 Kilograms for retail sale or for extermination within a Wellhead Protection Area A, these activities are designated for the purpose of Section 58 of the *Clean Water Act, 2006* and a Risk Management Plan is required. A Risk Management Plan shall incorporate, as a minimum, best management practices, monitoring and an inspection protocol.
CG-MC-27 *Future* *Land Use Planning* *WHPA-A-v.10*	To ensure that the future storage of pesticide never becomes a significant drinking water threat within vulnerable areas, where this activity would be a significant drinking water threat, new manufacturing and wholesale warehousing facilities with storage of greater than 2,500 Kilograms of pesticide or the storage of greater than 250 Kilograms for retail sale or for extermination are prohibited within a Wellhead Protection Area A using tools under the *Planning Act*.
13. The Handling and Storage of Road Salt	
CG-CW-28 *Future* *Specify Action* *WHPA-A-v.10* *WHPA-B-v.10*	To ensure that the future handling and storage of road salt never becomes a significant drinking water threat within the vulnerable areas, where this activity would be a significant drinking threat, within two (2) years of the date that the Source Protection Plan comes into effect, the City of Guelph shall amend the Salt Management Plan to identify the location of Wellhead Protection Areas and utilize best management practices in these areas.
CG-MC-29 *Future* *Land Use Planning* *WHPA-A-v.10* *WHPA-B-v.10*	To ensure that the future handling and storage of salt never becomes a significant drinking water threat, where this activity would be a significant drinking water threat, the City of Guelph shall require new development to be designed based on best management practices regarding handling and storage.
CG-MC-30 *Future* *Land Use Planning* *WHPA-A-v.10* *WHPA-B-v.10*	To ensure that future storage of road salt of greater than 5,000 tonnes never becomes a significant drinking water threat within vulnerable areas, where this activity would be a significant drinking water threat, this activity shall be prohibited using tools under the *Planning Act*.
CG-CW-31 *Future* *Education&Outreach* *WHPA-A-v.10* *WHPA-B-v.10*	To ensure that the future handling and storage of road salt never becomes a significant drinking water threat within the vulnerable areas, where this activity would be a significant drinking water threat, the City of Guelph shall establish or enhance the education and outreach programs for the private and public sector, as well as the general public, about the impacts of road salt on drinking water sources and the use of best management practices. It is recommended that the key messages be the efficient use of road salts and the use of alternatives.
14. The Storage of Snow	
CG-MC-32.1 *Future* *Land Use Planning*	To ensure that the future storage of snow never becomes a significant drinking water threat within vulnerable areas, where this activity would be a significant drinking water threat, the City of Guelph shall require new development to be designed and maintained based on best management practices regarding snow

Policy Number	Policies Addressing Prescribed Drinking Water Threats within the City of Guelph
WHPA-A-v.10 *WHPA-B-v.10* *ICA (NIT)*	storage including the provision of designated snow storage areas and the management of associated melt water.
CG.CW.32.2 *Existing/ Future* *Part IV- RMP* *WHPA-A-v.10* *WHPA-B-v.10* *ICA (NIT)*	To ensure that the existing and future storage of snow ceases to be and/or never becomes a significant drinking water threat within vulnerable areas, where this activity is or would be a significant drinking water threat, the activity of storage of snow has been designated for the purpose of Section 58 of the *Clean Water Act, 2006* and a Risk Management Plan is required. .
15. The Handling and Storage of Fuel	
CG-CW-33 *Existing/Future* *Education&Outreach* *WHPA-A-v.10* *WHPA-B-v.10*	To ensure that the existing and future handling and storage of fuel ceases to be and/or never becomes a significant drinking water threat within a vulnerable area, where this activity is or would be a significant drinking water threat, the City of Guelph shall develop and implement an education and outreach program for identified fuel oil tanks with storage of fuel greater than 250 Litres and less than or equal to 2,500 Litres outlining the requirements of owning a heating oil system including proper maintenance and the steps to be taken if there is a spill or leak detected based on guidance information provided from the Technical Standards and Safety Authority and other heating oil system provides/ agencies.
CG-CW-34 *a) Future* *Part IV-Prohibit* *WHPA-A-v.10* *b) Existing/Future* *Part IV-RMP* *WHPA-A-v.10* *WHPA-B-v.10*	To ensure that existing and future handling and storage of fuel greater than 2,500 Litres ceases to be and/or never becomes a significant drinking water threat within a vulnerable area, where this activity is or would be a significant drinking water threat; a. Within a Wellhead Protection Area A, new handling and storage of fuel in conjunction with a new retail gas station or new or bulk fuel storage facility excluding bulk fuel storage associated with a municipal emergency generator facility is designated for the purpose of Section 57 of the *Clean Water Act, 2006* and is therefore prohibited; and b. Within Wellhead Protection Areas A and B, the existing and new handling and storage of fuel, within a vulnerable area, is designated for the purpose of Section 58 of the *Clean Water Act, 2006* and a Risk Management Plan is required. The Risk Management Plan shall be scoped to a Contaminant Management Plan and any monitoring, reporting and auditing requirements required by the Technical Standards and Safety Authority, as appropriate.
CG-MC-35 *Future* *Land Use Planning* *WHPA-A-v.10*	To ensure that the future handling and storage of fuel never becomes a significant drinking water threat within vulnerable areas where this activity would be a significant drinking water threat, the future handling and storage of fuel in conjunction with a new or expanded retail gas station and new or expanded bulk fuel storage facility excluding bulk fuel storage associated with a municipal emergency generator facility is prohibited within a Wellhead Protection Area A using tools under the *Planning Act*.
CG-MC-36 *Future* *Prescribed Instr.* *WHPA-A-v.10* *WHPA-B-v.10*	Where future handling and storage of fuel would be a significant drinking water threat within a vulnerable area for activities regulated under the *Aggregate Resources Act*, the Ministry of Natural Resources and Forestry should ensure that licenses, permits and~~/or~~ site plans issued under the *Aggregate Resources Act* and/or related regulations, standards and policies include terms and conditions, as appropriate, to ensure that the activity never becomes a significant drinking water threat.

Policy Number	Policies Addressing Prescribed Drinking Water Threats within the City of Guelph
16. The Handling and Storage of a Dense Non-Aqueous Phase Liquid (DNAPL)	
CG-CW-37 *a) Future Part IV-Prohibit. WHPA-A-v.10* *b) Existing/Future Part IV-RMP WHPA-A/B/C ICA(TCE)*	To ensure that the existing and future handling and storage of a dense non-aqueous phase liquid ceases to be and/or never becomes a significant drinking water threat, within a vulnerable area, where this activity would be a significant drinking water threat: a. New or expanded handling and storage of specified dense non-aqueous phase liquids is designated for the purpose of Section 57 of the *Clean Water Act, 2006* and is therefore prohibited within a Wellhead Protection Area A; and, b. New or expanded handling and storage of dense non-aqueous phase liquids outside of the Wellhead Protection Area A and existing handling and storage of dense non-aqueous phase liquids within a vulnerable area, where this activity is a significant drinking water threat, this activity is designated for the purposes of Section 58 of the *Clean Water Act, 2006* and a Risk Management Plan is required. A Risk Management Plan for a significant threat that is Technical Standards and Safety Authority regulated shall be scoped to a Contaminant Management Plan and any monitoring, reporting and auditing requirements provided to the Technical Standards and Safety Authority as appropriate to address the significant drinking water threat.
CG-MC-38 *Future Land Use Planning WHPA-A-v.10*	To ensure that the future storage of dense non-aqueous phase liquid never becomes a significant drinking water threat, within vulnerable areas, where this activity would be a significant drinking water threat, new or expanded storage of the specified dense non-aqueous phase liquids identified as a significant drinking water threat under the *Clean Water Act, 2006* is prohibited within a Wellhead Protection Area A using tools under the Planning Act.
CG-CW-39 *Existing Education&Outreach WHPA-A/B/C ICA(TCE)*	To ensure that existing handling and storage of a dense non-aqueous phase liquid ceases to be a significant drinking water threat within a vulnerable area, where this activity would be a significant drinking water threat, the City of Guelph shall develop and implement education and outreach programs to encourage business and industry to utilize alternative products where available.
17. The Handling and Storage of an Organic Solvent	
CG-CW-40 *a) Existing/Future Part IV-Prohibit WHPA-A-v.10* *b) Existing/Future Part IV- RMP WHPA-B-v.10* *c) Existing/Future Education&Outreach WHPA-A-v.10 WHPA-B-v.10*	To ensure that existing and future handling and storage of organic solvents ceases to be and/or never becomes a significant drinking water threat within a vulnerable area, where this activity is or would be a significant drinking water threat: a. Any new or expanded handling and storage of the specified organic solvents in the quantities identified as significant drinking water threats are designated for the purpose of Section 57 of the *Clean Water Act, 2006* and are therefore prohibited within a Wellhead Protection Area A; b. The existing and future handling and storage of organic solvents is designated for the purpose of Section 58 of the *Clean Water Act, 2006* within vulnerable areas in the Wellhead Protection Area B and a Risk Management Plan is required; and c. The City of Guelph shall continue the established education and outreach programs on hazardous waste disposal, responsible waste disposal and reduction of waste including organic solvents in Wellhead Protection Area A and B.
CG-MC-41	To ensure that new or expansion to existing storage of organic solvents never becomes a significant drinking water threat within vulnerable areas, where this

Policy Number	Policies Addressing Prescribed Drinking Water Threats within the City of Guelph
Future *Land Use Planning* *WHPA-A-v.10*	activity would be a significant drinking water threat, the new or expanded storage of the specified organic solvents in the quantities identified as a significant drinking water threat is prohibited within a Wellhead Protection Area A using tools under the *Planning Act.*
18. The Management of Runoff that Contains Chemicals Used in De-icing of Aircraft	
CG-NB-42 *Future* *Specify Action* *WHPA-A-v.10* *WHPA-B-v.10* *Monitoring*	To ensure that future runoff containing de-icing chemicals never becomes a significant drinking water threat within a vulnerable area, where this activity would be a significant drinking water threat, the airport authority/operator is encouraged to include appropriate design standards and best management practices. The City of Guelph shall report to the Source Protection Authority if an application has been made for a new airport facility within the vulnerable areas where this activity would be a significant drinking water threat by February 1st of each year.
21. The Use of Land as Livestock Grazing or Pasturing Land, an Outdoor Confinement Area or Farm Animal Yard	
CG-MC-43 *Existing/Future* *Prescribed Instr.* *WHPA-A-v.10* *WHPA-B-v.10* *ICA(NIT)*	To ensure that the existing and future use of land as an outdoor confinement area or farm animal yard on farms phased-in under the *Nutrient Management Act* ceases to be and/or never becomes a significant drinking water threat within a vulnerable area where this activity is or would be a significant drinking water threat, the Ministry of Agriculture, Food and Rural Affairs shall ensure all Nutrient Management Strategies include appropriate terms and conditions to ensure the risk to drinking water sources is managed.
CG-CW-44 *Existing/Future* *Part IV-RMP* *WHPA-A-v.10* *WHPA-B-v.10* *ICA(NIT)*	To ensure that the existing or future use of land as an outdoor confinement area, or farm animal yard on farms not phased-in under the *Nutrient Management Act*, or the use of land for livestock grazing or pasturing on all farms ceases to be and/or never becomes a significant drinking water threat within vulnerable areas, where this activity is or would be a significant drinking water threat, this activity is designated for the purposes of Section 58 of the *Clean Water Act, 2006* and a Risk Management Plan is required. Risk Management Plans shall be based upon the regulatory requirements of a Nutrient Management Strategy under the *Nutrient Management Act* as a minimum and incorporate best management practices.
CG-NB-45 *Existing/Future* *Incentive Program* *Specify Action* *WHPA-A-v.10* *WHPA-B-v.10* *ICA(NIT)*	To ensure that the existing or future use of land as an outdoor confinement area or farm animal yard on farms not phased-in under the *Nutrient Management Act*, or the use of land for livestock grazing or pasturing on all farms ceases to be and/or never becomes a significant drinking water threat within vulnerable areas, where this activity is or would be a significant drinking water threat: a. The Ministry of the Environment is encouraged to continue to provide ongoing funding for stewardship projects on agricultural properties; and b. The Ministry of Environment shall consider prioritizing and conducting regular compliance inspections of agricultural operations, as appropriate, and shall consider guiding farmers to improve compliance performance, when needed.

8.5 Appendix A: List of Policies as per Section 34 of Regulation 287/07

LIST A
Title: Significant threat policies that affect decisions under the *Planning Act* and *Condominium Act*, 1998

Opening Statement: "Clause 39 (1)(a), subsections 39 (2), (4) and (6), and sections 40 and 42 of the *Clean Water Act*, *2006* apply to the following policies:"

Content: CG-CW-1.1C, CG-MC-1.2b, CG-CW-1.4, CG-MC-1.5, CG-MC-1.17, CG-CW-2.1,CG-MC-5, CG-MC-8, CG-MC-12, CG-MC-24, CG-MC-27, CG-MC-29, CG-MC-30, CG-MC-32.1, CG-MC-35, CG-MC-38,CG-MC-41.

LIST B
Title: Moderate and low threat policies that affect decisions under the *Planning Act* and *Condominium Act*, 1998

Opening Statement: "Subsection 39 (1) (b) of the *Clean Water Act*, *2006* applies to the following policies:"

Content: No Applicable Policies

LIST C
Title: Significant threat policies that affect Prescribed Instrument decisions

Opening Statement: "Subsection 39 (6), clause 39 (7) (a), section 43 and subsection 44 (1) of the *Clean Water Act*, *2006* apply to the following policies:"

Content: CG-MC-1.2a, CG-MC-1.15, CG-MC-1.25, CG-CW-2.1, CG-MC-3, CG-MC-10, CG-MC-11, CG-MC-14, CG-MC-15, CG-MC-16, CG-MC-19, CG-MC-22, CG-MC-25, CG-MC-36, CG-MC-43**.**

LIST D
Title: Moderate and low threat policies that affect Prescribed Instrument decisions

Opening Statement: "Clause 39 (7) (b) of the *Clean Water Act*, *2006* applies to the following policies:"

Content: No Applicable Policies

LIST E
Title: Significant threat policies that impose obligations on municipalities, source protection authorities and local boards

Opening Statement: "Section 38 and subsection 39 (6) of the *Clean Water Act*, *2006* applies to the following policies:"

Content: CG-CW-1.1.d, CG-MC-1.3, CG-CW-1.6, CG-CW-1.7, CG-CW-1.18, CG-CW-1.23, CG-CW-2.1, CG-CW-6, CG-CW-7, CG-CW-13, CG-CW-28, CG-CW-31, CG-CW-33, CG-CW-39, CG-CW-40.c.

LIST F
Title: Monitoring policies referred to in subsection 22 (2) of the *Clean Water Act*, *2006*

Opening Statement: "Section 45 of the Clean Water Act, 2006 applies to the following policies:"

Content: CG-CW-1.9, CG-CW-1.10, CG-CW-1.11, CG-CW-1.12, CG-NB-1.14, CG-MC-1.15, CG-NB-42.

LIST G
Title: Policies related to section 57 of the *Clean Water Act*, *2006*

Opening Statement: "The following policies relate to section 57 (prohibition) of the Clean Water Act, *2006*."

Content: CG-CW-1.1.a, CG-CW-2.1; CG-CW-20, CG-CW-34a, CG-CW-37a, CG-CW-40.a.

LIST H
Title: Policies related to section 58 of the *Clean Water Act*, *2006*

Opening Statement: "The following policies relate to section 58 (Risk Management Plans) of the Clean Water Act, 2006."

Content: CG-CW-1.1.b, CG-CW-4, CG-CW-17a and b, CG-CW-23, CG-CW-26, CG-CW-32.2, CG-CW-34 b, CG-CW-37b, CG-CW-40b, CG-CW-44.

LIST I
Title: Policies related to section 59 of the *Clean Water Act*, *2006*

Opening Statement: "The following policies relate to section 59 (Restricted Land Use) of the *Clean Water Act*, 2006"

Content: CG-CW-1.1.c, CG-CW-1.4.

LIST J
Title: Strategic Action policies

Opening Statement: For the purposes of section 33 of O. Reg. 287/07, the following policies are identified as strategic action policies:

Content: CG-NB-1.13, CG-NB-1.19, CG-NB-1.20, CG-NB-1.21, CG-NB-1.22, CG-NB-1.24, CG-NB-1.26.

List K
Title: Significant threat policies targeted to bodies other than municipalities, local boards or source protection authorities for implementation

Opening Statement: The following policies are identified as non-legally binding policies:

Content: CG-NB-1.8, CG-NB-1.14, CG-NB-1.16, CG-NB-1.26, CG-NB-9, CG-NB-16.1, CG-NB-18, CG-NB-21, CG-NB-42, CG-NB-45.

