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# FLOOD MITIGATION AND PROTECTION FRAMEWORK (FMPF) UPDATE

Regular Council Meeting

May 30, 2023



# PRESENTATION OVERVIEW



Background



FMPF Elements and Program Charter



FMPF Update



Additional Flood Mitigation Enhancement Measures



Closing Remarks & Questions



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# BACKGROUND

# BACKGROUND



- A significant rainfall event and subsequent flooding occurred in July of 2021. Based on this event (and past known flooding concerns), the Flood Mitigation and Protection Framework (FMPF) was developed to assist with managing storm events and to develop long term solutions to mitigate flooding concerns.
- The framework was presented to Council at the August 12, 2021 Regular Council Meeting.
- A subsequent update was presented to Council in November 2, 2021 outlining the July 2021 flooding event, the framework which included community feedback and next steps.
- The first Flood Mitigation and Protection Framework update was provided to Council on June 14, 2022.
- This presentation is to provide a status update and the actions taken since June 2022.



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# FMPF ELEMENTS AND PROGRAM CHARTER

# FMPF PROGRAM CHARTER

- FMPF consists of elements that represent a whole municipal approach to address the flooding challenges within Lakeshore including but not limited to monitoring of existing systems, public service improvements during events, planning document updates and operational system enhancements.
- Implementation of these elements ensures the delivery of the program.

The FMPF elements consist of:

- Smoke testing program
- Monitoring, tracking, and enforcement of results
- Expanded Building and Occupancy Inspections
- Review drainage areas and recommended Drainage Act initiation
- Review of Official Plan and Zoning By-Law
- Review and changes to Development Standards
- Development of a Flood Rapid Response Plan
- Staffing Plan to execute and support FMPF

- Other elements have also been included in the above, through the implementation of the Framework.

# FMPF PROGRAM CHARTER

## PROGRAM VISION:

*Implement the FMPF elements to minimize the impact flooding has on residents and the community through team collaboration with a focus on monitoring, planning and enhancements to the existing systems.*

- The Program Charter provides oversight to the Program Manager and assigns accountability to staff for deliver the elements of the FMPF.
- Includes prioritizing elements laid out in the framework, provides updates (including Council updates like this) and discusses impact of delivery, next steps and budget requirements.
- Annual summary milestones have been incorporated in the charter. These are revisited when budget and goals are set for the year to continue to focus on Flood Mitigation and Protection.



OUR COMMUNITIES. OUR HOME.

