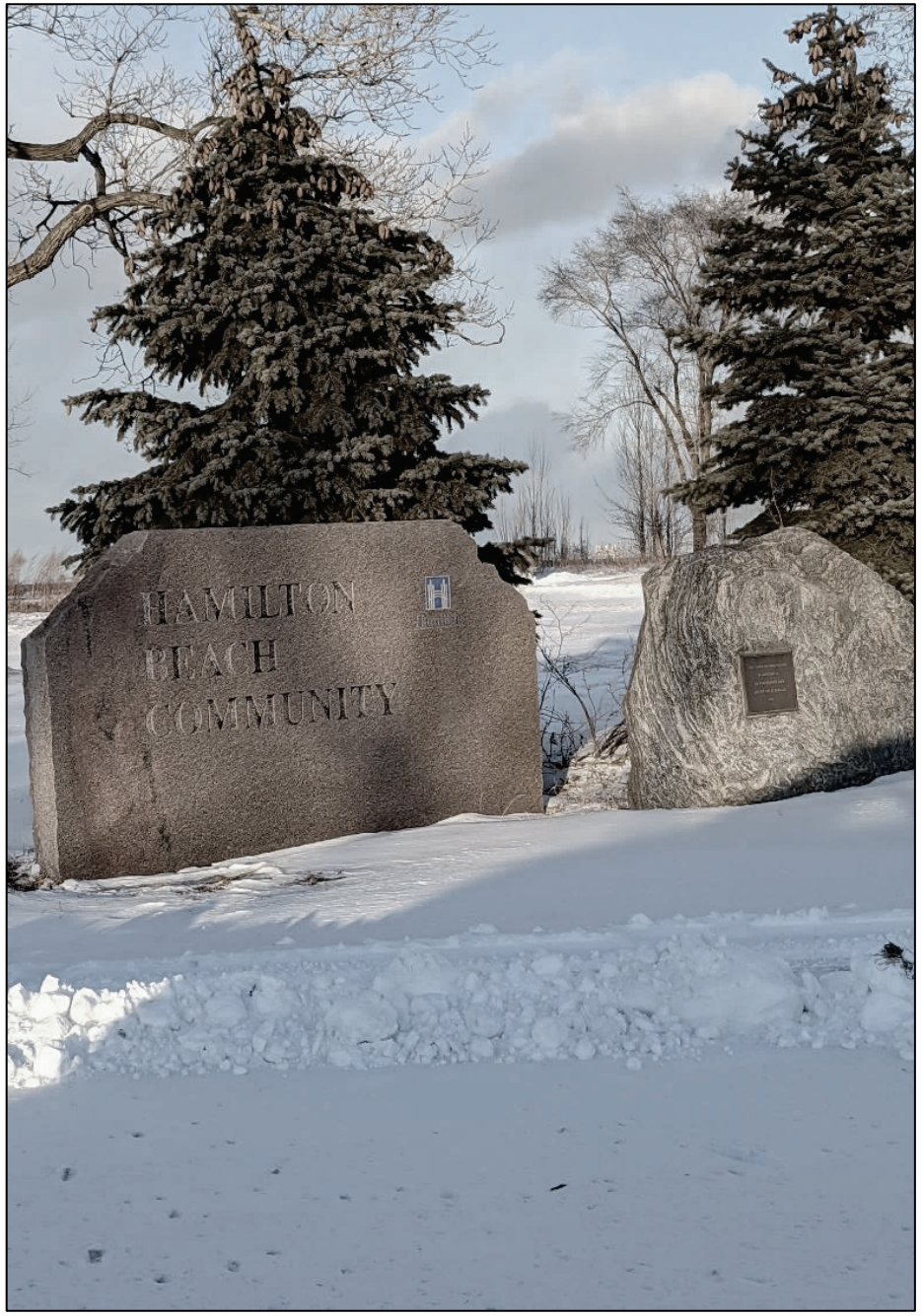

Hamilton

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Welcome to Public Information Centre #1 for the

Beach Boulevard Community Flood Remediation Master Plan and Municipal Class Environmental Assessment

16 May 2022 – 31 May 2022

Purpose of this Public Information Centre

The City of Hamilton has initiated a Municipal Class Environmental Assessment Study (Class EA) to investigate the causes of flooding in the Beach Boulevard Community and identify alternative solutions to address the problem.

This study is being carried out in two phases:

- **Phase 1: Problem and Opportunity Statement (including Baseline Inventory)**
- **Phase 2: Identification and Evaluation of Alternative Solutions**

The purpose of this Public Information Centre it to introduce the Study, provide a summary of the Baseline Inventory Assessment, and invite feedback from interested parties (public, Indigenous Nations, government agencies, and stakeholders).

This presentation is divided into three main sections:

- **Section 1: Study Background**
- **Section 2: Existing Conditions within the Study Area**
- **Section 3: Next Steps and Tentative Project Schedule**

The Draft Baseline Inventory Report is available on the project webpage for public viewing, and will be finalized during the next phase of this EA Study.

