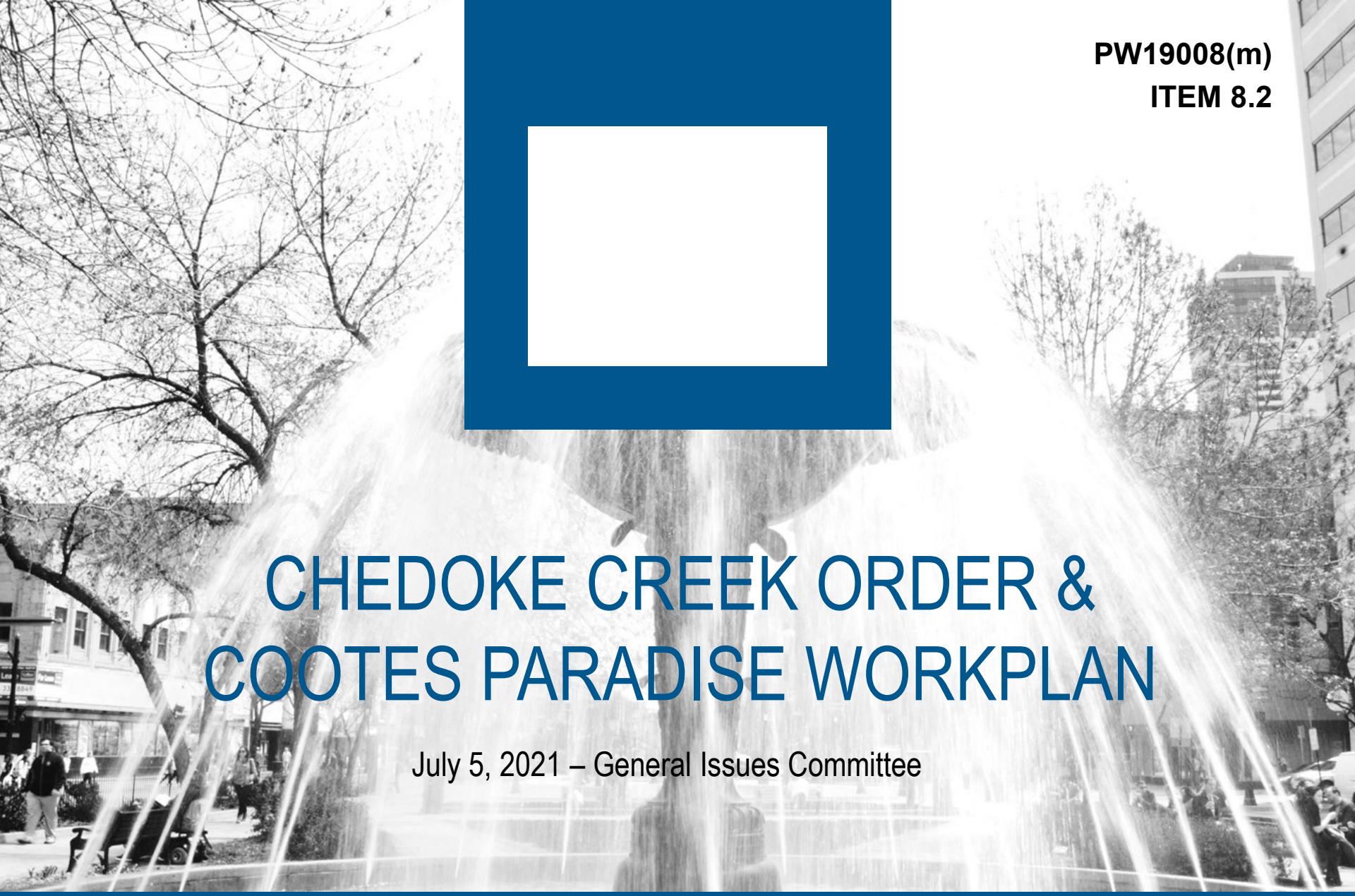
PW19008(m)
ITEM 8.2



CHEDOKE CREEK ORDER & COOTES PARADISE WORKPLAN

July 5, 2021 – General Issues Committee

Public Works Department
Hamilton Water Division

AGENDA

- Overview of the MECP Order
- Chedoke Creek Work Plan
- Cootes Paradise Work Plan
- Chedoke Creek Water Quality Framework Study
- Questions

