Little River Watershed Regulatory Floodplain Mapping Update Study

Public Information Centre (PIC)

Wednesday November 17, 2021,

6:00 pm – 8:00 pm

THE CITY OF WINDSOR ONTARIO, CANADA

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Land Acknowledgement

- We acknowledge that this land is the traditional territory of the Three Fires Confederacy of First Nations, comprised of the Ojibway, the Odawa, and the Potawatomie Peoples.
- We value the significant historical and contemporary contributions of local and regional First Nations and all of the Original Peoples of Turtle Island – North America who have been living and working on the land from time immemorial.

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Why are We Here Today?

- Discuss the purpose of the Little River Watershed Regulatory Floodplain Mapping Update Study (the Study);
- Identify the Regulation Floodplain Mapping process and the Essex Region Conservation Authority (ERCA) role for Regulatory Floodplain Mapping;
- Summarize the work completed, findings of the Study and proposed Two-Zone approach to Floodplain Management; and
- To answer any questions and get your feedback.

Representatives from the City of Windsor, ERCA and Dillon Consulting are in attendance. Please let us know if you have any questions!

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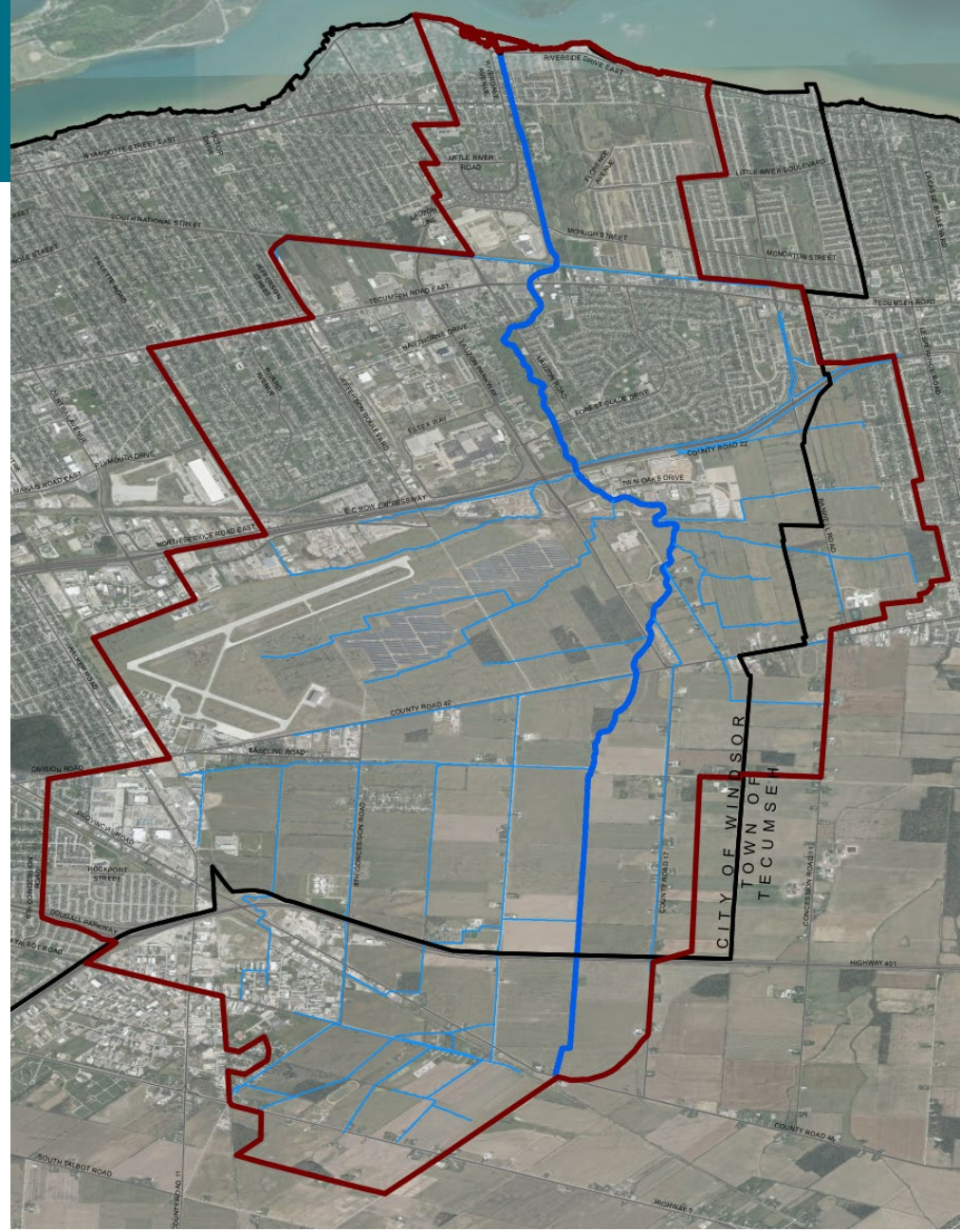
What Is The Purpose Of The Study?

