





TO: GENERAL COMMITTEE


SUBJECT: ADDITION TO 2013 CAPITAL PLAN – CONSTRUCTION OF A BULK WATER
FILL STATION TO ADDRESS SAFETY CONCERNS

WARD: ALL

**PREPARED BY AND
KEY CONTACT:** WESLEY REID, P. ENG.
PROJECT ENGINEER - ENVIRONMENTAL (Ext. 5116) 

SUBMITTED BY: R. S. KAHLE, M. Eng., P. ENG.
DIRECTOR OF ENGINEERING 
B. PARKIN, P. ENG.
DIRECTOR OF CORPORATE ASSET MANAGEMENT 

**GENERAL MANAGER
APPROVAL:** R. J. FORWARD, MBA, M.SC., P. ENG.  13-04-26
ACTING FOR
RICHARD FORWARD
GENERAL MANAGER OF INFRASTRUCTURE & GROWTH MANAGEMENT

**CHIEF ADMINISTRATIVE
OFFICER APPROVAL:** C. LADD
CHIEF ADMINISTRATIVE OFFICER 

RECOMMENDED MOTION

1. That in response to a safety concern, the procurement and installation of a Bulk Water Fill Station for the Operations Centre, be added to the 2013 Business Plan and funded in an amount not to exceed \$100,000 from the Water Reserve Fund (12-05-0580).

PURPOSE & BACKGROUND

2. The City of Barrie Operations Centre houses a Bulk Water Fill Station (BWFS) maintained by the Water Operations Branch of the Environmental Services Department for outside Contractors, as well as City operations (see Appendix "A"). It is located inside a garage bay where there is a high pedestrian traffic crossing area. Note that Facilities is currently rectifying structural deficiencies at the Operations Centre however the rectifications do not affect the area of the existing BWFS.
3. The existing BWFS (See Appendix "B") consists of piping, valves, backflow protection, and a flow meter mounted on the wall. The City vehicles are able to drive through the garage and access the existing BWFS. Due to past wall and door damage caused by contractors, outside parties are not permitted to drive through the garage and therefore must back-in to access the existing BWFS. However, whether backing in or driving through, the hose to fill the vehicles needs to be laid across the pedestrian exit door, thus creating a potential trip hazard.
4. The volume of bulk water taken by a user (either City operations or contractor) is recorded manually on a clipboard. A representative from Water Operations routinely collects the paper files, compiles consumption information, and provides invoicing information to Finance who then mails invoices to the various Contractors. There are no cost recoveries relating to water usage by City Operations.
5. The Roads Parks and Fleet Department utilizes the existing BWFS for street cleaning, vacuum excavation, landscape watering, etc.

6. Contractors utilize the existing BWFS for pool fill-ups, subdivision street cleaning and construction related water needs (ex. Mortar, etc), including for use on City contracts.
7. The existing BWFS is located indoors to protect it from freezing and is open year-round and can be accessed between 8 am and 3:30 pm at the Ferndale Operations Centre.
8. Another way that users currently obtain bulk water is by the City's Hydrant Metered Gate Valve (HMGV) Program. For this program, a user can sign a waiver, leave a deposit, and obtain a key. The City's Water Operations will then install a metered gate and backflow preventer on a hydrant. There is an average of 1.5 City employees per day and up to three City employees/day at peak times that are assigned to the installation and removal of these units. The HMGV option is not available in the winter months due to potential of hydrants/valves freezing.
9. In 2012 a potential health and safety issue was brought to the attention of the City's Joint Health and Safety Committee. Follow up occurred in October 2012 that resulted in members of the Operations Centre Joint Health and Safety Sub-Committee completing a Hazard Identification and Risk Assessment (see Appendix "C") regarding of the operation of the existing BWFS. In particular, the Committee identified a reversing vehicle hazard along with several other hazards. Work began on addressing these concerns.
10. On March 27, 2013 the City's Joint Health and Safety Committee submitted to Human Resources their recommendation that the Corporation discontinue public access to the existing BWFS until such time as the station has been relocated to an area where vehicles are not required to reverse to access the BWFS (see Appendix "D"). Further, for City operations, City Roads Parks and Fleet staff were to develop and implement a temporary operating procedure for safely reversing vehicles, which includes an additional person to assist.