8.6 Appendix B: Prescribed Instruments and Policy Summary Tables

Table 1: Prescribed Instruments Which Apply To Source Protection Plan Policies In Lists C And D Above (S.34(4) Of O.Reg. 287/07)

Policy #	Legal Effect (conform with, have regard to)	Environmental Protection Act	Nutrient Management Act	Ontario Water Resources Act	Pesticide Act	Aggregate Resources Act
CG-MC-1.2a	Must Conform	X	X	X	X	X
CG-MC-1.15	Must Conform	X				
CG-MC-1.25	Must Conform		X	X		
CG-MC-2.1	Must Conform	X	X	X	X	X
CG-MC-3	Must Conform	X				
CG-MC-8	Must Conform	X		X		
CG-MC-10	Must Conform	X		X		
CG-MC-11	Must Conform	X		X		
CG-MC-14	Must Conform	X		X		
CG-MC-15	Must Conform	X		X		
CG-MC-16	Must Conform		X			
CG-MC-19	Must Conform	X	X			
CG-MC-22	Must Conform		X			
CG-MC-25	Must Conform				X	
CG-MC-36	Must Conform					X
CG-MC-43	Must Conform		X			

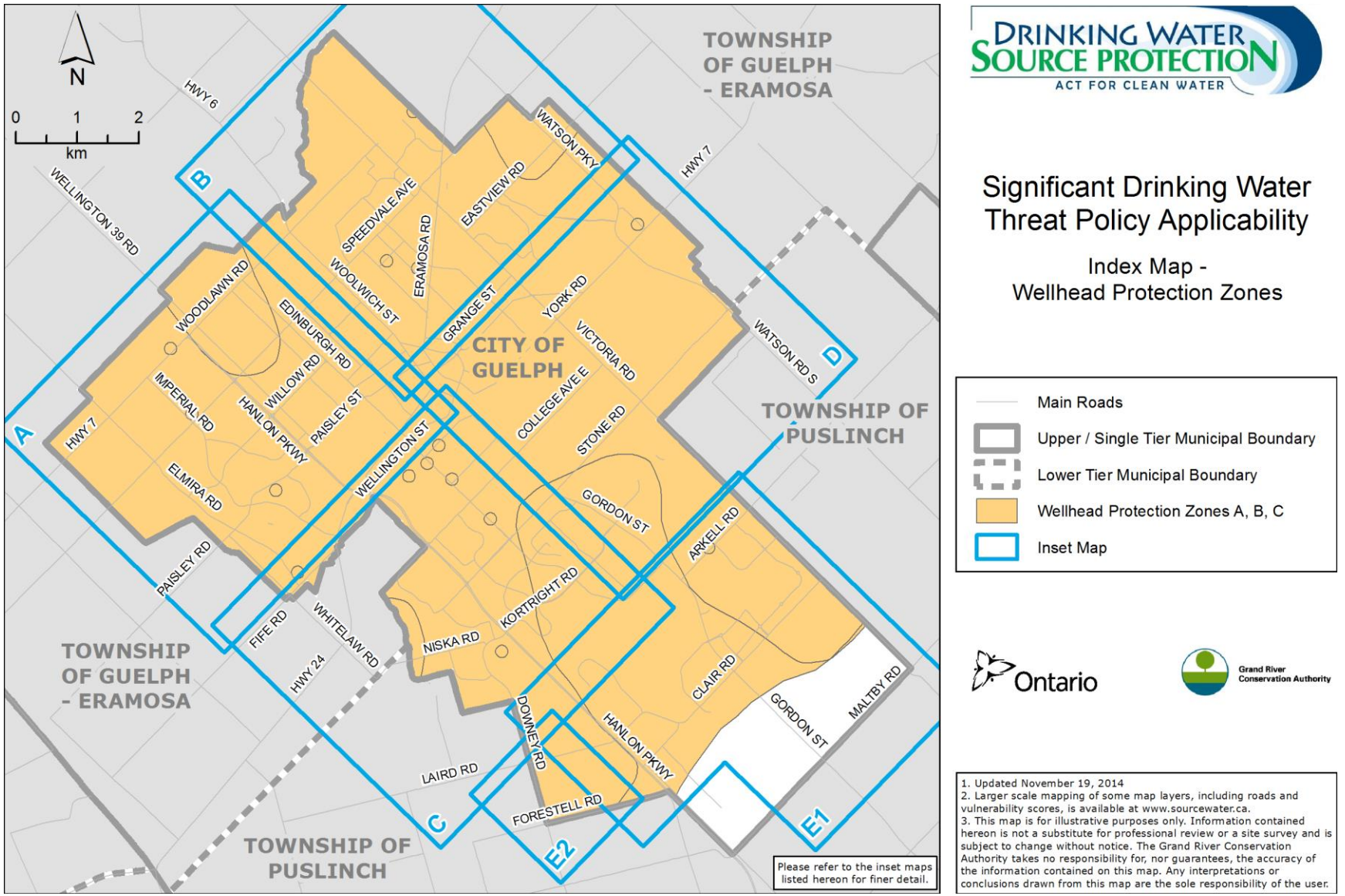
Table 2: Policy Summary Matrix

Policy #	Legal Effect (conform with, have regard to, non-binding)	Policy affects decisions under the Planning Act and Condominium Act, 1998 (Lists A and B)	Policy affects Prescribed Instrument decisions (Lists C and D)	Significant threat policies that impose obligations on municipalities, source protection authorities and local boards (List E)	Monitoring policies referred to in s.22 (2) of the CWA (List F)	Part IV Policies - Significant threat policies that are designated in the plan as requiring a Risk Management plan, are prohibited under s. 57, or to which s. 59 of the CWA applies (Lists G, H, and I)	Strategic Action Policies (List J)	Significant threat policies targeted to bodies other than municipalities, local boards or source protection authorities for implementation List K)
CG-CW-1.1	Comply With	X		X		X		
CG-MC-1.2	Must Conform	X	X					
CG-CW-1.3	Comply With			X				
CG-CW-1.4	Comply With	X				X		
CG-MC-1.5	Must Conform	X						
CG-CW-1.6	Comply With			X				
CG-CW-1.7	Comply With			X				
CG-NB-1.8	Non-Binding							X

Policy #	Legal Effect (conform with, have regard to, non-binding)	Policy affects decisions under the Planning Act and Condominium Act, 1998 (Lists A and B)	Policy affects Prescribed Instrument decisions (Lists C and D)	Significant threat policies that impose obligations on municipalities, source protection authorities and local boards (List E)	Monitoring policies referred to in s.22 (2) of the CWA (List F)	Part IV Policies - Significant threat policies that are designated in the plan as requiring a Risk Management plan, are prohibited under s. 57, or to which s. 59 of the CWA applies (Lists G, H, and I)	Strategic Action Policies (List J)	Significant threat policies targeted to bodies other than municipalities, local boards or source protection authorities for implementation List K)
CG-CW-1.9	Comply With				X			
CG-CW-1.10	Comply With				X			
CG-CW-1.11	Comply With				X			
CG-CW-1.12	Comply With				X			
CG-NB-1.13	Non-binding						X	
CG-NB-1.14	Non-binding				X			X
CG-MC-1.15	Must Conform		X		X			
CG-NB-1.16	Non-binding							X
CG-MC-1.17	Must Conform	X						
CG-CW-1.18	Comply With			X				
CG-NB-1.19	Non-binding						X	X
CG-NB-1.20	Non-binding						X	
CG-NB-1.21	Non-binding						X	
CG-NB-1.22	Non-Binding						X	
CG-CW-1.23	Comply With			X				
CG-NB-1.24	Non-Binding						X	
CG-MC-1.25	Must Conform		X					
CG-NB-1.26	Non-Binding						X	
CG-CW-2.1	Comply With	X	X	X		X		
CG-MC-3	Must Conform		X					
CG-MC-4	Conform With					X		
CG-CW-5	Must Conform	X						
CG-CW-6	Comply With			X				
CG-CW-7	Comply With			X				
CG-MC-8	Must Conform	X						
CG-NB-9	Non-binding							X
CG-MC-10	Must Conform		X					
CG-MC-11	Must Conform		X					
CG-MC-12	Must Conform	X						
CG-CW-13	Comply With			X				
CG-MC-14	Must Conform		X					
CG-MC-15	Must Conform		X					
CG-MC-16	Must Conform		X					
CG-NB-16.1	Non-Binding							X
CG-CW-17	Comply With					X		
CG-NB-18	Non-binding							X
CG-MC-19	Must Conform		X					
CG-CW-20	Comply With					X		

Policy #	Legal Effect (conform with, have regard to, non-binding)	Policy affects decisions under the Planning Act and Condominium Act, 1998 (Lists A and B)	Policy affects Prescribed Instrument decisions (Lists C and D)	Significant threat policies that impose obligations on municipalities, source protection authorities and local boards (List E)	Monitoring policies referred to in s.22 (2) of the CWA (List F)	Part IV Policies - Significant threat policies that are designated in the plan as requiring a Risk Management plan, are prohibited under s. 57, or to which s. 59 of the CWA applies (Lists G, H, and I)	Strategic Action Policies (List J)	Significant threat policies targeted to bodies other than municipalities, local boards or source protection authorities for implementation List K)
CG-NB-21	Non-binding							X
CG-MC-22	Must Conform		X					
CG-CW-23	Comply With					X		
CG-MC-24	Must Conform	X						
CG-MC-25	Must Conform		X					
CG-CW-26	Comply With					X		
CG-MC-27	Must Conform	X						
CG-CW-28	Comply With			X				
CG-MC-29	Must Conform	X						
CG-MC-30	Must Conform	X						
CG-CW-31	Comply With			X				
CG-MC-32.1	Must Conform	X						
CG-CW-32.2	Comply With					X		
CG-CW-33	Comply With			X				
CG-CW-34	Comply With					X		
CG-MC-35	Must Conform	X						
CG-MC-36	Must Conform		X					
CG-CW-37	Comply With					X		
CG-MC-38	Must Conform	X						
CG-CW-39	Comply With			X				
CG-CW-40	Comply With			X		X		
CG-MC-41	Must Conform	X						
CG-NB-42	Non-binding				X			X
CG-MC-43	Must Conform		X					
CG-CW-44	Comply With					X		
CG-NB-45	Non-binding							X

8.7 Schedule A: City of Guelph: Guelph Waterworks Well Supply Index Map



DRINKING WATER SOURCE PROTECTION
ACT FOR CLEAN WATER

Significant Drinking Water Threat Policy Applicability

Index Map -
Wellhead Protection Zones

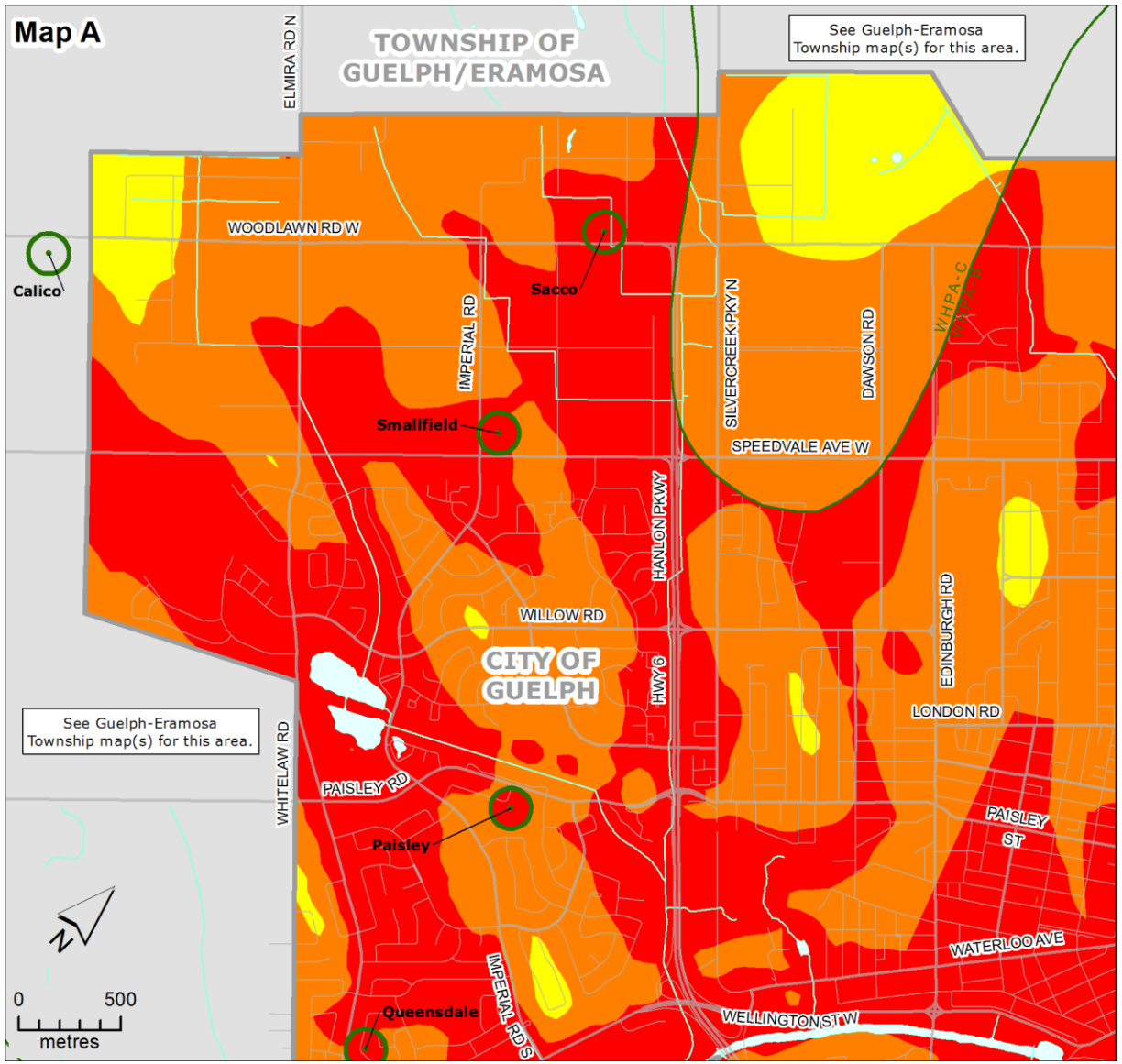
- Main Roads
- Upper / Single Tier Municipal Boundary
- Lower Tier Municipal Boundary
- Wellhead Protection Zones A, B, C
- Inset Map

Ontario

Grand River Conservation Authority

1. Updated November 19, 2014
2. Larger scale mapping of some map layers, including roads and vulnerability scores, is available at www.sourcewater.ca.
3. This map is for illustrative purposes only. Information contained hereon is not a substitute for professional review or a site survey and is subject to change without notice. The Grand River Conservation Authority takes no responsibility for, nor guarantees, the accuracy of the information contained on this map. Any interpretations or conclusions drawn from this map are the sole responsibility of the user.

8.8 Schedule B: City of Guelph: Guelph Waterworks Well Supply, Map A



DRINKING WATER SOURCE PROTECTION
ACT FOR CLEAN WATER

Significant Drinking Water Threat Policy Applicability

Significant Drinking Water Threat Policy Categories		Vulnerability Scores on Map		
		10	8	2,4,6
1.	Waste Disposal			
2.	Sewage Systems			
3, 4.	Agricultural Source Material			
6, 7.	Non-Agricultural Source Material*			
8, 9.	Commercial Fertilizer*			
10, 11.	Pesticide			
12, 13.	Road Salt*			
14.	Storage of Snow			
15.	Fuel			
16.	DNAPLs			
17.	Organic Solvents			
18.	Aircraft De-icing			
21.	Livestock Area			
Local Threat	Oil Pipelines			

Note: This table provides a summary of the activities listed in the Clean Water Act (2006) that apply as Prescribed Drinking Water Threats (PDWT) within the Non-GUDI Wellhead Protection Zones shown on this map. For details refer to the text of the Source Protection Plan and the Ministry of the Environment Drinking Water Threats Tables.
*Application of Commercial Fertilizer, Non-Agricultural Source Material, and Road Salt may not be a significant drinking water threat in some areas due to the % managed land, livestock density, and/or % impervious surface calculations for these areas. See the text of the plan for further details.

Well
Road
Minor River
Lake / Main River
City of Guelph Boundary

Wellhead Protection Zones:
WHPA-A
WHPA-B
WHPA-C

Ontario
Grand River Conservation Authority

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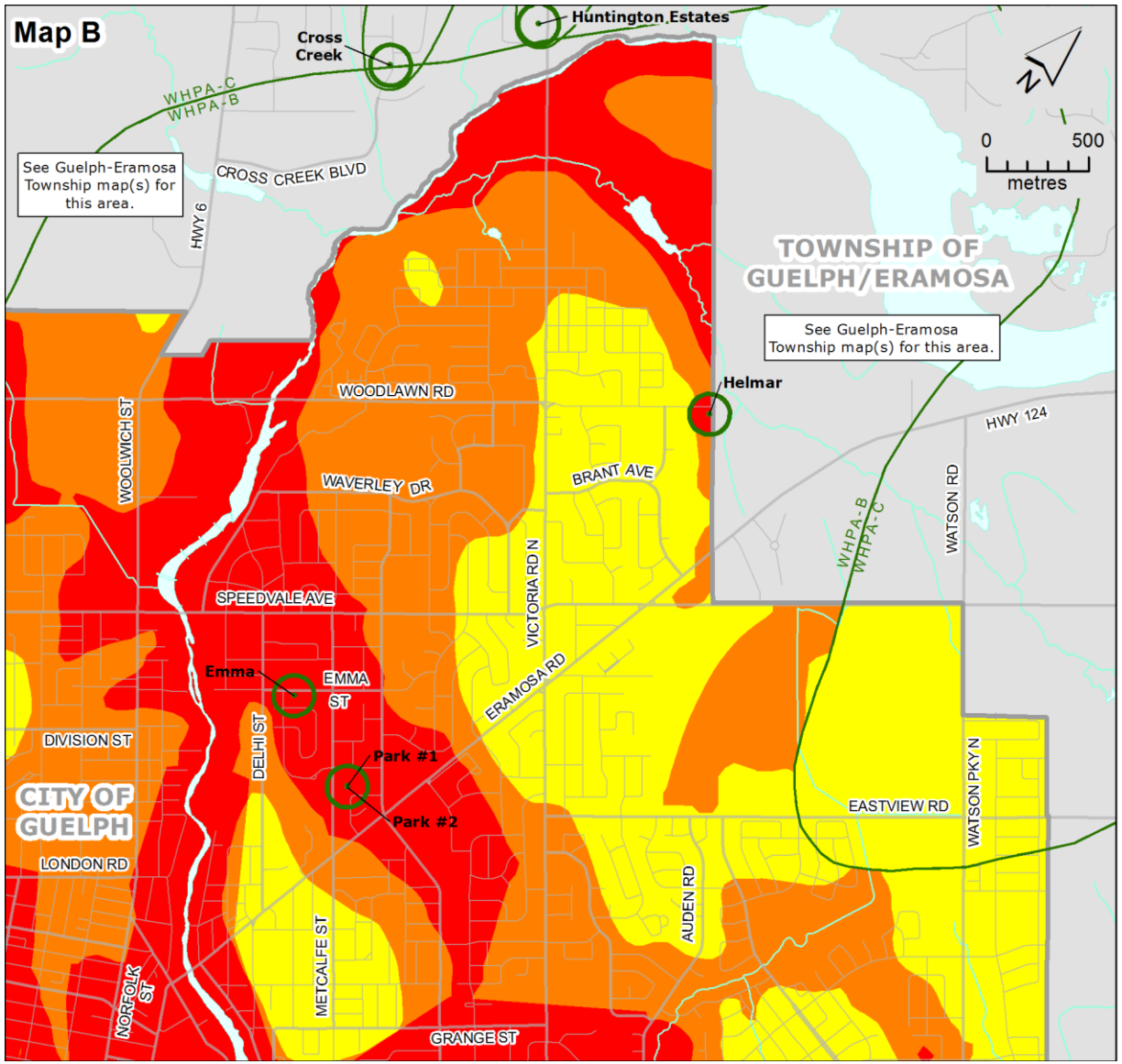
8.9 Schedule C: City of Guelph: Guelph Waterworks Well Supply, Map B



DRINKING WATER SOURCE PROTECTION
ACT FOR CLEAN WATER

Significant Drinking Water Threat Policy Applicability

Significant Drinking Water Threat Policy Categories		Vulnerability Scores on Map		
		10	8	2,4,6
1.	Waste Disposal			
2.	Sewage Systems			
3, 4.	Agricultural Source Material			
6, 7.	Non-Agricultural Source Material*			
8, 9.	Commercial Fertilizer*			
10, 11.	Pesticide			
12, 13.	Road Salt*			
14.	Storage of Snow			
15.	Fuel			
16.	DNAPLs			
17.	Organic Solvents			
18.	Aircraft De-icing			
21.	Livestock Area			
Local Threat	Oil Pipelines			

Note: This table provides a summary of the activities listed in the Clean Water Act (2006) that apply as Prescribed Drinking Water Threats (PDWT) within the Non-GUDI Wellhead Protection Zones shown on this map. For details refer to the text of the Source Protection Plan and the Ministry of the Environment Drinking Water Threats Tables.
*Application of Commercial Fertilizer, Non-Agricultural Source Material, and Road Salt may not be a significant drinking water threat in some areas due to the % managed land, livestock density, and/or % impervious surface calculations for these areas. See the text of the plan for further details.