Future development lands within the Sandwich South Master Plan Area has prompted the Municipality and ERCA to take a holistic approach to the Little River Watershed floodplain mapping. Overall purpose of the Study is to:

1. Develop updated hydrologic and hydraulic models for the municipal drains throughout the Watershed;
2. Update existing Regulatory Floodline Maps for the Little River Drain (MacLaren, 1985);
3. Develop new Floodline Maps for existing municipal drains within the Little River Watershed;
4. Determine Regulatory 1:100 Year Flood Elevations throughout the Watershed; and
5. Identify updated floodproofing requirements for future development.



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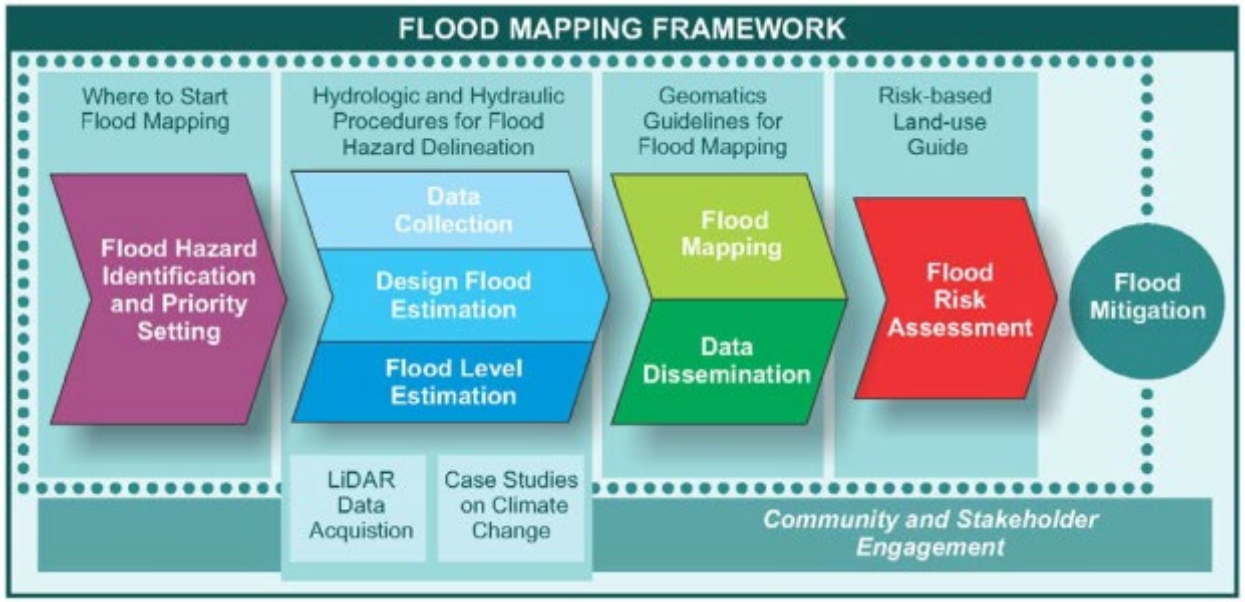
Regulation Floodplain Mapping Process

