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FLOOD MITIGATION AND PROTECTION FRAMEWORK (FMPF) UPDATE

Regular Council Meeting

June 14, 2022



PRESENTATION OVERVIEW

Background

FMPF Elements and Program Charter

FMPF Update

Additional Flood Mitigation Enhancement Measures

Closing Remarks & Questions





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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.

This presentation is to provide a status update and build on the framework and the actions taken since November 2, 2021.





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FMPF ELEMENTS AND 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

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.
- Synergy Team(s) developed with frequent status and progress meetings on the elements.
- 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.





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FMPF UPDATE

SMOKE TESTING AND I&I INVESTIGATION

=**\$525,000**

Since development of the framework smoke testing was undertaken in 2 areas within Lakeshore:

Phase 1 – Old Tecumseh area (between Patillo Rd. and County Rd. 22)

- Approx. 800 properties smoke tested with 8 potential cross-connections, 65 clean-out cap issues (missing or damaged) and 2 Municipal related repairs

Phase 2 – Puce River Ridge area

- Approx. 1100 homes smoke tested with 6 potential cross-connections, 160 clean-out cap issues (missing or damaged) and 16 Municipal related repairs.



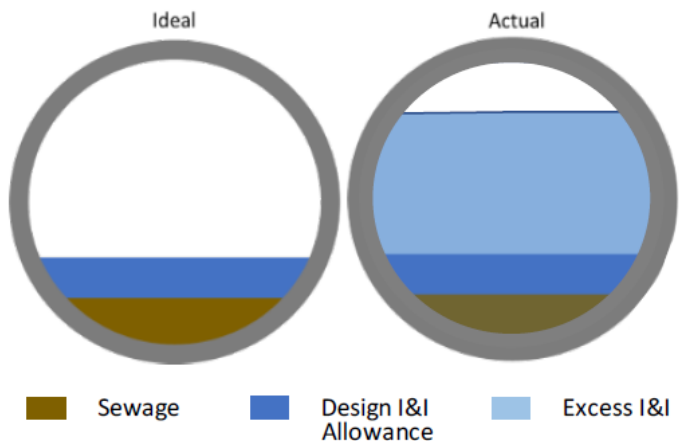
Damaged Clean-out Cap (left) / Missing Clean-out Cap (right)

Majority of inflow that was found in the first two phases of smoke testing was related to broken or missing sanitary sewer caps. As part of the smoke testing program Lakeshore supplied caps for replacement to those residents that identified missing/damaged caps.

Approximately 50% of property owners have picked up their sanitary cap to date (over 100 caps supplied to residents).

SMOKE TESTING AND I&I INVESTIGATION CON'T

- Consultant retained with I&I expertise
- Amy Croft (St. Clair Shores) is next phase (Phase 3) for smoke testing and a full I & I Investigation including enhancements to the program including dye testing, private home inspections and flow monitoring.
- I&I enhanced review and investigation will be undertaken in Phase 2 based on the smoke testing results



BUILDING INSPECTION EXPANSION

Inspection of new buildings in storm events (included in Flood Rapid Response Plan):

