

Annex W – Clarington Flood Response Plan

Municipality of Clarington Emergency Plan

1.0 Introduction

This Clarington Flood Response Plan (CFRP) has been developed as a result of flooding events that have occurred along the shore of Lake Ontario within the Municipality of Clarington (the Municipality). This emergency planning and preparedness's document has been prepared in response to the Municipality's legislative requirements identified within the Province of Ontario *Emergency Management and Civil Protection Act (EMCPA, 2009)*

1.1. Emergency Management and Civil Protection Act

Within the Province of Ontario the *Emergency Management and Civil Protection Act (EMCPA) R.S.O. 1990, Chapter E.9*¹ identifies the legislative requirements for municipalities to develop an Emergency Plan. In section 2.1 (1) of this legislation it describes requirements for a Municipal Emergency Management Program, and specifically that *“Every municipality shall develop and implement an emergency management program and the council of the municipality shall by by-law adopt the emergency management program”*. The emergency management program shall consist of:

- a) *an emergency plan as required by section 3;*
- b) *training programs and exercise for employees of the municipality and other persons with respect to the provision of necessary services and the procedures to be followed in emergency response and recovery activities;*
- c) *public education on risks to public safety and on public preparedness for emergencies; and*
- d) *any other element required by the standards for emergency management programs set under section 14. 2002, c. 14, s.4.*

The Municipality of Clarington Emergency Plan² is authorized by By-law 2018-010 and the Emergency Management and Civil Protection Act (2009).

Section 2.1 (3) of the EMCPA describes the requirements for developing a Hazard and Risk Assessment (HIRA) as follows *“In developing its emergency management program, every municipality shall identify and assess various hazards and risks to public safety that could give rise to emergencies and identify facilities and other elements of the infrastructure that are at risk of being affected by emergencies”*.

¹ Emergency Management and Civil Protection Act RSO 1990 Chapter E.9
<https://www.ontario.ca/laws/statute/90e09/v7>

² Municipality of Clarington Emergency Plan <https://www.clarington.net/en/town-hall/resources/Emergency-and-Fire-Services/Emergency-Plan.pdf>

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Emergency response plans may be based upon an “All Hazards” approach as identified within the HIRA, or alternatively be developed for a specific type of risk identified. The current HIRA for the Municipality of Clarington identifies a range of existing hazards within the community. Examples of these are road transportation, rail transportation and major heavy industry. In addition, the current HIRA identifies “*Flood Prone Areas and Weather*” as existing hazards. These hazards are directly related to the purpose of developing this CFRP.

2.0 Purpose

The purpose of developing this CFRP is to provide a framework for enhancing public and emergency responder education, emergency preparedness and emergency response policies and procedures associated with responding to a flooding event along the shore of Lake Ontario within the Municipality of Clarington.

3.0 Aim and Scope

The primary goal of this CFRP is to provide an integrated planning framework that recognizes the role of individual residents, business owners, emergency responders and the Municipality. Together these individuals, groups and agencies represent the first line of defence in responding to a flooding event along the shore of Lake Ontario in the Municipality of Clarington.

This goal is supported by an overarching objective of enhancing public and emergency responder education, emergency preparedness and emergency response policies and procedures. Together these are intended to prevent or reduce loss of life or severe injury and/or damage to property and infrastructure during a major flooding event along the shore of Lake Ontario within the Municipality of Clarington.

4.0 Authority and Maintenance

This CFRP has been approved by Council under authority of the Emergency Management and Civil Protection Act, RSO 1990. C.E.9. as an annex to the Municipality of Clarington Emergency Plan as authorized by By-law 2018-010.

Responsibility for the annual review, revision and testing of this CFRP shall be assigned to the Municipality of Clarington’s Community Emergency Management Coordinator (CEMC).

5.0 Description of Hazard and Risk

“The Ministry of Natural Resources (MNR) defines flooding as an overflow of water associated with a lake, river or stream that threatens the safety, welfare of people and/or damage to public and/or private property. Floods may be caused by natural phenomena (e.g. weather), structural failure (e.g. dams), or human interference (e.g. stream diversion)”³.

