



MUSKOKA OFFICIAL PLAN REVIEW (AMENDMENT 61)

**Floodplain Mapping and Proposed Policies
(Part of Component 3 – Environmental Resiliency)
Public Information Session**

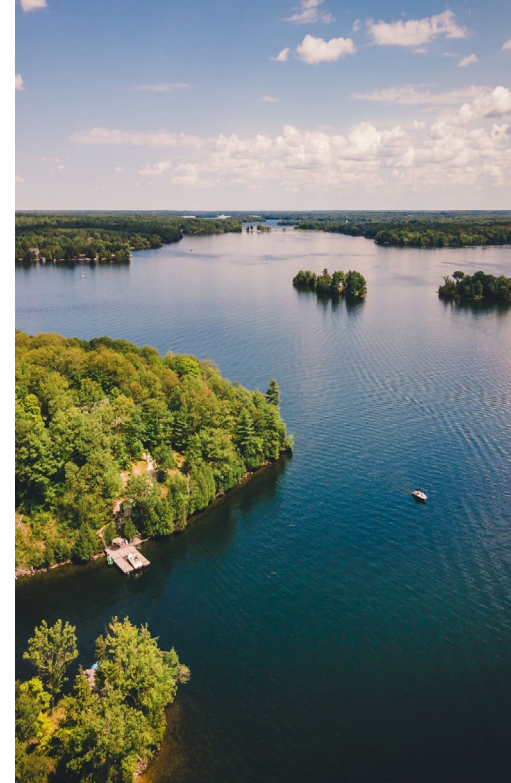
July 23, 2026



Purpose

The purpose of this presentation is to provide:

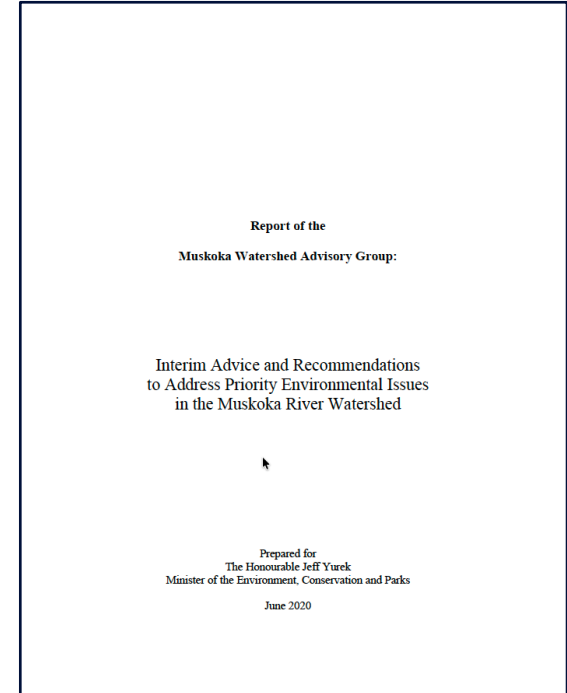
1. A refresher on what the District has done in response to flooding events;
2. An overview of the requirements of the Province when it comes to flooding hazards;
3. A review of the work completed by the District on understanding where the flooding hazards are;
4. A review of how the public can access this information;
5. A review of the initial floodplain policy approach;
6. A review of the public comments made on the proposed policies at the open houses and public meeting (and since);
7. A review of proposed changes to the floodplain policy approach and why; and
8. An update on next steps.





Refresher on How We Got Here

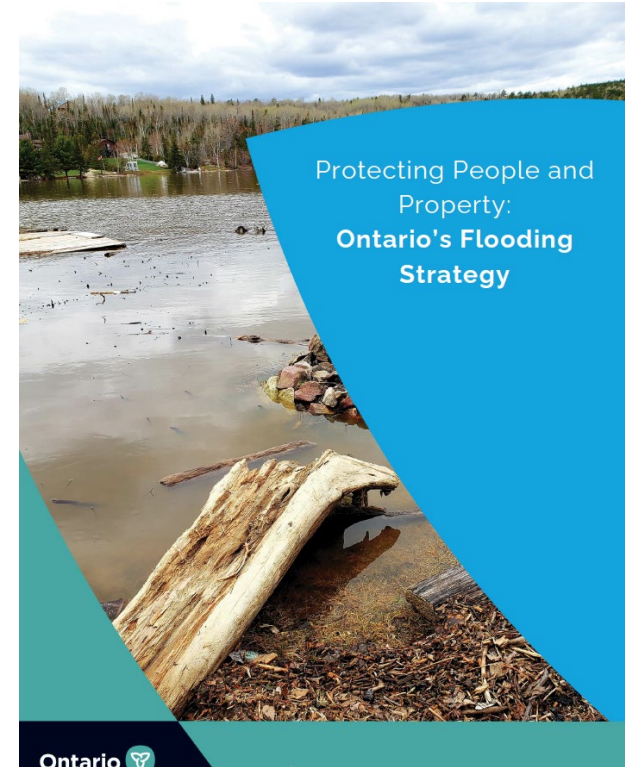
- The Muskoka Watershed Advisory Group (MWAG) was announced in August 2019 after the ‘100-year flood’ that spring. 23 municipalities across Ontario declared states of emergencies due to flooding, across 10 different watersheds.
- The 2020 report concluded that the Muskoka River Watershed is changing – through changed patterns of weather and precipitation, increased incidences of flooding and major storms, and increased erosion and siltation.
- The report also made several recommendations, including:
 - Implement Integrated Watershed Management (IWM) in the watershed – *to establish evidence-based approaches to inter-connected issues affecting the watershed* (Rec #1);
 - Review models for watershed-scale governance – *to ensure that policies and decision-making processes and outcomes are consistent across the watershed* (Rec #1c);





Refresher on How We Got Here (Continued)

- Carry out a land use policy review across the watershed - *to determine how to better align policies and decision-making* (Rec #5);
- Undertake a set a flood mitigation projects and review drawdown triggers in the Province's MRWMP – *to understand the root causes of flooding and to develop flood mitigation strategies* (Rec #8 and 8a); and
- Expand floodplain mapping to include critical areas of the watershed – *to ensure that up-to-date mapping is available for flood prone areas* (Rec #8c).
- All of the above was supported by the Ontario 2020 Flooding Strategy.



