

**RENFREW COUNTY**

# **FLOOD IMPACT & RECOVERY**



# Severe Weather Situational Awareness

May 12, 2017

**389 Residential Homes Affected**

**436 Seasonal Homes Affected**

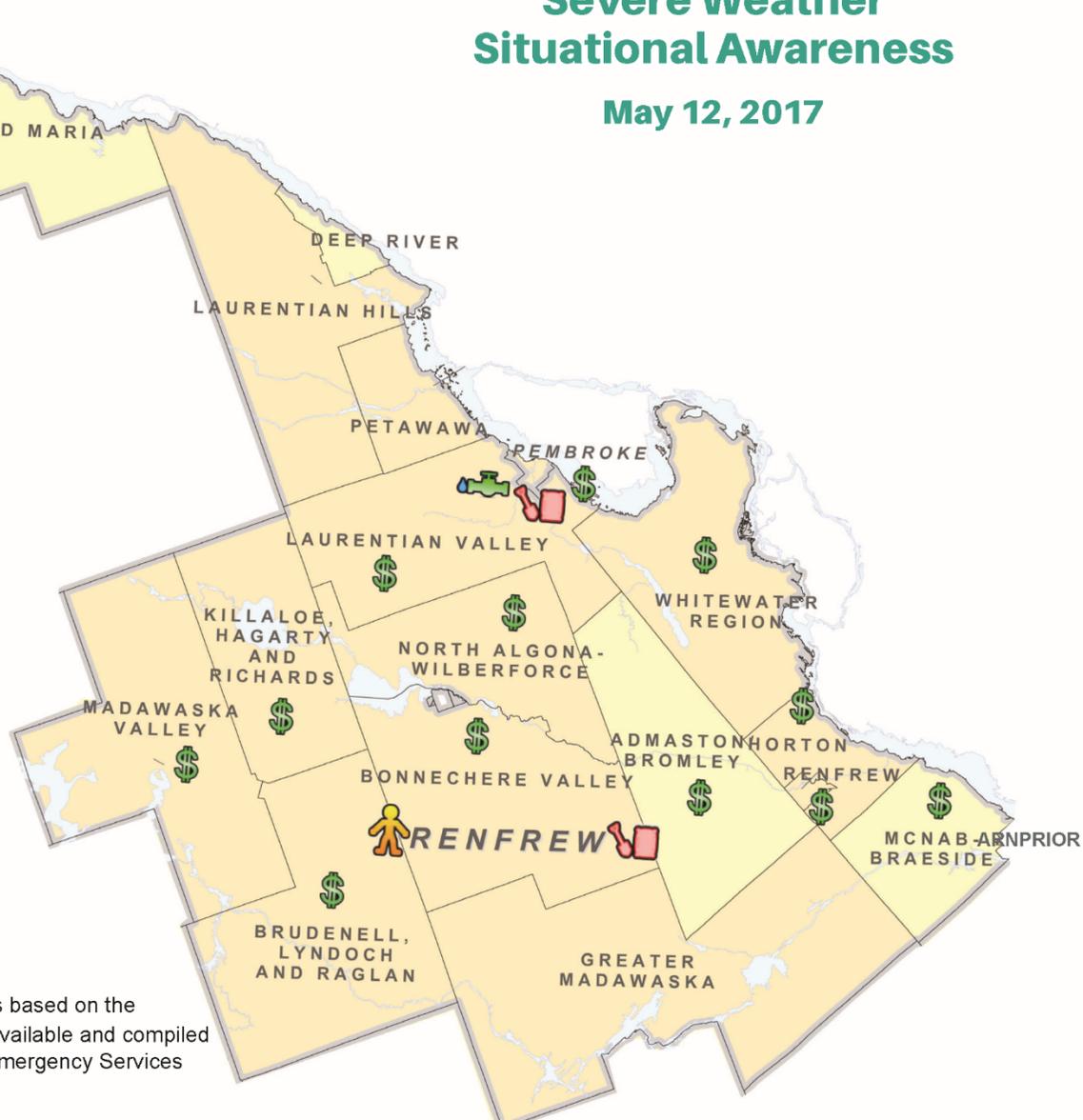
**30 Community Members Evacuated**

**71 Road Closures**

**200,000+ Sandbags**

**1,000+ Volunteers**

\*Numbers reflect estimations based on the most accurate information available and compiled by the County of Renfrew Emergency Services Department



## LEGEND

- ACTIVE FLOODING
- BOIL WATER ADVISORY
- EMERGENCY DECLARATION
- FIELD STAFF DEPLOYMENT
- MMAH DRAO ACTIVATED
- PUMPS DELIVERED
- SANDBAGS DELIVERED
- SEVERE IMPACT
- MODERATE IMPACT
- LOW IMPACT



### EMERGENCY DECLARATIONS

TYENDINAGA F.N.	.....11 May 2017
PRINCE EDWARD COUNTY	....09 May 2017
CLARINGTON	.....08 May 2017
CHAMPLAIN	.....07 May 2017
MINDEN HILLS	.....05 May 2017
CLARENCE ROCKLAND	.....04 May 2017

### MUNICIPALITY KEY

	<b>PETERBOROUGH</b>	Upper Tier / District
	<b>YAY VALLEY</b>	Lower Tier
	<b>KINGSTON</b>	Single Tier
	<b>DOKIS</b>	First Nations

v1.3 20170513

Produced by the Office of the Fire Marshal and Emergency Management  
 This map has been prepared from multiple external sources to display the status of municipalities resulting from the severe weather event of May, 2017. While every effort has been made to ensure the accuracy of the information displayed herein, no liability is assumed for errors, omissions, accuracy and/or content depicted.



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### **SECTION ONE - Coordination & Communications**

The objective of this document is to support our communities and provide essential information to flood victims. Communication is essential to coordinating all aspects of a successful flood clean up and recovery process. It is important for community members, emergency services, elected municipal officials, and staff to work together to develop community support and builds trust in leadership, response and flood mitigation moving forward. In the early stages of the flood, there are changing needs that shift from being in a state of emergency to repairing and restoring homes, properties and belongings affected by the flood waters. When the water recedes, needs will focus on safety, health, restoration of necessities, entering and restoring flooded homes safely, and dealing with the emotional and financial impacts from the flood.