Regulated Floodplain Mapping Studies are required to take into consideration the guidelines set forth within the following Provincial and Federal Floodplain Mapping documents:

- Technical Guide River & Stream Systems: Flooding Hazard Limit (OMNR – Water Resources Section, 2002);
- Technical Guidelines for Floodplain Hazard Mapping (Ontario Conservation Authorities, March 2017); and
- Federal Flood Mapping Guideline Series (Natural Resources Canada, 2018)



Conservation Authorities Role: Protecting From Flooding Risk

ERCA is empowered through provincial legislation to further the conservation, restoration, development and management of natural resources other than gas, oil, coal and minerals. This mandate remains as valid today as it was in 1946, when the first Conservation Authority was established.

In regards to Watershed Management, Conservation Authorities (CA):

- Work with communities within our watersheds to provide protection and mitigation of risk when new development or redevelopment is proposed. Such developments require permits from the CA; and
- When a Two Zone Policy (such as the one proposed here) is approved by the municipality, the policy will be included in the CA Policies and implemented through the CA permit Process.

Conservation Authorities Role: Protecting From Flooding Risk

How do we protect the public and property from natural hazards?

1. Municipal Plan Review
2. Permitting Process
   - ➢ Administration of Section 28 of the CA Act and Ontario Regulation 158/06

Note: The local CA is not alone. The municipality has a significant role in protecting the public and property from natural hazards through its Planning Program (i.e. Official Plan Amendments, reviews, and coordinating development applications that trigger Planning Act requirements).

Conservation Authority Act – Section 28

Section 28 (1) of the CA Act prohibits (without permits):

- Activities which straighten, change, divert, or interfere in any way with the existing channel of a river, creek, stream, or watercourse or to change or interfere in any way with a wetland.
- Development activities in areas that are within the Authority's Area of jurisdiction and are within or adjacent to:
    1) Hazardous lands;
    2) Wetlands;
    3) River or stream valleys;
    4) Areas adjacent to or close to shorelines that may be affected by flooding, erosion, or dynamic beach hazards; and
    5) Other areas.

Conservation Authority Act – Section 28

Development is defined in the CA Act as:

- The construction, reconstruction, erection, or placing of a building or structure of any kind;
- Any change to a building or structure that would have the effect of altering the use or potential use of the building or structure, increasing the size of the building or structure, or increasing the number of dwelling units in the building or structure;
- Site grading; and
- The temporary or permanent placing, dumping, or removal of any material, originating on the site or elsewhere.

Conservation Authority Act – Section 28

Permitting through S.28 Regulations:

