



**To:** Burlington City Council  
**From:** Allan Magi  
**Cc:** Scott Stewart, Helen Walihura, Nancy Shea-Nicol, Cary Clark  
**Date:** March 18, 2015  
**Re:** Flood Response Update #1

---

This update has been prepared to summarize flood response activities related to the Aug. 4, 2014 flood in Burlington. Flood response updates will be provided to Burlington City Council on a regular basis as the related studies progress and conclusions and recommendations become available.

### **1. Flood Response Steering Committee**

The city's Flood Response Steering Committee continues to meet on a regular basis, chaired by Allan Magi, Executive Director of Capital Works. In January, a group of sub-committees were established, each focusing on different area of the flood response.

The sub-committees include:

1. Creek Erosion and Maintenance
2. Data Management and Geographic Information Systems
3. Flood Vulnerability and Prioritization Study
4. Ontario Disaster Relief Assistance Program (ODRAP)
5. Private Property and Lot Grading
6. Public Outreach and Education

Each of the sub-committees has a mandate and terms of reference. Regular meetings of the sub-committees are underway to develop and execute work plans related to their mandates.

Members of the Flood Response Steering Committee sit on each of the sub-committees, providing direction, support and updates on the work of the other sub-committees. These members also report back to the Flood Response Steering Committee on the progress of each sub-committee and bring action items to the steering committee for approval/endorsement prior to implementation.

The sub-committees receive direction and guidance from the Flood Response Steering Committee.

A handwritten signature in black ink, appearing to read "Henry Shee" followed by a stylized flourish.

## **2. Flood Mitigation Study**

The city's Flood Vulnerability, Prioritization and Mitigation Study is well underway, led by Amec Foster Wheeler.

The scope of work and progress to date is detailed below.

### **PHASE ONE**

#### **Data collection and background review (completed)**

Includes: historic flooding data; creek engineering designs and models; storm sewer infrastructure; maintenance records; flooding elevations and limits; Conservation Halton data and creek models; and infrastructure of Halton Region, Highway 407 and Canadian National Railway.

#### **August 4, 2014 rainfall (completed) and flood characterization (50% completed)**

Rainfall data from three radar stations and several rainfall gauges were used to confirm the event. The final assessment indicates the highest rainfall depth (approximately 196 mm) was located in the area bounded by Dundas Street, Guelph Line, Upper Middle Road and Walkers Line.

The most intense rainfall cell has been extracted and transposed to other watersheds to help assess potential impacts to existing infrastructure, if this storm were to occur in other parts of the city.

#### **Review of observed and reported flood damage (to be completed in March 2015)**

Includes: eyewitness accounts; staff observations; videos; photos; media stories; and assessment of bridge, culvert locations and debris accumulation.

#### **Flood vulnerability for properties near creeks (to be completed in March 2015)**

Includes a review of complete watersheds and major creeks in Burlington. Modelling of Tuck, Shoreacres, Appleby, Roseland and Sheldon creeks is complete.

Flood Vulnerable Areas (FVA's) are being identified by reviewing the current floodplain and adjacent properties. Identified FVA's are being prioritized based on flood frequency and number of impacted buildings.

#### **Flood vulnerability for roads and overland flow routes (to be completed in March 2015)**

Includes the identification of FVA's, e.g. depression areas on roads or properties that do not have a positive surface drainage outlet. Identified FVA's are being prioritized based on flood frequency and number of impacted buildings near the FVA.

#### **Preliminary review of Flood Mitigation Projects (complete)**

A total of 15 priority locations have been identified to assess the potential for flood mitigation works. These locations include:

- Brant Street at Cavendish Drive
- Grenallen Drive Hydro Right of Way (ROW)
- Bennett Road Hydro ROW

- Ingersol Drive
- Beaufort Drive
- Auburn Crescent
- Bristol Drive
- Mullin Way
- Bridle Wood
- Driftwood Park
- Ashland Drive
- Hadfield Court
- Ayr Place
- 2120 Itabashi Way
- Shoreacres Creek at Hwy 407

Additional flood mitigation projects may be added as the study continues.

## **PHASE TWO**

### **Flood Mitigation Projects**

From the 15 projects listed above:

- Five projects are currently underway (Part 1)
- Five more projects will be started in April 2015 (Part 2)
- The remaining five projects will commence in July 2015 (Part 3).

