



Public Review of Draft Carruthers Creek Watershed Plan

Comment Submissions Summary

May, 2021

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1. INTRODUCTION

This report provides a summary of all the submissions from the public review comment period on the draft Carruthers Creek Watershed Plan (CCWP).

The draft CCWP was released for public review on March 13, 2020 for an expected 90-day review period. On April 8, 2020, at a special meeting of the Regional Council of Durham, the public comment period was paused until the Covid-19 emergency state was lifted. On December 16, 2020, staff were authorized to resume public engagement on the draft CCWP with the public review period closing March 19, 2021. Two virtual open houses were held in February 2021 on the draft CCWP (see [Consultation Summary – February 2021](#)).

In addition to the questions asked and positions made by attendees at the two virtual open houses, a total of 27 public submissions were received on the draft CCWP. A further 182 email submissions were provided to the Region of Durham via an Environmental Defence email campaign (See [Appendix A](#) for the wording of the email submission and response provided by the Region of Durham).

TRCA regularly communicated project updates through the project subscribers list, social media, municipal channels, a newspaper ad, and direct mailouts, to raise awareness of the virtual open houses and to advise the public of the opportunity to review and comment on the draft CCWP.

2. PUBLIC REVIEW SUBMISSIONS SUMMARY

During the public review period of the draft CCWP, submissions were received using the online comment form (19), direct email/letter submission (6), and through municipal Council processes (2).

The online comment form allowed respondents to rate the draft CCWP based on three questions in addition to allowing specific comments on sections of the plan. See [Table 1](#) for the ratings received. Not all respondents who used the online comment form answered these questions.

TABLE 1 - RATING QUESTIONS SUMMARY

	How would you rate the draft plan structure, length, organization on a scale of 1 to 5, where 1 equals “poor” and 5 equals “excellent”?	Is the information presented clearly and concisely? Please provide a rating on a scale of 1 to 5, where 1 equals “not at all clear and concise” and 5 equals “very clear and concise”.	Do you support the goals, objectives, indicators and management recommendations in the draft plan? Please provide a rating on a scale of 1 to 5, where 1 equals “strongly opposed” and 5 equals “strongly supportive”.
Average Rating	4	4	4
Note: 13 submissions answered each of these questions.			

2.1 Online Submissions

Submissions using the online comment form were also able to provide general or section-specific comments, which are presented in **Table 2**. The table provides details such as the name of the individual making the submission (if provided), a summary of the comments made, and any response/changes to the CCWP as a result of the comments. Comments are presented in no particular order. Note that not all comments are included as some were outside the scope of the watershed plan. These comments included specific questions about property issues that were directly responded to by TRCA.

TABLE 2 - FEEDBACK FROM ONLINE COMMENT FORMS

Section	Comments	Changes to CCWP (If applicable) / Response to Comments
General Comments	<p>No Name Provided</p> <p>The plan is excellent to protect and monitor the health of the watershed. To have a healthy watershed, you must stop contaminants, before they need to be cleaned up!!</p> <p>Durham Region needs to have a better collection system, to prevent material (i.e. waste) from entering the watershed.</p>	Comments noted.
	<p>No Name Provided</p> <p>Protect the headwaters to build resiliency against climate change.</p>	Comments noted.
	<p>W. Parish</p> <p>Development of the Rouge headwaters in Richmond Hill has led to wide scale high water events that damage property and the aquatic ecosystem. Ajax will face the same issues if the headwaters are not protected and if flood control measures are not put in place. This will increase the costs to municipalities through flooding, erosion, and reduced water quality.</p>	<p>Comments noted.</p> <p>Subsection 5.4 of the CCWP identifies the studies that would be required in the event of a Settlement Area Boundary Expansion in the headwaters of Carruthers Creek.</p>
	<p>S. Roche</p> <p>The plan offers a compelling overview of the current situation and need for action to manage and maintain this watershed. The report is very well laid out. It offers a useful introduction to the many technical terms and methodological approaches used in such a comprehensive assessment and provides a thoughtful layout of the recommended actions and responses to the considerable growth and changes in Durham Region. Overall, a well written and carefully prepared report that gives</p>	Comments noted.

Section	Comments	Changes to CCWP (If applicable) / Response to Comments
	<p>me confidence that ecosystem health, riparian management, water quality and quantity, and regional conservation are important priorities for Durham Region.</p>	
	<p>A. Wilton Although the watershed is small, there are a number of significant natural heritage features. This includes coastal wetlands. Increasing forest size is important for certain species. It is good to develop these plans to help determine priorities for conservation and restoration.</p>	<p>Comments noted.</p>
	<p>M. Pileggi Great work. Very clear and concise. Watershed plan shows the importance of protecting the headwaters of Carruthers Creek.</p>	<p>Comments noted.</p>
	<p>G. Lenders Excellent, very well-organized plan of action. The watershed plan exemplifies the utmost importance of protecting, enhancing and restoring the health of the headwaters of Carruthers Creek.</p>	<p>Comments noted.</p>
	<p>B. Murphy Everything in our power should be done to protect natural features especially watersheds and biodiversity. Any scenario that reduces these should not be considered.</p>	<p>Comments noted.</p>
	<p>M. Oates Please object to the Town of Pickering pushing through their plan to build on the Carruthers Creek watershed without adequate public info or meetings. Shame on Pickering!</p>	<p>Comments noted.</p>
	<p>No Name Provided You have to stop allowing our ecosystems and greenspace to be ruined.</p>	<p>Comments noted.</p>
	<p>D. McLaughlin The intentions of the CCWP seem to be good, but there are some deficiencies to be addressed. Climate change considerations appear to be factored in, but according to reports from a number of credible sources (numerous articles provided), climate models have gravely underestimated the pace of climate change. Consequently, the analyses and</p>	<p>The purpose of scenario modelling is to evaluate a range of potential future outcomes and measure the associated impacts on the watershed. This allows for the</p>

Section	Comments	Changes to CCWP (If applicable) / Response to Comments
	<p>recommendations of the CCWP are inadequate due to the conservative bias of the climate models.</p> <p>Concern that the good intentions of the watershed plans can be superseded by the decision-making powers of political entities involved in land use planning and development (e.g. little progress made from previous plan, continuing losses of natural cover).</p> <p>Another area of concern is chlorides, which will be exacerbated by any further urban expansion.</p> <p>Due to these concerns, here are some recommendations:</p> <ul style="list-style-type: none"> • Highest priority should be given to protecting and expanding the natural heritage and water resources • The three scenarios detailed in the CCWP should be scrapped • A new, sole scenario should replace those scenarios and include the following objectives: <ul style="list-style-type: none"> ○ Prohibit any new urban or agricultural expansion north of Taunton Road, ○ Pursue efforts to enhance and expand the Natural Heritage System (NHS) and Water Resource System (WRS) beyond that described in the CCWP. To that purpose, acquire all relevant properties as they become available, and ○ Conservation authorities, not susceptible to pressure from politicians and the development industry should have the power to veto any plans or developments that adversely impact watersheds. 	<p>development of appropriate management recommendations so that the health and integrity of the watershed can be maintained and improved under a range of future scenarios.</p> <p>The mandate of conservation authorities is governed by the <i>Conservation Authorities Act</i>.</p> <p>The CCWP places high priority on protecting the NHS and WRS (Goal 2 and 3). The CCWP places significant emphasis on protecting, enhancing, and restoring both the WRS and NHS by:</p> <ul style="list-style-type: none"> • recommending policies, • identifying enhancement areas, and • identifying priority restoration and public land securement sites. <p>The development of the CCWP has been a collaborative effort between TRCA, the Region of Durham, City of Pickering, and Town of Ajax.</p>

Section	Comments	Changes to CCWP (If applicable) / Response to Comments
	<p>J. Longo</p> <p>Greater value needs to be given to our natural areas. I appreciate the quality of work the conservation authorities engage in and would like to support them further. Let's see less minimum standards and more maximization of our natural areas. There needs to be a cost for the destruction poor planning creates that does not fall on taxpayers.</p> <p>In light of recent reporting on the limitations placed on the TRCA by the provincial government, I am concerned that municipalities might choose to limit the involvement of the TRCA. For instance, the Veraine development in the northern end of the watershed makes me worry that Pickering will try to do something like they are doing with the Duffins Creek watershed. I would also like to lend my support to TRCA and their function of managing flooding and preserving/enhancing the natural heritage, wildlife, and water quality of the watershed.</p>	<p>The CCWP encourages increases to natural areas through enhancements, restoration, and public land securement.</p> <p>There are management recommendations to improve development standards and encourage the use of green infrastructure under Goal 1.</p> <p>Subsection 5.4 of the CCWP identifies the studies that would be required in the event of a Settlement Area Boundary Expansion in the headwaters of Carruthers Creek.</p>
	<p>C. Pryce</p> <p>I just want to show my support to protect the watershed from development. Protecting wildlife biodiversity and preparing for the results of climate change is of the utmost importance to me.</p>	<p>Comments noted.</p>
Executive Summary	<p>S. Roche</p> <p>It might be useful to add a few more comments about the recommended actions for policymakers. This will ensure that those that do not read the full document still have a sense of the key actions.</p>	<p>The Executive Summary has been updated to highlight some key components of the management framework.</p>
Section 4: Future Watershed Conditions	<p>S. Roche</p> <p>I think this section is nicely laid out and presents a strong framework for decision-making regarding the strategies that make Scenarios 1 through 3 reality. One minor suggestion might be to categorize the Summary of Implications section by Scenario, providing a summary statement of how well each scenario performs, and then the specific comments pertaining</p>	<p>The summary of implications has been updated to provide a summary statement per scenario in relation to the key issues of: WRS, NHS,</p>

Section	Comments	Changes to CCWP (If applicable) / Response to Comments
	to each. As a reader not having reviewed this content before, I naturally wanted to see a breakdown of the overall effects by scenario, which followed the table format.	water quality, and natural hazards.