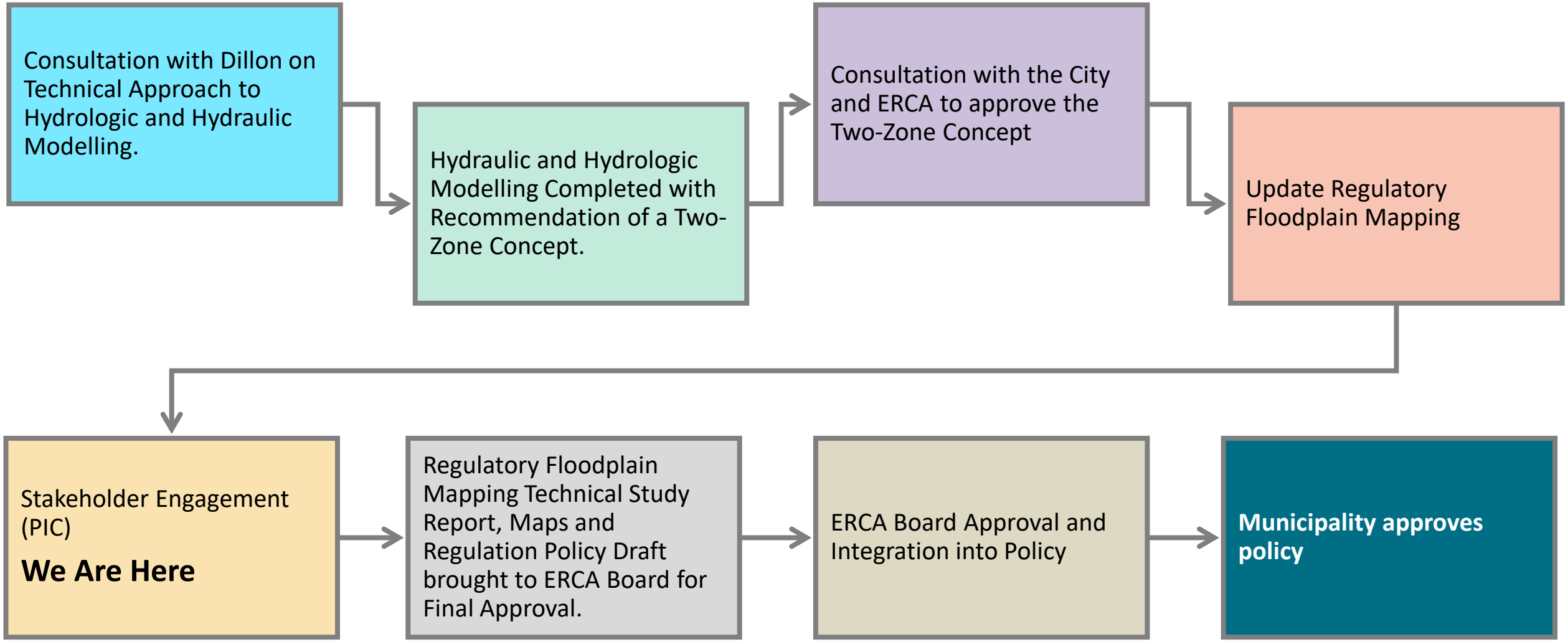
- Ontario Regulation 158/06 defines how Section 28 of the CA Act is to be implemented in by ERCA;
- All Development taking place in a regulated area requires permission from the CA;
- To permit the development, the CA has to confirm that the control of flooding, erosion, dynamic beaches, pollution or the conservation of land are not affected and that there is safe access to/from the lands during a flood event or because of an erosion issue; and
- Staff use the board-approved policies and provincial guidance manuals in evaluating the merits of a permit application.

Conservation Authority Policy

- Identifies to municipalities and the public how the CA will interpret the submitted application.
  - "In the opinion of the authority, the control of flooding, erosion, dynamic beaches or pollution or the conservation of land may be affected by the development."
- Provides the CA's board-approved position on provincial technical guidance and other related studies (such as watershed master and management plans).
- Outlines fee schedule, permit application response timelines, etc.

Based on the findings of the Little River Watershed Regulatory Floodplain Mapping Update Study, a 2-Zone Policy will be adopted into the ERCA board approved policies and implemented through the regulation.

Little River Watershed 2-zone Policy Steps And Section 28 Regulation Approval Process



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Little River Watershed Regulatory Floodplain Mapping Update Study