ANALYSIS

City Operations

11. The requirement continues to exist for the City operations to access bulk water. At this time the City vehicles can still utilize the existing BWFS because the temporary Operating Procedure for safely reversing vehicles has been developed and implemented. However, the location of the existing BWFS is not desirable and, if relocated, would improve safety of pedestrian traffic and eliminate the need for an extra person to assist in reversing the vehicle.
12. Another option for City operations is to make use of the existing Water Operation's Hydrant Metered Gate Valve (HMGV) Program. A fire hydrant is available on site for the proposed installation of a unit. This solution would be implemented for the duration of 2013 until temperatures begin to fall below 0 degrees Celsius or until a permanent solution is implemented. Once the temperatures get below 0 degrees Celsius then the City operations can return to the existing BWFS in the garage bay.

Contractor

13. A need also continues to exist for external Barrie parties to access bulk water. Water Operations advises that other municipalities provide this service, including the municipalities of Welland, London, Vaughan, etc. A web search did not result in finding any local purveyors of bulk water that would be able to fill up the haulage trucks.
14. A need remains at this time for the contractors to access potable bulk water. Once temperatures permit (>0 degrees Celsius), the contractors will be able to obtain bulk water through the Hydrant Metered Gate Valve Program (HMGV) at any fire hydrant in Barrie (with the understanding that there are a limited number of HMGV's available and they're installed on a first come first serve

basis, often resulting in contractors being placed on a wait list to obtain). This change will have a direct effect on Water Operations' Program Staff which will require additional staff effort to install short term HMGVs.

15. The anticipated impacts due to contractors no longer having access to the existing BWFS will likely increase the demands on Water Operations staff. It was investigated as to whether or not a common HMGV installation should be made available for the various contractors. This would require the HMGV to be kept unlocked so that the contractors can have access at anytime. To control this situation, an interim solution in which contractors could access the HMGV at the Ferndale Operations Centre similar to City staff could be utilized. The manual honour system would remain in place. This arrangement would only be available when temperatures are above 0 degrees Celsius or until a permanent solution is implemented. The contractors will not be able to utilize this centralized access to bulk water once temperatures go below 0 degree Celsius or in afterhours situations.

Data Collection and Cost Recovery

16. The current process for capturing bulk water consumption does not have sufficient controls to ensure the accuracy and completeness of the recording of bulk water revenue. It relies on an honour system for the external parties to accurately measure and record the water they have taken. This creates the opportunity for revenue loss through theft and human error.
17. The manual records of water taken are sent monthly to the Finance Department for billing purposes which prevents prompt billing.
18. This process does not allow for a reliable and accurate measurement of unbilled water used for City purposes. This information is important as it helps to identify potential water loss through the water system. This information is also required by the MOE.

Risk

19. The City's risk exposure has been reduced by implementation of Standard Operating Procedures for City staff and by not allowing contractor access to the existing BWFS. This has resulted in the following effects:
 - a) Increased staff resources to assist in reversing vehicles;
 - b) Decreased level of service provided to bulk water users and their clients;
 - c) Potential increase in staff resources to accommodate the increase of contractors utilizing the HMGV Program.
20. There are several other consequences if a new BWFS is not implemented. For example:
 - a) Ministry of Labour fines resulting from injuries related to reversing vehicles.
 - b) Potential increased theft of water from fire hydrants by contractors that don't want to use the HMGV Program, which provides increased chances for potential cross-connection contamination and infrastructure damage.

