
HALDIMAND COUNTY

Report ECW-01-2024 Home Flood Protection Assessment Program
For Consideration by Council in Committee on April 30, 2024



OBJECTIVE:

To obtain Council approval for implementation of the proposed Home Flood Protection Assessment Program for residents in urban areas across the County.

RECOMMENDATIONS:

1. THAT Report ECW-01-2024 Home Flood Protection Assessment Program be received;
2. AND THAT staff be authorized to proceed with the Home Flood Protection Assessment Program as outlined in this report;
3. AND THAT the revised budget as outlined in ECW-01-2024 be approved.

Respectfully submitted: Tyson Haedrich, M. Eng., P. Eng., General Manager of Engineering & Capital Works

Approved: Cathy Case, Chief Administrative Officer

EXECUTIVE SUMMARY:

In response to the increased frequency and severity of flash flooding events due to climate change the County is proposing to implement a residential home flood assessment program.

This County subsidized program will provide practical, specific recommendations from an assessment conducted by a third-party consultant that property owners can undertake to their property to reduce the risk of flooding and mitigate damages should flooding occur. Staff believe that this program can provide valuable information to property owners in assessing their risk of flood damage and the measures they can take to mitigate this risk, specific to their own individual property and circumstances.

This program will be in addition to several other initiatives that the County has implemented over the past decade to try and mitigate the effects of significant rainfall events.

BACKGROUND:

At the November 21, 2023 Council-in-Committee meeting, staff were given direction through the following resolution:

“THAT staff be directed to report back to a future Council in Committee meeting regarding options for a county-wide, urban area Basement Flooding Assistance Program.”

This direction was in response to feedback received during a public meeting held on October 17, 2023 related to home flooding events that occurred in April, July and August of 2023 with specific areas in Caledonia and Hagersville being the most affected.

As shown in Figure 1 (see below) there are numerous potential sources of flooding for a residential home. These can be classified into three main categories:

1. surface water flowing into a home through gaps, cracks and openings (overland flooding)
2. water seepage through foundation walls or gaps and cracks below ground (infiltration flooding)
3. backup of water into the home through sump pits or sewer pipes (sewer backup flooding)

Based on the feedback from residents, the majority of flooding experienced during the events of last summer appeared to be primarily sanitary and/or storm sewer backup flooding. Additional information collected from individual homeowners indicated that there were also incidences of overland flooding and infiltration flooding.

Flash flooding, which is most commonly due to extremely heavy rainfall in short periods of time, is expected to continue increasing as climate change has made rainfall more extreme and storms with extreme rainfall more frequent (Environment and Climate Change Canada). This is largely due to warmer air holding more moisture which in turn increases the intensity of downpours. In general, across North America, storms that would happen once a century now happen every 20 years and storms that would happen once every 20 years now happen every five years.