Well
Road
Minor River
Lake / Main River
City of Guelph Boundary

Wellhead Protection Zones:
WHPA-A
WHPA-B
WHPA-C

Ontario

Grand River Conservation Authority

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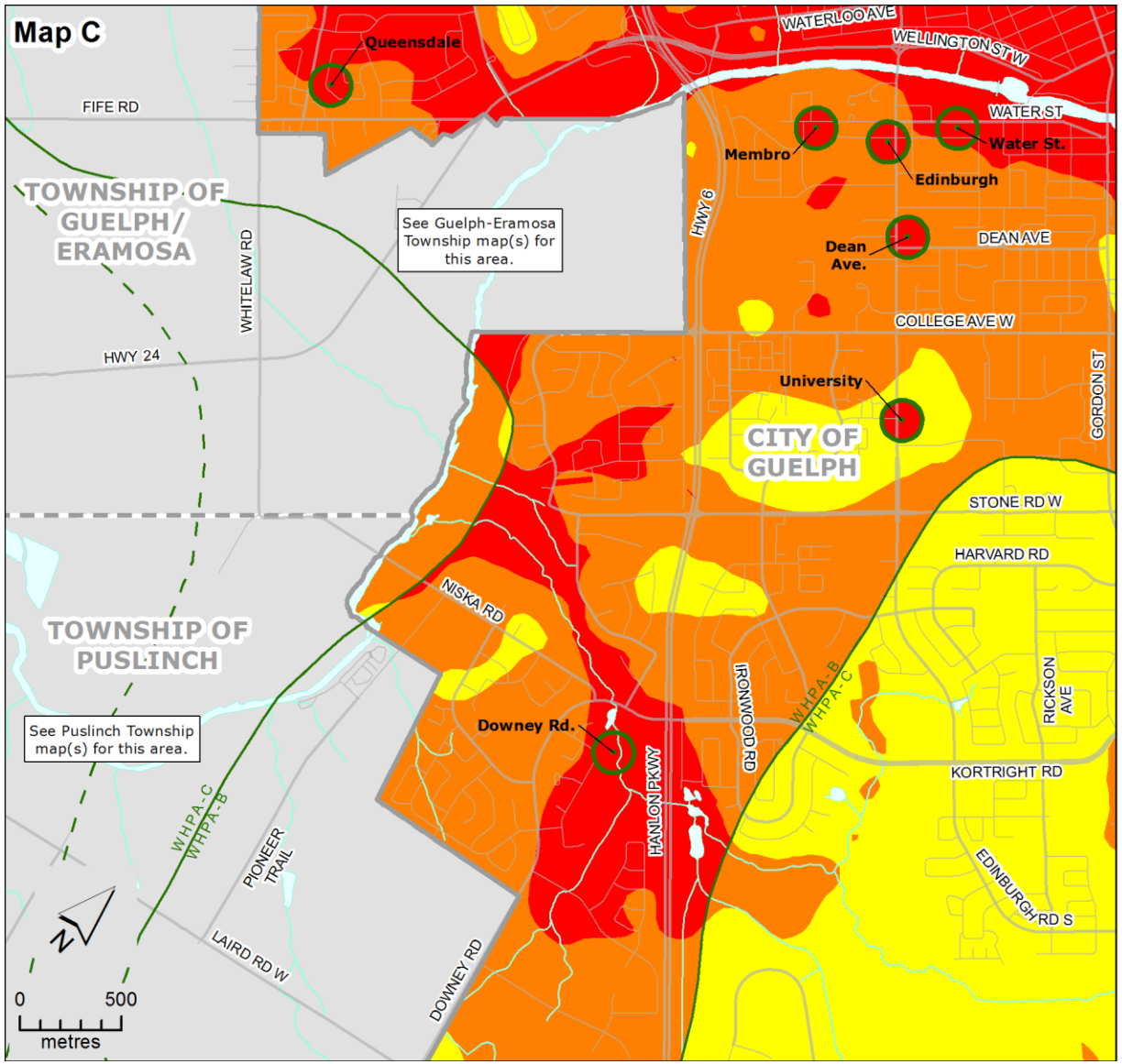
8.10 Schedule D: City of Guelph: Guelph Waterworks Well Supply, Map C



DRINKING WATER SOURCE PROTECTION
ACT FOR CLEAN WATER

Significant Drinking Water Threat Policy Applicability

	Significant Drinking Water Threat Policy Categories	Vulnerability Scores on Map: 10	8	2,4,6
1.	Waste Disposal	■	■	
2.	Sewage Systems	■	■	
3, 4.	Agricultural Source Material	■		
6, 7.	Non-Agricultural Source Material*	■		
8, 9.	Commercial Fertilizer*	■		
10, 11.	Pesticide	■		
12, 13.	Road Salt*	■		
14.	Storage of Snow	■		
15.	Fuel	■		
16.	DNAPLs	■	■	■
17.	Organic Solvents	■		
18.	Aircraft De-icing	■		
21.	Livestock Area	■		
Local Threat	Oil Pipelines	■		

Note: This table provides a summary of the activities listed in the Clean Water Act (2006) that apply as Prescribed Drinking Water Threats (PDWT) within the Non-GUDI Wellhead Protection Zones shown on this map. For details refer to the text of the Source Protection Plan and the Ministry of the Environment Drinking Water Threats Tables.
*Application of Commercial Fertilizer, Non-Agricultural Source Material, and Road Salt may not be a significant drinking water threat in some areas due to the % managed land, livestock density, and/or % impervious surface calculations for these areas. See the text of the plan for further details.

- Well
- Road
- Minor River
- Lake / Main River
- City of Guelph Boundary
- Other Municipal Boundary

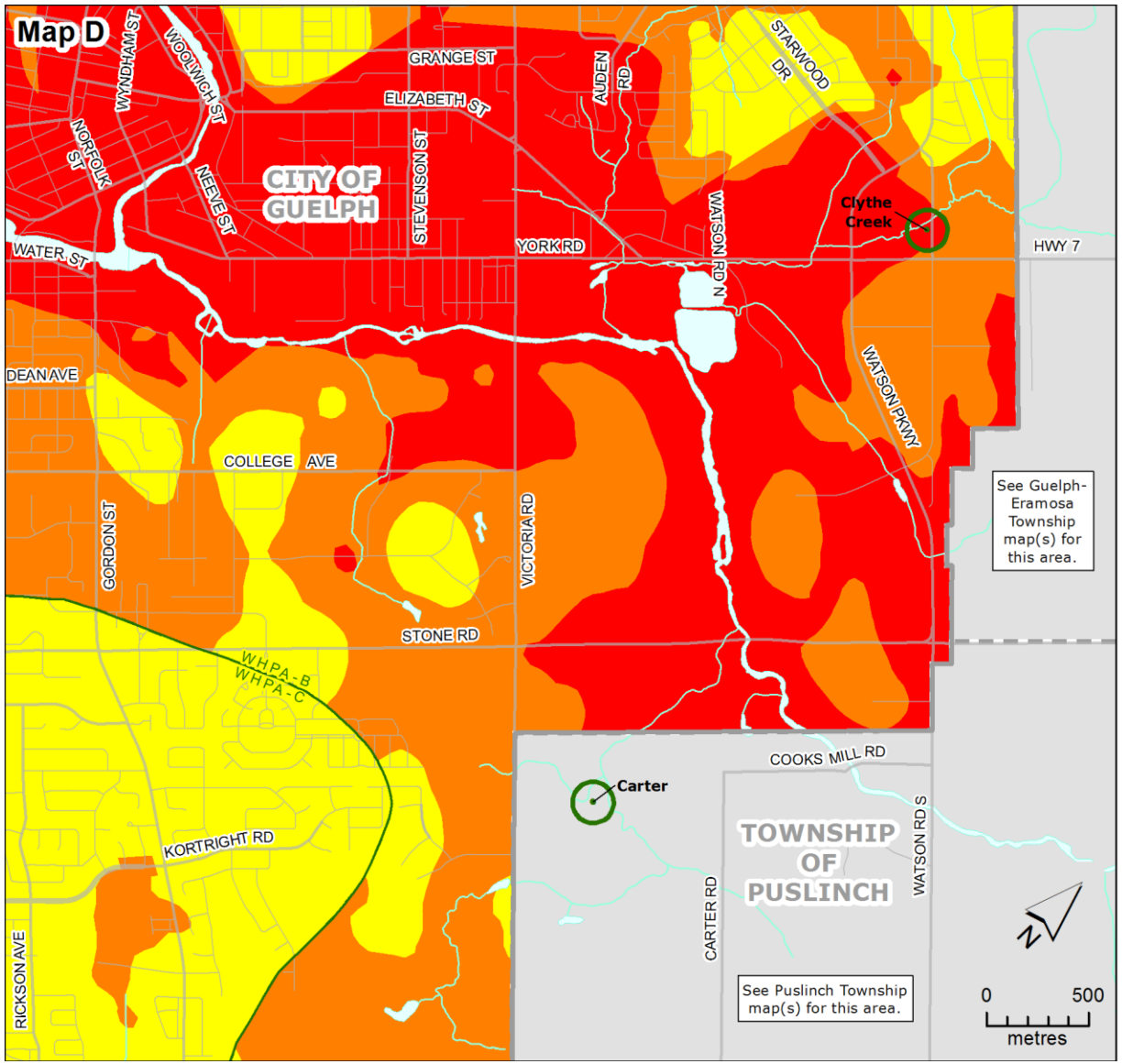
Wellhead Protection Zones:
- WHPA-A
- WHPA-B
- WHPA-C

Ontario

Grand River Conservation Authority

1. Updated November 18, 2014
2. Larger scale mapping of some map layers, including roads and vulnerability scores, is available at www.sourcewater.ca.
3. This map is for illustrative purposes only. Information contained hereon is not a substitute for professional review or a site survey and is subject to change without notice. The Grand River Conservation Authority takes no responsibility for, nor guarantees, the accuracy of the information contained on this map. Any interpretations or conclusions drawn from this map are the sole responsibility of the user.

8.11 Schedule E: City of Guelph: Guelph Waterworks Well Supply, Map D



DRINKING WATER SOURCE PROTECTION
ACT FOR CLEAN WATER

Significant Drinking Water Threat Policy Applicability

Significant Drinking Water Threat Policy Categories		Vulnerability Scores on Map		
		10	8	2,4,6
1.	Waste Disposal			
2.	Sewage Systems			
3, 4.	Agricultural Source Material			
6, 7.	Non-Agricultural Source Material*			
8, 9.	Commercial Fertilizer*			
10, 11.	Pesticide			
12, 13.	Road Salt*			
14.	Storage of Snow			
15.	Fuel			
16.	DNAPLs			
17.	Organic Solvents			
18.	Aircraft De-icing			
21.	Livestock Area			
Local Threat	Oil Pipelines			

Note: This table provides a summary of the activities listed in the Clean Water Act (2006) that apply as Prescribed Drinking Water Threats (PDWT) within the Non-GUDI Wellhead Protection Zones shown on this map. For details refer to the text of the Source Protection Plan and the Ministry of the Environment Drinking Water Threats Tables.
*Application of Commercial Fertilizer, Non-Agricultural Source Material, and Road Salt may not be a significant drinking water threat in some areas due to the % managed land, livestock density, and/or % impervious surface calculations for these areas. See the text of the plan for further details.

- Well
- Road
- Minor River
- Lake / Main River
- City of Guelph Boundary
- Other Municipal Boundary

Wellhead Protection Zones:
- WHPA-A
- WHPA-B
- WHPA-C

Ontario

Grand River Conservation Authority

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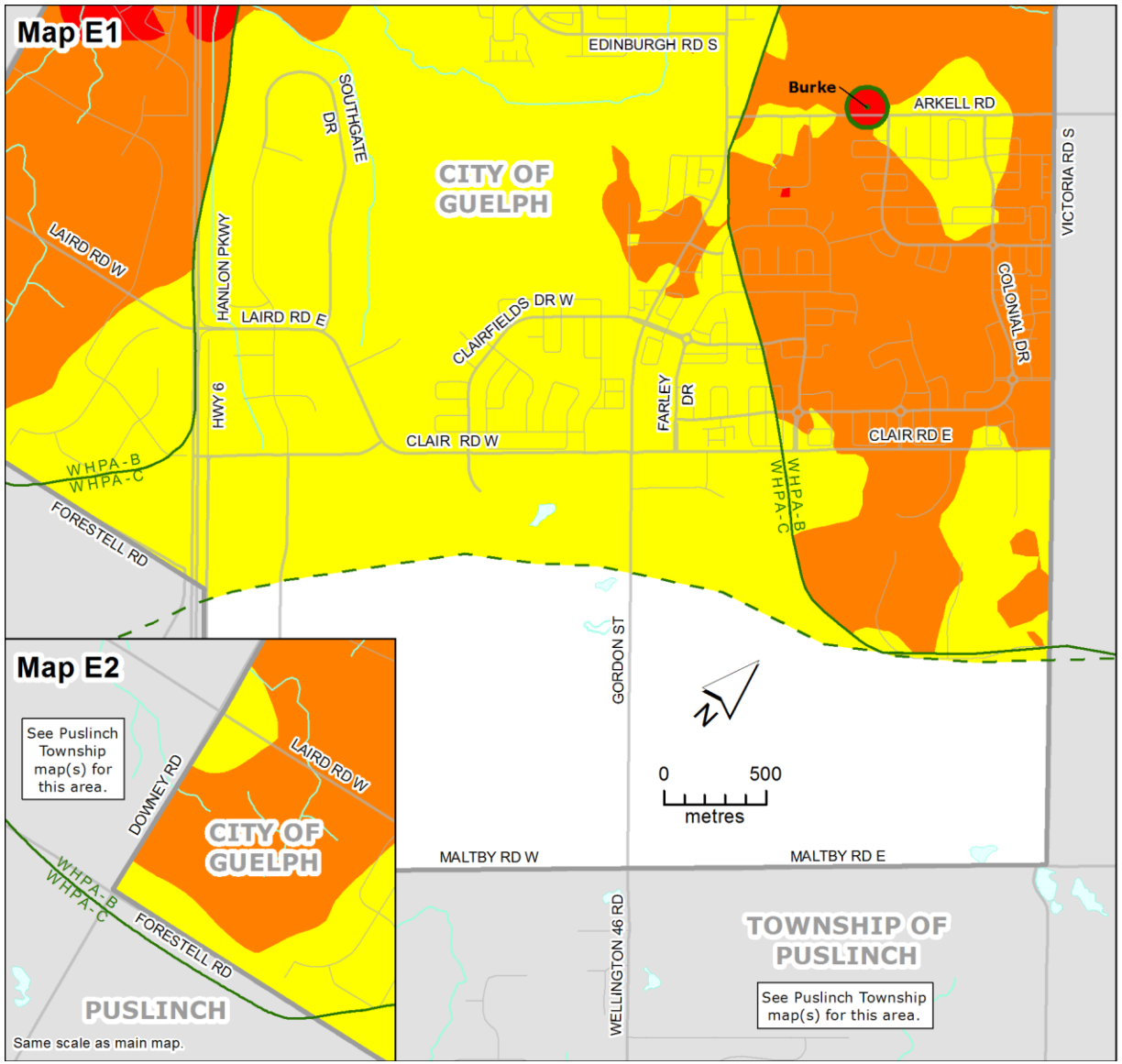
8.12 Schedule F: City of Guelph: Guelph Waterworks Well Supply, Map E



DRINKING WATER SOURCE PROTECTION
ACT FOR CLEAN WATER

Significant Drinking Water Threat Policy Applicability

Significant Drinking Water Threat Policy Categories		Vulnerability Scores on Map		
		10	8	2,4,6
1.	Waste Disposal			
2.	Sewage Systems			
3, 4.	Agricultural Source Material			
6, 7.	Non-Agricultural Source Material*			
8, 9.	Commercial Fertilizer*			
10, 11.	Pesticide			
12, 13.	Road Salt*			
14.	Storage of Snow			
15.	Fuel			
16.	DNAPLs			
17.	Organic Solvents			
18.	Aircraft De-icing			
21.	Livestock Area			
Local Threat	Oil Pipelines			

Note: This table provides a summary of the activities listed in the Clean Water Act (2006) that apply as Prescribed Drinking Water Threats (PDWT) within the Non-GUDI Wellhead Protection Zones shown on this map. For details refer to the text of the Source Protection Plan and the Ministry of the Environment Drinking Water Threats Tables.
*Application of Commercial Fertilizer, Non-Agricultural Source Material, and Road Salt may not be a significant drinking water threat in some areas due to the % managed land, livestock density, and/or % impervious surface calculations for these areas. See the text of the plan for further details.

