# Chedoke Creek Watershed Stormwater Retrofits & Lower Chedoke Creek Enhancement

## Municipal Class Environmental Assessments

**Public Information Centre (PIC) #1**

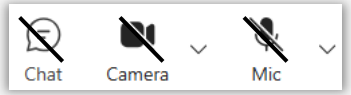
July 22, 2025

# Housekeeping

## This meeting is being recorded

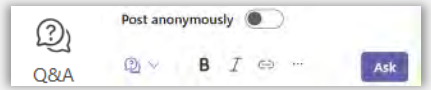
- The recording will be placed on the Engage Hamilton project page: **https://engage.hamilton.ca/chedokecreek**

## Chat, Camera and Mic features have been disabled




- This is to ensure the virtual meeting runs smoothly. We will be happy to answer any questions you have during or after the meeting.

## Questions and Answers




- Please submit questions and comments using Q&A button.
- Questions and comments will be reviewed by the moderator and may be grouped together if similar questions arise.

# Land Acknowledgement

The City of Hamilton is situated upon the traditional territories of the Erie, Neutral, Huron-Wendat, Haudenosaunee and Mississaugas. This land is covered by the Dish With One Spoon Wampum Belt Covenant, which was an agreement between the Haudenosaunee and Anishinaabek to share and care for the resources around the Great Lakes. We further acknowledge that this land is covered by the Between the Lakes Purchase, 1792, between the Crown and the Mississaugas of the Credit First Nation.

Today, the City of Hamilton is home to many Indigenous people from across Turtle Island (North America) and we recognize that we must do more to learn about the rich history of this land so that we can better understand our roles as residents, neighbours, partners and caretakers.

# Introductions

| City Team<br>Watershed Management Section<br>Hamilton Water Division<br>Public Works Department | Consultant Team<br>WSP |
|---|---|
| **Mike Christie**<br>Project Manager | **Matt Senior**<br>Project Manager |
| **Justin Wilson**<br>Project Manager | **Mir Ahsan Ali Talpur**<br>Environmental Planner |
| **Cari Vanderperk**<br>Director | **Michael Godard**<br>Senior Ecologist |



# Purpose of this Public Information Centre

The City of Hamilton has initiated two Municipal Class Environmental Assessments (Class EAs):

1. Chedoke Creek Watershed Stormwater Retrofits Class EA
2. Lower Chedoke Creek Enhancement Class EA

The purpose of this Public Information Centre (PIC) is to:

- Introduce the Class EA studies to the public,
- Share Problem Statements,
- Share key findings of technical studies completed to date, and,
- Solicit public feedback on the preliminary list of potential solutions for addressing problems.

# Notice of Collection

The City of Hamilton collects information under authority of Section 227 of the Municipal Act, 2001 and Section 31 Ontario's Environmental Assessment Act. Any personal information collected for both the Chedoke Creek Watershed Stormwater Retrofits Class EA and the Lower Chedoke Creek Enhancement Environmental Assessment will be used for/to solely to support public engagement by gathering ideas, addressing concerns, and ensuring a more comprehensive multi-perspective final report. By providing your email address or personal opinions, you are consenting this information to the City of Hamilton and/or their agents/contractors to support project collaboration by gathering input and concerns to inform a well-rounded final report, as required by the Municipal Class Environment Assessment and Ontario's Environmental Assessment Act. Information collected for this initiative may be stored on servers located in Canada and the United States and may be subject to Canadian and/or American laws. Questions about the collection of this personal information can be directed to:

- **Chedoke Creek Watershed Stormwater Retrofits Class EA** – Justin Wilson (Project Manager) - Justin.Wilson@hamilton.ca. 905 546 2424 x5471. 100 King St W, Floor 9, Hamilton Water, Public Works
- **Lower Chedoke Creek Enhancement Class EA** – Mike Christie (Project Manager) – Mike.Christie@hamilton.ca. 905-546-2424 ext. 6194. 100 King St W, Floor 9, Hamilton Water, Public Works

# Project Background – History

**July 2018:** The City discovered that the combined sewer overflow (CSO) tank at Main and King was discharging into Chedoke Creek. The discharge was stopped, the Ministry of Environment, Conservation, and Parks (MECP) was notified, and cleanup began. It was later determined that the discharge had occurred periodically over the course of 4.5 years.

The City collaborated with the MECP to investigate, respond to Provincial Orders, and develop remediation plans.

- **Chedoke Creek Work Plan:** Focused on nutrient offsets and targeted dredging of the Creek. Dredging was completed in late 2023
- **Cootes Paradise Work Plan:** Proposed broader remediation for Cootes Paradise and the Western Harbour. This work plan includes both Environmental Assessments being presented today, along with a number of other initiatives aimed to improve local surface water quality

*Floating Wetlands in Cootes Paradise (Sept. 2021)*

*Targeted Dredging in Cootes Paradise (Jul. 2023)*

# Investments for a Cleaner Cootes Paradise and Hamilton Harbour

| Initiative | Status | Purpose / Impact |
|---|---|---|
| **Woodward Wastewater Treatment Plant Upgrades ($340M)** | ✅ Completed | Releasing much cleaner water into Hamilton Harbour |
| **Dundas Wastewater Treatment Plant Upgrades ($252M)** | 🛠️ In Design (Completion Expected by 2033) | Will improve water quality in Cootes Paradise |
| **Real Time Control ($35M)** | ✅ Implemented | Uses sensors and remote control to reduce combined wastewater overflow |
| **Watershed Action Plan** | 🟡 Ongoing | Reduces pollution from city activities (e.g., runoff, salt use, erosion repair) |
| **Sewer Separation** | 🟡 Ongoing | Separates stormwater from wastewater to prevent overflow into natural water bodies |

*Woodward Wastewater Treatment Plant Upgrades*


*Dundas Wastewater Treatment Plant Upgrades*

*Real Time Control*

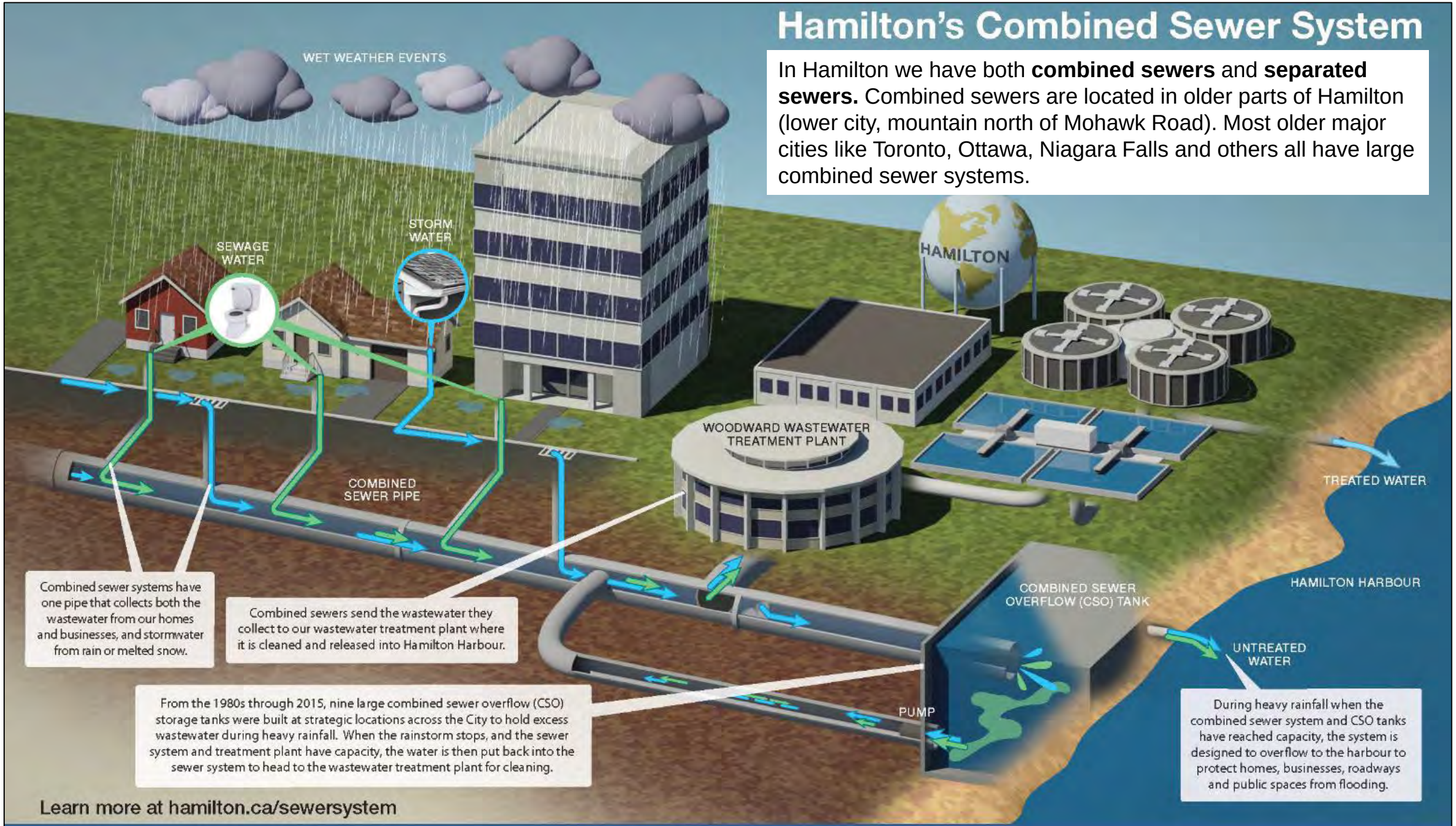
# Investments for a Cleaner Cootes Paradise and Hamilton Harbour