Alternate Solutions

21. Since the need for the supply of bulk water has been confirmed, several alternatives were considered:

ISSUE	CITY VEHICLES	CONTRACTOR VEHICLES
Restricting pedestrian door access into garage bay for emergencies only	Still need reversing assistance	Still need reversing assistance
Having Bulk Water attendant at garage bay to assist in reversing	Still need reversing assistance	Still need reversing assistance
Relocate existing BWFS to avoid trip hazard within the garage bay	Resolves trip hazard issue, however does not resolve pedestrians entering into travelled portion of the garage bay	Contractor vehicles are preferred to not be within the garage bays, however, could implement video cameras to record if there is an incident of damage
Have a third party supplier of bulk water at a different site	Increases operating costs (ex. Travel time, wear and tear on vehicles, etc.) since City vehicles are centrally located at the Ferndale Operations Centre	The concept would require in depth assessment as this would be a change in service delivery. Considerations would have to include water quality, tamperproofing, level of service agreements, etc.
New Standard Operating Procedures	Still need reversing assistance	Enforcing non-City employees will be difficult
New location – Onsite	Will address: Reversing issue, and; Pedestrians walking into travelled portion of garage bay	Will address: Reversing issue; Pedestrians walking into travelled portion of garage bay, and; Controlling contractors within City Facilities
New location – Offsite	Would likely need property. Long term plan proposes new BWFSs in the Annexed Lands	Would likely need property. Long term plan proposes new BWFS in the Annexed Lands

Proposed Solution

22. The proposed interim solution is to abandon the existing BWFS and to utilize an existing fire hydrant (See Appendix "A") as an interim BWFS as part of the HMGV program. The fire hydrant is away from the main buildings and is adjacent to an access route. The location will be used by both City Operations and contractors. Until a permanent BWFS solution is realized, the water quantities will continue to be manually recorded and manually processed. This proposed interim solution will continue until the temperatures are below 0 degrees Celsius, after which time the City vehicles will have to return to using the existing BWFS with enhanced SOPs. Contractors will either be allowed in the garage bay or have this service postponed until the spring
23. Staff have researched the use of the BWFSs and are considering plans to strategically place several of these units within the City and in particular, within the Annexed Lands since this is where the majority of the future development will occur. Note that this is considered an increase in the level of service and therefore a cost-benefit analysis will be undertaken before making recommendations. The BWFSs are insulated and heat traced and therefore they can be used

throughout the winter. An example of a typical BWFS can be seen in Appendix "E". The BWFS are secured and climate controlled. There are different types of software that have a number of features that Water Operations will find beneficial and will suit their business practices.

24. The proposed long-term solution includes the installation of one BWFS at the Ferndale Operations Centre. An acceptable location (See Appendix "A") has been selected in consultation with Water Operations, Roads Parks and Fleet, Facilities and the JHSC. This location does not require the vehicles to reverse. There will be approximately 50 metres of watermain, storm sewer and electrical servicing that will be extended. All the proposed works will be within the Ferndale Operations Centre property. The procurement and installation of the long-term BWFS will take approximately 4 months upon receipt of Council approval.

Operational Effects

25. The proposed long-term BWFS will be maintained by the Water Operations Branch, Water Customer Service Section. Responsibilities will continue with this Section for the administration and invoicing functions.
26. Water Operations researched the various software packages that are integral with a BWFS. The majority of the software available utilizes secure access through card or proximity FOB-based systems. A software solution that minimizes bulk water sales administration effort is required including a Windows based solution that allows for easy collection and dissemination of consumption information minimizing efforts required for accurate and timely invoicing. The billing process will not change however will be made more efficient with the inclusion of software to assist in data collection.
27. The HMGV Program will still be needed however contractors will be directed to the long-term BWFS. This will reduce staff time which can be reallocated to the other aspects of their job such as improving customer service in areas such as, Advanced Metering Infrastructure system (AMI), meter maintenance and customer service.
28. The area where the proposed long-term BWFS is to be installed is currently maintained by Facilities as part of their regular Ferndale Operations Centre maintenance, and therefore a negligible increase may be experienced. The increase in electricity usage is also minimal compared to the overall usage at the Ferndale Operation Centre.
29. The 2013 Work Plan for the Engineering Department's Design & Construction Branch will be internally adjusted to accommodate this critical project, where a less critical project will be shifted to the end of 2013. The Project work plan will include the coordination of the design elements, finalization of procurement documents, construction management, inspection and commissioning.