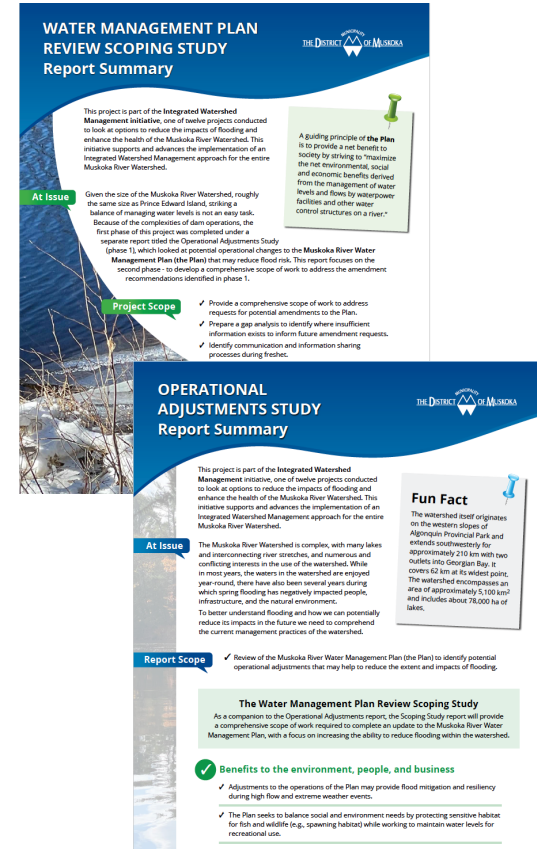


Integrated Watershed Management Projects



In April 2021 the Province announced an initial investment of over \$4 million to fund 13 projects – several of which were focused on options to address or mitigate flooding impacts:

- **Water Management Plan Review Scoping Study** – outlined the scope of a potential review of the MRWMP
 - An update could potentially review criteria for lake drawdown decisions and utilizing the lower range of the normal operating zone for Lake Muskoka
 - This would be a major amendment and require supporting studies and the participation of multiple parties - note that this has already been requested by the District;
- **Operational Adjustments Study** – review the MWRMP to see if operational adjustments may help reduce the extent and impacts of flooding
 - It was concluded that lakes do not have enough storage capacity in high flow events and utilizing the full available drawdown in the Spring may provide more storage during spring freshet – however, if this occurred in 2013 and 2019 water surface levels would have been only reduced between 5 and 10 cm.





Integrated Watershed Management Projects (cont'd)

- **Structural Flood Mitigation Options and Flood Modifications Review** – reviewed 10 flood mitigation options which were estimated to require a capital investment of approximately \$200 million dollars to complete.

Notwithstanding all of the above work, flooding is still expected to occur and there continues to be a municipal responsibility to direct development away from floodplains to protect public health and safety

FLOOD MODIFICATIONS REVIEW Report Summary

THE DISTRICT OF MUSKOKA

This project is part of the **Integrated Watershed Management initiative**, one of twelve projects conducted to look at options to reduce the impacts of flooding and enhance the health of the Muskoka River Watershed. This initiative supports and advances the implementation of an Integrated Watershed Management approach for the entire Muskoka River Watershed.

At Issue

Water management within the Muskoka River Watershed (MRW) is complex and has evolved over many years to balance conflicting water demands. Starting in the 1800s, major changes were made to lake storage and connecting channels to facilitate navigation and stimulate industry growth. These changes, however, did not address flood mitigation. Within the last 12 years the watershed has experienced major flooding (specifically in 2008, 2013, 2016 and 2019) that caused considerable damage to municipal infrastructure and private property.

Project Scope

This report further advances the ten options identified in the **Structural Flood Mitigation Options Report (Phase 1)** to conceptual design outlining the benefits and costs associated with the implementation of each option. The full scope of this project includes:

- ✓ Background information collection and review.
- ✓ Conceptual design of flood mitigation options.
- ✓ Model evaluation of mitigation option variations including assessment of climate change aspects.
- ✓ Identification of potential environmental impacts and permitting requirements.
- ✓ Development of rough capital cost estimates for each flood mitigation option.
- ✓ Identification of potential funding sources for implementation.
- ✓ Scope and cost estimates for preliminary engineering design of each option.
- ✓ Ranking of flood mitigation options and future work recommendations.

