



Flood Risk Assessment Study

Whitewater Region Project No.: 2021-27



March 16, 2022

Presentation to Council



Flood Risk Assessment Study

Introduction



- Jp2g has completed a flood risk assessment for an area south-west of the Westmeath Provincial Park along the Ottawa River, including many non-conforming (grandfathered) properties situated in the floodway or flood fringe, as well as the Westmeath Provincial Park
- This area seasonally floods with the spring freshet and represents a significant and recurring flood risk
- The Township of Whitewater Region has identified flooding in its Hazard Identification and Risk Assessment
- The goal of the flood risk assessment study was to prepare an action plan with flood mitigation solutions



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Background



- Seasonally, the water level does rise, and in some areas the access roads are impassable, but typically there is no damage to the infrastructure
- In 2017, sandbags were used as a flood mitigation strategy, which proved unsuccessful leaving some lower lying structures and accessory buildings flooded and requiring repair
- In the 2019 flood, there were extensive damages to most properties along Greatview Trail, Edgewater Trail and Sunset Trail, some of which were unrecoverable
- In response to these flood events, some residents and cottage owners have installed retaining walls/rock walls or raised their structures onto cinderblocks or other foundations



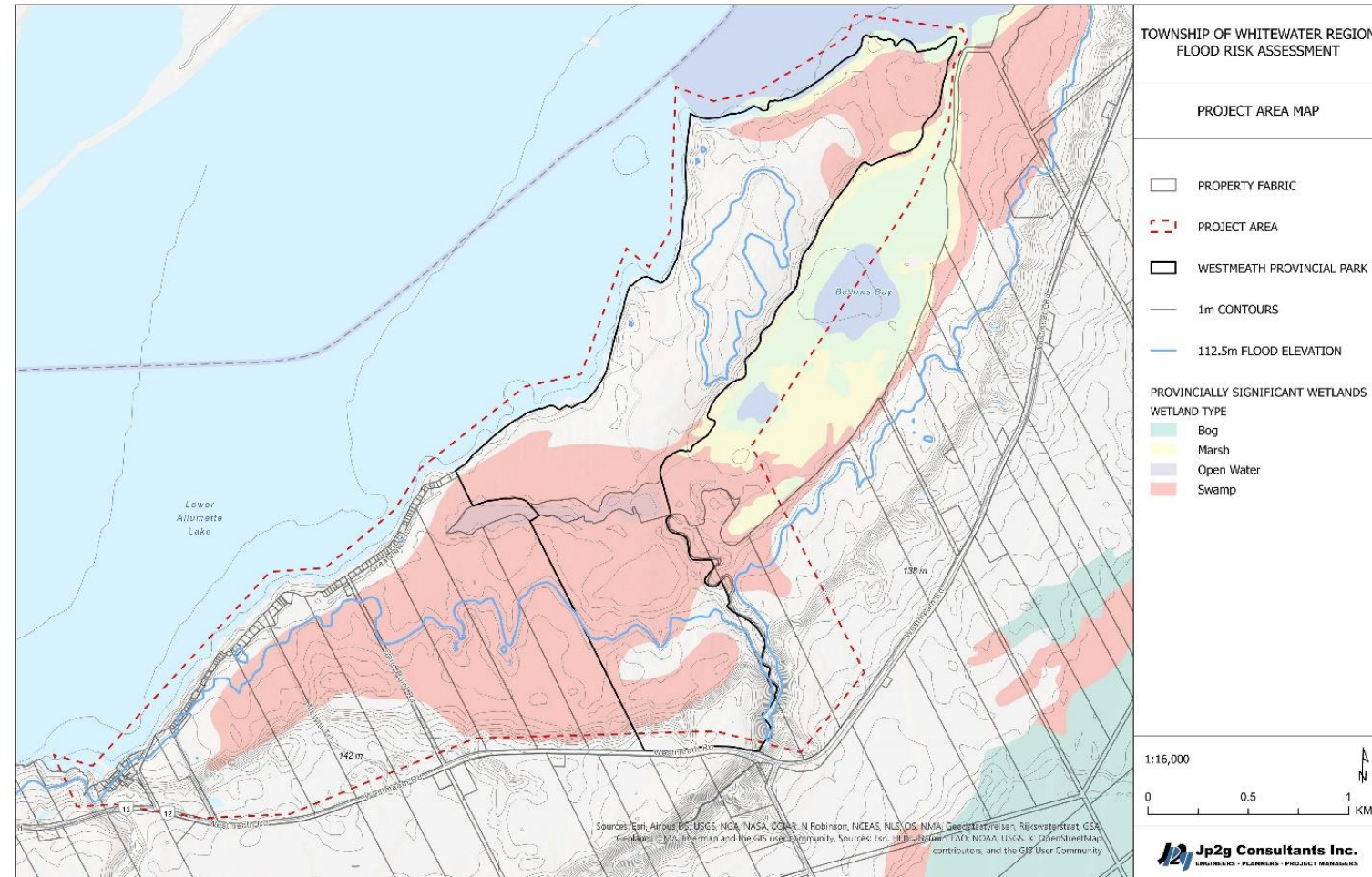


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Modelling & Determination of Flows and Water Levels



- Existing Floodplain Mapping
 - Floodplain elevation = 112.50m
- Climate Change
 - Can expect more frequent or more significant flooding
 - Combined effects to pose the largest risk
- Effect of Dams





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Flood Mitigation Solutions



Proposed Flood Control Measures

Considerations and constraints for the at-risk infrastructure were determined, including site conditions, usability, flood depth, and barrier protection. Proposed mitigation solutions were developed based on capital costs, permeance, consideration for aesthetics, effectiveness of mitigation, and ease of implementation.

Risk Analysis

Options	CRITERIA									Overall Score
	Permeance	Challenges of Constructability	Impact to Permanent Operations	Aesthetics	Capital Costs	Effectiveness	Maintenance	Availability	Risk	
Sandbag Barrier	Red	Green	Green	Green	Green	Red	Yellow	Green	Red	11
Tubes, Tanks & Bladder Barrier	Red	Yellow	Green	Green	Green	Red	Red	Green	Red	9
Membrane Barrier	Red	Yellow	Green	Green	Green	Red	Red	Green	Red	9
Self-Rising Flood Barrier	Red	Yellow	Green	Green	Yellow	Red	Red	Yellow	Yellow	8
Stop Logs	Yellow	Yellow	Green	Yellow	Red	Yellow	Yellow	Yellow	Yellow	9
Vegetative Berms	Green	Yellow	Red	Red	Red	Yellow	Green	Yellow	Yellow	8
Flood Proof Homes	Green	Red	Green	Green	Yellow	Green	Green	Green	Green	15
Raise Homes	Green	Red	Yellow	Yellow	Red	Green	Green	Green	Green	12
Water Gauge	Red	Yellow	Green	Green	Red	Yellow	Yellow	Green	Green	11



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Study Findings & Action Plan



Action Plan

Immediate Solution: continue with sandbag barriers when necessary (small flood events)

Short-term solutions: flood-proof houses and cottages up to the floodplain elevation of 112.50m

Long-term solutions: raise house or cottage above the floodplain elevation of 112.50m





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Recommendations



Next Steps:

- Undertake a flood plain analysis to determine an accurate 1:100-year flood line elevation
- Install a water gauge at the Westmeath basin to confirm the water level and flow, and therefore provide data for future flood forecasting and predictions



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Questions?