2.2 Letter Submissions

In addition to submissions using the online comment form, six letters were directly submitted to TRCA. [Table 3](#) provides the name of the individual or group that submitted the letter, a general summary of the comments received, and any response/changes to the CCWP as a result of the comments. Comments are presented in no particular order.

TABLE 3 - SUMMARY OF LETTER SUBMISSION COMMENTS

Comments	Changes to CCWP (If applicable) / Response to Comments
S. Parish	
<p>Engagement Process</p> <p>Concern that the online comment form is not designed to get meaningful input and that Covid-19 will prevent meaningful engagement.</p>	<p>The online comment form included rating questions and allowed for detailed comments for each section of the plan.</p> <p>The draft CCWP was publicly released on March 13, 2020. The originally planned April 30, 2020 open house was cancelled due to the Covid-19 pandemic. Two virtual open houses were held in February 2021, with comments due March 19, 2021. A Consultation Summary of the Public Review of Draft Carruthers Creek Watershed Plan is available. A total of 134 individuals attended the virtual open houses held in February 2021, compared to approximately 50 individuals that intended the in-person open houses in Ajax and Pickering on the draft management framework in October 2019.</p>
<p>Implications of Headwater Development</p> <p>Concern regarding the implications of scenario 3 (headwater urbanization) to the Water Resource System and natural hazards (i.e. flooding). The plan talks about mitigation using green development policies and low impact development techniques but does not quantify the costs of any development to</p>	<p>As noted in the draft CCWP, scenario analysis does not result in decisions about the type and configuration of land uses.</p> <p>The Region of Durham is currently undertaking its Municipal Comprehensive Review, which will determine whether there is a need for any Settlement Area Boundary Expansions. In the event that a Settlement Area Boundary Expansion is</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
<p>taxpayers of Ajax. Urges TRCA to recommend against scenario 3 clearly and unequivocally.</p>	<p>approved for the lands in northeast Pickering (i.e. Carruthers Creek headwaters), the management recommendations outlined in subsection 5.4 of the CCWP would apply. These recommendations outline the types of studies that would need to occur if development is approved. The issue of funding the appropriate flood mitigation has been added to the relevant management recommendation.</p>
<p>Ontario Headwaters Institute</p>	
<p>Comment Review Process</p> <p>Concern that public comments will not be transparently handled and addressed. Suggests that members of the public should be part of the review team.</p>	<p>TRCA has consistently posted consultation summaries on the project webpage at each stage of this watershed planning process.</p> <p>This document serves as the record of comments received during the public review of the draft CCWP and how the comments are being addressed. The Region of Durham is including this record as part of its report to Committee and Council.</p>
<p>Evans Planning on behalf of Pinebrowm Salem Lands Ltd.</p>	
<p>Scenario 3 Land Use Designation</p> <p>Concern that lands at the south-east corner of Salem Road and Seventh Concession are designated as a natural area under Scenario 3. Given that the subject lands were previously identified as a Regional Centre in the previous draft of the Region of Durham Official Plan, it is anticipated that these lands will be incorporated into the urban boundary through the Region’s current Municipal Comprehensive Review process. The subject lands do not contain any significant environmental features. The Natural Area land use designation should be removed.</p>	<p>The subject lands are identified as “potential” natural cover in the recommended NHS. These areas are recommended for restoration to build resilience into the NHS. The recommended NHS uses the latest data, science, and modelling approaches to:</p> <ul style="list-style-type: none"> • increase natural cover to a sufficient quantity, • protect natural system quality, • protect biodiversity, and • manage climate vulnerabilities. <p>The subject lands abut existing natural cover.</p> <p>An enhanced NHS has benefits for water quality, the aquatic system, and can reduce the amount of runoff through increased retention and infiltration.</p> <p>At this time, no decision has been made by the Region of Durham through the Municipal Comprehensive Review process for a Settlement Area Boundary Expansion in northeast Pickering.</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
<p>Scenario Analysis Implications – Water Resource System and Natural Hazards</p> <p>The usage of engineered porous surfaces (LIDs) and other engineered solutions to stormwater runoff are not considered. As a result, the estimated impacts for scenarios 2 and 3 appear to be inflated and do not reflect the reality of modern development. A conventional stormwater management pond can aid in achieving necessary flood control within future urban areas.</p>	<p>The following updates have been made to the CCWP:</p> <ul style="list-style-type: none"> • Text has been added to Table 3 to explain the assumptions made in Scenario 3 and the appropriate stage of the planning process for detailed assessment of mitigation options. • Text has been added to Subsection 4.3 elaborating on potential mitigation strategies. • The percent change associated with each scenario for the natural hazards has been modified to show change at both Taunton and Shoal Point Roads for the Regional Storm rather than an average. Text has been added explaining what the Regional Storm and 5-years storm mean. Additionally, a footnote has been added to explain that the modelling for the Regional Storm assumes existing stormwater management facilities fail or at capacity. As a result, the numbers for peak flows would not change for the Regional Storm since a conventional stormwater management pond cannot accommodate this storm event. • The summary of implications at the end of Subsection 4.3 have been clarified, connecting them to the appropriate management recommendations (e.g. Subsection 5.4 for further studies in the event of headwater development). Subsection 5.4 of the CCWP identifies the studies that would be required in the event of a Settlement Area Boundary Expansion in the headwaters of Carruthers Creek. It is at those detailed planning stages where decisions on engineering solutions would be made.
<p>Scenario Analysis Implications – Natural Heritage System</p> <p>The NHS scenario analysis did not take into consideration parkland dedication within potential development lands. Parkland size and shape can</p>	<p>Parkland is a different land use that is not consistent with the natural heritage features and areas that comprise the NHS. For example, parkland can refer to open fields, recreation spaces (e.g. tennis courts),</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
<p>positively influence and contribute to the NHS providing for natural habitat connectivity, preservation of core features and provide buffers between land uses.</p>	<p>or community centres, which are not compatible with the NHS goal and objectives.</p> <p>Currently the subject lands are not within the urban boundary. Due to this, there were no specific parkland locations or sizes to model.</p> <p>Opportunities to protect, enhance, and restore natural heritage features and areas would be considered at the appropriate planning stage if this were to change, including parkland as a potential buffer between land uses.</p>
<p>Tile Drainage</p> <p>Conversion of agricultural lands, removal of tile drainage and replacement by modern stormwater infrastructure and green infrastructure would reduce the estimated risk of flooding and erosion.</p>	<p>Currently the subject lands are not within the urban boundary. Mitigation strategies supported by science would be identified at the appropriate planning stage if this changes.</p>
<p>Conclusion</p> <p>We found the Authority’s recommendations within the Draft Watershed Plan to be concerning, with lack of consideration for modern, green, and engineered infrastructure. As a result, estimated impacts appear to be inflated and do not reflect the reality of modern development.</p> <p>The subject lands are within the Region’s “whitebelt” lands and are poised for future urban development given their strategic location at the intersection of Salem Road and Seventh Concession Road. The lands do not contain any significant environmental features and the sterilization of these lands is not appropriate and unnecessary.</p>	<p>The draft CCWP and its recommendations were developed in collaboration with municipal partners. Goal 1 and its associated objectives and management recommendations relate to improved land use and infrastructure development patterns, including low impact development, green infrastructure, and improved stormwater management.</p> <p>Currently the subject lands are not within the urban boundary and no decision has been made on a Settlement Area Boundary Expansion.</p> <p>The findings of the hydrology assessment are consistent with the previous Cole study completed in 2011. One of the key purposes of the CCWP was to demonstrate the potential implications of future development on the watershed, so that the level of impact that needs to be mitigated is clear. It will be up to proponents of future development to identify how that impact will be mitigated at the appropriate planning stage.</p> <p>Refer to previous response on the purpose of the NHS.</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
Ontario Nature, Environmental Defence, Land Over Landings, Environmental Action Now Ajax - Pickering	
<p>Vision and Goals</p> <p>Congratulations on the thoroughly researched and expertly presented draft plan that you have developed for the Carruthers Creek Watershed. We fully support its vision and the three goals for land use, the WRS, and the NHS.</p>	<p>Comments noted.</p>
<p>Concluding Remarks</p> <p>Looking across the three scenarios, it is evident that only scenario 2 supports the goals of protecting, enhancing, and restoring water quality, the water resource and natural heritage systems. Scenario 3, which assumes development in the headwaters, would lead to a decline in watershed health across the board. The Planning Team should include concluding remarks related to the adverse impacts of urbanization on the headwaters of Carruthers Creek.</p>	<p>The summary of implications in the CCWP has been updated to better communicate the implications of each scenario and what that means.</p> <p>As noted in the draft CCWP, scenario analysis does not result in decisions about the type and configuration of land uses. The management framework in section 5 of the CCWP is designed to address existing watershed issues and the implications of the potential future scenarios to help inform land use planning decisions.</p>
North East Pickering Landowners Group Inc. (NEPLG) – See Appendix B for Comments on Technical Reports	
<p>Recommended Natural Heritage System</p> <p>During public engagement, TRCA staff noted that there will be opportunities to refine the proposed NHS with appropriate scientific justification that meets the goals and objectives of the Watershed Plan. The CCWP should be revised to include the following wording: “opportunity for refinement of the NHS would be possible with appropriate scientific justification that still meets the targets and objectives of the Watershed Plan.”</p> <p>There is no mention in the management recommendations that the exact size and configuration of the NHS could fluctuate based on the required future studies. It is requested that Map 2 include wording in this regard as well.</p>	<p>Text has been added to the introduction to Goal 3 and map 2 to address this comment.</p> <p>Management recommendation 3.1.1 has been updated to elaborate on the role of the Region of Durham to provide direction to lower-tier municipalities on the designation of a NHS within lower-tier Official Plans.</p> <p>Language has been added to the management recommendation to distinguish between the need to protect existing natural cover as identified in map 2 and having policies to identify enhancement and restoration opportunities for potential natural cover areas as identified in map 2.</p>
<p>Future Management Scenarios</p> <p>Concern that Scenario 2 and 3 are unrealistic scenarios because:</p>	<p>The scope of the scenarios as presented in the draft CCWP was developed by TRCA in collaboration with its municipal partners.</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
<ul style="list-style-type: none"> • Scenario 2 assumes that existing rural community will voluntarily set aside significant portions of their agricultural operations for the creation of an enhanced NHS • Scenario 3 is unrealistic as unmitigated development is not allowed given minimum watershed management mitigation and protection requirements. Modelled as unmitigated, the 77% increase in downstream flooding on page 38 is misleading and paints a negative picture related to future development, and is not consistent with overall provincial policy. • Scenario 3 is not permitted based on provincial policy. 	<p>For scenario 2, the design of the enhanced NHS was based on objectives to:</p> <ul style="list-style-type: none"> • increase natural cover to a sufficient quantity, • protect natural system quality, • protect biodiversity, and • manage climate vulnerabilities. <p>These objectives test the benefits of an enhanced NHS. An enhanced NHS has benefits for water quality, the aquatic system, and can reduce the amount of runoff through increased retention and infiltration.</p> <p>Under Goal 1, objective 4 recognizes the need to work with the agricultural community on rural land stewardship. In the event that urbanization does not occur within the headwaters, TRCA would use the enhanced NHS to identify opportunities with rural land owners (e.g. incentive programs, grants, etc.).</p> <p>The flooding results cited (77%) represent an average of two points in the watershed for the Regional Storm (i.e. Hurricane Hazel). As noted in the Hydrological Assessment Technical Report, existing stormwater management facilities were removed from the model to account for the system failing or being at capacity during the Regional Storm event. Subsection 5.4 of the draft CCWP addresses additional studies that would be needed to identify appropriate mitigation measures in the event of future development based on more detailed planning applications.</p> <p>The findings of the hydrology assessment are consistent with the previous Cole study completed in 2011. One of the key purposes of the CCWP was to demonstrate the potential implications of future development on the watershed, so that the level of impact that needs to be mitigated is clear. It will be up to proponents of future development to identify</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
	<p>how that impact will be mitigated at the appropriate planning stage, in accordance with provincial policy.</p> <p>The following updates have been made to the CCWP in relation to the comments:</p> <ul style="list-style-type: none"> • Text has been added to Table 3 to explain the assumptions made in Scenario 3 and the appropriate stage of the planning process for detailed assessment of mitigation options, • Text has been added to Subsection 4.3 elaborating on the potential mitigation strategies, • The percent change associated with each scenario for the natural hazards has been modified to show change at both Taunton and Shoal Point Roads for the Regional Storm rather than an average. Text has been added explaining what the Regional Storm and 5-years storm mean. Additionally, a footnote has been added to explain that the modelling for the Regional Storm assumes existing stormwater management facilities fail or at capacity, and • The summary of implications at the end of Subsection 4.3 have been clarified, connecting them to the appropriate management recommendations (e.g. Subsection 5.4 for further studies in the event of headwater development).
<p>Enhanced Natural Heritage System</p> <p>Scenario 2 and 3 include an enhanced NHS that is also the TRCA recommended enhanced NHS (map 2) to achieve the third goal. While the NEPLG is committed to the goals within the CCWP, the recommended NHS is misleading as it is the only measure to increase diversity and mitigate the impacts of development (Scenario 3).</p> <ul style="list-style-type: none"> • CCWP makes recommendations for linkage corridors that are consistent with the size and 	<p>Provincial policies, including the definition of the NHS, recognize the importance of regional and site-scale connectivity as part of natural heritage system planning.</p> <p>The recommended NHS uses the latest science and practices in natural systems planning. The recommended NHS represents a realistic and attainable system for this urbanizing watershed that is more consistent with federal guidance on how much habitat is necessary to maintain ecological functions and biodiversity.</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
<p>scale of Regional Corridors (500m or more in width). However, these Regional Corridors have already been established through the Greater Golden Horseshoe NHS system and include the Duffins Creek and Iroquois Shoreline. Local connectivity to these systems will likely require smaller corridors that are more consistent with the existing watercourses.</p>	<p>The referenced recommended corridor widths are minimums. The recommended enhanced NHS is about improving connectivity and building long-term resilience to the potential impacts of future growth and climate change.</p>
<p>Regional Planning</p> <p>The use of the CCWP in the land use planning process needs to be clarified, and significant adjustments made if the intent is that the Region will use this work to update its Official Plan. If this is the case, the work will be used as a land use planning exercise and must be prepared in the context of overall good planning and the public interest. A scenario must be included which assumes full inclusion of northeast Pickering within a settlement area. So as not to preclude the appropriate development of this area, the form and size of the NHS should be appropriately balanced with the overall land use planning objectives of the Provincial Policy Statement and the Growth Plan for the Greater Golden Horseshoe, such as the need to provide for compact and connected communities, viable employment areas, walkability and transit supportive development, and the cost effective and efficient extension of infrastructure. This will typically result in a feature-based NHS with limited linkage areas and a heavier reliance on green infrastructure to support natural processes. In particular, the onus is upon the Region to implement, and where appropriate refine the provincial mapping of the NHS for the Growth Plan at the time of initial implementation in their official plan. If the work prepared by the TRCA will be used by the Region to update/refine the NHS in northeast Pickering, then this work must occur within, and not outside of the overall MCR process.</p>	<p>Scenario 3 assumes development in northeast Pickering.</p> <p>Provincial policies recognize the integrated nature of natural heritage and water resource systems, and recognize the watershed as the meaningful ecological scale for long-term planning (PPS 2.2.1, Growth Plan 4.2.1 and 4.2.2). PPS policy 2.1.2 states:</p> <p style="padding-left: 40px;">The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.</p> <p>The methods utilized to develop the enhanced NHS as part of the CCWP are consistent with the provincial policy framework, which encourages a systems-based approach.</p> <p>The watershed plan is one of many studies and factors that the Region of Durham will need to consider as part of its Municipal Comprehensive Review.</p> <p>The identification of an “enhanced” or “targeted” NHS is standard practice in contemporary watershed planning exercises. The Region of Durham is considering how to appropriately implement Natural Heritage Systems, including the recognition of enhanced/targeted components through the</p>