Study Priority Areas

1. Big East River:
North Branch Muskoka River
2. Huntsville Narrows:
North Branch Muskoka River
3. Springdale:
North Branch Muskoka River
4. Baysville/Fraserburg/
Purbrook: South Branch
Muskoka River
5. Muskoka/Bala:
Lower Watershed



Roles and Responsibilities

Province of Ontario	District of Muskoka
- Muskoka River Water Management Plan - The Ministry of Natural Resources manages water flow in Muskoka through the MRWMP, established in 2006. The MRWMP regulates how water levels are managed through a variety of water control structures, including dams and weirs. - Provincial Planning Statement	In the absence of a Conservation Authority, the District is responsible for identifying hazardous lands and managing development in these areas in accordance with Provincial guidance. This includes: - Completing floodplain mapping - Including flood hazard policies in the Muskoka Official Plan - Implementing Provincial planning direction related to flood hazards



Provincial Requirements

- **Planning Act** – Section 3(5) of the Planning Act requires that all decisions made by a Council shall be consistent with the Provincial Planning Statement
- Section 26 then requires that Official Plans be revised as necessary to ensure that they are consistent with the Provincial Planning Statement – *the current Official Plan Review is designed to achieve this.*
- The current **Provincial Planning Statement ('PPS')** came into effect in October 2024. While the PPS is to be read as a whole, it contains two types of policies:
 1. When 'shall' is used – the policy is a directive, limitation or prohibition – *and is considered to be mandatory.*
 2. When 'should' 'promote' and 'encourage' is used – the policy is enabling or supportive – *meaning that there is some discretion in interpretation.*





Provincial Requirements (cont'd)

The PPS states the following in Chapter 5 in summary form:

- Sec. 5.1.1 - All development shall be directed away from areas of natural hazards where there is an unacceptable risk to public health or safety or property damage;
- Sec. 5.2.1 - Planning authorities shall identify hazardous lands and manage development in these areas, in accordance with provincial guidance;
- Sec. 5.2.2 a) and b) - All development shall generally be directed to areas outside of hazardous lands adjacent to the shorelines of Georgian Bay (part of a Great Lake), Lake Muskoka (a large inland lake), and other lakes that are part of river, stream and small inland lake systems;
- Sec. 5.2.3 c) - Development and site alteration shall not be permitted within areas that would be rendered inaccessible to people and vehicles during times of flooding unless it has been demonstrated that the site has safe access appropriate for the nature of the development and the natural hazard;





Provincial Requirements (cont'd)

- Sec. 5.2.3 d) - Development and site alteration shall not be permitted within a floodway regardless of whether the area of inundation contains high points of land not subject to flooding;
- Sec. 5.2.5 - Notwithstanding Section 5.2.3, development may be permitted in certain areas associated with the flooding hazard along river, stream, and small inland lake systems if a special policy area has been approved, or the development is limited to uses which by their nature must locate within the floodway
- Sec. 5.2.7 - Where the two-zone concept is applied, development may be permitted within the flood fringe subject to floodproofing and other criteria; and
- Sec 5.2.8 - On Georgian Bay and Lake Muskoka, development may be permitted in those portions of hazardous lands where the effects and risk of public safety are minor, could be mitigated, and where specific criteria are demonstrated and achieved.





Provincial Requirements (cont'd)

The effect of the PPS is that:

- As a first principle, all development should be directed away from hazardous lands – *as a precautionary approach*;
- Development on hazardous lands on Georgian Bay and Lake Muskoka may be considered, subject to meeting specific criteria – *recognizing that the great lakes and large inland lakes behave differently during times of flooding*;
- Development within a floodway on a river where the two-zone approach has been applied is prohibited – *this is where the risk to public safety and property on rivers is the highest*;
- Development within the flood fringe on a river where the two-zone approach has been applied may be permitted subject to meeting specific criteria - *which is where the risk to public safety and property on rivers is lower*; and
- Development within the floodway of all lakes (not applicable to Georgian Bay and Lake Muskoka) is prohibited – *this prohibition comes straight from the PPS*.



Floodplain Mapping Terminology

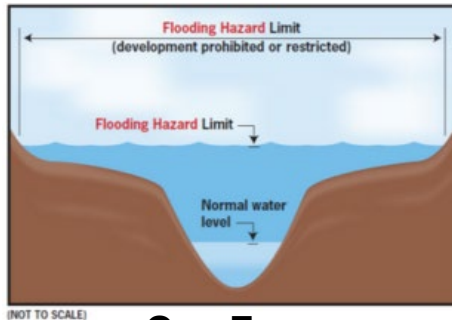
What is a flood elevation?

- The predicted maximum height that water may reach during a major flood event.

What is a floodplain?

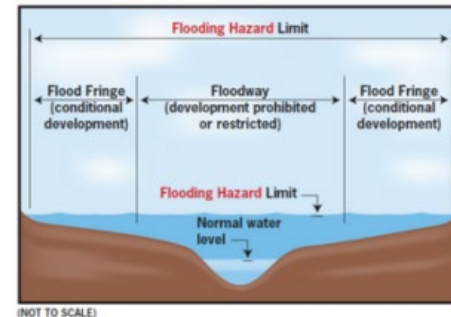
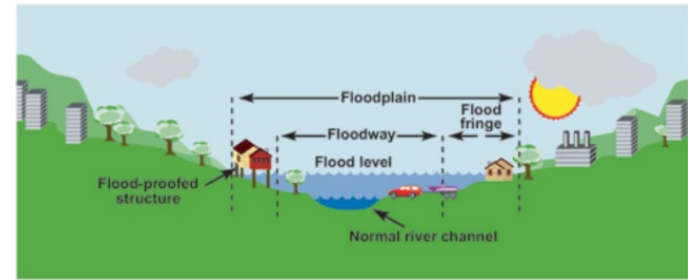
- The land that may be covered by water during a flood event. They are naturally occurring areas next to rivers and lakes that temporarily store excess water during storms and spring freshets.