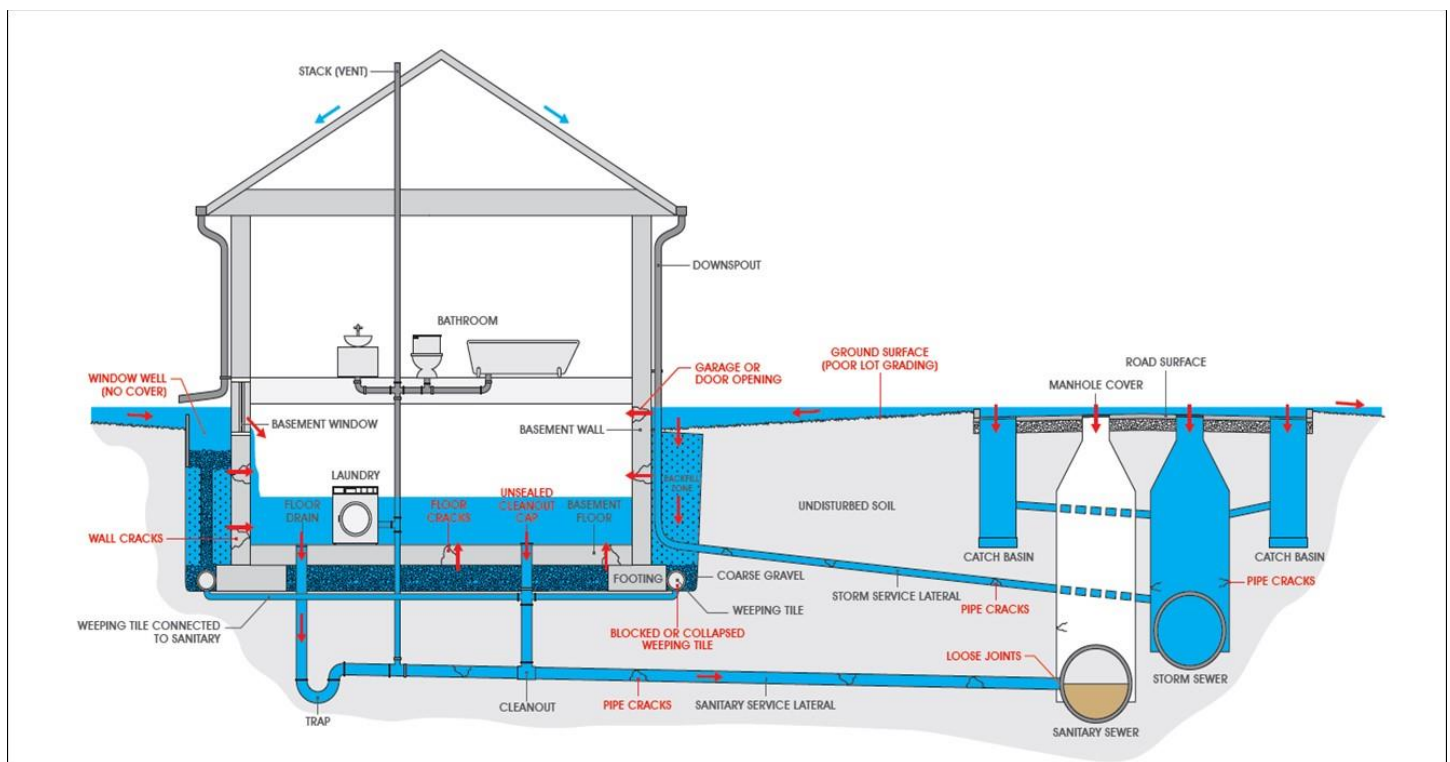


Figure 1 – Potential Sources of Residential Basement Flooding

One of the effects of more extreme and frequent rainfall events is increased inflow and infiltration (I/I) into the County's sanitary collection system. This has resulted in surcharging of the local sewer pipes as well as by-passes at pumping stations and treatment plants. The County has identified inflow and infiltration as a key priority and has been working on addressing this issue since 2010 through the following initiatives:

- Sewer Use By-law 1443/14 (2010) – banned storm water connections to the sanitary system
- Wastewater System Inflow and Infiltration (I/I) Reduction Program (2012) – ongoing
- Basement Flooding Mitigation Program (2016-2018) – backwater valve installation and sump pump disconnects for specific areas of Caledonia and Hagersville.
- Design Criteria Update (2018) – increased requirements for downspouts and weeping tile sump pumps to spill to grade.

The province has also recognized the issue of isolating residential homes from the sanitary sewer collection systems and the Ontario Building Code was updated in 2011 to make backwater valves mandatory in all new homes.

ANALYSIS:

Based on feedback received during the October 2023 meeting and subsequent discussions with staff, the preferred approach to Council direction involves increasing homeowner awareness and information regarding flood prevention. The concept of a flood risk assessment was favoured because it was recognized that a one size fits all solution approach to the various types of flooding (i.e. backwater valve installation) does not work for everyone given the many different potential sources of basement flooding.

The assessment approach that staff are recommending follows the residential basement flood risk reduction best practices developed by the Intact Centre on Climate Adaptation at the University of Waterloo. The Intact Centre on Climate Adaptation (ICCA) is an applied research centre with a national focus within the Faculty of Environment at the University of Waterloo. The Intact Centre works with homeowners, communities, governments and businesses to identify and reduce the impacts of extreme weather and climate change.

The approach taken by the ICCA assessments focuses on risks that are within the control of the home owner and are on their private property. The assessments concentrate on the three major sources of urban flood risks including the risk of surface water flowing into a home through gaps, cracks and openings (overland flooding), seepage through foundation walls or gaps and cracks below ground (infiltration flooding) and backup of water into the home through sump pits or sewer pipes (sewer backup flooding).

One of the outcomes of the assessments is for homeowners to educate themselves and be empowered to take action with respect to corrective actions shown in Attachment 1. Some of the easiest options include testing the sump pump, inspecting the backwater valve, installing a flood alarm, removing debris from the nearest storm drain outside and floor drain inside, cleaning eavestroughs, extending downspouts, installing window wells and covers and storing basement valuables in watertight containers.

Additional work that may be identified through the assessment is the requirement for the property owner to utilize contractor services for work such as correcting the grading around the foundation, installing a backwater valve, replacing deteriorating pipes, and installing a backup sump pump with backup power.