Well
Road
Minor River
Lake / Main River
City of Guelph Boundary

Wellhead Protection Zones:
WHPA-A
WHPA-B
WHPA-C

Ontario

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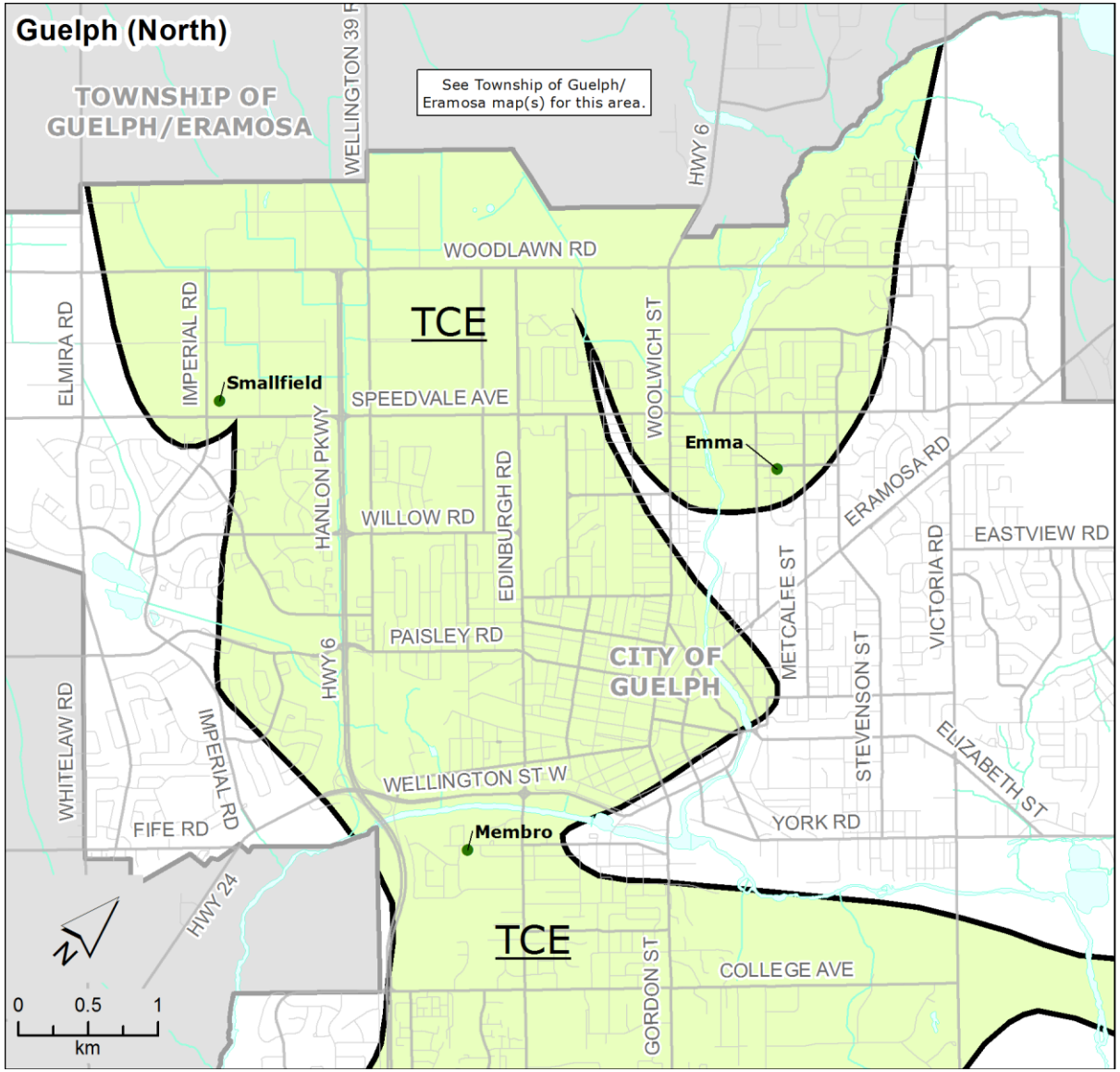
8.13 Schedule G: City of Guelph: Guelph Waterworks Issue Contributing Areas (North)



DRINKING WATER SOURCE PROTECTION
ACT FOR CLEAN WATER

Significant Drinking Water Threat Policy Applicability

Significant Drinking Water Threat Policy Categories		Identified Issue			
		Chloride	Nitrate	Sodium	TCE
1.	Waste Disposal		✓		✓
2.	Sewage Systems	✓	✓	✓	✓
3, 4.	Agricultural Source Material		✓		
6, 7.	Non-Agricultural Source Material		✓		
8, 9.	Commercial Fertilizer		✓		
12, 13.	Road Salt	✓		✓	
14.	Storage of Snow	✓	✓	✓	
16.	DNAPLs				✓
21.	Livestock Area		✓		

Note: This table provides a summary of the activities listed in the Clean Water Act (2006) that apply as Prescribed Drinking Water Threats (PDWT) in the Issue Contributing Area(s) shown on this map. For details refer to the text of the Source Protection Plan and the Ministry of the Environment Drinking Water Threats Tables.

- Well with Identified Issue(s)
- Minor Rivers
- Lakes / Main Rivers
- Roads
- City of Guelph Boundary
- Issue Contributing Areas
- Issue — Associated Issue Parameter

Ontario

Grand River Conservation Authority

1. Updated November 19, 2014
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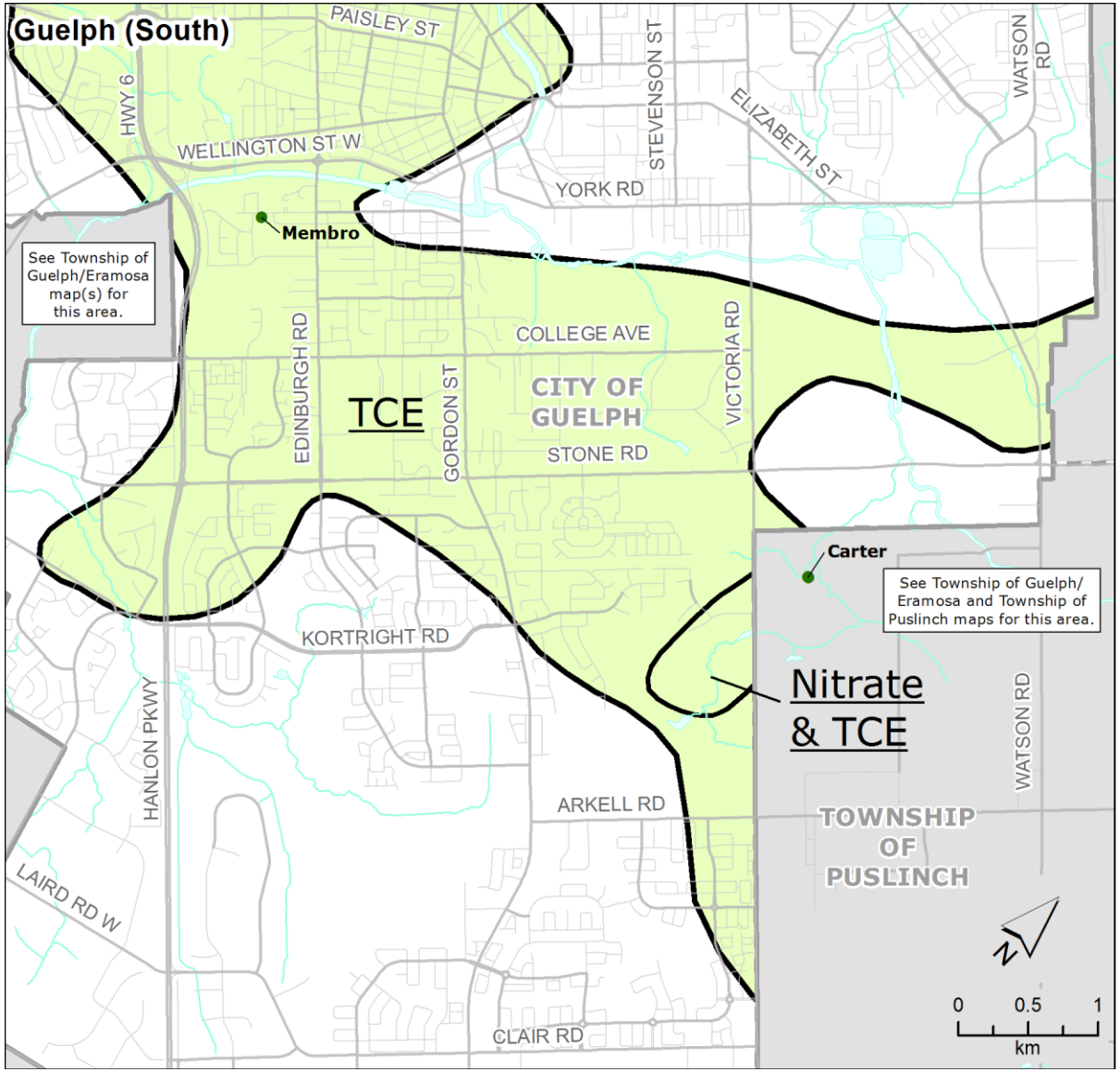
8.14 Schedule H: City of Guelph: Guelph Waterworks Issue Contributing Areas (South)



DRINKING WATER SOURCE PROTECTION
ACT FOR CLEAN WATER

Significant Drinking Water Threat Policy Applicability

Significant Drinking Water Threat Policy Categories		Identified Issue			
		Chloride	Nitrate	Sodium	TCE
1.	Waste Disposal		✓		✓
2.	Sewage Systems	✓	✓	✓	✓
3, 4.	Agricultural Source Material		✓		
6, 7.	Non-Agricultural Source Material		✓		
8, 9.	Commercial Fertilizer		✓		
12, 13.	Road Salt	✓		✓	
14.	Storage of Snow	✓	✓	✓	
16.	DNAPLs				✓
21.	Livestock Area		✓		

Note: This table provides a summary of the activities listed in the Clean Water Act (2006) that apply as Prescribed Drinking Water Threats (PDWT) in the Issue Contributing Area(s) shown on this map. For details refer to the text of the Source Protection Plan and the Ministry of the Environment Drinking Water Threats Tables.

- Well with Identified Issue(s)
- Minor Rivers
- Lakes / Main Rivers
- Roads
- City of Guelph Boundary
- Other Municipal Boundary
- Issue Contributing Areas
- Issue — Associated Issue Parameter

Ontario

Grand River Conservation Authority

1. Updated November 19, 2014
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Appendix J:

MTE Technical Memorandum Source Water Protection Considerations

TECHNICAL MEMORANDUM

TO:	Laurier Proulx	**MTE FILE NO.:**	C39941-100
COMPANY:	Laurier Construction Consulting Group Inc.	**DATE:**	March 26, 2015 Revised June 8, 2015
CC:	Mario Petricevic, City of Guelph Jessica Angers, City of Guelph Dot Roga, MTE	**FROM:**	Caroline Amyot
		PROJECT NAME:	City of Guelph Winter Maintenance Yard

SOURCE WATER PROTECTION CONSIDERATIONS

This memo has been prepared to provide an overview of the groundwater resources in relation to the development of a proposed municipal Winter Maintenance Facility (WMF) at 45 Municipal Street in Guelph. In particular the memo reviews the Grand River Conservation Authority (GRCA) Source Water Protection (SWP) mapping in relation to the Lake Erie Source Water Protection Program (August 16, 2012) and The Clean Water Act (2006).

The City of Guelph (City) is proposing to construct a new WMF at their 45 Municipal Street property (Site). The Site is generally bounded by the Al Meezan School and an existing residential community to the north, Hydro One to east, Municipal Street to the south and Denver Road to the west (See key plan on attached A1.1 drawing). The existing property is owned and operated by the City and used as a City works yard. The Site is fully developed with two existing buildings fronting the roadway on the west and center portions of the site, internal paved roadways, parking lots and an outdoor materials storage area on the east side of the Site.

The WMF is proposed to be developed on the east portion of the Site where the current outdoor storage area is located. The WMF is to comprise of a fully lined main building (39.6 m by 55.2 m) with a small 206 m^2 decanting area at the back of the main building and a smaller salt unloading hopper building (5.6 m x 6.3 m) with a conveyer belt system leading back to the main building (See attached MTE Drawing A1.1). The proposed development of the WMF will result in an "enclosure" of the main winter maintenance operations (i.e. salt/brine/sand storage, truck loading, associated truck maintenance, etc.) thus, preventing runoff from the contained operations. Drainage from inside the building will be directed to the sanitary sewer.

GRAND RIVER CONSERVATION AUTHORITY – SOURCE WATER PROTECTION

The following provides an overview of GRCA Source Water Protection (SWP) groundwater mapping in relation to the proposed site.

MUNICIPAL WELLS (FIGURE 1)

There are three existing municipal drinking water wells that serve major residential developments within approximately 300 m from the WMF as summarized in Table 1.

TABLE 1: MUNICIPAL WELLS

WELL IDENTIFIER	WELL ID	DISTANCE FROM THE WMF
Membro	373	~ 245 m northwest
Edinburgh	9995	~ 210 m north
Dean Ave	369	~ 400 m east

WELLHEAD PROTECTION AREA (WHPA) (FIGURE 1)

The wellhead protection area (WHPA) is a zone that divides the aquifer surrounding each drinking water well into specific distance and time-of-travel (TOT) zones. These zones represent the estimated time that groundwater travels horizontally to reach the pumping well and are categorized into the following (as set out in Part V of the Ontario *Clean Water Act, 2006* Technical Rules):

- **WHPA-A** = 100 metre horizontal radius around the well;
- **WHPA-B** = TOT equal to or less than 2 years, but not including the WHPA-A;
- **WHPA-C/C1** = TOT equal to or less than 5 years, but greater than 2 years (WHPA-C) or the area in which time-of-travel is equal to or less than 10 years, but greater than 2 years (WHPA-C1);
- **WHPA-D** = TOT equal to or less than 25 years, but not including any of the preceding zones delineated for the well.

The site is within a **WHPA-B Zone**. Zone B represents an area in which the TOT to the well is equal to or less than 2 years, but does not include the WHPA-A zone.

WHPA VULNERABILITY (FIGURE 2)

Vulnerability represents an assessment of the vulnerability of groundwater wells to ground surface contamination within the wellhead protection area delineated for each well. This assessment takes into account both the vertical movement of water from the surface and the horizontal movement of water within the aquifer to the respective well. The assigned vulnerability scores are values from 2 to 10, with 2 representing low vulnerability and 10 representing high vulnerability. The site is primarily located within an area that has a score of **8 or *High Vulnerability***, with a small area rated as **10 or *High Vulnerability***.

SIGNIFICANT GROUNDWATER RECHARGE AREA VULNERABILITY (FIGURE 3)

Significant Groundwater Recharge Areas (SGRA) are those areas where the aquifer groundwater recharge rate exceeds determined threshold levels. The southwest portion of the Site is partially located within a **SGRA rated as 4 or *Moderate Vulnerability***. The eastern portion of the WMF Site is not within any SGRA zone.

ISSUE CONTRIBUTING AREA (ICA)

The site is located within an Issue Contributing Area (ICA). In many cases, the ICA is the 25 year time-of-travel capture zone for a well. An Issue identified for the **Membro well field is Trichlorethylene (TCE)**. When a chemical substance is present in a well at a concentration that could lead to the deterioration of the water quality, an ICA is delineated identifying the area where activities and conditions as a result of past activities have, or are likely to, contribute to the elevated concentration of the substance, in this case being a dense non-aqueous liquid (DNAPL) such as TCE.

OTHER

Note the site is not located within a Surface Water Intake Zone/Intake Protection Zone (IPZ), WHPA identified as Groundwater Under the Direct Influence of surface water (GUDI), GRCA Regulated Area or Flood Plain.

CONCLUSIONS AND RECCOMENDATIONS

Based on the foregoing GRCA SWP mapping, it is concluded that:

1. The proposed WMF includes a fully lined, enclosed building that will be used for storage of materials (i.e. salt, brine, sand, etc.), truck loading and general maintenance operations.

2. The enclosure of the winter maintenance operations prevents salt laden runoff from infiltrating on site or, leaving the site and infiltrating elsewhere.