What is the difference between one-zone and two-zone?



One-Zone

The floodplain



Two-Zone



Floodplain Mapping



- To know where the PPS policies are to be applied, work on the updated floodplain mapping was initiated in 2018 and was completed by a professional engineering firm, following current federal and provincial guidelines.
- Inputs into the work completed included:
 - A hydrologic analysis of how water flows through the watershed which included an analysis of historic flood events (2013, 2016 and 2019);
 - A review of historic precipitation and runoff patterns and lake inflows and outflows;
 - Hydraulic modelling to model flood elevations using contemporary computer modelling software;
 - A review of the older Flood Damage Reduction Program mapping from the 1980s and 1990s with updated climate, hydrology, terrain and water level data;
 - Field surveys in some areas; and
 - Underwater depth surveys in some areas to improve hydraulic accuracy.
- The results of the above work were then incorporated in the District's Geographic Information System and then overlaid into the high-resolution Light Detection and Ranging Data terrain model.



Floodplain Elevations

- Many of the lakes in the District already have flood elevations that come from MNR FDRP Mapping from the 1980s and early 1990s that were then incorporated into some of the Area Municipal Zoning By-laws and later, in Community Planning Permit By-laws.
- Below is a comparison of previous elevations and the new elevations on select lakes:

Lake	District Floodplain Mapping Static Flood Elevation	Existing Elevation	Difference	Notes
Lake Muskoka	226.7	226.51	0.19	
Lake Joseph	226.7	226.72	-0.02	
Lake Rosseau	226.7	226.72	-0.02	
Skeleton Lake	280.98	282.73	-1.75	Note 1
Peninsula Lake	285.29	286.46	-1.17	Note 1
Fairy Lake	285.29	286.53	-1.24	Note 1
Vernon Lake	286.68	287.48	-0.8	Note 1
Note 1: Most reductions are due to removal of the wave uprush component				

- Most of the Area Municipalities currently prohibit the development of new dwellings below, and in some cases above, the flood elevations specified – meaning that the proposed prohibition is not new and generally already being implemented today.
- In Area Municipalities that have rivers with two-zone mapping (Huntsville and Bracebridge), new dwellings are currently permitted in the flood fringe provided openings are above a certain elevation and the dwellings are floodproofed.



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MAPS



[Topographic Map 2.0](#)

View the new 50cm contours derived from the Muskoka LIDAR surveys

[Open](#)

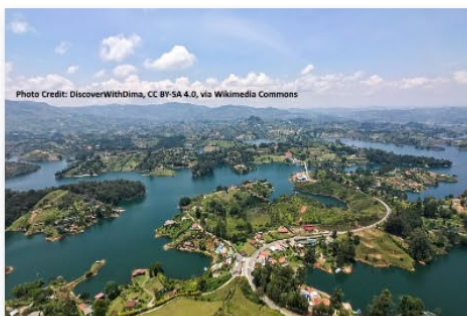


Photo Credit: DiscoverWithDima, CC BY-SA 4.0, via Wikimedia Commons

[Air Photos of Muskoka 2.0](#)

Experience the changing landscape of Muskoka through time

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[*NEW!* Muskoka Votes](#)

The citizens of Muskoka are heading to the polls Monday October 26, 2026

[Open](#)



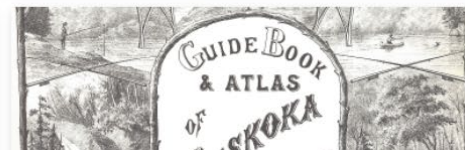
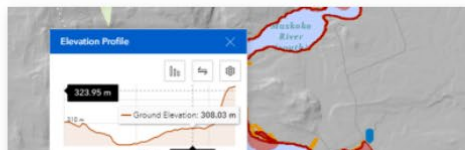
[*NEW!* Muskoka Zoning 2.0](#)

View the zoning for each municipality in the District of Muskoka

[Open](#)



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<https://www.muskoka.on.ca/> search for maps. Or Google search for Muskoka GeoHub. Or <https://map.muskoka.on.ca/>



Floodline and Lidar Mapping 2.0

2D

3D

Dashboard

Hydrographs

Download LiDAR:

DTM

DSM

Flooding resources:

Webpage

Factsheet

Find address or place

Flood Plain Mapping

Zoom to

waterbody type

Lake

Study Type

Static Floodline Elevation

Lake Static Elevation (masl)

285.29

Phase

Phase 1

PDF Key Map

[View](#)

PDF Map Set

[View](#)

PDF Technical Report

[View](#)

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2 of 2

Live Lake Levels (approximate)