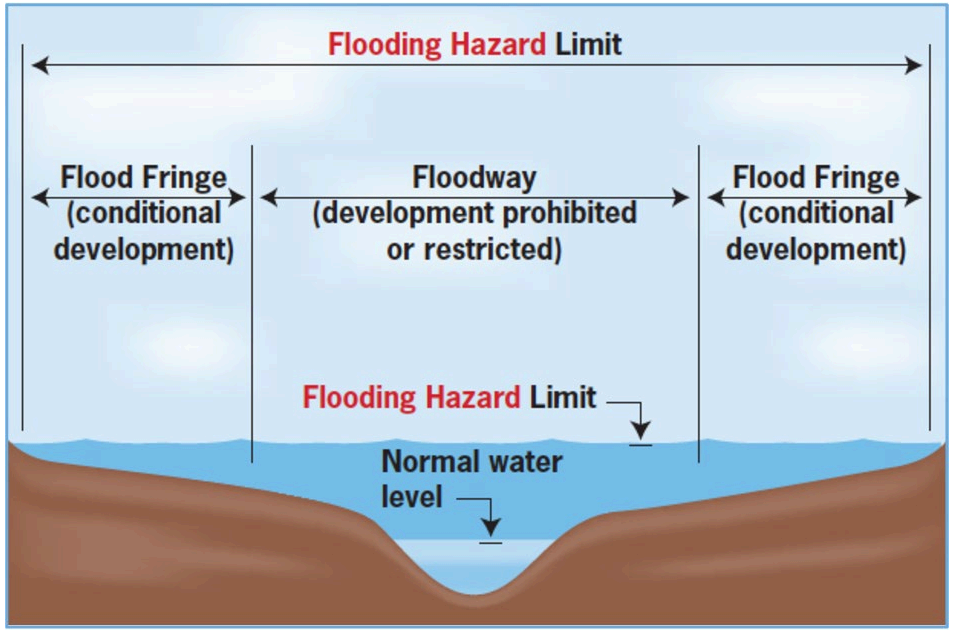
- Calibrated Hydrology Model developed using a Hydrologic Modelling Software;
- Hydraulic Model developed using a 1-Dimensional/2-Dimensional Approach:
  - Municipal Drains and in-stream structure crossings represented as 1D elements; and
  - Floodplain beyond the drain banks represented using topographic survey mapping into a 2-Dimensional model surface mesh.

- This Integrated 1D-2D approach to Floodplain Modelling provides for a more realistic representation of the floodplain extents and representation of complex flow conditions between adjacent drainage features during larger storm events.

Little River Watershed Regulatory Floodplain Mapping Update Study

Overall Summary And Findings

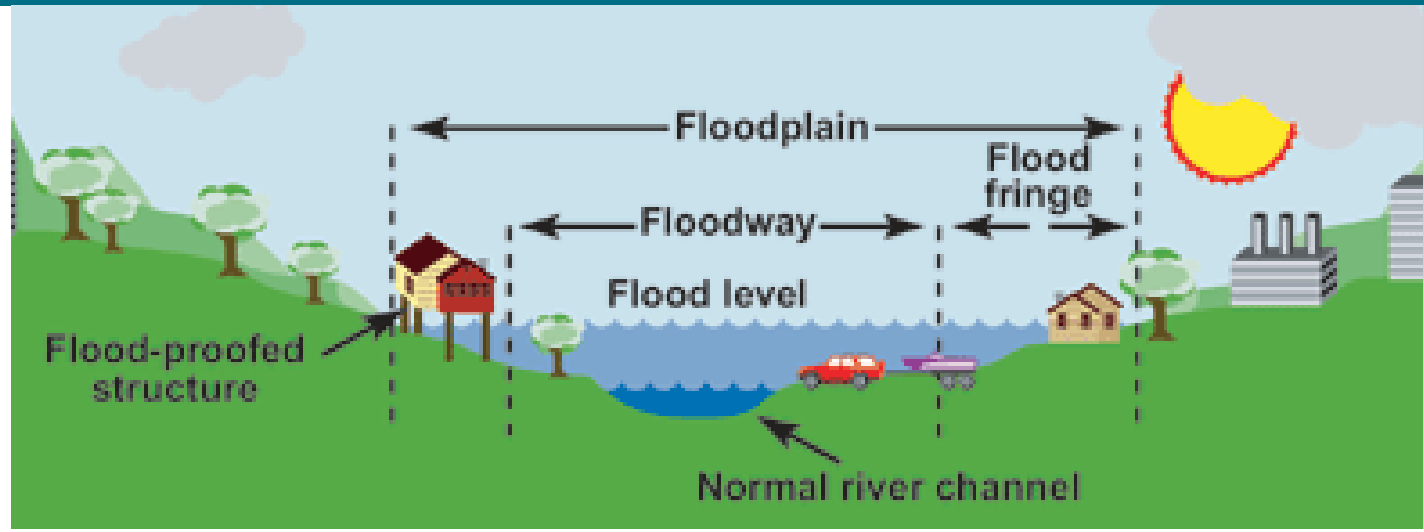
- Representation of 2D flow conditions throughout the floodplain provided for a more accurate assessment of actual inundation depths and a robust, but realistic basis to determine flood proofing elevations for future development areas.
- 1:100 Year-24 Hour Storm determined to continue being the local regulatory design event;
- Little River Watershed recommended to be a Two-Zone approach to Floodplain Management and overall **Flood Hazard Limit** consisting of:
  - Primary Floodway Area; and
  - Secondary Flood Fringe Area.



