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**Public Information Centre No. 1**  
Municipal Class Environmental Assessment



# Mohawk Lake and Mohawk Canal Cleanup and Rehabilitation Project

**Date:** June 5, 2019  
**Time:** 5:00 pm – 7:00 pm  
**Location:** Mohawk Park Pavilion,  
51 Lynnwood Drive, Brantford



# Purpose and Objectives

## Public Information Centre (PIC)



Introduce the Study and preliminary findings of existing conditions



Share insights from the Characterization Study



Receive input on the Draft Problem and Opportunity Statement



Brainstorm the vision for Mohawk Lake



Outline the next steps in the Study process



Hear from you! Your input is very important to us!

## Study

The purpose of the Study is to consider ways to improve the environmental quality of Mohawk Lake and Mohawk Canal by providing:

- Enhanced recreational opportunities
- Enhanced fish & wildlife habitat
- Improved water quality conditions

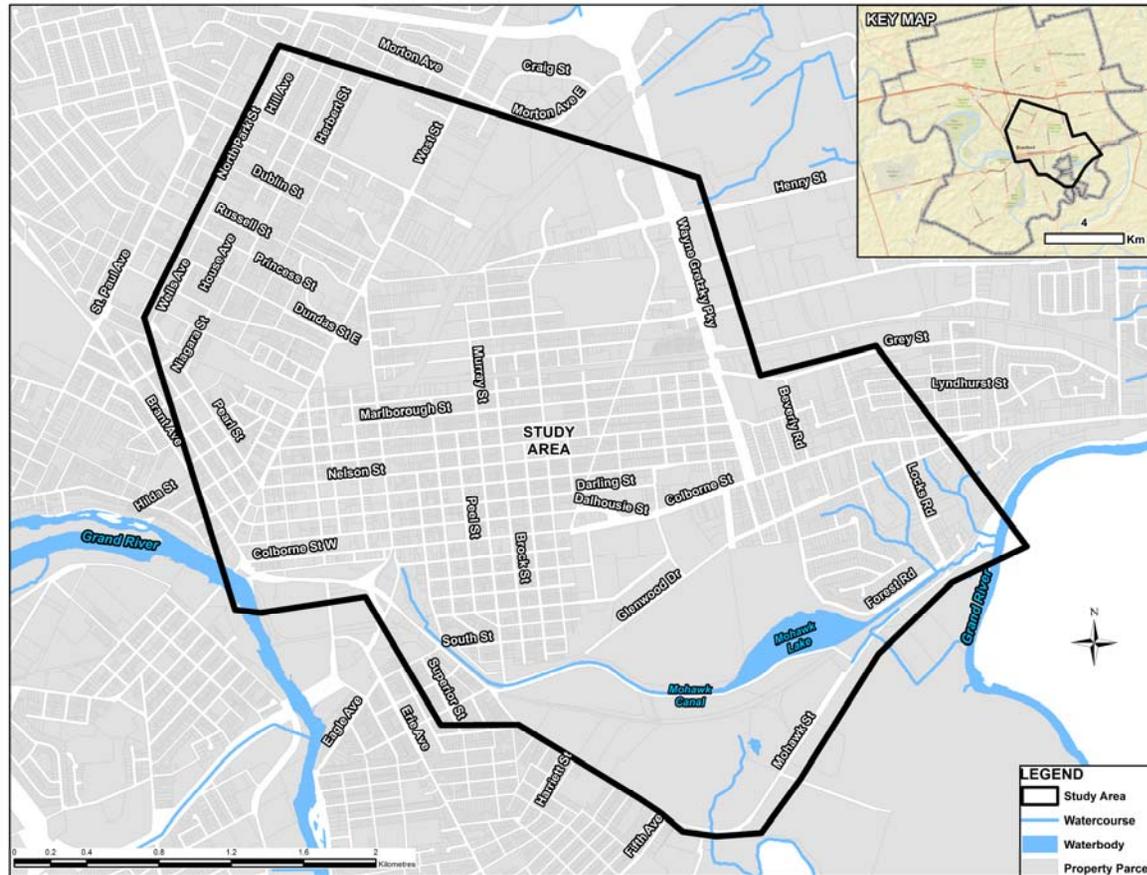
**Potential benefits that remediation and restoration can provide to Mohawk Lake and Mohawk Canal may include:**