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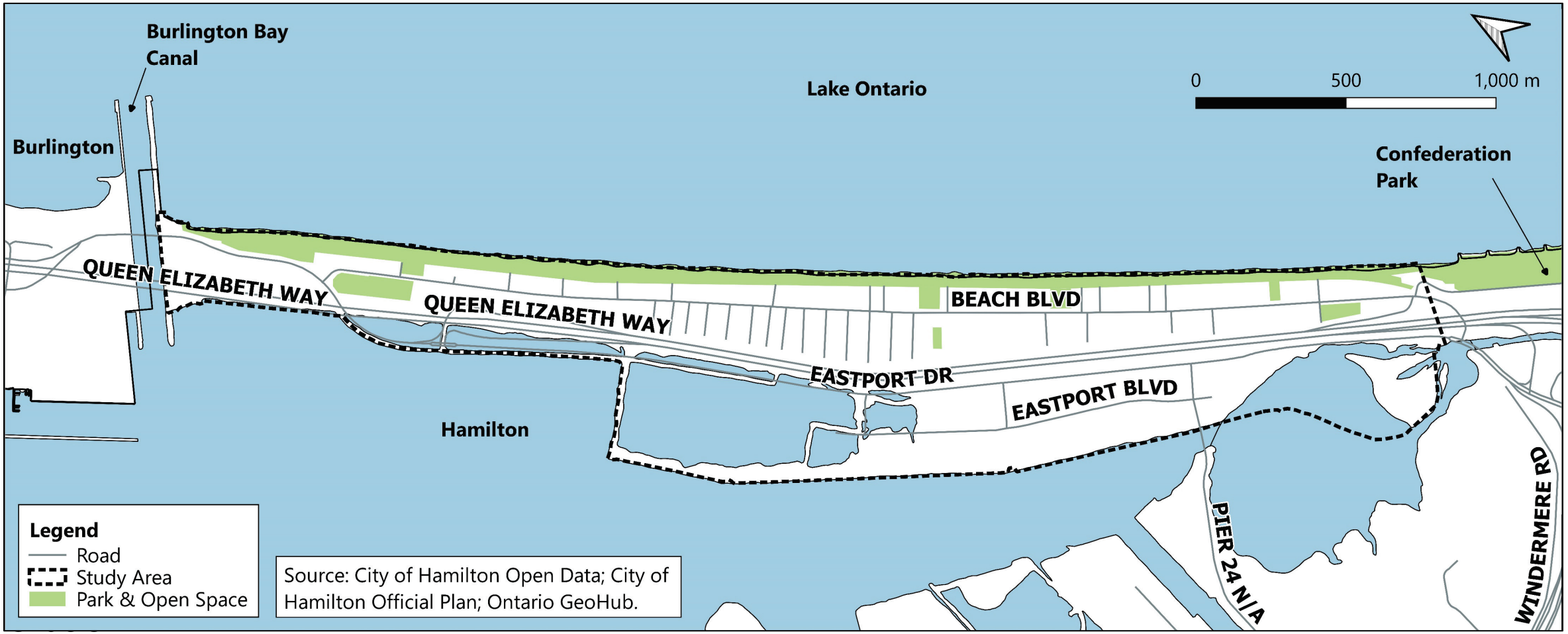
1. Background - Study Area Overview

The Beach Boulevard Community is a waterfront community in the City of Hamilton. It is bounded by Lake Ontario to the east, Hamilton Harbour to the west, Burlington Canal Lift Bridge to the north and Confederation Park to the south. **The focus of this study is primarily on the residential area on the east side of the QEW.**



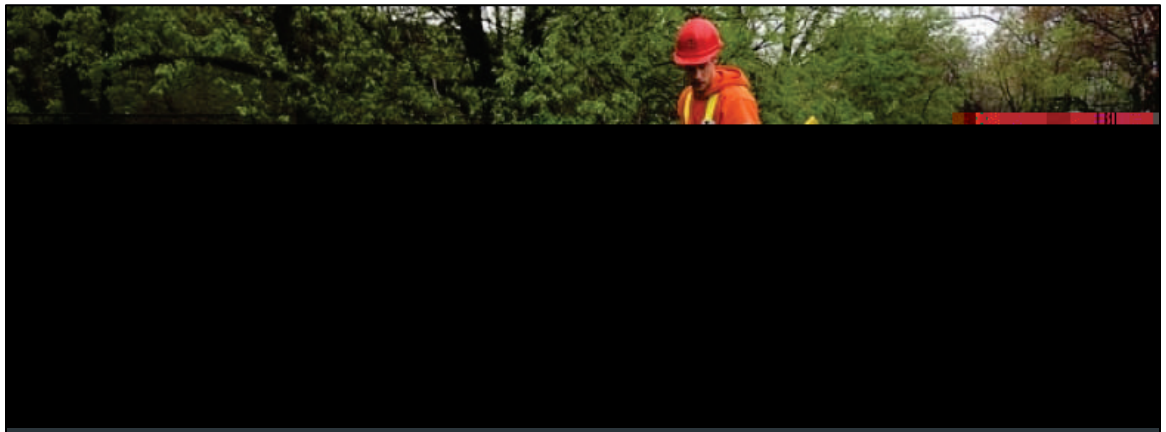
1. Background – History of Flooding in the Beach Boulevard Community

Flooding problems in Hamilton's Beach Boulevard Community have been documented back to 1943.

There are records in the historic as well as recent news concerning flooding in this area.

Recent flooding events occurred in 2017, 2019 and 2020.

Photograph showing a temporary emergency pumping station employed by the City on Bayside Avenue to pump water out from the street. Source: Barry Gray, Hamilton Spectator, (2019).



Photograph showing a City wastewater collection system inspector, checking a manhole on Bayside Avenue on the beach strip in 2017. Source: Samantha Craggs / CBC (2019).