Summary

30. Corporate Assessment Management (CAM) has advised that the current conditions significantly change the risk exposure score for this project, notably increasing the probability of a serious risk to life or health, putting it in the critical range. Preparation of the 2013 Capital Plan was undertaken largely in the fall of 2012, before the observed hazard was identified to the JHSC. As such, Staff Report ENG018-13 was prepared to add the project to the 2013 Business Plan to address the recommendation made in the March 27, 2013 Joint Health and Safety Committee.

ENVIRONMENTAL MATTERS

31. There are no environmental matters related to the recommendation.

ALTERNATIVES

32. The following Alternatives are available for consideration by General Committee:

Alternative #1

General Committee could choose to not approve the addition of this work and associated funding to the 2013 Business Plan and consider under the 2014 Business Plan.

This alternative is not recommended, as the potential of a serious health and safety issue that may result in lost time injury or loss of life exists, as does associated liability exposure for the City. In addition, there is the potential risk for increased unknown damage to hydrants affecting fire fighting abilities, increased theft of water and associated potential contamination of the drinking water system.

Alternative #2

General Committee could choose to make the interim solution a long-term solution and restrict the Hydrant Metered Gate Valve to only City Operations.

This alternative is not recommended as the interim solution is only available when the temperatures are above 0 degree Celsius. Also, since the contractors will be required to utilize the Hydrant Metered Gate Valve Program, this will increase the efforts of City staff, both in administrative duties and field staff that install/remove the units. During the below 0 degree time, City Operations can return to the existing Bulk Water Fill Station in the garage bay however they will have to use the enhanced reversing SOP. However, the hazards associated with using the existing Bulk Water Fill Station would persist.

Alternative #3

General Committee could choose to make the interim solution a long-term solution and allow access to the Hydrant Metered Gate Valve by City Operations and Contractors.

This alternative is not recommended as it is only available when the temperatures are above 0 degree Celsius. During the below 0 degree Celsius time, City Operations can return to the existing Bulk Water Fill Station in the garage bay and use the enhanced reversing SOP however, the hazards associated with using the Bulk Water Fill Station would persist. The supply of bulk water will cease for the contractors. In addition, there is the potential risk for increased unknown damage to hydrants affecting fire fighting abilities, increased theft of water and associated potential contamination of the drinking water system.

FINANCIAL

33. It is anticipated that the cost to implement the long-term BWFS solution is \$100,000 (See Appendix "F") and includes design, construction and procurement of a BWFS. The work is proposed to be funded 100% from the Water Reserve Fund (12-05-0580).

34. In 2012 the proceeds generated from the sale of bulk water at the Ferndale Operations Centre were approximately \$41,000. Approximately half of the proceeds were generated during the winter months.