- Improved aquatic & wildlife habitat
- Protection & interpretation of cultural heritage resources
- Opportunities for water recreation

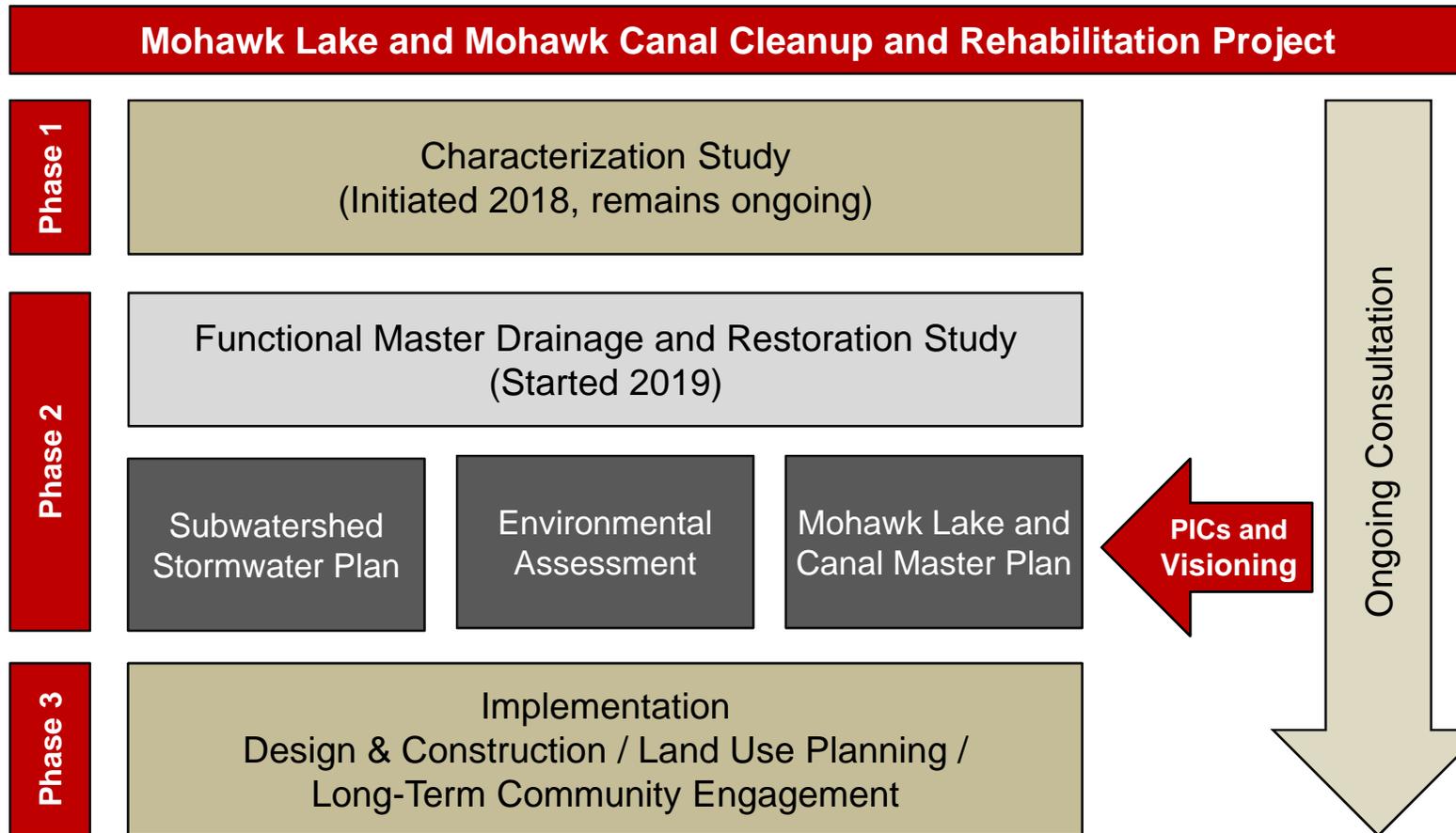


# Study Area

**Boundary of the area that drains to Mohawk Lake via East Ward Creek and the West Canal**



# Project Phases



# Subwatershed Study, EA & Master Plan

## Subwatershed Study

- Recommend actions to maintain, restore or enhance the health of the Mohawk Lake subwatershed
- Assess potential alternatives to assist in identifying a preferred subwatershed protection and restoration strategy
- Define environmental requirements such as design criteria and targets, priority phasing, mitigation measures, implementation and monitoring plans