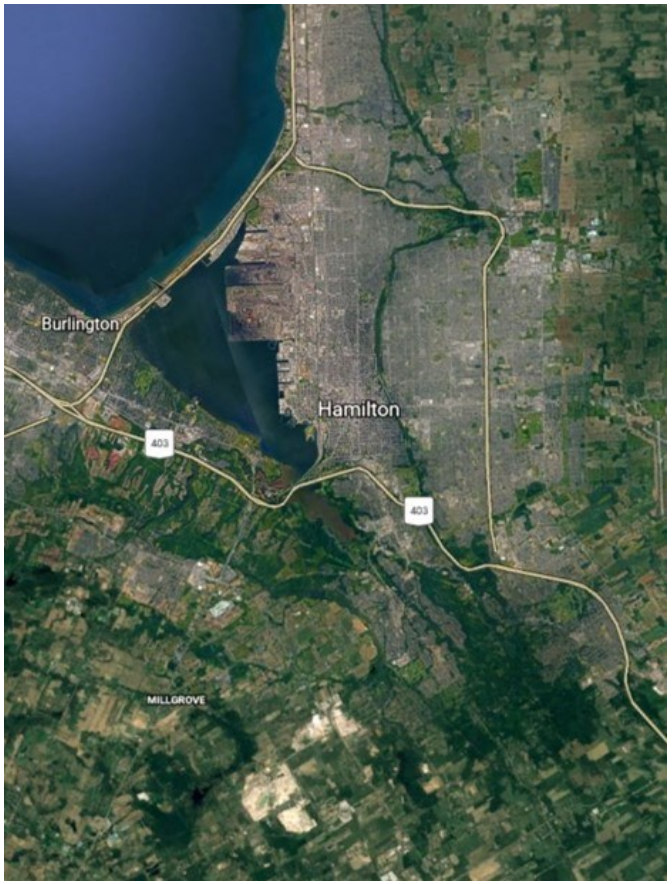
MECP Order

- The City was served a Ministry of the Environment, Conservation & Parks (MECP) Order on December 4, 2020

- The order was divided into two main components

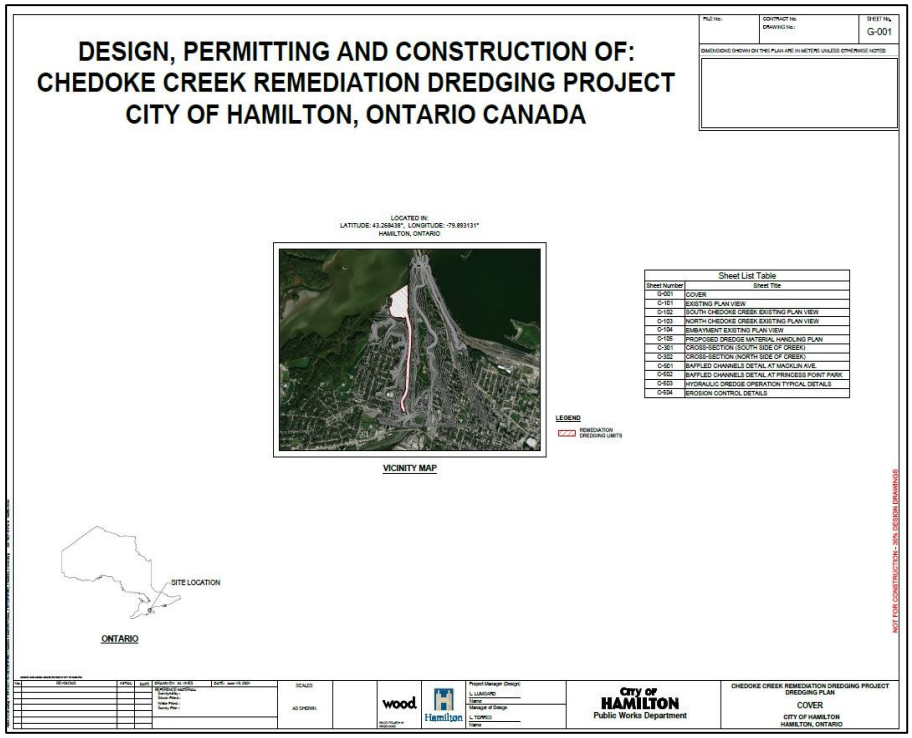
    1. Chedoke Creek – targeted dredging