Information and Needs:

### **Community Health & Safety Needs**

- Continued access to washroom/shower facilities
- Reliable telephone/internet access and mobile device charging stations
- First Aid and handwashing stations or access to alcohol-based sanitizers
- Reconnecting services and utilities to affected areas.
- Contaminated and hazardous waste removal
- Domestic and wild animal management.

### **Additional Information and Support Services Needs**

- Access to medications and Emergency Services staff for vulnerable and at-risk populations
- Emergency Response Services (Police and Paramedic)
- Community Defibrillator locations
- First Aid Stations
- Transportation and mobility
- Community support services
- Grief, distress, and counselling support services.

### **Home & Property Needs**

- Temporary food and housing support
- Entering and cleaning building and property
- Well and septic care
- Building and property structures
- Salvaging/replacing important personal documents
- Charging stations for small hand tools
- Lending library for small tools and equipment (fans and humidifiers).

## **SECTION TWO - Returning to Home and Property**

### **Safety and Health**

At the beginning of the flood clean up and recovery process there is an ongoing need to monitor and respond to everyone's safety and health concerns in the affected and surrounding flood areas. High priority safety and health issues include the possibility of landslides, lake and river property erosion, hazardous debris, electrical and gas hazards, contaminated materials, and other environmental toxins. The following provides information that has been compiled to effectively support community efforts to prevent and mitigate further safety and health issues.

### **Avoid Electrocution & Shock**

There is an increased risk of electrocution and shock in flood affected homes and areas. All efforts need to be made to ensure electrical services, pumps and appliances are allowed to dry completely and are in proper working order for safe post-flood use. Utility companies need to be contacted immediately for downed power lines, particularly those in water.

## **Landslide Safety**

Avoid sloped areas and inclines that may have been compromised by heavy rains, increased water flow along riverbanks and areas experiencing receding flood waters.

## **Chainsaws**

The rate of injury from chainsaw use commonly increases after natural disasters. In the clean-up phase it may be necessary to use gas powered chainsaws to remove fallen or partially fallen trees, branches, and deadheads. Only operate chainsaws and other equipment if you are experienced and trained to do so. Bystanders should stay a safe distance from cutting activities, and the chain saw operator should wear proper protective equipment and follow safety guidelines.

## **Exposure to Contaminants & Hazardous Material**

Flood and standing water contain bacteria and contaminants like sewage that are harmful and hazardous to humans and domestic animals. It is important to wash hands often or use alcohol-based sanitizers and limit exposure by dealing with contaminated items quickly and properly. Children, pregnant women, and individuals with respiratory problems should not handle contaminated water or materials. Contaminated and hazardous material may need to be discarded as per local regulations.

## **Food & Beverages**

Do not consume any food or beverages that may be contaminated from floodwater or lack of refrigeration. (see Page for more about contaminated food).

## **Handwashing**

Regular handwashing or use of alcohol-based hand sanitizer is important to avoid contaminating food or becoming sick after handling flood affected items and materials. In affected areas, hand wash with bottled, treated, and boiled water only.

## **Interior Clean Up**

Do not wait for government assistance to begin the necessary clean up and recovery process after a flood. Quick action will help with salvage and restoration efforts and reduce the likeliness of mold, air quality hazards and further damage to the structure and personal belongings. It is important to avoid entering flooded rooms before water has been drained and should be reminded that drying times for structures, rooms and furniture will vary depending on the types of materials and objects affected.

## **Residents can move home when:**

- Drinking water has been inspected and declared safe
- All affected rooms have been cleaned and disinfected
- All contaminated dishes and utensils have been properly washed and disinfected
- The property has functioning toilet facilities available.

## **Information, needs and available community support**

- Community showers and handwashing locations
- Laundry Services
- Food and bottled water or potable water locations

Many private wells and septic systems may not be operational until flood and standing waters recede or dry up. Displaced and affected community residents may still be dependent on emergency support and resources to meet their water and personal hygiene needs.

## **Entering the Home**

Before entering an affected building, it must be structurally safe, free of dangerous debris such as broken glass and cleared for entry by local authorities. Entering affected buildings should be done cautiously and during the day when visibility is easier to assess hazards and damages.

Information and needs:

Dressing for clean-up (see Appendix )

Tools for documenting and recording damage (Recommended Tip Sheet)

Recommended equipment and cleaning supplies (See Appendix)

Salvaging and decontaminating household items

Pumping and removing water from basement.

Re-entry after a flood can be an extremely overwhelming and emotional experience, making the cleaning and sorting of damaged belongings difficult for many. Cleaning one room at a time is advised and it may take several weeks to dry out each area. To help with drying, remove waterlogged items immediately from the area, open closets, drawers and cabinets and open windows and/or doors. The additional use of wet vacs, industrial fans and dehumidifiers will further help to reduce the likelihood of musty odors, mold, and bacteria which can result in further damage to the home and salvaged contents.

## **Appliances & White Goods (large electrical domestic items)**

It is important to not use appliances that have been wet from the flood such as a furnaces or kitchen items, electrical outlets, switch boxes, or fuse breaker panels until they have been checked and deemed safe by the local utility company or qualified electrician. Depending on the types of appliances or equipment, the depth of the floodwaters and the duration of submersion it is likely that most electrical appliances will not be salvageable. If an appliance needs to be replaced, residents should be reminded to document the lost items using cameras and follow the water removal guidelines for appliance and white goods set out by the local municipality.

## **Basements & Foundations**

It is important to remove water slowly and in stages from flooded buildings and basements (about a third of the volume daily). Removing water too quickly can cause walls and floors to buckle and warp and compromise the foundation and integrity of the homes structure. Enter basements and crawl

spaces only after electricity is powered off and while wearing proper protective clothing such as a facemask, hard hat, and rubber footwear.