## Environmental Assessment (EA)

- Consider all aspects of the environment: physical, natural, social, cultural and economic, including cost/benefit analyses
- Consult with the public, Indigenous groups, affected parties and review agencies throughout the process
- Define the problem and opportunity (i.e., remediation of the lake and canal offers improved environment and habitat, and recreational amenity for the community)
- Identify, develop and evaluate potential remediation options
- Document the selection of the Preferred Remedial Option(s)

## Mohawk Park and Mohawk Canal Master Plan

Master Plans (part of the Municipal Class EA framework) are long range plans that integrate infrastructure requirements for existing and future land use with environmental assessment planning principles. For the Mohawk Lake and Mohawk Canal Functional Master Drainage and Restoration Study, the Master Plan approach broadens the perspective for implementation of the preferred solution, by:

- Looking beyond the infrastructure and remediation components
- Considering the land use and park use policy direction
- Translating community visions into actions and commitments, including long-term engagement



# Historical Overview

- Mohawk Lake was constructed in the 1800's as part of a canal system to provide access for barges traveling through Brantford and to enable the barges to turn around
- In the early 1900s, the lake and the surrounding parkland provided the community with recreational opportunities for residents and continues to offer valuable natural heritage for the City
- For decades, concern has been expressed about the deteriorating environmental conditions in the lake and canal
- As early as 1950, studies were conducted to improve the flow and to address siltation issues in the lake and canal
- The *Mohawk Lake and Mohawk Canal Cleanup and Rehabilitation Project* was partly initiated in response to these concerns



# Timeline

**1800s**

## Mohawk Lake and Mohawk Canal Constructed

- Part of the canal system to provide access for barges traveling through Brantford and to enable the barges to turn around

**Early 1900s**

## Recreational Area

- The lake and the surrounding parkland provided the community with recreational opportunities

**1950s**

## Early Cleanup Studies

- Conducted to improve the flow and to combat the silting problems in the lake and canal

**1970s**

## Mohawk Canal Disconnected from Grand River

- Inflow from the Grand River diverting flow to the canal was disconnected with the removal of a dam

**2015**

## Visioning for Mohawk Lake

- Visioning workshops provided the basis for a vision statement and work plans to address the clean-up

**2018**

## Characterization Study

- Study to define the current (baseline) environmental conditions to support future rehabilitation measures

**2019**

## Functional Master Plan Drainage and Restoration Study

- Study to define actions to enhance recreational opportunities, fish & wildlife habitat and improve water quality conditions



# Project Environmental Assessment Process



**We are here**



# Characterization Phase

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- Water quality concentration varies, with some parameters exceeding the guidelines at all monitoring stations.
- Approximately 185,000 m<sup>3</sup> of unconsolidated sediment has accumulated within Mohawk Lake and Mohawk Canal.
  - Sediment thickness within the Mohawk Canal ranged up to 1.5 m whereas sediment thickness within Mohawk Lake ranged from up to 2.4 m.
  - Sediment Quality for Mohawk Lake is generally consistent with previously completed sediment quality investigations with almost the same contamination levels.
- Confirmed the presence of high quantities of organic mud / silt and very low dissolved oxygen (DO) levels.
- Identified a number of erosion sites.
- Observed and recorded a number of significant and designated wildlife habitat, species, vegetation and fish community with the Mohawk Lake area.



# Environmental Conditions

This **Project** draws upon past studies and recent comprehensive field investigations that were undertaken to determine the environmental conditions of the Mohawk Lake and Mohawk Canal based on the following components.