Little River Watershed: Two Zone Floodplain Approach

Generally, a floodplain consists of one zone set by the regulatory flood standard (e.g. 1:100 year storm).

The two-zone approach to a Floodplain recognizes that sometimes it is appropriate to divide the floodplain into two zones.



Floodway: The hazardous portion of the floodplain where flood depths and/or velocities are such that they pose a significant threat to life and/or property. The floodway is generally defined as the area required for the safe passage of flood flows.

Flood Fringe: The portion of the floodplain between the limits of the floodway and the Regulatory Flood line limit. Flood depth and velocity are generally less severe in the flood fringe and some development may be permitted (with conditions).

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Little River Watershed: Development Floodproofing Standards

Floodway Area

- Floodway is primary contained within the Municipal Drain banks throughout the Watershed.
- Development is Prohibited and Floodway shall remain un-obstructed and without fill placed.

Flood Fringe Area

- Area is outside of Floodway, but still has the potential to experience flood inundation. Flood depths and flow velocities are generally less severe with very low potential for harm to human life.

Little River Watershed: Development Floodproofing Standards

Flood Fringe Area Continued:

- Development is permitted, provided appropriate floodproofing measures are incorporated, and pending the receipt of a permit from the Conservation Authority and other applicable planning approvals (e.g. site plan/building permit).
  - Development road and parking lot grade elevations to be set no lower than 0.30 meters below existing condition Flood Fringe Elevation or the engineered inland flood level, where governed; and
  - Development building opening to be set no lower than 0.30 meters above existing condition Flood Fringe Elevation or the engineered inland flood level, where governed.

Little River Watershed: Two Zone Floodplain Concept

Little River Watershed – Upper Reaches Upstream of County Road 42

- Floodway Area contained within the Municipal Drain Banks;
- Flood Fringe Area spread across primarily agriculture Lands.