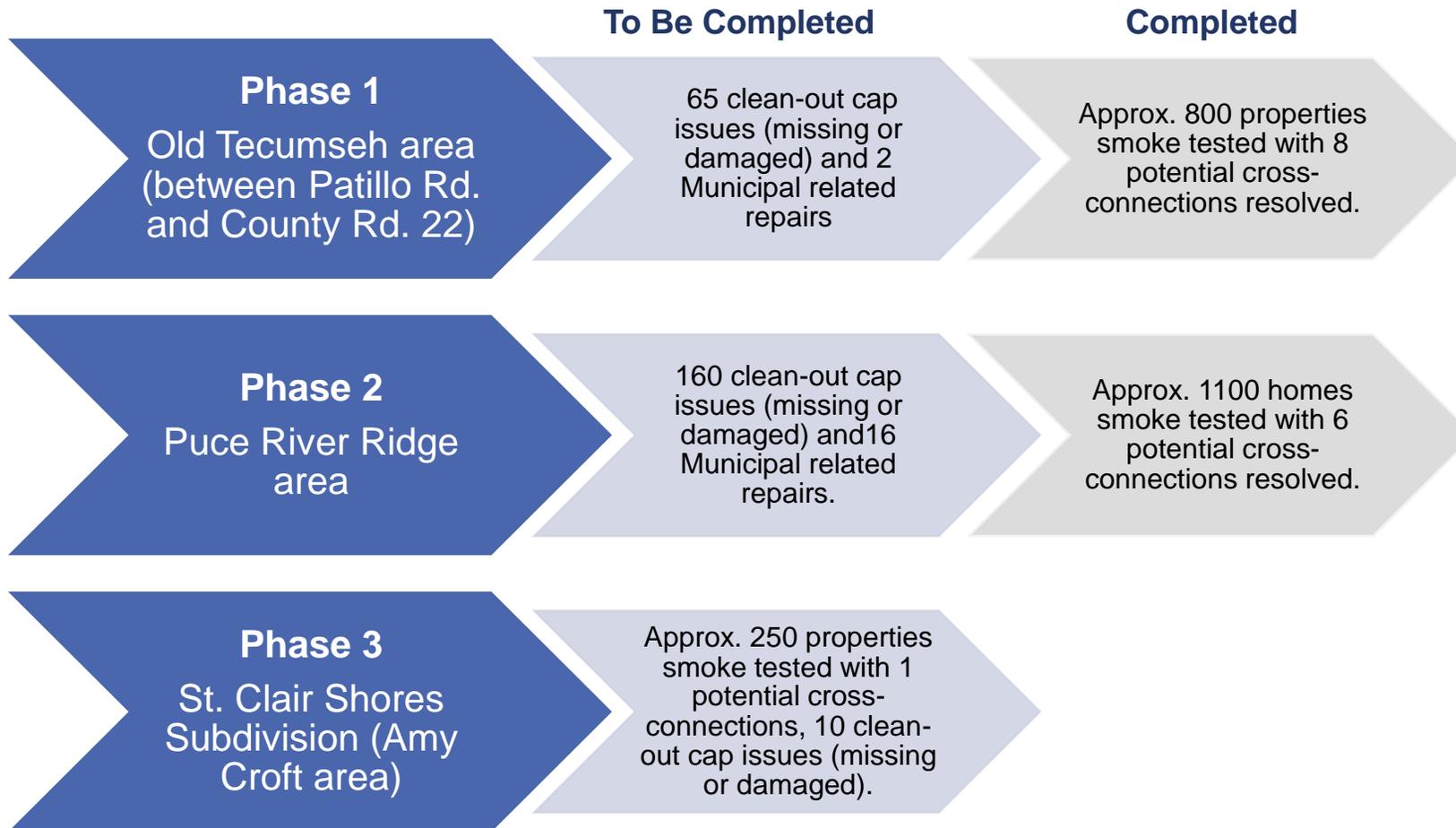


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# FMPF UPDATE

# SMOKE TESTING AND I&I INVESTIGATION

Since development of the framework smoke testing was undertaken in 4 Phases within Lakeshore:

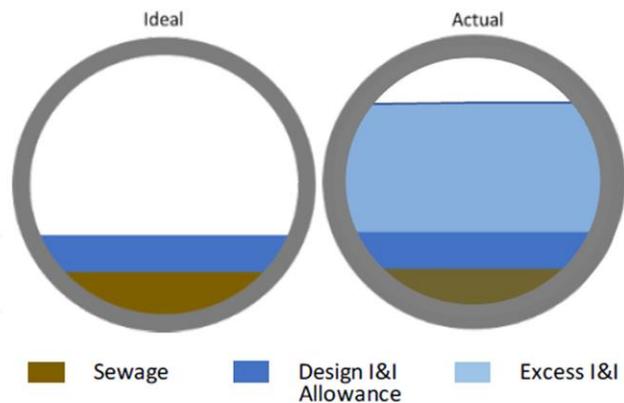


*Damaged Clean-out Cap (left) / Missing Clean-out Cap (right)*



# SMOKE TESTING AND I&I INVESTIGATION CON'T

- Consultant retained with I&I expertise to investigate St. Clair Shores (Amy Croft area).
- Recommendation of enhanced flow monitoring to distinguish areas of possible I&I in this area.
- Installation of four flow monitors along Amy Croft Drive over four-month period (May to September); report to follow that will summarize findings and identify area of inflow.
- Phase 2 (Puce-River Ridge) sanitary mainline camera work occurred in early 2023 for approximately 18 kilometers of main sewer and nearly 200 manholes.