    2. Cootes Paradise - offsetting impacts of nutrient loadings



CHEDOKE CREEK WORK PLAN

- MECP approved the Chedoke Creek Work Plan on June 11, 2021
- Approved Work Plan indicates targeted dredging will not commence until Q3 2022
- Permits and approvals are on the project critical path
- Project at 30% design stage with MECP consultation underway



Chedoke Creek Work Plan

- Completed Tasks:
  - Topographic survey (LiDAR)
  - Sedimentation investigation
  - Pre-Qualification of contractors

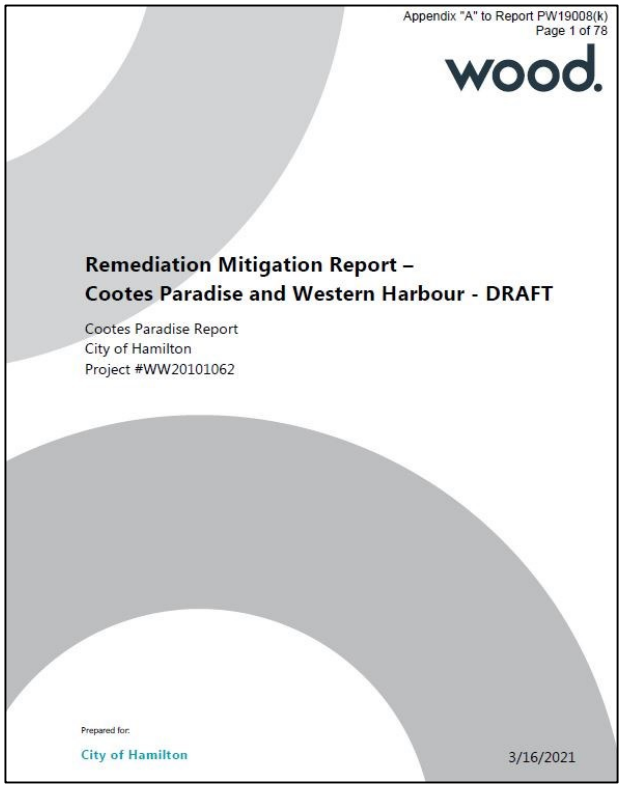
- Ongoing Field Work:
  - Species at risk
  - Hydraulic modelling
  - Indigenous Nations engagement
  - Permitting and approvals

COOTES PARADISE WORK PLAN

- MECP approved Cootes Report on June 11 , 2021

- Cootes Report highlighted:
  - Stakeholder consultation
  - Criteria for offsetting evaluation
  - Short and long term solutions