### **Detailed hydrologic and hydraulic modelling (in progress for Part 1)**

Models are being developed for the drainage areas and conveyance systems related to each of the 15 projects listed above. The initial five projects are nearing completion.

Hydrologic modelling deals with how rainfall translates into surface runoff. It takes into account how different soils and land features impact runoff. Hydraulic modelling involves the flow of the storm water runoff in the storm sewers and creeks.

### **Development and evaluation of Flood Mitigation Project alternatives (Part 1 in progress)**

Alternative designs are being presented as each of the 15 projects is completed.

### **Preferred alternatives and preliminary design (upcoming work)**

Construction on the five initial Flood Mitigation Projects is expected to begin in late fall 2015.

## **3. Burlington Flood Disaster Relief Committee**

The Burlington Flood Disaster Relief Committee released an update on Feb. 18, 2015 (available at [www.burlingtonfoundation.org/flood](http://www.burlingtonfoundation.org/flood)).

The Burlington Community Foundation Flood Disaster Relief Claims Committee (DRC) is focused on reviewing and approving payment for the 310 claims that were received from citizens affected by the flooding. To date, 95 claimants have received interim payments totalling \$385,612.64.

Once all 310 claims are assessed, the DRC will determine final payment amounts and disburse final cheques. It is expected the work of the DRC will be completed by the end of April. The Interim City Manager will execute an extension of the MOU with the Burlington Community Foundation until April 30, 2015.

### **DRC Expenses**

On Sept. 29, 2014 Burlington City Council approved the establishment of a Flood Disaster Relief Committee (DRC). Within the resolution was a direction to enter a Memorandum of Understanding with the Burlington Community Foundation for the provision of support services to the DRC. The City Manager was authorized to reimburse the Burlington Community Foundation for reasonable expenses incurred in providing services to the DRC and funding for the reimbursement was to be provided from the Tax Rate Stabilization Fund.

To date, reimbursement has been made to the Burlington Community Foundation for DRC expenses in the amount of \$241,692. Another \$200,000 in expenses, primarily for adjusting services, is projected.

The province has indicated some expenses for the DRC will be considered eligible for reimbursement from the province. The funds for DRC expenses will be drawn from the up to \$3 million component of ODRAP funding the province announced on November 10, 2014.

The City recently received an interim payment of \$110,000 from the province, \$60,000 of which was in support of the DRC expenses. At this point, it is not clear what remaining portion of DRC expenses will be deemed eligible for payment by the province. The remaining expenses, not eligible for reimbursement by the province, will be paid through the Tax Rate Stabilization Fund.

## **4. Pre-Storm Weather Monitoring and Preparedness**

The Creek Erosion and Maintenance sub-committee has reviewed the city's pre-storm procedures. RPM monitors weather conditions throughout the year. As with winter storm events, forecasts of heavy rain and/or spring melting are monitored very closely and trigger a variety of preparedness activities, including:

- Field checking locations of historical flooding to ensure that catch basins and other inlets/outlets are clear;
- Coordinating and/or rescheduling regular work activities;
- Scheduling of additional staff, when necessary;
- Preparation of vehicles and equipment, including fueling and preloading materials (e.g. barricades);
- Contacting contractors (e.g. arborists) to confirm readiness and/or arranging for additional heavy equipment to respond, if and when needed;
- Requesting assistance from residents to clear all catch basins of snow/ice or leaves near their property, if applicable based on time of year.

## **5. Geographic Information Systems Initiatives**

The Data Management and GIS sub-committee is working on a number of initiatives, including:

- The implementation of a new methodology and standards for pre and post flood data collection
- The development of a blanket exchange agreement between the City of Burlington, Conservation Halton, and Halton Region to help facilitate a timely sharing of data between all parties
- The creation of new and improved data used to support floodplain analysis
- The development of a map application that will document flood-related observations and operational response by the involved agencies

## **6. Storm Water Rate Update**

On March 30, 2015, a report providing an enterprise corporation update will be presented to the Development and Infrastructure Committee (DID-3-15). An update regarding storm water rates will be provided as part of a larger discussion about service based corporations.

## **7. Mayor's Climate Change Summit**

Initial discussions about the scope and timing for the summit are underway. Additional details will be provided as they become available.

Regards,



Allan Magi, P. Eng  
Executive Director, Capital Works