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	<p>Municipal Comprehensive Review process. It is acknowledged that the policy treatment for “enhancement” cover areas could be different than existing natural cover areas. A management recommendation that supports this general approach has been included in the final watershed plan to provide flexibility in how the Region and Area Municipalities implement the enhanced Natural Heritage System through their respective land use planning instruments.</p> <p>Management recommendation 3.1.1 has been updated accordingly.</p>
<p>CCWP Land Use Definitions</p> <p>Some residential estates, golf courses, cemeteries and hydro corridors are designated as agricultural uses and therefore the total agricultural lands are overstated in the CCWP analysis.</p>	<p>Footnote 6 on page 23 of the draft CCWP explains that water, recreational, golf courses, cemeteries, and hydro corridors are not included in the statistics for changes to land cover cited in Subsection 3.2.</p> <p>The draft CCWP mapping uses three general land use classifications (urban, rural, natural) for simple visualization. The technical analyses used more detailed land use classifications than what is presented in the mapping to determine results.</p>
<p>Pickering Planning and Development Committee Report</p> <p>It should be noted that NEPLG supports all three recommendations within Pickering Report to Planning and Development Committee from September 14, 2020.</p>	<p>Comment noted. Subsection 2.3, page 19 of this document considers and responds to the comments in the referenced report.</p>
<p>Stakeholder Advisory Committee</p> <p>Requesting participation in a Committee which would provide an opportunity for transparency, sharing of information and advancement of the CCWP.</p>	<p>TRCA and its municipal partners will consider the establishment of a Stakeholder Advisory Committee to guide implementation planning of the watershed plan.</p>
<p>Fieldgate Developments (TFP Pickering Developments Limited)</p>	
<p>TRCA staff mentioned during the February 2021 virtual open houses that three methods were used to determine the NHS being promoted with the study. The results and the methods seem to be beyond which is supported by Provincial Policy and that which</p>	<p>In 2015, the Region of Durham retained TRCA to complete a watershed plan update for Carruthers Creek. The development of the watershed plan supports the Municipal Comprehensive Review process being undertaken by Durham Region and</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
<p>is customary through the TRCA’s role in the review and commenting on planning applications and processes. While we recognize that the Watershed Plan is not a planning document it appears to represent TRCA’s position on an NHS system to be further used by its municipal partners to inform planning and growth considerations. Additional clarification is requested on the TRCA adopted methods and how they relate to current planning practices, the conservation authority’s mandate and adherence to Provincial Policy Statement and the Growth Plan for the Greater Golden Horseshoe.</p>	<p>provincial policies related to watershed planning, which encourage collaboration between municipalities and conservation authorities (Growth Plan 4.2.1.1).</p> <p>The Provincial Policy Statement (2020) defines the NHS as:</p> <p style="padding-left: 40px;">a system made up of natural heritage features and areas, and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species, and ecosystems. These systems can include natural heritage features and areas, federal and provincial parks and conservation reserves, other natural heritage features, lands that have been restored or have the potential to be restored to a natural state, areas that support hydrologic functions, and working landscapes that enable ecological functions to continue. The Province has a recommended approach for identifying natural heritage systems, but municipal approaches that achieve or exceed the same objective may also be used.</p> <p style="padding-left: 40px;">(Bold added for emphasis)</p> <p>Further, provincial policies recognize the integrated nature of natural heritage and water resource systems, and recognize the watershed as the meaningful ecological scale for long-term planning (PPS 2.2.1, Growth Plan 4.2.1 and 4.2.2). PPS policy 2.1.2 states:</p> <p style="padding-left: 40px;">The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible,</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
	<p>improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.</p> <p>The methods utilized to develop the enhanced NHS as part of the CCWP are consistent with the provincial policy framework. Details on the methods used to develop the recommended enhanced NHS can be found in the <u><i>Terrestrial Impact Assessment Technical Report</i></u>.</p> <p>TRCA conducts itself in accordance with the objects, powers, roles, and responsibilities set out for conservation authorities under the <i>Conservation Authorities Act</i> and the MNR Procedural Manual chapter on conservation authorities’ policies and procedures for plan review and permitting activities, such as a public commenting body under the <i>Planning Act</i>, a service provider to municipal partners, and a resource management agency. This includes the review of municipal planning documents like official plans and zoning by-laws (Plan Input) and development applications under the <i>Planning Act</i> (Plan Review). In these roles, and as stated in MECP’s “A-Made-In-Ontario Environment Plan,” conservation authorities work in collaboration with municipalities and stakeholders to protect people and property from flooding and other natural hazards, and to conserve natural resources.</p>
<p>TFP Pickering requests further dialogue with TRCA and other partners as this plan develops. This is required as the promotions directly impacts the TFP Pickering lands, and such promotions should be considered jointly and on consensus. Given this, we support the option of direct stakeholder engagement in decisions and not through online presentations, so that regular discussions can occur. Further these discussions should occur concurrently and with considerations on the establishment of a Structural Plan with the City of Pickering and the regional growth plan exercise. This</p>	<p>This watershed planning process was initiated in 2015. The recent conclusion of the public comment period on the draft CCWP was the final phase of public consultation. The CCWP has been updated to address feedback from this public review and submitted to Durham Regional Council for consideration. Reports to Council and the records of the various engagement activities undertaken throughout this process are available on the <u>project webpage</u>. On December 16, 2020, Durham Regional Council authorized staff to resume public</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
<p>will ensure a sustainable outline that considers the environment first while looking at complete communities, land needs, and adhering to current planning policies.</p>	<p>consultation to advance the completion of the watershed plan via virtual engagement, which have become a well accepted form of public engagement during Covid-19. Two virtual open houses were held at the beginning of February, attended by a total of 134 individuals, compared to the approximately 50 individuals that attended in person open houses held in Ajax and Pickering in October 2019.</p> <p>The TFP Pickering lands are not currently within the urban boundary. The Region of Durham is currently undertaking its Municipal Comprehensive Review, which will determine whether there is a need for any Settlement Area Boundary Expansions, and if so, where they should occur. In the event that a Settlement Area Boundary Expansion is approved for the lands in northeast Pickering, the management recommendations outlined in subsection 5.4 of the CCWP would apply. These recommendations outline the types of studies that would need to occur prior to planning approvals.</p>
<p>Based on a review of the draft CCWP, prepared by TRCA on behalf of the Region of Durham, it is unclear what the intent of the CCWP is related to the future consideration of lands in northeast Pickering related to urban area expansion. The NHS is mentioned to be refined in the future keeping with the goals of the CCWP, however, the current analysis does not appear to include overall land use planning objectives of the PPS to guide this process and particularly, environmental takeouts. As the CCWP has not been promoted as a planning tool and since the CCWP work is being conducted concurrent with planning studies underway please indicate how the studies are to be integrated given the objectives of this plan. Perhaps in consideration of point 2 above there can be better integration to establish one NHS system which can be used as a baseline in establishing recommendations for the watershed and for planning studies.</p>	<p>The watershed plan is one of many studies and factors that the Region of Durham will need to consider as part of its Municipal Comprehensive Review. As noted earlier, the analysis is consistent with provincial policies like the PPS.</p> <p>The identification of an “enhanced” or “targeted” NHS is standard practice in contemporary watershed planning exercises. The Region of Durham is considering how to appropriately implement Natural Heritage Systems, including the recognition of enhanced/targeted components through the Municipal Comprehensive Review process. It is acknowledged that the policy treatment for “enhancement” cover areas could be different than existing natural cover areas. A management recommendation that supports this general approach has been included in the final watershed plan to provide flexibility in how the Region and Area Municipalities implement the enhanced Natural</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
	<p>Heritage System through their respective land use planning instruments.</p> <p>TRCA has developed the recommended NHS in collaboration with municipal partners and based on in-house technical expertise using the latest science and practices in natural systems planning. The recommended NHS is more consistent with federal guidance on how much habitat is necessary to maintain ecological functions and biodiversity. The recommended NHS represents a realistic and attainable system for this urbanizing watershed and has been demonstrated to assist with achieving broader watershed goals beyond terrestrial ecosystems considerations (e.g. aquatic ecosystem improvements, reduction in peak flows for smaller storm events). Refinements to the recommended NHS may be considered assuming the scientific analysis is consistent with the goals and objectives of the CCWP.</p>