- Next steps - Cootes Work Plan must be submitted to the MECP by July 23, 2021

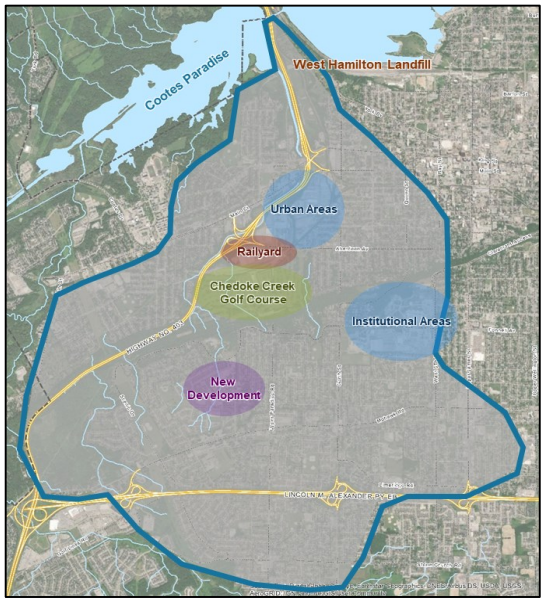


WATER QUALITY FRAMEWORK STUDY

- Prior to the issuance of MECP Directors Order the City initiated a Water Quality Framework Study for the Chedoke watershed

- The goal of the study was to look at the watershed as a whole and work with stakeholders to develop operational, capital, and policy related initiatives to improve water quality

- Team composition:
  - GM Blue Plan and Wood Environmental
  - Stakeholders – RBG, HCA, HHRAP, BARC, Environment Hamilton, MTO, etc



