

BACKGROUND REVIEW TECHNICAL MEMO

Review of the Regional Official Plan
Natural Heritage System Policies + Mapping

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PREPARED FOR:
The Region of Halton

PREPARED BY:
Gladki Planning Associates
North-South Environmental
Wood Group

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SECTION 1.0 OVERVIEW

1.1 Issue

- The Regional Municipality of Halton (Halton) has retained Gladki Planning Associates, in association with North-South Environmental Inc. and Wood, to assist in Phases 2 and 3 of the *Regional Official Plan Review (ROPR)* in accordance with the legislative five-year requirement under Section 26 of the *Planning Act*. This project addresses the Natural Heritage System Policies and Mapping theme. Other themes (e.g., agricultural system) are being addressed as part of other initiatives. Phase 2 generally constitutes the technical analysis of the policies and mapping, while Phase 3 focuses on the development of policy refinements.
- The purpose of this project is to strengthen the long-term viability of Halton's natural heritage and water resources, as well as explore opportunities to update existing policies and mapping, and introduce new land use policies where appropriate.
- The *Review of the Regional Official Plan Natural Heritage System Policies + Mapping* project provides an opportunity to examine policies and mapping that may need to be updated, enhanced, and refined based on evolving land use trends, the *Provincial Policy Statement, 2014 and 2020*, the applicable 2017 Provincial plans (Growth Plan, Greenbelt Plan and Niagara Escarpment Plan) and the recently released Provincial Natural Heritage System mapping.
- The *Review of the Regional Official Plan Natural Heritage System Policies + Mapping* project further addresses relevant Water Resource System related policies that may need to be updated, enhanced or refined based on new guidance in the *Provincial Policy Statement, 2014 and 2020*, regarding the definition of the Water Resource System, evolving best practices related to the identification and classification of hydrologic features, and applicable 2017 Provincial plans (Growth Plan, Greenbelt Plan and Niagara Escarpment Plan).
- Phase 2 of the *Review of the Regional Official Plan Natural Heritage System Policies + Mapping* project provides detailed policy recommendations for the Regional Official Plan, utilizing a series of four Technical Memos and a Natural Heritage System Report which provide analysis to inform the policy refinements in Phase 3.
- This current report is the *Background Report Technical Memo*, which is described in Section 2.3.1 of the Terms of Reference.

1.2 Context

- Land use planning and development in Halton is regulated by legislation, plans and policies, which include, but are not limited to the Planning Act, the Provincial Policy

Statement (2020), the Growth Plan for the Greater Golden Horseshoe (2017), the Niagara Escarpment Plan (2017), the Greenbelt Plan (2017), the Conservation Authorities Act (1990), the Niagara Escarpment Planning and Development Act (1990), the Endangered Species Act (2007), the Fisheries Act (1985, c. F-14), and the Halton Regional Official Plan (ROP).

- This *Background Review Technical Memo* provides a review of the current policy, guidance and regulatory documents that are relevant to the Natural Heritage System theme of the ROPR. It outlines key policy and legislative changes that have occurred since the ROP was approved, and which need to be considered as part of this update. This report is structured into 6 main sections:
 - Section 1.0 describes the *Review of the Regional Official Plan (ROPR) NHS Policies + Mapping* project challenge and context;
 - Section 2.0 provides a summary of Provincial plans, policies and documents;
 - Section 3.0 provides a summary of Regional plans, policies and documents;
 - Section 4.0 provides a summary of OMB Decisions related to the ROP;
 - Section 5.0 provides a summary of Watershed and Subwatershed Studies; and
 - Section 6.0 provides a summary of next steps.

It is important to note that only changes to the various documents reviewed that may result in the need to update the ROP policies and mapping are identified here. For example, the PPS 2014/2020 corrected wording in the definition of Coastal Wetlands related to the St. Marys River, which is irrelevant to Halton and thus is not identified in this report, whereas the PPS 2014/2020 clarified the area to which the Provincial Significant Woodland policies apply, and as it includes Halton Region, it is identified here.

SECTION 2.0 PROVINCIAL DOCUMENTS

The ROP is required to be consistent with the Provincial Policy Statement 2020 and be in conformity with the Growth Plan for the Greater Golden Horseshoe 2017, Greenbelt Plan 2017 and Niagara Escarpment Plan 2017. These plans and policies have undergone changes since the current ROP was approved. Therefore, a critical element of the ROPR is to evaluate these changes and consider revisions to the ROP required to ensure consistency/conformity. This section provides a preliminary assessment of the changes to Provincial plans and policies relevant to Natural Heritage and Water Resource Systems. A more detailed analysis will be included in the Policy Audit Technical Memo.

2.1 Provincial Policy Statement (2020)

2.1.1 Summary

- Under section 3 of the Planning Act, the Minister of Municipal Affairs may issue Provincial statements on matters related to land use planning that are of Provincial interest.
- Based on the Planning Act, decisions affecting land use planning matters "shall be consistent with" the Provincial Policy Statement (PPS).
- The current PPS came into effect on May 1, 2020 replacing PPS 2014.
- The PPS 2020 provides policy direction on matters of Provincial interest related to land use planning and development.
- The PPS 2020 promotes a policy-led planning system that recognizes there are complex inter-relationships among and between environmental, economic and social factors in land use planning.
- The vision for Ontario's land use planning system is further complemented by Provincial plans or by local policies regarding matters of regional and municipal interest. Provincial plans and regional and municipal official plans provide a framework for integrated, place-based and comprehensive planning that supports the development of strong communities, healthy environments and economic growth.
- The policies of the PPS 2020 represent minimum standards and the PPS shall be read in its entirety and all relevant policies are to be applied to each planning situation.

2.1.1.1 PPS 2020 Key Subsection Summaries Relevant to the ROPR

- PPS 2020 policy section, *Section 1.0 Building Strong Healthy Communities*, includes strong policy direction for efficient land use and development patterns to support sustainable, liveable healthy and resilient communities and protect economic, environmental and social well-being.

- As per PPS 2020 *Section 1.1*, healthy, liveable and safe communities are sustained by:..."*c) avoiding development and land use patterns which may cause environmental or public health and safety concerns;...h) promoting development and land use patterns that conserve biodiversity;...i) preparing for the regional and local impacts of a changing climate.*"
- PPS 2020, *Section 2.0 Wise Use and Management of Resources*, includes six subsections that provide strong policy direction to protect the Province's Natural Heritage, Water, Agriculture, Minerals and Petroleum, Mineral Aggregate Resources, and Cultural Heritage and Archaeology. PPS 2020 indicates that protecting vital resources helps to ensure Ontario's long-term economic, environmental and social well-being. PPS 2020 strives to manage resources sustainably, conserve biodiversity, protect key ecological processes, health, and safety, and provide for the production of food and materials. Sections 2.1 and 2.2 are particularly relevant to the ROPR, addressing Natural Heritage and Water respectively.
- PPS 2020, *Section 3.0 Protecting Public Health and Safety*, has policies to indicate greater emphasis on avoidance as compared to mitigation of natural and human-made hazards. The PPS 2020 indicates that development should be directed away from areas where there is an unacceptable risk to public health or safety or of property damage, and not create new or aggravate existing hazards. The PPS 2020 emphasizes reducing the potential for public cost or risk to Ontario's residents from natural or human-made hazards.
- PPS 2020 *Section 4.0, Implementation and Interpretation*, outlines a land use compatibility directive that official plans shall identify Provincial interests and set out appropriate designations and policies. Official plans should coordinate cross-boundary matters to promote mutually beneficial solutions to protect Provincial interests and direct development to suitable areas.

2.1.2 What Has Changed in the PPS Since ROPA 38 (2009)?

The following identifies changes between the 2005 and 2014/2020 PPS that are relevant to the review of policies and mapping in Halton's ROP. Note that where this report quotes from the PPS, words that were italicized in the PPS to indicate they are defined terms are indicated with an underscore in this report.

Part III: How to Read the Provincial Policy Statement

- The Provincial Policy Statement is to be read in its entirety and the relevant policies are to be applied in each situation. Changes to the text provide further clarification on balancing the policy directions included in the PPS 2020 and highlight the importance of considering the specific language of the policies when interpreting the document as a whole.

Part IV: Vision for Ontario's Land Use Planning System

- Additional wording that specifies the importance of water resource benefits: *"The Province's natural heritage resources, water resources, including the Great Lakes, agricultural resources, mineral resources, and cultural heritage and archaeological resources provide important environmental, economic and social benefits."*

1.0 Building Strong and Healthy Communities

1.1 Managing and Directing Land Use to Achieve Efficient and Resilient Development and Land Use Patterns

- A new policy, 1.6.6.7 has been added: *"Planning for stormwater management shall:*
 - a) be integrated with planning for sewage and water services and ensure that systems are optimized, feasible and financially viable over the long term;*
 - b) minimize, or, where possible, prevent increases in contaminant loads;*
 - c) minimize erosion and changes in water balance, and prepare for the impacts of a changing climate through the effective management of stormwater, including the use of green infrastructure;*
 - d) mitigate risks to human health, safety, property and the environment;*
 - e) maximize the extent and function of vegetative and pervious surfaces; and*
 - f) promote stormwater management best practices, including stormwater attenuation and re-use, water conservation and efficiency, and low impact development."*

2.0 Wise Use and Management of Resources

2.1 Natural Heritage

- A new policy, 2.1.3 has been added in 2014: *"Natural Heritage Systems shall be identified in EcoRegions 6E & 7E, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas."*
- The way in which endangered and threatened species are addressed was changed in 2014 by deleting policy 2.1.4 a) and adding a new policy, 2.1.7, *"Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements." This was done to clarify how the Provincial Endangered Species Act and its federal equivalent should be addressed with respect to PPS policies.*
- In policy 2.1.5, clarity was provided on the areas in which significant woodlands and significant valleylands are protected by changing "...south and east of the Canadian Shield ..." to "... in EcoRegions 6E and 7E (excluding islands in Lake Huron and the St Marys River)."
- A new subsection was added in PPS 2014 2.1.5: *"f) coastal wetlands in EcoRegions 5E, 6E and 7E that are not subject to policy 2.1.4 (b)."*
- PPS 2.1.9, which establishes that the policies in 2.1 are not intended to limit the continuity of agricultural uses, was refined from "... existing agricultural uses..." to "... agricultural uses..." and the term was defined, whereas it was undefined in the 2005 PPS.

2.2 Water

Planning authorities shall protect, improve or restore the quality and quantity of water by:

- Policy 2.2.1 a) was expanded upon: *"using the watershed as the ecologically meaningful scale for integrated and long-term planning, which can be a foundation for considering cumulative impacts of development"*.
- Policy 2.2.1 d) was refined by adding the term water resource systems and indicating the components of which water resource systems are comprised: *"ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas, which are necessary for the ecological and hydrological integrity of the watershed."*
- Maintaining linkages and functions of surface water features and shoreline areas was added to policy 2.2.1 e): *"maintaining linkages and related functions among ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas."*
- Changes were made to policy 2.2.1 g) to emphasize that sustainable use of water resources must be planned for rather than promoted.
- A new policy, 2.2.1 h) was added, *"ensuring consideration of environmental lake capacity, where applicable"*.

2.5 Mineral Aggregate Resources

Policies on rehabilitation were amended:

- Policy 2.5.3.1 was amended to add that progressive and final rehabilitation shall be required *"to mitigate negative impacts to the extent possible."*
- A new policy, 2.5.3.2 was added that encourages comprehensive rehabilitation planning where there is a concentration of mineral aggregate operations.

3.0 Protecting Public Health and Safety

3.1. Natural Hazards

- A new policy, 3.1.3, has been added, *"Planning authorities shall consider the potential impacts of climate change that may increase the risk associated with natural hazards."*

PPS policy 3.1.4 was modified to make it clear that, *"... development and site alteration may be permitted in certain areas associated with the flooding hazard along river, stream and small inland lake systems..."* in certain circumstances.

- Changes were made to 3.1.4 a) to make it clear that changes or modifications to official plan policies and land use designations that apply to Special Policy Area lands require approval by the Province.
- In 3.1.5, changes are provided on prohibited uses in hazardous lands and hazardous sites to reflect current terminology, such as "long term care homes" instead of "nursing homes" and "retirement homes", and "essential emergency service" is now defined.
- In 3.1.6, "two zone concept" for flood plains is now a defined term.

- A new policy, 3.1.8, has been added, "Development shall generally be directed to areas outside of lands that are unsafe for development due to the presence of hazardous forest types for wildland fire. Development may however be permitted in lands with hazardous forest types for wildland fire where the risk is mitigated in accordance with wildland fire assessment and mitigation standards."

4.0 Implementation and Interpretation

- Policy 4.1 uses different terminology to identify that the PPS applies for, "... all decisions in respect of the exercise of any authority that affects a planning matter made on or after May 1, 2020."
- Wording has been added to policy 4.6: "To determine the significance of some natural heritage features and other resources, evaluation may be required."

6.0 Definitions

- The definition of Fish Habitat was amended to include, "... and any other areas ..." on which fish depend.
- A definition was added for habitat of endangered species and threatened species that means "habitat within the meaning of Section 2 of the Endangered Species Act, 2007."
- A definition for "hazardous forest types for wildland fire" was added to reflect the new policy 3.1.8 that indicates they will be determined using the risk assessment tools by the Ontario Ministry of Natural Resources.
- The definition of "natural heritage features and areas" was amended to add, "... other coastal wetlands in Ecoregions 5E, 6E and 7E ...", as well as replacing the reference to "south and east of the Canadian Shield" with "... in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary River)", where it pertains to significant valleylands. The term "significant habitat of" was replaced by "habitat of" in reference to endangered species and threatened species.
- The definition of "natural heritage system" was significantly changed by expanding on the meaning of linkages, and adding to the list of components these systems can include: "... natural heritage features and areas, federal and provincial parks and conservation reserves, other natural heritage features, ... areas that support hydrologic functions, and working landscapes that enable ecological functions to continue." Notably, it has also been amended to include, "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..."

- A new definition of negative impact has been provided that also indicates that they should be assessed through environmental studies in accordance with Provincial standards. Subsection c) revised the definition of fish habitat as it related to fish habitat by replacing *"the harmful alteration"* with *"any permanent alteration"* and removes the reference to no net loss of reproductive capacity.
- The definition of "significant" has been amended by deleting subsection b), which is the reference to the habitat of endangered species and threatened species. In re-numbered subsection b), which addresses woodlands, text has been added that indicates that significant woodlands, *"... are to be identified using criteria established by the Ontario Ministry of Natural Resources."*
- A new definition has been added for "wildland fire assessment and mitigation standards".
- The definition of "woodlands" has been amended by adding, *"Woodlands may be delineated according to the Forestry Act definition or the Province's Ecological Land Classification system definition for "forest"*.
- A subsection was added to the definition for "comprehensive review", which now includes subsection 4, *"confirms sufficient water quality, quantity and assimilative capacity of receiving water are available to accommodate the proposed development"*.
- A definition was added for "green infrastructure": *"means natural and human-made elements that provide ecological and hydrological functions and processes. Green infrastructure can include components such as natural heritage features and systems, parklands, stormwater management systems, street trees, urban forests, natural channels, permeable surfaces, and green roofs."*
- A definition was added for "comprehensive rehabilitation": *"means rehabilitation of land from which mineral aggregate resources have been extracted that is coordinated and complementary, to the extent possible, with the rehabilitation of other sites in an area where there is a high concentration of mineral aggregate operations."*

2.1.3 Changes to the PPS that may Result in ROP Policy and/or Mapping Refinements

The following are changes to the PPS since the ROP was approved that should be examined as part of the Policy Audit to determine if policy and/or mapping refinements to the ROP are required, and what the alternatives for refinement are:

Changes that may result in New Policies or Refinement to Existing Policies

- ROP definitions should be reviewed in light of revisions to PPS 2020 definitions to assess whether updates are required.