3. Any runoff that occurs within the building will be directed to the sanitary sewer.

4. The proposed WMF is located within approximately 200 m to 400 m of three existing municipal potable water wells

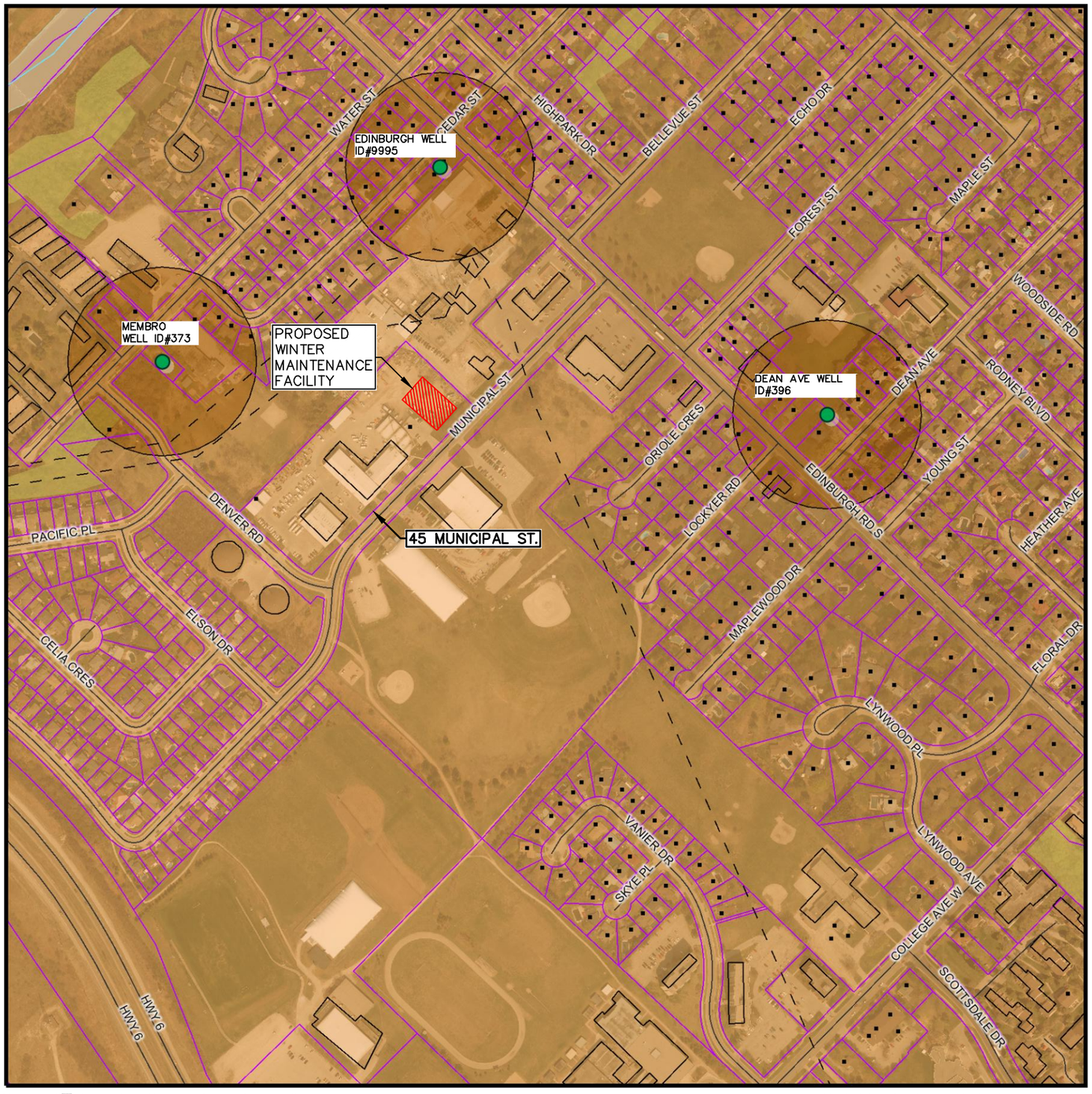
5. The WMF Site is located within the follow GRCA SWP mapping areas:
    a. WHPA-B Zone (TOT ≤ 2 years)
    b. WHPA Vulnerability = 8 or *High* Vulnerability
    c. SGRA Vulnerability = 4 or *Moderate Vulnerability*

6. The WMF Site is NOT located within any of the following GRCA mapping areas:

    a. Surface Water Intake Zone/Intake Protection Zone (IPZ)
    b. WHPA under the direct influence of surface water (GUDI)
    c. GRCA Regulated Area
    d. Flood Plain

7. Although the Site is located within a WHPA-B zone that is identified as 8 or High Vulnerability, the proposed WMF development is not anticipated to adversely impact the existing groundwater resources since the storage of materials and general operations will be contained within a fully lined enclosed building.

8. Because the site is located in an ICA it would be subject to the Prescribed Drinking Water Quality Threat Ontario Regulation 287/07 s.1.1.(1). The Regulation Reference Number (16) refers to the prescribed threat of handling and storage of DNAPL. The policies addressing the Prescribed Drinking Water Threats is summarized in the amended proposed report entitled, "*Amended Proposed Source Protection Plan*", dated March 12, 2015. This document sets out the policies to protect sources of municipal drinking water against existing and future drinking water threats. It is recommended that the City review this document once it has been finalized to address site specific policies.



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Grand River Conservation Authority

Map created: March 27, 2015

45 Municipal Street

LEGEND

- WATERSHED MASK
- MUNICIPAL WELL (SWP)
- BUILDING - SYMBOLIZED (GRCA)
- BUILDING - TO SCALE (GRCA)
- WATERSHED BOUNDARY (GRCA)
- UTILITY LINE (NRVIS)
- ROADS-ADDRESSED (MNR)
- RAILWAY (NRVIS)
- DRAINAGE-NETWORK (GRCA)
- PARCELS-ASSESSMENT (MPAC)
- WHPA-WELLHEAD PROTECTION AREA (SWP)
- WHPA-A
- WHPA-B
- WHPA-C
- WHPA-C1
- WHPA-D
- PARKS (GRCA)
- DRAINAGE-POLY (NRVIS)
- WOODED AREA (MNR)
- HEDGEROW
- PLANTATION
- TREED
- 2010 ORTHO (ONT)

GRCA Disclaimer

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The source for each data layer is shown in parentheses in the map legend. For a complete listing of sources and citations go to:

http://grims.grandriver.ca/docs/SourcesCitations2.htm

0 70 140 210 280 m.

NAD 1983, UTM Zone 17 Scale 1:6,000

N

FIGURE 1.0 Date: MAR.27/15 Scale: N.T.S.

WELLHEAD PROTECTION AREAS

MTE Engineers | Scientists | Surveyors

Project No.: 39941-100

March 27, 2015 — 11:19 a.m. — Plotted By: Sfilippov

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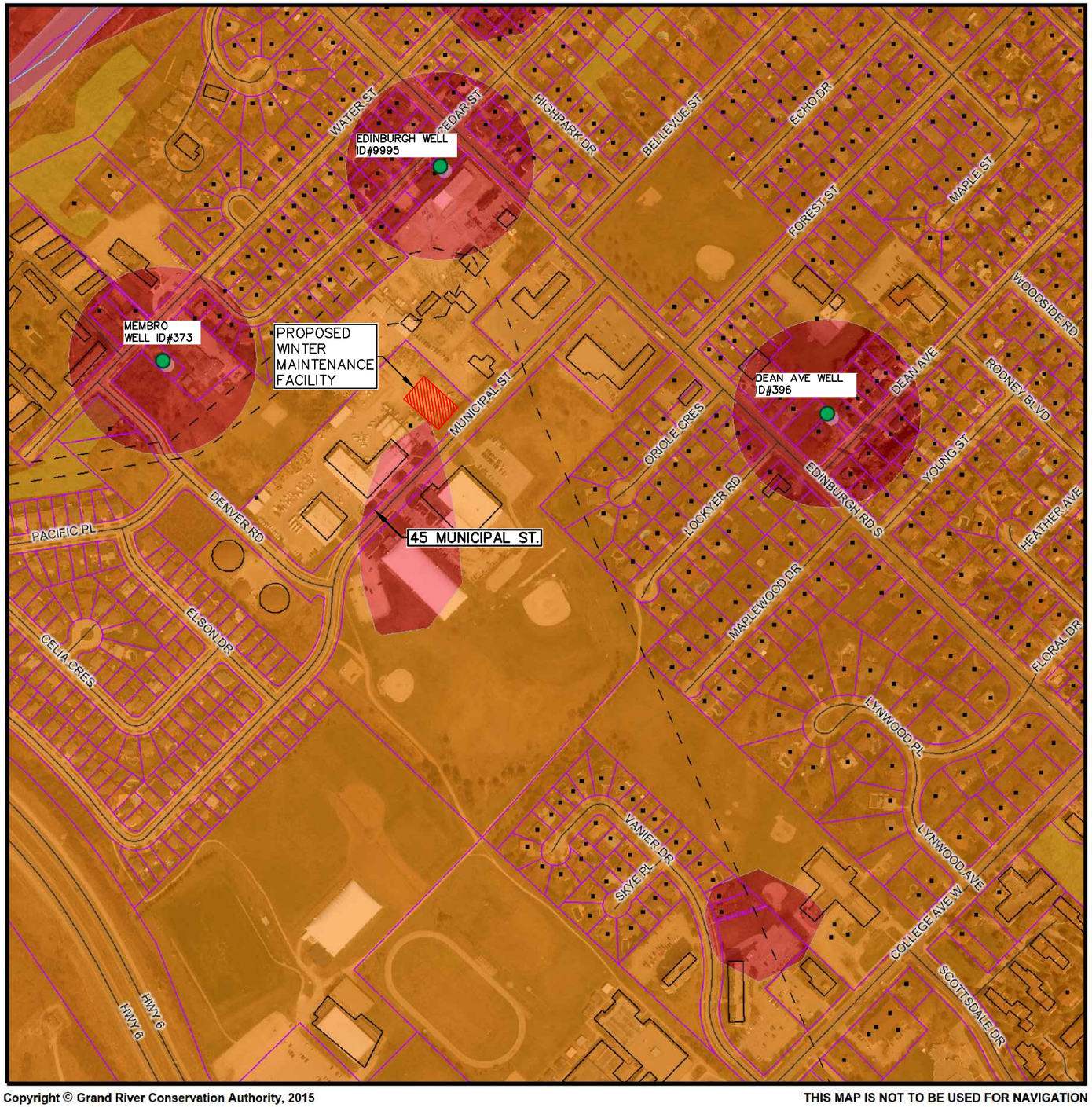

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Grand River Conservation Authority

Map created: March 27, 2015

45 Municopal Street

LEGEND

- WATERSHED MASK
- MUNICIPAL WELL (SWP)
- BUILDING - SYMBOLIZED (GRCA)
- BUILDING - TO SCALE (GRCA)
- WATERSHED BOUNDARY (GRCA)
- UTILITY LINE (NRVIS)
- ROADS-ADDRESSED (MNR)
- RAILWAY (NRVIS)
- DRAINAGE-NETWORK (GRCA)
- PARCELS-ASSESSMENT (MPAC)
- WHPA VULNERABILITY (GRCA)
  - 10
  - 8
  - 6
  - 4
  - 2
- PARKS (GRCA)
- DRAINAGE-POLY (NRVIS)
- WOODED AREA (MNR)
- HEDGEROW
- PLANTATION
- TREED
- 2010 ORTHO (ONT)

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http://grims.grandriver.ca/docs/SourcesCitations2.htm

0 70 140 210 280 m.

NAD 1983, UTM Zone 17 Scale 1:6,000

N

FIGURE 2.0 Date: MAR.27/15 Scale: N.T.S.

WELLHEAD PROTECTION AREA VULNERABILITY

MTE Engineers | Scientists | Surveyors

Project No.: 39941-100

March 27, 2015 – 11:19 a.m. – Plotted By: Sfilippov

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Grand River Conservation Authority

Map created: March 27, 2015

45 Municipal Street

LEGEND

- WATERSHED MASK
- MUNICIPAL WELL (SWP)
- BUILDING - SYMBOLIZED (GRCA)
- BUILDING - TO SCALE (GRCA)
- WATERSHED BOUNDARY (GRCA)
- UTILITY LINE (NRVIS)
- ROADS-ADDRESSED (MNR)
- RAILWAY (NRVIS)
- DRAINAGE-NETWORK (GRCA)
- PARCELS-ASSESSMENT (MPAC)
- SGRA-VULNERABILITY (GRCA)
  - 6
  - 4
  - 2
- PARKS (GRCA)
- DRAINAGE-POLY (NRVIS)
- WOODED AREA (MNR)
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- PLANTATION
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0 70 140 210 280 m.

NAD 1983, UTM Zone 17 Scale 1:6,000

N

FIGURE 3.0 Date: MAR.27/15 Scale: N.T.S.

SIGNIFICANT GROUND WATER RECHARGE AREA - VULNERABILITY

MTE Engineers | Scientists | Surveyors

Project No.: 39941-100

March 27, 2015 — 11:19 a.m. — Plotted By: Sfilippov

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MTE FILE No: 39941-100-SP-1
SITE PLAN (SP-1)
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ZONING CHART & REGULATIONS

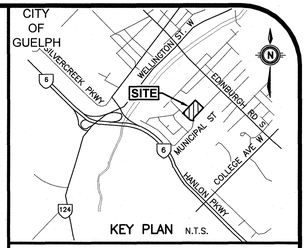
Row	Description	Required	Provided	Conforms
1	Zone	B4	B4	yes
2	Minimum Lot Frontage	30m	No change	yes
3	Minimum Front and Exterior Side Yard	6m	6m	yes
4	Minimum Side Yard	9m	10m	yes
5	Minimum Rear Yard	6m	38.54m	yes
6	Accessory Uses	<25% of GFA	0% of GFA	yes
7	Off Street Parking	0 (accessory use)	Maintain original 16 spaces	yes
8	Off Street Loading	Section 4.14 & 7.3.9	all queuing on site	yes
9	Outdoor Storage	Section 4.12.2	No change	yes
10	Minimum Landscaped Open Space	Front Yard between driveways	Front Yard between driveways	yes
11	Buffer Strips	Not required		
12	Maximum Building Height	20m	19.6m	yes
13	Fences	Section 4.20.6 & 4.20.7	No change	yes
14	Garbage, Refuse Storage and Composters	Section 4.9	No change	yes
15	Maximum Public Floor Space	0% of GFA	0%	yes
16	Minimum Building Size Requirements	464.5m^2	2187m^2	yes
17	Accessory Buildings or Structures	Maximum Area = 30% of the yard occupied, Maximum height = height of main building	132m^2 and 7.0m height	yes
18	Road Allowance	Section 4.24	N/A	

LEGEND OF EXISTING FEATURES

- SITE BOUNDARY
- EASEMENT
- EXISTING SPOT ELEVATIONS/CONTOURS
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING STORM SEWER
- EXISTING CURB
- EXISTING BUILDING
- EXISTING FENCE
- EXISTING RETAINING WALL
- EXISTING BOLLARD

LEGEND OF PROPOSED FEATURES

- PROPOSED BUILDING
- CONCRETE CURB
- OVERHEAD DOOR
- MAN DOOR
- TRAFFIC FLOW DIRECTION
- PROPOSED BOLLARD



KEY PLAN N.T.S.

NOTE TO CONTRACTOR :

DO NOT SCALE DRAWINGS.

CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

ALL DRAWINGS REMAIN THE PROPERTY OF THE ENGINEER AND SHALL NOT BE REPRODUCED OR REUSED WITHOUT THE ENGINEER'S WRITTEN PERMISSION.

THE OWNER/ARCHITECT/CONTRACTOR IS ADVISED THAT M.T.E. CONSULTANTS INC. CANNOT CERTIFY ANY COMPONENT OF THE SITE WORKS NOT INSPECTED DURING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO NOTIFY M.T.E. CONSULTANTS INC. PRIOR TO COMMENCEMENT OF CONSTRUCTION TO ARRANGE FOR INSPECTION.

GEODETIC BM ELEV. = m

ELEVATIONS ARE BASED ON GPS OBSERVATIONS TO PERMANENT REFERENCE STATIONS AND HAVE BEEN CORRECTED TO ORTHOMETRIC ELEVATIONS WITH GEOID MODEL HT-2 AS SUPPLIED BY NATURAL RESOURCES CANADA.

SITE BENCHMARK ELEV. = 317.36 m

BENCHMARK 241 ON SOUTH EAST FACE OF PUBLIC WORKS BUILDING, 23.4m FROM SOUTHERLY CORNER OF REPAIR SHOP AND 9.3m EAST OF TRUCK ENTRANCE TO REPAIR SHOP. RECORDED ELEVATION = 317.36

NOTE:

1. **PROPERTY-LINE IS APPROXIMATE ONLY.**
2. **EXISTING TOPOGRAPHICAL AND LEGAL INFORMATION PROVIDED BY VAN HARTEN SURVEYING INC. DATED NOV.6/2013.**

No.	REVISION	BY	DATE
6.	ISSUED FOR APPROVAL	DMR	JUN.4/15
5.	REVISED PER CITY COMMENTS	DMR	APR.17/15
4.	ISSUED FOR TENDER	DMR	APR.7/15
3.	ISSUED FOR BUILDING PERMIT	DMR	MAR.30/15
2.	REVISED PER CITY COMMENTS	DMR	MAR.20/15
1.	ISSUED FOR SPA	DMR	JAN.30/15

MTE
Engineers | Scientists | Surveyors

Site Development Division
Ph. (519)743-6500 www.mte85.com

LICENSED PROFESSIONAL ENGINEER R. M. TALSMA JUNE 4 '15 PROVINCE OF ONTARIO

OWNER
CITY OF GUELPH
1 CARDEN STREET GUELPH

PROJECT
GUELPH SALT STORAGE FACILITY
45 MUNICIPAL STREET GUELPH

DRAWING
SITE PLAN (SP-1)

Project Manager: D. ROGA	Project No.: 39941-100
Design By: STC	Checked By:
Drawn By: SVF	Checked By:
Surveyed By: OTHERS	Drawing No.: SP-1
Date: Jan.22/15	
Scale: 1:400	Sheet 1 of 3

SITE PLAN #SP15D012 CITY OF GUELPH DRAWING #SP-1

June 4, 2015 - 8:56 a.m. - Plotted By: STilppov

Appendix K:

Spill Control Plan

SPILLS CONTINGENCY & RELEASE TO THE ENVIRONMENT PLAN

APPENDIX 05

CEMC
JAN 2015

CITY OF GUELPH
Spills & Release to the Environment Plan

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CITY OF GUELPH
Spills & Release to the Environment Plan

1. Purpose:

To implement and administer a Spills & Release to the Environment Plan (SREP) within the City of Guelph, which includes:

- storm sewers
- sanitary sewers
- natural environment

The purpose of the SREP is to minimize the adverse effect on health, welfare and safety to the people of Guelph, the surrounding area, the environment and downstream stakeholders.

This Plan covers systems for:

- reporting spills
- types of spills
- methods of effectively handling spills
- spill response assistance in-house and outside agencies
- cost recovery procedure
- financial responsibilities
- waste management system
- reporting requirements as defined under applicable Acts, Laws and/ or Regulations

The effectiveness of the response will be maintained by advanced preparation and adequate training.

2. Definitions:

Hazardous/Dangerous Materials – are substances, which by themselves or with other materials present a hazard to, or adversely affect man, plant matter or animals, or have a potential to do so.

Spill – Defined in Part X, Section 91 (1) of the Environmental Protection Act as a discharge, when used with reference to a pollutant:

(a) into the natural environment,
(b) from a structure, vehicle or other container, and
(c) that is abnormal in quality or quantity in light of all circumstances of the discharge

Spill Incident – A spill, or the imminent threat of a spill of oil or any other hazardous material of a magnitude or significance as to require a response to contain, stabilize, clean up and dispose of the spilled substance including any soil and/or debris contaminated as a result of the particular spill in order to remove the threat to the environment including the public health and welfare or to minimize the adverse effects of the same.