# BUILDING INSPECTION EXPANSION

Inspection of new buildings in storm events (as outlined in the Flood Rapid Response Plan):

- Staff check if water accumulating on site is draining to sanitary.
- Follow-up with builders/contractors, as needed.
- Cooperation from builders/contractors to rectify has been positive.



Procedures for testing prior to building occupancy:

- Expand inspections through Building Division to confirm no infiltration or cross connection of services prior to occupancy.
- Procedures are under review but have not been implemented to date.

# OFFICIAL PLAN AND ZONING BY-LAW REVIEW

- Review directing all new development out of flood plains, increase development setbacks from riparian lands and maximum lot coverage restrictions.
- Review policies to leverage ecological infrastructure and parkland for natural storage of stormwater.
- Expand policies to support low impact development and the use of environmentally sustainable practices (i.e. green roofs and rain gardens).



# DEVELOPMENT MANUAL UPDATE

- FMPF elements will be integrated into the updated Development Manual, including but not limited to increased stormwater management requirements, runoff coefficients, LID alternatives, etc.
- Lakeshore's Development Manual will be renamed to Lakeshore's Development & Standards Manual to ensure all enhanced requirements will be implemented on any project completed in Lakeshore (as opposed to new development only)
- Staff review of development manual (2017 version) is currently underway and approximately 75% completed. Final internal and external reviews are expected to occur during Q3 2023.
- Revised Development Manual (2023) will be brought to Council for adoption in Q4 2023.



*2011 Wallace Woods Secondary Plan Original Concept*

# DRAINAGE AREA REVIEW AND ACT INITIATION



- Staff have been investigating the drainage areas throughout the Municipality that fall under the Act and a monitoring program is being developed through storm events to highlight concerns related to system constraints.
- Through drainage area assessments and confirmation, Section 78 will be recommended to be initiated by the Road Authority/assessed landowners
- i.e.. Lefaive Drain letter was sent to residents (after the July 16<sup>th</sup> event) to assist with triggering section 78 for pump upgrades to this drainage scheme
- Maintenance was performed under Section 74 for Lefaive Drain which included pump upgrades, alarm installation, well and outfall improvements.

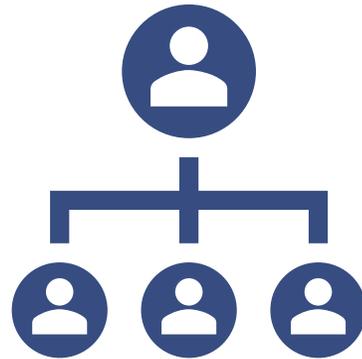
# FLOOD RAPID RESPONSE PLAN

- Consultant was retained to assist with preparing a detailed response plan to assist Operations during storm events.
- Completion of final plan report was completed in early May 2023 and a presentation of the Flood Rapid Response Plan will be made to Council at tonight's May 30, 2023 Council Meeting.
- As next steps, training of impacted staff will also be conducted based on the final Plan.

**COMPLETED**



Flood Alert Levels



Flood Response Team Management



Flood Mitigation Activities



Communication Plan

# STAFFING PLAN



## Team Leader – Sanitary and Stormwater

- Supervise and coordinate the FMPF.
- Assess systems during activation of the Flood Rapid Response Plan.
- Lead Water and Wastewater Masterplan, I&I investigations, and continuing education of the FMPF



## Engineering Technologist – Sanitary and Stormwater

- Support and assess modelling of the sanitary and stormwater systems.
- System monitoring and obtain field data during flooding events.
- Assist in Water and Wastewater Masterplan, I&I investigations, and continuing education of the FMPF



## Team Leader – Public Service

- Lead and coordinate incoming requests from the public.
- Provide support during activation of the Flood Rapid Response Plan.



## Division Leader – By Law

- Enforcement of the Sewer Use By-law.
- Provide notice and follow-up with private issues from smoke testing.



## Solicitor

- Provide legal support to the FMPF.
- Draft and review by-laws and proposed new policies related to FMPF.