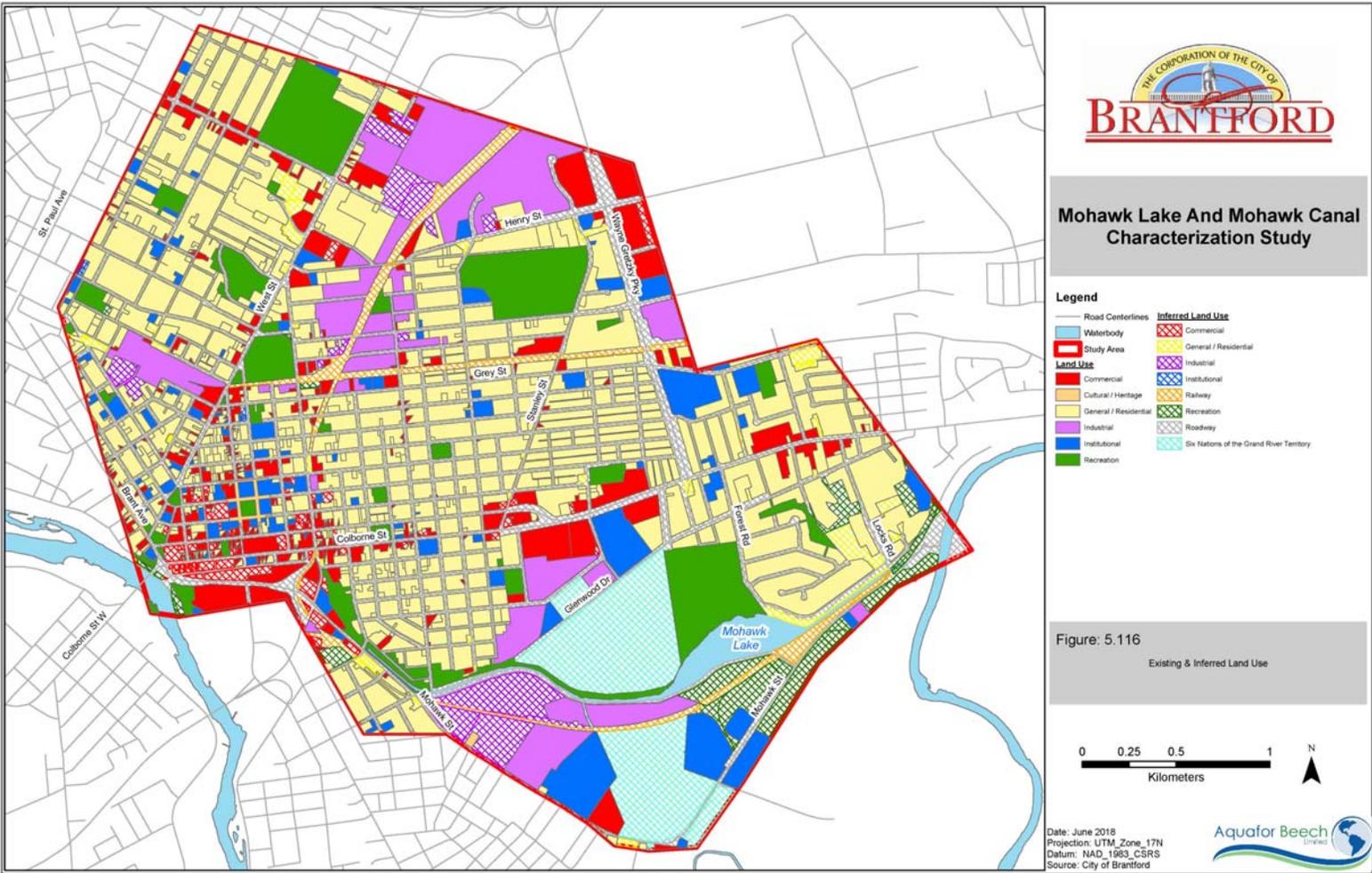


# What We Know

Category/ Discipline	General Impacts	Impact Assessment	
		Direct	Indirect
<b>Cultural Heritage &amp; Archaeology</b>	<ul style="list-style-type: none"> <li>Restrictions on development and site alterations</li> </ul>	<ul style="list-style-type: none"> <li>Restrictions on development due to designation</li> <li>Buffers required for sites of archaeological significance</li> </ul>	<ul style="list-style-type: none"> <li>Requires archaeological assessment</li> </ul>
<b>Geology, Hydrogeology &amp; Groundwater</b>	<ul style="list-style-type: none"> <li>Change in infiltration rates / groundwater recharge rates</li> <li>Mobilization of groundwater contamination</li> <li>Erosion of soils</li> </ul>	<ul style="list-style-type: none"> <li>Change in groundwater discharge (quantity &amp; quality)</li> <li>Runoff with high, and potentially contaminated suspended load</li> </ul>	<ul style="list-style-type: none"> <li>Potential ecological impacts, baseflow impacts and water quality impacts</li> </ul>
<b>Hydrology &amp; Stormwater Management</b>	<ul style="list-style-type: none"> <li>Increase / decrease in flows and volumes</li> <li>Change in water balance</li> </ul>	<ul style="list-style-type: none"> <li>Change in operation of the lake, including water levels, durations, circulation</li> <li>Impacts to watercourse erosion</li> <li>Changes to groundwater</li> </ul>	<ul style="list-style-type: none"> <li>Potential ecological impacts from changes in operation</li> </ul>
<b>Hydraulics</b>	<ul style="list-style-type: none"> <li>Flooding extent / impact to adjacent lands</li> <li>Changes in operation with more frequent storm events</li> </ul>	<ul style="list-style-type: none"> <li>Flooding extent / impact to adjacent lands</li> <li>Changes in operation with more frequent storm events</li> </ul>	<ul style="list-style-type: none"> <li>Potential ecological impacts due to changes in lake levels</li> </ul>