- The ROP Natural Heritage System (NHS) policies need to be reviewed to see if refinements are needed to accommodate the changes in how PPS policies 2.1.4a) and 2.1.7 address endangered species and threatened species.
- The ROP policies regarding hazard lands need to be reviewed to determine if refinements are needed to accommodate modifications to PPS policies 3.1.3, 3.1.4 and 3.1.5.
- There is need for a new ROP policy to address the new PPS policy 3.1.8 regarding wildland fires.
- There is need for a new ROP policy to address PPS policy 2.2.1 (d) to identify water resource systems consisting of ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas. Accordingly, these terms should be defined. New mapping of water resource systems will be required.
- The ROP policies regarding stormwater management need to be reviewed to determine if refinements are needed to accommodate modifications to PPS policy 1.6.6.7.
- The ROP objectives and policies regarding water need to be reviewed to determine if refinements are needed to accommodate modifications to PPS policy 2.2.1.
- The ROP policies on the rehabilitation of mineral aggregate resources sites should be examined in light of changes to policies 2.5.3.1 and 2.5.3.2, as well as the newly defined term, comprehensive rehabilitation.
- The Policy Audit Technical Memo should determine if there is a need for a new ROP policy to address the definition and objectives of green infrastructure, as well as low impact development.

Changes that may require an update of Terminology, but are not Substantive

- The Policy Audit Technical Memo should determine if there is a need to adjust the terminology in the ROP to accommodate changes in the PPS policies and/or definitions of significant woodland, significant valleyland and coastal wetlands (PPS policy 2.1.5), and agricultural use (PPS policy 2.1.9).

Changes that may affect Implementation of the ROP

- The Policy Audit Technical Memo should determine if there are any implications for ROP policies resulting from the implementation date of the PPS 2014 and 2020.
- The Policy Audit Technical Memo should provide clarification and consideration for the ROP regarding specific policy language as noted in Part III of the PPS.

Changes that should not require Policy or Mapping Refinements, but could affect ROP NHS Policies Indirectly

- The PPS 2014/2020 added a new policy, 2.1.3, explicitly requiring the identification of natural heritage systems in Ecoregions 6E and 7E (which includes Halton). Halton has already adopted a systems approach to natural heritage protection through the current ROP, thus there is probably no repercussion resulting from this new PPS policy.
- A new PPS policy, 3.1.3, addresses climate change. No refinement to ROP NHS policies is expected to be needed, although the benefits of the NHS assist with the fulfilment of the

PPS policy, and there may be benefit in refinements to other (i.e., non-NHS) policies in the ROP.

2.2 The Growth Plan for the Greater Golden Horseshoe (2019)

2.2.1 Summary

- The Growth Plan for the Greater Golden Horseshoe (the Growth Plan) 2017, came into effect on July 1, 2017, replacing the Growth Plan 2006, and applies to the area designated as the Greater Golden Horseshoe growth plan area by Ontario Regulation 416/05.
- The Growth Plan 2017 is a long-term plan that works with the Greenbelt Plan, the Oak Ridges Moraine Conservation Plan and the Niagara Escarpment Plan to provide a framework for growth management in the region.
- For the last decade, the Growth Plan 2006 dictated how and where land was developed in the region. The plan legislated densification targets for regional and local municipalities, focusing on encouraging growth within key urban centres and transit corridors.
- The new Growth Plan 2019 includes revised densification targets and policies that municipalities must follow, including revised growth targets for transit corridors and station areas, as well as revised population and employment forecasts for each municipality. The key growth management goals for the Growth Plan 2017 include:
 - Manage growth by encouraging the development of communities in cities and towns that provide affordable housing options and easy access to the businesses and public services residents of all ages use every day.
 - Improve and increase transportation options while reducing congestion.
 - Focus investments in regional public service facilities in downtown areas.
 - Build communities that maximize infrastructure investments, while balancing local needs for the agricultural industry and natural areas.
 - Increase and promote economic growth.
- Among the most significant changes relating to natural heritage is the commitment in the Growth Plan 2017 to a Provincially-defined Natural Heritage System outside of the Greenbelt Plan boundaries, and associated policies. Section 4.2.2 of the Growth Plan 2017 states that the Province will map a Natural Heritage System for the Greater Golden Horseshoe, excluding areas within settlement area boundaries.
- Under the Growth Plan 2019, municipalities are required to incorporate the Natural Heritage System as an overlay in their official plans, along with appropriate policies.
- Among the most significant changes relating to water resources was the addition of Section 4.2.1 *Water Resource Systems*, which requires the identification of the water resource system and that planning decisions be informed by watershed planning.

- The Growth Plan 2019 also introduces minimum vegetation protection zone policies for key natural heritage features within the Provincial Natural Heritage System and key hydrologic features within and beyond that system.
- Another significant change in the Growth Plan 2019 is a new policy regime for new or expanded mineral aggregate operations within the Greater Golden Horseshoe.
- The Growth Plan 2019 is structured around main theme areas:
 - Managing Growth
 - Supporting Complete Communities
 - Infrastructure and Addressing Climate Change
 - Supporting Agriculture
 - Protecting Natural Heritage & Water

2.2.2 What Has Changed in the Growth Plan Since ROPA 38 (2009)?

- As in the previous plan, and per section 1.2.3 of the Plan, in the case of conflict between the Growth Plan and the PPS, concerning the natural environment and human health, the more protective policies prevail. In other matters, the Growth Plan prevails where there is a conflict between it and the PPS. Likewise, where there is a conflict between the Greenbelt or Niagara Escarpment Plans and the Growth Plan regarding the natural environment or human health, the direction that provides more protection prevails. However, besides this exception, new contextual language in Section 1.2.3 indicates that within the Greenbelt Area, policies of the Growth Plan that address the same, similar, related, or overlapping matters as the Greenbelt Plan or the Niagara Escarpment Plan do not apply within that part of the Greenbelt Area covered by the relevant plan except where the policies of the Growth Plan, the Greenbelt Plan or the Niagara Escarpment Plan provide otherwise.
- Policy 2.2.8.3(m)(vi) has been added that prohibits expansion of settlement areas into the Greenbelt Natural Heritage System.
- In several places, the Growth Plan 2017 has been refined to recognize the desire to include more meaningful inclusion of Indigenous communities (e.g., s. 4.1, paragraph 3). Although this may not necessitate changes to ROP natural heritage policies per se in order to conform to the Growth Plan 2017, these refinements do indicate the possible need for similar recognition in appropriate sections of the ROP, which may include refinements to the NHS policies.
- Section 4.1, which provides context for the Growth Plan 2019 (i.e. is not policy per se), has added recognition of new policies that require the identification of water resource systems, recognizing watersheds as the most meaningful scale to protect the quantity and quality of water. It also recognizes the identification and protection of a natural heritage system for the GGH outside of the Greenbelt Area and settlement areas. Section 4.1 also

recognizes the connection between natural heritage systems, water resource systems and agricultural systems in addressing climate change.

Water Resource Systems

- Based on the Growth Plan 2019, water resource systems will be identified, informed by watershed planning and other information, by municipalities who will establish designations and policies in official plans to provide for the long-term protection of key hydrologic features, key hydrologic areas, and their functions. Decisions on growth and planning for water, wastewater, and stormwater infrastructure will be informed by applicable watershed planning. Planning for designated greenfield areas will be informed by a subwatershed plan or equivalent.
- Under the Growth Plan 2019, growth and settlement area boundary expansion will be identified based on the following (2.2.8 (3)):
 - e) *“watershed planning or equivalent has demonstrated that the proposed expansion, including the associated servicing, would not negatively impact the water resource system, including the quality and quantity of water;*
 - f) *key hydrologic areas and the Natural Heritage System should be avoided where possible;*
and
 - g) *for settlement areas that receive their water from or discharge their sewage to inland lakes, rivers, or groundwater, a completed environmental assessment for new or expanded services has identified how expanded water and wastewater treatment capacity would be addressed in a manner that is fiscally and environmentally sustainable.”*
- Section 3.1, Infrastructure to Support Growth, identifies the role of watershed and stormwater management planning regarding infrastructure:
 - *“Water infrastructure planning will be informed by watershed planning to ensure that the quality and quantity of water is maintained.*
 - *The importance of the Great Lakes is reflected in many provincial initiatives, including the Great Lakes Protection Act, 2015 and Ontario’s Great Lakes Strategy. This Plan supports these initiatives by providing direction on watershed-based, integrated water, wastewater, and stormwater master planning and by restricting future extensions of water and wastewater servicing from the Great Lakes.*
 - *Climate change poses a serious challenge for maintaining existing infrastructure and planning for new infrastructure, however, vulnerability assessments can help to identify risks and options for enhancing resilience. Similarly, comprehensive stormwater management planning, including the use of appropriate low impact development and green infrastructure, can increase the resiliency of our communities.”*
- Section 3.2.5, Infrastructure Corridors, identifies the importance of protecting key hydrologic features and areas through environmental assessment:
 - *“d) where applicable, demonstrate through an environmental assessment, that any impacts on key natural heritage features in the Natural Heritage System, key hydrologic*

features and key hydrologic areas have been avoided or, if avoidance is not possible, minimized and to the extent feasible mitigated.”

- A new section was added dedicated to stormwater management (3.2.7). Municipalities are to develop stormwater master plans for serviced settlement areas. Planning at the watershed level, protecting water quality and quantity, the incorporation low impact development and green infrastructure are emphasized. Stormwater management plans, informed by sub-watershed plans or their equivalent, will be required to support proposals for large-scale development.
- A new section was added in Section 4.1 that requires the identification of water resource systems and the protection of key hydrologic features and key hydrologic areas, providing a consistent level of protection to that in the Greenbelt. Emphasis was put once again on watershed planning and the protection of water quality and quantity.
- A new section was added, 4.2.1 Water Resource Systems:
 1. *“Municipalities, partnering with conservation authorities as appropriate, will ensure that watershed planning is undertaken to support a comprehensive, integrated, and long-term approach to the protection, enhancement, or restoration of the quality and quantity of water within a watershed.*
 2. *Water resource systems will be identified, informed by watershed planning and other available information, and the appropriate designations and policies will be applied in official plans to provide for the long-term protection of key hydrologic features, key hydrologic areas, and their functions.*
 3. *Decisions on allocation of growth and planning for water, wastewater, and stormwater infrastructure will be informed by applicable watershed planning. Planning for designated greenfield areas will be informed by a subwatershed plan or equivalent.*
 4. *Municipalities will consider the Great Lakes Strategy, the targets and goals of the Great Lakes Protection Act, 2015, and any applicable Great Lakes agreements as part of watershed planning and coastal or waterfront planning initiatives.”*
- Two new sections were added, 4.2.3 Key Hydrologic Features, Key Hydrologic Areas and Key Natural Heritage Features, and 4.2.4 Lands Adjacent to Key Hydrologic Features and Key Natural Heritage Features, which identify the restrictions and requirements for development or site alteration outside of settlement areas in order to protect the water resource system and natural heritage system.
- A new section was added, 4.2.9 A Culture of Conservation, which requires municipalities to develop official plan policies that support water conservation, including water demand management and water recycling.
- A new section was added, 4.2.10 Climate Change, which emphasizes watershed planning and protecting water resource systems.

- Definitions were added for green infrastructure, hazardous lands, highly vulnerable aquifer, low impact development, ground water features, hydrologic functions, key hydrologic areas, key hydrologic features, quality and quantity of water, significant groundwater recharge area, significant surface water contribution area, subwatershed plan, surface water features, water resource system and watershed planning.

Natural Heritage System

- Section 4.2.2.1 is new policy indicating that the Province will map a Natural Heritage System (NHS) and that it will exclude lands within settlement areas.
- Municipalities must incorporate the NHS as an overlay in official plans (s.4.2.2.2), "*... and will apply appropriate policies to maintain, restore, or enhance the diversity and connectivity of the system and the long-term ecological or hydrologic functions of the features and areas ...*" as set out in policies 4.2.2, 4.2.3 and 4.2.4.
- Section 4.2.2.3 is a new policy that sets out requirements to be satisfied by development or site alteration within the NHS. It establishes that the full range of existing and new agricultural uses, agriculture-related uses, on-farm diversified uses, and normal farm practices are permitted.
- There is a new policy, 4.2.2.5, which allows municipalities to refine the Provincially-mapped NHS: "*In implementing the Natural Heritage System, upper- and single-tier municipalities may, through a municipal comprehensive review, refine provincial mapping with greater precision in a manner that is consistent with this Plan.*"
- New policy 4.2.2.6 indicates that beyond the Provincially-mapped NHS, including within settlement areas, the municipality will continue to protect other natural heritage features and may identify and protect any other natural heritage system in a manner consistent with the PPS. These policies provide scope to continue protecting parts of the Regional Natural Heritage System that fall outside of the Provincially-mapped NHS.
- Under new policy 4.2.2.7, the ROP will have to designate any expansions of settlement areas into the Natural Heritage System and these areas will continue to be protected in a manner that ensures that the connectivity between, and diversity and functions of, the natural heritage features and areas will be maintained, restored, or enhanced..
- New policy 4.2.3 outlines the permitted scope of development and site alteration in key natural heritage features and key hydrologic features. Further it establishes policies that must be met in permitting large scale development outside of settlement areas within a key hydrologic area.
- New policy 4.2.4 provides guidance on the lands adjacent to key natural heritage features within the Natural Heritage System and key hydrologic areas, notably including policies for vegetation protection zones (buffers), including the requirement for a minimum 30-metre

vegetation protection zone from key hydrologic features, fish habitat, and significant woodlands. It also identifies evaluation/reporting requirements which need to be integrated into the ROP, and/or possibly the guidelines that support the ROP.

- The policy section on Mineral Aggregate Resources (4.2.8) has been greatly expanded to align with the Greenbelt Plan 2017 concerning new mineral aggregate operations in the Natural Heritage System and the rehabilitation of new mineral aggregate operation sites.
- New policy section 4.2.9 replaces section 4.2.4 in the old Growth Plan. It does not contain changes that have direct repercussions for NHS policies in the ROP, but does address issues related to climate change. Section 4.2.10 explicitly addresses climate change and while there are no direct repercussions for NHS policies from a conformity perspective, there may be opportunity to introduce policy refinements that recognize the role that natural heritage systems play in mitigating many repercussions of a changing climate (see 4.2.10.1f).
- The policy requirement in section 5.3 of the Growth Plan 2006 to contribute to further pieces of analysis to support implementation, including subarea assessments at a regional scale that identify natural heritage systems, has been deleted from the Growth Plan 2019.
- Several definitions related to natural heritage have been added or refined as part of the Growth Plan update, often by making them consistent with the PPS and/or the Greenbelt Plan. These include: ecological function, ecological integrity, ecological value, fish habitat, habitat of endangered species and threatened species, intermittent streams, key hydrologic areas, key hydrologic features, key natural heritage features, highly vulnerable aquifer, life science ANSIs, natural heritage features and areas, natural heritage system, natural self-sustaining vegetation, negative impact, sand barren, savannah, seepage and springs, significant groundwater recharge area, significant surface water contribution areas, significant wetland, significant wildlife habitat, significant woodland, significant valleyland, surface water features, tallgrass prairies, vegetation protection zone, wetlands, wildlife habitat, and woodlands.