**COMPLETED**





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# ADDITIONAL FLOOD MITIGATION ENHANCEMENT MEASURES

# DEVELOPMENT OF A FLOOD OUTREACH & EDUCATION PROGRAM

- Development of a Flood Outreach and Education Program to promote awareness and education on mitigation measures available to residents
- Education Booths will occur at Public Information Center (PIC)
- Targeting 3-4 PICs in 2023, in addition to the first booth during the Stormwater Masterplan Phase 1 PIC

## FLOOD MITIGATION AND PROTECTION

### WORKING TOGETHER TO PROTECT YOUR HOME

Under the Flood Mitigation and Protection Framework, Lakeshore has taken a number of steps to protect local homes and support property owners in flood protection.



### Stay #FloodAware!

During high-wind and rainfall events, local updates on flood risks and problem areas can be found on Essex Region Conservation Authority's and Lower Thames Valley Conservation Authority's flood advisory web pages. Access those resources and learn more at:

[Lakeshore.ca/Flooding](https://Lakeshore.ca/Flooding)

### Before a flood

- Determine whether your home, school, or work is in an area that is likely to flood. Learn which roadways may flood and plan an alternative route to avoid them.
- Create a communications plan so your family will know how to connect during an emergency.
- Assemble an emergency kit and prepare for possible evacuation. Charge essential electronics.
- Be proactive! Leave before the flooding starts to avoid being stranded.

## BE FLOOD READY.

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### Flooding types

- Rainfall/runoff from storms and snow melt.
- Shoreline flooding from high levels.
- Localized sanitary or storm sewer backups.

### Protecting your property

- Grade your property so it slopes away from your home.
- Ensure downspouts extend at least 1.6 metres away from your home.
- Install a clay/bentonite plug, which is placed in the trench surrounding storm and sanitary sewer pipes around your home. This will help prevent water from backing up through the trench and moving towards the house
- Install a sump pump. Battery back-ups or water-powered systems can also ensure continued operation during power outages.
- Ensure caps for storm and sanitary cleanouts are on properly and not cracked or damaged.

### Flood protection subsidies

The Municipality of Lakeshore offers the following subsidies to its residents:

- **Mini camera inspections** (one free/property)
- **Backwater valves** (80% or \$750).
- **Sump pump overflows** (Up to \$225).
- **Downspout disconnection** (\$75 subsidy).

### During flood events

Residents in flood-prone areas throughout the municipality should:

- Ensure sump pumps are operating normally.
- Clear debris and leaves from yard catch basins to improve drainage around your property.
- Monitor your backwater valve and stop using water if it is closed.
- Avoid using water, when possible, to reduce pressure on the municipal system, including flushing toilets.
- Avoid driving on flooded roads.

### If your basement is flooding:

- Pump stormwater out of basements and away from the home. Floor drains, laundry tubs, or other fixtures should not be used.
- If water starts to reach electrical outlets, baseboards heaters or furnace, or is near the electrical panel, call HydroOne to have your power disconnected.

### To report flooding:

- Call Lakeshore or use the online Flooding Survey Tool. Submissions will be used by staff to monitor problem areas and prioritize response efforts.

519-728-2700

[Lakeshore.ca/Flooding](https://Lakeshore.ca/Flooding)

## BE FLOOD READY.

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Scan the code or learn more at:  
[Lakeshore.ca/Flooding](https://Lakeshore.ca/Flooding)

**COMPLETED**

# FLOOD MITIGATION ACTIVITIES



## Rain Gauge Station Monitoring

- Monitors spread throughout the municipality
- Purchased 12 units – 8 installed to date (remaining ones pending access to internet)
- Gauges aid in staff deployment of the Flood Rapid Response Plan
- Enhanced understanding on ground saturation and rainfall risks



## Pump Station Monitoring

- Consultant to be retained for implementing a monitoring system for existing pump stations
- Data monitoring will provide real-time updates to staff during events to assess and recommend improvements