*Cross-connection repair*

- **Municipal Sewer Cross Connection Detection**: Targeting improper connections between stormwater and sanitary sewers to prevent pollution.
- **Sampling Programs**: Regular monitoring of sewer effluent and surface water quality to assess and maintain system health.
- **Dry Weather In-Pipe Sewer Sampling**: A proactive measure to ensure our sewer system continues to function as designed.
- **Sewer Lateral Cross Connection Program**: Focused on private property connections, ensuring proper configuration to avoid environmental hazards.
- **Enhanced City of Hamilton Outstation Inspections Team (ECHO)**

# Hamilton's Combined Sewer System

In Hamilton we have both **combined sewers** and **separated sewers.** Combined sewers are located in older parts of Hamilton (lower city, mountain north of Mohawk Road). Most older major cities like Toronto, Ottawa, Niagara Falls and others all have large combined sewer systems.

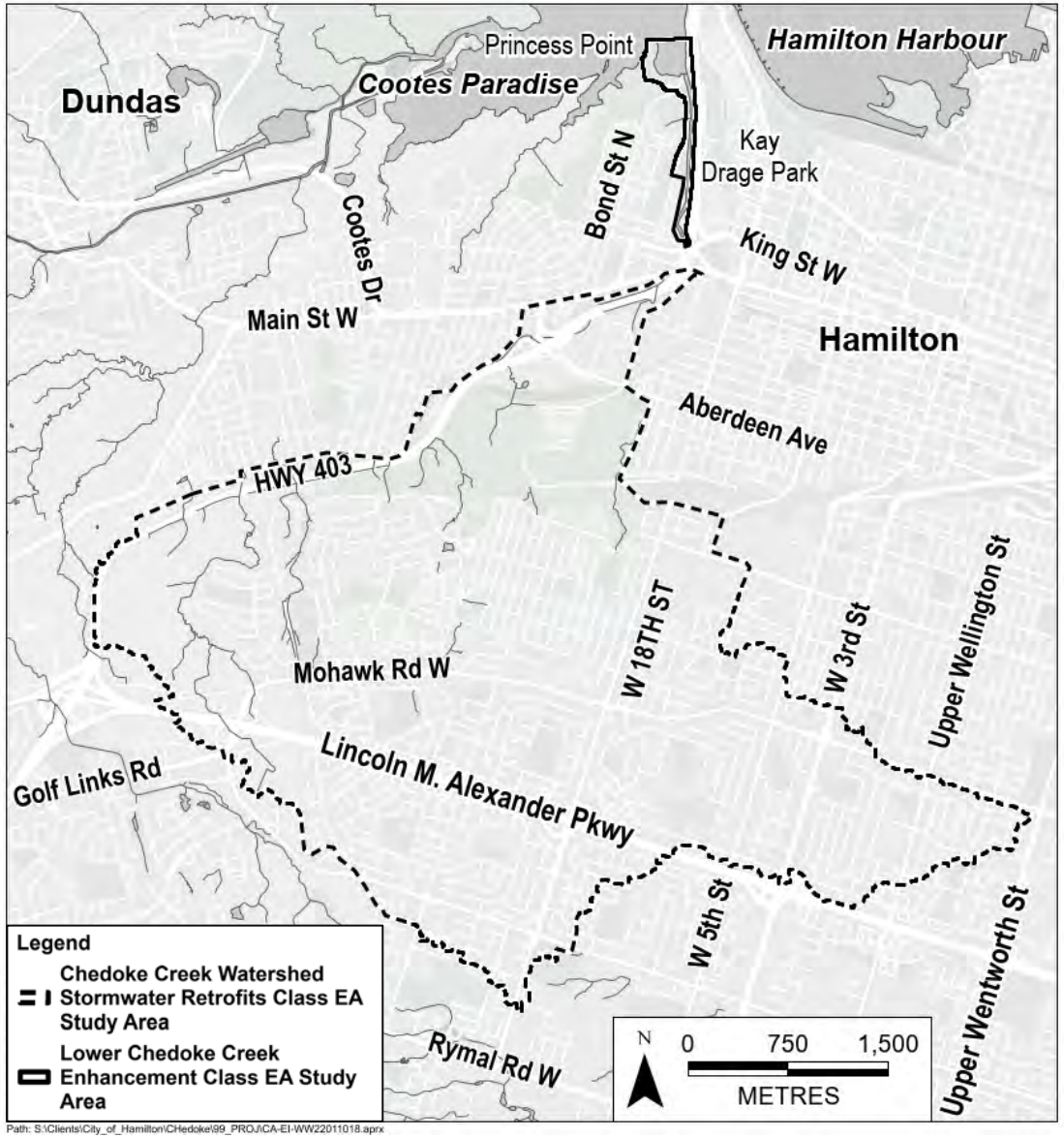



Learn more at hamilton.ca/sewersystem

# Purpose of the Current Class EA Studies

1. **Chedoke Creek Watershed Stormwater Retrofits Class EA** has been initiated to identify solutions for the reduction of urban contaminants in the stormwater system that ultimately discharge to Cootes Paradise and Hamilton Harbour. Where possible, potential measures to reduce runoff volume will also be considered.

2. **Lower Chedoke Creek Enhancement Class EA** has been initiated to identify a preferred water quality enhancement strategy for the Lower Chedoke Creek from King Street to Cootes Paradise.



# Class EA Process

The Class EA Studies are being completed in accordance with the **Municipal Class EA Master Plan process (Approach #2)**. This approach will allow the City to identify a set of projects, which can be implemented over an extended period of time. These studies will address Phases 1 and 2 of the Class EA process. This approach will provide a sufficient level of detail to be developed to allow the projects to proceed to design and construction.

## Class EA Phase One: Problem and Opportunity Statement

- Inventory natural, socio-economic, and cultural environments
- Develop Problem and Opportunity Statement
- Consultation with public, Indigenous Nations, government agencies and external partners

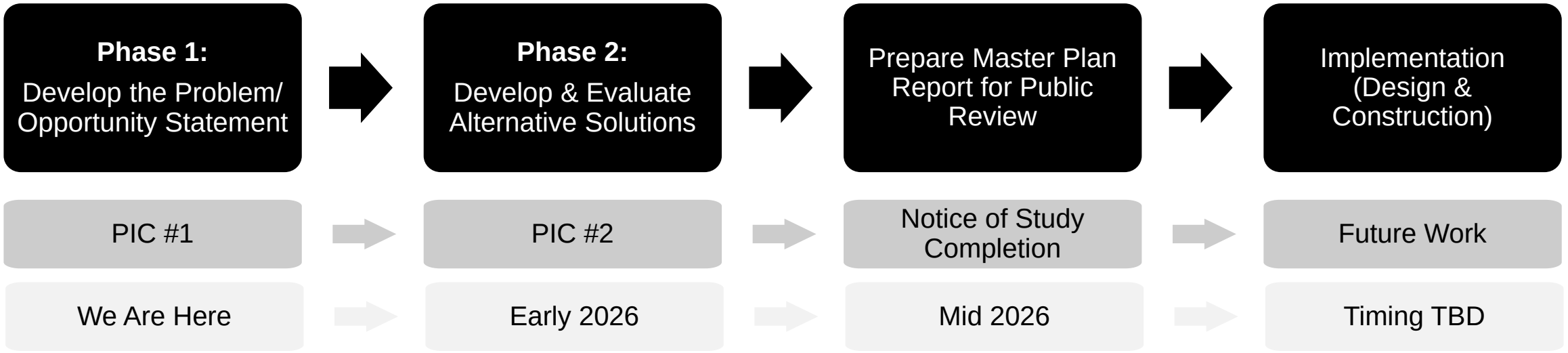
## Class EA Phase Two: Alternative Solutions

- Identification and evaluation alternative solutions
- Identification of preliminary preferred solution(s)
- Consultation with public, Indigenous Nations, government agencies and external partners
- Develop Master Plan report

# Class EA Process and Schedule

A **Class EA** is undertaken prior to municipal road, water, wastewater and transit construction projects.

- Ensures all reasonable alternatives are considered
- Avoidance or reduced impact on the natural, cultural, social and economic environments
- Incorporation of input from the public, Indigenous Nations, government agencies and external partners



# Consultation Process

The following consultation is planned as part of the Class EA studies:

- **Public Consultation:** Two Public Information Centres are planned to seek input from the community.
- **Agency and Partner Consultation:** Meetings with government agencies and key external partners (e.g., Hamilton Conservation Authority, Royal Botanical Gardens, Bay Area Restoration Council, Niagara Escarpment Commission, etc.) will be held to seek technical input.
- **Indigenous Nations Consultation:** Indigenous Nations have been contacted to initiate consultation and identify any interests / concerns about these projects.
- **Notifications:** Project notices will be issued at key milestones (i.e., Study Commencement/PIC #1, PIC #2, and Study Completion) to invite interested parties to participate in these studies.
- **Regular Updates:** All project materials and updates will be posted on: https://engage.hamilton.ca/chedokecreek

# 1. Chedoke Creek Watershed Stormwater Retrofits Class EA

**Problem Statement**
The EA reviews opportunities to implement upstream (Upper and Mid Chedoke Creek) stormwater quality control measures within the separated storm sewer areas of the Chedoke Creek Watershed.

