

Grand River Conservation Authority

Report number: GM-06-21-50
Date: June 25, 2021
To: Members of the Grand River Conservation Authority
Subject: New Hamburg Regulatory Floodplain Mapping Updates

Recommendation:

THAT the updated New Hamburg Floodplain Mapping Update completed by the GRCA be endorsed for use when dealing with planning matters and permit applications in the Study Area.

AND THAT amendments to the Grand River Conservation Authority's Ontario Regulation 150/06 mapping be approved to incorporate the revisions to the floodplain and associated regulated allowance.

Summary

The New Hamburg Flood Mitigation Study, undertaken in 2019-20 with support from the National Disaster Mitigation Program (NDMP), was the subject of reports GM-05-19-53, GM-08-19-81, GM-11-19-106, GM-02-20-13 and GM-04-20-20. Further to the findings previously documented, the improved hydraulic modeling of flood flows and more accurate ground surface mapping through the Study Area has resulted in the updating of Regulatory floodlines through the community.

Report

New Hamburg is one of 17 communities identified as flood damage centres in the Grand River watershed. Much of downtown New Hamburg's commercial and residential area is within the Nith River floodplain and is subject to regular flooding. Significant flood events occurred in 1948, 1954, 1975, 2008, and most recently in February 2018 and January 2020.

The study area for this project includes the Nith River through New Hamburg, from upstream of the railroad crossing to a point downstream of Holland Mills Road. Study limits are shown on the attached maps.

The existing regulatory floodplain mapping of the Nith River in New Hamburg is based on the topographic survey information and hydraulic modeling completed by Dillon Consulting in 1985 as part of Canada's Flood Damage Reduction Program. Numerous minor modifications related to development applications or infrastructure projects have occurred over the ensuing 35 years.

The 2019-20 Flood Mitigation Study included the creation of a digital terrain model using high-resolution topographic data (i.e. ground surface) collected by the Province (OMAFRA / MNRF, 2018) and bathymetric data (i.e. the river bed) acquired by the GRCA in 2019. Additional survey data for key infrastructure such as bridges was combined with this comprehensive ground surface dataset into a new hydraulic model for the subject river reach, updated hydraulic modelling was completed with the latest available HEC-RAS modeling software. An update to the hydrologic modelling was not undertaken as part of this project.

Key findings of the technical work are outlined below:

- Revisions to the floodplain mapping are related to both topographical mapping improvements and changes in modelled Regulatory flood elevations.
- As shown on the attached mapping (Attachment 1) and summarized in the table below, there are no significant adjustments (total 0.043 km² increase in floodplain area) to the elevations or the delineation of the Regulatory flood hazard limits.

Table 1: Net Change in the Proposed Regulatory Floodplain Area

Element	<u>Existing Mapping</u>	<u>Proposed Mapping</u>	Net Change Area (km ²)
	Total Area (km ²)	Total Area (km ²)	
Total Regulatory Floodplain Area	2.847	2.890	0.043
Regulatory Floodplain in the Special Policy Area	0.077	0.080	0.003

The updated floodplain mapping will be included in GRCA Regulation mapping that is available to the public on the website. Ontario Regulation 150/06 is a 'text based' regulation, meaning the Regulation applies to all areas described by the Regulation, whether mapped or not. These maps illustrate regulated areas based on the best available information. Through planning or permit applications, detailed site specific topographic information may result in further refinement to the mapped regulatory floodplain.

Public Consultation

A Public Information Centre (PIC) held on March 11, 2020 for the New Hamburg Flood Mitigation Study included presentation of the draft updated floodplain mapping and served as the public consultation process for revisions to GRCA mapping under O.Reg. 150/06 of the Conservation Authorities Act. The news release and notice for this PIC identified that updates to the GRCA Regulation mapping would be completed as part of this project. Limited comments regarding the draft mapping were received during and following the PIC and no objections from the public have been received. Subsequent to the PIC, the hydraulic modeling and mapping underwent an external, third party peer review process, completed by Stantec Consulting Ltd. The peer review resulted in minor adjustments to both the modeling and the mapping.

Next Steps

Following Board endorsement of the updated regulatory floodplain map, the Regulation mapping, including the associated floodplain allowance, will be updated in the GRCA's website and notice will be posted advising of the changes.

The updated floodplain mapping will be provided to the Region of Waterloo and Township of Wilmot for incorporation into municipal planning documents (e.g., Official Plan(s) and Township Comprehensive Zoning By-law).

Financial implications:

The New Hamburg project was funded through the Federal National Disaster Mitigation Program and the Land Sale Proceeds Reserve.

Ongoing maintenance of the regulatory floodplain mapping will be incorporated into existing budgets.

Other department considerations:

Staff from the Engineering Division coordinated the study and undertook the technical work associated with the floodplain modeling and mapping updates. Staff from Information Systems, Resource Management and Communications were also involved in this project.

Prepared by:

Katelyn Lynch, P. Eng.
Water Resources Engineer

Scott Robertson, P. Eng.
Senior Water Resources Engineer

Approved by:

Nancy Davy
Director of Resource Management

Dwight Boyd, P. Eng.
Director of Engineering



NEW HAMBURG REGULATORY FLOODPLAIN 2021 UPDATE

Legend

- Study Limit
- Current Regulatory Floodplain (RFP)
- Current RFP > Proposed RFP
- Proposed RFP > Current RFP
- Nith River

2021 Proposed Regulatory Floodplain (RFP)

- Regulatory Floodplain (RFP)
- SPA



This map is for illustrative purposes only. Information contained herein is not a substitute for professional review or a site survey and is subject to change without notice. The Grand River Conservation Authority takes no responsibility for, nor guarantees, the accuracy of the information contained on this map. Any interpretations or conclusions drawn from this map are the sole responsibility of the user.
Copyright Grand River Conservation Authority, 2021. May not be reproduced or altered in any way.

0 35 70 140 210 280
Meters 1:6,500



NEW HAMBURG REGULATORY FLOODPLAIN 2021 UPDATE

Legend

- Study Limit
- Current Regulatory Floodplain (RFP)
- Current RFP > Proposed RFP
- Proposed RFP > Current RFP
- Nith River

2021 Proposed Regulatory Floodplain (RFP)

- Regulatory Floodplain (RFP)
- SPA



This map is for illustrative purposes only. Information contained herein is not a substitute for professional review or a site survey and is subject to change without notice. The Grand River Conservation Authority takes no responsibility for, nor guarantees, the accuracy of the information contained on this map. Any interpretations or conclusions drawn from this map are the sole responsibility of the user.
Copyright Grand River Conservation Authority, 2021. May not be reproduced or altered in any way.

0 35 70 140 210 280
Meters 1:6,500