*** Please note odour discharges can be classified as a spill to the environment.**

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Matter- includes a solid, liquid or gas;

Storm Sewer- means a sewer for the collection and transmission of uncontaminated water, storm water, drainage from land or from a watercourse or any combination thereof;

Sanitary Sewer- means a sewer for the collection and transmission of domestic, commercial, institutional and industrial sewage or any combination thereof;

Discharger or person having control of a pollutant – means the person and the person's employee or agent, if any, having the charge, management or control of a pollutant immediately before the first discharge of the pollutant, whether into the natural environment or not and in reference to this plan will also include any sewer system as defined within or connected to the City of Guelph, in a quantity or with a quality abnormal at the location where the discharge occurs.

Natural Environment- means the air, land and water, or any combination or part thereof, of the Province of Ontario, and for this plan also refers to the City of Guelph and any portion therein.

Non-Reportable Spill- is a spill that is not defined under applicable legislation (i.e. motor oil spilled on a shop floor that has not entered a storm, sanitary sewer or the natural environment).

Reportable Spill- as defined under applicable legislation, has entered or has the potential to enter the natural environment, storm sewer or sanitary sewer.

Waste Management System- a system design for the collection of domestic, commercial as well as demolition and building materials and earth fill wastes and the transportation of those wastes to the approved waste disposal sites.

Waste Disposal Site- an approved waste disposal facility as outlined under a Certificate of Approval as approved by the Ministry of the Environment.

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3. Assessment of Spills Reportable vs. Non-Reportable:

A. NON-REPORTABLE SPILL (City Facilities- Only)

- is contained on the city facility site and does not require specialized training for clean up
- has not entered and does not have the potential to enter a storm sewer, sanitary sewer or the natural environment.
- does not violate reporting requirements under any Act, Law, Regulation or By-law.

CONTACT

- On Call Duty Foreperson/ Supervisor of the appropriate city facility.
- Refer to department policies, procedures and/or notification lists.

B. REPORTABLE SPILL

- all spills as defined by the EPA, Part X
- all spills as defined by City By-law (1996)- 15202, or any successor thereof
- all spills that requires assessment, containment, cleanup, remediation and/ or disposal
- any substance of any quantity that has or has the potential to enter a watercourse, storm sewer, sanitary sewer or natural environment from fire fighting activities, that are not exempt as per the Regulations.
- any substance of any quantity (can include, but not limited to; oil, antifreeze, paint and/ or substance that can pose a threat to the environment i.e. acid, mercury, gasoline, sewage etc.) that has entered or may enter land drainage, catch basin, watercourse, storm sewer, sanitary sewer or natural environment from a vehicle, container or structure that is abnormal in quality.
- Vehicle accidents that require containment, cleanup and/or disposal that the responding towing company is unable to facilitate.

CONTACT

- **Environmental Protection Officer's at 519-837-5629 (24 hours) forthwith.**

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4. Course of Action for Containment and Clean-up:

A. NON-REPORTABLE SPILL:

If the spill can be contained and cleaned up by personnel at the city facility and does not require specialized training. These types of spills (i.e. - oil, grease, etc…) can be effectively dealt with by personnel on site with appropriate disposal approvals, procedures and/ or policies.

* Special caution must be exercised when handling gasoline and any product that is flammable, it shall be noted that gasoline and/ or flammable contaminated matter shall be transported and disposed of by a waste disposal contractor as per M.O.E Regulations; due to the potentially flammable nature of the product(s).

B. REPORTABLE SPILL:

Call: Environmental Protection Office at 519-837-5629 (24 hours) forthwith.

These types of spills shall require the attendance of the EPO to ensure all spills are dealt with according to the following:

- Personnel are trained to the required standards to assist the EPO.
- Spills are dealt with by the appropriate personnel with the authority required to ensure all action is taken to clean up spills.
- Ensure all spills are cleaned, remediate and/ or disposed of in accordance with applicable legislation.
- Acquire the services of contactors and other personal as may be required under applicable legislation
- Liaise with government agencies, contractors, city staff and others as required
- Notify MOE- Spills Action Center (SAC)

* Special caution must be exercised when handling gasoline and any product may be flammable, it shall be noted that gasoline and/ or flammable contaminated absorbents shall be transported and disposed of by a waste disposal contractor as per M.O.E regulations; due to the potentially flammable nature of the product(s).

5. Responsibility and Requirements of the Polluter/Discharger:

The person who owns the spilled material and the person who had control of the material immediately prior to the spill must report the spill to the M.O.E. and the Environmental Protection Officer's at (519) 837-5629 (24 hours), as required.

Police Officers and any employee of a public authority (that includes all municipal employees) shall notify the M.O.E., forthwith, unless they have reasonable grounds for believing that the incident has already been reported to the M.O.E.

The discharger (the owner and the person who had control of the material immediately prior to the spill) is responsible for:

a) containment of the spilled material
b) clean-up of the contaminated material
c) proper disposal of the contaminated material
d) rehabilitation of the damaged property

Under the Environmental Protection Act, the municipality is expected to co-operate with the discharger and not to impede their efforts. Costs incurred by the City are recoverable from the discharger without the need to prove fault or negligence.

If the discharger fails to respond adequately, the City (authorized agents- EPO) may do everything practicable to prevent, eliminate and ameliorate any adverse effects and to restore the natural environment. The M.O.E. may issue orders or directions to spillers for failure to comply with an Act or Regulation. Where a person or party fails to comply with such orders or directions, the M.O.E. has the authority to affect the necessary clean-up at the expense of the responsible person or party and may lay charges in respect to the spill

6. Roles of Participants for Reportable Spills:

The City of Guelph depends on the co-operation and assistance from various participants and divisions to ensure proper handling of spills reporting. Their responsibilities are outlined as follows:

Notification During Normal Business Hours (8:00 a.m. to 4:00 p.m. Monday to Friday.)

In any spill is reported during normal business hours anyone receiving the call (includes Fire Department, Police Services, Operations and all other City Divisions) **shall** forthwith call the Wastewater Services Division at 519-837-5629 (ext.2412). The administration staff at Wastewater will contact the appropriate EPO as set out in the Notification Flow Chart (Appendix E).

Once at the site of the spill, the EPO will call out the necessary personnel (in-house or outside) to assist in the containment and/or cleanup.

Notification after Normal Business Hours (after 4:00 p.m. and Weekends and Holidays)

In the event that a spill is reported after normal business hours anyone receiving the call (includes Fire Department, Police Services, Operations, all other City Divisions and Extend Communications) **shall** immediately call the Wastewater Division at 519-837-5629. The Operator at the Wastewater Treatment Plant or Extend After-hours Call-Out Center will contact the appropriate personnel as set out in Notification Flow Chart (Appendix E).

This Appendix continued next page… page 7

Once at the site, the EPO will call out the necessary personnel (in-house or outside) to assist in the containment and cleanup which may include Police Services and/or Fire Department.

After the initial assessment, the EPO on site will update and advise the Police Services and/or Fire Department (if not already on site) the status of the spill, whether assistance is required and/or to provide effective communication between agencies, stakeholders and the general public.

IN HOUSE ASSISTANCE:

Within the City of Guelph there are several Divisions (Operations, Waste Innovation Resource Center, Waterworks, and Wastewater, along with the Police Services ad the Fire Department) which will play a supportive role in containment and/or cleanup by assisting with human resources, equipment and/or materials. Certain Divisions will play a greater role whereas others will be limited to the amount of assistance they can offer. Refer to Appendices B, C, D.

OUTSIDE ASSISTANCE:

Anyone not directly named as an Employee or facet of The Corporation of the City of Guelph will be considered as an Outside assister. This would include contractors, (see Appendix G), M.O.E., or any other company or persons that are needed to assist in the containment and/or clean-up of a spill.

CANUTEC 1-613-996-6666 (24 hour) *666 on cell phone

CANUTEC, the Canadian Transport Emergency Centre, established in Ottawa by Transport Canada, is designed to provide information and communications assistance in case of transport emergencies involving dangerous goods with regards to spill, leak, fire or exposure. CANUTEC operates 24 hours per day; year round and can be contacted at 613-996-6666 collect, Ottawa.

CANUTEC can connect emergency response personnel at the scene directly with individuals or organizations who can offer technical advice, such as shippers or manufacturers of the product or others who handle the same product. CANUTEC may be able to arrange on-scene assistance from organizations offering emergency response programs.

CANUTEC's product information bank has been prepared primarily for transport emergencies, but the centre also can provide response information for n on-transport emergencies involving dangerous goods.

When an emergency call is received by CANUTEC, the Officer on duty attempts to obtain the following essential information:

- caller's name/organization
- call-back number/location
- product identification
- problem details
- type of vehicle/packaging
- number of injuries/deaths

- time/emergency location
- environment/local conditions
- help on site/requested
- shipper/origin
- manufacturer
- carrier
- consignee/destination
- call sign/car/tractor/trailer/flight number
- bill of lading/waybill number

When an emergency call is received by CANUTEC, the Officer on duty attempts to obtain the following essential information:

- caller's name/organization
- call-back number/location
- product identification
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- number of injuries/deaths
- time/emergency location
- environment/local conditions
- help on site/requested
- shipper/origin
- manufacturer
- carrier
- consignee/destination
- call sign/car/tractor/trailer/flight number
- bill of lading/waybill number

The CANUTEC Officer provides the following information about the product:

- physical properties
- chemical properties
- health hazards
- fire and explosion hazards
- other available information
- action which can be taken for the protection of life, property and the environment

CANUTEC has information on approximately 25,000 products.

CANUTEC personnel do not go to the scene of an emergency, but if necessary, can activate emergency response plans for on-scene assistance.

For general CANUTEC information call (613) 992-4624.

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SPILLS ACTION CENTRE 1-800-268-6060

The Spills Action Center (SAC) of the Ministry of the Environment was established to:

1. Maintain a province wide toll free service for receiving evaluating and initiating responses to notification of spills and environmental matters on a 24 hour basis
2. Serve as a provincial focal point for activities dealing with spills and related emergencies
3. Liaises with other agencies on spills and related emergencies
4. maintain a provincial spill database for the Ministry
5. provide contingency plan functions and related spills response training

SAC must be forthwith notified of all spills (under Part X of the Environmental Protection Act) and can offer assistance by contacting a Provincial Environmental Officer to attend the spill scene. Failure to report spills as defined, may result in prosecution by the Ministry of the Environment.

7. Jurisdiction – Government and Private Lands:

Section 95.1 of The Environmental Protection Act entitles employees (EPO's) of municipalities to enter lands or property to carry out and not impede the efforts (if any) of the owner or party responsible for the spill. Employees (EPO's) of the City of Guelph have the authority to implement and execute this plan on any lands, requesting assistance from available resources and to perform the spill control program.

8. Media Communications:

If any media personnel are in attendance at a spill it is important that any information that is provided be accurate and up-to-date. Media liaison will therefore be conducted by The Emergency Operations Control Group as set out on page 10 under Part E (d) of The City of Guelph Emergency Plan. A list of the members of The Emergency Operations Control Group can be found in the Emergency Plan.

9. Third Party Notification:

Any municipality, other than Guelph, which may be adversely affected by the spill, will be notified by the Chief Administrative Officer (CAO) or designate.

This Appendix continued next page…

10. Financial Responsibilities for Cost Recovery/Compensation:

In all cases involving spills, the primary responsibilities of executing containment and cleanup and acceptance of all liabilities shall rest with the discharger, as identified in Part X of The Environmental Protection Act.

All time for The City of Guelph personnel, equipment time and materials used will be recorded and submitted. Sufficient details will be provided to facilitate future billing to recover costs from the discharger as defined in Part X of The Environmental Protection Act.

* Specifically, all incidents involving Operations and Environmental Protection will be billed through Operations; all incidents involving Environmental Protection only will be billed through Environmental Protection.

11. Training – Awareness, Operational and Technical Levels:

Training will be carried out under the NFPA 472 (National Fire Protection Association) Standard for Professional Competence of Responders to Hazardous Materials Incidents. The City of Guelph will train its response members as per Appendix D.

The three levels that will be covered are:

AWARENESS LEVEL –

As described in Chapter 2 of NFPA 472.

For the City's purpose, the Awareness Level of training will be required for any employee who would be the first contact regarding a spill.

This will generally be phone staff, such as receptionist. The duty of the Awareness Level is to obtain as much information as possible by completing the spills questionnaire and immediately notify the Spills Response member as per the Notification Flow Chart (Appendix E)

OPERATIONAL LEVEL –

As described in Chapter 3 of the NFPA 472.

For the City's purpose, the Operational Level of training will be required for any employee who responds to a spill to assist The Environmental Protection Officer.

Staff trained at this level will also be trained at the Awareness Level.

This Appendix continued next page…

HAZARDOUS MATERIALS TECHNICIAN –

As described in Chapter 4 of the NFPA 472.

For the City's purpose for this plan, the Hazardous Materials Technicians are Environmental Protection Officer's. These are personnel who respond to a spill of hazardous materials for the purpose of controlling the spill.

The Technicians will be trained at the Awareness and Operational Level and will have the capability to analyze the incident site to determine a plan of action.

12. Telephone Notification List:

This list is to be used by the Environmental Protection Officer in an incident involving spills that may result in evacuation, activation of the Emergency Control Group, and/ or any other spills that pose a threat to health and safety of people, property or the environment. Contact will be made in the sequence below.

In the event of a non-reportable spill, notification will be brought to the attention of the responder's immediate supervisor.

PERSON	DEPARTMENT	WORK
EPO	Wastewater Services	See Call-out Schedule
General Manager	Wastewater Services	(519) 837-5629
Deputy CAO	Infrastructure, Development & Enterprise Services	(519) 832-1260 x5606
CAO	City Hall	(519) 837-5602

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13. Amendment Procedures:

COMMITTEE MEETING

The Spill Contingency Committee (Appendix B) will meet once a year to review, update or amend the Spills Plan, or as required. The EPO's will act as authors and be responsible for the yearly, or as required update of this plan.

AFTER A SPILL

If the Spill Contingency Plan is used, its effectiveness should be addressed. If there is a need for changes, it should be done immediately. This system will keep the Spill Plan as effective as possible.

APPENDIX A

CITY OF GUELPH
SPILLS PLAN
Equipment, Materials and Human Resources

Vehicles	WstWtr Services	EPO Utility Vehicle	Spills Trailer	Public Works	F.M. Woods	Park Well Metcalfe St.	Gazer Mooney	Gordon St	Rvrsd Park	Wet/Dry Plant	Eastvw Lndfl
Car									1	1	
Pickup Truck	7	2		12	2				4	4	3
Van	3				4				2		
Loaders				3					2	2	
Bobcat										2	
Backhoes				1	1						
Loader/Backhoe	1				1				1		1
Street Sweepers				2							
Single Axle Dump Trucks	1			7	1				2		
Tandem Dump Trucks				7							
1 ½ Ton Dump Truck				5	1				2		
¾ Ton (4x4)					1				2		1
Aerial Lift Bucket Trucks				3							
Utility Truck		2							1		
Forklift	1			1					Tractor	2	
Trailers	2			3					3		
Road Grader				1							
Power Flusher/Vacuum	1										
Vac/All	1										
Street Flusher	1										

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Appendix A continued…

Vehicles	WstWtr Services	EPO Utility Vehicle	Spills Trailer	Public Works	F.M. Woods	Park Well Metcalfe St.	Gazer Mooney	Gordon St	Rvrsd Park	Wet/Dry Plant	Eastvw Lndfl
Portable Steamer				**1**							
(4x4) All Terrain Vehicle	**3**										**1**
DBN Bulldozer											**1**
Bomag Compactor											**1**
Terex Scraper											**1**
Portable Equipment											
Generator 110V			**1**	**4**	**2**				**1**		
Generator 600V					**1**				**2**		
Halogen Light Stand				**1**	**2**				**1**		
Air Compressor	**x**			**2**	**1**				**1**		
Welder	**x**			**1**	**1**				**1**	**1 Gas Pwrd**	
Oxy/Acetylene Torches	**x**			**2**	**2**				**1**	**2**	
Two-Way Radios	**5**			**15**	**7**				**12**	**Ch.1&3 25**	
Chainsaws				**8**	**1**				**5**		
Cement Saw	**x**			**2**	**3**				**1**		
Electric Pumps 110V											
1 inch				**2**	**2**						
2 inch				**2**	**1**				**1**		
3 inch											
4 inch											

This Appendix continued next page…

Appendix A continued…

Vehicles	WstWtr Services	EPO Utility Vehicle	Spills Trailer	Public Works	F.M. Woods	Park Well Metcalfe St.	Gazer Mooney	Gordon St	Rvrsd Park	Wet/Dry Plant	Eastvw Lndfl
Pumps 600V					**1**						
4 inch	**2**										
Gas Driven Pumps											
2 inch				**2**	**1**						
3 inch			**1**	**1**							
Air Driven Pumps											
2 ½ inch	**3**		**3**								
Hand Operated											
Diaphragm	**1**		**1**								
Hose											
1 ½			**X**								
Materials											
½ inch Crushed Gravel				**X**	**X**						
Brick Sand				**X**	**X**						
Winter Sand				**X**							
"B" Pit Run					**X**						
Absorbent		**X**		**X**	**X**					**Compost X**	
Snow fence				**X**					**X**		
Barricades				**X**	**X**				**X**		
Owl Lights				**X**	**X**						
Road Closure Signs				**X**							

This appendix continued next page…

Appendix A continued…

Vehicles	WstWtr Services	EPO Utility Vehicle	Spills Trailer	Public Works	F.M. Woods	Park Well Metcalfe St.	Gazer Mooney	Gordon St	Rvrsd Park	Wet/Dry Plant	Eastvw Lndfl
Sand Bags				**X**	**X**						
Buoyancy Units				**X**	**X**						
Straw Bales									**X**		
Drum Spill Kit		**x**		**X**	**X**	**X**					
Booms 8inch & 10 feet		**X**		**2**			**X**	**X**			
Woodchips	**x**									**X**	
Safety Equipment											
Air Tank/Hose/Masks				**1**	**1**						
Tri-Pod				**2**	**1**				**2**		
Safety Harnesses				**2**	**1**					**X**	
Life Jackets		**x**		**4**					**3**	**X**	
Sewer Plugs											
5 inch	**1**										
6 inch	**1**										
8 inch											
9 inch											
Air Pump Inflated											
6 inch	**1**										
8 inch	**1**										
10 inch	**1**										
12 inch											
15 inch			**1**								