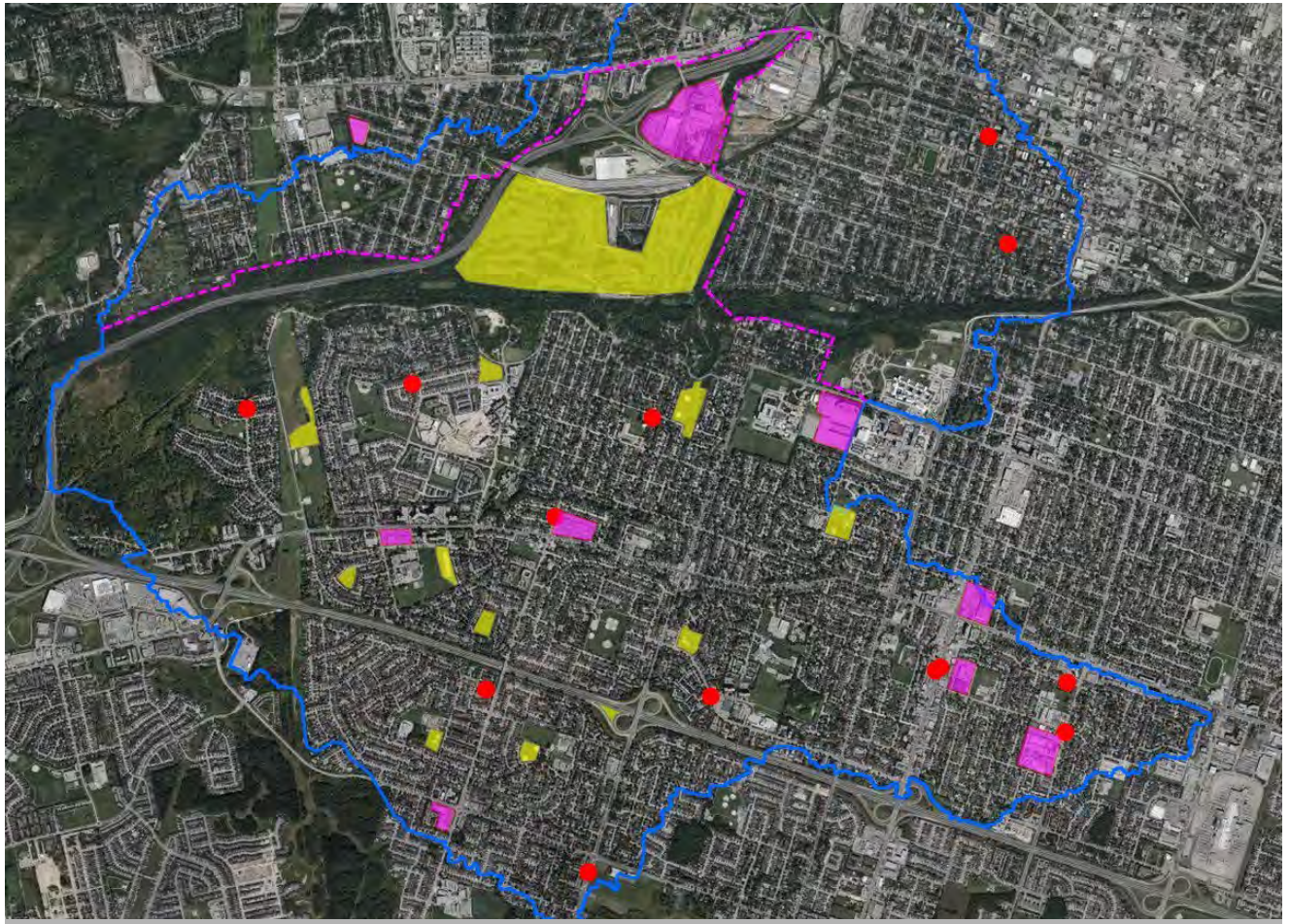
This includes evaluating a range of retrofit opportunities and developing a costed, prioritized implementation strategy.

**Goal**
To improve stormwater quality and support long-term ecological recovery in Chedoke Creek and downstream in Cootes Paradise and Hamilton Harbour.

# 1. Chedoke Creek Watershed Stormwater Retrofits Class EA

**Study Area with Potential Stormwater Retrofit Sites**

- A long-list of 34 candidate stormwater retrofit sites were initially identified
  - 13 public property areas (parks, golf course, and retrofits of existing dry pond stormwater facilities)
  - 8 private property areas (larger commercial\industrial sites)
  - 13 potential oil/grit separator treatment devices on existing roadways

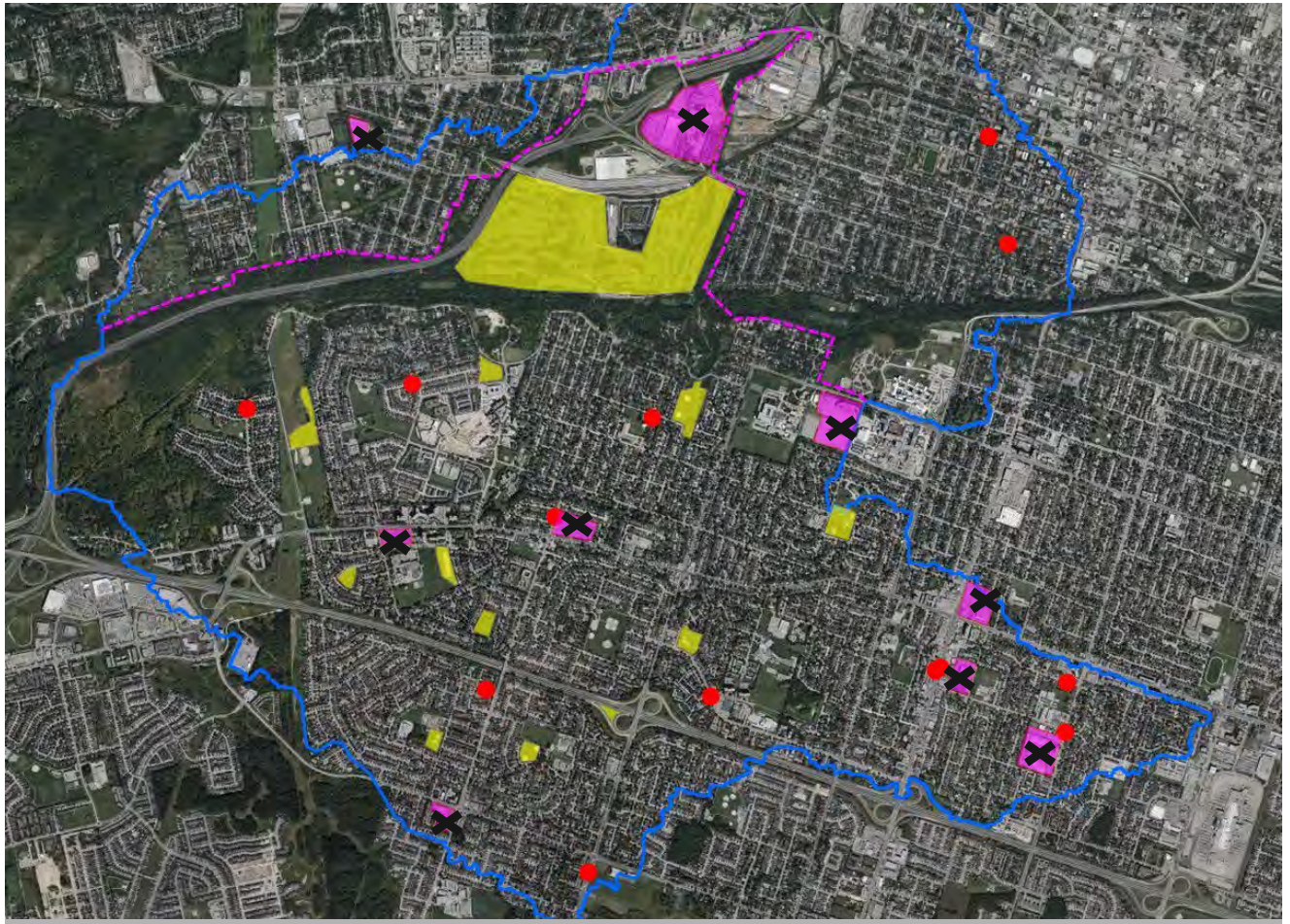


**Red Dots:** Potential Oil\Grit Separators
**Yellow Areas:** Potential Stormwater Retrofits on Public Property
**Purple Areas:** Potential Stormwater Retrofits on Private Property

# 1. Chedoke Creek Watershed Stormwater Retrofits Class EA

**Study Area with Potential Stormwater Retrofit Sites**

- Private property locations were ultimately screened as they would be dependent on private owner co-operation and would be more complex – the City's new Stormwater Rate and the incentive programs for commercial businesses to reduce runoff or improve water quality should support greater adoption
- 22 remaining locations to be assessed further



**Red Dots:** Potential Oil\Grit Separators
**Yellow Areas:** Potential Stormwater Retrofits on Public Property
**Purple Areas:** Potential Stormwater Retrofits on Private Property

# 1. Chedoke Creek Watershed Stormwater Retrofits Class EA

**Technical Studies**
A number of technical studies have been initiated 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:

- Fluvial Geomorphological Assessment
- Hydrogeological (Groundwater) Desktop Review
- Natural Heritage Assessment
- Stage 1 Archaeological Assessment
- Cultural Heritage Evaluation.