<b>Water Quality</b>	<ul style="list-style-type: none"> <li>Impaired water quality</li> </ul>	<ul style="list-style-type: none"> <li>Water quality impaired most significantly in West Canal</li> <li>Pollutant sources</li> </ul>	<ul style="list-style-type: none"> <li>Water quality impacted by sediment contamination</li> </ul>
<b>Sediment Quantity &amp; Quality</b>	<ul style="list-style-type: none"> <li>Significant sedimentation</li> <li>Impaired sediment quality</li> </ul>	<ul style="list-style-type: none"> <li>Sediment quality impaired most significantly in West Canal</li> <li>Potential contaminant mobilization</li> </ul>	<ul style="list-style-type: none"> <li>Dredging and channel reconfiguration influenced by contaminant mobilization</li> </ul>
<b>Natural Heritage</b>	<ul style="list-style-type: none"> <li>May involve sites with natural heritage designations</li> </ul>	<ul style="list-style-type: none"> <li>Provincially Significant Wetland</li> <li>Significant Wildlife Habitat and Rare Vegetation Community</li> <li>Environmental permits and associated restrictions</li> </ul>	<ul style="list-style-type: none"> <li>Habitat compensation</li> <li>Construction timing windows</li> </ul>



# Existing Land Uses



# Problems and Opportunities

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## The Problems

Many years of industrial discharge and municipal stormwater drainage (drainage from roadways, parking areas and individual properties) have resulted in the deterioration of Mohawk Lake and Mohawk Canal. The City has made significant efforts to improve the lake including discontinuing industrial discharges as much as possible. Recent efforts for upstream brownfield remediation have eliminated any new potential occurrences of legacy contaminants to migrate from former industrial lands. However, water quality in Mohawk Lake still remains affected by incoming waterflow from stormwater runoff and the subdrainage catchment areas, and contaminated sediments that have accumulated over decades in Mohawk Lake and Mohawk Canal.