Photograph showing a series of downspouts and pipes pumping water from a house on Bayside Avenue onto the street. Source: Barry Gray, Hamilton Spectator (2020).

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1. Background - Previous Studies and Works

The following studies and works have been conducted over the past two decades to address flooding problems in the Beach Boulevard Community:

Master Drainage Plan - Hamilton Beach, 1999 (City of Hamilton)

- This study concluded that flooding occurs in the community **when lake water levels exceed 75.2 mASL** (based on the International Great Lakes Datum, 1955).
- **Ponding was predicted to occur on side streets during a two-year return period event**, as the stormwater collection system did not have sufficient capacity to convey this flow.
- Subsequently, upgrades were made to the stormwater system and **by-laws were put in place to limit basements and crawl spaces in this area**. However, flooding in the area continued to occur.

Drainage Investigation for Beach Boulevard Community, 2008 (Ministry of Transportation)

- This study attributed street flooding problems to a combination of the minimal elevation difference between lake water levels, Beach Boulevard, and land use changes over time.
- Several of the end-of-street catch basins were in extremely **poor condition and would require water to pool** on the street, before it could overflow into the pipe network.
- Recommended a **dedicated stormwater pumping station**.

1. Background - Previous Studies and Works (Continued)

Hamilton Beach Pumping Station Class EA, 2008 (City of Hamilton)

- This study recommended a **new pumping station at the terminus of Grafton Street** just east of the QEW.
- The City of Hamilton and MTO subsequently worked together to install the Grafton Pumping Station to address drainage concerns in the area.

Grafton Stormwater Pumping Station

Beach Boulevard Community Stormwater Ponding Study, 2019 (City of Hamilton)

- The purpose of this study was to investigate the situation and assess potential mitigation measures for ponding on the right-of-way associated with lake levels, surface drainage, ground water, and existing infrastructure.
- This study made recommendations for future works, legislative changes, residential alterations, and physical outlet recommendations.
- Key recommendations included **up to 4 new pumping stations** (Dunraven, Lagoon, Bayside, Fletcher) and potential additional improvements to the gravity sewer system and noted the **need for a Class EA Study.**

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1. Background - Intent of Current Study

- This current study will build off and expand work completed as part of previous studies.
- The Study is anticipated to address the requirements for a **Master Plan (Approach #2)** process, under the Municipal Class Environmental Assessment process. Under this approach, this study will address the environmental assessment requirements for all proposed works that are subject to the Schedule 'B' Class EA process. The two phases of this study are outlined below:

Class EA Phase 1: Problem and/or Opportunity	Class EA Phase 2: Alternative Solutions
▪ Develop Problem and Opportunity Statement ▪ Inventory natural, socio-economic, and cultural environments ▪ Consult with the public, Indigenous Nations, government review agencies, and key stakeholders/interest groups to introduce the Study and obtain input	▪ Technical analyses (e.g., hydrologic and hydraulic modelling) ▪ Identify alternative solutions ▪ Examine potential impacts of alternative solutions and identify mitigation measures ▪ Evaluate alternative solutions to identify preliminary preferred solution ▪ Consult with the public, Indigenous Nations, government review agencies and key stakeholders/interest groups to obtain input on the preliminary preferred solution ▪ Select preferred solution ▪ Prepare Project File Report

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1. Background - Class EA and Consultation Process (Continued)

Consultation is a key aspect of this study. The following is a summary of consultation that is planned for this Study with the public, Indigenous Nations, government agencies, and key stakeholders:

- Sharing of project notices at key milestones (**Study Commencement & PIC #1, PIC #2 and Study Completion**)
- Meetings with a **Technical Advisory Committee** comprised of staff from **various City departments, Hamilton Conservation Authority and Ministry of Transportation**
- **Two Public Information Centres** to seek input from the interested parties
- Sharing of project reports with the public, Indigenous Nations, **Technical Advisory Committee** and other interested parties for review and comment
- All project materials will be posted on: **http://www.hamilton.ca/beachblvdflooding**

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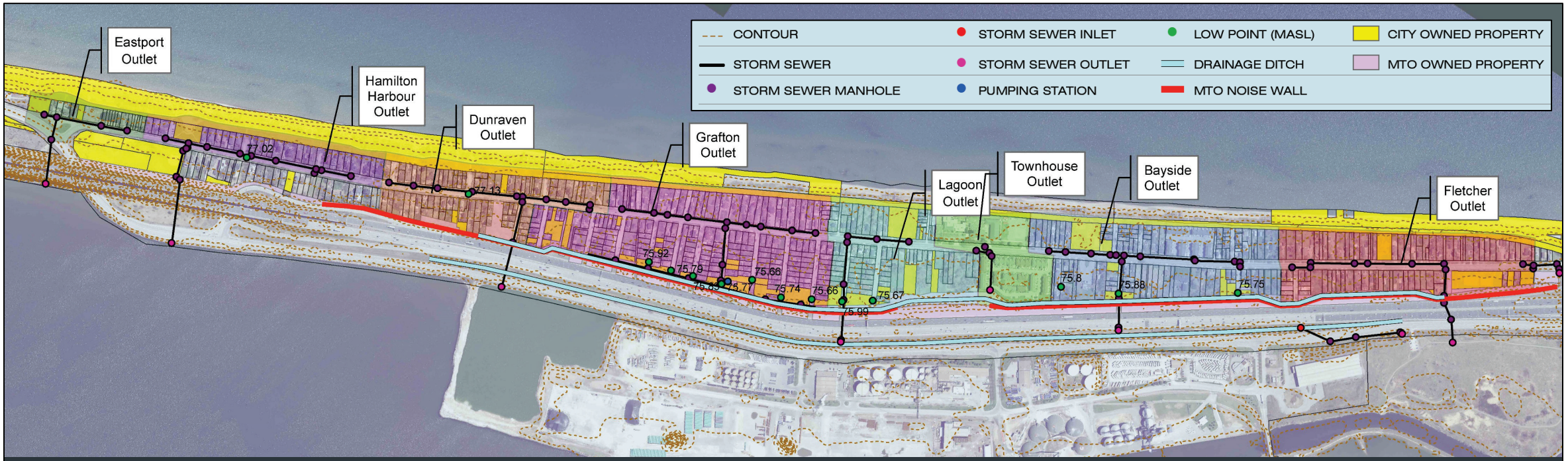
1. Background – Problem Statement