# 1. Chedoke Creek Watershed Stormwater Retrofits Class EA

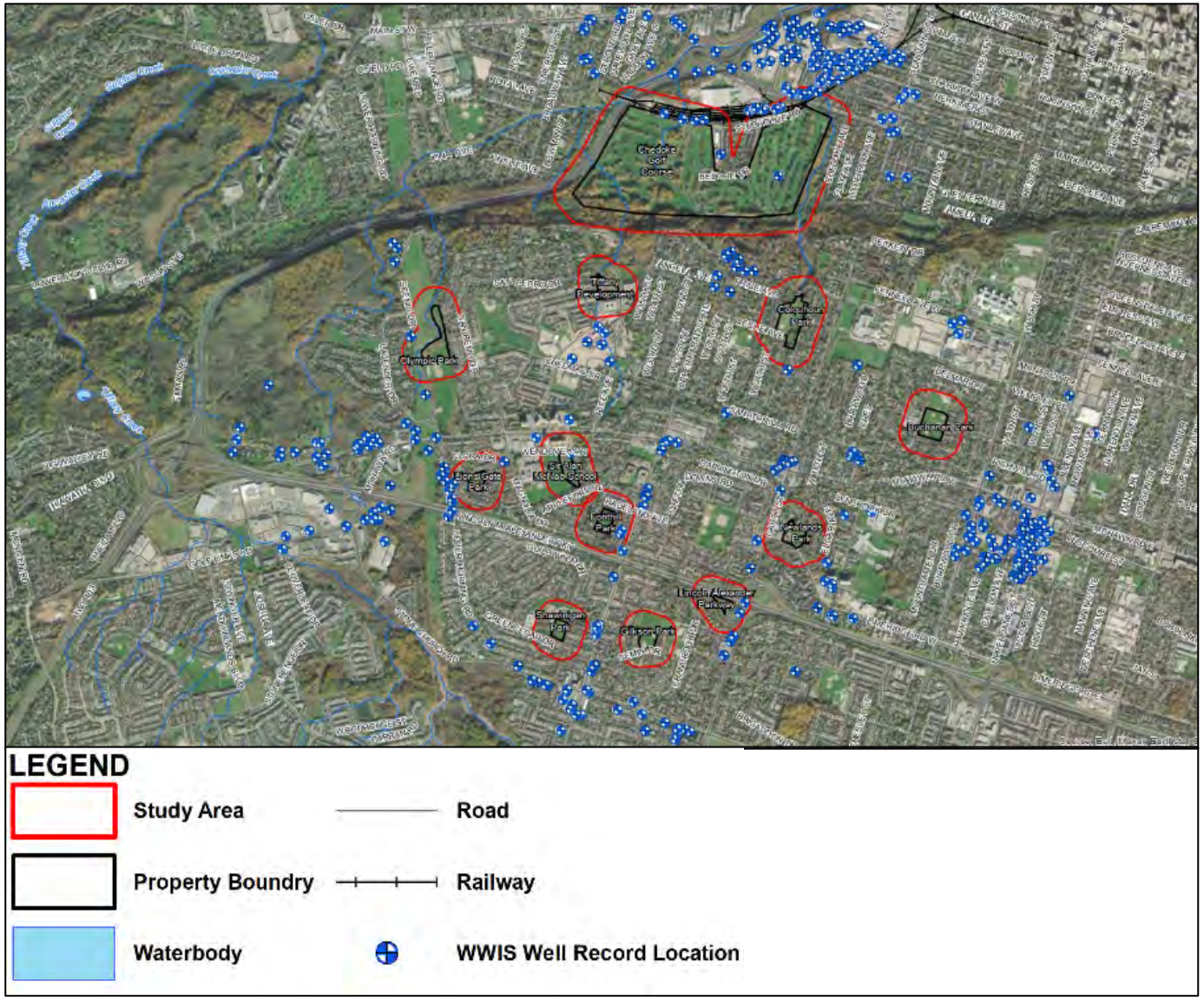
## Fluvial Geomorphological Assessment

- Assessed conditions of **Chedoke Creek through Chedoke Golf Course**
- Potential stormwater pond addition at Golf Course
- Erosion and habitat issues were found in the upper and middle sections of the creek
- Lower section offered better stability and space for natural channel design
- Preliminary design targets include a gently sloped, stable channel with natural features like pools and riffles, and further modeling will confirm long-term performance.

# 1. Chedoke Creek Watershed Stormwater Retrofits Class EA

## Groundwater

- Groundwater conditions vary across the sites, with some areas showing shallow water tables and others much deeper - ranging from 0.9 to nearly 16.8 m below ground in the MECP well records.
- Construction dewatering may be needed at some sites, depending on local geology and groundwater depth. This will require detailed hydrogeological assessments as part of the geotechnical investigations for each site.



# 1. Chedoke Creek Watershed Stormwater Retrofits Class EA

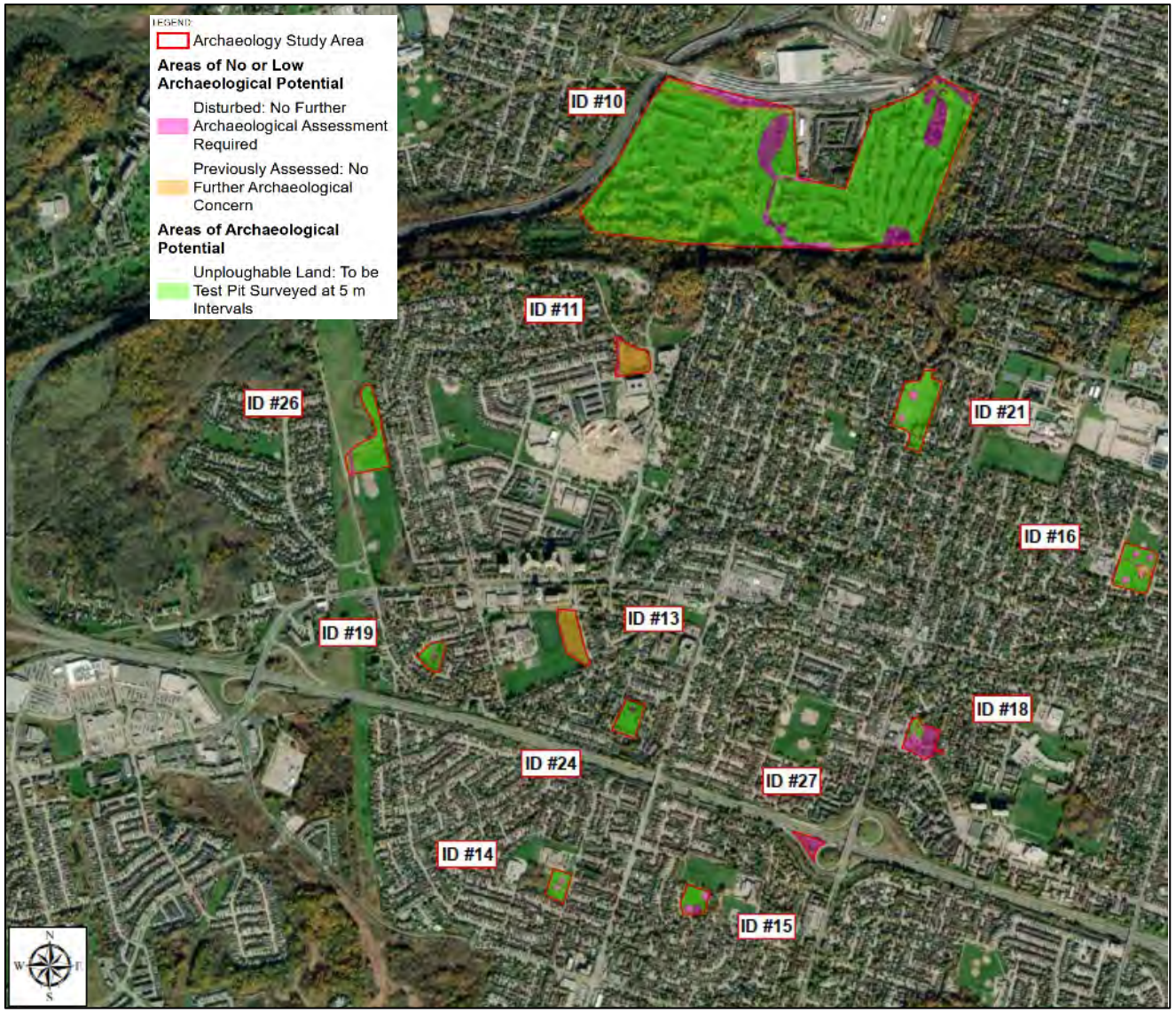
## Natural Heritage

- Subject sites are within urbanized areas surrounded by residential, industrial and commercial land use.
- Majority of sites are manicured open spaces (community parks / golf course), or stormwater management ponds, however, natural settings are also present.
- Once the preferred retrofit measures have been confirmed, the Natural Heritage Assessment will be updated further