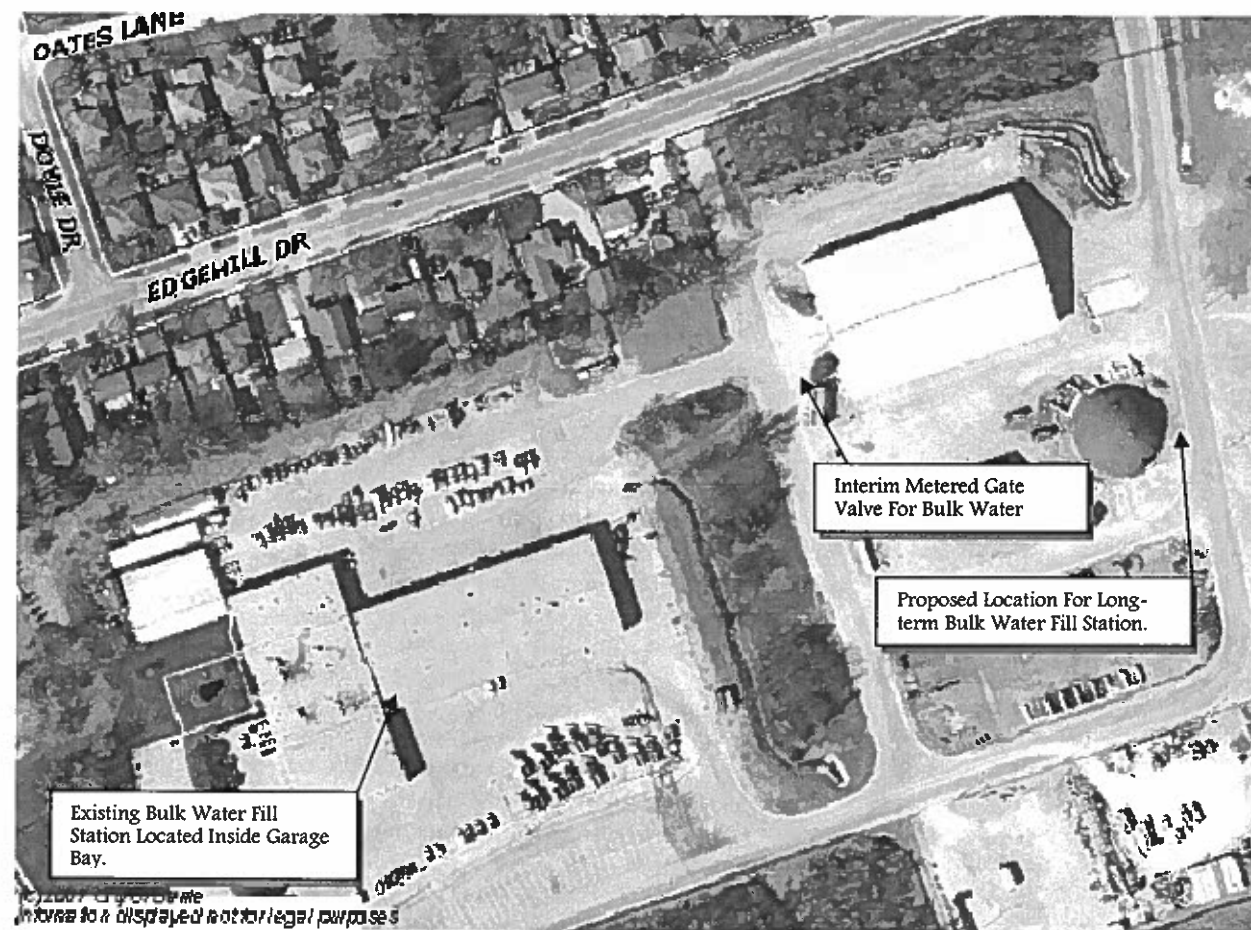
35. In 2012 the number of HMGV installations and removals was 225. This number includes both long term users and 'day use' valves installed and removed on a daily basis. Based on labour, vehicle, and maintenance of the valves and backflow devices, the estimated cost per installation and removal is approximately \$165 for a 2012 total of approximately \$38,000, with water use charges of approximately \$95,000. Note that Water Operations has been undertaking a review of the fees to ensure that there is full-cost recovery
36. The implementation of the long-term BWFS will not eliminate the need for the HMGV Program as developments and construction sites are the main long-term users of the units. However the short term users (i.e. 1-3 days) will be directed to the BWFS and thus decreasing the Water Operations staff efforts to provide HMGVs.
37. It will create an opportunity for the Water Operations Branch to be reimbursed for the bulk water that is associated with the operational water needs related to the Roads, Parks and Fleet Department. Any adjustments to the administration fees associated with the existing BWFS being replaced with the proposed long-term BWFS will be reviewed as part of the annual review of fees.
38. If this investment is not made, then the risk of injuring a person or worker continues to exist which could lead to insurance claims or costs due to lost time injuries.
39. In keeping with Council's instructions, that when a project is added to the 2013 Business Plan that another project of at least equivalent value must be removed, it is proposed that the long-term Bulk Water Fill Station project be added to the 2013 Capital Plan by replacing the Ardagh/Ferndale Water Quality Station Construction Phase 1. It is anticipated that the construction of this project will be delayed into 2014 due to adjacent developer progress. Environmental Services and Engineering Departments concur with CAM's recommendation. This project will be closed as part of the next Capital Status Report which is scheduled for June 2013.

LINKAGE TO 2010 – 2014 COUNCIL STRATEGIC PLAN

40. The recommendations included in this Staff Report are not specifically related to the goals identified in the 2010-2014 City Council Strategic Plan.