The Beach Boulevard Community is a waterfront community in the City of Hamilton that is bounded by Lake Ontario to the east and Hamilton Harbour to the west. Due to its proximity to Lake Ontario, low-lying flat topography, permeable geology (sandy soils), deficient storm drainage infrastructure, residential building form and drainage connections, and impacts of the QEW, the Beach Boulevard Community is prone to flooding.

The City of Hamilton is undertaking this Study to investigate the problems in detail, recommend solutions, and develop a comprehensive plan for implementation.



Map showing existing storm network. Source: Beach Boulevard Community Stormwater Ponding Study, 2019 (City of Hamilton)

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2. Baseline Inventory Report Review – Technical Investigations

A number of technical studies have been completed to:

- Develop an understanding of existing conditions within the study area; and,
- Identify constraints and opportunities to inform the evaluation of alternative solutions process.

These studies are:

- **Socio-Economic Review**
- **Stage 1 Archaeological Assessment**
- **Cultural Heritage Assessment**
- **Natural Environment Assessment**
- **Hydrogeological (Groundwater) Review**
- **Hydrologic and Hydraulic Assessment**
- **Lake Levels Review**
- **Infrastructure Review**

A Baseline Inventory Report (with input from the above studies) is available on the project webpage for public viewing as part of this Public Information Centre. A summary of results is provided on the following slides.