For the purposes of this CFRP flooding shall be defined as an overflow of water from Lake Ontario or the adjacent West Side Creek marsh area, and Bowmanville Creek marsh area within the Municipality of Clarington. The overflow of water from these areas may result in a flood severe enough to pose significant risk to the residents, business owners or adjacent community. Significant risk may be measured in terms of the predicted duration of the flooding event, social vulnerability including the number of persons or properties impacted, potential for loss of business revenue, the size of the geographic area impacted and the real or potential effects on the Municipality’s infrastructure.

5.1. Waterfront Flooding Risk

The Central Lake Ontario Conservation – Watershed Flood-Risk Assessment (WFRA-2017) methodology assessed “*flood damage centres*” (FDC) that are defined within the Lake Ontario Shoreline Management Plan as “*areas of high risk due to flooding or erosion potential and include shorelines subject to high erosion rates, low-lying regions prone to flooding and areas where structures are located in close proximity to the shoreline*”. Each of the 92 FDC’s identified was assessed based on three factors including vulnerability, flood event likelihood, and impacts resulting from flood events (evaluated as social, business, economic and environmental factors). The locations of the Flood Damage Centres within the Municipality of Clarington are shown in **Figure 1**. The Flood Damage Centres along Clarington’s waterfront are detailed in **Figure 2**.

The WFRA-2017 identifies two FDC’s along the shore of Lake Ontario that are the primary focus of this CFRP. Damage centre BS1, which includes the area of Port Darlington and west including Westbeach Road, has a total risk score of 200 which rated as the sixth highest total risk score of the 92 centres assessed. Damage centre WS1 which includes the Cedar Crest Beach Road area has a total risk score of 140 which is the same overall risk rating as five other identified damage centres. This places the WS1 damage centre as one of the fourteenth highest total risk scores of the 92 centres assessed. Damage centre WS1 and BS1 are identified in **Figure 1** and **Figure 2**.

³ Ministry of Community safety and Correctional Services – Hazard Based Planning - Guideline for the Development of a Municipal Flood Emergency Plan

https://www.emergencymanagementontario.ca/english/emcommunity/program_resources/hazardbasedplanning/flood_guideline.html?_ga=2.153259837.482113672.1502808436-315735041.1471871939

Figure 2: Municipality of Clarington Waterfront Areas and Flood Damage Centres



(Source: Figure 3 – Central Lake Ontario Conservation Watershed Flood-Risk Assessment, April 2017)

In addition to the WFRA-2017, Engineering Services Report EGD-015-17 dated June 19th, 2017 provides an overview of the flooding history along the shore of Lake Ontario, and specifically the beach west of Port Darlington, which includes the Westbeach Road and the Cedar Crest Beach cottage/residential development.

Of importance to the education, preparedness and emergency response elements of this CFRP are the flooding hazards presented in Report EGD-015-17. These include the following:

- *Seasonal fluctuations in lake level typically average about 0.6 to 1.1 metres between the summer and winter months;*
- *By far, natural phenomena (e.g., rainfall, evaporation, wind, storms, etc.) are the greater cause of flooding along the Lake Ontario shoreline than human intervention (i.e., diversions, water control structures, etc.) although the flood control measures in Cornwall to regulate levels does also contribute to the high water levels; and*
- *Storm winds can cause periods of significantly larger magnitudes of lake level changes and induce the added hazard of wave run-up (the uprush movement of a wave breaking on a shoreline), which can flood low-lying areas behind erosion barriers.*

6.0 Plan Implementation

This CFRP is intended to provide guidance to initial responding municipal staff to prevent or reduce loss of life or severe injury and/or damage to property and infrastructure during a major flooding event along the shore of Lake Ontario. Subject to determining the severity of the flooding event the initial responding Incident Commander shall inform the on-call senior officer of the Clarington Fire and Emergency Services as to a need to implement the *Section 5.2 Notification Process* of the Municipality of Clarington Emergency Plan that sets out the procedures for notifying the Chief Administrative Officer and Municipal Control Group of an emergency.

6.1. Functional Roles and Responsibilities

6.2. Federal Government

The Ministry of Environment and Climate Change Canada (MECCC) is responsible for issuing special weather alerts as required. The Durham Emergency Management Office (DEMO) receives and monitors these alerts and forwards them to other Regional departments and municipalities as required.