2.2.3 Changes to the Growth Plan that may Result in ROP Policy and/or Mapping Refinements

- With regards to natural heritage systems, there are two key general issues that arise from the Growth Plan 2019 that should be addressed as part of the Policy and Mapping Audits respectively:
 - what alternative policy approaches exist to incorporate the new Growth Plan NHS policies into the ROP; and
 - what refinements to the Provincial NHS mapping, if any, need to be discussed with the Province prior to incorporating them into ROP mapping.

- With regards to water resource systems, a careful analysis of the existing ROP is required to identify how its current approach to water needs to be expanded or reorganized to best achieve conformity with the policies of the Growth Plan 2019 and the mapping required to support these new policies.

Changes that may result in New Policies or Refinement to Existing Policies:

- If, as part of other aspects of the ROPR, expansions to settlement areas into the Growth Plan NHS are contemplated, these need to be identified and designated per Growth Plan policies 2.2.8 and 4.2.2.7.
- The new NHS policies need to be included into the ROP, either through integration with existing policies or as a stand-alone set of policies, per s.4.2.2 of the new Growth Plan; this is a principal task to be addressed in the Policy Audit Technical Memo.
- There will need to be new policies in the ROP that address lands adjacent to the Provincial NHS. This leads to a challenging question as to whether lands adjacent to the Provincial NHS will be treated differently from those adjacent to the regional NHS, where the two are discrete; for example, with respect to vegetation protection zones (buffers), which are specified for some features in the Provincial NHS, but are not explicitly required adjacent to the Regional NHS.
- The need to refine regional NHS mapping will be addressed as part of the Mapping Audit Technical Memo.
- Section 4.1 of the Growth Plan 2019 requires the identification of water resource systems and the protection of key hydrologic features, key hydrologic areas, and their functions; the ROPR needs to identify policy that reflects this requirement. Watershed and subwatershed plans and other related studies can inform the identification of the water resource system. The ROPR may consider adopting policy regarding the identification of water resource systems in Sections 144 and 145, and specifically in Sections 145(6) and 145(9). The ROPR should further consider defining these terms in Part VI, Definitions.
- Section 2.2.8 (3) identifies restrictions to settlement area boundary expansions related to the avoidance of negative impacts to the water resource system. The Halton ROP policy 139.3.5 identifies that development within the Greenbelt NHS is subject to policies of the Greenbelt Plan. The Policy Audit Technical Memo should determine if these policies need to be stated directly in the ROP.
- The Policy Audit Technical Memo should determine whether additional policies are required to meet Section 3.2.5 (d) regarding environmental assessments to determine the impacts of development on the NHS, key hydrologic features and key hydrologic functions.
- The Policy Audit Technical Memo should determine whether additional policies are required to meet policies in Section 4.2.3 and 4.2.4 of the Growth Plan concerning development and site alteration.
- The Policy Audit Technical Memo should determine whether additional policies are required to conform with new Growth Plan policies within s.4.2.8 regarding new mineral aggregate operations and rehabilitation.
- The ROPR should consider the inclusion of policy regarding the Great Lakes Strategy and the targets and goals of the Great Lakes Protection Act, 2015.

- The ROPR may consider the inclusion or revision of definitions related to water resource systems, including green infrastructure, hazardous lands, highly vulnerable aquifer, low impact development, ground water features, hydrologic functions, key hydrologic areas, key hydrologic features, quality and quantity of water, significant groundwater recharge area, significant surface water contribution area, subwatershed plan, surface water features, and watershed planning.

Changes that may require an update of Terminology, but are not Substantive:

- A number of new definitions related to natural heritage were added to the new Growth Plan. Most, if not all, are existing Provincial definitions that probably pre-date the ROP, and thus are of no consequence (since the Province approved ROPA 38), but this needs to be confirmed.

Changes that may affect Implementation of the ROP:

- There were changes to the Growth Plan with respect to the relationship among Provincial plans. The NHS policies of the ROP needs to be reviewed to see where they defer to Provincial plans, and ensure that they still defer to the correct one.

Changes that should not require ROP NHS Policy or Mapping Refinements, but could affect ROP NHS Policies Indirectly:

- New policy 4.2.10 in the Growth Plan 2019 requires the development of climate change policies in the ROP. The adequacy of the existing ROP policies will need to be evaluated to determine if they satisfy the new Growth Plan polices.
- There are a number of changes to the Growth Plan that reflect greater inclusion of Indigenous communities in land use planning. The Region will need to determine how they are currently addressing consultation with Indigenous communities and whether the approach taken will require any refinement of the wording of NHS policies.

2.3 The Niagara Escarpment Plan (2017)

2.3.1 Summary

- The Niagara Escarpment Plan (NEP) 2017, came into effect on June 1, 2017, replacing the NEP 2005. *The Niagara Escarpment Planning and Development Act* requires the NEP be reviewed every 10 years. The NEP has been harmonized with the other newly updated Provincial plans and mirrors the revised policies and definitions of the PPS 2014.
- On February 8, 1990, the Bureau of the United Nations Educational, Scientific and Cultural Organization (UNESCO) Man and Biosphere (MAB) program approved the designation of the Niagara Escarpment as a Biosphere Reserve. The designation was confirmed in 2002 and in 2016 through the 10-year periodic review process led by the Niagara Escarpment Commission. The NEP 2017 upholds the UNESCO Biosphere Reserve principles by balancing protection, conservation and sustainable development to ensure that the Niagara Escarpment remains a natural environment for the future and by promoting collaboration and providing opportunities for research, monitoring and education.
- The NEP 2017, the Oak Ridges Moraine Conservation Plan 2017 and the Greenbelt Plan 2017 work within the framework set out by the Growth Plan 2017 and define where and how future population and employment growth should be accommodated.
- The purpose of the NEP 2017 is to provide for the protection and maintenance of the Niagara Escarpment and land in its vicinity as a continuous natural landscape, and to ensure that development is compatible with that natural environment.
- The revised NEP 2017 includes updated Provincial mapping to reflect changes to the lands within the Niagara Escarpment designations. Specifically, the Escarpment Natural Area has increased in size, whereas the Escarpment Rural Area has decreased. These map changes are required to be updated in municipalities' official plans and will be noted in the Policy and/or Mapping Audits, as appropriate.
- The NEP 2017 consists of three (3) parts:
 - Part 1 includes objectives, designation criteria, permitted uses and policies for seven (7) land use designations (Escarpment Natural Area, Escarpment Protection Area, Escarpment Rural Area, Escarpment Recreation Area, Urban Area, Minor Urban Centre and Mineral Resource Extraction Area).
 - Part 2 consists of development criteria to be applied to all development within the area of the NEP.
 - Part 3 includes objectives and policies for the Niagara Escarpment Parks and Open Space System (NEPOSS).

2.3.2 What Has Changed in the NEP Since ROPA 38 (2009)?

The following identifies changes between the 2005 and 2017 NEP that are relevant to the review of policies and mapping in Halton's ROP. Note that where this report quotes from the NEP, words that were italicized in the NEP to indicate they are defined terms are indicated with an underscore in this report.

- In conjunction with updates to other Provincial plans (e.g., Greenbelt Plan 2017), the NEP Planning Area was reassessed and additions to the NEP area were made resulting in changes to Map 10 of the updated NEP.

Land Use Policies

- Minor change to add "...and policies..." to policy, 1.1.1 which establishes that: *"...this Plan is not intended to limit the ability of municipal official plans, secondary plans and by-laws to set standards and policies that are more stringent than the requirements of the Niagara Escarpment Plan, unless doing so would conflict with the Niagara Escarpment Plan."*
- There is a refinement to policy 1.7.3 which allows municipalities to refine the boundaries of the Urban Area designation to consider *"...the presence of natural heritage or hydrologic features or functions."*
- The terminology used in reference to natural heritage features and functions has been updated to reflect the terminology used in the PPS 2014 and other updated Provincial plans.

Amendments for Mineral Resource Extraction Areas related to the RNHS:

- New policy 2.9.1 of the updated NEP permits the establishment of mineral aggregate operations in key natural heritage features and the vegetation protection zones associated therewith (subject to compliance with other relevant policies in the Plan), with the exception of wetlands and significant woodlands that are not comprised of young plantation or early successional habitat (as defined by the MNRF).
- New policy 2.9.2 allows for mineral aggregate operations and wayside pits and quarries, and accessory uses in a key natural heritage feature which is the habitat of endangered and threatened species, or the vegetation protection zone, if it is in compliance with the Endangered Species Act, 2007.

Escarpment Natural Areas

- The terminology used to describe natural heritage features in Escarpment Natural Area(s) (Section 1.3) has been updated to harmonize with other Provincial Planning documents such that "stream valleys" and "forests" have been changed to "valleylands" and "woodlands".

- An objective has been added to policy 1.3.1 to *"...recognize, protect and where possible enhance the natural heritage and hydrological systems associated with the Niagara Escarpment Plan area."*
- Objective 2 (policy 1.3.1.2) uses different terminology to go beyond maintaining natural features to *"...protect the most natural escarpment features, valleylands, wetlands and related significant natural areas."*
- A new policy, 1.3.1.3 has been added that more broadly considers cultural heritage resources and Indigenous Peoples: *"To conserve cultural heritage resources, including features and areas of interest to First Nations and Metis communities."*
- Policy 1.3.1.5 has been revised from maintaining and enhancing the landscape quality of Escarpment features to *"...maintain and enhance the scenic resources and open landscape character of the Escarpment."*
- A size criteria has been applied to include wetlands greater than 20 hectares in Escarpment Natural Areas of the updated NEP, whereas the previous version included *"the most significant wetlands associated with the Escarpment"* as criteria for designation.
- Subject to Part 2, Development Criteria, a number of policy refinements to 1.3.3 and additions to permitted uses within Escarpment Natural Areas have been made.

Escarpment Protection Area

- The language used to describe Escarpment Protection Area and policies which are aimed to protect the natural heritage system has been expanded in the new NEP to include hydrologic features (policy 1.4).
- Policy 1.4.1.1 has been revised in the updated NEP to maintain and enhance scenic resources of the Escarpment in addition to the open landscape character.
- Policy 1.4.1.3 has been modified from maintaining natural areas of regional significance and cultural heritage features to *"...recognize, protect and where possible enhance the natural heritage system associated with the Niagara Escarpment Plan area and protect natural areas of regional significance."*
- As was done for Escarpment Natural Areas, a new policy, 1.4.1.4 has been added that considers cultural heritage resources and Indigenous values to: *"...conserve cultural heritage resources, including features and areas of interest to First Nation and Metis communities."*
- Policy 1.4.1.5 has been amended from encouraging agriculture, forestry and recreation in the previous Plan to *"...encourage forest management, compatible recreation, conservation and educational activities."*

- In policy 1.4.3 criteria for designation have been expanded to include environmentally sensitive areas identified by municipalities or conservation authorities.
- Subject to Part 2, Development Criteria, a number of policy refinements to 1.4.3 and additions to permitted uses within Environmental Protection Areas have been made.

Development Criteria

- In 2.1 Introduction, where the development permit system is in effect, for greater certainty, the following was added to the new NEP to include *"...general criteria are to be applied to all proposed development, in addition to any specific development criteria that may apply to a particular class of development"*.
- In policy 2.2.6, the general development criteria have been amended to promote design and orientation for any development that: *"a) maximizes energy efficiency and conservation and considers the mitigating effects of vegetation; b) maximizes opportunities for the use of renewable energy systems and alternative energy systems; and c) reduces greenhouse gas emissions so that the development is contributing to the goal of low-carbon communities and net-zero communities in Minor Urban Centres, Urban Areas, and Escarpment Recreation Areas."*
- Policy 2.4.5, changes are provided for new lots which must: *"a) maintain and enhance the existing community character and/or open landscape character of the Escarpment; and b) protect and enhance natural heritage and hydrologic features and functions."*
- In policy 2.4.19, the terminology for lot severances to accommodate home businesses in Escarpment Natural Areas and Escarpment Protection areas has been updated to "home occupation or home industry" instead of "home business".
- An addition to Policy 2.5.4 for development affecting Steep Slopes and Ravines requires that *"Development shall not be permitted on slopes in excess of 25% (1:4 slope) or if the stability of the slope or ravine is in question, unless an engineering report has been prepared by the applicant that demonstrates the future stability of the slope would not be affected."*
- Although the previous NEP had policies pertaining to development criteria for water resources and particular natural heritage features, in the NEP 2017 these have been completely reworked in sections 2.6 and 2.7. Key hydrologic features and key natural heritage features are treated separately and, while similar, there are some differences between the policies that pertain to them.
- Key hydrologic features within the meaning of the Plan have been provided in the updated NEP, and a new policy 2.6.2 has been added which states that development is not permitted in key hydrologic features, with the exception of the following, which may be permitted subject to all other relevant policies in the updated Plan. Exceptions include: *"a)*

accessory facilities to a single dwelling outside of a wetland on an existing lot of record, provided that the disturbance is minimal and where possible temporary; b) forest, fisheries and wildlife management to maintain or enhance the feature; c) conservation and flood or erosion control projects, after all alternatives have been considered; d) the Bruce Trail, and other trails, boardwalks and docks on parks and open space lands that are part of the Niagara Escarpment Parks and Open Space System; or e) infrastructure, where the project has been deemed necessary to the public interest after all other alternatives have been considered."

- New policies, 2.6.3 and 2.7.6 states that *"if, in the opinion of the implementing authority"*, a proposal within 120 metres of a key natural heritage or hydrologic feature may have a negative impact on the feature or its functions that a hydrologic or natural heritage evaluation will be required.
- New policies have been provided (policies 2.6.3, 2.6.4, 2.7.7, and 2.7.9), which provide direction on lands adjacent to natural features, most notably including policies for vegetation protection zones (buffers), which the earlier NEP does not currently address (although the previous NEP did establish setbacks from streams, river beds, lakeshore and wetlands necessary to maintain existing water quality).
- Similar to key hydrologic features, key natural heritage features within the meaning of the updated NEP have been provided, and a new policy 2.7.2 does not permit development within key natural heritage features, with the exception of the following which may be permitted, subject to other policies in the Plan: *"a) development of a single dwelling and accessory facilities outside a wetland on an existing lot of record, provided that the disturbance is minimal and where possible temporary; b) forest, fisheries and wildlife management to maintain or enhance the feature; c) conservation and flood or erosion control projects, after all alternatives have been considered; d) the Bruce Trail, and other trails, boardwalks and docks on parks and open space lands that are part of the Parks and Open Space System; and e) infrastructure, where the project has been deemed necessary to the public interest and there is no other alternative."*
- New policy 2.7.3 acknowledges the importance of maintaining and enhancing the diversity and connectivity between key natural heritage and hydrologic features to support the natural heritage system.
- New policy 2.7.5 indicates that where other public bodies or levels of government exceed the policies related to key natural heritage features or key hydrologic features, the more restrictive provision or standard applies. Examples provided address habitat of endanger species and threatened species, natural hazards and fisheries.

Definitions

- Several definitions related to natural heritage have been added or refined as part of the NEP update, often by making them consistent with the PPS, the Greenbelt Plan and/or

Growth Plan. These include: areas of natural and scientific interest, comprehensive rehabilitation, endangered species, erosion hazard, green infrastructure, habitat of endangered species and threatened species, hydrologic function, low impact development, negative impacts, significant, threatened species, valleyland, vegetation protection zone, wetland, wildlife habitat and woodlands.