Live River/Lake Gauges

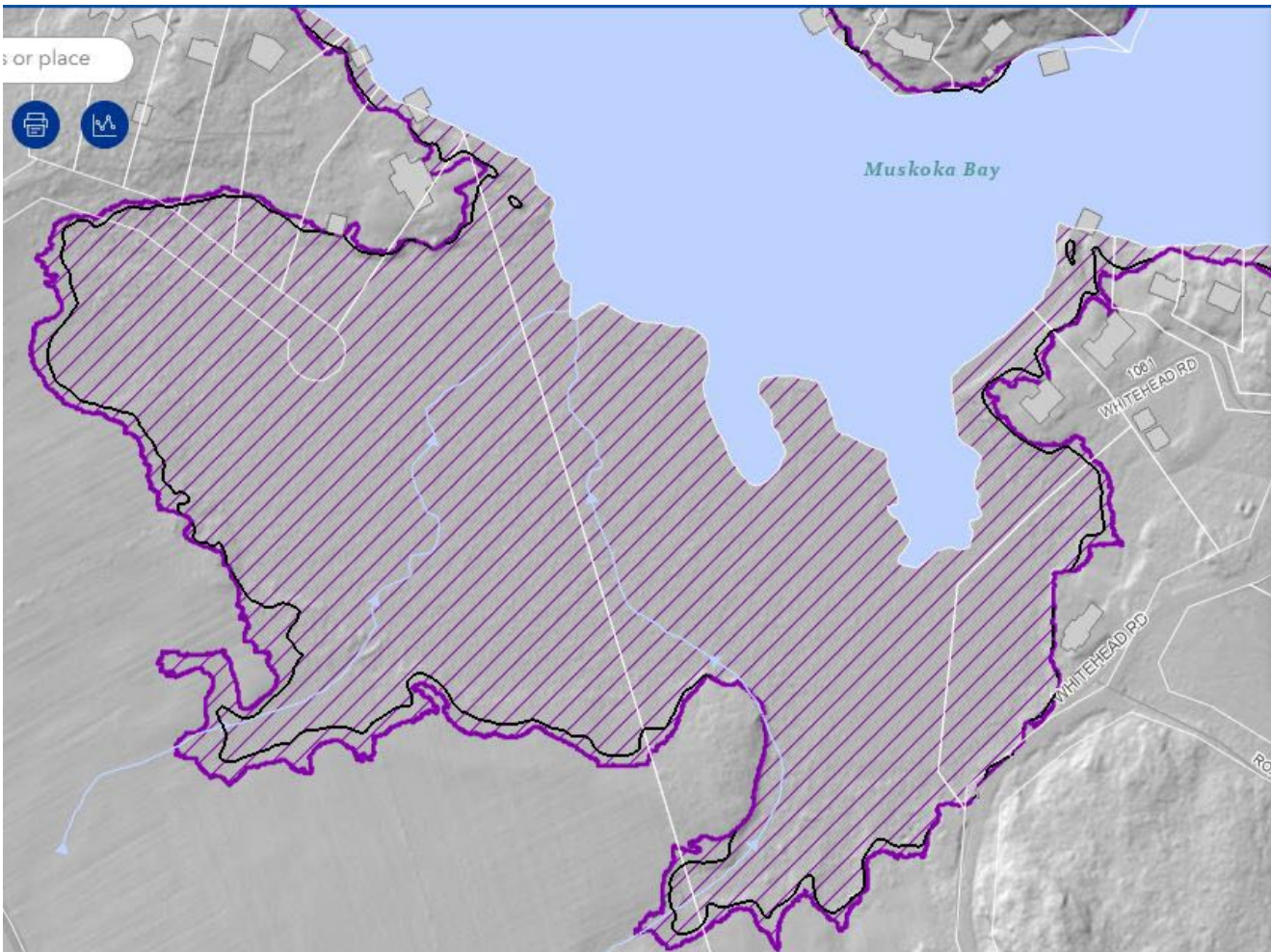
Historically Flooded Roadways

Floodline Mapping (2020's)

- Floodway
- Floodline
- Static Floodline Elevation
- 100 Year Flood Elevation
- Horizontal Wave Allowance

Floodline Mapping FDRP (1980's)

Floodway Boundary: FDRP



Map Layers

- ☒ Live Lake Levels (approximate)
 - ☒ Bala Bay - 226.04m (Apr 21 10:30 AM)
 - ☒ Fairy Lake - 284.64m (Apr 21 10:35 AM)
 - ☒ Peninsula Lake - 284.64m (Apr 21 10:35 AM)
 - ☒ Go Home Lake - 184.88m (Apr 21 10:05 AM)
 - ☒ Lake Muskoka - 226.36m (Apr 21 10:45 AM)
 - ☒ Lake of Bays - 315.56m (Apr 21 10:30 AM)
 - ☒ Lake Joseph - 226.53m (Apr 21 10:35 AM)
 - ☒ Lake Rosseau - 226.53m (Apr 21 10:35 AM)
 - ☒ Mary Lake - 281.29m (Apr 21 10:45 AM)



Floodline and Lidar Mapping 2.0

[2D](#)[3D](#)[Dashboard](#)[Hydrographs](#)

Download LiDAR:

[DTM](#)[DSM](#)

Flooding resources:

[Webpage](#)[Factsheet](#)[Lake Muskoka - Bala Bay](#)[Lake Muskoka - Beaumaris](#)[Lake Joseph/Rosseau](#)[Lake of Bays](#)[Mary Lake](#)[Fairy/Peninsula Lake](#)[Go Home Lake](#)[MRNF Flood Bulletin](#)