### **Food and Beverages**

Do not consume any food or beverages that may be contaminated from flood water or due to lack of refrigeration. Flood water-affected items with screwcaps, home canned snap lids, crimped caps or twist caps on soda, beer bottles, flip tops (like those found on ketchup) and corked items, are considered not safe. All perishable food items, medications and vacuum-packed food should be discarded if exposed to flood waters or left unrefrigerated for more than 24 hours. Commercially canned affected goods that are undamaged, identifiable by labels and showing no signs of leaking, swelling, or rusting can be washed with soap/disinfectant, dried and relabeled using permanent marker if necessary. Contaminated food should be bagged and sealed along with other related disaster debris.

### **Furnishings and Household Items**

Sort and identify the home furnishings to be kept and thrown away. Items of sentimental value will be very difficult to discard. However, water-soaked items can develop mold and contain harmful bacteria. Belongings and household contents that are wet and cannot be completely cleaned, disinfected, and dried within 24 to 48 hours should be discarded. Seek out professional advice and guidance for damaged heirloom furniture and precious items. Household items contaminated by floodwaters should be sorted into a pile for construction and demolition debris.

### **Damaged Documents and Replacement**

Important documents and papers should be stored in a container in a freezer until they can be properly thawed and air-dried. Check with Service Ontario for replacement of other key government issued papers and documents.

### **Kitchen Area**

Wear protective clothing such as gloves and glasses to avoid skin contact with disinfectants and bacteria that can cause infection during the kitchen and eating area clean up. When cleaning and disinfecting kitchen utensils and dishes, discard wooden utensils, cutting boards or dishes as well as plastic utensils, baby bottle nipples and pacifiers that have contacted flood water. These items cannot be safely cleaned. Counters and surfaces of wood materials should be discarded if exposed to flood waters and non-wood surfaces and countertops thoroughly cleaned using hot soapy water. Continue to clean all surfaces to air dry. Be especially careful to clean cracks and crevices, cupboard door handles and hinges in all affected areas and allow to dry. Metal items and cooking items like pots, fry pans and cooking utensils should be washed with hot soapy water, rinsed, and sanitized. To sanitize items, boil in clean water to immerse them for 15 minutes in a solution of 1 teaspoon of unscented, liquid chlorine bleach per 1 litre of water.

## **Normal Household Trash & Waste**

Keep normal household waste and debris separate from contaminated food debris. Regular garbage pick-up will resume to normal and in the event service trucks are unable to access flood areas, alternative disposal arrangements will be made for residents.

## **Water Recovery**

Information about safe water and interior water recovery can be accessed from the Province of Ontario document, "Flooding in Ontario"- <https://www.ontario.ca/page/flooding-recovery-recommendations>.

## **Safe Well Water**

The recovery of safe drinking and cleaning water is a priority to help transition back to a familiar pre-flood state. Until safe water is restored, each person requires a recommended 4 litres of water each day for drinking, washing and safe food handling. Increase those amounts when small children, pregnant women and people with illnesses or pets are present in the affected area. ONLY drink, cook or clean with well water that has been tested by a laboratory for harmful bacteria and contaminants and has been deemed safe for consumption.

A boil water advisory may be necessary in areas when potable water (bottles, water haulers) is not available. Boiling water vigorously for a minimum of one-minute kills disease-causing organisms such as viruses, bacteria, and parasites. Sterilize drinking water by heating water to boiling point (100 degrees Celsius) and allowing the water to vigorously bubble for a minimum of one-minute.

For additional information regarding safe drinking water contact the Renfrew County and District Health Unit offices at 1-800-267-1097.

## **Septic Systems and Water**

Flooded or saturated drain fields may require that residents drastically reduce water use in the home to avoid damaging the system. For more about septic systems see section 2.3 Exterior Clean Up.

## **Exterior Clean Up**

Once standing and flood waters recede on the property, energy will be focused on the interior of affected buildings, which will require the restoration of exterior well and septic systems. For private property owners, it is important that every precaution is taken to ensure the well water and pumps are safe and operating normally (as one system) before it is possible to return home permanently.

## **Well and Septic System Recovery**

Information and needs:

- Well and septic system recovery
- Removing contaminated and hazardous materials from site
- Household waste removal
- Well water treatment after the flood (See Appendix)

- Well pump safety and maintenance
- Distribution and location of well water testing bottles including local pick-up and sample drop-off locations.

Aside from bacteria and contaminants be aware of the potential for electrical shock and be advised to seek qualified well contractors and pump technicians before restarting these systems. In addition, be sure that septic systems are stable and able to handle the addition of more water. Well water should be tested only after the floodwaters have receded from the well and septic areas.

**Do not drink or use water from an untested well, especially if floodwater was or is:**

- Completely covering the wellhead
- Surround the well
- Entered the basement of the affected home or if
- The well cap is missing, or the steel casing appears to be damaged.

Refer to the Resource Section for more information on the four steps to Restoring and Testing your Private Well After a Flood.

**Septic System Recovery**

Information and needs:

- System damage or failure
- Sewage backups
- Contaminated wells

Have septic tanks professionally inspected and serviced as soon as floodwaters recede, especially if damage or failure is suspected. Examine all electrical connections for damage before restoring electricity. As soon as possible, repair any erosion damage caused by the flooding and receding water. To prevent sewage backups on stressed systems, limit the amount of household water and sewage entering the system. After flooding, wells should always be tested for sewage-related bacterial contaminants.

**Contaminated & Hazardous Material**

Contaminated and hazardous items will need to be sorted and disposed of differently than the regular household waste usually handled by the municipality. Sort debris and items using the six waste disposal categories identified below. To ensure safe handling of all flood-related debris, take precautions to properly sort and dispose of all waste to reduce further contamination and risk to area residents.