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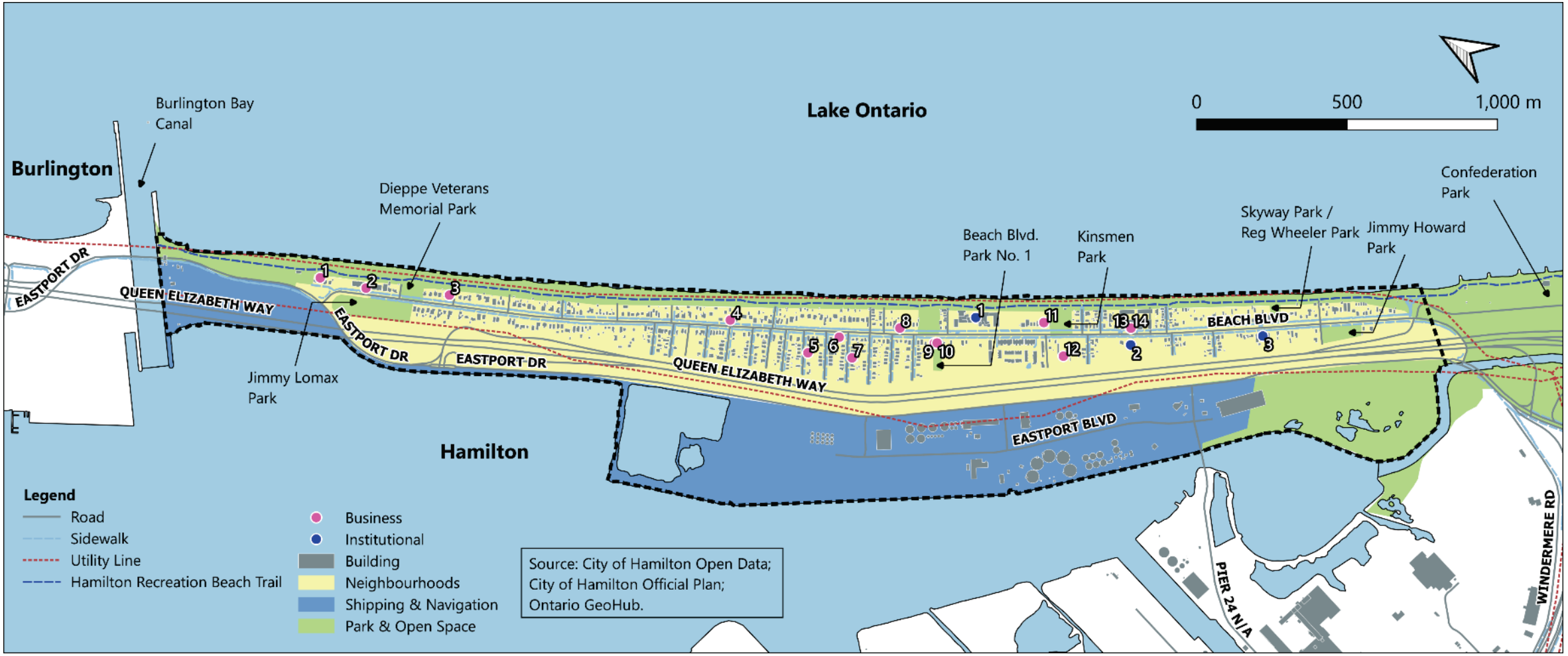
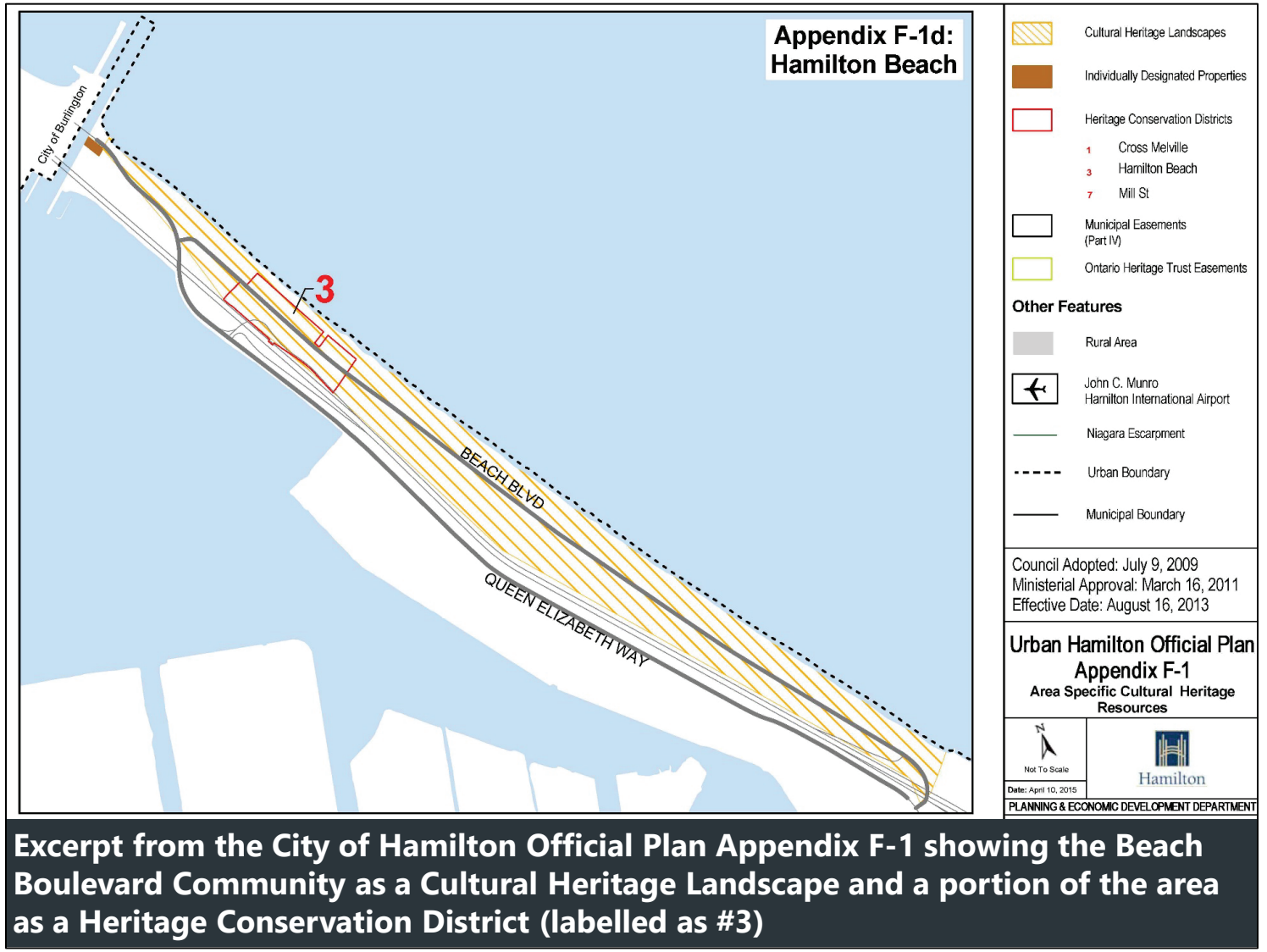
2. Baseline Inventory Report Review – Land-use

- Land-use within the Community is primarily residential, with parks and open space and some commercial.
- Land-use to the south is comprised of port lands, managed by Hamilton-Oshawa Port Authority.



2. Baseline Inventory Report Review – Cultural Heritage Resources

- The Beach Boulevard Community is identified as a Cultural Heritage Landscape in the City's Official Plan.
- A Cultural Heritage Assessment is underway to complete a detailed inventory of potential built heritage resources and cultural heritage landscapes.
- This assessment will also identify potential effects of the project (if any) on cultural heritage resources and will propose mitigation measures to avoid or minimize those effects.