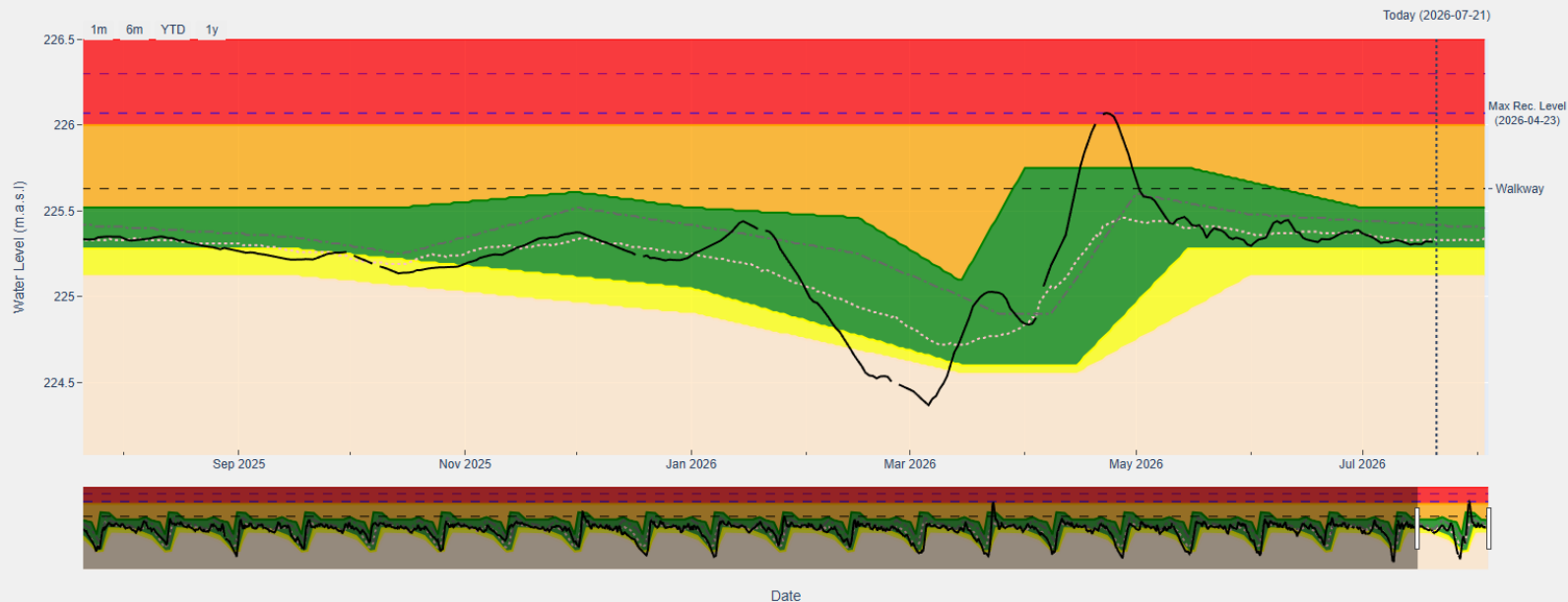
— Observed Daily Mean Water Level
— Static Flood Elevation
— Target Operating Level
— Max Recorded Level (2026-04-23)
— Community Reference Elevation (Walkway)
— Recorded Historical Mean Water Level
— High Water Zone
— Upper Operating Zone
— Normal Operating Zone
— Lower Operating Zone
— Low Water Zone

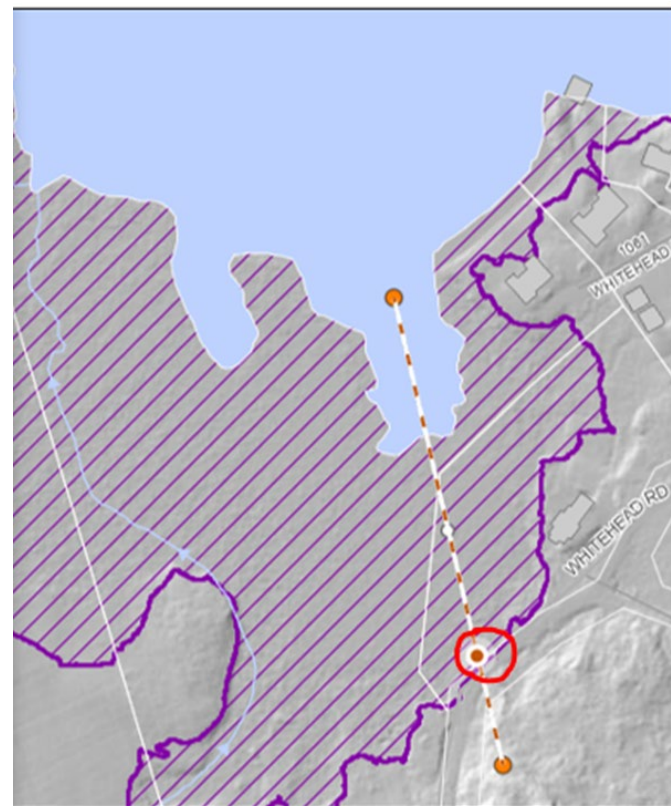
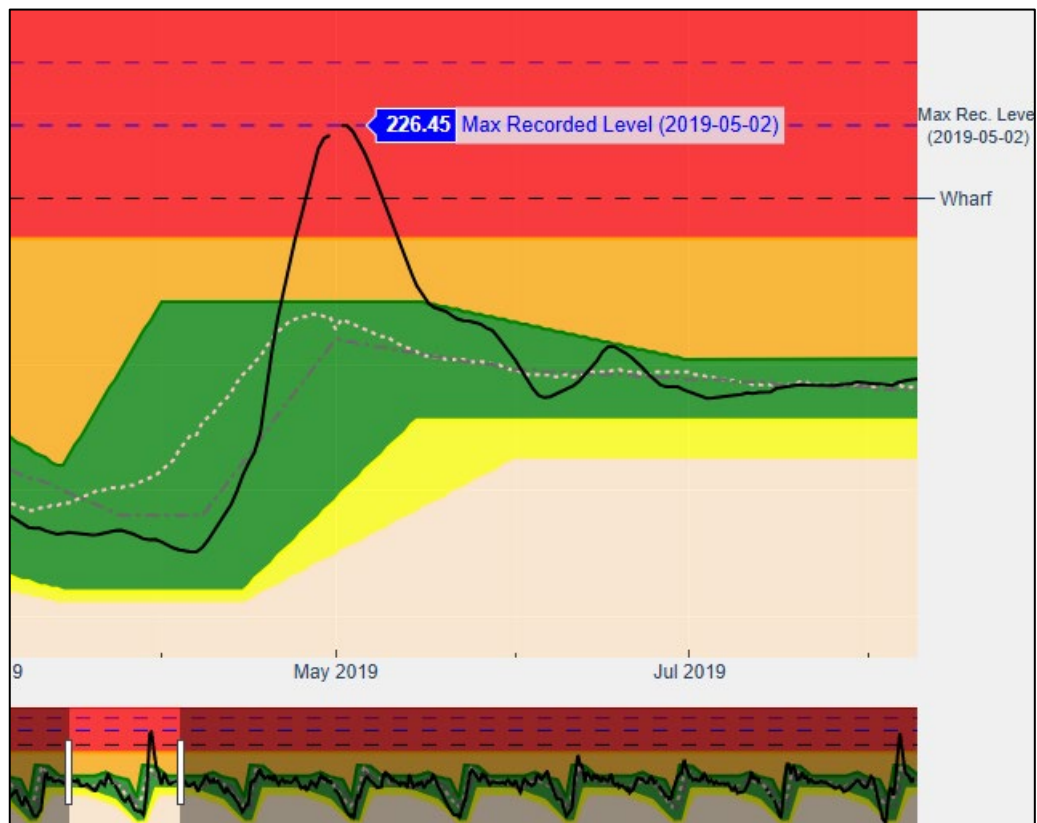