- Several new definitions have been added that are not included in the PPS 2014, Greenbelt Plan 2017 or Growth Plan 2017, including: intermittent stream, lake and permanent stream.
- The definition of “Escarpment environment” has been amended by changing the terminology from “cultural heritage and visual features” to “cultural heritage resources, and scenic resources associated with the Escarpment landscape.” in the updated NEP.
- Several defined terms related to natural heritage and water resources were deleted from the NEP: carrying capacity, environmental monitoring, ground infiltration area, headwaters, rare species and special concern species.

Guidance Material to Support Implementation of the 2017 Niagara Escarpment Plan

- Niagara Escarpment Commission staff conducted a review of the 2017 NEP to assess the need for new guidance material to support implementation of the updated Plan. From this review, numerous recommendations for guidance material were identified.
- With respect to the NHS, NEC staff are seeking the development of guidance material for preparing Vegetation Protection Plans (VPP) (per October 24th NEC agenda).
- Currently, draft or informal guidance is used by staff to support preparation of VPPs. The recommendation is to update, expand upon and formalize guidance to assist the NEC in screening for and assessing appropriate content of VPPs and provide direction and clarity to proponents for whose properties / activities a VPP is required.
- Development of formal guidance for VPPs should be reviewed when prepared to identify potential interactions, triggers, etc. as they pertain to ROP policy.

2.3.3 Changes to the Niagara Escarpment Plan that may Result in ROP Policy and/or Mapping Refinements

Changes that may result in New Policies or Refinement to Existing Policies or Mapping:

- A key issue that arises from the updated NEP is the reassessed NEP Planning Area and refinements to Escarpment Natural Area and Escarpment Protection Area boundaries. Additions and refinements to Escarpment Natural Areas and Escarpment Protection Areas as components of the Regional NHS will result in mapping and policy changes.

- Existing policies related to development and new lot creation within Escarpment Natural Areas and Escarpment Protection Areas should be reviewed and evaluated to determine if they conform with applicable policies of the updated NEP.
- The ROPR may consider additional policy regarding vegetation protection zone requirements and objectives. Section 288.1 of the ROP defines the vegetation protection zone, however does not address the protection of key hydrologic features and their functions, or the requirement to be natural self-sustaining vegetation. These objectives however are addressed in the Watershed Plan requirements in Section 289.2 (6-7); a reference to this section of the ROP may be sufficient.
- The ROPR may consider adding policy regarding ponds, their location and design; currently no policy exists in the ROP relative to ponds.
- The ROPR may consider adding policy regarding the avoidance of changes to natural drainage; this policy could potentially be located as a water objective in Section 144 of the ROP.

Changes that may require an update of Terminology, but are not Substantive:

- A number of changes to definitions have been made in the new NEP. The majority, if not all, are reflective of Provincial definitions that pre-date ROPA 38, however this needs to be confirmed and consistency with Provincial terminology should be achieved.
- The ROPR may consider including the definition for key hydrologic features.

Changes that may affect Implementation of the ROP

- The ROP generally refers to the NEP and does not make specific reference to certain policies within it. Consequently, no changes related to the updated NEP are expected that would affect the implementation of the ROP.

Changes that should not require Policy or Mapping Refinements, but could affect ROP NHS Policies indirectly:

- Policies for both Escarpment Natural Areas and Escarpment Protection Areas include direction “...to conserve *features and areas of interest to First Nations and Metis communities.*” The ROPR will need to determine whether any refinements of the wording in NHS policies needs to be elaborated on to include Indigenous considerations. Most, if not all, ROP policies related to the NHS are written such that they are subject to policies in the NEP. As such, any terminology and policy changes will be adopted in ROPR without major refinement.

2.4 The Greenbelt Plan (2017)

2.4.1 Summary

- The Greenbelt Plan is a Provincial land use plan that permanently protects the agricultural land base, specialty cropland, and environmentally significant land from inappropriate development.

- The Greenbelt Plan 2017, came into effect on July 1, 2017, replacing the Greenbelt Plan 2005. *The Greenbelt Act, 2005* provides the authority for the creation of the Greenbelt Plan 2017 which applies to the Greenbelt Area.
- The Greenbelt Plan builds on the protection provided by the Niagara Escarpment Plan (2017) and the Oak Ridges Moraine Conservation Plan (2017) and establishes the Protected Countryside and Urban River Valley areas, which support permanent agricultural and environmental protection.
- Primarily, the Greenbelt was established to meet three (3) goals:
 - Prevent fragmentation and the loss of farmland and natural heritage;
 - Restrict urban sprawl; and
 - Work in concert with the Growth Plan to direct where new urban development should occur.
- The vision for the Greenbelt Plan 2017 highlights that the Greenbelt provides permanent protection to the natural heritage and water resource systems that sustain ecological and human health and that form the environmental framework around which major urbanization in southcentral Ontario will be organized.
- Under the Greenbelt Plan 2017, the Protected Countryside contains a Natural System that provides a continuous and permanent land base necessary to support human and ecological health in the Greenbelt and beyond. The Natural System is comprised of the Natural Heritage System, Water Resource System and key hydrologic areas, key natural heritage features and key hydrologic features. The Natural System policies protect areas with natural heritage, hydrologic and/or landform features, which are often functionally inter-related and which collectively provide essential ecosystem services, including water storage and filtration, cleaner air, habitat, support for pollinators, carbon storage and resilience to climate change.
- Under the Greenbelt Plan 2017, the Natural Heritage System is not a designation with a list of permitted uses. Rather, the Natural Heritage System is an overlay on top of the prime agricultural area, including specialty crop areas, and rural lands designations contained in official plans. As such, permitted uses are those set out within the prime agricultural area and rural lands policies of the Greenbelt Plan and designations of official plans, subject to the Natural System policies of the Greenbelt Plan.
- Under the Greenbelt Plan 2017, the Greenbelt has been expanded to include 21 major river valleys and large coastal wetlands. This expansion grows the Greenbelt by approximately 9,000 hectares. The “Urban River Valley” policies in the Greenbelt Plan 2017 apply only to publicly owned lands within the boundary. The lands outlined as being within the Greenbelt designation comprise river valleys and associated lands and are generally characterized by being:
 - Lands containing natural and hydrologic features, including coastal wetlands; and/or

- Lands designated in municipal official plans for uses such as parks, open space, recreation, conservation and environmental protection.

2.4.2 What Has Changed Since ROPA 38 (2009)?

- The Greenbelt Plan 2017 has a new text in s.1.4.1 that clarifies its relationship with the PPS and other Provincial plans. Where the NHS policies of the ROP refer to or defer to Provincial plans, the text should be reviewed to ensure it is consistent with the Greenbelt Plan.
- Section 1.4.1 contains new text that indicates that the policies in the Greenbelt Plan represent minimum standards and that decision-makers are encouraged to go beyond these minimum standards to address matters of importance, unless doing so would conflict with any policy of the Greenbelt Plan. Exceptions to this direction, where municipalities cannot be more restrictive are outlined in Section 5.3.
- In section 3.2.1, the discussion of the Natural System recognizes the pending release of the Natural Heritage System pursuant to the Growth Plan. The impact of that new Provincial NHS on the ROP NHS policies and mapping is addressed in the discussion of the Growth Plan in this Technical Memo and will also be addressed in the Policy Audit and Mapping Audit Technical Memos.
- In section 3.2.1, the text describing what comprises the Water Resource System has been updated to include ground and surface water areas as well as features and their associated functions.
- There are some minor terminology changes in the Greenbelt Plan that make it consistent with other Provincial plans, e.g., “hydrological” instead of “hydrologic”, “impacts” instead of “effects” and “agriculture” instead of “agricultural”. The ROP NHS policies should be reviewed to make similar changes, solely to provide consistency in terminology.
- There are changes in section numbers in the Natural Heritage System policies of the Greenbelt Plan. If and where the ROP NHS policies refer to specific policies of the Greenbelt Plan, they need to be checked to be sure they are still correct.

Policy 3.2.2.3(b) on connectivity was changed to clarify the purpose of maintaining or enhancing connectivity, and to add the caveat “where possible” to the use of the term enhance.

- Policy 3.2.2.6 clarified that Towns/Villages are not permitted to expand into the Natural Heritage System.
- Section 3.2.3, Water Resource System Policies, was updated in the following ways:

- Subsection 2 – Watershed planning is undertaken to support a comprehensive, integrated and long-term approach to the protection, enhancement or restoration of the quality and quantity of water within a watershed.
 - Subsection 3 – Water Resource Systems shall be identified, informed by watershed planning and other available information, and the appropriate designations and policies shall be applied in official plans to provide for the long-term protection of key hydrologic features, key hydrologic areas and their functions.
 - Subsection 4 – Decisions on allocation of growth and planning for water, wastewater, and stormwater infrastructure shall be informed by applicable watershed planning in accordance with the Growth Plan.
 - Subsection 6 – Municipalities shall consider the Great Lakes Strategy.
- A new section was added, 3.2.4 Key Hydrologic Areas, which defines key hydrologic areas and establishes policies on under what conditions major development within a key hydrologic area in the Protected Countryside will be permitted. Key hydrologic areas include:
 - Significant groundwater recharge areas;
 - Highly vulnerable aquifers; and
 - Significant surface water contribution areas.
 - The terminology in s. 3.2.5 has been refined to make it consistent with changes to the PPS 2014 and this will result in a need for refinements to ROP NHS policies, particularly 115.2(3) and 276.4(3).
 - Policy 3.2.4.6 in the old Greenbelt Plan, which addresses expansions to agricultural infrastructure has been deleted. Similarly there are changes to the Greenbelt Plan 2017 policy 3.2.5.7 addressing agriculture. The ROP NHS and Greenbelt Plan policies needs to be reviewed to determine if refinements are needed to reflect these changes.
 - Policy 3.2.5.7 was revised, notwithstanding section 3.2.5.5, for new buildings and structures for agricultural, agriculture-related or on-farm diversified uses if a minimum of 30 metre vegetation protection zone is provided from a natural heritage feature or key hydrologic feature. These uses are exempt from the requirements of establishing a condition of self-sustaining vegetation if the land is, and will continue to be, used for agricultural purposes. However, they shall pursue best management practices to protect and/or restore the feature.
 - New policy 3.2.5.6 regarding the habitat of endangered and threatened species may impact how these species are treated in the ROP NHS policies.
 - Section 3.2.6 in the Greenbelt Plan (was s.3.2.5), has been modified with respect to mapping for external connections to the Greenbelt, as well as some text changes that reflect the connection with the Growth Plan NHS and the new Urban River Valley areas.

These changes will affect the ROP policies and possibly mapping, and the latter will be discussed in the Mapping Audit Technical Memo.

- Key hydrologic areas were added to 3.2.6 (3) relating to the Lake Iroquois shoreline, stating, *“where possible, enhance the size, diversity, connectivity and functions of key natural heritage features, key hydrologic features and key hydrologic areas.”*
- Section 4.3.2.3 contains wording refinements relative to mineral aggregate uses in the Natural System. However, because the uses in the NHS are subject to the Greenbelt Plan (ROP s.117.1) these are not likely to result in the need for specific refinements to the NHS policies of the ROP. They may, however, require refinements to the Mineral Aggregate Policies of the ROP, which is not within the scope of this project.
- 4.2.3 (3) the terminology stormwater management ponds has been replaced with stormwater management systems, indicating they are prohibited in key natural heritage features and key hydrologic features: *“Stormwater management systems are prohibited in key natural heritage features, key hydrologic features and their associated vegetation protection zones. The determination of appropriate vegetation protection zones shall be defined in accordance with sections 3.2.5.4 and 3.2.5.5 of this Plan, which consider the area and nature of the feature being protected and the nature of the proposed stormwater management system. Within those portions of the Protected Countryside that define the major river valleys that connect the Niagara Escarpment and Oak Ridges Moraine to Lake Ontario, naturalized stormwater management systems may be permitted within the vegetation protection zone of a significant valleyland, provided they are located a minimum of 30 metres from the river or stream, and they are located outside of the vegetation protection zone of any other key natural heritage feature or key hydrologic feature.”*
- Change in Section 4.5.5 (which replaces 4.5.4) clarifies that this policy applies to expansions of existing residential dwellings, not new residential dwellings. This change made Section 139.3.7(6) of the ROP non-compliant.
- Section 5.3, which addresses implementation of the Protected Countryside policies has replaced the word “should” with “shall”, thus requiring (rather than encouraging) municipalities to map key natural heritage features and key hydrologic features and any associated vegetation protection zones identified in the Greenbelt Plan. The Policy and Mapping Audits need to address whether the current mapping approach in the ROP, which combines buffers (vegetation protection zones) with “Enhancement Areas” and “Linkages”, conforms to this change.
- Sections 1.2.3, 5.6.1.3 and 6 address Urban River Valleys, which were added to the Greenbelt after the approval of the ROP. This addition may warrant policy and mapping changes to the ROP.

- The following definitions that relate to natural heritage were added or refined in the Greenbelt Plan 2017: ecological integrity, endangered species, habitat of endangered species and threatened species, key hydrologic areas, negative impact(s), significant, threatened species, vegetation protection zone, wetlands, woodlands, green infrastructure, highly vulnerable aquifers, low impact development, significant groundwater recharge area, significant surface water contribution areas, subwatershed plan, and watershed planning.

2.4.3 Changes to the Greenbelt Plan that may Result in ROP Policy and/or Mapping Refinements

Changes that may result in New Policies or Refinement to Existing Policies:

- There are a number of new policies or refinements to existing policies in the Greenbelt Plan that could result in the need for refinements to ROP policies or mapping. The relevant policies in the Greenbelt Plan are:
 - 3.2.2 with respect to guidance on connectivity;
 - 2.2.4.6 and 3.2.5.7 regarding agricultural policies;
 - 3.2.5.6 regarding the mapping of external connections and Urban River Valleys;
 - 4.2.1.2 (h) regarding new waste disposal sites and facilities and organic soil conditioning sites;
 - 4.2.3.3 regarding stormwater management systems prohibition in key natural heritage features, key hydrologic features and their associate vegetation protection zones in the Protected Countryside;
 - 4.3.2.3 regarding mineral aggregates;
 - 5.3, owing to a change from “should” to “shall” that could affect conformity of the ROP with the new Greenbelt Plan; and
 - 1.2.3, 5.6.1.3 and 6, with respect to Urban River Valleys.
- The ROPR must incorporate policies regarding the definition of the water resource system to conform with the Greenbelt Plan and Growth Plan. This includes appropriate designations and policies in official plans to provide for the long-term protection of key hydrologic features, key hydrologic areas and their functions.
- The ROPR should incorporate policies prohibiting stormwater management systems in key natural heritage features, key hydrologic features and their associated vegetation protection zones.
- The ROPR should consider policies regarding the consideration of the Great Lakes Strategy.

Changes that may require an update of Terminology, but are not Substantive:

- Section 2.4.2 of this Technical Memo identifies terminology changes in the Greenbelt Plan 2017 that may result in the need to refine terminology in the ROP to maintain clarity and consistency.
- There are several new definitions in the Greenbelt Plan 2017 that need to be cross referenced with the ROP to ensure consistency.

- There are changes in section numbering throughout the Greenbelt Plan 2017. Where the ROP refers to specific sections of the Greenbelt Plan, they should be checked to see if they have changed.