In contrast to the assessment approach, past experience with programs that funded work within people's homes included challenges such as lack of participation, significant time and effort by County staff both before and after the work, alterations to the work after County completion and lack of maintenance of installed sump pumps and backwater valves.

Finally, the preventative actions that homeowners take, if reported to their insurer, may help them qualify for reduced insurance premiums, lower deductible levels or insurance discounts.

Proposed Home Flood Protection Assessment Program

Overview

The Home Flood Protection Assessment Program is designed as an educational tool for homeowners and provides them with practical information necessary to identify and limit their risk of basement flooding. The assessment includes the following:

- 50+ point visual inspection of potential sources of water entry inside and outside the home.
- Assessment is approximately 90 minutes in length. Homeowner must be present.

- Confidential report prepared following the assessment. The report is colour-coded red, yellow, green to easily identify high-risk areas (see Attachment 2).
- 15 minute follow-up conversation with assessor is available at homeowner's request.

It is the intent of this program that the assessments be carried out by AET Group Inc. through a Direct Purchase process with the County at an upset limit of \$20,000.

Since 2017, AET Group Inc. (AET) has been involved in carrying out lot-level assessments for homeowners across Canada as part of the Home Flood Protection Program (HFPP), an educational program developed by the Intact Centre on Climate Adaptation at the University of Waterloo. Staff have spoken to the City of Windsor about their experience with this program and received positive feedback on both the performance of AET and the program itself. City staff did note that uptake of the program has been relatively limited since it was initiated in 2023.

The goal of the assessment is to help homeowners reduce their risk of basement flooding and to reduce damage in the event of a flood. There are two types of Home Flood Protection Assessments, on-site and remote. The on-site assessment is the standard type offered, however the remote assessment is available to any homeowner who wishes and might be preferable in some cases. The on-site assessment typically takes 1 to 2 hours and the report is usually completed within a week of the assessment.

Program Eligibility

In order to qualify for this program the home must have a connection to the County's sanitary and/or storm collection system. The owner of the property is eligible and non-owners (i.e. renters) may also apply if they have written permission from the homeowner to participate in the program. Homeowners must also have their tax accounts current to be eligible.

It is the intent of the program that it be first come, first served until the upset funding limit is reached.

Program Cost

Staff are proposing that the County fund 50% of the cost to complete the assessment. The cost of the assessment is \$550 plus HST for an on-site assessment and \$475 plus HST for a remote assessment.

Application Process

The intent of the program is to keep it as simple as possible by implementing the following process:

1. Homeowner fills out on-line application.
2. Application is reviewed and, if approved, County coordinates initial contact with AET.
3. Homeowner coordinates assessment with AET and pays AET up front.
4. AET completes inspection.
5. County reimburses homeowner 50% of the assessment cost with receipt of valid invoice.

Based on discussions with AET this process has worked well with other municipalities and can be adjusted if changes are required. As part of the overall program AET also follows up with the homeowners participating in the program at six and twelve month intervals to ask what work has been completed as an outcome of the assessment. This value added information is available to the County on an overall basis not on an individual home level to preserve privacy.

Staff are investigating options to have a copy of the final report provided to the municipality to keep on record for the applicable address so the County is aware of potential solutions for each participating address. This may also provide an element of customer service in the future should new owners be unaware of recent assessments that they wish to utilize to improve the property.

FINANCIAL/LEGAL IMPLICATIONS:

The intent of the program is that it be a one time initiative with a proposed funding level of \$20,000 which would fund approximately 60 home assessments to be completed with a 50% cost share between the homeowner and the County.

The 2024 Tax Supported Operating Budget does not include any funds related to this program. To facilitate this program it is proposed that the County's share be funded from the Insurance Reserve as the program is indirectly related to protection of the municipality by increasing homeowner awareness and information regarding flood prevention.

As the result of the above, the following amendment to the 2024 Tax Supported Operating Budget is required:

	Current Approved Budget	Revised Budget
Expenditures		
Home Flood Protection Assessment Program	\$0	\$20,000
Total Expenditures	\$0	\$20,000
Financing		
Insurance Reserve	\$0	\$20,000
Total Financing	\$0	\$20,000

STAKEHOLDER IMPACTS:

Not applicable.

REPORT IMPACTS:

Agreement: No

By-law: No

Budget Amendment: Yes

Policy: No

REFERENCES:

1. [Sewer Use By-law 1443/14](#).

ATTACHMENTS:

1. Intact Centre Home Owner Brochure
2. Sample Home Flood Protection Assessment Report