# FLOOD MITIGATION ACTIVITIES



## Sanitary System Model

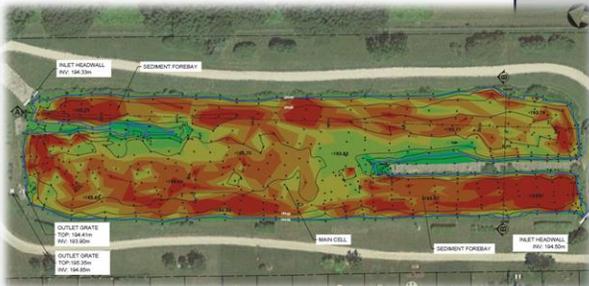
- Jacobs completed Lakeshore sanitary model
- Assisting with outlining and highlighting areas of I&I concern and system constraints under rain events
- Future smoke testing areas and in-depth I&I investigation

**COMPLETED**

## Storm Pond Assessment & Volume Maintenance Program

- Sediment survey and condition assessment of stormwater ponds have been completed for 5 ponds
- Developed a maintenance schedule for existing ponds (recommendation of the Stormwater Master Plan 1)
- Tender and awarded pond clean-outs at Amtec Industrial Pond and Chelsea Park Pond, work commencing this fall.
- This program will be ongoing through annual budget submissions.

**COMPLETED**



## STORMWATER LEVY STUDY

- Staff have been reviewing the drainage areas throughout the Municipality that fall under the Act and areas connected to the municipal stormwater system.
- A study to assess various stormwater levy models to provide funding source for stormwater infrastructure.
- Study will identify recommended approaches for fees and develop approximate annual funding for stormwater capital projects.

## SEWER USE BY-LAW UPDATE

- Conduct a comprehensive and regional scan of other municipalities regarding similar by-law.
- Update by-law 80-2011, to regulate the discharge of matter into the sanitary and storm water sewage systems.
- Anticipated by-law update brought to Council in Q4 2023.

# SERVICE LINE WARRANTY PROGRAM INVESTIGATION

- Optional warranty program for water and/or sewer lines on the private side for residents.
- Program offers coverage caps of \$5000 (Water Line) and \$8000 (Sewer Line)
- Requires endorsement by the Municipality and Council for program initiation.
- To be provided through a third party and will be brought to Council for consideration in June/July 2023.

# STORMWATER MASTER PLAN (ENHANCEMENTS)

- **Phase 1**– Master plan completed in 2020 and some improvement projects were allocated funding
- **Phase 2** – Master Plan to be completed for Phase 2 – PIC #2 scheduled for June 14, 2023.
- Council Budget Meeting for 2022 identified the need for the development of a funding model to accommodate the SWP 10-year plan. A proposed levy study has been approved in the 2023 budget.



# WATER AND WASTEWATER MASTER PLAN UPDATE

- As a result of the growing population, the Municipality must manage existing water and wastewater infrastructure to service the community's existing and future needs, considering growth and new development. To support this growth, the Municipality requires a Water and Wastewater Master Plan (WWMP) update to provide planning and implementation of water and wastewater infrastructure improvements for the next 20 years (2042).
- The study will be carried out as a Master Plan in accordance with Schedule B Approach #1 of the Municipal Engineers Association's (MEA's) Municipal Class Environmental Assessment (MCEA) Process.
- This Plan will also consider storage requirements to accommodate the significant I & I in the existing systems including consideration of storage reservoirs and/or increase pipe size and inline storage to assist with the mitigation of flooding.

# FRRP FLOOD MONITORING DATABASE (FMD)

- Based on the completion of the FRRP and the creation of the Flood Monitoring Database (FMD), the data generated from significant events will be used to monitor and assess areas of concern.
- The FMD will continue to support the FMPF to assist with mitigation of flooding events.



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# CLOSING REMARKS & QUESTIONS

- Administration is focused on training and implementation of the FRRP.
- Some projects completed and many projects still underway to assist with mitigating flooding impacts.
- Next Update to Council in Q4 of 2023.

Remember this is a multi-year plan!