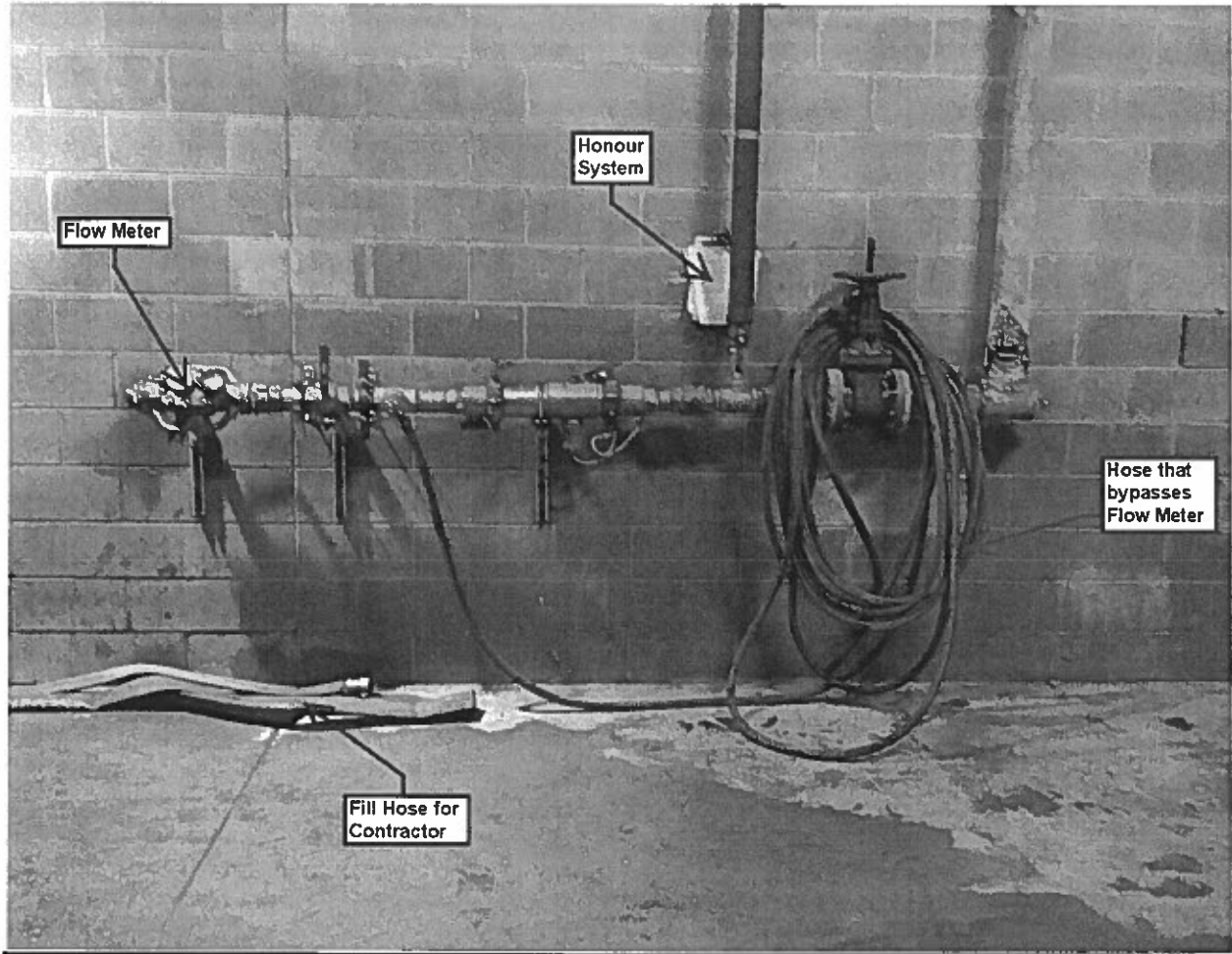
APPENDIX "A"

FERNDALE OPERATIONS CENTRE



APPENDIX "B"

EXISTING BULK WATER FILL STATION



APPENDIX "C"