2.3 Committee Reports – City of Pickering and Town of Ajax

On September 14, 2020, City of Pickering staff presented a report to the Planning and Development Committee with recommended changes to the draft CCWP. On October 5, 2020, Town of Ajax staff presented a report to the Community Affairs and Planning Committee with recommended changes to the draft CCWP. **Table 4** identifies the recommended changes and responses to both committee reports.

TABLE 4 - COMMITTEE REPORTS - CITY OF PICKERING AND TOWN OF AJAX

Comments	Changes to CCWP (If applicable) / Response to Comments
City of Pickering	
<p>Provide greater clarity about the “77%” figure identified as the potential increase in downstream peak flows under the hypothetical land use Scenario 3 modelling analysis including: explaining that it is a “worst case” scenario and why; identifying the rainfall and storm duration parameters for a Hurricane Hazel type event; and relating the modelled increases in peak flows to the proposed management recommendations;</p>	<p>The following updates have been made to the CCWP:</p> <ul style="list-style-type: none"> • Text has been added to Table 3 to explain the assumptions made in Scenario 3 and the appropriate stage of the planning process for detailed assessment of mitigation options, • Text has been added to Subsection 4.3 elaborating on the potential mitigation strategies, • The percent change associated with each scenario for the natural hazards has been modified to show change at both Taunton and Shoal Point Roads for the Regional Storm rather than an average. Text has been added explaining what the Regional Storm and 5-year storms mean. Additionally, a footnote has been added to explain that the modelling for the Regional Storm assumes existing stormwater management facilities fail or at capacity, and • The summary of implications at the end of Subsection 4.3 have been clarified, connecting them to the appropriate management recommendations (e.g. Subsection 5.4 for further studies in the event of headwater development).
<p>Revise Management Recommendation 3.1.1 respecting the protection, expansion and restoration of the NHS in the watershed, to reflect discussion in the introductory text that precedes Table 8: NHS Management Recommendations, to allow</p>	<p>Text has been added to the introduction to Goal 3 and map 2 to address how refinements to the recommended NHS will be considered.</p> <p>Management recommendation 3.1.1 has been updated to elaborate on the role of the Region of</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
<p>consideration of alternative configurations, size and composition for an enhanced NHS to that identified on Map 2 of the Draft CCWP.</p>	<p>Durham to provide direction to lower-tier municipalities to designate a NHS within Official Plans.</p> <p>Language has been added to the management recommendation to distinguish between the need to protect existing natural cover as identified in map 2 and having policies to identify enhancement and restoration opportunities for potential natural cover areas as identified in map 2.</p>
<p>Adding a new Management Recommendation 1.3.6 stating that TRCA continues to support and enhance the existing flood model by increasing the number of rainfall monitoring stations and stream flow gauges on all tributaries including the most minor.</p>	<p>TRCA expanded its monitoring network in the Carruthers Creek watershed by installing two new monitoring stations in 2019 to collect more precipitation data in the watershed. These are represented by water quantity stations #5 and #6 as illustrated in Figure 7 of the draft CCWP. One station is just north of Taunton Road, the other north of Hwy 407.</p> <p>Section 6 on Monitoring and Evaluation discusses the need to add additional monitoring stations to track watershed health (See page 56). Text has been added to this section about expanding the monitoring network in the event of further development.</p>
<p>Town of Ajax</p>	
<p>Management recommendation 1.1.1 encourages new development to minimize impervious cover while controlling higher levels of stormwater. Whereas, less stringent requirements are applied to redevelopment. The management recommendation recognizes it may be more difficult to rehabilitate existing developed to comply with the increased standards, while still applying a quantitative target.</p> <p>A minor amendment is requested to strengthen the management recommendation by replacing the word ‘should’ with ‘shall’ to ensure that this management recommendation is incorporated into Official Plan policy and related standards.</p>	<p>The requested change has been made.</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
<p>Management recommendation 1.1.3 requires that a Terms of Reference be prepared to require additional study, such as completion of a hydraulic assessment, among other requirements, if a SABE is required. Staff have the following comments:</p> <p>While staff agree that a Terms of Reference is required to complete the additional study work and analysis, the management recommendation places the requirement to prepare the ToR on the Region, with input from TRCA, Ajax and Pickering. This management recommendation should be revised to ‘require agreement’ on all components of the ToR between the Region, TRCA, Ajax and Pickering before commencing work.</p> <p>Staff acknowledge that additional information, such as detailed land uses and mapping are needed prior to undertaking a Hydraulic Analysis. Staff are also of the opinion that such an analysis needs to occur at the earliest stage possible. Therefore, the management recommendation should be revised to require the completion of a Hydraulic Analysis during subwatershed planning and development of the secondary plan, but prior to any planning approvals. It should clearly identify the timing for the completion of work if Scenario 3 proceeds by adding “and secondary planning, prior to planning approvals” after subwatershed planning to read “to develop a Terms of Reference outlining requirements for further studies in support of subwatershed and secondary planning, prior to planning approvals, that includes, but is not limited to . . .”</p>	<p>Management recommendation 1.1.3 has been updated to clarify the process and require consensus among the relevant parties on future studies.</p> <p>Management recommendation 2.1.4 has been updated to address these comments.</p>
<p>Management recommendation 1.3.5 regarding flood plain mapping should be clarified. Staff agree that this is an essential management recommendation regardless of which scenario proceeds. However, staff have concerns related to the timing of this management recommendation. Staff believe that mapping needs to occur at the earliest stage possible.</p>	<p>Flood plain mapping is routinely updated as municipal Official Plans change and with the most recent topographical information.</p> <p>This management recommendation has been updated to clarify the flood plain mapping process.</p> <p>Management recommendation 2.1.4 addresses what conditions must be met through secondary planning</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
<p>Therefore, the management recommendation should be revised to require the completion of the updated mapping during secondary planning and sub-watershed planning, but prior to any planning approvals in the headwaters.</p>	<p>in the event of a Settlement Area Boundary Expansion, including a hydraulic analysis (to quantify and map depth and extent of potential flood impacts).</p>
<p>Management recommendation 2.1.1 related to the protection of the Water Resource System should be updated to remove adequately from clause a.</p>	<p>The requested change has been made.</p>
<p>Management recommendation 3.1.1 outlines initiatives that need to be undertaken to protect, enhance and restore the NHS. The current Official Plans of the Region of Durham, City of Pickering, and Town of Ajax have different approaches to protecting the NHS. A consistent approach should be applied to the entire watershed, which ‘designates’ the enhanced NHS in the Regional Official Plan and area municipal Official Plans; similar to the Growth Plan, 2020 approach to designating the Provincial NHS in expanded Settlement Areas.</p> <p>As written, the management recommendation only recommends that the municipally ‘adopted’ enhanced NHS be protected. Recommending only that the municipally adopted enhanced NHS be protected creates ambiguity and undermines the work completed in this watershed plan. Therefore, management recommendation 3.1.1 a) should be strengthened by replacing the word ‘adopted’ with ‘designated’ to read “updating Official Plan policies and associated zoning by-laws to protect a municipally designated enhanced NHS” in order to provide greater and consistent protection of the enhanced NHS throughout the watershed.</p> <p>Similarly, management recommendation 3.1.1 f) should also be amended to replace the word ‘adopted’ with ‘designated’ to read “requiring development and redevelopments be designated and approved to prevent encroachment into the municipally designated NHS.”</p>	<p>Management recommendation 3.1.1 has been split into two recommendations: one for the Region of Durham and one for lower-tier municipalities. ‘Designated’ has replaced ‘adopted’ for the lower-tier recommendation.</p> <p>The principle of achieving an overall ‘net gain’ where possible is already established in TRCA’s ecosystem compensation guideline. The 1:1 ratio only applies to habitat types that can be restored without a long delay in re-establishing the lost ecosystem structure and function. Aside from the increased restoration ratios, there are several opportunities to achieve a net gain as part of the guideline. This includes improved ecosystem quality through enhanced restoration and locating restoration sites adjacent to other natural areas to create large, consolidated ecosystems. The management recommendation has been updated to clarify that ecosystem compensation policies should meet or exceed TRCA’s guideline.</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
<p>To date, staff have not supported implementing ecosystem compensation protocol policies into the Town’s Official Plan in order to prioritize avoidance and protection of features. Further, where compensation has been accepted by the Town, a net gain in environmentally protected land area has been required; whereas the TRCA protocol permits a 1:1 ratio for the lowest level of compensation. Therefore, it is staff’s position that adopting TRCA’s guidelines for ecosystem compensation be removed; unless the guideline is amended to require greater compensation rations for the lowest level of protection.</p>	
<p>Similar to above, management recommendation 3.1.5 should be updated to replace ‘adopted’ with ‘designated’ related to the NHS.</p>	<p>The requested change has been made.</p>
<p>Management recommendation 3.1.6 requires wetland water balance studies be completed by landowners of any potential growth in areas in northeast Pickering, prior to planning approvals.</p> <p>The wording should be strengthened by replacing the word ‘should’ with ‘is to’ to read ‘wetland water balance studies that demonstrate how the hydrologic function of the wetland is to be protected . . .’</p>	<p>The requested change has been made.</p>
<p>The scenario analysis beginning on page 34 of the draft plan demonstrates how the watershed reacts to each scenario. The draft plan compares Scenario 1 against the current conditions (2016). However, the plan changes its approach by comparing Scenarios 2 and 3 against Scenario 1, instead of comparing these scenarios to current conditions.</p> <p>Staff believe that consistent benchmark, using the current conditions, should be used for all scenario evaluations. Although Scenario 1 is approved in Official Plans and is anticipated to occur, it is difficult for the average reader to understand or visualized future conditions resulting from the current approved Official Plan. It is easier for the reader to use their</p>	<p>The technical work conducted during the scenario analysis stage included some assessments that compared scenarios 2 and 3 to scenario 1, while scenario 1 was compared to existing conditions (e.g. hydrological assessment). To ensure consistency across technical disciplines the results presented in subsection 4.3 of the draft CCWP are all presented in this manner.</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
understanding of current conditions within the watershed as the basis when comparing future conditions. Therefore, staff believe that Scenario's 2 and 3 should be adjusted such that the results are compared against the current conditions.	