Information and needs:

- Flood Debris and Materials
- Medication disposal
- Sandbags



## **Medications**

As per the Ontario Medications Return Program (OMRP) and Ontario Sharps Collection Program, all prescription drugs, over the counter and natural health products in oral dosage form can be returned to participating pharmacies. For flood-contaminated medications and drugs do not remove drugs from plastic packaging or bottles and place everything into a plastic bag, seal tightly and label *Return for Disposal – Contaminated Medications*. Never dispose of medications using regular household waste or left where small children or youth may have access to the contents.

## **Sandbags**

Used sandbags are extremely heavy and likely to contain trapped bacteria and sewage matter. Wear gloves and boots when lifting or moving the bags and protect open wounds/scrapes, face, and eyes from contact. Truck beds used to transport contaminated bags should be properly washed and disinfected. Every precaution should be taken by the property owners to properly dispose of the used sandbags still on their property. To reduce the likelihood of further risk and local contamination, affected municipalities will coordinate the proper removal and disposal of the bags as part of the contaminated and hazardous material removal plan.

Any leftover filled sandbags can be saved and used for up to six months, additionally the sand may be used for construction, road work, and preparing bases for concrete work. Bags should not be cut open or used for sandboxes, playgrounds, or other areas where direct contact with humans or animals may occur. The sand should not be disposed of in a wetland, waterway, floodplain, or other environmentally sensitive or protected area.

Waste and Debris should be sorted into the following categories:

1. Normal Household Trash
2. Vegetable Debris
3. Construction and Demolition Debris
4. Appliances and White Goods
5. Electronics
6. Household and Hazardous Waste

**Separating Your Debris**  
Debris should be placed curbside, without blocking the roadway or storm drains.

**NO PICKUP ZONE**  
Any debris placed from the sidewalk toward your property will not be picked up.

**DEBRIS SEPARATION**  
Separate debris into the six categories shown below.

**DO NOT STACK OR LEAN**  
Placing debris near or on trees, poles, or other structures makes removal difficult. This includes fire hydrants and meters.

**UNSURE WHERE TO PLACE DEBRIS?**  
If you don't have a sidewalk, ditch, or utility line in front of your house, place debris at the edge of your property before the curb.

**Normal Household Trash**  
Normal household trash and bagged debris of any kind will not be picked up with disaster debris. You should continue to follow your normal garbage removal schedule.

**VEGETATIVE DEBRIS**  
- Leaves (do not put in bags)  
- Logs  
- Plants  
- Tree branches

**CONSTRUCTION & DEMOLITION DEBRIS**  
- Building materials  
- Carpet  
- Drywall  
- Furniture  
- Lumber  
- Mattresses  
- Plumbing

**APPLIANCES & WHITE GOODS**  
- Air conditioners  
- Dishwashers  
- Freezers  
- Refrigerators  
- Stoves  
- Washers, dryers  
- Water heaters

**ELECTRONICS**  
- Computers  
- Radios  
- Stereos  
- Televisions  
- Other devices with a cord

**HOUSEHOLD HAZARDOUS WASTE**  
- Cleaning supplies  
- Batteries  
- Lawn chemicals  
- Oils  
- Oil-based paints and stains  
- Pesticides

**For more information contact your local government.**

## SECTION THREE – Financial Support

### Information and needs about Financial Relief Programs

- Who qualifies and how to apply for Disaster Assistance?
- How to deal with local insurance (overland flooding).
- What to do when disaster recovery is activated?
- The best way to document property damage.
- Accessing financial and food donations.

## **For Individuals**

### **Disaster Recovery Assistance for Ontarians Program**

Disaster Recovery Assistance for Ontarians is a special fund activated for specific geographical areas impacted by unexpected natural disasters. Activated by the Minister of Municipal Affairs and Housing for private property owners affected by natural disasters such as floods, tornadoes, landslides, and earthquakes. For a list of eligible disasters, please visit the link provided. Financial assistance may be available to help with the costs of cleaning, repairing, and replacing essential belongings. The available assistance is subject to caps and deductibles. Individuals, small owner-operator businesses, farmers, and not-for-profit organizations can apply. For additional criteria and information visit: <http://www.mah.gov.on.ca/Page13744.aspx>

## **For municipalities**

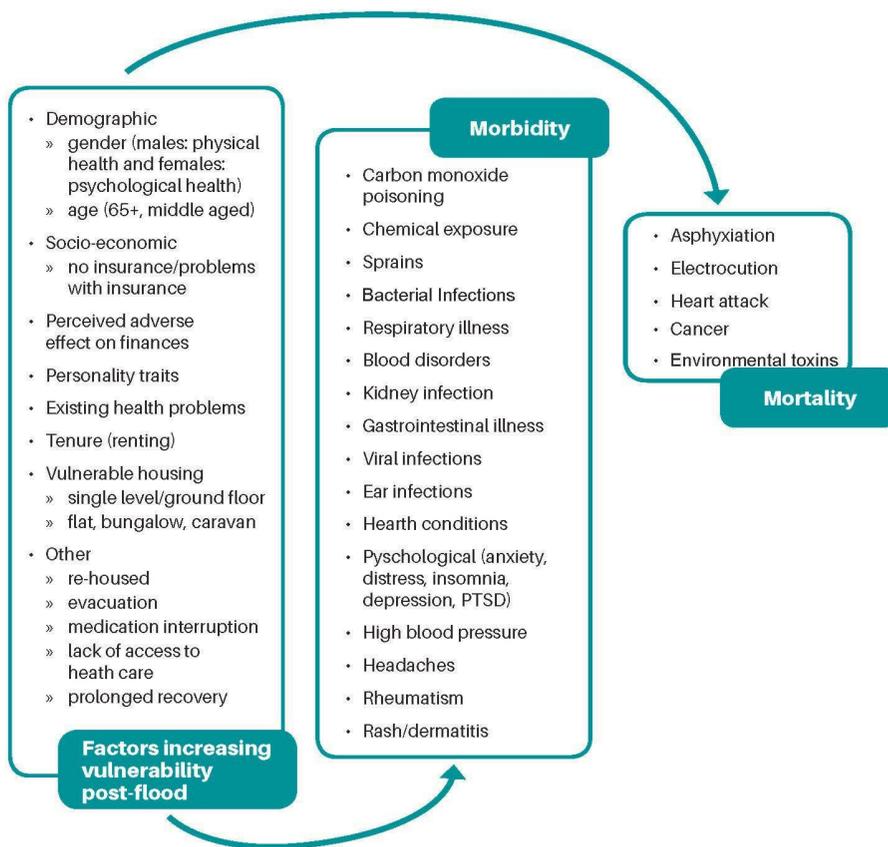
### **Municipal Disaster Recovery Assistance Program**