CITY OF BARRIE –HAZARD IDENTIFICATION AND RISK ASSESSMENT

Hazard Identification and Risk Assessment			
Department: Water Operations	Risk Assessment		Revision: 1
Sector: Bulk Water Filling	Team Members: Don Nelson		Date: 02-Oct-12
Activity: Routine <input type="checkbox"/>	Karen Cooper		Supervisor:
Non-routine <input type="checkbox"/>	James Willis		Signed:
Activity Description: Bulk Water Filling			HS Advisor:
			Signed:

Job Steps	Identified Hazards	Risk Estimation		Risk Evaluation	Risk Control		
		Probability	Severity	Hazard Category	Control Options	Implementation Plan	Responsible
Drive into and through Operations yard	other vehicle traffic - cars, trucks, municipal vehicles, other commercial vehicles, drive in excess of posted 15 km/hr - There is no direction of travel indicated, "free for all" in lot	Frequent	Critical	Unacceptable	Speed Limits Posted (15km/h), internal backing policy (signaller), no controls for external users		
Drive into and through Operations yard	pedestrian traffic through the yard - may get hit by moving vehicle	Probable	Critical	Undesirable	Speed limit, lighting in yard.		
Drive into and through Operations yard	unauthorized vehicle traffic - security into building and yard not maintained	Probable	Marginal	Acceptable with review	Gate access only. (Gate left open)		
Drive into and through Operations yard	unknown path of travel for driver - going wrong way to expected travel path - hit other vehicle, person or stationary object.	Occasional	Critical	Undesirable	Suggestion - designated route / on direction through yard (specifically internal yard)		
Drive into and through Operations yard	light levels will vary throughout the year - harder to see people or equipment moving through yard	Occasional	Marginal	Acceptable with review	Yard lighting		
Back into filling station	operator not doing check - no back up signaller	Frequent	Critical	Unacceptable	Internal operators trained. No control for outside users.		
Back into filling station	pedestrian high traffic area - 3 man doors exit into this area - main walk way through garage - person gets hit	Frequent	Critical	Unacceptable			
Back into filling station	light levels differ between inside/outside makes hard to see people/obstacles in building.	Frequent	Critical	Unacceptable			
Parking at fill station	Vehicles block fire exit and fire hose connection points. Designated "no parking" area as per fire code. Vehicles are left unattended while occupants "use facilities"	Occasional	Catastrophic	Unacceptable	Violation of the fire code		
Attach hose to water filling station/ uncouple hose	trip hazard in main garage walk way as hose is laid across the doorway and walk ways. Cannot see hose until door is opened.	Frequent	Critical	Unacceptable	Move the water filling station		
Attach hose to water filling station/ uncouple hose	Users do not have proper coupler and some hoses are not maintained - large water spills and ponding of water on floor - slip hazards, biological hazards	Frequent	Marginal	Unacceptable			
Attach hose to water filling station/ uncouple hose	water left on floor creates slip hazard when water left in puddles and freezes. Creates ice directly outside fire exit and shipping receiving doors.	Frequent	Critical	Unacceptable			
Vehicle leaves fill station area	Driving in fire exit area, shipping receiving - no direction of travel. Possible vehicle/pedestrian collision.	Occasional	Marginal	Acceptable with review			

APPENDIX "D"

MARCH 27, 2013 MEMORANDUM FROM JHSC

THE CITY OF
BARRIE

Joint Health and Safety Committee

M E M O R A N D U M

TO: Anne Marie Langlois
Director of Human Resources **FILE:** H04-REC

FROM: Luc Paquin, Worker Co-Chair, Joint Health & Safety Committee
Sandy Coulter, Management Co-Chair, Joint Health & Safety Committee

DATE: March 27, 2013

SUBJECT: Committee Recommendation - Restricted Access to City Staff Only and Implement Controls for Operations at Bulk Water Filling Station

This memo is submitted in accordance with Section 10.1 of the City of Barrie and CUPE Local 2380 Structure and Functions of the City Joint Health and Safety Committee, dated November 30, 2012 which outlines the following:

- 10.1 *The Central JHSC or any of the WS-JHSCs may make written recommendation (relevant to respective workplace for which it is responsible) to the Corporation on a matter related to occupational health and safety. Such recommendations should be made to the Director of Human Resources with copies to affected department heads, as appropriate. WS-JHSC shall inform the Co-Chairs of the Central JHSC of any recommendation made to the Corporation.*

At the most recent meeting of the City of Barrie Central Joint Health and Safety Committee on January 30, 2013, the Committee discussed the ongoing safety concerns regarding non-city access of the bulk water filling station. The Committee identified a reversing vehicle hazard during a hazard assessment in 2012. The Committee requested the Co-Chairs develop a recommendation for the City's consideration and the discussion related to this issue is summarized under Item # 01-140-2012 of JHSC Report Number 144.