Excerpt from the City of Hamilton Official Plan Appendix F-1 showing the Beach Boulevard Community as a Cultural Heritage Landscape and a portion of the area as a Heritage Conservation District (labelled as #3)

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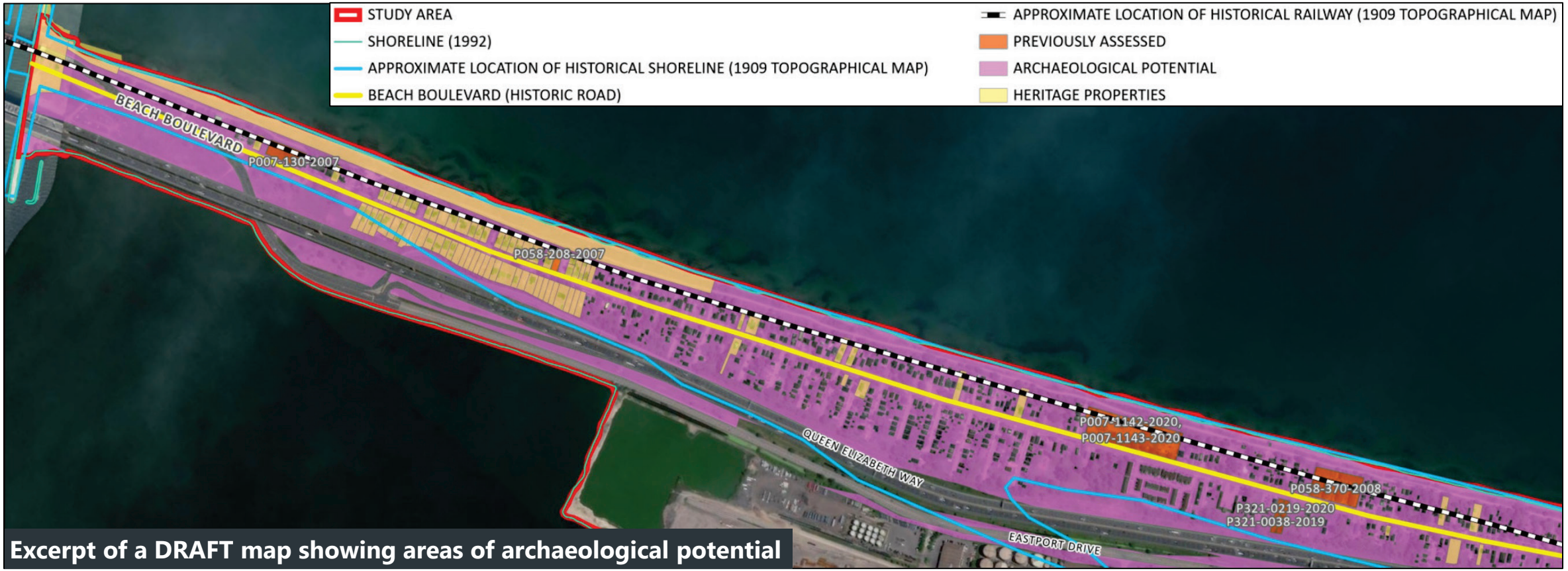
2. Baseline Inventory Report Review – Archaeological Resources

- Stage 1 Archaeological Assessment identified that the Study Area contains areas of archaeological potential.
- As the Study progresses and the location of proposed works is identified, the Stage 1 Archaeological Assessment will be finalized to make recommendations for additional archaeological work (if required).
- This report will be shared with the local Indigenous Nations for review and comment, before submitting it to the Ministry of Heritage, Sport, Tourism and Culture Industries for their review and acceptance.



Excerpt of a DRAFT map showing areas of archaeological potential

2. Baseline Inventory Report Review – Natural Environment

- Majority of lands within the Study Area are generally disturbed in nature.
- There are no provincially significant wetlands or areas of natural and scientific interest located within the Study Area. The beach strip along Ontario Shoreline is designated as Environmentally Significant Area.
- Majority of vegetation communities identified within the Study Area are primarily a mixture of cultural communities, representative of past disturbances.
- Species at Risk birds seen within the Study Area included: Barn Swallow, Chimney Swift and Peregrine Falcon. However, no evidence of nesting of these birds was identified.
- Aquatic resources include ditches along Eastport Drive, Red Hill Creek, Hamilton Harbour, Burlington Canal, and Lake Ontario shoreline.

Excerpt of a map showing disturbed nature of Study Area with sand dune communities on the north side.

2. Baseline Inventory Report Review – Groundwater

- The groundwater levels recorded in local water well records vary, ranging between 0.4 m and 3.3 m below ground surface.
- The most consistent results suggested the groundwater level may be found between approximately 1.0 m and 3.0 m below ground surface.
- Given the proximity of Lake Ontario and Hamilton Harbour, the groundwater system within the Study Area, including seasonal fluctuation, would be heavily tied to those surface water systems.