# 1. Chedoke Creek Watershed Stormwater Retrofits Class EA

## Archaeological Resources

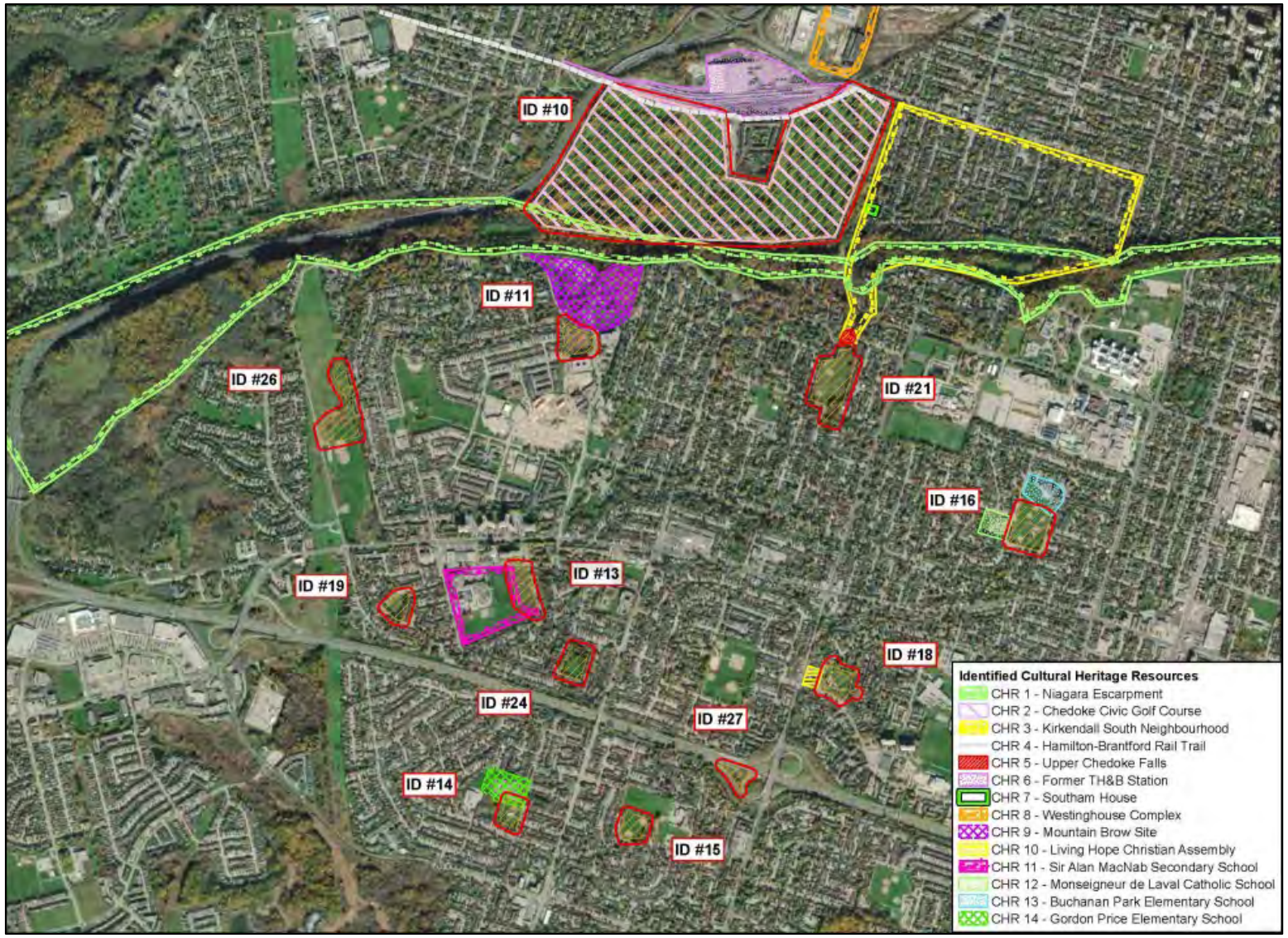
- Several sites were identified as having archaeological potential; therefore, a Stage 2 archaeological assessment will be required during the detailed design phase.
- The City will engage the Indigenous Nations in the monitoring of the archaeology fieldwork.
- The Stage 1 Archaeological Assessment Report will be submitted to the Ministry of Citizenship and Multiculturalism for review and acceptance.



# 1. Chedoke Creek Watershed Stormwater Retrofits Class EA

## Built Heritage Resources and Cultural Heritage Landscapes

- 14 potential and known heritage resources were identified.
- Once the retrofit measures have been confirmed, this report will be updated to complete a cultural heritage impact assessment.
- This report will be submitted to the Ministry of Citizenship and Multiculturalism for review and acceptance.



# 1. Chedoke Creek Watershed Stormwater Retrofits Class EA

## Preliminary Alternative Solutions – Potential Measures

The following preliminary solutions and locations are being considered to improve stormwater quality in the Upper and Mid Chedoke Creek watershed.

**At the source (lot-level)**

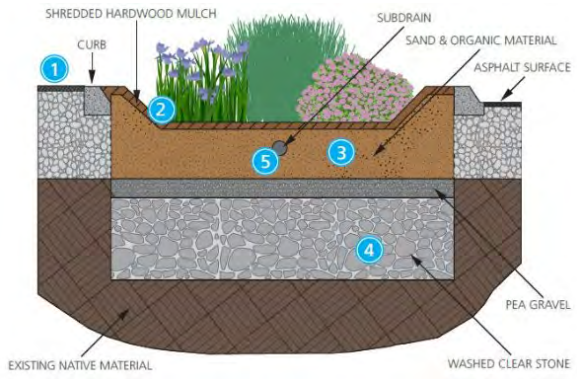
- Low Impact Development Measures
  - Rain gardens, permeable pavements, rain barrels, etc.

**Along the path (conveyance)**

- Low Impact Development Measures
  - vegetated swales, tree trenches, underground chambers
- Oil-grit separators

**At the Outlet (end-of-pipe)**

- New or Retrofitted Stormwater Management Facilities
- Naturalizing (e.g., Lower Chedoke EA)




# 1. Chedoke Creek Watershed Stormwater Retrofits Class EA

## Preliminary Alternative Solutions – Potential Locations

The following preliminary solutions and locations are being considered to improve stormwater quality in the Upper and Mid Chedoke Creek Watershed.

**At the source (lot-level)**

- Low Impact Development (LID) Measures
  - Rain gardens, permeable pavements, rain barrels, etc.

- Would be recommended at all areas identified throughout the watershed, including on private residences. A policy will also be brought forward to include LID on any future capital road reconstruction works

**Along the path (conveyance)**

- Low Impact Development Measures
  - vegetated swales, tree trenches, underground chambers
- Oil-grit separators

- Underground Chambers
  - Buchanan Park
  - Colquhoun Park
  - Fonthill Park
  - Gilkson Park
  - Lions Gate Park
  - Newlands Park
  - Olympic Park
  - Shawinigan Park
- OGS Units throughout the watershed at multiple locations

**At the Outlet (end-of-pipe)**

- New or Retrofitted Stormwater Management Facilities
- Naturalizing (e.g., Lower Chedoke EA)

- Chedoke Golf Course

- Dry Pond Retrofits
  - Tiffany Development (Scenic at Sanatorium)
  - Sir Alan McNab School
  - Linc at Garth Street