This program provides municipal disaster relief assistance for municipalities to recover from natural disasters. It is a claims-based program that, when activated by the province, offers financial assistance to qualifying municipalities that have sustained significant extraordinary costs as a result of a natural disaster, such as a tornado or several flooding. For additional information and guidance: <http://www.mah.gov.on.ca/Page136746.aspx>

## **SECTION FOUR – Safety and Health for Vulnerable and At-Risk Populations**

The impacts of flooding events have been investigated across social groups and have shown to be closely related to age and pre-existing health conditions. Physical health impacts due to flooding include shock, gastrointestinal illness, and respiratory illnesses, whereas psychological health impacts have been recorded as acute stress, clinical depression, anxiety, and post-traumatic stress disorder (PTSD). Females and young adults are at a greater risk of psychological and physical health effects of floods, and males are at a greater risk of mortality, primarily due to risk-taking behaviour. It is important to be aware of previous experience of flood, education or socio-economic status, current medications (to avoid medicine interruption) existing psychological, chronic gastrointestinal or cardiovascular illnesses to avoid worsening systems.

Factors increasing vulnerability to health effects post-flood events:



## SECTION FIVE – Local Contact Lists

Pembroke District of the Ministry of Natural Resources and Forestry is advising residents that a Flood Warning is still in effect for Renfrew County.

### Renfrew County District Health Unit

Emergency Preparedness <http://rcdhu.com/healthy-living/emergency-preparedness/>

Flood Warning <http://rcdhu.com/wp-content/uploads/2017/05/2017-05-11-PembrokeDistrict-FloodWarning.pdf>

Pembroke (613)-732-3629 or 1-800-267-1097

Renfrew (613)-432-5853 or 1-800-465-5000

### Ministry of Natural Resources & Forestry

Key information website <https://www.ontario.ca/page/ministry-natural-resources-and-forestry>

Local number (613) 732-5536

Toll free 1-800-667-1940

### Environment Canada

Weather warnings [http://www.weather.gc.ca/warnings/index\\_e.html](http://www.weather.gc.ca/warnings/index_e.html)

## Flood Forecasting and Warning Program

<https://www.ontario.ca/law-and-safety/flood-forecasting-and-warning-program>

**Municipal Road Closures**

[www.Municipal511.ca](http://www.Municipal511.ca)

**Ontario Public Alerts**

<https://www.ontario.ca/page/emergency-information>

**Ottawa River Regulation Planning Board**

<http://www.ottawariver.ca>

24hr toll free number 1-800-778-1246

**Ontario Power Generation**

<http://www.opg.com>

**Renfrew Power Generation**

<http://www.renfrewpg.ca>

**Propane Safety**

**Superior Propane** <https://www.superiorpropane.com/customer-service/flood-safety-precautions/>

**Emergency Management Ontario Source**

<http://www.emergencymanagementontario.ca/english/home.html>

<http://www.ontario.ca/emo>

**Community Services Database**

<https://renfrewcountyconnections.cioc.ca/>

**211** connects callers to community, social, government and health service information in Renfrew County and Ottawa 24 hours a day, seven days a week. The service is free, confidential and multilingual.

**Canadian Red Cross**

<http://www.redcross.ca/in-your-community/ontario>

**Community Mental Health Resources**

The Distress Centre answers 24 hrs a day, 7 days a week, with crisis line specialists providing confidential support

**613-238-3311**

<http://www.dcottawa.on.ca/>

The Mental Health Crisis Line answers calls for people ages 16 or older 24 hrs a day, 7 days a week.

**613-722-6914**

<http://www.crisisline.ca/about.htm>

The Kids Help Phone provides confidential 24/7 phone and web counselling for children ages 20 and under.

**1-800-668-6868**

<http://www.kidshelpphone.ca/Teens/Home.aspx>

North Renfrew Family Services walk in clinic at Deep River and District Hospital **613-584-3358**

If you are still in need of sandbags:

Sandbag Replacement - [sosipenko@countyofrenfrew.on.ca](mailto:sosipenko@countyofrenfrew.on.ca) 613 585 0041

Sandbagging Techniques <https://m.youtube.com/watch?feature=youtu.be&v=Zha8ypMvYRc>

## County of Renfrew Municipalities Contact Information

County of Renfrew	9 International Drive, Pembroke	613 735-7288/ 800-273-0183
Town of Arnprior	105 Elgin Street W. Arnprior	613 623-4231
Town of Deep River	100 Deep River Rd. Deep River	613 584-2000
Town of Laurentian Hills	34465 Hwy. 17, Deep River	613 584-3114
Town of Petawawa	1111 Victoria St, Petawawa	613 687-5536
Town of Renfrew	127 Raglan St. S., Renfrew	613 432-4848
Township of Admaston / Bromley	477 Stone Rd, Renfrew	613 432-2885
Township of Bonnechere Valley	49 Bonnechere St. E. Eganville	613 628-3101
Township of Brudenell, Lyndoch & Raglan	42 Burnt Bridge Rd., Palmer Rapids	613 758-2061
Township of Greater Madawaska	19 Parnell St., Calabogie	613 752-2222
Township of Head, Clara & Maria	15 Township Hall Rd., Stonecliffe	613 586-2761
Township of Horton	2253 Johnston Road, Renfrew	613 432-6271
Township of Killaloe, Hagarty & Richards	1 John St., Killaloe	613 757-2300
Township of Laurentian Valley	460 Witt Rd., Pembroke	613 735-6291
Township of Madawaska Valley	85 Bay Street, Barry's Bay	613 756-2747
Township of McNab/Braeside	2508 Russet Dr., Arnprior	613 623-5756
North Algona Wilberforce Township	1091 Shaw Woods Rd., Eganville	613 628-2080
Township of Whitewater Region	44 Main St., Cobden	613 646-2282

