

Carruthers Creek Watershed Plan Phase 2 – Updated April 2019

STEP 1: Establish Goals and Objectives for the Watershed

TIMING

January to June 2018

PURPOSE

Review the fundamental building blocks provided in the 2003 Watershed Plan and supporting documents in the context of advancements in scientific approaches and language since the last Watershed Plan was completed. The goals and objectives will be revisited throughout the plan development process to ensure implementation of the new management actions can meet these goals.

WORK TO BE DONE

TECHNICAL

- Review Goals, Objectives, Management Actions from 2003 Watershed Plan, 2004 Fisheries Management Plan, other supporting documents: assess gaps, add new information, update/remove elements which are no longer relevant; **Status: Complete**

CONSULTATION

- Consult public and stakeholders on vision and management philosophy from 2003 Watershed Plan which will form the principles of the new plan; **Status: Complete**

STEP 2: Current Watershed Conditions

TIMING

January to June 2018

PURPOSE

Protocols for watershed health assessment follow a similar process to that of the 2003 Watershed Plan, with appropriate scientific and engineering knowledge of the evolving state of best practice. Based on the biophysical conditions observed from 2015 and 2016 field studies and previous watershed health assessment ratings and targets, develop current targets for the watershed which will identify the actions required to achieve the goals and objectives. Begin integration of the seven Phase 1 technical reports to derive a holistic view of the watershed based on the separate studies.

WORK TO BE DONE

TECHNICAL

- The various subject matter experts (SMEs) on the staff technical team will assess the targets from 2003 Watershed Health Ratings Report for relevance, updating, gaps, and set new targets; **Status: Complete**
- Begin the integration exercise based on the Phase 1 technical reports and management recommendations, a comprehensive exercise which requires a multi-disciplinary approach; **Status: Complete**

STEP 3: Watershed Response “Tool Box”

TIMING

January to December 2018

PURPOSE

The “tool box” is a collection of models and evaluation methodologies which assess various criteria from the land use scenarios. The modelling results and findings from the terrestrial and aquatic response methodologies illustrate how the watershed can reasonably be expected to respond to land use changes, and other factors such as climate change, based on the best available science. TRCA scientists and planners will interpret the outcomes in order to develop recommended management actions which protect, restore, and enhance Carruthers Creek watershed.

WORK TO BE DONE

TECHNICAL

- SWAT (Soil and Water Assessment Tool) model which assesses surface water quality set up and calibrated (initial data from Phase 1); **Status: Complete, report currently being drafted**
- Groundwater model set up and calibrated; **Status: Complete, report completed and peer reviewed**
- Hydrology model set up and calibrated (initial data from Phase 1); **Status: Model complete, validation of model underway with review from TRCA, City of Pickering, and Town of Ajax engineers**
- Assess options/tools to evaluate watershed’s terrestrial response; **Status: Complete, report drafted and under internal review**
- Assess options/tools to evaluate watershed’s aquatic response; **Status: Underway**
- Surface water quantity report based on stream flow gauges completed and peer reviewed; **Status: Complete, report completed and under peer review**

CONSULTATION

- Review Hydrology model results with Ajax and Pickering staff; **Status: Not started, will follow model validation**

STEP 4: Watershed Scenario Evaluation

TIMING

January to September 2018

PURPOSE

Develop five scenarios for the watershed, evaluating past, current, future, and potential future watershed conditions to be analysed using state-of-the-art modelling and watershed response tools. Knowledge garnered will be shared amongst the technical experts, allowing for integration of outputs and best outcomes for the overall health of the watershed.

WORK TO BE DONE

TECHNICAL

Finalize mapping for each of the five scenarios, each subsequent scenario builds on the previous, ranging from historic conditions (1999) to development as per current approved Official Plans to 2031 and an enhanced Natural Heritage System, plus prospective development post-2031.

- Using various inputs such as Official Plans, existing natural cover, older TRCA Terrestrial Natural Heritage System plans, etc., delineate an enhanced Natural Heritage System for use in the future scenarios; **Status: Complete**
- Evaluate opportunities for urban forestry enhancement; **Status: Complete, report drafted and under internal review**
- Complete Ecosystem Services Valuation study and identify Green Infrastructure features/ practices which could be incorporated into existing urban areas and in new urban development; **Status: Complete**
- Complete a storm water management retrofit study; **Status: Complete, report currently being drafted**

CONSULTATION

- Review scenario criteria/conditions with Ajax and Pickering staff; **Status: Complete**

STEP 5: Evaluate Management Actions

TIMING

July 2018 to June 2019

PURPOSE

Formulate candidate management actions which will be evaluated when recommendations are developed, to ensure that the overall conditions in the watershed will sustain the desired state of health once the plan is adopted and implemented.

WORK TO BE DONE

TECHNICAL

- Management actions will be derived as the modelling is carried out and the terrestrial and aquatic response tools are applied. Actions tend to be specific and are expected to arise through non-linear, multi-disciplinary analysis, as all SMEs integrate their findings. Actions will be evaluated against the plan's draft recommendations, goals, and objectives; **Status: Underway**

STEP 6: Draft Management Recommendations

TIMING

July 2018 to September 2019

PURPOSE

Develop draft recommendations for the optimal management of the watershed based on the most advanced scientific knowledge available. They will be practical and make the best use of partnerships and available resources, and anticipate the challenges ahead. The recommendations inform the management actions and guide the implementation of the Watershed Plan.

WORK TO BE DONE

TECHNICAL

- Management recommendations will be evaluated against meeting the vision, management philosophy, goals, and objectives established earlier in the process. This is a non-linear, multi-disciplinary exercise which involves all SMEs and is integrated with other steps throughout the process; **Status: Underway**

CONSULTATION

- Review draft management recommendations with Ajax and Pickering staff; **Status: Not started**
- Consult public and stakeholders about draft management recommendations; **Status: Not started**

STEP 7: Final Watershed Plan

TIMING

October to December 2019

PURPOSE

Complete the process to develop the Carruthers Creek Watershed Plan.

WORK TO BE DONE

TECHNICAL

- Finalise the Watershed Plan document; **Status: Not started**

CONSULTATION

- Once received by Durham Council, TRCA will post the final Watershed Plan for stakeholder and public comment, dates to be determined; **Status: Not started**

#	Key Tasks	Schedule
1	Complete scenario evaluation	2018 – Q4
2	Peer Review of 2018 technical work	2019 – Q1
3	Recommendations and implementation schedule	2019 – Q2
4	Peer Review of 2019 technical work	2019 – Q3
5	Study complete	2019 – Q4