Changes that may affect Implementation of the ROP

- Section 1.4.1 of the Greenbelt Plan 2017 addresses consistency with other Provincial plans. Where the ROP defers to Provincial plans, it should be checked to ensure the correct policy is being referred to.

Changes that should not require ROP NHS Policy or Mapping Refinements, but could affect ROP NHS Policies Indirectly:

- Section 1.4.1 of the Greenbelt Plan 2017 indicates that its policies represent minimum standards and that municipalities can be more restrictive (exceptions to this direction, where municipalities cannot be more restrictive, are outlined in Section 5.3). This will not result in any ROP policy changes per se, but may be helpful in supporting any ROP policies that go beyond the Greenbelt Plan policies.
- Section 3.2.1 notes the pending release of the Provinces' Growth Plan NHS mapping. This will affect policies and mapping in the ROP and is discussed in the Growth Plan section of this Technical Memo and will be addressed in the Policy Audit and Mapping Audit Technical Memos.

2.5 Natural Heritage Reference Manual (2010)

2.5.1 Summary

- The Natural Heritage Reference Manual (NHRM) (2010) is a Provincial guidance document specifically written to assist in the implementation of the Provincial Policy Statement (2005). It is an oft-cited report that collectively articulates the approach the Province recommends for achieving consistency with the PPS 2005. Because it was written specifically for the 2005 PPS, its usefulness and relevance has diminished (as discussed further down), however it still contains substantial technical information that is extremely helpful in undertaking studies related to the identification and protection of natural heritage features. It is also relevant for addressing policies that are unchanged from the PPS 2005.
- The NHRM is a substantial and comprehensive document of 233 pages that provides technical guidance for natural heritage planning as it relates to the PPS 2005. It is divided into 16 sections:
 1. Introduction
 2. Provincial Policy Statement Implementation
 3. Natural Heritage Systems
 4. Natural Heritage Features and Areas
 5. Significant Habitat of Endangered and Threatened Species
 6. Significant Wetlands and Significant Coastal Wetlands
 7. Significant Woodlands
 8. Significant Valleylands
 9. Significant Wildlife Habitat
 10. Significant Areas of Natural and Scientific Interest
 11. Fish Habitat
 12. How to Protect: Municipal Planning Techniques and Tools
 13. Addressing Impacts of Development and Site Alteration
 14. Performance Indicators
 15. Provincial Land Use Planning Documents
 16. Annotated Bibliography: Adjacent Lands and Buffers Research
- Section 1 provides an overview and the purpose of the manual, which is to provide “technical guidance for implementing the natural heritage policies of the PPS 2005. The manual represents the Province’s recommended technical criteria and approaches for being consistent with the PPS in protecting natural heritage features and areas and natural heritage systems in Ontario.”
- Section 2 provides an overview of the PPS natural heritage policies and how municipalities can go beyond the PPS, and discusses the relationship of the PPS and official plans and Provincial plans.

- Section 3 outlines a recommended approach to natural heritage systems planning for authorities to use for protecting natural features and implementing the PPS according to policy 2.1.2
- Section 4 reviews the meaning and importance of “significant” and “adjacent lands” for natural heritage features and areas identified in the PPS (policies 2.1.3, 2.1.4, and 2.1.5). This section also describes the relationship and difference between adjacent lands and buffers as they relate to implementing the PPS.
- Sections 5 through 11 describe each of the natural heritage features and areas identified in PPS policies 2.1.3, 2.1.4, 2.1.5, provides a rationale for the need to protect these features/areas, gives criteria and/or evaluation procedures for the identification of these features/areas, and discusses adjacent lands widths.
- Section 12 reviews various municipal planning techniques and implementation tools (e.g. zoning by-laws) available to planning authorities as a means of protecting natural heritage systems and natural heritage features and areas.
- Section 13 provides guidance for evaluating potential impacts resulting from development and site alteration on natural heritage features, functions and adjacent lands. This section also provides guidance for undertaking an environmental impact study.
- Section 14 provides a general overview of the requirement by the Province to identify performance indicators for measuring the effectiveness of the policies related to natural heritage protection. Municipalities are “encouraged to establish performance indicators to monitor the implementation of the policies in their official plans” (reflected in PPS 2014, policy 4.15).
- Section 15 provides a list (not comprehensive and now out of date) of relevant Provincial land use planning documents, including policies, implementation direction and guidance that can be used to support the application of the PPS natural heritage policies.
- Section 16 includes a compilation of research, provided in the form of an annotated bibliography, used as reference to develop recommendations for the width and composition of adjacent lands and buffers to be used to protect natural heritage features and ecological functions.

2.5.2 What Has Changed Since ROPA 38 (2009)?

- The ROPA 38 post-dates the publication of the NHRM, thus there is nothing new in the NHRM that would not have been considered and/or addressed in the ROP. Moreover, since the Province approved ROPA 38, it can be assumed that it addressed Provincial interests, including anything from the NHRM. It should be noted that as a guidance document, as opposed to a policy document, the NHRM retains value as a reference and resource for developing technical feature identification criteria, but is only indirectly

relevant to the ROP policies. The Purpose and Scope in the NHRM (s.1.1) specially states that "... it does not add to or subtract from policy." In this respect the PPS itself is far more relevant to the ROP review.

2.5.3 Relevance to the ROPR

- As a guidance document issued by the Province to assist with the implementation of the Provincial Policy Statement, the NHRM is highly relevant, notwithstanding that it is becoming dated in some respects. The guidance it provides for the development of Natural Heritage Systems and protection of the features that comprise them is still very helpful and should be considered in the refinement of policies in the ROP. However, its greater utility is for giving guidance during the development process to ensure development applications conform with Provincial policy.
- The status of the NHRM and the obligation to consult it is somewhat unclear, since it was specifically written to assist with implementation of the PPS 2005, and the PPS has undergone revisions since that time. Also, the NHRM is very clear in the Purpose and Scope (s.1.1) that additional approaches for achieving the desired outcomes of the PPS may exist and puts the onus on a development proponent to demonstrate that there is consistency with the PPS.
- The guidance in the NHRM that relates directly to policy conformity is no longer relevant for those areas where the PPS has changed since 2005, but that it is still entirely relevant where policies are unchanged. Moreover, the majority of the science behind the inventory and analysis of natural heritage features, and the process and considerations for developing Natural Heritage Systems, have not substantially changed since 2010, thus the technical guidance in the NHRM is still relevant, albeit some methods and protocols may have been refined. Criteria for establishing significance will have changed since that time, especially with respect to Species at Risk, and more recent sources should be consulted in that regard.

2.6 Watershed Planning Guidelines (2018)

2.6.1 Summary

- Over recent years, the Province of Ontario (led by Ministry of the Environment, Conservation and Parks (MECP) and Ministry of Natural Resources and Forestry (MNRF) has conducted consultations on the preparation of a Guidance document for Watershed Planning in Ontario, specifically focused on land use planning authorities. This document, currently in draft (February 2018), remains under review. The following has been prepared as a brief summary / synopsis of the document; further details on best practices associated with watershed / subwatershed planning are provided in the Best Practices Technical Memo.
- The Province of Ontario has structured the Watershed Planning Guidance document to align with the four (4) Provincial Land Use Plans, specifically the Growth Plan for the Greater Golden Horseshoe 2017, the Greenbelt Plan, the Oak Ridges Moraine Conservation Plan, and the Niagara Escarpment Plan, as well as the Provincial Policy Statement.
- In brief, the Provincial Document on Watershed Planning Guidance provides an overview of the various phases considered core and fundamental to the watershed planning process, including:
 - Phase 1 Existing Conditions
 - Phase 2 Impact Scenarios and Direction
 - Phase 3 Watershed Plan Implementation
- A short discussion is provided on overarching principles, which are intended to guide watershed / subwatershed planning. The document provides a brief history of watershed planning in Ontario and describes the current framework related to watershed and subwatershed planning in the Province.
- A checklist is provided which summarizes the policies and associated compliance related to watershed planning as related to the Provincial plans and the Provincial Policy Statement.
- The roles of local municipalities in the Province are outlined along with a comparison to other similar studies (at a Master Plan level), and associated transitions to current watershed planning. The draft Watershed Planning document offers an outline of proposed / preferred approaches to engagement and including indigenous consultation / perspectives.
- Further, specific details are provided on the approach to:
 - Watershed delineation and characterization
 - Setting vision, objectives, goals and targets

- Watershed planning elements and best practices
- The document closes with details associated with how watershed / subwatershed plans are developed and how they conform to Provincial Policy; guidance on monitoring and adaptive management is provided as well. No indication is provided on when the document will be finalized and released.

2.6.2 What Has Changed Since ROPA 38 (2009)?

- The Watershed Planning Guidelines (Draft 2018) are the first iteration of these guidelines; therefore, the practices associated with watershed / subwatershed planning outlined in this document have all come into effect since ROPA 38 (2009).

2.6.3 Relevance to the ROPR

- As the Watershed Planning Guidelines (Draft 2018) post-date ROPA 38, and watershed planning is an integral component of water resource system management, the document in its entirety is worthy of consideration in the ROPR. The Guideline document however remains in draft and is ambiguous in nature, presenting several concerns regarding its implementation and relationship to Provincial policy. Insights regarding these concerns are detailed in the Best Practices Technical Memo. It is anticipated the Guidance document will undergo further revisions, therefore specifying ROP policy revisions based on the Guidance document recommendations is not appropriate at this time. High-level recommendations related to concepts discussed in the Guideline documents have been provided for consideration in the ROP.
- Section 3, Engagement and Indigenous Perspectives, provides best practices, resources for engagement, and guidance regarding Indigenous engagement in municipal watershed planning. The Halton ROP does not directly address Indigenous engagement for municipal watershed planning, however Section 144(4) establishes the objective of achieving integrated watershed management through partnership with all stakeholders within the watersheds, and the Region of Halton has Guidelines (Protocol) for Consulting First Nations on Planning Matters. The ROPR may consider adding policy regarding Indigenous engagement in municipal watershed planning.
- Section 4, Watershed Delineation & Characterization, provides resources to support watershed characterization, including delineation of watersheds and subwatersheds (4.1), identification of water resource systems (4.2) and characterization of existing conditions (4.3). Section 145(6) and Section 289.2 of the Halton ROP provide requirements that Watershed Plans must address. These requirements focus on various management strategies and plans, and while they include the requirement of a water budget (289.2(1)), watershed delineation and characterization are largely not addressed. The Halton ROPR may consider adding policy regarding watershed delineation and characterization.
- Section 5, Setting the Vision, Objectives, Goals & Targets, emphasizes the importance of monitoring and adapting watershed management strategies and plans to ensure they are

effective. Section 8, Monitoring & Adaptive Management, provides additional guidance regarding environmental monitoring plan components.

- The ROPR may consider adding a subsection to policy 145(6) or 289.2 of the Halton ROP that requires watershed plans be monitored and adapted as required, including triggers for watershed plan monitoring and adaptation.
- Section 6, Watershed Planning Elements & Best Practices, provides guidance in undertaking elements of watershed planning. The Halton ROP addresses many of these watershed planning elements, however omits several as well. Notable omissions include watershed planning for climate change, natural hazards and interconnections with natural systems. The ROPR may consider adding watershed planning policy related to climate change, natural hazards and interconnections with natural systems.
- Section 7, Developing the Plan & Implementing Provincial Policy, provides guidance regarding the implementation of watershed planning to inform land use and infrastructure planning. Connections related to water, wastewater and stormwater planning, as well as land use planning and development decision-making are provided. The Halton ROP includes watershed planning policy regarding development in Section 145(6)(c-e) and land management strategies in Section 289.2(2), however does not address watershed planning related to infrastructure. The ROPR may consider adding watershed planning policy related to infrastructure strategies and plans.

2.7 The Regional Natural Heritage System for the Growth Plan for the Greater Golden Horseshoe: Technical Report on Criteria, Rationale and Methods (2018) and Summary Report (2018)

2.7.1 Summary

- These two reports were prepared by the Province primarily to provide the technical guidance for the Regional Natural Heritage System for the Growth Plan (generally referred to as the Growth Plan NHS, or Provincial NHS). The Summary Report is an abbreviated summary of the main report and is not discussed further here.
- This document provides a definition and overview of Natural Heritage Systems in general. Its main purpose is to describe the principles, criteria and methods used to develop the Natural Heritage System map for the Growth Plan area of the Greater Golden Horseshoe.
- The report does not contain any policy direction, nor does it provide guidance on implementation from a planning perspective, both of which are described in the Growth Plan 2017, although the key Growth Plan policy is provided in the section "Municipal Refinement". This section of the report also provides some very general and high-level guidance for refinement of the Province's NHS.

- The criteria and mapping outlined in this summary document were not intended to identify or connect all natural areas and features that may be important to consider at a local or smaller scale. These smaller features and areas can be incorporated into a local Natural Heritage System that relates to this Regional Natural Heritage System.
- It is important to understand that the Growth Plan NHS is undertaken from a Provincial perspective for the entire Greater Golden Horseshoe (although it is confusingly titled a “Regional” NHS, a term usually used to describe NHSs undertaken by Regional Municipalities). It does not account for the protection of biodiversity at the scale of Halton Region. Thus it does not replace the Region’s Natural Heritage System, but complements it.
- One intent of the report is to attempt to reduce or eliminate the bias that is sometimes associated, whether intentionally or not, with individuals determining the mapping boundaries based on their knowledge or expertise. The methodology is intended to be transparent, with well-defined criteria and rationale, and is based on an automated and repeatable process.
- Because this report solely addresses mapping of the Province’s NHS, it will be addressed through the Mapping Audit Technical Memo.

2.7.2 What Has Changed Since ROPA 38 (2009)?

- The entire Provincial NHS is a new initiative that was introduced after the ROP was approved.

2.7.3 Relevance to the ROPR

- The Growth Plan (2017) policy 4.2.2.2 requires that Official Plans incorporate the Province’s NHS as an overlay in official plans, but does allow some refinement through a Municipal Comprehensive Review, such as Halton’s ROPR. For the ROPR, the mapping component will be achieved through the Mapping Audit (Phase 2, Task 4), including recommendations for refinements. The Policy Audit will suggest alternative approaches for including and/or integrating the relevant Growth Plan policies for the Provincial NHS into the ROP.

2.8 MNRF Wetland Conservation Strategy (2017)

2.8.1 Summary

- The MNRF Wetland Conservation Strategy for Ontario is a framework intended to guide the future of wetland conservation across the Province. The intent of the Strategy is to emphasize the need to protect wetlands and identify approaches to meet this goal.
- The Strategy itself includes two sections: the first section reviews what wetlands are, the state of wetlands in Ontario, value of wetlands, current status and threats, and the variety of legislation, regulations, policies, guidelines, programs and partnerships that support wetland conservation across the Province. The second section describes the new Wetland Conservation Strategy, including a vision, guiding principles, goals and desired outcomes, and a series of actions the Ontario government will undertake. These actions include:
 1. Improving Ontario's wetland inventory and mapping – use updated mapping, standardize wetland mapping techniques, monitor wetland change, incorporate citizen science information, undertake targeted evaluations in priority areas, develop monitoring framework to assess trends;
 2. Creating a No Net Loss policy for wetlands – consider option to prevent the net loss of wetlands in Ontario by developing wetland offsetting policy (i.e. to achieve a net gain in wetland area and ecological function). Firstly, maintain policy protection for wetlands already protected (e.g., PSWs, locally significant wetlands, etc.), determine land or resource use that could consider the approach of no net loss, identify which types of wetlands can or cannot be offset, ensure monitoring to inform best practices; and
 3. Improving guidance for the evaluation of significant wetlands – review of the methods for mapping and evaluating wetland significance according to the Ontario Wetland Evaluation System (OWES) is proposed in order to improve the usefulness and efficiency by which the OWES is used to identify significant wetlands and to inform land use and resource use decisions.
- This Strategy is guided by objectives that are aligned with four strategic directions that reflect critical components required to conserve Ontario's wetlands. These include awareness, knowledge, partnership and conservation.
- The success of the Strategy will be measured through two overarching targets concerning wetland area and functions. These targets will use 2010 as a baseline:
 1. By 2025, the net loss of wetland area and function is halted where wetland loss has been the greatest; and
 2. By 2030, a net gain in wetland area and function is achieved where wetland loss has been the greatest.