## SECTION SIX – Resources and References

Red Cross Flood Recovery Guide

<http://www.redcross.ca/crc/documents/3-1-2-4-Flood-Recovery-Guide.pdf>

New Brunswick Document

[http://www2.gnb.ca/content/dam/gnb/Departments/pa-ap/pdf/Report\\_Damages/FloodRecovery-e.pdf](http://www2.gnb.ca/content/dam/gnb/Departments/pa-ap/pdf/Report_Damages/FloodRecovery-e.pdf)

### Section 2.1 Resources:

Medications

<http://www.mayoclinic.org/healthy-lifestyle/consumer-health/expert-answers/after-a-flood/faq-20058421>

Mould

<https://www.cmhc-schl.gc.ca/en/first-nation/care-for-your-home/mould/upload/flood-cleanup-first-nation.pdf>

Natural Gas and Propane

<https://www.enbridgegas.com/gas-safety/safety-tips/flooding-natural-gas-safety.aspx>

Power Generators

<https://www.cdc.gov/disasters/floods/after.html>

### Section 2.2 and 2.3 Resources:

City of Calgary

<http://www.calgary.ca/UEP/Water/Pages/Flood-Info/After-flooding/Cleaning-up-after-a-flood.aspx>

Centre for Disease Control  
[Cleaning and Sanitizing with Bleach after an Emergency](#)

Government of Canada  
<https://www.getprepared.gc.ca/cnt/hzd/flids-ftr-en.aspx>

## **Well Water & Standing Water**

Centre for Disease Control  
<https://www.cdc.gov/disasters/bleach.html>  
<https://www.cdc.gov/healthywater/emergency/drinking/making-water-safe.html>  
<https://emergency.cdc.gov/preparedness/kit/water/>  
<http://wellowner.org/water-quality/flood/>

Food  
[http://www2.gnb.ca/content/dam/gnb/Departments/pa-ap/pdf/Report\\_Damages/FloodRecovery-e.pdf](http://www2.gnb.ca/content/dam/gnb/Departments/pa-ap/pdf/Report_Damages/FloodRecovery-e.pdf)

Clean Up – Furnishing  
<https://cypresshealth.ca/wp-content/uploads/2015/03/Cleaning-Up-After-A-Flood.pdf>

<https://www.cdc.gov/healthywater/emergency/extreme-weather/floods-standingwater.html>

CDC Water Advisory Toolbox Resource  
<https://www.cdc.gov/healthywater/emergency/pdf/dwact-2016.pdf>

Septic System  
<https://www.epa.gov/ground-water-and-drinking-water/septic-systems-what-do-after-flood>

Food Safety After a Flood  
<http://www.eatright.org/resource/homefoodsafety/safety-tips/food-poisoning/food-safety-in-the-home-after-a-hurricane-and-flooding>

Chainsaw Safety  
<https://www.cdc.gov/disasters/chainsaws.html>

Medication disposal  
<http://www.healthsteward.ca/collection/ontario>

After a Flood Federal Document  
<https://www.getprepared.gc.ca/cnt/hzd/flids-ftr-en.aspx>

Workplace Safety and Insurance Act  
See section 71 for deemed employer responsibilities for emergency workers, search and rescue operations and declaration of emergencies.  
<https://www.ontario.ca/laws/statute/97w16#BK91>

Insurance Bureau of Canada  
<http://www.ibc.ca/on/disaster/water>

Government of Canada – Flood Ready  
<https://www.canada.ca/en/campaign/flood-ready/prepare-home.html>



## Renfrew County and District Health Unit

### What You Should Know About Flooded Septic Systems

A well-maintained and constructed septic system will better withstand the stresses of heavy rains or flooding. Regular inspection is necessary to ensure proper functioning.

During heavy rains and floods, the ground can become saturated, preventing proper operation of the system. For example, a septic tank can collapse or float out of position. Signs that a septic system is not working properly include the following:

- Sinks drain slowly
- Toilets drain slowly
- Floor drains overflow
- Sewage becomes visible outside the home especially over the top of the septic system

#### Before a Flood:

To prepare your septic system before an emergency such as a flood, hurricane, or earthquake:

- Seal the access holes and/or inspection ports to keep excess water out of the septic tank
- Be sure your septic tank is at least half full to prevent it from collapsing or floating
- If your septic system requires electricity:
  - Turn off the pump at the circuit box before the area floods
  - Waterproof all electrical connections to avoid electrical shock or damage to wiring, pumps, and the electrical system

#### During a Flood:

During an emergency such as a flood, reduce the amount of water used by limiting toilet flushing, dishwashing, washing clothes, and showering.

Severe flooding can put drinking water wells at increased risk for contamination from flood water that may contain sewage. If your water well is submerged by flood water or you detect a noticeable change in the water's taste and appearance, then the well water should be boiled for at least one minute before using.



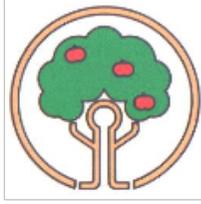
1. Store enough clean water to meet household needs for a minimum of 12 hours.
2. Bypass or disconnect any carbon filters, water softeners or other water treatment devices or else any pipes located past these filters will not be disinfected. Replace the filters once chlorination is completed. Highly chlorinated water can damage treatment units. It is important to follow the manufacturer's recommendations to ensure treatment systems are properly disinfected and not damaged. Be sure that the hot water tank's heat source is shut off.
3. Estimate the chlorine necessary to disinfect the water in the buildings plumbing including the hot water tank, and the chlorine necessary to disinfect the water in the well water column. Add them together.

- **Drilled well:** 1 cup of normal household bleach for every 25 feet of water in the well.
- **Dug well:** 1 liter of normal household bleach per every 5 feet of water.