- Building 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

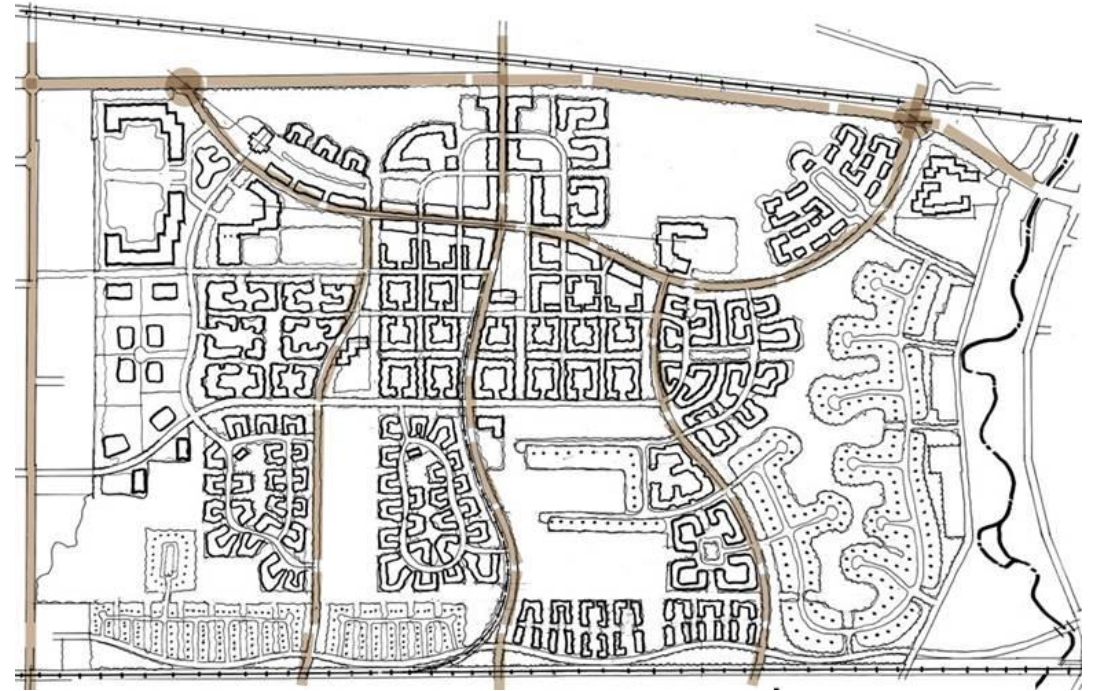
- Review directing all new development out of flood plains, increase development setbacks from riparian lands and maximum lot coverage restrictions.
- Review policies to leverage ecological infrastructure and parkland for natural storage of stormwater.
- Expand policies to support low impact development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



DEVELOPMENT STANDARDS MANUAL UPDATE

- Update the Municipality's Development Manual to include stricter guidelines and requirements to assist with flood mitigation and stormwater management.
- Requirements to consider will include alternatives to backflow prevention devices, use of sewer ejector pits, mandate all downspouts are discharged to the lawn, and runoff coefficients and stormwater management standards followed and enhanced, where necessary.
- Staff review of development manual (2017) is currently underway.
- FMPF elements will be integrated into manual update including but not limited to increased stormwater management requirements, runoff coefficients, LID alternatives, etc.
- Updates/changes will be brought to Council as required (anticipated completion of late fall 2022)

=**\$0** (internal resources)



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 initiated by the Road Authority/assessed landowners
- ie. Lefaive Drain letter was sent to residents (after the July 16th event) to assist with triggering section 78 for pump upgrades to this drainage scheme

= \$ based on drainage assessments under the Act

FLOOD RAPID RESPONSE PLAN

- Consultant was retained in late 2021 to assist with preparing a detailed response plan to assist Operations during storm events.
- An internal review of draft report is currently underway and expected to be finalized by the beginning of July.
- A Presentation of the Rapid Response Plan will be made to Council upon completion (targeted for the August Council Meeting).
- Training of impacted staff will also be conducted based on the final Plan.

=**\$41,800**



Organizational charts that establish roles, responsibilities and accountability during events.



Enhanced communication plan to assist with an increased level of service during events when residents call.



Resource plan including dispatching, area prioritization and strengthened communication between field with office staff during flooding.



Staff members dedicated to public service including technical roles, call center staff, by-law enforcement and legal.

STAFFING PLAN

Hiring

Staff hired to date:

- Engineering Technologist – Sanitary and Stormwater
- Team Leader – Public Service
- Division Leader – By Law

Recruitment

Staff recruitment process ongoing:

- Team Leader – Flood Mitigation and Protection (Sanitary and Stormwater)
- Reposting in June/July 2022





ADDITIONAL FLOOD MITIGATION ENHANCEMENT MEASURES

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Flood Outreach and Education Program

- Flood Outreach and Education Program will follow the Flood Rapid Response Plan

=**\$25,000**

Rain Gauge Station Monitoring

=**\$5,000**

- Monitors spread throughout the municipality
- Purchased 12 units – 5 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