6.3. Provincial Government

The Ministry of Natural Resources and Forestry (MNRF) is responsible for Provincial flood emergency management and response including:

- *Operating the Provincial Flood Forecasting and Warning System;*
- *Monitoring and reporting on surface water conditions;*
- *Issues flood messaging to Conservation Authorities and municipalities regarding status of provincial flood potential;*
- *Upon declaration of a municipal flood emergency, responds to municipal requests for assistance; and*
- *MNRF flood messages.*

The MNRF provides Provincial Watershed Conditions Statements that include information regarding provincial watershed conditions and their potential for flooding and an outlook regarding expected spring weather conditions, and Provincial Flood Watch information including current technical information about the potential for flooding.

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The Ministry of Environment and Climate Change (MOECC) provides information to municipalities regarding the safe handling and disposal of hazardous waste and the disposal of sandbags.

The Ministry of Municipal Affairs (MMA) advises municipalities on the Disaster Recovery Assistance for Ontarians (DRAO) and Municipal Disaster Recovery Assistance (MDRA) applications and dispatches Personnel Disaster Assessment Teams (PDAT) to affected municipalities and activates these programs.

The Ministry of Transport (MTO) provides advice and assistance as needed on debris management to affected municipalities.

The Office of the Fire Marshal and Emergency Management (OFMEM) is responsible for operation of the Provincial Emergency Operations Centre (PEOC).

6.4. Region of Durham

The Region of Durham is responsible for maintaining the Durham Region Emergency Management Plan (DREMP) that includes the Durham Region Emergency Master Plan (DREMP), Region of Durham Hazard Identification and Risk Assessment (HIRA) and currently developing the Region of Durham Flood Response Plan (DRFRP).

6.5. Central Lake Ontario Conservation Authority (CLOCA) and Ganaraska Region Conservation Authority (GRCA)

The Central Lake Ontario Conservation Authority's role is to establish and undertake programs to promote the conservation, restoration, development and management of natural resources in partnership with local municipalities and the province. This role includes the Central Lake Ontario Conservation Watershed Flood - Risk Assessment (CLOCWFRA), and the Flood Contingency Plan for the Regional Municipality of Durham.

The GRCA's role is the conservation, restoration, development and management of natural resources on a watershed basis.

CLOCA and the GRCA each maintain a flood forecasting and warning system to reduce risk to life and damage to property by providing local agencies and the public with advance notice, information and advice so that they can respond to potential flood emergencies.

6.6. Municipality of Clarington

The EMCPA 2009 identifies municipalities as having the primary responsibility and legislative authority for responding to flooding events and flooding emergencies. This

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responsibility is intended to prevent or reduce loss of life or severe injury and/or damage to property and infrastructure within the Municipality of Clarington.

6.6.1 Community Emergency Management Coordinator (CEMC)

Under the authority of this CFRP the CEMC of the Municipality of Clarington has responsibility for the following:

- Monitor the flood forecasting and warning system maintained by CLOCA and update Council, senior municipal staff and the public regarding changes that elevate the system above the normal status;
- Conduct, or direct the monitoring of water levels along the Lake Ontario shoreline and adjacent marsh lands on a regular basis when the flood forecasting and warning system reaches the Watershed Conditions Statement;
- Implement a municipal operating guideline/policy to identify how to inform Council and senior municipal staff regarding communicating the status of the flood forecasting and warning system when the flood forecasting and warning system reaches the Watershed Conditions Statement level;
- Consult with residents and business owners within the identified waterfront flood damage centres and develop a process for communicating and distributing the status of the flood forecasting and warning system. This should be done when the flood forecasting and warning system reaches the Watershed Conditions Statement level (Based on the Block Parent® Program of Canada Inc. (BPPCI)).
- Coordinate flood specific education materials for distribution to residents and business owners within the identified water flood damage centres to include:
 - The CFRP;
 - Established evacuation routes (minimum of two) from each identified flood damage centre, including locations of a primary and secondary Evacuation Centre;
 - Emergency preparedness and response education information for residents and businesses including pre-event, during an event, and post event (including information related to sandbags and building a sandbag dike); and
 - Contact information for the CEMC, and Alternate CEMC.
- Determine the appropriate municipal response to a flood threat and, if warranted, deploy municipal resources to protect life and property;