A chlorine calculator is available at:

<https://www.publichealthontario.ca/en/ServicesAndTools/Tools/Pages/Well-Disinfection-Tool.aspx>

4. Pour the required amount of chlorine directly into your well.
5. If possible, mix the water in the well. This can be accomplished by attaching a hose to a tap and running water from the well through the hose and back into the well.
6. Open all water taps one at a time, including outside hose bibs and cold and hot water taps and laundry hook-ups. Allow the water to run until a chlorine smell is detected from each faucet then turn off each tap. Since chlorinated water can damage the action in a septic system, chlorinated water should not be allowed into the building's sewage system.
7. If a strong chlorine odour is **NOT** present, return to step 4 and add half the amount of chlorine used for the initial treatment to the well, then repeat steps 5 and 6.
8. Let the chlorinated water stand in the system for a minimum of 12 hours.
9. Run water through the outside hose away from vegetation until the strong smell of chlorine disappears. Make certain that the water does not enter any watercourse. Finally, open each and every indoor tap until the system is completely flushed. Taps or fixtures discharging to the septic tank systems should be temporarily diverted to an outside discharge point to avoid affecting the septic system.
10. Wait at least a couple of days after shocking or when all the chlorine is out of the well water, and then sample the water using the bottle and instructions provided by the Health Unit. Two consecutive tests that show no bacteria present, performed on samples obtained over a period of one to three weeks, should indicate that the treatment has been effective.
11. If the above steps do not fix the problem, you may want to speak with a public health inspector for assistance at 613-735-8654, extension 555 or visit [www.rcdhu.com](http://www.rcdhu.com)



## Renfrew County and District Health Unit

### **Caring For Your Water Well During and After a Flood**

Water wells can be contaminated by flooding. While this contamination may be associated with an unpleasant taste, odour, or cloudiness of the well water, some contamination will only become evident after water quality testing.

Under flood conditions surface water may enter directly into the aquifer via the well itself, an old abandoned well, or some other nearby excavation, bypassing the natural filtering process. Testing and rehabilitation efforts should be focused on potential bacterial contamination.

While the majority of water wells are likely unaffected, each homeowner should take certain steps to ensure their well water is safe for human consumption. As a first step, water from all wells in the flooded area should be tested for quality. In order to do this, you should obtain a bacterial sample bottle from your local public health office.

**Until the bacterial analysis shows the water to be safe, all water for human consumption should be boiled.** Bringing water to a rolling boil for 1 minute will kill most organisms. If you suspect or are informed that the water is contaminated with chemicals, seek another source of water such as bottled water.

If the bacterial analysis indicates that your water well has some level of contamination, then the well should be chlorinated and retested. Chlorination is a procedure used to disinfect a water well contaminated with bacteria. Contact your local Health Unit office for further information regarding the method of disinfecting a well.

If your well was unaffected by flood water, you may still wish to collect a water sample and disinfect your distribution system as a precaution. Experience has shown that not all of the water wells will have flood-related contamination. Some may have had problems prior to flooding and are now detected. Also, it is unlikely that all affected water wells will be satisfactory after a single treatment. Once a well has been chlorinated, it should be tested one or two weeks after treatment.

Further information can be obtained by contacting a public health inspector with the Renfrew County and District Health Unit at 613-735-8654.



## After a flood

Restore your home to good order as soon as possible to protect your health and prevent further damage to the house and its contents.

### Re-entering your home

- Do not return home until authorities have advised that it is safe to do so.
- If the main power switch was not turned off prior to flooding, do not re-enter your home until a qualified electrician has determined it is safe to do so.
- Use extreme caution when returning to your home after a flood.
- Appliances that may have been flooded pose a risk of shock or fire when turned on. Do not use any appliances, heating, pressure, or sewage system until electrical components have been thoroughly cleaned, dried, and inspected by a qualified electrician.
- The main electrical panel must be cleaned, dried, and tested by a qualified electrician to ensure that it is safe.
- Depending on where you live, your municipal or the provincial inspection authority is responsible for the permitting process required before your electric utility can reconnect power to your home.

### Ensure building safety

- Make sure the building is structurally safe.
- Look for buckled walls or floors.
- Watch for holes in the floor, broken glass and other potentially dangerous debris.

### Water

- Flood water can be heavily contaminated with sewage and other pollutants. It can cause sickness and infections.
- If your house has been flooded and you have a well, don't drink the water, have it tested first.
- Household items that have been flood-damaged will have to be discarded according to local regulations.

## **Documentation**

- Store all valuable papers that have been damaged in a freezer until they are needed (After your cleanup, consult your lawyer to determine whether flood-damaged documents, or just the information in them, must be retained).
- Record details of flood damage by photograph or video, if possible.
- Register the amount of damage to your home with both your insurance agent and local municipality immediately.

## **Cleanup**

Maintain good hygiene during flood cleanup. Minimize contact with floodwater or anything that may have been in contact with it. Keep children away from contaminated areas during cleanup operations.

## **Recommended flood cleanup equipment**

- Gloves
- Masks and other protective gear
- Pails, mops and squeegees
- Plastic garbage bags
- Unscented detergent
- Large containers for soaking bedding, clothing and linens, and clotheslines to hang them to dry

## **Additional equipment**

- Depending on your situation, you may need to rent additional equipment such as extension cords, submersible pumps, wet/dry shop vacuums, a carbon monoxide sensor and dehumidifiers, fans or heaters.
- When using the equipment, keep extension cords out of the water.

## **Water**

- Remove water from your flooded home slowly. Drain it in stages - about one third of the volume daily - because if the ground is still saturated and water is removed too quickly, the walls or the floor could buckle.
- Use pumps or pails to remove standing water, then a wet/dry shop vacuum to mop up the rest.
- For instructions on how to disinfect and restore wells and cisterns, contact your local or provincial health authorities or emergency management organization.