3. SUMMARY OF KEY CHANGES TO THE CCWP

As noted in [Table 2](#), [Table 3](#), and [Table 4](#) edits to the draft CCWP have been made to address feedback from public review. [Table 5](#) identifies the section and page number of the CCWP that was changed, the original text, and the revised text.

TABLE 5 - SUMMARY OF KEY CHANGES TO THE CCWP

Section / Page Number	Original Text	Revised Text
Executive Summary	<i>Revision is new text.</i>	<p>The management framework is focused on:</p> <ul style="list-style-type: none"> • Achieving more sustainable land use and infrastructure development patterns through the use of low impact development and green infrastructure policies, improved stormwater management, managing the risks of flooding and erosion, and implementing agricultural best management practices • Protecting, enhancing, and restoring the WRS and improving aquatic habitat connectivity • Protecting, enhancing, and restoring the NHS and increasing urban forest cover
4.2 Future Scenarios Table 3 Page 32	<p>Scenario 3: This scenario assumes post-2031 development in the headwaters of Carruthers Creek (north of the Greenbelt), outside the enhanced NHS.</p> <p>This scenario provides insights into how watershed conditions will likely change if potential full growth is approved in the watershed.</p>	<p>This scenario assumes post-2031 development in the headwaters of Carruthers Creek (north of the Greenbelt), outside the enhanced NHS.</p> <p>This scenario made general assumptions on the types of land uses associated with typical urbanization. It did not make assumptions on the levels of stormwater management controls or other mitigation measures (e.g. green infrastructure) that may accompany urban development. This level of analysis would be completed during subsequent planning stages when detailed land use configurations are known.</p> <p>This scenario provides insights into how watershed conditions will likely change if</p>

Section / Page Number	Original Text	Revised Text
		potential full growth is approved in the watershed.
4.3 Scenario Analysis Pop-out box Page 34	<p>It is important to note that scenario analysis does not result in decisions about the type and configuration of land uses. Instead, scenario analysis helps to inform decisions through the municipal planning process (e.g. Official Plans).</p> <p>It is the responsibility of the applicable municipality to determine the ultimate land use configuration for any future changes within the watershed.</p>	<p>It is important to note that scenario analysis does not result in decisions about the type and configuration of land uses. Instead, scenario analysis helps to inform decisions through the municipal planning process (e.g. Official Plans).</p> <p>It is the responsibility of the applicable municipality to determine the ultimate land use configuration for any future changes within the watershed.</p> <p>Appropriate mitigation strategies are developed during the detailed planning stages for new developments once the scope of any future land use change is known. These mitigation strategies include assessments of the appropriate levels of stormwater controls, the use of green infrastructure to maintain natural water balance as much as possible, and opportunities for ecological restoration.</p>
4.3 Scenario Analysis Water Resource System Page 35	<p>Footnote 11:</p> <p>This assessment does not consider protection measures for the WRS. For example, if impervious surfaces were minimized in groundwater recharge areas, hydrologic function would be maintained.</p>	<p><i>Footnote removed based on added text noted above in subsection 4.2 and 4.3.</i></p>
4.3 Scenario Analysis Natural Hazards Page 38	<p>Context at top of page:</p> <p>Focused on flood modelling as measured by peak flows. Percent change is based on an average from both locations for the regional storm only (as the worst-case scenario).</p>	<p>Focused on flood modelling as measured by peak flows. Percent change is based on the Regional Storm (i.e. Hurricane Hazel) at two points in the watershed. The Regional Storm for TRCA's jurisdiction is based on a historical extreme storm of record, Hurricane Hazel. Design storms are based on statistical analysis of rainfall over a period of record. Hurricane Hazel is a 12-hour event</p>

Section / Page Number	Original Text				Revised Text									
					with 212 mm of rainfall, which assumes completely saturated soils.									
4.3 Scenario Analysis Natural Hazards Page 38	Current Conditions	Scenario 1	Scenario 2	Scenario 3	Current Conditions	Scenario 1	Scenario 2	Scenario 3						
	% change -	= -2%	= 0%	-77%	% change at Taunton Rd	+2.4%	+1.9%	-112.9%						
4.3 Scenario Analysis Natural Hazards Page 38	Footnote 22 The flood modelling completed as part of scenario analysis did not factor in potential mitigation measures (e.g. modern stormwater infrastructure).				All existing stormwater management facilities were removed from the model to account for the system failing or being at capacity during a Regional storm event.									
4.3 Scenario Analysis Natural Hazards Page 38	<i>Revision is new text.</i>				New footnote: The 5-year storm event uses a 60.07 mm rainfall event over a 24-hour period, which assumes an average (normal) soil condition.									
4.3 Scenario Analysis Summary of Implications Page 39	<p>Summary of implications:</p> <ul style="list-style-type: none"> One of the four subwatersheds shows improved aquatic conditions under scenario 2. Conversely, all four subwatersheds have fair – poor aquatic conditions under scenario 3, likely resulting in the loss of Redside Dace, a listed endangered species, within the Carruthers Creek watershed. The amount of natural cover and habitat quality improves under scenario 2. Under scenario 3, the amount of natural cover 				<p>Summary of Implications:</p> <table border="1" data-bbox="922 1419 1464 1818"> <thead> <tr> <th colspan="2" data-bbox="922 1419 1464 1465">Scenario 1</th> </tr> </thead> <tbody> <tr> <td data-bbox="922 1465 1045 1684">WRS</td> <td data-bbox="1045 1465 1464 1684">Aquatic conditions remain relatively poor, similar to existing conditions, and there is an increase in impervious cover across the watershed.</td> </tr> <tr> <td data-bbox="922 1684 1045 1818">NHS</td> <td data-bbox="1045 1684 1464 1818">Natural cover and habitat quality remain similar to existing conditions.</td> </tr> </tbody> </table>				Scenario 1		WRS	Aquatic conditions remain relatively poor, similar to existing conditions, and there is an increase in impervious cover across the watershed.	NHS	Natural cover and habitat quality remain similar to existing conditions.
Scenario 1														
WRS	Aquatic conditions remain relatively poor, similar to existing conditions, and there is an increase in impervious cover across the watershed.													
NHS	Natural cover and habitat quality remain similar to existing conditions.													