WATER QUALITY FRAMEWORK STUDY

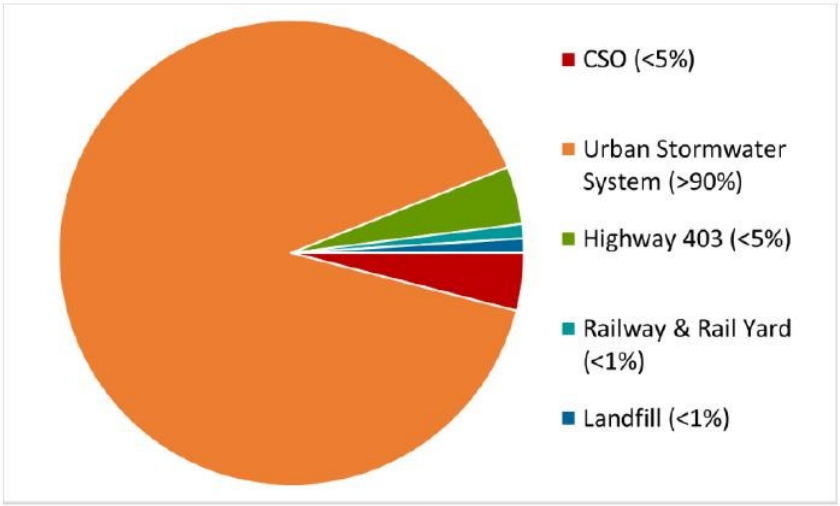


Figure 4: Example Phosphorus Nutrient Loading – Average Year

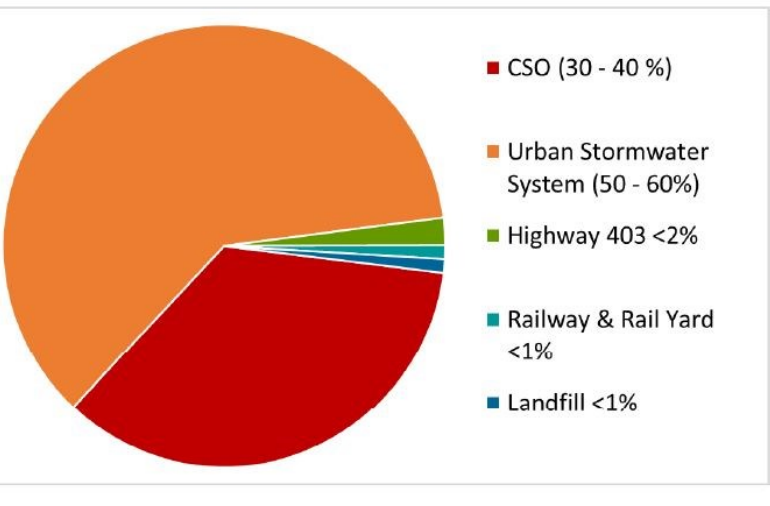


Figure 5: Example Phosphorus Nutrient Loading - Peak Day

WATER QUALITY FRAMEWORK STUDY

Studies & Capital
Lower Chedoke Creek EA Study outcomes
Chedoke Watershed Stormwater EA Study outcomes
Ainsley Woods sewer separation EA Study outcomes
Rehabilitation of existing Highway 403 culvert
Large scale floating vegetation mats
Operational Initiatives
Golf course runoff management strategy
Enhanced street sweeping and snow / salt management
Highway 403 water quality improvements
Policy
Stormwater management policy for redevelopment sites
Low impact development best practices policy

5) Constructed Wetland

- Construct wetland at the outlet of Chedoke Creek where it enters Cootes Paradise
- Capture sediments & pollutant loading from Chedoke Creek before entering Cootes Paradise
- Control flow which will enhance natural processes and improve wildlife habitat at outlet of Chedoke Creek

Cost	$10-$25 M
Timing	Near-Term (5-10 Years)
Implementation	Moderate
Capital	RBG, City
Maintenance	RBG, City
Type	Restorative

Nutrient Loading Impacts

No impacts on nutrient loading into stream, however potential benefits include:

- Reduced TP, ammonia, and TSS loadings into Cootes Paradise
- Dampened peak flow velocities at the stream outlet
- More regulated runoff temperature entering Cootes Paradise

Pie Chart Contribution	N/A: Increased ability to assimilate nutrients

FRAMEWORK STUDY VS. ORDER

- The Chedoke Creek Water Quality Improvement Framework Study was initiated independent of the MECP Directors Order
- The Framework Study is evaluating water quality improvements across the entire watershed while the Order is focused on impacts from the Main / King CSO spill
- The initiatives developed in the Framework Study ($200M+) exceed the offsetting requirements of the Order
- Some initiatives identified in the Framework Study will be used to satisfy conditions in the Order

SHORT TERM INITIATIVES

- Currently working with RGB and MECP to identify quick win initiatives to assist with water quality improvements
  - Floating vegetation mats
  - Localized aeration systems

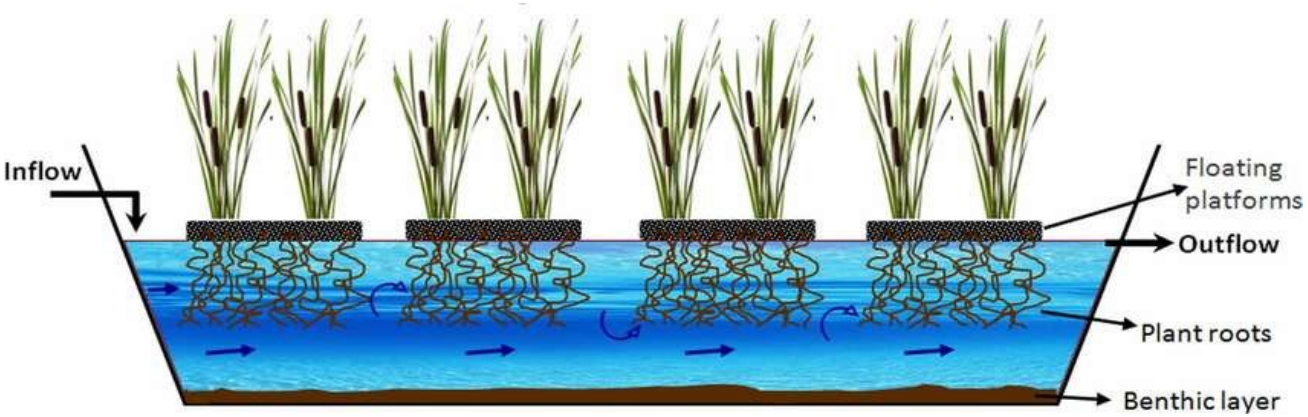


Photo from Alexandros I. Stefanakis (www.researchgate.net)

Questions