1:100 Year Floodway Extents
1:100 Year Flood Fringe Extents

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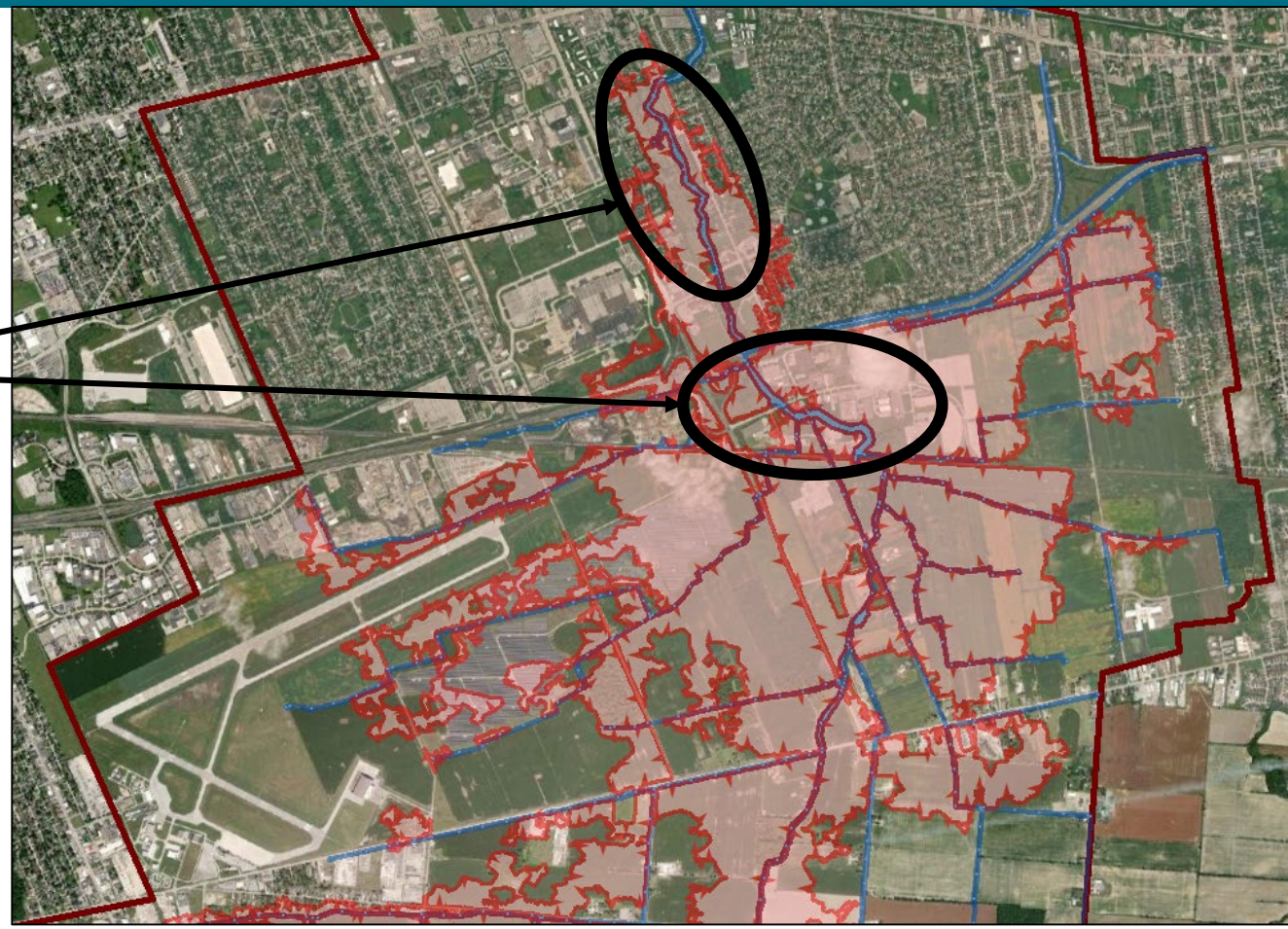
Little River Watershed: Two Zone Floodplain Concept

Little River Watershed – Middle Reaches between County Road 42 and Lauzon Road Downstream of Little River Golf Course

- Floodway Area predominantly contained within the Municipal Drain Banks other than in areas within the Twin Oaks Business Park and Little River Golf Course;
- Flood Fringe Area spread across primarily existing agriculture and some developed Lands.