=**\$150,000**

Sanitary System Model

- Jacobs completed Lakeshore sanitary model
- Assisted with outline and highlighting areas of I&I concern and system constraints under rain events
- Model will aid in planning for FMPF
- Future smoke testing areas and in-depth I&I investigation

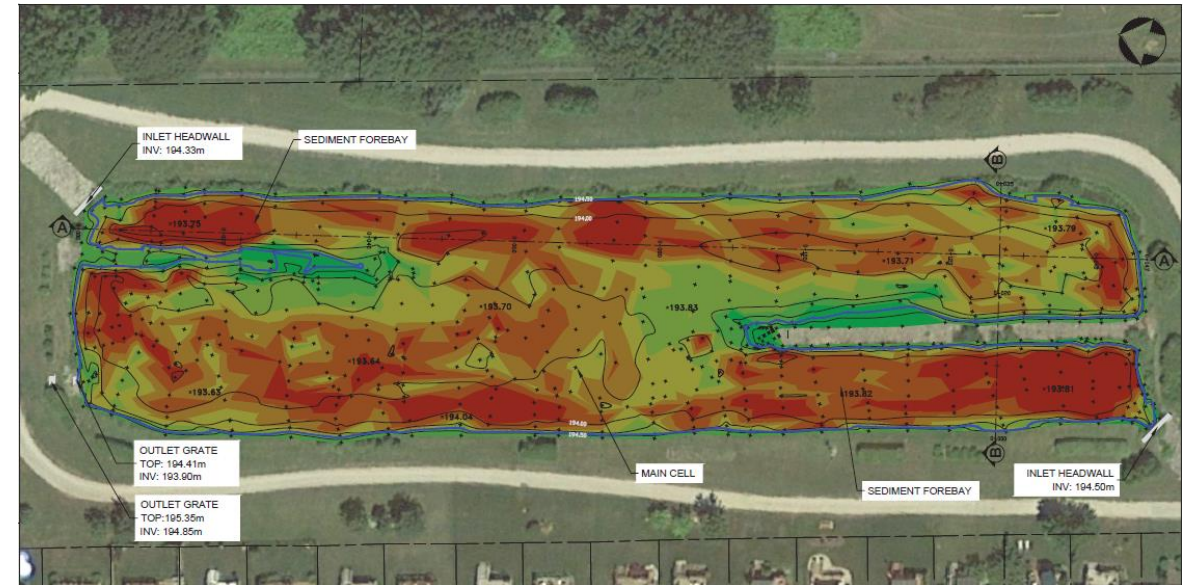
=**\$110,000**



Storm Pond Assessment and Volume Maintenance

- Sediment survey and condition assessment of stormwater ponds
- Develop a maintenance schedule for existing ponds (recommendation of the Stormwater Master Plan 1)

=**\$300,000**



Flood Task Force

- Continue to meet regularly to support the framework (2 to 3 times a year)
- Update Task Force with current framework status and monitor
- Discuss opportunities to add to the framework and enhanced mitigation measures



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 - recommendation for award this evening
- 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 will be brought forward in the 2023 budget.

=**\$1,650,000**

=**\$275,000**



Stormwater Master Plan – 10 Year Plan

Municipality of Lakeshore
Division - Capital Projects
Projects – 10 Year Plan - Stormwater Master Plan (DRAFT)

Note: This 10 Year Plan assessed the project priorities based on a balanced cost approach and are subject to re-evaluation during annual budget review and assessment of each asset performance and condition through delivery of the Flood Mitigation and Protection Framework