This appendix continued next page…

Appendix A continued…

Vehicles	WstWtr Services	EPO Utility Vehicle	Spills Trailer	Public Works	F.M. Woods	Park Well Metcalfe St.	Gazer Mooney	Gordon St	Rvrsd Park	Wet/Dry Plant	Eastvw Lndfl
Air Compressor Inflated											
18 inch			**1**	**1**							
21 inch			**1**	**1**							
24 inch			**2**	**1**							
30 inch			**1**	**1**							
Hand Tools											
Shovels	**X**	**X**		**X**	**X**				**X**		
Broom	**X**	**X**		**X**	**X**				**X**		
Rope	**X**	**X**		**X**	**X**				**X**		

Guelph Fire Department

Quantity	Description	Quantity	Description
1	Bushnell Night Vision Monocular with Gen ll Image Tube, Carry Case, battery and manual	1	20 lb. Dry Chemical extinguisher
1	Nilfisk VT60-15 gallon HEPA Filtered Wet/Dry Vacuum Cleaner 115v 1 ½" Accessories Micro filter, HEPA filter, Straight Steel Wand, 12" Wheeled floor nozzle, 8" rubber cone, 3" adjustable dust brush, 10' crushproof hose complete.	4	Heavy duty ratcheting tie down (3000 lb.)
1	"C" Chlorine kit	2	Non-Latex Medical Gloves (1 large. & 1 X-large)
1	Ampco M-51 17pc Hazmat tool kit	8	Safety Glasses
1	Edwards & Cromwell Series "AE" leak kit	1	Box Ear Plugs
1	Edwards & Cromwell Series "D" leak kit	20	Disposable Blankets
1	Edwards & Cromwell Series "C2" leak kit	2	Rechargeable Hand Lights and straps (60,000 to 75,000 candlepower)
1	Edwards & Cromwell Series "C3" leak kit	2	Intrinsically safe heavy duty flashlights
1	Edwards & Cromwell Series "F" roll over kit	1	Stop Watch

Quantity	Description	Quantity	Description
10	Neoprene storm drain covers 36” x 36”	1	1” x 25’ Tape Measure (plastic case)
2	18” Polyurethane drain covers	50	Sand bags
8	Aprox. 24” x 24” Nylon spill kit bags	6	Wide brim safety helmet with ratchet suspension (white)
2 Bales	“Universal Hazmat” 5” x 10’ booms	1	8’ extra heavy duty articulating step ladder (fiberglass)
2 Bales	“ 8” x 10’ booms	2	Decon water wands hand activated
2 Cases	“ 3” x 4’ socks	4	Decon brushes
1 Case	“ 3” x 10’ socks	2	Corn brooms
1 Box	“ 5” x 10” pillows	2	30’x 50’ tarpaulin (high density polyethylene)
1 Box	“ 12” x 13” pillows	4	20’ x 24’ tarpaulins (high density polyethylene)
2	“ 38” x 150 absorbent roll	2	Push brooms
10	“ box perforated pads	3	Tear-away Safety vest (white with lime green reflective tape) with lettering HAZMAT – Left lapel GFD – Right lapel SAFETY OFFICER – Rear 2” INFORMATION OFFICER – Rear 2” HAZMAT TEAM LEADER – Rear 2”
1	Acid neutralizer dry granular 50 lb.	15	Large storage totes
1	Caustic dry granular neutralizer 50 lb.	1	Large tool box -steel
1	formaldehyde neutralizer liquid 4 – 1 Liter bottles	1	ABS 6” x 10’ pipe
3	Test kit for acid and caustic material	1	ABS 4” x 10’ pipe
6	Motorola XTS 3000, Model I factory mutual intrinsically safe portable radio	4	All purpose washing pales
6	bone mics and push to talk activators to fit above radios	1	Roll of chemical tape
2	Collection pools 4 x 4 x 14” to 18” high steal frame	2	20 lb. propane tanks
20	Traffic Cones (18” Pack-a-Cone collapsible)	4	½” x 50’ garden hose on reel
4	Hazmat Scene Tape (roles)	4	Construction grade 1000 watt halogen lights on stands – 2 lights per stand
6	2 step plastic stools	6	Pop-up chemical resistant pools (100 gallon cap.)
8	Kore kooler chairs with box of spare bags	2	95 gallon wheeled over-pack salvage drum (Pneumatic wheels) with box of 6 mm plastic bags to fit this over-pack
2	Wheel chocks (Rubber)	6	Cool vests
2	Large Plastic Shovels	8	RS527T (41570) Tychem Responder Encapsulated Level B Suits
2	Small Plastic Shovels	10	RS586S (41555) Responder Fully Encapsulated training suits
1	Roll Heavy Plastic (black 120”x100’)	4	RS562T (41580) Tychem Responder Encapsulated Level A Suits
1	Roll Heavy Plastic (clear 72”x250’)	2	RS562T (41580) Tychem Responder Encapsulated Level A Suits with fall harness and Hanson pass throughs
3	15m Pro-power Contractor Grade Extension Cords (14/3)	1	Universal pressure test kit with all adapters for testing level A suits part # 803620-01 (Hanson)

Quantity	Description	Quantity	Description
4	30m Pro-power Contractor Grade Extension Cords (12/3)	4	RS562T (41580) Tychem Responder Encapsulated Level A Suits with pass through valves to fit our Scott SCBA
1	Dry granular Plug and Dyke	4	Tychem Reflector Suits certified to NFPA 1991
1	Spray Canister 3 gallons	12	DuPont Tingley NFPA Hazproof boots with snap fasteners. 3 pairs size 9, 4 pairs size 10, 3 pairs size 11 and 2 pairs size 12.
1	5 lb. Dry chemical extinguisher	6	Professional gel knee pads
6	NxG2 60 min. carbon cylinder, Pak alert, dual EBSS, Case, Quick disconnect Scott Air Packs Part # 200319-07 with Hanson adapter kit part # 200112-01	10	Oil resistant Kevlar gloves (XL)
12	Carbon air cylinders to fit above packs (1hour) Part # 200130-01	80	Personal privacy kits (40 entry & 40 exit)
6	100'High pressure hose (Scott)	1	Titan Split-Apart Rescue Stretcher
1	VX-KIT-D106 VX500 PID with Confined space kit Industrial Scientific (with training)	1	Hazmat blower, duct and case
20	Disposable Blankets	1	iTX-KIT-D11014 Deluxe kit Industrial Scientific (with training)
2	Rechargeable Hand Lights and straps (60,000 to 75,000 candlepower)	1	20 lb. Dry Chemical extinguisher
2	Intrinsically safe heavy duty flashlights	4	Heavy duty ratcheting tie down (3000 lb.)
1	Stop Watch	2	Non-Latex Medical Gloves (1 large. & 1 X-large)
1	1" x 25' Tape Measure (plastic case)	8	Safety Glasses
50	Sand bags	1	Box Ear Plugs
2	30'x 50' tarpaulin (high density polyethylene)	6	Wide brim safety helmet with ratchet suspension (white)
4	20' x 24' tarpaulins (high density polyethylene)	1	8' extra heavy duty articulating step ladder (fiberglass)
2	Push brooms	2	Decon water wands hand activated
3	Tear-away Safety vest (white with lime green reflective tape) with lettering HAZMAT – Left lapel GFD – Right lapel SAFETY OFFICER – Rear 2" INFORMATION OFFICER – Rear 2" HAZMAT TEAM LEADER – Rear 2"	4	Decon brushes
1	ABS 4" x 10' pipe	2	Corn brooms
4	All purpose washing pales	15	Large storage totes
1	Roll of chemical tape	1	Large tool box -steel
2	20 lb. propane tanks	1	ABS 6" x 10' pipe
2	95 gallon wheeled over-pack salvage drum (Pneumatic wheels) with box of 6 mm plastic bags to fit this over-pack	4	½" x 50' garden hose on reel
6	Cool vests	4	Construction grade 1000 watt halogen lights on stands – 2 lights per stand

Quantity	Description	Quantity	Description
8	RS527T (41570) Tychem Responder Encapsulated Level B Suits	6	Pop-up chemical resistant pools (100 gallon cap.)
4	RS562T (41580) Tychem Responder Encapsulated Level A Suits with pass through valves to fit our Scott SCBA	10	RS586S (41555) Responder Fully Encapsulated training suits
4	Tychem Reflector Suits certified to NFPA 1991	4	RS562T (41580) Tychem Responder Encapsulated Level A Suits
12	Dupont Tingley NFPA Hazproof boots with snap fasteners. 3 pairs size 9, 4 pairs size 10, 3 pairs size 11 and 2 pairs size 12.	2	RS562T (41580) Tychem Responder Encapsulated Level A Suits with fall harness and Hanson pass throughs
6	Professional gel knee pads	1	Universal pressure test kit with all adapters for testing level A suits part # 803620-01 (Hanson)
1	18105551 Docking Station for DS2 iTX (with training)	10	Oil resistant Kevlar gloves (XL)
1	18105569 DS2, VX500 Docking station (with training)	80	Personal privacy kits (40 entry & 40 exit)
1	Draeger Hazmat test kit	6	NxG2 60 min. carbon cylinder, Pak alert, dual EBSS, Case, Quick disconnect Scott Air Packs Part # 200319-07 with Hanson adapter kit part # 200112-01
1	FSI DAT3535S-TLD (Blue)	12	Carbon air cylinders to fit above packs (1hour) Part # 200130-01
1	FSI Shelter DAT 3015 (Blue)	6	100'High pressure hose (Scott)
1	FSI heating system with tubing (F-HST 40 air heater)	1	Hazmat blower, duct and case
1	15-45 X 60 Monocular with Titanium tripod	1	iTX-KIT-D11014 Deluxe kit Industrial Scientific (with training)
1	Radiation Detector	1	VX-KIT-D106 VX500 PID with Confined space kit Industrial Scientific (with training)
1	28" trailer with generator, shelves, electrical outlets, emergency lighting, on-site briefing room, observation deck, weight distribution hitch	6	Emergency escape masks
1	Scoop Stretcher	2	Regulators to fit Scott Rapid Intervention Rescue Team packs

Human Resources		
Wastewater Services	Wastewater Treatment Plant, 533 Wellington St. W. Gazer Mooney Pumping Station, 672 Speedvale Avenue Gordon St. Pumping Station, 1020 Gordon Street	5 standby employees (24 hours a day) 22 fill time day employees, 3 full time shift employees
Waterworks	F.M. Woods Pumping Facility, 29 Waterworks Place	4 standby employees (24 hours a day) 19 full time employees
Public Works	Public Works, 45 Municipal Street	2 standby employees (24 hours a day) 110 full time employees
Community & Social Services	Parks & Recreation, 69 Marilyn Drive	18 full time employees

Appendix B

SPILLS CONTINGENCY PLANNING COMMITTEE		
Contact	***Service Area***	***Telephone***
General Manager; Wastewater Services Kiran Suresh	Infrastructure, Development & Enterprise Services	(519) 837-5629 ext.2960
Manager ; Wasterwater Service Tim Robertson	Infrastructure, Development & Enterprise Services	(519) 837-5629 ext.2964
Supervisor EPO's ; Wastewater Service Andrew Baran	Infrastructure, Development & Enterprise Services	(519) 837-5629 ext.2964
Environmental Protection Officer Rob Hanson	Infrastructure, Development & Enterprise Services	(519) 837-5629 ext. 2962
Environmental Protection Officer Andrew Marshall	Infrastructure, Development & Enterprise Services	(519) 837-5629 ext. 2954
Environmental Protection Officer Joe Sciorilli	Infrastructure, Development & Enterprise Services	(519) 837-5629 ext. 2951
Manager of Administration and Emergency Planning; Emergency Services Harry Dunning	Public Services	(519) 822-1260 x 2127
Deputy Fire Chief; Emergency Services John Osborne	Public Services	(519) 822-1260 x 2140
General Manager; Waterworks Peter Busatto	Infrastructure, Development & Enterprise Services	(519) 837-5627 ext. 2165
Manager; Roads and Right of Ways Public Works Nello Violin	Public Services	(519) 837-5628 ext. 2410
Ken Standring Hazardous Material Technician Emergency Services	Public Services	(519)-824-3232
General Manager; Solid Waste Resources Dean Wymann	Infrastructure, Development & Enterprise Services	(519)-767-0598 ext.2053

Appendix C- In House Assistance

NAME	RADIO CALL #	WORK PHONE	FAX
General Manager of Public Works Rodney Keller	Yellow 1	(519) 837-5628	(519) 821-0839
Supervisor of Maintenance and Drainage Geoff Walker	Yellow 2	(519) 837-5628	(519) 821-0839
Supervisor of Roadway Maintenance Martin Bajtos	Yellow 3	(519) 837-5628	(519) 821-0839
Supervisor of Forestry Randy Drewery	Yellow 11	(519) 837-5628	(519) 821-0839
General Manager of Wastewater Services Kiran Suresh	Grey 1	(519) 837-5629	(519) 837-1226
Manager of Wastewater Tim Robertson	Grey 2	(519) 837-5629	(519) 837-1226
Supervisor of Wastewater Collection and Environmental Protection Andrew Baran		(519) 837-5629	(519) 837-1226
Chief Shawn Armstrong		(519) 824-6590	(519) 824-2147

Appendix D

TRAINING

Awareness Level				
	Waterworks (All)	**Public Works (All)**	**Wastewater Services (All)**	**Fire Services (All)**
1	General Manager Peter Busatto	Staff, as required	All Wastewater Services Personnel	All Fire
2	All Waterworks Staff			Fighting
3				Personnel
4				
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19				
20				

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Appendix D continued…

Operational Level				
	Waterworks (1)	**Public Works (11)**	**Wastewater Services (4)**	**Fire Service (170)**
1	Staff, as required	Staff, as required	Joe Sciorilli	All Fire
2			Robert Hanson	Fighting
3			Andrew Marshall	Personnel
4			Andrew Baran	
5				
6				
7				
8				
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12				
13				
14				
15				

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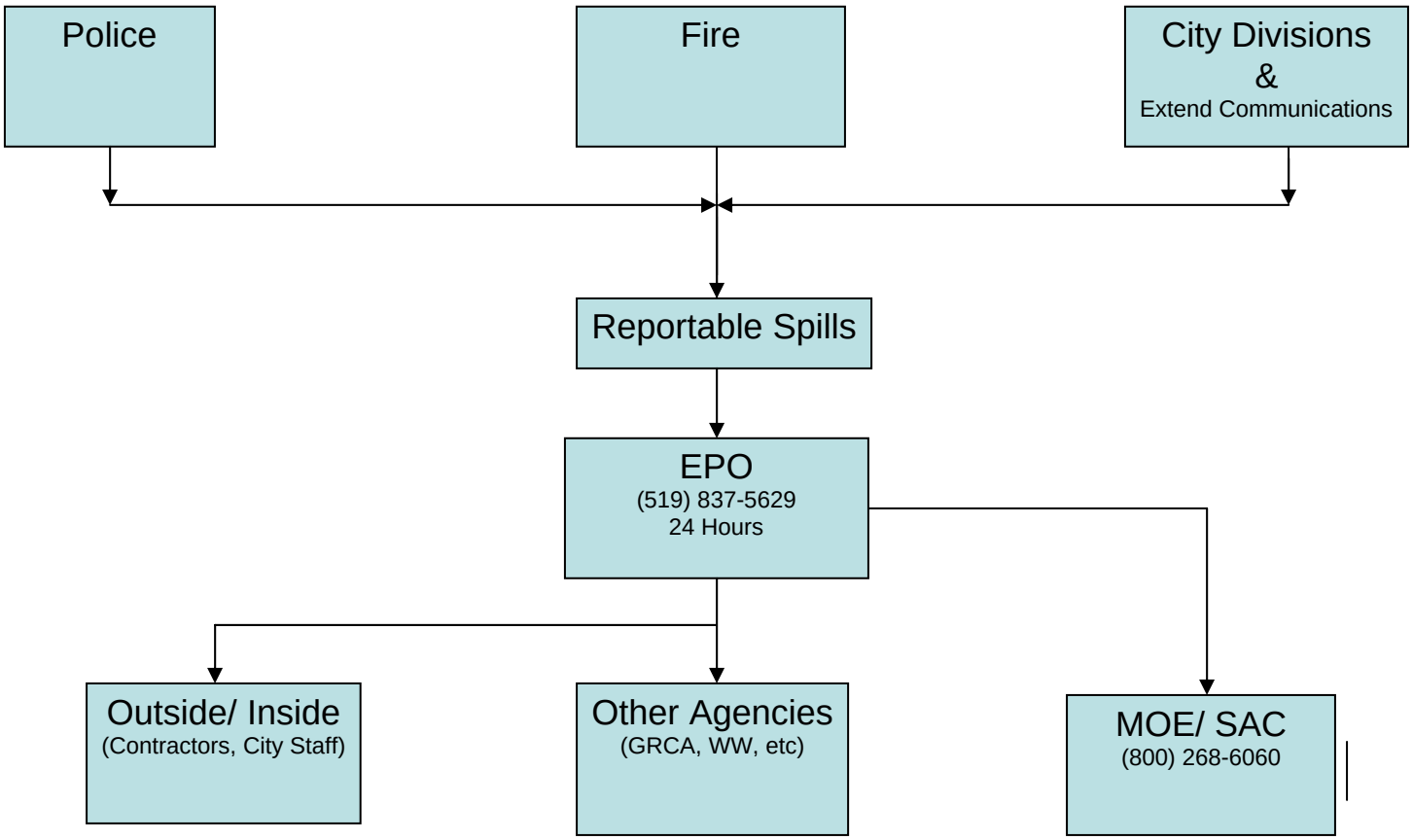
Appendix D continued…

Technician Level		
	Wastewater Services (3)	**Fire Department (29)**
1	Environmental Protection Officer Andrew Marshall	Firefighter Al Dunn
2	Environmental Protection Officer Joe Sciorilli	Captain John King
3	Environmental Protection Officer Robert Hanson	Captain Colin Hunter
4	Environmental Sampling Technician Vacant	Firefighter Kevin Klein
5	Environmental Sampling Technician Tim Franklin	Firefighter Josh Van Duzer
6		Firefighter Sven Christensen
7		Captain Mike Knighton
8		Firefighter Steve Dmytrus
9		Firefighter John Wells
10		Firefighter Warren McGillivary
11		Captain Ken Standring
12		Firefighter Ian Hickey
13		Firefighter Brian Johnston
14		Firefighter Art Haid
15		Firefighter Brandon Tavares
16		Firefighter Jeff Maedel
17		Firefighter Craig Smith

18		Firefighter Dave Manual
19		Firefighter Matt Gervais
20		Firefighter Wilson Li
21		Firefighter Glen Jacobson
22		Firefighter Ken Tessier
23		Firefighter Todd Phillips
24		Firefighter Paul Langdon
25		Firefighter Gilles Alarie
26		Firefighter Jason Smith
27		Firefighter Sandra Gutscher
28		Firefighter Josh Sheppard
29		Firefighter Andrew Duncan

Appendix E

NOTIFICATION FLOW CHART
(24 HOURS)



Appendix F

SPILLS QUESTIONNAIRE

DATE: TIME:

<table>
<tr><td colspan="2">Name of person calling:</td><td>Telephone No. (for call-back)</td></tr>
<tr><td colspan="2">Caller’s location</td><td>Caller’s address</td></tr>
<tr><td colspan="2">Product(s) or substance(s) involved

Oil
Grease
Fuel
Other (specify)
Unknown</td><td>Specific product(s) or substance identification

UN No.
SIC Code
Placard No.
Name of Carrier
Owner</td></tr>
<tr><td>Has a spill occurred?