## The Opportunities

**The Class EA process provides an opportunity to develop various alternative solution(s) to enhance features and environmental conditions in Mohawk Lake and Mohawk Canal, as well as strengthen and improve the resource protection, community use and quality of life.**



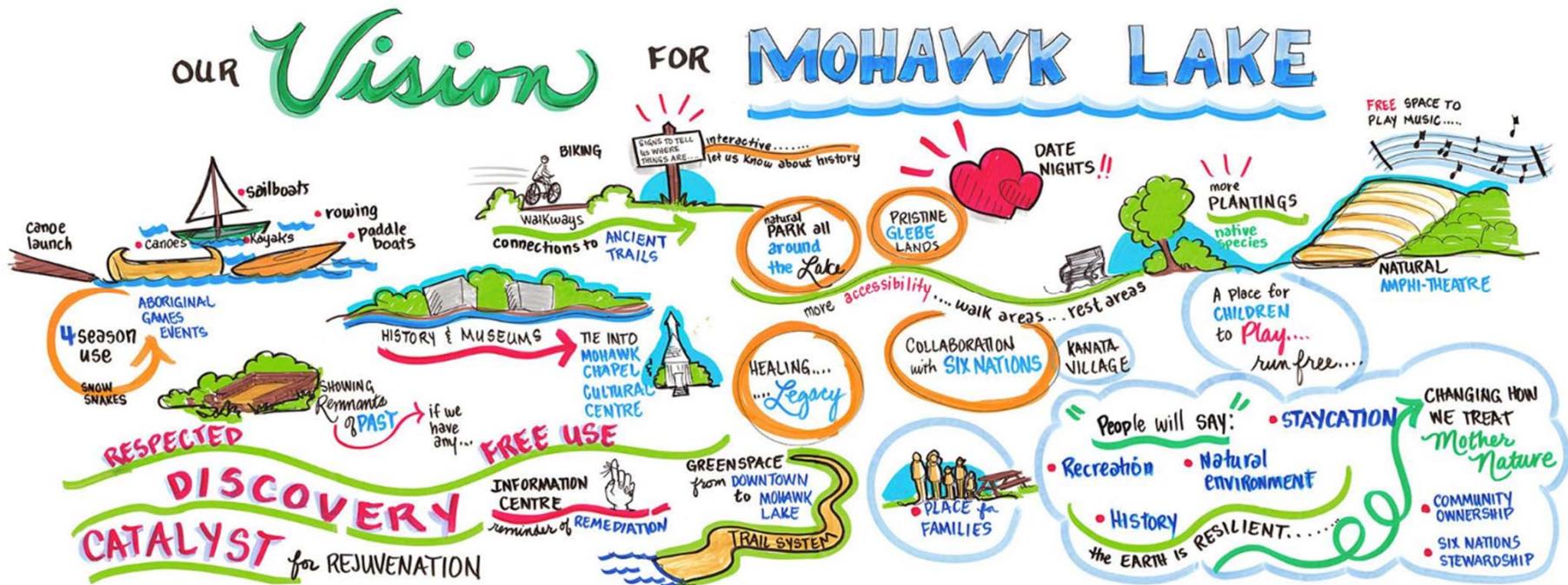
*Tell us what you think about the draft Problem and Opportunity Statement!*  
(Use post-it notes to write your comments here)



# Visioning Exercise

## Mohawk Lake Vision Statement (2015)

“I will be the place of vibrancy I was yesterday. I am the heart of our communities and our place for reflection, healing, and celebration. I am both Mother Earth’s refuge and your family’s natural playground. I am Mohawk Lake.”



# Future of Mohawk Lake and Mohawk Canal

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*Tell us about your vision for the future of Mohawk Lake and Mohawk Canal!  
Based on 2015 Mohawk Lake visioning exercise, what aspects of the 2015  
visioning do you want to highlight as the most important? What are the least  
important? Any additional ideas to add to this vision?*

(Use post-it notes to write your comments here)

Website: <https://www.brantford.ca/en/your-government/mohawk-lake-and-mohawk-canal-cleanup-and-rehabilitation-project.aspx>



# Next Steps and Schedule

- Review comments received and prepare a PIC#1 summary report
- Create Long-Term Community Engagement Plan
- Develop alternative design concepts
- Conduct PIC#2 Fall 2019 (date will be communicated)
- Prepare and file the Project File Report, summarizing the Study
  - Publish study completion for 30 days (notice will be provided)

**Comment  
Deadline  
June 21, 2019**

**Thank you for  
your  
participation!**

## Contact Us

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Website: <https://www.brantford.ca/en/your-government/mohawk-lake-and-mohawk-canal-cleanup-and-rehabilitation-project.aspx>