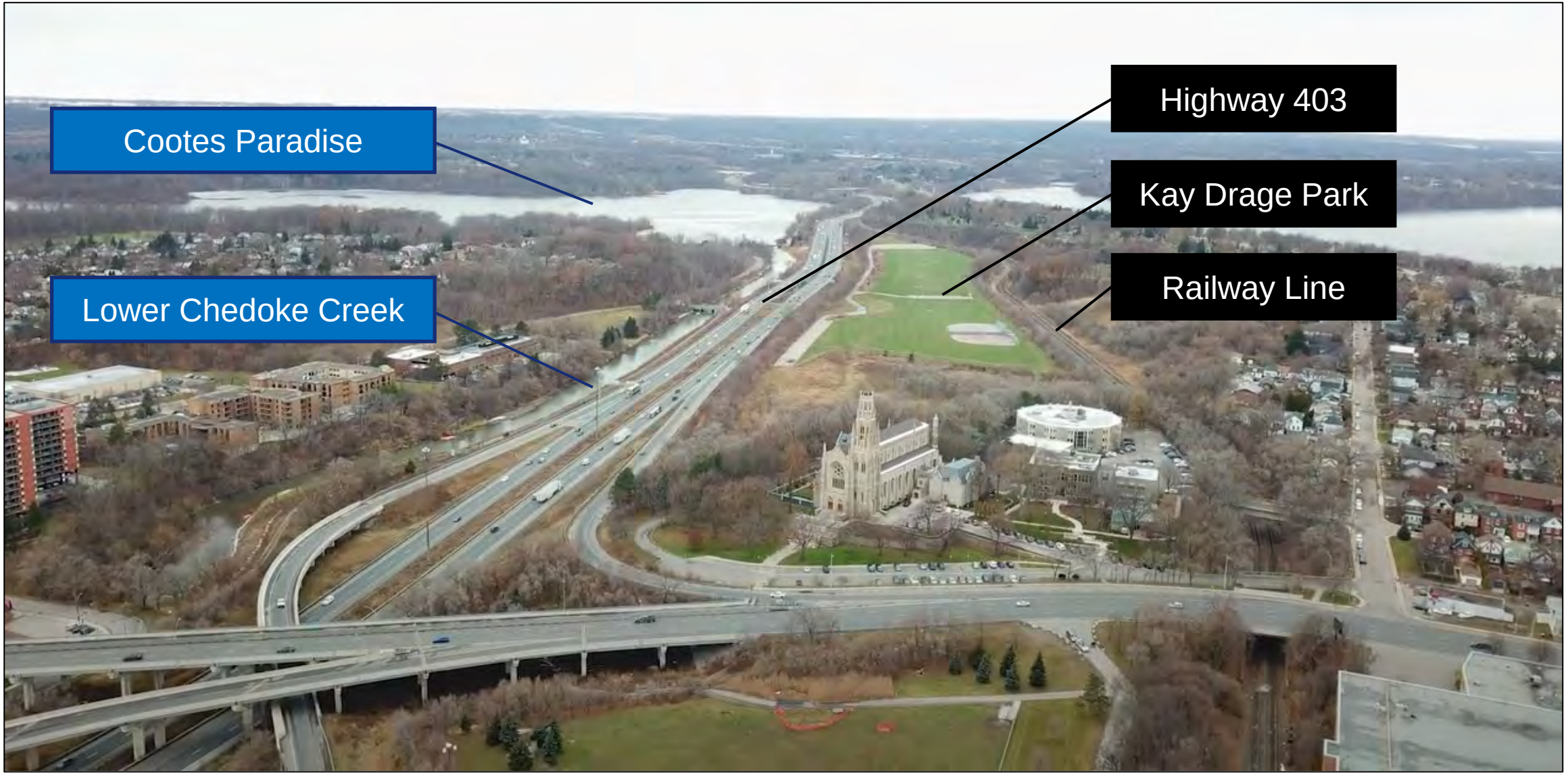
# 2. Lower Chedoke Creek Enhancement Class EA


**Problem Statement**

Following the Combined Sewer Overflow event , the City undertook the **Chedoke Creek Water Quality Improvement Framework (April 2021)** which recommended multiple projects including a Lower Chedoke Class EA (this study).

The City of Hamilton has initiated this Municipal Class EA to identify a preferred water quality and ecological enhancement strategy for the Lower Chedoke Creek from King Street to Cootes Paradise.

# 2. Lower Chedoke Creek Enhancement Class EA



# 2. Lower Chedoke Creek Enhancement Class EA

**Technical Studies**

A number of technical studies have been initiated 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:

- Fluvial Geomorphological Assessment
- Hydraulic Assessment
- Sediment Quality Assessment
- Water Quality Condition Assessment
- Environmental Impact Assessment
- Stage 1 Archaeological Assessment
- Cultural Heritage Evaluation

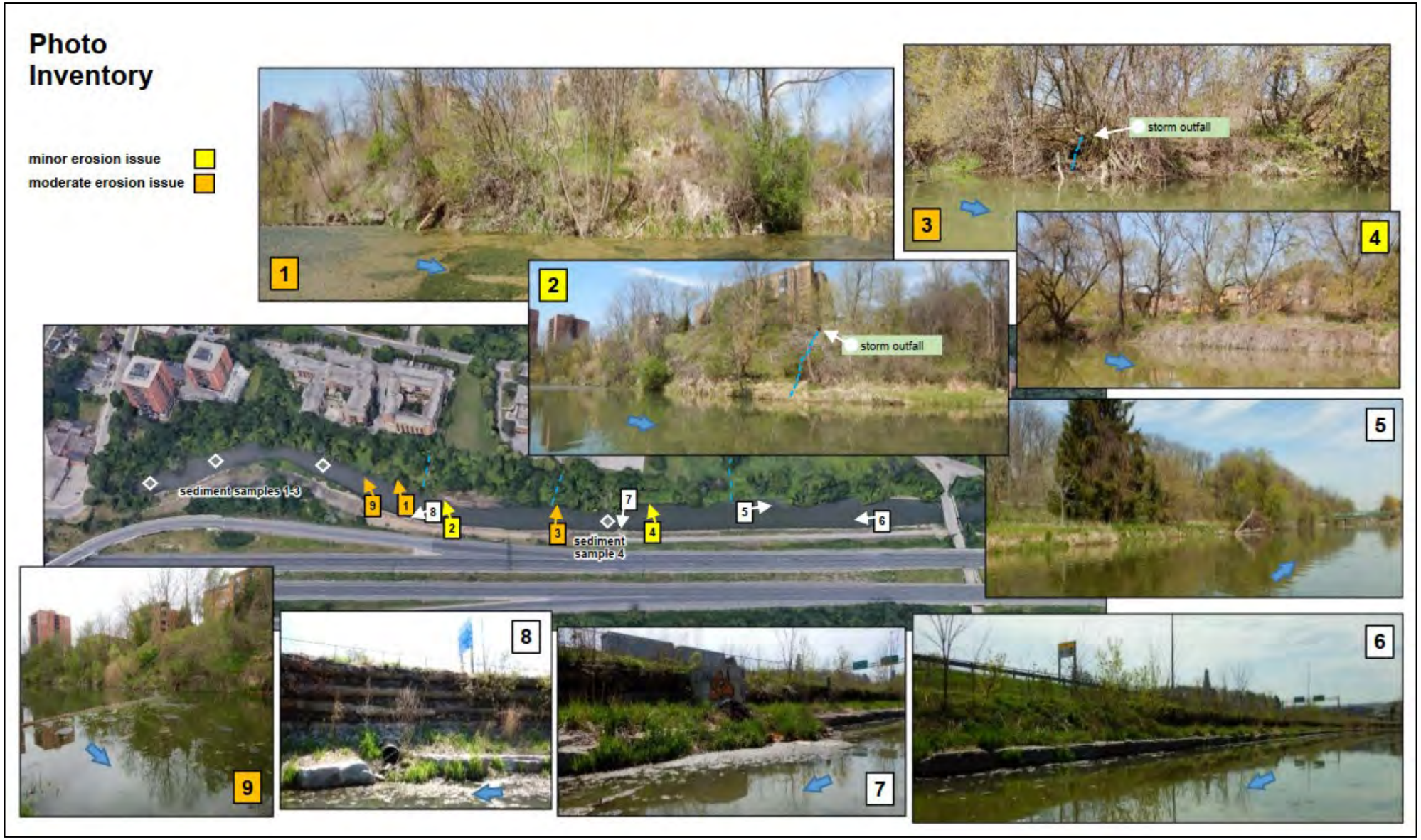
Key findings of these studies are presented on the following slides. Information from these reports will be utilized to inform the location and assessment of solutions.

# 2. Lower Chedoke Creek Enhancement Class EA

## Lower Chedoke Creek Conditions

- The primary concern is the **loss of the historic Chedoke Delta** and its emergent marsh vegetation. A secondary issue is the **reduction in diverse aquatic and shoreline habitats** due to channelizing Chedoke from Highway 403 construction and other activities.
- Moderate erosion risks have been identified at three key locations. Additional minor erosion is present across the creek.
- The Chedoke Delta could be reconstructed using native plants and natural materials, or through **passive methods** that promote natural sediment deposition and plant growth.
- Moderate erosion sites should be prioritized, while lower-risk areas can be monitored for future action.