☐ Yes
☐ No</td><td>If yes, is the spill still in progress?
☐ Yes
☐ No</td><td>If yes, approximate quantity or rate of spill</td></tr>
<tr><td colspan="2">Is the spill to:
Land ☐
Roadway ☐
Air ☐
Watercourse ☐
Sewer ☐</td><td>Specific location:

Property address:

Intersection</td></tr>
<tr><td colspan="3">Have other agencies been notified?

Police ☐ Public Works ☐ Wastewater Services ☐
Fire ☐ M.O.E. ☐ Shipper/Carrier ☐
Ambulance ☐ Water Supply ☐ Other ☐</td></tr>
<tr><td>Is personal injury involved

Yes ☐ No ☐</td><td>What are current weather conditions?</td><td>Has the spill been contained or controlled?

Yes ☐ No ☐</td></tr>
<tr><td colspan="3">Action List
Report to your Emergency Contact:

Name of Contact:

Phone Number:

Time Information Relayed: Reported by:</td></tr>
</table>

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Appendix G

Contractor	License	Type of Assistance	Response Time
A1 Sanitation Puslinch 519-822-2816 or 519-853-2432 (Jim-owner)	Everything except pesticide, PCB waste, pathological or explosive	Liquid waste removal (vacuum trucks) and drum removal (truck built for drum removal). Assistance for minor to moderate spills	1 hour
Fortress Emergency Response 7079 Wellington Road 124 Guelph, Ontario, Canada N1H 6J3 (519) 767-0046 Dan Leighton	All wastes, except PCB and Sewage	Cleanup and disposal of minor to major spills. Also have large tanker capacity	1 hour
Best Transfer Inc. 6 Winer Rd (RR#3 Guelph) 519-767-5555 (4am-7pm) Office	All	Cleanup and haulage of dry waste (no vacuum truck). Not equipped for containment. Assistance for minor to moderate spills.	1 to 2 hours
Campbell's Garage R.R. #5 Guelph 519-822-1521 Office 519-824-5268 Home- Bernie	All excluding hazardous material	Cleanup and haulage of wet waste only (only have vacuum trucks). Assistance for minor and moderate spills.	.5 hour
Certa Contact John 3575 Mavis Road, Mississauga 1-800-617-7455 (24 hours)	Will clean PCB waste, but won't haul All excluding explosive and radioactive	Containment, cleanup disposal and site remediation of all magnitudes of spills. They specialize in extremely hazardous material. Boat	1 hour

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Appendix G continued…

Contractor	License	Type of Assistance	Response Time
Ecological Services or Planning 361 Southgate Dr. Guelph 519-836-6050 office (8am-5pm)	Haulage contracted out to licensed carriers	Containment, cleanup, disposal and site remediation of all wet or dry spills Can also provide consultive assistance	.5 hour
Hotz Environmental Services Inc. 239 Lottridge St. Hamilton	Everything except PCB waste	Cleanup, disposal and restoration of the contaminated site. Vacuum system for mercury spills and a hazardous waste management program. Assistance for minor to moderate spills.	2 hours
Newalta Environmental 670 Strathearn Ave. N. Hamilton, L8H 7N7 905-544-6687 (office) 1-800-567-7455 (24 hours)	Everything	Containment, cleanup and disposal of all wastes for any magnitude of spill	1 hour
Republic Environmental Systems (Brantford) Ltd. P.O. Box 1477, (112 Adams Blvd.) Brantford 519-756-9200 (24 hours)	Everything	Containment, cleanup and disposal of waste for any magnitude of spill. Best type of cleanup for this company is to pump or scrap waste	2 hours

Provincial/Federal Consultation Alert							
Title	**Ministry**	**Consultation Deadline**	**Summary**	**Proposed Form of Input**	**Rationale**	**Lead**	**Link to Ministry Website**
Low Impact Development (LID) Stormwater Management Guidance Manual	Ministry of the Environment and Climate Change	July 15, 2017	MOECC is seeking public input on two consultants' reports; a jurisdictional scan of international stormwater management requirements for controlling rainwater volumes, and potential runoff targets. The ministry is proposing to work with all partners in a stepwise, science-based process to update its LID guidance. Following public comments on these two reports, a draft LID guidance manual will be developed and posted for public comment on the Environmental Registry. Finally, these public comments would be used to finalize the LID guidance.	Staff comments will be submitted on the online Environmental Registry (EBR) and provided to Council via the Information Package following the consultation deadline. Furthermore, Staff will be monitoring this work to ensure an understanding of the significance to the City's programs.	MOECC's proposed LID Stormwater Management Guidance manual is an additional document related to stormwater management practices. The recommendations of the draft material have implications for the City and, in fact, may contradict the City's Sourcewater Protection Program. Accordingly, this matter is of importance to the City and it is imperative that the City's considerations be contemplated in the document.	Engineering	http://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTMwOTcz&statusId=MTk4NDg3&language=en

Provincial/Federal Consultation Alert							
Title	**Ministry**	**Consultation Deadline**	**Summary**	**Proposed Form of Input**	**Rationale**	**Lead**	**Link to Ministry Website**
2016 Review of the Accessibility Transportation Standards	Ministry of Economic Development, Trade and Employment	July 19, 2017	The Accessibility for Ontarians with Disabilities Act, 2005 (AODA) is expected to achieve an accessible Ontario by 2025 through the development, implementation and enforcement of accessibility standards that apply to the public, private and not-for-profit sectors. The Transportation Standards under the Act set out requirements to help transportation and public transit providers as well as municipalities, universities, colleges, hospitals and school boards make their transportation services and vehicles accessible to people with disabilities. The Standards came into effect on July 1, 2011. The Act requires the review of each accessibility standard five years after it becomes law to determine whether the standard is working as intended and to allow for adjustments to be made as required. Topics of the draft changes include: • Conventional transit • Specialized transit • Duties of municipalities that license taxicabs • Accessible Parking Spaces • Coordination between specialized transit services • New and emerging technologies	Staff and Accessibility Advisory Committee will review the recommendations and provide feedback via the online survey.	A coordinated staff level response to the Ministry survey is considered appropriate in this case	Transit	https://www.ontario.ca/page/2016-review-accessibility-transportation-standards

Provincial/Federal Consultation Alert							
Title	**Ministry**	**Consultation Deadline**	**Summary**	**Proposed Form of Input**	**Rationale**	**Lead**	**Link to Ministry Website**
Addressing Food and Organic Waste in Ontario	Ministry of the Environment and Climate Change	July 30, 2017	An EBR notice has been posted (013-0094) as a Policy Proposal Notice. This discussion paper, "Addressing Food and Organic Waste in Ontario", serves as the basis for preliminary discussion with stakeholders to inform the development of the Food and Organic Waste Framework. The Strategy for a Waste-Free Ontario: Building the Circular Economy, released on February 28, 2017, commits the ministry to a Food and Organic Waste Action Plan with a key action being the possible banning of food waste from disposal. The Food and Organic Waste Framework will aim to: • Reduce the amount of food that becomes waste • Remove food and organic waste from the disposal stream • Reduce greenhouse gas emissions that result from food and organic waste • Support and stimulate end markets that recover the value from food and organic wastes • Increase accountability of responsible parties • Improve data on food and organic waste • Enhance promotion and education regarding food and organic waste The intent of this Discussion Paper is to offer an early opportunity for Ontarians to provide input towards the development of a Food and Organic Waste Framework.	Staff comments will be submitted on the online Environmental Registry (EBR) and provided to Council via the Information Package following the consultation deadline.	Staff response on the proposed Discussion Paper will be consistent with comments provided at Ministry Food Waste Consultation Sessions. The City of Guelph has a vested interest in diverting food and organic waste from landfill through the operation of our Organic Waste Processing Facility, thereby reducing our carbon footprint and increasing our diversion rate. Further, should the Ministry ban food waste from disposal, there may be considerations related to City operations, capacity, promotion/education, etc.	Environmental Services	Environmental Registry

Provincial/Federal Consultation Alert							
Title	**Ministry**	**Consultation Deadline**	**Summary**	**Proposed Form of Input**	**Rationale**	**Lead**	**Link to Ministry Website**
Bill 139 – the proposed Building Better Communities and Conserving Watersheds Act, 2017	Ministry of Municipal Affairs	August 14, 2017	Bill 139 proposes to introduce new legislation to replace the Ontario Municipal Board with the Local Planning Appeal Tribunal, and make amendments to existing legislation, including the *Planning Act*, to give communities a stronger voice in land use planning. If passed, the proposed changes to statutes dealing with land use planning would: • Give more weight to local and provincial decisions by changing the standard of review – the grounds for appeal on major matters would be limited to their failure to conform or be consistent with provincial and local policies • Give municipal elected officials greater control over local planning by exempting a broader range of municipal land use decisions from appeal. • Support clearer and more timely decision making • Support government priorities on climate change	Staff-level comments will be submitted on the Environmental Registry (EBR) based on the Council endorsed comments from the December 2016 consultation, and provided to Council via the Information Package following the consultation deadline.	Upon initial review, the draft legislation responds to many of the City's major recommendations. Council endorsed comments from the prior consultation provide a detailed basis for responding to the proposed legislation.	Legal Services Planning, Urban Design and Building Services	**EBR Registry Number:** 013-0590 https://www.ontario.ca/page/ministry-municipal-affairs

GRCA Current

July, 2017 • Volume 22 Number 7

GRCA General Membership

Chair	Helen Jowett
Vice-Chair	Chris White
Townships of Amaranth, East Garafraxa, Melancthon and Southgate and Town of Grand Valley	Guy Gardhouse
Townships of Mapleton and Wellington North	Pat Salter
Township of Centre Wellington	Kirk McElwain
Town of Erin, Townships of Guelph/Eramosa and Puslinch	Chris White
City of Guelph	Bob Bell, Mike Salisbury
Region of Waterloo	Les Armstrong,Elizabeth Clarke, Sue Foxton, Helen Jowett, Geoff Lorentz, Jane Mitchell, Joe Nowak, Wayne Roth, Sandy Shantz, Warren Stauch
Municipality of North Perth and Township of Perth East	George Wicke
Halton Region	Cindy Lunau
City of Hamilton	George Stojanovic
Oxford County	Bruce Banbury
County of Brant	Brian Coleman, Shirley Simons
City of Brantford	Dave Neumann, Vic Prendergast
Haldimand and Norfolk Counties	Bernie Corbett, Fred Morison

Riverfestival Brisbane
Riverprize 2000
For excellence in river management

Conservation Ontario
Natural Champions

The Grand River
A Canadian Heritage River

Beach management at conservation areas

The GRCA and the three watershed health units are working together to educate people about how they can reduce the risks of getting sick when swimming in a natural body of water.

New signs have been installed at the GRCA's nine beaches. These explain the conditions that lead to an elevated risk of water-borne illness in a natura body of water. The conditions include recent heavy rain, cloudy water, high wind and waves, and large numbers of birds nearby.

GRCA staff will continue to take water quality samples every other week during July and August. This information will be used to help monitor long-term trends in water quality at the swimming areas. Staff will continue to do a daily beach check.

The new signs are part of a joint communications plan that replaces the beach posting process used for the past few decades. A smaller version of the sign is posted at each park gatehouse and a handout is also available at the parks.

A web page, including a recent rainfall table, is also available for park visitors at **www.grandriver.ca/beaches**.

Record rainfall June 23 results in flooding

More than 120 mm of rain fell across the northern part of the watershed during the early morning hours on Friday, June 23.

This rainfall, the highest daily total on record based on records dating back to 1950, resulted in significant flooding throughout the Grand River watershed. Weather forecasts leading up to the event indicated minimal rainfall and localized severe thunderstorms, but there was no indication of rainfall of this magnitude or extent.

The GRCA's major reservoirs serve two purposes. They help provide maximum flood control in the spring and fall when it is needed most, and also support flow augmentation in the summer to ensure there's enough water in the river system for drinking water and waste water treatment plants. Based on this operating strategy, GRCA reservoirs have limited flood control storage during the drier summer months, when reservoirs are already 90 to 96 per cent full. This limited extra storage helped delay peak flows downstream by a few hours.

The GRCA has a sophisticated network of rainfall and flow gauges throughout the watershed that monitor conditions 24 hours a day. In the event of a heavy downpour, or high river flows, GRCA staff are immediately notified and an action plan is put in place to notify watershed residents. Part of this action plan involves municipal flood coordinators, who notify residents directly and close roads that are at risk of flooding.

River flows have receded throughout the watershed, but people are urged to remain cautious on local waterways. A large amount of debris was washed into rivers, and a number of warning buoys upstream of dams were displaced but most have now been replaced.

A web page about this flood is available at **www.grandriver.ca/flooding**.

Upper Cedar Creek study

Waterloo Region is undertaking a subwatershed study of the Cedar Creek subwatershed with support from the GRCA.

The study will focus on the northwest subwatershed lands in Kitchener and North Dumfries.

Subwatershed studies provide technical background on the surface water, groundwater and ecosystems within the area. The goal is to maintain, restore or enhance the health of the system. This study will recommend how and where potential development and other changes could occur in a sustainable manner.

The terms of reference for the project were developed by Waterloo Region and the GRCA. The study is being led by Matrix Solutions Inc. The study includes physical characterization and

assessing development potential and impacts. It will also create an implementation plan and an integrated monitoring plan.

As a result of the study, there may be changes to the regulated areas including floodplains, wetlands and watercourses.

Public meetings for this project are expected to begin in the spring of 2018 and will include consultation for revisions to the GRCA's regulation mapping in the watershed.

The study is being funded and administered by the Region of Waterloo, while GRCA staff is providing in-kind contributions, including project management, technical review and detailed base mapping.

Hazard mapping study

The GRCA will lead the Haldimand County Lake Erie Shoreline Hazard Mapping study on behalf of Haldimand County, Long Point Region Conservation Authority and the Niagara Peninsula Conservation Authority.

This study will update hazard mapping associated with flooding, erosion and dynamic beach conditions. Hazard mapping will help flood and erosion-related emergency response and planning. It will also help with planning and permitting decisions in at-risk communities, including Dunnville and Port Maitland.

Updated and consistent mapping across the three conservation authority jurisdictions within Haldimand will help in development and implementation of shoreline-related land use planning policies.

Currently, all three conservation authorities have separate Shoreline Management Plans covering the Lake Erie shoreline in their watersheds.

Proposed update to CA legislation

On June 14, Ontario's Minister of Natural Resources and Forestry, Kathryn McGarry, announced proposed changes designed to modernize Ontario's Conservation Authorities Act at the GRCA head office in Cambridge.

The ministry is proceeding with Conserving Our Future: A Modernized Conservation Authorities Act after input received through two years of consultation.

The document provides a long-term work plan and priorities for implementing changes proposed in the new legislation to increase accountability and improve programs.

The province's proposed changes address key priorities identified and promoted by Conservation Ontario and the conservation authorities including the GRCA throughout the consultation.

Conservation authorities, including the GRCA, look forward to working with the ministry in support of this new action plan.



Heavy rainfall across the northern part of the watershed on Friday, June 23 resulted in flooding in many areas. Rainfall of 120 mm at Luther Marsh was the highest daily total on record since 1950 when records began. This photo by A. Kaastra was taken on the Grand River at Wilson Flats, upstream of West Montrose.

Wellington County renews RWQP support

Wellington County has recently renewed its support for the Rural Water Quality Program for five more years and committed $425,000 for environmental projects carried out by landowners in 2017.

The goal of the program is to help rural landowners make changes on the land that will improve and protect the water quality in Wellington County, also benefiting the communities downstream. Landowners apply for grants for projects they would like to undertake. The GRCA has staff available to help them work out the project details and complete their applications.

The landowner receives 50 to 100 per cent of the costs, depending on the type of project. The landowner contributes the balance in cash, materials or labour. Participation in the program is voluntary.

This program launched in Wellington County in 1999. More than 2,600 projects worth approximately $21 million have been completed. The GRCA delivers similar programs in other parts of the watershed. For more information contact

This issue of *GRCA Current* was published in July, 2017.

It is a summary of the June, 2017 business conducted by the Grand River Conservation Authority board and committees, as well as other noteworthy happenings and topics of interest.

The Grand River Conservation Authority welcomes distribution, photocopying and forwarding of *GRCA Current*.

Next board meeting:
July 28 at 9:30 a.m.,
GRCA Administration Centre

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