- The vision for the Wetland Conservation Strategy is: “Ontario’s wetlands and their functions are valued, conserved and restored to sustain biodiversity and to provide ecosystem services for present and future generations.”

2.8.2 What Has Changed Since ROPA 38 (2009)?

- The Wetland Conservation Strategy is a strategic guidance document that could inform how the Region decides to meet the objectives of achieving a net gain in wetland area and ecological functions through the approaches proposed in this document, such as adopting the ‘no net loss’ approach.

2.8.3 Relevance to the ROPR

- The Wetland Conservation Strategy for Ontario does provide insight into the direction the Province is considering with protecting wetlands.
- Updates to wetland mapping may affect NHS mapping within the ROP; however, under current practices, wetland mapping is updated periodically which similarly influences NHS mapping within the Region. Revisions to Provincial mapping as a result of the Strategy actions are not anticipated to have a new effect on ROP mapping; further consideration of integrating mapping updates will occur in the Mapping Audit Technical Memo.
- One of the more relevant actions the Province is considering is the ‘no net loss’ approach to wetland conservation. This approach recognizes wetland re-creation should only be used as a last resort (i.e. after all other options have been considered) and that the policies and existing laws protecting wetlands should not be weakened; however, this approach does consider the re-creation of wetlands of equal or greater area and ecological function in the landscape as an approach to offset negative impacts. The hierarchy of decisions related to this approach should follow the progression of evaluating alternatives, avoiding impacts, minimizing or mitigating unavoidable impacts, and offsetting where impacts cannot be avoided.
- It is important to note that the PPS 2014, Growth Plan 2017 and Greenbelt Plan 2017 use the language of *no negative impact*, not *no net loss*.

2.9 Significant Wildlife Habitat Technical Guide (2000)

2.9.1 Summary

- The Significant Wildlife Habitat Technical Guide (SWHTG) was prepared by the Ministry of Natural Resources to assist planning authorities and land use planning system participants in the identification of significant wildlife habitat (SWH).
- The need for guidance came as a result of SWH being identified in the 1996 PPS as a natural heritage feature. Although generally described in the 1999 Natural Heritage Reference Manual (OMNR 1999), the SWHTG provided the most up to date information available at the date of publication on specific technical issues related to the identification and protection of SWH.
- The document recognizes that the information presented will need to be updated as technology, techniques or information are improved or expanded for the identification of SWH. The SWHTG also recognizes that other acceptable approaches to identifying SWH could be utilized.
- The SWHTG notes that the document provides guidance and is not intended to add, or detract from, policy.
- The SWHTG provides detailed technical information on the identification, description, and prioritisation of significant wildlife habitat. This document is intended to provide guidance on “the development of strategies to identify and protect significant wildlife habitat in the municipal planning process. More specifically it:
 - describes in more detail some of the techniques, issues, and processes identified in the [1999] Natural Heritage Reference Manual
 - provides recommended approaches to describe, identify and prioritise significant wildlife habitat
 - provides a compilation of relevant technical support materials and references”

2.9.2 What Has Changed Since ROPA 38 (2009)

- The SWHTG has not been revised since its publication in 2000; however, additional guidance documents and tools have been released since ROPA 38 to supplement and provide additional direction for identifying, and addressing impacts to, Significant Wildlife Habitat. These documents are discussed in section 2.10 and 2.11 below.

2.9.3 Relevance to the ROPR

- Although the SWHTG is an older guidance document (almost 20 years) much of the concepts and technical information contained therein are still relevant to the identification of SWH including measures to avoid or mitigate impacts to SWH. This document should continue to be referred to for detailed technical information to support the identification of SWH.

2.10 Significant Wildlife Habitat Mitigation Support Tool Version 2014

2.10.1 Summary

- The Significant Wildlife Habitat Mitigation Support Tool Version 2014 (SWHMiST) is a guidance document that provides technical information regarding the functions of SWH, potential impacts resulting from changes in adjacent land use or from direct impacts and proposes mitigation strategies.
- The SWHMiST is intended to accompany the SWHTG (2000) with respect to SWH types and measures to implement to avoid, or mitigate, impacts to SWH. Each index reviews the type of SWH and habitat function and composition, and reviews the development types, their potential for impact and recommends mitigation options.

2.10.2 What Has Changed Since ROPA 38 (2009)

- The 2014 version of the SWHMiST post-dates ROPA 38 and as such is not recognized in the current Plan.

2.10.3 Relevance to the ROPR

- Although this document may not directly inform the policies or mapping of natural environment systems in Halton Region, the SWHMiST is an important guidance document that should be used in studies evaluating potential impacts resulting from development (e.g., Environmental Impact Assessment).
- Direction for referring to this document can come through the Environmental Impact Assessment Guidelines. Indirectly, the Official Plan could refer to the requirement to follow the EIA Guidelines therein containing the direction for referring to the SWHMiST when undertaking an evaluation of impacts to SWH.

2.11 Significant Wildlife Habitat Ecoregion Criteria Schedules (2015)

2.11.1 Summary

- The Significant Wildlife Habitat Ecoregion Criteria Schedules (SWHECS) were first released as a Draft in February 2012, and subsequently updated and released in final form in 2015.
- The SWHECS provides recommended criteria for identifying SWH. A separate “schedule” is provided for each of Ecoregions 3E, 5E, 6E and 7E. Due to the geographical and ecological differences in these Ecoregions, the criteria are specific for each Ecoregion.
- This document supports the Significant Wildlife Habitat Technical Guide (OMNR 2000). It provides detailed information on the description, criteria, information sources and assessment methods for significant wildlife habitat in each Ecoregion. The criteria for each SWH type are based on both scientific literature and expert knowledge (i.e., professional opinion).

For each SWH type, the following information is provided to assist with evaluation of habitat as SWH:

- Rationale for identification as SWH
- Indicator Wildlife Species
- Candidate SWH indicators:
 - Habitat identifiers based on Ecological Land Classification (ELC) vegetation communities (Lee et al. 1998)
 - Habitat descriptions and information sources
- Confirmed SWH Criteria:
 - Describes the extent of SWH as it relates to the ELC unit(s) and buffers / radius from the ELC unit(s)
- The SWHECS provide a set of detailed criteria for evaluation of SWH beyond the guidance provided in the SWHTG. This can allow SWH to be more easily identified or at least candidate SWH to be identified either using currently available information, or based on information gathered through site specific studies (e.g., EIA, sub-watershed study, Environmental Assessment).

2.11.2 What Has Changed Since ROPA 38 (2009)

- Both the draft and final versions of this document were released after ROPA 38.

2.11.3 Relevance to the ROPR

- Since SWH criteria may be updated from time to time by the MNRF based on more recent information or changes in the listing of Species at Risk (which can inform the identification of SWH for Special Concern and Rare Wildlife Species) caution should

be applied to mapping SWH as part of the natural environment system identified in Official Plan schedules.

- Like the SWHMiST, reference to this document can come through the Environmental Impact Assessment Guidelines. Indirectly, the Official Plan could refer to the requirement to follow the EIA Guidelines therein containing the direction for referring to the SWHECS when assessment potential presence of SWH.

SECTION 3.0 REGIONAL DOCUMENTS

3.1 The Regional Official Plan Review Phase 1 Directions Report (2016)

3.1.1 Summary

- The Regional Municipality of Halton Official Plan Review (ROPR) process is being undertaken in three (3) main phases:
 1. Phase 1 lays out the foundation and scopes the issues to be addressed in the ROPR.
 2. Phase 2 will provide detailed policy directions for the Regional Official Plan, utilizing a series of discussion papers to outline specific policy recommendations.
 3. Phase 3 will translate recommendations into policies for inclusion in a comprehensive Amendment to the existing Regional Official Plan (ROP).

- This Directions Report is the document reporting on the results of Phase 1 of the ROPR.

- Chapter 4 of the Directions Report contains a discussion of the Region's land use trends, focusing on a general overview of the Regional Urban System, greenfield and intensification development patterns, infrastructure and transportation systems, rural/agricultural system, and the natural heritage system. Chapter 4 specifies that the Region should update the ROP's source water protection policies and mapping, Aquifer Management Plan and Hydrogeological Studies and Best Management Practices for Groundwater Protection Guidelines to conform to the Halton - Hamilton Region, CTC Region, and Grand River Source Protection Plans.

- Chapter 5 of the Directions Report describes the ROP policy areas by "theme" that should be reviewed in Phase 2 of the ROPR. Chapter 5 specifies that the existing natural heritage system and water resources policies with respect to applicable source protection plans (i.e., Halton - Hamilton Region, CTC Region, and Grand River Protection Plan) should be strengthened. Under this chapter, it is also specified that to achieve conformity with Provincial policies, the ROPR should review existing ROP policies to ensure alignment with the applicable source protection plans.

3.2 Communication and Engagement Strategy (2017)

3.2.1 Summary

- Regional staff prepared the Communication and Engagement Strategy to guide and promote public participation and stakeholder engagement activities during Phases 2 and 3 (see section 3.22 of this document) of the ROPR.
- Key elements of the Communication and Engagement Strategy include:
 - Guiding principles and objectives for public engagement;
 - Identification of key audiences; and
 - Descriptions of communication and engagement tools; and monitoring and reporting.
- The Strategy encourages public, stakeholder and agency participation, and promotes public and stakeholder engagement activities during Phases 2 and 3 (see section 3.22 of this document) of ROPR.

3.2.2 Key Takeaways

- The Strategy outlines five (5) guiding principles (accountability, transparency, respect, inclusivity and responsiveness) to ensure meaningful opportunities for community engagement are provided during the ROPR process.
- The Strategy also identifies five (5) objectives for the ROPR Phases 2 and 3:
 1. Recognize the shared partnership between the Province, Region and Local Municipalities to coordinate land use planning;
 2. Generate widespread awareness among stakeholders of the opportunity to participate in ROPR;
 3. Provide multiple ways for stakeholders and the public to learn about land use planning in the Region and provide feedback throughout the review process;
 4. Document the feedback through an engagement process and demonstrate how the input contributed to the planning/decision-making process; and
 5. Demonstrate how this input has contributed to the planning and decision-making process.
- The Communication and Engagement Strategy outlines methods to gather input from a broad range of stakeholders throughout the ROPR process. Key stakeholders include:
 - Halton's Local Municipalities;
 - Regional Advisory Committees;
 - Ministries of Municipal Affairs, Natural Resources, Environment and Climate Change, Agriculture and Food and Rural Affairs;
 - Conservation Authorities;
 - Indigenous Communities;
 - Community Organizations;
 - Business Associations;

- Ratepayer Associations; and
- The public.

- The Communication and Engagement Strategy identifies a number of digital tools (e.g., online education and resources, social media and email notifications, web and mobile surveys, and posting of all materials on the Regional website), as well as traditional engagement and communication tools (e.g., face to face statutory public meetings and public information centres, newspaper notifications, and educational products and materials) to be used throughout the ROPR process to promote participation and broaden stakeholder and public engagement.

- The Communication and Engagement Strategy sets out a process to monitor data on the level of public and stakeholder participation and will track to determine effectiveness of tools and events, as well as level of interest and interaction during the ROPR process.

3.3 Sustainable Halton Background Reports (2007/2009)

3.3.1 Summary: Sustainable Halton Options for a Natural Heritage System (May 2007)

- The purpose of the 2007 Sustainable Halton Options for a Natural Heritage System (2007 NHS Options Report) report was to develop options for a Regional Natural Heritage System. The project provided mapped options to illustrate Natural Heritage System options for the Region. The primary study area was the area located between the designated Urban Areas in Halton and areas of the Provincial Greenbelt and Niagara Escarpment.
- The 2007 NHS Options Report was the first of two background reports prepared for the Region as part of the Official Plan background work called “Sustainable Halton” (originally referred to as “Durable Halton”) that provided direction to the natural heritage policies in ROPA 38. The purpose of the Options Report was to “articulate options for defining and identifying a Regional Natural Heritage System (NHS)” (NHS Options Report, p.9).
- The 2007 NHS Options Report is structured into 5 sections:
 1. Introduction
 2. Rationale for a Regional Natural Heritage System
 3. Developing a NHS for Halton Region
 4. Alternative Natural Heritage Systems for Halton
 5. Discussion of Options
- The Introduction describes the Purpose of the report and the Approach taken to the development of NHS options. The Rationale provides the context and justification for a NHS approach including a high-level discussion of the effects of major changes in land use on biodiversity. Part “A” in the Rationale provides a useful summary of the history of natural feature protection in the Region going back to Council’s creation of the Environmental and Ecological Advisory Committee; a novel and visionary decision that set the stage for the Region’s long legacy of protecting its environment. Part “B” of the Rationale gives a brief overview of then current ROP policies that served to guide the development of the NHS options. Section III provides the background for the development of the options, starting with a summary description of the character of the pre-European landscape in Ontario, and concepts for natural heritage systems including: influence of the surrounding matrix, functional linkages and core areas. The section concludes with Guiding Principles for a NHS for Halton Region. Section IV, the Alternative Natural Heritage Systems for Halton, presents the main structural components of Halton (Escarpment, main surface drainage features, etc.), and then three alternative options for a NHS:
 - Option 1 NHS “Minimum Policy Standards”

- Based on the existing Greenlands “A” and “B” identified in the Regional Official Plan (ROP), Candidate Significant Woodlands as defined in the ROP and the NHS defined as part of the Province’s Greenbelt Plan.
- Developed to approximately illustrate the current situation with respect to the protection of natural features in the Region. However, it treats all areas designated as Greenlands and candidate Significant Woodlands as being completely protected, when in reality, existing policies do allow some development.
- Halton Region’s Greenlands are only partially system-based, having developed out of the features-based approach of the original ESA program. They pre-date the current NHS approach (2007).
- Option 2 NHS “Systems-based Approach”
 - Builds on Option 1 by increasing the size of some existing core areas and increasing the number of core areas to provide better representation of the two main biophysical landscapes in the Region, the Niagara Escarpment and the Peel Plain (the area below the escarpment). The resulting core areas should be large enough to provide habitat that will sustain Halton’s biological diversity. Most significantly, Option 2 increases the connectivity among natural features.
- Option 3 NHS “Enhanced Ecological Integrity”
 - The third option builds on the Option 2 NHS largely by providing additional core areas on the Peel Plain and further enhancing the linkages among natural features.
 - Proposes “regional centres of biodiversity”, which are large (>200 ha) core areas intended to provide the conditions necessary for the long term sustainability of regional biodiversity.
 - Connectivity among core areas was improved primarily by adding alternative linkages. Option 3 NHS also addresses the need for mitigation of the impacts of major highways on connectivity by proposing wildlife crossing overpasses and underpasses at key locations.
- Option 1 was basically the status quo based on the then current Greenlands “A” and “B” approach, Option 2 evolved Option 1 into a true systems approach by providing linkages among the various features as well as some enhancements of core areas, and Option 3 provided a more robust NHS that would have a greater probability of preserving the Region’s biodiversity as urban growth occurred and agricultural lands became urbanized. Goals, Objectives, Guidelines and Descriptions are provided for each of the three options. Section V of the NHS Options Report compares and summarizes the three alternative options. An Appendix is provided that gives a more detailed description of the Approach to the study.
- The 2007 NHS Options Report outlined important principles relating the development of Natural Heritage System (NHS) options for the Region, including:
 1. Develop a Regional NHS connected with natural features outside the Region.