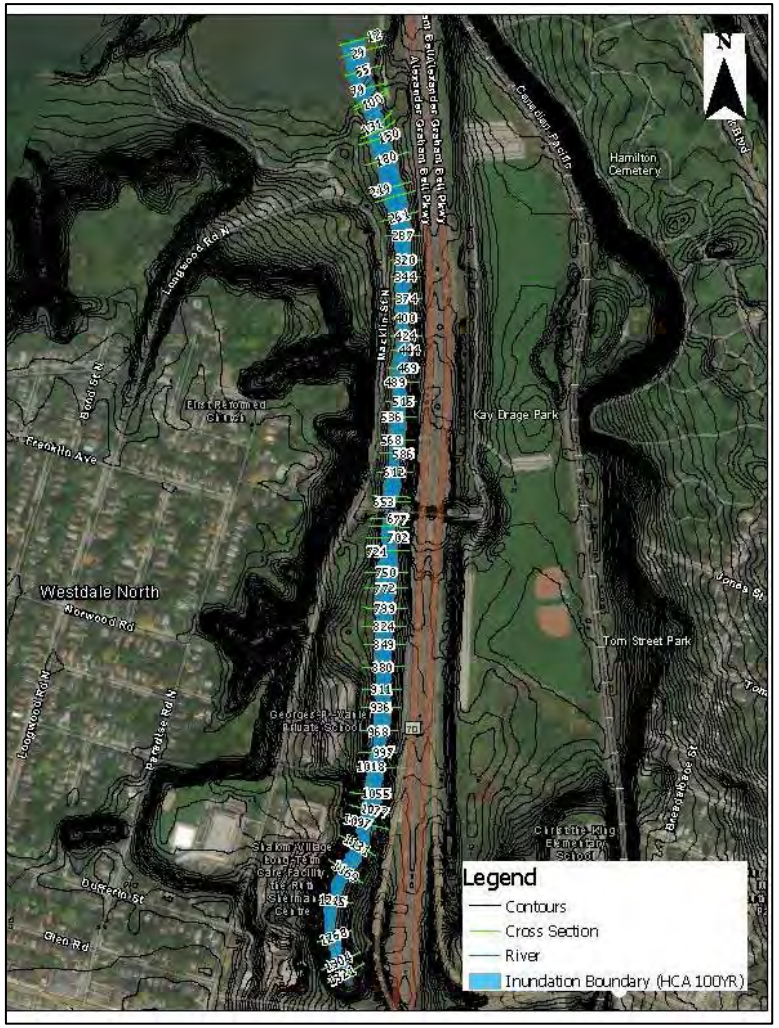
# 2. Lower Chedoke Creek Enhancement Class EA



# 2. Lower Chedoke Creek Enhancement Class EA

## Hydraulic Conditions and Sediment Transport

- Most of the Lower Chedoke Creek is considered hydraulically stable under flows up to the 100-year event, supported by moderate to dense vegetation. However, localized erosion risk exists downstream of the Desjardins Recreational Trail Bridge during more frequent 2- and 5-year flows.
- The central bed of Lower Chedoke Creek lacks vegetative reinforcement, making it more susceptible to sediment erosion during peak flows. Sediments smaller than very fine gravel are mobilized during large storm events.
- While the main channel does not show signs of sediment buildup during peak flows, overbank areas tend to accumulate sediment due to reduced velocities, especially during the receding phase of storm events.



# 2. Lower Chedoke Creek Enhancement Class EA

**Sediment Quality**

- Sediment samples from both Lower Chedoke Creek and Princess Point Embayment show elevated levels of nutrients (e.g., nitrogen, phosphorus) and some heavy metals and PAHs (pollution from things like oil or smoke). Most nutrient concentrations exceed Provincial Sediment Quality Guidelines for the Lowest Effect Level (LEL), though not the Severe Effect Level (SEL).
- Targeted dredging in Lower Chedoke Creek (Zones 2 and 3) removed 17.7 tonnes of total phosphorus and 22.4 tonnes of TKN
- Dredging was not recommended in Princess Point Embayment due to the risk of exposing more contaminated sediments.
- Further dredging is not recommended based on previous assessment and study, but will be re-assessed as part of the current study.

# 2. Lower Chedoke Creek Enhancement Class EA

**Water Quality**

- Due to ongoing pollution sources, water quality in Lower Chedoke Creek was already degraded prior to the 2014–2018 sewage spill
- Water quality was impacted during the prolonged event, and remains degraded despite some recovery. Cootes Paradise was also likely impacted, though the extent is unclear due to limited pre-spill data.
- Accumulated organic sediments in Lower Chedoke Creek contribute to nutrient export, low dissolved oxygen, and habitat loss. Aerial imagery confirms a lack of aquatic vegetation both before and after the spill, indicating long-term ecological degradation.
- Monitoring data show reductions in median concentrations of total phosphorus and E. coli, suggesting gradual recovery. However, multiple water quality parameters still exceed surface water standards.

*Key strategies to improve water quality include removing nutrient-releasing sediments, addressing combined sewer overflows (CSOs), and implementing best management practices to reduce untreated stormwater discharges.*

# 2. Lower Chedoke Creek Enhancement Class EA

## Natural Heritage – Aquatic Ecology

- **Fish Community Overview:** Historical data from the Royal Botanical Gardens indicate 33 fish species recorded in the area, with 30 species observed in Lower Chedoke Creek between 1995 and 2021. The fish community is dominated by warmwater species, including both native and non-native species such as Common Carp and Round Goby.
- **Species at Risk (SAR):** Most of the area north of the Desjardins Recreational Trail Bridge is designated as critical habitat for Lilliput mussels. Mussel surveys in 2015 and 2022 confirmed the presence of Lilliput, along with other mussel species.

# 2. Lower Chedoke Creek Enhancement Class EA

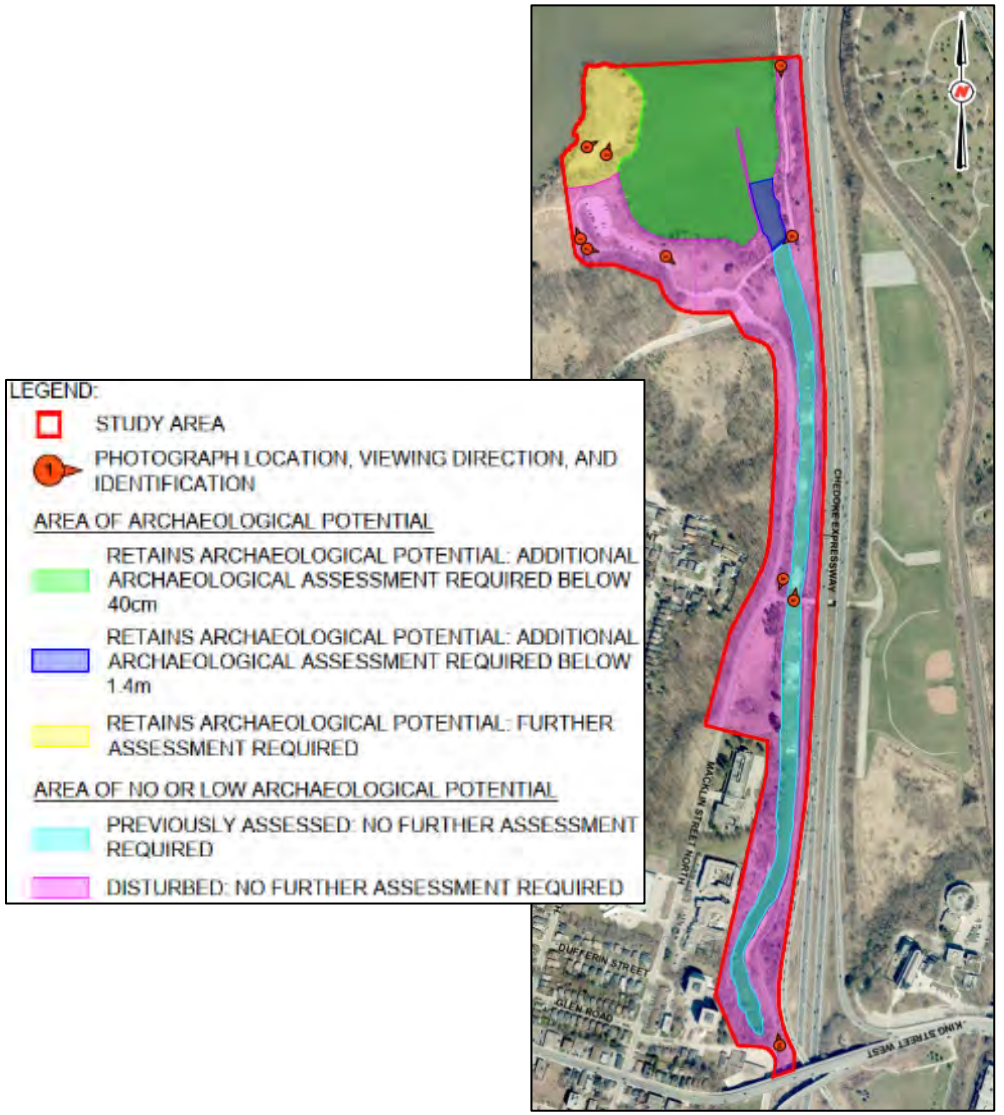
**Natural Heritage – Terrestrial Ecology**

- **Vegetation Communities:** The Study Area includes open water with limited emergent vegetation, surrounded by cultural meadow, forest, and woodland habitats. Field surveys identified one Endangered species (Butternut).
- **Bird Species:** Field surveys recorded 40 species, with confirmed breeding by Barn Swallow and Tree Swallow. Notable SAR observed include Chimney Swift (Threatened) and Acadian Flycatcher (Endangered).
- **Mammals:** Six mammal species were observed during fieldwork, including American Beaver and White-tailed Deer. Little Brown Myotis confirmed in 2021 and additional bat activity observed in 2022.
- **Invertebrates:** Monarch butterfly (Special Concern) was observed, with its host plant, Common Milkweed, documented in the vegetation community.


# 2. Lower Chedoke Creek Enhancement Class EA

## Archaeological Resources

- A Stage 1 Archaeological Assessment was completed to evaluate the Study Area for archaeological potential.
- Portions of the Study Area were identified to have archaeological potential; therefore, a Stage 2 archaeological assessment will be required during the detailed design phase.
- The City will engage the Indigenous Nations in the monitoring of the archaeology fieldwork.
- The Stage 1 Archaeological Assessment Report will be submitted to the Ministry of Citizenship and Multiculturalism for review and acceptance.