Map Reference No.	Description	Cost Breakdown	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
			\$ 220,000.00	\$ 1,650,000.00	\$ 790,000.00	\$ 6,230,000.00	\$ 6,130,000.00	\$ 6,150,000.00	\$ 6,032,500.00	\$ 6,217,500.00	\$ 6,555,000.00	\$ 6,000,000.00	\$ 6,000,000.00
Operations													
N/A	Storm Pond Annual Maintenance Program (Sediment Removal)	O&M	\$ -	\$ -	\$ 300,000.00	\$ 300,000.00	\$ 300,000.00	\$ 300,000.00	\$ 300,000.00	\$ 300,000.00	\$ 300,000.00	\$ 300,000.00	\$ 300,000.00
	Remote Monitoring for Stormwater Pump Stations	O&M	\$ -	\$ -	\$ 180,000.00	\$ 180,000.00	\$ 180,000.00	\$ 25,000.00	\$ 25,000.00	\$ 25,000.00	\$ 25,000.00	\$ 25,000.00	\$ 25,000.00
Capital													
N/A	Notre Dame Pump - Pump Station Improvements		Completed										
1	Amy Croft Drive - Stormwater Pond and Outlet Improvements (Lanoue Street Extension Project)	Design and CA	Included in the Lanoue Street Extension Project										
		Construction											
2	Croft Drive - Overland Flow Improvements	Design and CA	\$ 10,000.00										
		Construction	\$ 70,000.00										
6	Seasons at the Creek - Pump Station Improvements	Design and CA	\$ 15,000.00										
		Construction	\$ 125,000.00										
7	Chelsea Parkway - Overland Flow Improvements	Design and CA		\$ 25,000.00									
		Construction		\$ 90,000.00									
5	Terra Lou - Storm Sewer Improvements	Design and CA		\$ -									
		Construction		\$ 310,000.00									
9	Country Walk and Dean Development - Pond Improvements	Design and CA		\$ 125,000.00									
		Construction		\$ 600,000.00									
16	First Street Pump Station - Chamber Rehabilitation	Design and CA		\$ 30,000.00									
		Construction		\$ 470,000.00									
3	Hood Drain and Leffler Drain (Phase 1) - Pump Station Improvements	Design and CA			\$ 35,000.00								
		Construction			\$ 275,000.00								
4	Leffler Drain - Drain Enclosure (CN tracks to Commercial) (Patillo Road Widening Project)	Design and CA				\$ 350,000.00							
		Construction				\$ 5,000,000.00							
8	Hood Drain and Leffler Drain (Phase 2) - Drain Enclosure and Pump Station Improvements <i>Funding Costs are Subject to approved funding application</i>	Design and CA				\$ 400,000.00	\$ 200,000.00						
		Construction					\$ 5,000,000.00						
10	Leflaive Drain Phase 1 - Pump Station Replacement (Municipal portion of cost to be determined when Drainage Report is undertaken)	Design and CA					\$ 450,000.00	\$ 225,000.00					
		Construction						\$ 5,200,000.00					
11	Leflaive Drain (Phase 2) - New Storm Sewer and Municipal Drain Abandonment (Municipal portion of cost to be determined when Drainage Report is undertaken)	Design and CA						\$ 400,000.00	\$ 200,000.00				
		Construction							\$ 5,200,000.00				
12	Belle River West - New Pump Station and Major System Enhancements	Design and CA							\$ 307,500.00	\$ 307,500.00			
		Construction								\$ 5,330,000.00			
13	Bacon / Forest Hill - Pump Station Improvements	Design and CA								\$ 255,000.00			
		Construction									\$ 2,210,000.00		
14	Russell Woods - Pump Station Improvements	Design and CA									\$ 405,000.00		
		Construction									\$ 3,510,000.00		
15	Optimist - Pump Station and Storm Sewer Replacement	Design and CA									\$ 105,000.00	\$ 105,000.00	
		Construction										\$ 1,820,000.00	
N/A	Storm Water Management - Phase 2 (Expected Allowances)											\$ 3,750,000.00	\$ 5,675,000.00

Expected total for 10 year plan = \$ 52 MM

Recommendation is to complete the SWMP Phase 2 in 2022 and develop a Funding Model in 2023 to fund the Master Plan Improvement Recommendations. This would shift the proposed 2023 draft plan projects to future years, as required.



CLOSING REMARKS & QUESTIONS

- Administration is diligently working on development of and finalizing a better response plan during rainfall events.
- Infrastructure improvements are required.
- Many projects underway to assist with mitigating flooding impacts.

Remember this is a multi-year plan!