## **Heating and appliances**

- Do not heat your home to more than 4°C (about 40°F) until all of the water is removed.
- If you use pumps or heaters powered by gasoline, kerosene or propane, buy and install a carbon monoxide sensor. Combustion devices can produce large amounts of lethal carbon monoxide if they're not tuned-up or are improperly ventilated.
- Do not use flooded appliances, electrical outlets, switch boxes or fuse-breaker panels until they have been checked by your local utility.
- Whether you use a wood, gas or electrical heating system, have it thoroughly inspected by a qualified technician before using it again. Replace the furnace blower motor, switches and controls if they have been soaked.
- Flooded forced-air heating ducts and return-duct pans should be either cleaned or replaced.
- Replace filters and insulation inside furnaces, water heaters, refrigerators and freezers if they have been wet. However, it is often cheaper to replace this equipment.

## **Dirt and debris**

- Remove all soaked and dirty materials as well as debris.
- Break out walls and remove drywall, wood panelling and insulation at least 50 centimetres (20 inches) above the high-water line.
- Hose down any dirt sticking to walls and solid-wood furniture then rinse several times.
- Wash and wipe down all surfaces and structures with unscented detergent and water. Rinse.

## **Floor drains**

- Flush and disinfect floor drains and sump pumps with detergent and water. Scrub them to remove greasy dirt and grime.
- Clean or replace footing drains outside the foundation when they are clogged. Consult a professional for advice or service.

## Structures

- Ventilate or dehumidify the house until it is completely dry.
- Rinse and then clean all floors as quickly as possible.
- Replace flooring that has been deeply penetrated by flood water or sewage.
- Clean all interior wall and floor cavities with a solution of water and unscented detergent.

## Carpets and furniture

- Carpets must be dried within the first two days. For large areas, hire a qualified professional to do the job. Carpets soaked with sewage must be discarded immediately.
- Remove residual mud and soil from furniture, appliances, etc.
- If items are just damp, let the mud dry and then brush it off.
- To test if material is dry, tape clear food wrap to the surface of the item. If the covered section turns darker than the surrounding material, it is still damp. Dry until this no longer occurs.
- For upholstered furniture you should consult a professional to see what can be salvaged. In the meantime, remove cushions and dry separately. Do not remove upholstery. Raise furniture on blocks and place fans underneath.
- Wooden furniture: Remove drawers and open doors. Do not dry quickly or splitting may occur.

## Mould

- Mould can lead to serious health problems.
- You may need to have your home professionally cleaned for it to be covered by insurance. Check with your insurance company.
- If you are cleaning up in a room where mould is present, wear a face mask and disposable gloves.
- To minimize mould growth, move items to a cool, dry area within 48 hours and set up fans.
- Alternatively, textiles, furs, paper and books can be frozen until they are treated.
- Wet mould will smear if wiped. Let it dry and then brush it off outdoors.
- You can also kill mould spores by lightly misting the item with isopropanol (rubbing alcohol).

## Food and medicine

- All undamaged canned goods must be thoroughly washed and disinfected.
- Dispose of all medicines, cosmetics and other toiletries that have been exposed to flood water.
- Dispose of any of the following food items if they have been exposed to flood water:
  - Contents of freezer or refrigerator, including all meats and all fresh fruit and vegetables
  - All boxed foods
  - All bottled drinks and products in jars, including home preserves (since the area under the seal of jars and bottles cannot be properly disinfected)
  - Cans with large dents or that reveal seepage

## What to discard

All insulation materials, particleboard furniture, mattresses, box springs, stuffed toys, pillows, padding, cushions, and furniture coverings that have been exposed to flood water.

## What is salvageable

- Frames of high-quality furniture can often be saved. However, they must first be cleaned, disinfected, and rinsed, then dried by ventilation away from direct sunlight or heat. Drying too quickly can cause warping and cracking.
- Clothes can be cleaned. Scrape heavy dirt from washable clothes. Rinse and wash them several times with detergent and dry quickly.

## Before moving back in

Once the flood waters have receded, you must not live in your house until:

- The regular water supply has been inspected and officially declared safe for use.
- Every flood-contaminated room has been thoroughly cleaned, disinfected and surface-dried.
- All contaminated dishes and utensils have been thoroughly washed and disinfected - either by using boiling water or by using a sterilizing solution of one part chlorine bleach to four parts water - rinse dishes and utensils thoroughly.
- Adequate toilet facilities are available. (For more information, consult your local health authority.)

## **Clean Up Supplies**

Residents will be facing both the physical and emotional loss of property and belongings. Providing them with a list of suggested equipment, cleaning materials and clothing needs before they enter an affected buildings will help to prepare them for the physical work ahead. Before entering any flood affected building be sure it is structurally safe, and the building utilities (hydro, gas, propane) have been properly disconnected or reconnected after inspection and approval.

### **Personal Clothing and Equipment Needs**

- **Coveralls**
- **Eye protection/glasses**
- Hardhat
- Headlamps
- Hip waders
- N95 face mask
- Rubber boots
- Tetanus Vaccines
- Warm socks
- Waterproof gloves

### **Equipment for entering affected building**

- Camera for recording damage items
- Chainsaw
- Clear bags for recycling.
- Extension Cords
- Extra Batteries (stored in sealed plastic)
- First Aid Kit
- Flashlights
- Generators
- Hammers/pry bars/pliers
- Hand sanitizer
- Heavy duty bins for hauling waste and items to be cleaned and disinfected
- Heavy duty or industrial Garbage bags
- High-Capacity Gas pumps
- Hoses to fit pumps (50-100 ft)
- Industrial fans/drying fans
- Laundry Bags or Bins for collecting salvageable clothes and linens
- Moisture Meter
- Notebook and pen for making notes and reminders
- Shop vacs
- Submersible
- Pumps
- Wheelbarrows/shovels

### **Cleaning Supplies**

- 24-inch stiff-bristled Push Broom/brush
- Buckets for holding dirty water and disinfectants
- Cleaning detergents/soap
- Disinfectants such as household bleach
- Hose
- Large plastic bins for collecting salvageable items

- Rags
- Sponge Mop for water removal and String Mops for disinfecting, (Grouting sponges for cleaning).