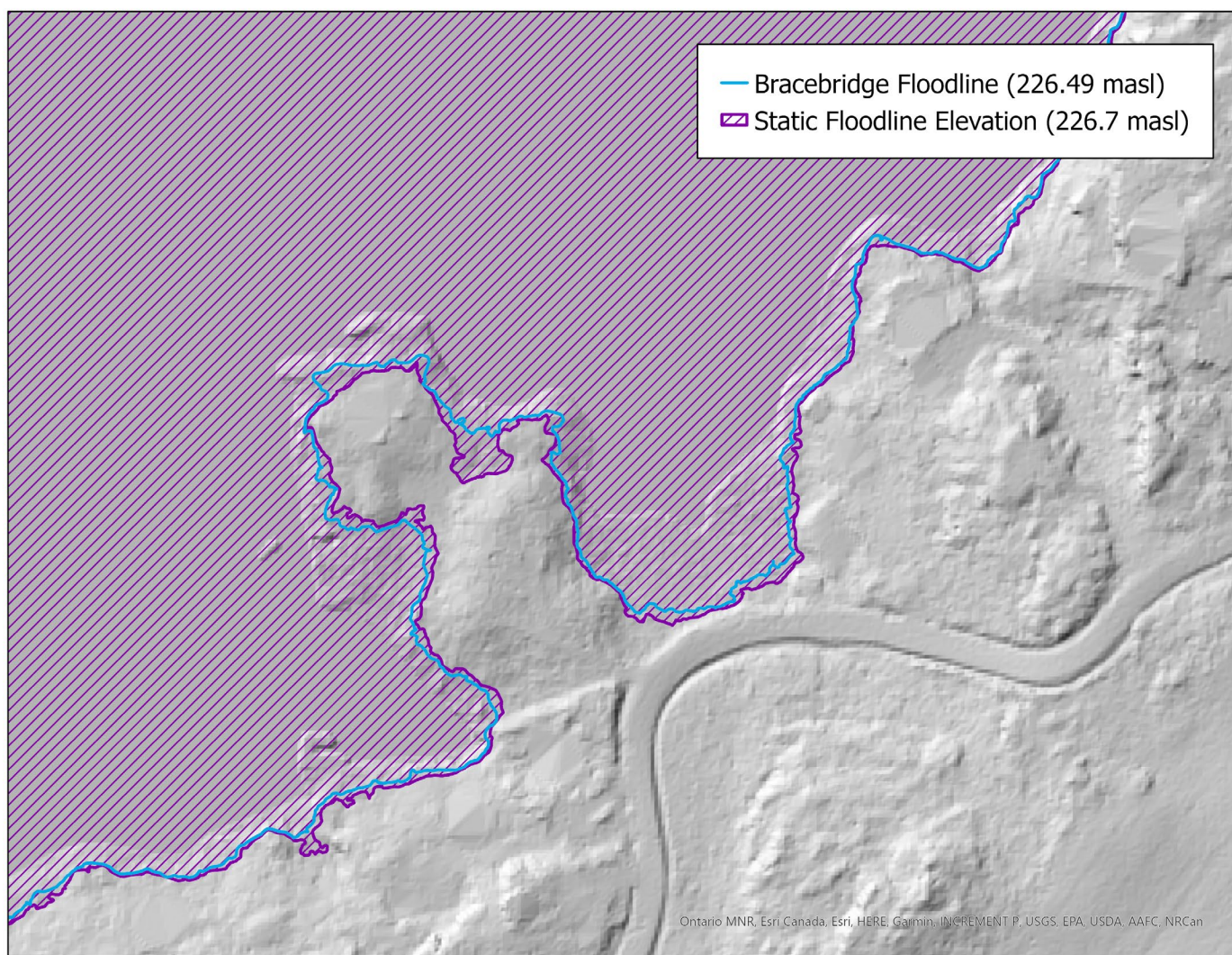
Bala Bay Monitoring Station



Current Conditions

Water Level (m.a.s.l.): **225.33**Status: **Normal Operating Zone**







Initial Floodplain Policy Approach



In addition to adding up-to-date floodplain mapping into the Official Plan, the policies presented to the public at the open houses and public meeting:

1. Prohibit the development of new primary buildings within the flood hazard limit on Lake Muskoka and Georgian Bay and within the floodway on all other lakes and rivers;
2. Permit minor additions, reconstruction and accessory buildings or alterations to existing buildings within the flood hazard limit on Lake Muskoka and Georgian Bay and within the floodway on all other lakes and rivers, subject to criteria;
3. Permit the construction of new primary buildings, reconstruction, minor additions or alterations to existing buildings and new accessory buildings in the flood fringe, subject to criteria;
4. Permit site-specific assessments to review the location of flood hazard limit on Lake Muskoka and Georgian Bay and the location of the floodway on other lakes and the location of the flood fringe on rivers;
5. Require that safe access be demonstrated over any portion of driveway and/or right of way used to access residential development (new lots and development on vacant lots) in accordance with Provincial guidance;
6. Require that safe access by foot be demonstrated on water-access only lots; and
7. Permit boathouses provided criteria can be met.



Public Response

Comments in Support	Comments in Opposition
Updated floodplain mapping and policies will improve flood risk management and decision-making.	The watershed is being mismanaged by the Ministry of Natural Resources.
Clear, consistent flood hazard policies across the District will help to protect people, property, and the environment.	Updated floodplain mapping and policies are premature until the 2006 MRWMP is reviewed and improved.
Recognizing that floodplain development increases risks for the broader community, including higher costs, environmental impacts, and emergency response needs.	The proposed framework would reduce development rights for some vacant properties.
	Changing from a two-zone to a one-zone approach would restrict development on vacant lots along the Muskoka River where it flows into Lake Muskoka.
	The proposed policies for Lake Muskoka and Georgian Bay are considered too restrictive.





Proposed Revisions Related to Lake Muskoka and Georgian Bay

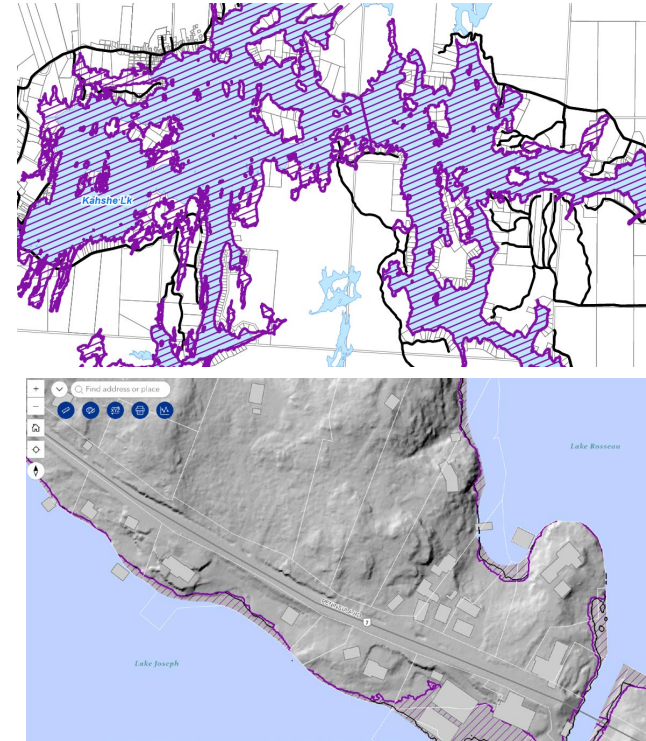


- On Georgian Bay, the flooding limit is not delineated on the entirety of the schedule therefore a policy is being added to enable an assessment to determine the location of the one hundred year flood plus an appropriate allowance for wave effects in this scenario.
- Instead of prohibiting the development of new primary buildings within the flood hazard limit on Lake Muskoka and Georgian Bay – it is proposed that new primary buildings on existing lots may be considered provided certain criteria are met (no alternative location, floodproofing, access policies met, does not make hazard worse, no other impacts).
- The above change recognizes that Provincial policy is less restrictive on large inland lakes and the Great Lakes.
- The prohibition on new primary buildings within floodway on other lakes and rivers would remain as is as required by Provincial policy.



Summary

- The floodplain mapping was completed by qualified personnel and in accordance with federal and provincial guidelines and requirements.
- The floodplain mapping reflects the best information we have today on where flooding may occur during a major flood event.
- The mapping will be reviewed and amended, if needed, as new LiDAR is gathered and the hydraulic model is updated.
- The proposed policies strike a balance between protecting public health and safety while recognizing historic development patterns.
- They also establish a consistent and transparent approach to floodplain management across the entire District.





Next Steps

- It is proposed to bring the OP update back to Committee for consideration in the Fall of 2026.
- At this meeting, a staff report that summarizes all of the comments made on all components and which recommends further edits/updates (if required) will be presented to Committee.
- After adoption by District Council, the OP amendments will be forwarded to the Ministry of Municipal Affairs and Housing for approval.





How to Stay Informed



- Subscribe to the Muskoka Official Plan Review Engage Page (scan QR code).
- If you wish to be notified of the decision of the District of Muskoka on OPA 61, you must make a written request to the District Clerk.



Muskoka Official Plan Review