Excerpt of a map showing location of select water wells

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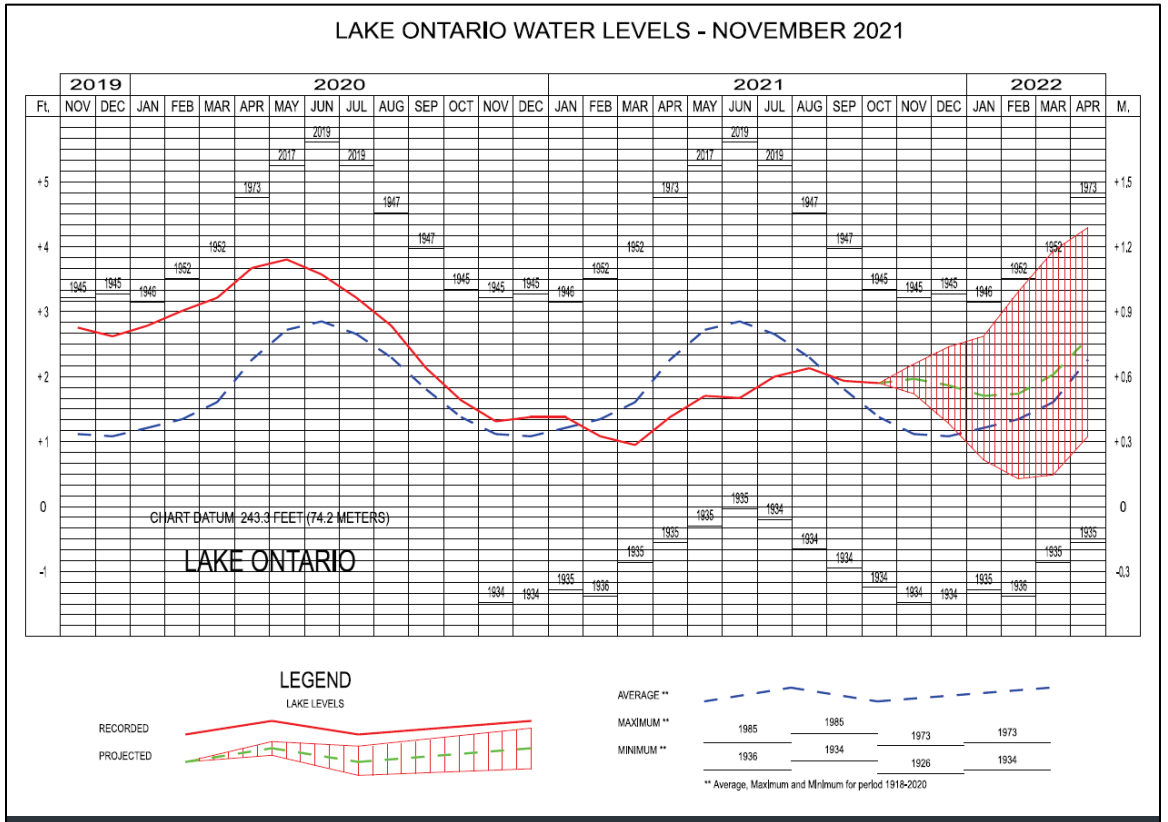
2. Baseline Inventory Report Review – Lake Levels

- The previous study (2019) included an extensive background review of lake level variations and predictions. It provides a good basis for the current study.
- The current study will need to consider historic high lake levels as well as forecasted/predicted future lake levels, and how they affect the Study Area.
- High lake levels are an issue as they:
  - Limit the performance of gravity drainage features like storm sewers
  - Also result in increased issues of groundwater seepage into basements
- For the Phase 2 assessment, this Study will consider a range of possible lake levels:
  - A “typical” average level (average summer high)
  - An “extreme” level (to be determined)



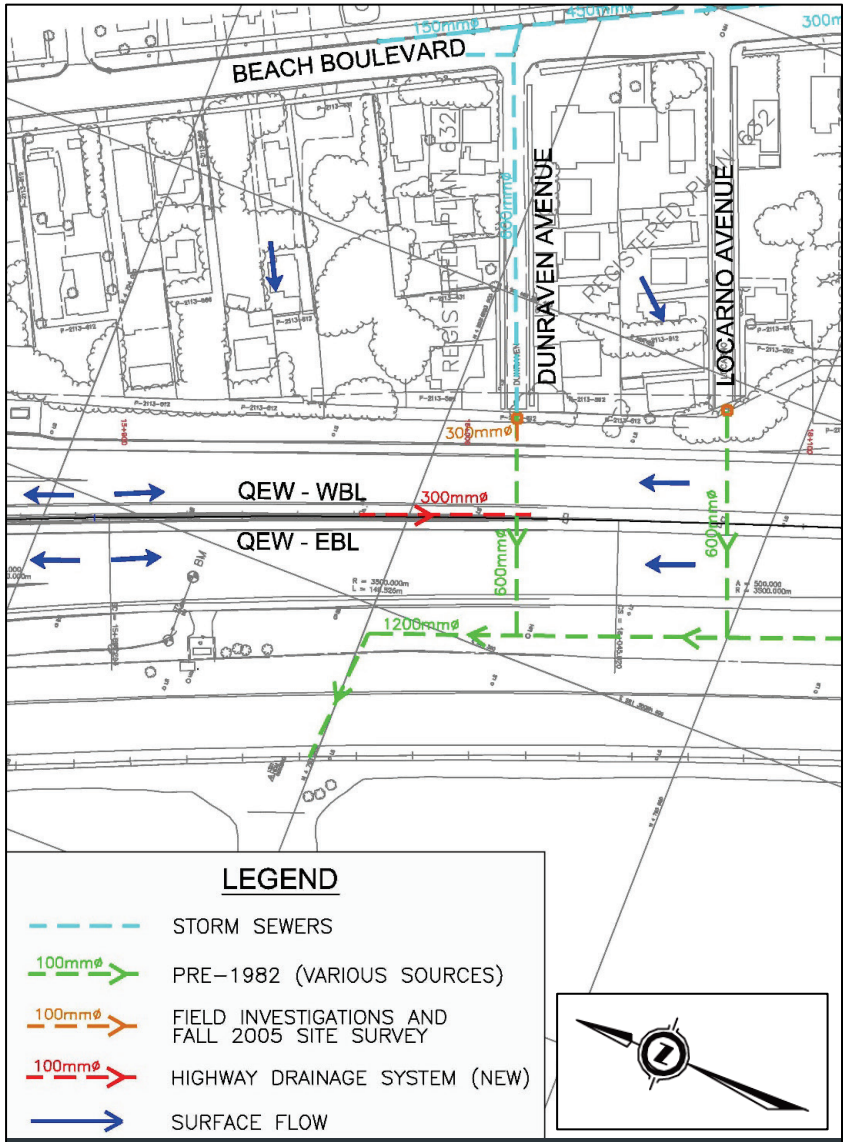
Recorded and Forecasted Lake Ontario Water Levels by Month