1:100 Year Floodway Extents

1:100 Year Flood Fringe Extents

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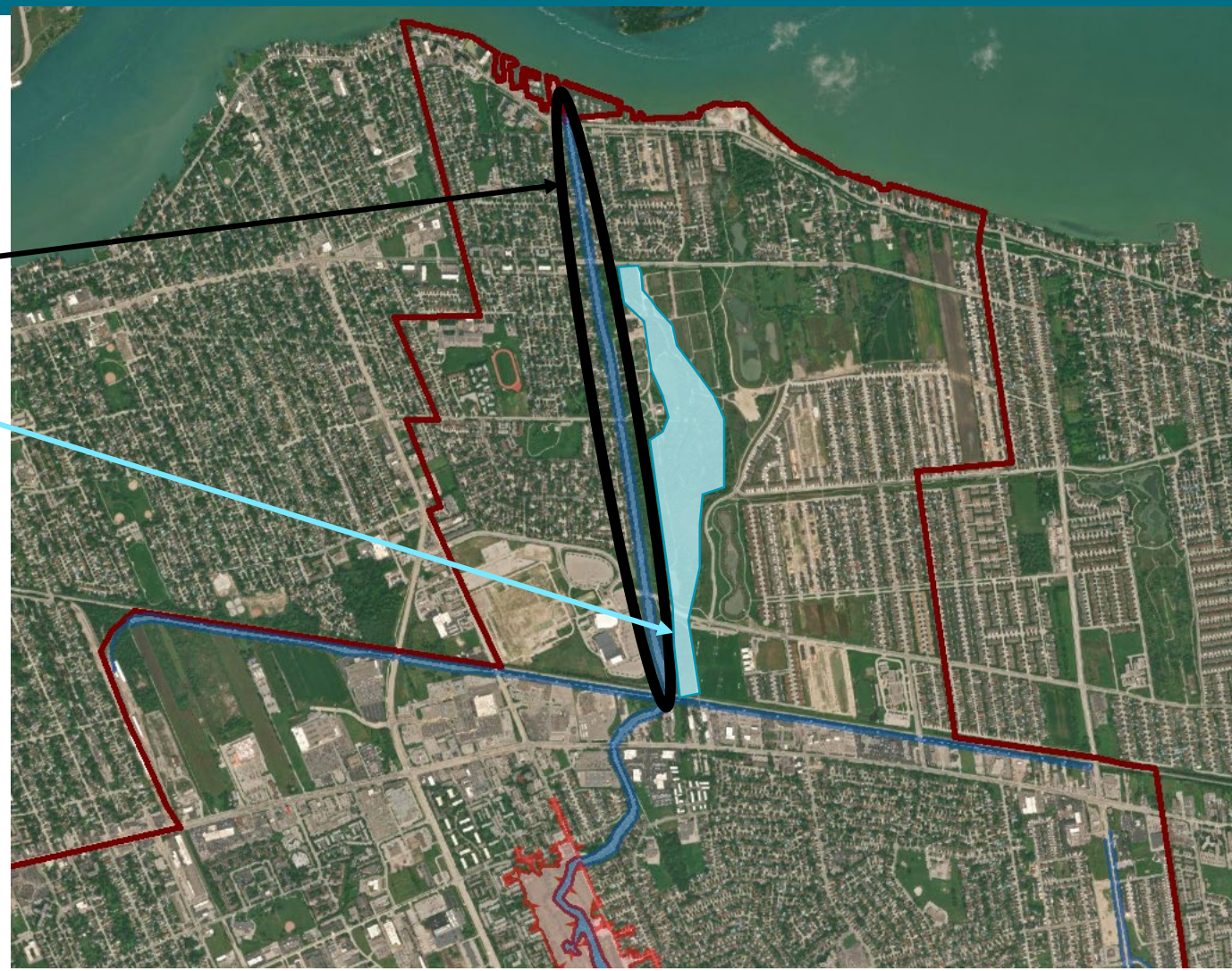
Little River Watershed: Two Zone Floodplain Concept

- **Little River Watershed – Lower Reaches**
- Floodway contained within existing City Dike System;
- City Little River Corridor Secondary Floodway and Weir System to be used for Flood Fringe Area Inundation and for more Extreme Rainfall and Coastal Flood Events



1:100 Year Floodway Extents

1:100 Year Flood Fringe Extents

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Next Steps

Contact Information:

Members of the public are encouraged to review the draft mapping through the below noted Storyboard and connect with a member the team to understand how the mapping may affect their property:

Little River Flood Plain Mapping | Opens in new window

User: LittleSandV

Password: LittleRiver2021

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Next Steps

Questions?

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