Section / Page Number	Original Text	Revised Text	
	<p>improves, while habitat quality decreases compared to scenario 2 due to the influence of surrounding urban development.</p> <ul style="list-style-type: none"> Water quality is currently impaired in the watershed for parameters like chloride, phosphorus, TSS and E. coli. Without improvements to land use practices, salt and stormwater management, water quality is likely to continue to deteriorate with increased urbanization (scenario 3). There are existing flooding issues in the watershed, which will significantly increase under scenario 3 without the implementation of considerable mitigation measures. The hydrologic assessment shows a reduction in peak flows associated with the recommended NHS for smaller design storms (i.e. 2-year storm). <p>These hypothetical future scenarios are illustrative of potential watershed conditions. In addition to the summary of implications, it is important to recognize the following:</p> <ul style="list-style-type: none"> Protecting, enhancing and restoring the recommended NHS provides vital watershed benefits as illustrated by Scenario 2 and is consistent with targets as identified in Table 2. Limiting impervious cover in any potential future growth areas, or through redevelopments, provides significant benefits to aquatic biodiversity. Federal guidance recommends urbanizing watersheds maintain less than 10% impervious land cover, while already degraded urban systems should not exceed a second threshold of 25 to 30%. 	Water Quality	Slight increases in both total suspended solids and total phosphorus.
		Natural Hazards	Peak flows do not significantly change from current conditions (i.e. increases and decreases at Taunton and Shoal Point Roads under the Regional and 5-year storm events).
		Scenario 2	
		WRS	One of the four subwatersheds shows improved aquatic conditions.
		NHS	Natural cover increases and habitat quality improves.
		Water Quality	Total phosphorus and total suspended solids decrease.
		Natural Hazards	Peak flows decrease slightly at Taunton and Shoal Point Roads under the Regional and 5-year storm events.
		Scenario 3	
		WRS	All four subwatershed have fair-poor aquatic conditions, likely resulting in the loss of Redside Dace, a listed endangered species.
		NHS	Natural cover increases, but habitat quality does not improve by as much as scenario 2.
		Water Quality	Total suspended solids increase, total phosphorus decreases.
		Natural Hazards	Peak flows significantly increase at Taunton and Shoal Point Roads under the Regional

Section / Page Number	Original Text	Revised Text		
	<p>Scenario 1 shows impervious cover reaching this 30% threshold with only a marginal improvement to 29% under Scenario 2. See Figure 9 in Section 7 for more information.</p> <p>The management framework developed as part of this watershed plan contains recommendations to improve watershed conditions regardless of potential future land use decisions. The management framework is designed to account for potential future growth, redevelopment and emphasize the importance of protecting, enhancing and restoring both the WRS and NHS.</p>	<table border="1" data-bbox="922 279 1463 373"> <tr> <td data-bbox="922 279 1045 373"></td> <td data-bbox="1045 279 1463 373">and 5-year storms; more so for the former.</td> </tr> </table> <p>What does this mean?</p> <p>These results demonstrate the importance of ensuring that land use and infrastructure planning decisions are made to minimize and mitigate impacts to the watershed regardless of potential future land uses or their configurations. The management framework in Section 5 outlines the goals, objectives, indicators, and management recommendations necessary to ensure the long-term health and sustainability of the watershed.</p> <p>The results of this scenario analysis emphasize the importance of protecting, enhancing, and restoring the WRS (Subsection 5.2) and the NHS (Subsection 5.3).</p> <p>In addition to the summary of implications, it is important to recognize the following:</p> <ul style="list-style-type: none"> • Limiting impervious cover in any potential future growth areas, or through redevelopments, provides significant benefits to aquatic biodiversity. Federal guidance recommends urbanizing watersheds maintain less than 10% impervious land cover, while already degraded urban systems should not exceed a second threshold of 25 to 30%. Scenario 1 shows impervious cover reaching this 30% threshold with only a marginal improvement to 29% under Scenario 2. See Figure 9 in Section 7 for more information. 		and 5-year storms; more so for the former.
	and 5-year storms; more so for the former.			

Section / Page Number	Original Text	Revised Text
		<ul style="list-style-type: none"> • Increasing natural cover and improving habitat quality has noticeable benefits for the watershed (e.g. improvements to aquatic conditions and slight reductions of peak flows). • Ecological restoration and improvements to land use practices (e.g. increased use of green infrastructure and improved stormwater management) could address existing water quality issues. • The existing flooding and erosion issues can be mitigated through improved land uses (e.g. green infrastructure) and infrastructure (e.g. stormwater management) as outlined in the management recommendations of Subsection 5.1. In the event of future development in the headwaters of Carruthers Creek, it will be vital to develop mitigation strategies to limit the impacts of further urbanization by implementing the management recommendations outlined in Subsection 5.4. <p>The management framework is designed to address existing issues and the implications of these scenarios by accounting for new developments, redevelopments, and prioritizing the importance of protecting, enhancing, and restoring both the WRS and NHS.</p>
5.1 Land Use and Infrastructure Goal Page 43	1.1.1 Lower-tier municipalities, in collaboration with the Region of Durham and TRCA, to adopt green development policies, or standards, and require new developments, and re-developments, to utilize low impact	1.1.1 Lower-tier municipalities, in collaboration with the Region of Durham and TRCA, to adopt green development policies, or standards, and require new developments, and redevelopments, to utilize low impact

Section / Page Number	Original Text	Revised Text
	<p>development and green infrastructure techniques to limit the impacts of impervious cover. The following should apply to any municipal policies, or standards, in particular within ESGRAs, as identified on map 1b:</p> <ul style="list-style-type: none"> a. new developments should minimize impervious cover and strive to achieve 90th percentile volume control of annual rainfall b. redevelopments should minimize impervious cover and strive to achieve 75th percentile volume control of annual rainfall 	<p>development and green infrastructure techniques to limit the impacts of impervious cover. The following shall apply to any municipal policies, or standards, in particular within ESGRAs, as identified on map 1b:</p> <ul style="list-style-type: none"> a. new developments shall minimize impervious cover and strive to achieve 90th percentile volume control of annual rainfall b. redevelopments shall minimize impervious cover and strive to achieve 75th percentile volume control of annual rainfall
<p>5.1 Land Use and Infrastructure Goal Pages 43 – 44</p>	<p>1.1.3 If it is determined that a Settlement Area Boundary Expansion is required in the headwaters of Carruthers Creek, in accordance with Growth Plan policies, the Region of Durham, in collaboration with lower-tier municipalities and TRCA, to develop a Terms of Reference outlining requirements for further studies in support of subwatershed planning that includes, but is not limited to:</p> <ul style="list-style-type: none"> a. a hydraulic assessment b. how natural hazards will be assessed and mitigated (i.e. the risk of flooding will not increase) c. how the Natural Heritage System and Water Resource System will be protected, enhanced and restored d. how water quality and quantity will be protected. 	<p>1.1.3 If it is determined that a Settlement Area Boundary Expansion is required in the headwaters of Carruthers Creek, the Region of Durham, in collaboration with the lower-tier municipalities and TRCA, will identify, based on consensus between the identified parties, the subsequent planning processes and further studies and assessments, that would be required to implement any such expansion. These requirements should be reflected as policies within the Regional Official Plan and include the requirement for the preparation of a secondary plan and a subwatershed plan (or equivalent), which would be supported by, at a minimum, the following studies, assessments, and further considerations:</p> <ul style="list-style-type: none"> a. a hydraulic assessment b. how natural hazards will be assessed and mitigated (i.e. the risk of flooding and erosion will not increase) c. how the Natural Heritage System and Water Resource System will be protected, enhanced, and restored

Section / Page Number	Original Text	Revised Text
		<p>d. how water quality and quantity will be protected.</p> <p>e. how flood mitigation solutions will be funded, including identification of the responsible parties for providing the funding. This includes the cost of any necessary studies, engineering design, and actual construction/maintenance of flood mitigation works.</p>
<p>5.1 Land Use and Infrastructure Goal Page 46</p>	<p>1.3.5 TRCA to complete comprehensive floodplain mapping based on new models and best available information to inform land use and infrastructure decisions.</p>	<p>1.3.5 TRCA will continue to complete comprehensive flood plain mapping based on routinely updated hydraulic models and updated land use information to inform municipal planning decisions. Regulatory flood plain mapping is updated based on approved land uses.</p>
<p>5.2 Water Resource System Goal Page 47</p>	<p>2.1.1 The Region of Durham and lower-tier municipalities, in collaboration with TRCA, to ensure the protection of the Water Resource System (map 1A and B) and its functions, by:</p> <p>a. updating Official Plans and zoning bylaws to adequately protect the Water Resource System . . .</p>	<p>2.1.1 The Region of Durham and lower-tier municipalities, in collaboration with TRCA, to ensure the protection of the Water Resource System (map 1A and B) and its functions, by:</p> <p>a. updating Official Plans and zoning bylaws to protect the Water Resource System . . .</p>
<p>5.2 Water Resource System Goal Page 48</p>	<p>2.1.4 If it is determined that a Settlement Area Boundary Expansion is required in the headwaters of Carruthers Creek, in accordance with Growth Plan policies, the City of Pickering, in collaboration with the Region of Durham, Town of Ajax and TRCA, as part of secondary planning to demonstrate through a subwatershed plan (or equivalent) that:</p> <p>a. key hydrologic features will be protected</p>	<p>2.1.4 If it is determined that a Settlement Area Boundary Expansion is required in the headwaters of Carruthers Creek, the City of Pickering, in collaboration with the Region of Durham, Town of Ajax and TRCA, prior to approvals of a secondary plan to demonstrate through a subwatershed plan (or equivalent) that:</p> <p>a. key hydrologic features will be protected and hydrologic functions maintained</p>