2. Baseline Inventory Report Review – Infrastructure and Modelling

- Storm sewer data for the Study Area was reviewed and a number of gaps were identified.
- Wood also identified that some data is outdated, for example, due to recent construction works.
- Wood will work with the City to fill missing data gaps.
- Once data gaps have been filled, Wood will then use the storm sewer data to develop a hydrologic and hydraulic model to understand the stormwater conveyance capacity of the infrastructure in the Study Area.

Grafton Permanent Pump Station

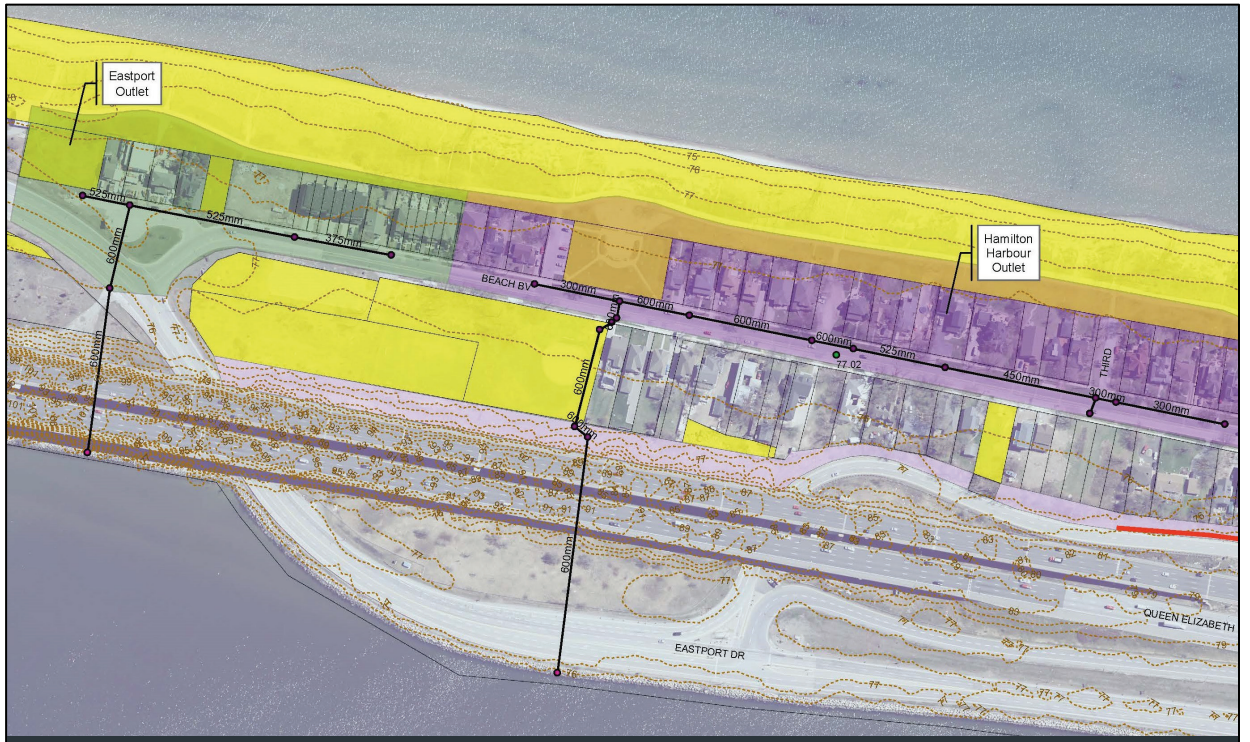
Outlet of temporary pumping station



Excerpt of a previous report drawing (2008) showing existing storm sewers

2. Baseline Inventory Report Review – Infrastructure and Modelling (cont'd)

- In order to assess the capacity of existing infrastructure and determine the requirements for potential improvements, a new hydrologic and hydraulic model will be required.
  - Hydrology model will determine expected runoff based on amount of drainage area and cover, and magnitude of the storm event
  - Hydraulic model will assess performance of the storm sewer system as well as overland flow (surface ponding)
- Storm events to be simulated include:
  - Historic Storms (model validation)
  - Existing IDF design Storms (2, 5, 100-year)
  - Climate change adjusted design storms
- Need to consider Lake Ontario boundary conditions as previously noted.



Excerpt of a map showing existing storm network. Source: Beach Boulevard Community Stormwater Ponding Study, 2019 (City of Hamilton)

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3. Next Steps

- Advance technical investigations – hydrologic and hydraulic modelling
- Develop a long-list of alternative solutions and evaluation criteria
- Evaluate alternative solutions
- Identify preliminary preferred solution(s)
- Plan for and host Public Information Centre #2 **(September-October 2022**)
- Prepare Master Plan Report and issue Notice of Study Completion (**December 2022 – January 2023**)

Thank you for taking the time to review this information. We encourage you to complete the **comment form** by **May 31, 2022** to provide feedback. Alternatively, you can send your comments to:

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Hamilton Water, City of Hamilton
Hanna.Daniels@hamilton.ca

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