2. Refine existing linkages (e.g., Bronte Creek, 16 mile Creek) to ensure they are ecologically functional.
3. Identify linkages that connect natural features that would otherwise be disconnected by urban development.
4. Refine the shape and size of natural features, and/or connect existing natural features, such that i) the perimeter/area ratio is minimized, and ii) large patches are created that will sustain Halton's biological diversity.
5. Develop core areas for sustaining Halton's biological diversity that represent the main biophysical landscapes in Halton, i.e., the Escarpment Lands and the Peel Plain.
6. Implement the principle of redundancy in the Regional NHS by providing alternate linkages among natural features.
7. In recognition that the extent of future impacts cannot be predicted and that our understanding of natural systems is incomplete, take a precautionary approach in the design of the Regional NHS to minimize the risk of further reducing regional biodiversity and ecological function.
8. Build on the existing, established network of natural features in Halton that have been established through the Region's Greenlands policies, the Niagara Escarpment Plan and the Provincial Greenbelt Plan, and the programs and policies of the three conservation authorities whose jurisdictions extend into Halton: Conservation Halton, Credit Valley Conservation and the Grand River Conservation Authority.

3.3.2 2007 NHS Options Report Relationship to ROPA 38

- The 2007 NHS Options Report is a key background report as it provides the background, rationale and process by which the current NHS is presented in ROPA 38.

3.3.3 Summary: Sustainable Halton Report Phase 3: Natural Heritage System Definition & Implementation (April 2009)

- The 2009 Sustainable Halton, Phase 3, Natural Heritage System Definition & Implementation Report (NHS Definitions & Implementations Report) further developed and refined the initial NHS Option 3 concept presented in the 2007 Sustainable Halton Background Report. The conceptual Option 3 NHS required further evaluation of alternatives, refinements and input from planners and the public. Growth Concepts were reviewed in consultation with staff from the Region of Halton, Oakville, Burlington, Milton, Halton Hills, Niagara Escarpment Commission, Ministry of Natural Resources, Conservation Halton, the Hamilton Royal Botanical Garden and the general public.
- In the introduction of the 2009 NHS Definitions & Implementations Report, it refers to the NHS being developed "... to provide direction for future urban and employment land uses and to provide certainty in the protection of the rich native biodiversity that exists within rural areas." Similarly, section 2.1 proposed a goal for the NHS "To provide a high degree of confidence that the biological diversity and ecological function of the Region of Halton will be preserved..." It is noteworthy that the notions of "providing confidence", and "providing certainty" that biological diversity will be preserved was carried through to the

wording of the goal of the Region's Natural Heritage System (s. 114) and has subsequently been used by staff for the interpretation of Regional policy as part of the review of development applications.

- The 2009 NHS Definitions & Implementations Report provides:
 - a brief introduction that provides context for the report;
 - a general description of the proposed NHS;
 - a description of the process for assembling a NHS;
 - a discussion of the need for boundary adjustments; and
 - an implementation framework that provides guidance for refining NHS boundaries.
- The 2009 NHS Definitions & Implementations Report implementation framework provides guidance for refinement of the NHS. It addresses the components of the NHS as they were described in Option 3 (i.e., it is different terminology to that in ROPA 38):
 - Greenbelt NHS;
 - NEP Escarpment Natural Areas and Escarpment Protection Areas;
 - Natural Heritage Features and Functions within Existing Urban Areas;
 - Core Areas;
 - Core Enhancement Areas;
 - Centres for Biodiversity;
 - Watercourses, Surface Water Features and Floodplains;
 - Linkages;
 - Buffers; and
 - Physical Implementation.
- For each of these NHS components listed above (except the section on Physical Interpretation), the report provides a description, discussion of the flexibility that should be considered when contemplating boundary refinements and identifies the "Existing Policy Authority" for that component. The Physical Implementation section discusses mapping and provides recommendations to be considered in future planning exercises.

3.3.4 2009 NHS Options Report Relationship to ROPA 38

- It is important to note that the NHS Options Report was completed in 2009 while the development of policy was being undertaken for ROPA 38, thus it served to inform the development of policies in ROPA 38. However, the natural heritage policies that were approved through ROPA 38 were subject to a broad process which included review by the Province, area municipalities and numerous stakeholders (including appellants to the plan), and they were continually refined through that process, i.e. the policies which implement the Region's NHS were guided by far more than the direction in the Sustainable Halton Options for a Natural Heritage System report. Because ROPA 38 post-dates the Sustainable Halton Options for a Natural Heritage System report, the latter cannot strictly be considered a report to give guidance for implementing ROPA 38, but as a report that provides perspective and guidance for refining the NHS, as permitted by the ROPA 38 policies. Also, the 2009 NHS Options Report was not revised to reflect the final policy

wording in ROPA 38 which resulted from the official plan review process and as a result it has some terminology such as “core areas” and “core area enhancements” that are not reflected in ROPA 38. Conversely, some ROPA 38 terminology such as “Key Features” is not used in the 2009 NHS Options Report. Thus it should be understood that the 2009 NHS Options Report, while very helpful for implementing and refining the NHS, was not written as a framework to implement ROPA 38 per se.

3.3.5 Relevance to the ROPR

3.3.5.1 2007 NHS Options Report NHS Policy Issues

- With respect to the options presented, only Option 3 is really relevant to the current review as it was the one selected by Council to form the basis of a NHS in ROPA 38. The background sections are helpful for providing context, and it would be useful to update them and incorporate them into any future guidance documents (e.g., possibly any future revised EIA Guidelines) as they can assist in providing an understanding of the intent of the Region’s NHS and a systems-based approach. Likewise, the description of Option 3 provides the thinking behind enhancements and linkages for core areas (which are roughly equivalent to the “key features” in ROPA 38), and thus can inform boundary refinements as they are proposed.

3.3.5.2 2009 NHS Options Report NHS Policy Issues

- Even though some of the terminology is dated, the 2009 NHS Options Report provides much of the guidance for the current implementation of the NHS. It also assists in providing an understanding of the “systems approach” to natural heritage protection, which is still widely under-appreciated when refinements are proposed through environmental studies that support development applications, subwatershed studies and secondary plans.
- It also articulates the purpose of an NHS as a tool to mitigate the stresses imposed on natural systems resulting from a major change in land use (i.e., from agriculture to urban).
- More recent guidance has been developed for some components such as buffers (the buffer framework developed by the Region) which supersedes the Sustainable Halton Options for a Natural Heritage System report. It is noted that while the Sustainable Halton Options for a Natural Heritage System report is not noted or referenced in ROPA 38, it is referenced in the Region’s EIA Guidelines (2014) and the Region’s Framework for Regional Natural Heritage System Buffer Width Refinements for Area-Specific Planning (Buffer Framework). Although neither the EIA Guidelines nor the Buffer Framework require the use of the Sustainable Halton Options for a Natural Heritage System report, Regional staff sometimes note it as a document to consult in refining the NHS boundaries and determining buffer widths.
- Consideration could be given to development of an updated Natural Environment System(s) Report. The report could be a review of the previous report outcomes, current

implementation and bring in current best practices, current Provincial policy requirements, and updated terminology from the ROP.

3.4 Halton Region's Environmental Impact Assessment Guidelines (2009)

3.4.1 Summary

- The Halton Region Environmental Assessment (EIA) Guidelines (2009) provide direction to development proponents whenever an EIA is appropriate to demonstrate conformity with natural heritage policies in the ROP, in particular ROP s.116.1 and 118(2), and it is a requirement to satisfy s.118(3), subject to several exceptions, as well as s.141(2).
- The EIA Guidelines provide comprehensive guidance on when an EIA is required and what it should include. It is composed of three main sections:
 1. Introduction
 2. Recommended Procedures, and
 3. Contents of an EIA
- The Introduction clarifies the Purpose of the Guidelines and it is noteworthy that this is subtly different from the purpose of an EIA as described in the ROP s.118(3) d), and also quoted in the Introduction to the EIA Guidelines.
- The Purpose directly quotes ROP policies in places where it serves to tie requirements back to policy. The Introduction also provides clarity on:
 1. when an EIA is required;
 2. the Planning Approval authority and roles of the various Agencies;
 3. Role of the Proponent; and,
 4. a specific subsection to clarify how they apply to Agricultural Buildings, specifically noting the importance of agriculture to the Region and the role of the agricultural community in preserving natural heritage.
- The section on Procedure includes a subsection on Pre-consultation that covers Screening, Scoping and Development of an EIA Terms of Reference (ToR). The Guidelines note that there is a requirement for pre-consultation, however, this is not included in ROP policy thus there may be a question as to whether a Guideline can provide "requirements", which may amount to policies.
- In considering the role of the EIA Guidelines, it should be noted that they are referred to as containing policies, but also specifically note that they "do not introduce additional policies" (see the preamble following the cover page). It is unclear if the EIA Guidelines are a Council-approved document. This ambiguity as to whether the Guidelines have a similar weight to a council-approved document should be clarified, although it is clear that in the event of a contradiction, the ROP prevails (see pre-amble following the cover page). Likewise, the EIA Guidelines refer to the "required" content of an EIA.
- The Pre-consultation subsection also provides a comprehensive list of possible requirements of an EIA, the final requirements being determined through the pre-

consultation process. The last subsection under Procedure specifically notes that studies to complete an EIA may only proceed after a ToR has been approved, although it recognizes exceptions for seasonally-sensitive studies. There is a subsection on Delineating and Refining the Regional NHS Boundary that refers to standard sources (Ontario Wetland Evaluation System (OWES)) as well as the Region's Definition & Implementation Report (see below).

- It is noteworthy that the EIA Guidelines specifically note that a "systems approach" should be undertaken (our emphasis). It is noted that a key requirement for a Natural Heritage System is to maintain a systems approach and that the use of "should" as opposed to "required" needs to be considered (with regard to the earlier comment on how prescriptive Guidelines can be).
- The last two subsections under Procedures address the submission and refinement of draft reports and the submission of a final report. The last section of the EIA Guidelines addresses the contents of an EIA. It provides a comprehensive annotated example Table of Contents that describes the expectations of each section in an EIA. The EIA Guidelines also contain nine Appendices that cover:
 - figures that illustrate when and EIA is triggered;
 - contact information for planning approval authorities;
 - screening and scoping checklist for agricultural buildings;
 - an EIA procedure flow chart;
 - EIA methods and references;
 - relevant Maps from the ROP;
 - a list of potential environmental impacts;
 - potential mitigation measures; and
 - definitions.

3.4.2 What Has Changed Since ROPA 38 (2009)?

- The EIA Guidelines were held in draft form while ROPA 38 was undertaken and not finalized until 2014 so that they should reflect any changes prompted by ROPA 38. Moreover, the EIA Guidelines reflect any guidance from the Provincial plans that were current at the time. Since there have been updates to the NEP, Growth Plan and the Greenbelt Plan since that time, the EIA Guidelines are being reviewed to make them consistent with the most recent Provincial plans. The updated EIA Guideline will be available in 2020.

3.4.3 Relevance to the ROPR

- An EIA is the appropriate study to undertake whenever there is need to demonstrate no negative impact and where higher level studies (e.g., a Subwatershed Impact Study) have not been prepared; for example: to refine the boundaries of the RNHS (ROP s.116.1), as a result of a proposed change to a component of the RNHS (ROP s.118(2)); or as a result of proposed development or site alteration (ROP s.118(3)). In the case of s.118(3), an EIA is a requirement, subject to several exceptions. The EIA Guidelines is a highly relevant

document that serves to assist in the implementation of some key natural heritage policies in the ROP.

- The current EIA guideline was approved in 2014; a review and update process is currently underway. The guideline will be revised to reflect current ROP language and policies (i.e. ROPA 38) with updated EIA guidelines to be available in 2020.
- There are currently no guidelines for preparation of Subwatershed Studies, or Subwatershed Impact Studies. Consideration could be given to preparation of guidelines for these higher-level studies to compliment the EIA guidelines.
- Relevant sections of the Definition & Implementation report could be integrated into relevant study guidelines (e.g., EIA). Similarly, consideration should be given to if and how the Buffer Framework, or other direction with respect to vegetation protection zones / buffers could be integrated into the guideline(s), as appropriate for the type of study (i.e., may vary between an EIA and a Subwatershed Study). Incorporation of these elements would bring all relevant information for refining boundaries to the Regional NHS and determining impacts into consolidated guideline(s), assisting proponents, and review and approval agencies.

3.5 Regional Buffer Refinement Framework (2017)

3.5.1 Summary

- The Framework for Regional Natural Heritage System Buffer Width Refinements for Area-Specific Planning (Buffer Refinement Framework) was developed to provide assistance to those considering buffer width refinements through areas specific planning exercises. Buffer widths are typically one of the most consistent areas of disagreement that arises through the review of studies supporting development. Appropriate buffers are important since they are one of the main mitigation tools for addressing stresses resulting from urban land uses. They are also identified as a component of the NHS. The purpose of the Buffer Refinement Framework is to "... provide assistance in identifying refinements to the buffer component of the Regional Natural Heritage System (RNHS) in the context of developing and implementing an Area-Specific Plan, in accordance with ROP policies." (Overview, un-numbered page preceding the Table of Contents). An Area-Specific Plan is defined as "a Local Official Plan Amendment applying to a specific geographic area such as a secondary plan or a Regional Official Plan Amendment applying to a specific geographic area" (ROP 216.2). As such, the Buffer Refinement Framework relates specifically to a set of development applications that would trigger an OPA, and not necessarily other development applications where an EIA is required (e.g. severance, building permit, zoning amendment, etc.).
- The document title is noteworthy in the use of "refinement" as opposed to "determination". This inherently reflects the Region's position on buffers. As noted in the purpose from the Overview, buffers are part of the RNHS (ROP s.115.3(4) and are included in the RNHS on Map 1G (noting again that they are lumped with linkages and enhancements in the mapping). It is taken for granted that the buffers are as mapped on Map 1G, and that they are refined from that, as opposed to be determined. Thus, changes to buffer widths constitute a refinement to the RNHS and are subject to ROP s.116.1 a) and 118(2).
- The Buffer Refinement Framework provides a general overview of the key ROP policies related to refinements of the RNHS, gives direction for applying the Buffer Refinement Framework during different stages of the Area-Specific Plan process, where buffers would be appropriate (e.g., generally greenfield developments, rather than in-fill developments) and outlines a methodology for determining buffer widths.
- The Buffer Refinement Framework is organized into the following sections:
 - Section 1.0 provides background information to assist in understanding the Framework.
 - Section 2.0 explains the Framework's application to developing and implementing an Area -Specific Plan.
 - Section 3.0 sets out the methodology through which buffer refinements are determined.

- Section 4.0 provides information on periodic review.
- Section 5.0 provides definitions for defined terms which are italicized throughout the document.
- Appendix A & B both provide additional technical information for reference purposes.