The City of Barrie Joint Health and Safety Committee respectfully submits the following recommendation for senior management's consideration:

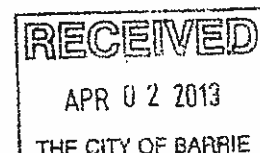
"To reduce or eliminate the potential of an employee or member of the public from being struck by a reversing vehicle, the Joint Health and Safety Committee recommends that the Corporation discontinue public access to the bulk water filling station until such time as the station has been relocated to an area where vehicles are not required to reverse to access the bulk water filling station. Furthermore, the Corporation is to develop and implement a temporary operating procedure for City vehicles to safely access the bulk water filling station without reversing its vehicle."

Please do not hesitate to contact the JHSC Co-Chairs should you have any questions.


Luc Paquin, Co-Chair

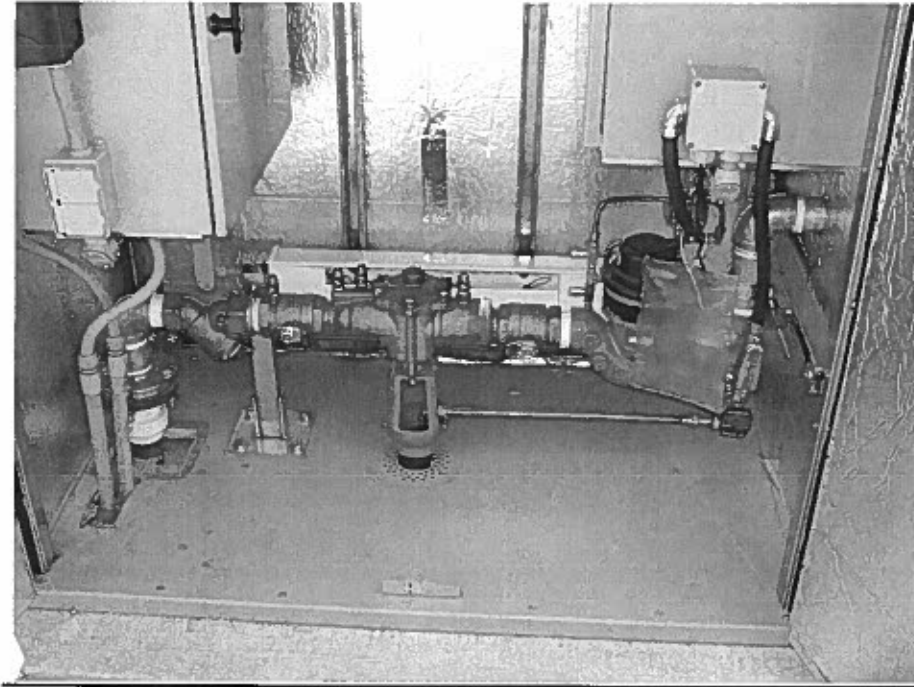

Sandy Coulter, Co-Chair

C.C: S. Kullman, Manager of Safety and Wellness
S. Brunet, Manager of Water Operations
J. Thompson, Director of Environmental Services
K. Cooper, Health and Safety Advisor
WS-JHSC (Operations Centre) Members
JHSC Members



APPENDIX "E"

TYPICAL BULK WATER FILL STATION



APPENDIX "F"

Funding Details

Item	Project	Estimate
1	Purchase	\$32,000.00
2	Construction	\$48,000.00
3	Contingency/Contractor OH&P	\$15,000.00
4	Staff Time	\$5,000.00
5	Total Project Cost	\$100,000.00