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- Determine the distribution of sandbags, and potential need for municipal staff support to place sandbags on private property in consultation with the Emergency and Fire Services and Operations Department;
- Prepare regular situational reports for distribution to Council, municipal senior staff, Region of Durham (through DEMO Duty Officer or REOC if activated), Province (through Duty Officer (PEOC) and others as required);
- Coordinate distribution of information to be shared with residents and business owners and local media;
- Consult with the Municipal Emergency Control Group (MECG) and make the recommendation to the Mayor (head of Council) regarding the need for declaration of a municipal flood emergency;
- Consult with the MECG and determine the need for, and issuance of evacuation orders;
- Consult with the MECG and determine the need for, and coordinates temporary mitigation structures and equipment;
- Consult with the MECG and coordinate the process for recruiting and organizing the response of public volunteers;
- Liaise with the Region of Durham Social Services Department regarding activation of evacuation centres;
- Coordinate with volunteer organizations such as Red Cross, Salvation Army, OVERT and other volunteer agencies as may be required;
- Consult with the MECG if municipal resources are inadequate to respond to the emergency, requests regional and/or provincial assistance under the Emergency Management and Civil Protection Act;
- Coordinate the recovery process for residents and businesses including:
 - Coordinating the development of a plan for removal and disposal of temporary mitigation structures and debris;
 - Coordinating the response of the Provincial Disaster Assessment Team (PDAT) on behalf of municipal residents, to assist the Ministry of Municipal Affairs (MMA) to determine if the Disaster Recovery Assistance for Ontarians (DRAO) program will be activated.

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- Consult with the MCEG and assist Council in determining the eligibility for the Municipal Disaster Recovery Assistance (MDRA) program.

6.6.2 Fire and Emergency Services

Under the authority of this CFRP the Emergency and Fire Services of the Municipality of Clarington has responsibility for the following:

- Developing and implementing an operating guideline for a reported Flood Response that includes:
 - Pre-planning of the identified waterfront damage centres that includes garnering knowledge of the correct operation and location of spillways, barrier beach and evacuation routes;
 - Implementing a centralized Incident Command Post and communicate its location to impacted residents and business owners;
 - Utilizing of a Flood Response Tactical Worksheet to coordinate the response of other municipal departments and required resources;
 - Establishing prerequisites for informing the on duty senior officer on-call.
- Notification of the CEMC or alternate to activate the CFRP.

6.6.3 Operations Department

Under the authority of this CFRP the Operations Department of the Municipality of Clarington has responsibility for the following:

- Developing and implementing an operating guideline for a reported Flood Response that includes:
 - Pre-planning of the identified waterfront damage centres that includes garnering knowledge of the correct operation and location of spillways, barrier beach and evacuation routes;
 - Maintaining a cache of tools and equipment available for immediate deployment to a flood emergency;
 - Maintaining a stock of 40,000 sandbags, or a process for procuring sandbags and access to clean sand under emergency conditions. This may include keeping a stock of prebuilt sandbags;

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- Deploying filled sandbags to affected areas after consultation with the CEMC and the Emergency and Fire Services Department.
- Supporting the Fire and Emergency Services to maintain either the primary or secondary emergency evacuation route;
- Providing operational response regarding public safety and the protection of municipal infrastructure;
- Providing operational response by identifying municipal areas that may be vulnerable to flooding and responds to requests for deployment of municipal resources and personnel;
- Ensuring storm water management infrastructure (spillways and barrier beach) are maintained in operational condition during the emergency conditions; and
- Consulting with the CEMC and other agencies to implement a debris management plan on behalf of impacted residents and business owners.

6.6.4 Chief Building Official

Under the authority of this CFRP the Engineering Services Department of the Municipality of Clarington has responsibility for the following:

- Consulting with the CEMC to conduct inspections of evacuated premises and assisting with the coordination of re-occupation where damage of property is suspected.

6.6.5 Corporate Communications (Office of the Chief Administrative Officer)

Under the authority of this CFRP the Communications and Tourism Manager of the Municipality of Clarington has responsibility for the following:

- Supporting the implementation of the Municipality of Clarington Emergency Plan – Municipal Information Plan; and
- Supporting the implementation of the Municipality of Clarington Emergency Plan – Emergency Communications Plan.

6.7. Resource Information

Resource information to support the implementation of the Clarington Flood Response Plan is contained within Annex U of the Municipality of Clarington Emergency Plan. This includes:

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- Short-term Equipment Rentals;
- Contractor and supplies emergency contact information;
- Government Agencies and Associations; and
- Sandbag Suppliers.