Section / Page Number	Original Text	Revised Text
	<p>b. where avoidance of key hydrologic areas is not possible, appropriate mitigation measures are to be implemented to maintain downstream hydrologic function, and</p> <p>c. there will be no negative or adverse downstream effects, such as increased flooding, erosion, or deteriorated water quality.</p>	<p>b. <i>no change, except adding an ‘s’ to function</i></p> <p>c. there will be no negative or adverse downstream effects, such as increased flooding, erosion, or deteriorated water quality through a hydraulic analysis (to quantify and map depth and extent of impacts) and other relevant modelling.</p>
<p>5.3 Natural Heritage System Goal Page 49</p>	<p>The exact configuration and size of the NHS could fluctuate due to other factors (e.g. construction of infrastructure), assuming the analysis is comparable to the one that resulted in the proposed enhanced NHS recommended by TRCA.</p>	<p>Refinements to the recommended NHS may be considered assuming the scientific analysis is consistent with the goals and objectives of the CCWP.</p>
<p>5.3 Natural Heritage System Goal Page 50</p>	<p>3.1.1 The Region of Durham and lower-tier municipalities, in collaboration with TRCA, to ensure the protection, enhancement and restoration of a Natural Heritage System consistent with the goals and objectives of this watershed plan (map 2 for recommended NHS) by:</p> <p>a. updating Official Plan policies and associated zoning bylaws to protect a municipally adopted enhanced Natural Heritage System</p> <p>b. assessing existing standards and guidelines for land use and infrastructure development to ensure they reflect current provincial policy direction to maintain, restore or enhance the municipally adopted Natural Heritage System</p> <p>c. avoid infrastructure development (i.e. buildings and structures) and minimize infrastructure linear feature crossings, in</p>	<p>3.1.1 The Region of Durham, as part of its Municipal Comprehensive Review, to ensure the protection, enhancement, and restoration of a Natural Heritage System consistent with the goals and objectives of this watershed plan (map 2 for recommended NHS) by:</p> <p>a. including existing natural cover areas identified in map 2 in the Regional Official Plan</p> <p>b. providing direction to lower-tier municipalities to include policies in their Official Plans to protect, enhance, and restore existing natural cover areas as identified in map 2</p> <p>c. recognizing the potential natural cover areas identified in map 2 in the Regional Official Plan and providing direction to lower-tier municipalities to include any relevant policies in their Official Plans to enhance and restore potential natural cover areas</p>

Section / Page Number	Original Text	Revised Text
	<p>a municipally adopted enhanced Natural Heritage System</p> <p>d. adopting municipal policies for ecosystem compensation, in accordance with TRCA’s <i>Guideline for Ecosystem Compensation</i>, where development in a municipally adopted enhanced Natural Heritage System is unavoidable</p> <p>e. applying a minimum 30 metre vegetation protection zone along features at the boundary of a municipally adopted enhanced Natural Heritage System to protect ecological function</p> <p>f. requiring development and redevelopments be designed and approved to prevent encroachment into a municipally adopted enhanced Natural Heritage System.</p>	<p>d. avoiding infrastructure development (i.e. buildings and structures) and minimizing infrastructure linear crossings, in a municipally designated enhanced Natural Heritage System</p> <p>e. providing direction to lower-tier municipalities on the establishment of minimum vegetation protection zones along natural heritage features, with the ability of the minimum vegetation protection zone to be confirmed through an appropriate environmental study</p> <p>3.1.2</p> <p>Lower-tier municipalities, in collaboration with TRCA, to ensure the protection, enhancement and restoration of a Natural Heritage System consistent with the goals and objectives of this watershed plan (map 2), including the target of achieving 36% natural cover across the watershed, by:</p> <p>a. designating in their Official Plans, at a minimum, existing natural cover as identified in map 2</p> <p>b. including policies in their Official Plans to identify enhancement and restoration opportunities for potential natural cover areas as identified in map 2</p> <p>c. <i>same as b in original text, except adopted is replaced with designated</i></p> <p>d. <i>same as c in original text, except adopted is replaced with designated and avoiding/minimizing replace avoid and minimize respectively</i></p> <p>e. adopting municipal policies for ecosystem compensation that meet or exceed TRCA’s <i>Guideline for Ecosystem Compensation</i>, where development in a</p>

Section / Page Number	Original Text	Revised Text
		<p>municipally designated enhanced Natural Heritage System is unavoidable</p> <p>f. applying a minimum 30 metre vegetation protection zone adjacent to natural heritage features, unless otherwise satisfactorily justified through an environmental study</p> <p>g. <i>same as f in original text, except adopted is replaced with designated, and redevelopments is replaced with site alterations</i></p> <p><i>Remaining 3.1 management recommendations in subsection 5.3 would be numbered sequentially so that the previous 3.1.2 becomes 3.1.3 and so on.</i></p>
<p>5.3 Natural Heritage System Goal Page 51</p>	<p>3.1.5 TRCA, in collaboration with the Region of Durham and lower-tier municipalities, to minimize impacts to the municipally adopted Natural Heritage System from any active recreation and human activity by:</p> <p>a. ensuring proper trail management and signage</p> <p>b. providing education and outreach on the importance of the municipally adopted Natural Heritage System</p> <p>c. promoting community stewardship to maintain and monitor the municipally adopted Natural Heritage System for improper trail usage (e.g. off-trail compaction and erosion), illegal dumping and invasive species, while encouraging community restoration programs (e.g. tree plantings).</p>	<p>3.1.6 TRCA, in collaboration with the Region of Durham and lower-tier municipalities, to minimize impacts to the municipally designated Natural Heritage System from any active recreation and human activity by:</p> <p>a. ensuring proper trail management and signage</p> <p>b. providing education and outreach on the importance of the municipally designated Natural Heritage System</p> <p>c. promoting community stewardship to maintain and monitor the municipally designated Natural Heritage System for improper trail usage (e.g. off-trail compaction and erosion), illegal dumping and invasive species, while encouraging community restoration programs (e.g. tree plantings).</p>
<p>5.3 Natural Heritage System Goal</p>	<p>3.1.6 Wetland water balance studies that demonstrate how the hydrological function</p>	<p>3.1.7 Wetland water balance studies that demonstrate how the hydrological function</p>

Section / Page Number	Original Text	Revised Text
Page 51	of the wetland should be protected will be undertaken by the landowner . . .	of the wetland is to be protected will be undertaken by the landowner . . .
5.4 Carruthers Creek Headwaters Management Pages 54 – 55	<i>Management recommendations 1.1.3, 2.1.4, and 3.1.7 have been updated as noted above.</i>	
6. Monitoring and Evaluation Page 56	<i>Revision is new text.</i>	If development occurs in the headwaters of Carruthers Creek, it may be necessary to add additional monitoring stations.
7. Maps Page 64	<i>Revision is new text.</i>	Map 2, additional note: Refinements to the recommended NHS may be considered assuming the scientific analysis is consistent with the goals and objectives of the CCWP.

APPENDIX A

Email Campaign Submission to Durham Regional Chair

(Generic text from all email submissions provided below)

Please respect the findings from the TRCA's report on Carruthers Creek and say no to development in headwaters.

The TRCA has completed the Carruthers Watershed Plan. It has now been circulated for public comment. The report shows unequivocally that this watershed is stressed. There is already a serious problem with flooding and erosion. The report indicates that urbanizing the Carruthers Headwaters will increase flooding hazards by a staggering 77 per cent!

Durham Council has already identified flooding as the number one threat from climate change. The costs to local governments and homeowners will be very large. These lands are also prime agricultural lands which are very important to Durham's largest industry.

The TRCA Report makes it very clear that under no circumstances should the Carruthers Headwaters be urbanized. The cost is too great.

Response Provided by Region of Durham

Thank you for your email. Your comments have been added to the Region's file and sent to staff at the Toronto and Region Conservation Authority (TRCA) for consideration. TRCA entered into a service agreement with the Region to complete the watershed plan.

As you may be aware, a Draft of the Carruthers Creek Watershed Plan Update was released on March 13, 2020 for a 90-day public review and comment period. Following the outbreak of the COVID-19 pandemic, the public review and comment period was placed on hold. Public consultation, including a public open house, will resume once the current state of emergency has been lifted. In the meantime, you may continue to submit comments on the [Draft Carruthers Creek Watershed Plan](#) through the Toronto and Region Conservation Authority project website.

The Draft Carruthers Creek Watershed Plan Update assesses the current health of the watershed. It also utilizes scenario modelling to project what the future health of the watershed may be. One of these scenarios (scenario 3) models the likely implications associated with the potential for urban development within the headwaters without mitigation measures. Currently, the lands within the headwaters of Carruthers Creek are not designated as part of the settlement area of the City of Pickering or within the Region of Durham's urban area boundary. At this time there has been no decision to develop the headwaters of Carruthers Creek.

To mitigate the increased risk of downstream flooding, as well as other adverse effects associated with potential urban development within the headwaters, Subsection 5.4 of the Draft Carruthers Creek Watershed Plan outlines a series of management recommendations. The management recommendations of Subsection 5.4 also address the planning processes and further studies that would be required before a decision can be made about development in the headwaters. These management recommendations, along with the broader management framework, would be used to protect, enhance, and restore the Carruthers Creek Watershed, including the implementation of appropriate flood mitigation measures.