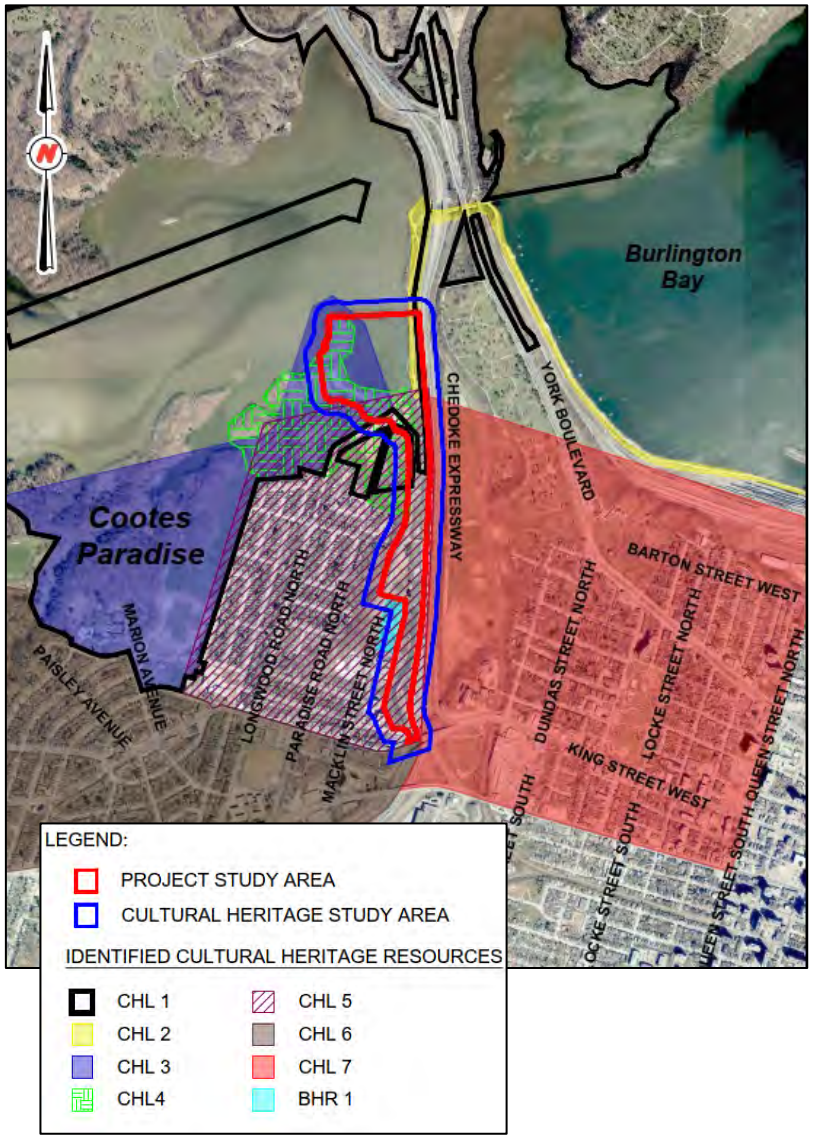


# 2. Lower Chedoke Creek Enhancement Class EA

## Built Heritage Resources and Cultural Heritage Landscapes

- Cultural Heritage Evaluation identified eight (8) potential and protected heritage properties within and adjacent to the Study Area.
- Once the creek enhancement measures have been identified, Cultural Heritage Report will be updated to complete a cultural heritage impact assessment.
- This report will be submitted to the Ministry of Citizenship and Multiculturalism for review and acceptance.

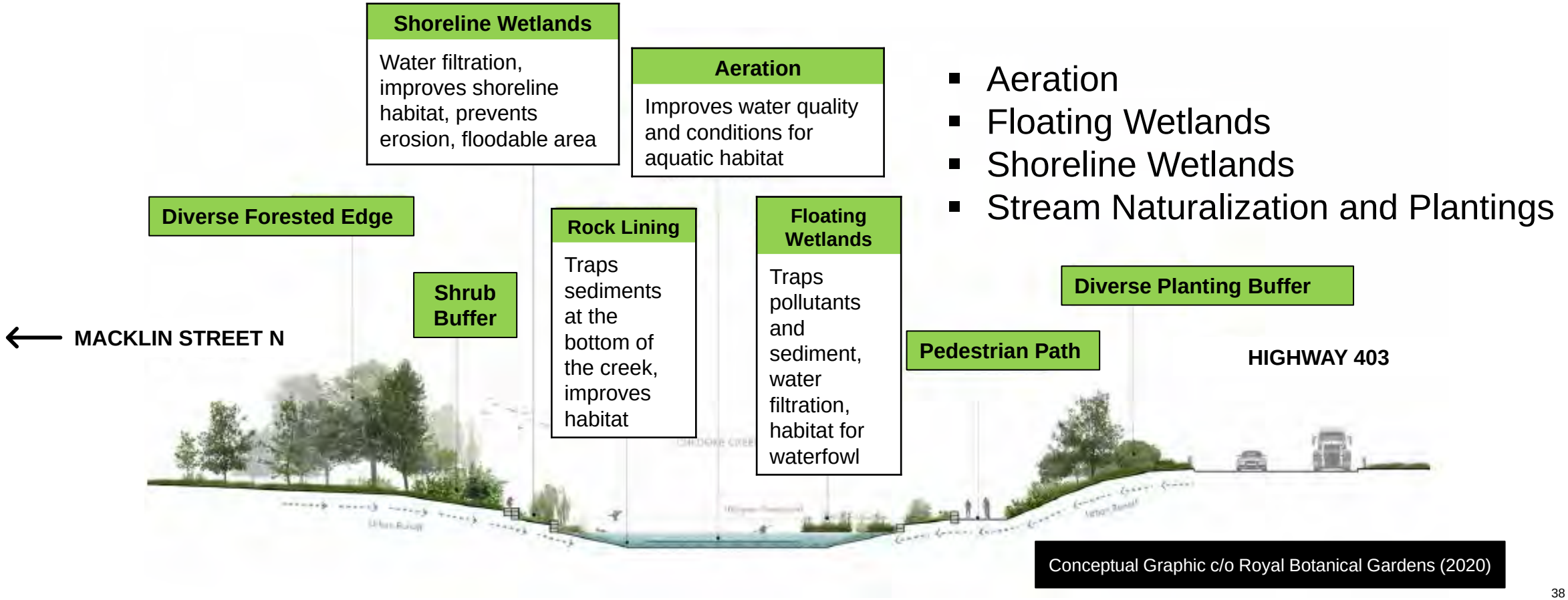

View of Cootes Paradise



# 2. Lower Chedoke Creek Enhancement Class EA

## Preliminary Alternative Solutions

The following preliminary solutions are being considered for enhancement to Lower Chedoke Creek. RBG's 25-year Master Plan also recommends similar solutions:




- Aeration
- Floating Wetlands
- Shoreline Wetlands
- Stream Naturalization and Plantings

Conceptual Graphic c/o Royal Botanical Gardens (2020)

# 2. Lower Chedoke Creek Enhancement Class EA

**Preliminary Alternative Solutions**

The following preliminary solutions are being considered for enhancement to Lower Chedoke Creek. RBG's 25-year Master Plan also recommends similar solutions:

- **Chedoke Creek Delta Reconstruction**
  - Slows the flow of water and increases biodiversity to promote natural ecological processes to treat surface water and settle sediments


RBG Chedoke Creek Delta Reconstruction (concept) – graphic c/o Royal Botanical Gardens, 2020

# 2. Lower Chedoke Creek Enhancement Class EA

## Recovering Cootes Paradise marsh boasts ‘next-level’ plant growth this summer

A proliferation of pond weed may slow your paddle, but it’s good news for the long-suffering marsh, say experts.

July 15, 2025 | 2 min read

Credit: Hamilton Spectator (2025)


Credit: CHCH (2025)

# How You Can Help Improve Water Quality in Hamilton

WASTE – don't flush garbage down the toilet, keep your weekly garbage collection secured

SALT – use responsibly for de-icing your driveway or sidewalk, high levels are toxic for aquatic life

CAR CARE – inspect for leaks, consider using a commercial car wash instead of the driveway

CATCH BASINS – only rain and snow melt should enter catch basins

HOUSEHOLD CHEMICALS – bring used motor oil, paint and chemicals to a Community Recycling Centre, do not pour down the drain

PETS – do not flush or release aquatic pets to the environment, pick up your pet waste and place it in the trash

STORMWATER – disconnect your downspout to a permeable surface, reduce basement flooding risks

# Next Steps

Following this PIC, the Study Teams will:

- Review the feedback received
- Advance technical investigations
- Identify and evaluate alternative solutions
- Host Public Information Centre #2 (early 2026)
- Prepare Master Plan Report (mid 2026)

**Thank you** for taking the time to participate in this Public Information Centre. We encourage you to provide any further feedback by **August 15, 2025**.

**Website: https://engage.hamilton.ca/chedokecreek**


**Chedoke Creek Watershed Stormwater Retrofits Class EA**

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