It is important to note that watershed plans are not land use plans, nor do they constitute a land use planning decision. However, as required by Provincial Plans, the data, scientific analysis, modelling, scenario evaluation and management recommendations generated through a watershed plan process would be used by municipalities to inform future land use planning decisions.

Should you have any further questions about the content, or the recommendations contained in the Carruthers Creek Watershed Plan, I encourage you to email carruthers@trca.ca and a member of the TRCA project team will respond.

APPENDIX B

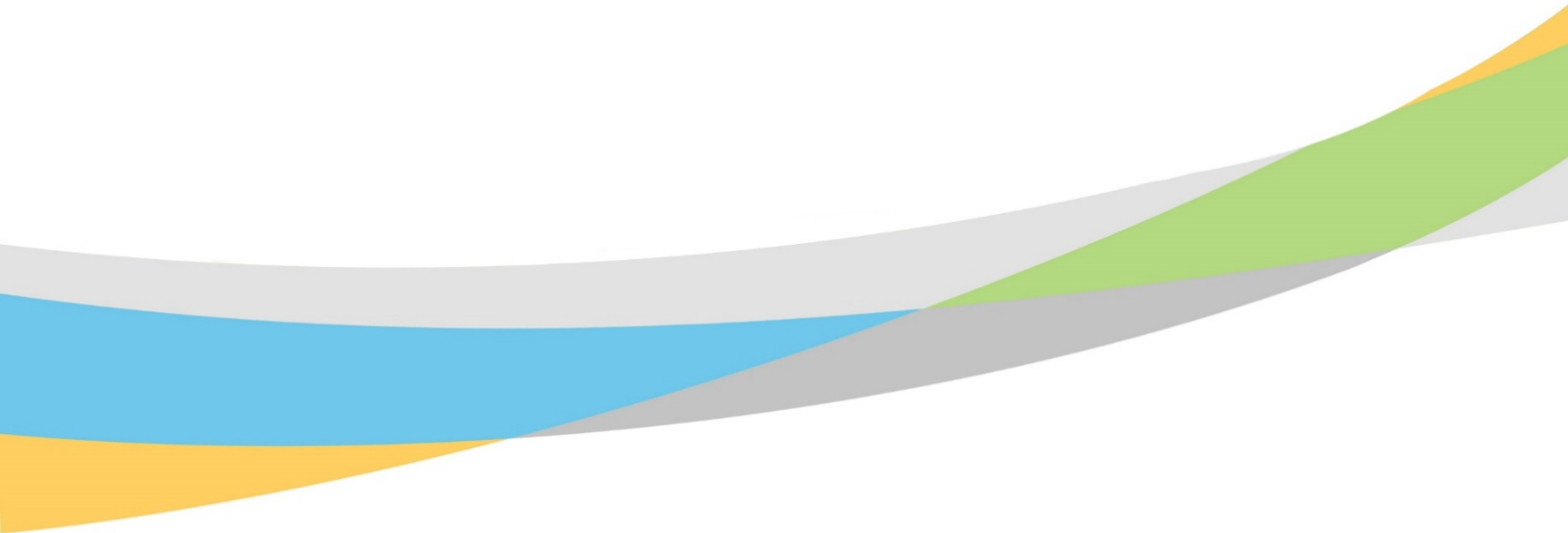
The North East Pickering Landowners Group (NEPLG) letter also contained comments specific to many of the Scenario Analysis Technical Reports completed as part of the watershed planning process. [Table 6](#) provides a general overview of those comments grouped by theme and relevant responses.

TABLE 6 - NEPLG COMMENTS ON TECHNICAL REPORTS

Comments	Changes to CCWP (If applicable) / Response to Comments
Modifications to Technical Reports	
<p>Key comments include:</p> <ul style="list-style-type: none"> • Suggest adding more technical details about methodologies, specifically for the Terrestrial Impact Assessment. • It is not practical to require the development of a Region-wide stormwater management plan for matters related to one watershed. We recognize this recommendation in the technical report was not carried forward to the watershed plan. Therefore, suggest deleting it from the Technical Report. • The hydrologic modelling did not achieve a successful model calibration with the latest stream gauge information. The timing and process for TRCA to complete the hydrologic model calibration should be discussed in the Technical Reports. The hydrology models should undertake a fulsome parameter and calibration/validation exercise, including using more recent data before further use in determining flooding impacts and mitigation approaches. This should be discussed in the documents. 	<p>The Technical Reports developed as part of the CCWP were all peer-reviewed. As noted in Regional Council Report #2020-P-15, TRCA and Regional planning staff are confident the draft Watershed Plan is thorough, sound, and defensible.</p> <p>As noted in the CCWP (Section 5), the management recommendations in the watershed plan are to be considered the final source for goals, objectives, indicators, and management recommendations.</p> <p>As noted in the CCWP, the preparation of a hydraulic analysis and demonstration that new developments will not negatively impact natural hazard areas are included as management recommendations.</p> <p>Additionally, a memo provided to SCS Consulting in January 2021 on the review of the hydrology model has been added to the Reports and Resources library on the CCWP project webpage.</p>
Scenario 2 and 3 Assumptions	
<p>Key comments include:</p> <ul style="list-style-type: none"> • Scenario 2 is not realistic as there is no policy mechanism for existing farmland to be enhanced natural cover. • Scenario 3 is too simplistic without mitigation and could include assumptions on type of land uses, 	<p>The scoping of the scenarios for this watershed-scale planning exercise were developed by TRCA in collaboration with its municipal partners.</p> <p>Under Goal 1, objective 4 recognizes the need to work with the agricultural community on rural land stewardship. In the event that urbanization does not occur within the headwaters, TRCA would use the</p>

Comments	Changes to CCWP (If applicable) / Response to Comments
<p>canopy cover, green infrastructure, and stormwater management.</p>	<p>enhanced NHS to identify opportunities with rural land owners (e.g. incentive programs, grants, etc.).</p> <p>The extent and detailed land uses associated with a Settlement Area Boundary Expansion have not been determined. It is therefore difficult to assume the appropriate level of mitigation measures, which would be determined during the appropriate municipal planning stage (e.g. secondary planning). Scenario 3 was intended to give an overview of potential impacts based on typical urbanization patterns, and identify the appropriate studies, assessments, and considerations to include in any potential future secondary plan/subwatershed study.</p> <p>Subsection 5.4 of the CCWP identifies the studies that would be required in the event of a Settlement Area Boundary Expansion in the headwaters of Carruthers Creek. It is more appropriate to model different mitigation strategies at the appropriate planning stages when detailed land uses and configurations are known.</p>
<p>Additional Development Scenario</p>	
<p>Key comments include:</p> <ul style="list-style-type: none"> • Recommends including a development scenario that includes practices for ecological and hydrological mitigation. • The minimum required stormwater management water quality treatment criteria for new development should be modelled. This is 80% TSS removal. 	<p>See response above.</p>
<p>Findings of Technical Reports</p>	
<p>Key comments include:</p> <ul style="list-style-type: none"> • The impervious cover target needs to recognize impervious cover mitigation measures such as low impact developments. If Scheuler (1994) is going to be used to set system responses to impervious cover, the results should be contextualized with 	<p>The headwaters of Carruthers Creek are not currently within the urban boundary. The Region of Durham will decide on future growth based on the results of its Municipal Comprehensive Review.</p> <p>Additional assessment of potential mitigation strategies for future development would occur at the</p>

Comments	Changes to CCWP (if applicable) / Response to Comments
<p>its commentary on the use of stormwater controls.</p> <ul style="list-style-type: none"> • The scenarios do not consider the impacts of tile drains on headwater drainage features and a future development scenario presents an opportunity to improve the hydrology of these features. • Disagree with the finding that future development will negatively impact fish habitat, as it is more likely that instream habitat conditions will improve in a future development scenario (e.g. naturalized stream corridors, stormwater controls) and that with these improvements fish diversity and abundance will be enhanced. • While low impact development techniques may not be able to erase all impacts of land development, they can certainly reduce the impacts, mitigating the effects of impervious cover. • The TRCA Expanded Groundwater Flow Model is a regional-scale model that was not refined, updated or re-calibrated for Carruthers Creek. The recharge boundary condition as applied in the land use scenarios was interpolated from previous simulations rather than from an updated hydrologic simulation. It is inappropriate to apply preliminary or unvetted tools to make management decisions. • The applied recharge in the future build-out scenario is representative of urban recharge from a large portion of Toronto, Durham, York, and Peel rather than what rates could be achievable with a modern stormwater system in Carruthers Creek. 	<p>appropriate planning stage as outlined in subsection 5.4 of the draft CCWP.</p> <p>While low impact development techniques can moderate some severity of impacts associated with impervious cover, they have yet to be demonstrated at a large enough scale to prevent aquatic tipping points from being exceeded.</p> <p>As noted elsewhere, in the event of future development additional studies would provide an opportunity to demonstrate how a future development scenario could improve the hydrology of headwater drainage features.</p> <p>There is a great deal of scientific evidence to suggest that naturalized stream corridors and improved stormwater controls do not result in the level of improvements to fish and aquatic habitat being asserted. Fish and aquatic habitat quality are governed by flow regime which is determined by runoff coefficients and the timing, magnitude, and durations of stormwater flows. Groundwater discharge also needs to be considered. Mitigation measures and habitat enhancements may improve some conditions initially, but the necessity to increase impervious cover with development shifts the system to a degraded state in the long-term.</p> <p>The decision was made to perform a preliminary groundwater modelling analysis that leveraged existing efforts including a peer-reviewed Tier 3 Source Water Protection numerical model and a comprehensive provincial database containing insights from a variety of groundwater investigations going back decades. This combined with some simple assumptions, such as recharge is land use dependent, provided insight of great value into the hydrological nature of Carruthers Creek.</p>



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