- Section 1.0 provides an overview of the relevant natural heritage policies in ROP s.114 through s.118 as they relate to protection of the RNHS, and the inclusion of the buffers as a component of the RNHS (s.115(3)). The definition of buffers is noted, as provided in ROP s.220.1.1. The definition does recognize that the extent (or width) of buffers may be refined through a Subwatershed Study, an Environmental Impact Assessment, or similar study. When undertaking such studies, consideration for the sensitivity and significance of the Key Feature, its ecological functions and the long-term ecological functions of the RNHS must be assessed when determining appropriate buffer widths. From a policy perspective, the proposed buffer width must be sufficient to mitigate impacts to the RNHS by meeting the test of no negative impact (s.118(2)(b)).

- Section 2.0 outlines the application and use of the Buffer Refinement Framework as it relates to the Area-Specific Plan process. The direction provided in this section recommends that a 30 m buffer be applied until all details regarding a full characterization of the feature and its functions, and the final detailed land use plan (e.g. uses, lot configuration, road network, grading, storm water management, trails, etc.) is known. Only once the feature and its functions have been fully characterized and the details of the land use plan developed (typically through an Environmental Implementation Report, Functional Servicing Study or Environmental Impact Assessment), can the methods to refine buffers be applied. The definition of buffers does recognize that the extent of buffers and activities permitted within buffers can vary, and the Buffer Refinement Framework provides guidance by describing the circumstances under which buffers can be refined and methodology for proposing refinements and determining an ecologically appropriate buffer.

- Section 3.0 outlines the buffer refinement methodology. This process includes a number of steps: 1) assessing risk factors, 2) assessing mitigation factors, and 3) assessing uses proposed within the buffer. Step 1 considers adjacent land use and applies a 'risk score' of low, medium and high, depending on the presumed potential for impact. Also considered is the significance / sensitivity of the feature, which is also provided a risk score of low, medium and high. Combining these risk scores, an uncertainty ranking of low, medium or high is determined. These risk scores inform whether the 30 m buffer should be potentially increased, remain as proposed, or decreased. Step 2 considers other mitigation factors, such as fencing the feature or enhancement plantings, that may reduce the width of the buffer, as long as the intended function of the buffer is maintained. Step 3 considers potential permitted uses within the buffer that may require an increase in the buffer width where those uses compromise the function of the buffer. Combining Steps 1 through 3 result in the final recommended buffer width.

3.5.2 What Has Changed Since ROPA 38 (2009)?

- The Buffer Refinement Framework was developed following the approval of ROPA 38. There currently is no direct mention of the Buffer Refinement Framework in the ROP, nor is it referred to in the Region's EIA Guidelines, which it also post-dates. It is noteworthy that the ROP only mentions buffers twice (in reference to buffers as a mitigation tool to protect Key Features): once as a component of the RNHS, and in the definitions. However, they are included within the RNHS as illustrated on Map 1, (excluding the urban areas, and they are combined with linkages and enhancements). The ROP does not prescribe the need for buffers but seems to take for granted that they will be applied when development is proposed as part of an Area-Specific Plan, adjacent to key features. The EIA Guidelines list buffers as an example of mitigation measures (in Appendix H), notes the 30 m width recommendation in the Definition & Implementation report (s.2.2), and otherwise discusses them as if they will be applied, but does not indicate a requirement for them per se. It is thus difficult to determine or describe any obligation to use the Buffer Refinement Framework owing the lack of a specific policy requirement in the ROP.
- It is worth noting that the Buffer Framework is not a formal Guideline listed in Section 192 of the ROP. They were not developed in consultation with all stakeholders (i.e., local area municipalities, development community, conservation authorities) and were not endorsed by Regional Council.

3.5.3 Relevance to the ROPR

- Buffers are a component of the RNHS and are mapped on Map 1G based on guidance from the Definition & Implementation report (they are generally 30 m in width). They are universally accepted as a principal mitigation tool to address stresses on natural features resulting from adjacent development. Moreover, buffers (also referred to as vegetation protection zones) are a requirement under several Provincial plans and policies (e.g., Growth Plan, Greenbelt Plan).
- As noted above, the Buffer Framework in its current form has not been endorsed by Regional Council; it does however provide guidance with respect to the refinement of the RNHS within the specific context of buffers and vegetation protection zones. Consideration for applying appropriately sized buffers as a refinement to the Regional NHS is generally acknowledged through Section 116.1 of the ROP, which states that the Regional NHS may be refined.
- The Buffer Refinement Framework was developed primarily for use in the context of designated greenfield development (e.g. through a Subwatershed Study or Area Specific Plan) and has limited application to infill or rural development.
- Consideration could be given to updating the framework based on the experiences of implementation and updated literature and knowledge on the use and efficacy of buffers, expanding it or developing a second framework for rural and infill development, and / or

formalizing the framework(s) as guideline(s) through stakeholder consultation and Regional Council endorsement.

3.6 North Aldershot OPR PIC Handout

3.6.1 Summary

- **ROPR Phase 2 (Fall 2016- Fall 2019)**
 - Between Fall 2016 and Fall 2019 the Region will be preparing draft papers covering the five (5) policy theme directions (see table below). The draft papers will:
 - Undertake background research studies
 - Review existing Regional OP policies
 - Analyze and evaluate recommended options

Policy Theme	Analysis
1. Urban System & Growth Management Analysis	A. Growth Scenario <ul style="list-style-type: none"> ▪ Review demographic, housing, and employment trends ▪ Produce growth scenarios for the 2031-2041 horizon in keeping with the Growth Plan 2017
	B. Residential Land Needs <ul style="list-style-type: none"> ▪ Identify growth scenarios for the 2031-2041 horizon in keeping with the Growth Plan 2017
	C. Employment System <ul style="list-style-type: none"> ▪ Confirm supply of existing employment lands and identify needs and implications based on growth scenarios
	D. Growth Concepts <ul style="list-style-type: none"> ▪ Develop, evaluate, and recommend growth concepts to accommodate growth to 2041
	E. 2031 – 2041 Growth Management Plan <ul style="list-style-type: none"> ▪ Produce an updated growth management strategy and implementation plan for the 2031-2041 period
2. Rural & Agricultural System Analysis	<ul style="list-style-type: none"> ▪ Undertake a background review and analyze best practices ▪ Complete a policy audit of the PPS, Updated Provincial plans and Rural Agricultural Strategy
3. Natural Heritage System Review	A. Assessment Conformity with Provincial Plans and Policies <ul style="list-style-type: none"> ▪ Review Source Protection Plans and prepare recommendations outlining policy/mapping changes to achieve conformity ▪ Complete a policy audit of the ROP and changes to Provincial plans, policies and mapping
4. Climate Change Mitigation/Adaptation	A. Review the Region’s role in climate change readiness and bring ROP into conformity with the PPS and Provincial plans
5. Implementation	A. Assess the Effectiveness of Existing Tools B. Housekeeping Changes

- **ROPR Phase 3 (Fall 2019-Summer 2020)**
 - Between Fall 2019 and Summer 2020 the Region will be preparing:
 1. Policy Directions Report
 - Prepare a Policy Directions Synthesis Report summarizing the key recommendations from the Phase 2 Discussion Papers
 - Prepare a draft Policy Directions Report for consultation
 - Finalize the Policy Directions report for presentation to Council

2. Regional Official Plan Amendment (ROPA)
 - Prepare a Draft ROPA for consultation
 - Prepare a Final ROPA for adoption by Council

3.7 BILD (Halton Chapter) Meeting ROP Q+A (March 22, April 4, April 27 2017 and February 2, 2018)

3.7.1 Summary

- March 22, 2017: Regional staff were requested to present information on the ROPR process to the Halton Chapter of BILD.
- April 4, 2017: HAAC received a presentation on the structure of the ROP and the Agricultural System (land use and permitted uses in existing ROP). Additionally, the committee was asked if there were requests or interest in the development of specific education materials.
- April 27, 2017: Policy Planning Staff were invited by Councillor Craven to provide an update to the Annual meeting of the North Aldershot Ratepayers.
- February 2, 2018: The Real Estate Board received a presentation on the structure of the ROPR process and topics under review.

3.7.2 Key Implications for ROPR of NHS Policies

- During the four (4) meetings, stakeholders asked a variety of questions. The following stakeholders questions are highlighted because they relate to the scope of the *Review of the Regional Official Plan (ROPR) NHS Policies + Mapping* project:
 - *HAAC NHS Question:* With the Provincial plans and Regional NHS there are 5 levels of protection for the NHS. Why is this necessary?
 - *Region's Answer:* The Provincial plans are not within the control of the Region, nor can we choose to not include these land uses and rules in our OP. As well, the Region is required to identify Key Features and map them for protection, as done in the current OP.

The Region was ahead of the Province in identifying and designating an RNHS, but the Province is identifying an NHS System as part of the current Coordinated Plans review, and we will be responding to that once it is released. This is not going to change.

- *HAAC NHS Question:* How was the NHS identified, what is the math and science?
 - *Region's Answer:* Scientific process followed, as was detailed mapping during the previous Official Plan drafting. More details will be provided by Environmental Planner at May Meeting.
- *HAAC NHS Comment:* Need simplified definition of NHS for general public (agricultural land is not park land) and for farmers to help clarify what counts.
 - *Region's Answer:* This will be considered as part of the education materials development. Good idea to have simplified explanations for land owners.

- *North Aldershot Ratepayers NHS Question:* When that happens or Conservation Authorities decide land is protected there should be compensation or land owners. Where is our compensation? The Conservation Authority Act has identification for compensation for private land owners.
 - *Region's Answer:* The Region does consult with the Conservation Authorities on Natural Heritage reviews during planning processes. However, the Region is reviewing the role of CAs in Regional Planning. This has been directed by Council as well.

- *North Aldershot Ratepayers NHS Comment:* We don't trust consultation. Public consultation hasn't been listened to, and we have been fighting development for 20 years.
 - *Region's Answer:* Information and consultation on the Official Plan Review will be going on throughout the OP process. We have started a webpage with the background information and have created a form for interested people to sign up to receive notifications. Notifications will be sent when there are updates or consultation events.
The policies in the North Aldershot plan were innovative in 1994, but there have been no updates, so the plan is very out of date, is not in keeping with the Provincial plans or up to date with current environmental protection policies. This will be looked at as part of the larger Official Plan Review process.

- *North Aldershot Ratepayers NHS Question:* Why did agricultural lands get taken away, by making all those lands Natural Heritage during ROPA 38?
 - *Region's Answer:* No land was removed from agricultural land use, and no restrictions or changes to land use as long as land uses are in keeping with agricultural production. All normal farm practices are permitted in areas identified as Natural Heritage.

- *North Aldershot Ratepayers NHS Question:* If no development in agriculture and NHS lands, where will development happen?
 - *Region's Answer:* The Provincial plans are directing new growth to be accommodated in existing urban areas.

- *North Aldershot Ratepayers NHS Question:* Will there be an engineering study or geological study? This area has a high water table and new density will increase flooding.
 - *Region's Answer:* Servicing, flooding, storm water flood risks and erosion will all be considered. Servicing is key to identifying growth areas.

- *North Aldershot Ratepayers NHS Question:* What's next?
 - *Region's Answer:* The North Aldershot policies will be looked at through three lenses, as part of the Natural Heritage, Growth and Agriculture reviews. There will

be Public meetings, online information and opportunities to tell us what you think, like through surveys. We will be coming back to your meetings to answer questions, let you know what is going on and you can receive notifications through the webpage.

SECTION 4.0 OMB DECISIONS RELATED TO THE ROPR

Halton requested that the consultant team review OMB Decisions related to ROPA 38, assess their relevance to the *Regional Official Plan Review* (ROPR) and identify any direction for policy and/or mapping technical memos. The following table provides a breakdown of the OMB Decisions related to the ROPR and highlights relevance and key directions:

PL Number(s)/ Document Type	Date	Description	Relevance for ROPR	Direction for Policy and/or Mapping Technical Memos
091166, 111358, 110857 Decision & Order	23 Oct 2012	Directions from the Board related to administrative items such as confirmation of party and participant status, scheduling, etc.	None	None
091166, 111358, 110857 Decision & Procedural Order	30 Nov 2012	The Region provided revised NHS policies that the Board ruled would be used for case management only. The Procedural Order addressed hearing organization, set dates including for mediation and updated lists of Parties, Participants and their counsel.	None	None
091166, 111358, 110857 Mediation Brief on ROP Process in Halton	26 March 2013	This is a brief presented to the Board by the Region's Counsel summarizing the history of the ROP process. There was no direction from the Board.	Apart from providing background and context for the ROPR, there nothing explicit that informs the review.	None, other than it provides information that could be incorporated into a background section.
111358 Mediation Brief on NHS (Rural)	4&5 April 2013	This is a brief presented to the Board by the Region's counsel representing their understanding of the appeals and positions for the purpose of mediation. It relies in part on the Brief from 26 March and introduces some of the supporting documents for ROPA 38. There is no direction from the Board.	None, except, as with the March 26 Brief, it provides a summary of the ROP process and the Region's position on ROPA 38.	None, other than for providing background information and context.
091166, 111358, 110857 Decision & Order Bronte Green	3 July 2013	Apart from administrative matters, this principally addresses limiting issues that Bronte Green should be allowed to raise at this	None	None

PL Number(s)/ Document Type	Date	Description	Relevance for ROPR	Direction for Policy and/or Mapping Technical Memos
		hearing. The Board rules the issues could be heard.		
111358 Conservation Halton MOS Executed	8 Aug 2013	The MOS reflects amendments to several ROP NHS policies including 116.1, 117.1 and 118(2).	These refinements to ROP NHS polies have been incorporated in the ROP, and thus do not provide any additional information to be considered.	None
091166, 111358, 110857 Mattamy MOS Executed	27 Sept 2013	This MOU documents the agreement reached with Mattamy regarding refinements to the RNHS. It also outlines 6 principles on which the agreement is based as well as mapping showing specific refinements to the RNHS (see Exhibit "C", Figures 1&2 and Point 8 of MOS).	The principles are for the purpose of the Minutes (i.e. are not universal) and allow for future refinements. If these refinements have not yet been made, allowance for them must be maintained in the ROPR process.	Check to see if all proposed refinements have been made through development applications for the subject lands and whether mapping updates were received from the Region. Check to ensure the mapping refinements on Figures 1&2 of the MOS was received from the Region for this ROPR and review the MOS to ensure all commitments for the 5-year review are completed, including Exhibits "D" & "E".
091166, 111358, 110857 Procedural Order	28 Jan 2014, Phase2	This Order addresses administrative matters regarding the organization of Phase 2 of the Hearing and set dates for mediation. Appendix "B" lists the sections of the ROP that remained to be adjudicated in Phase 2, which included some NHS policies.	None	None
091166, 111358, 110857 Procedural Order	28 Jan 2014, Phase 3A&3B	This Order addresses administrative matters regarding the organization of Phase 3A&B of the Hearing and set dates for mediation. Appendix "B" lists the sections of the ROP that remained to be adjudicated in Phase 3A&B, which includes most of the NHS policies.	None	None

PL Number(s)/ Document Type	Date	Description	Relevance for ROPR	Direction for Policy and/or Mapping Technical Memos
091166, 111358, 110857 Partial Approval Order	4 Feb 2014	This is a partial order that implements approvals already granted by the Board and reflected in the Oct 2013 Consolidation of the ROP, and notes the appeals that are thus partially or fully resolved.	None	None
111358 Orlando MOS Executed	9 Oct 2014	This settlement recognizes that there may be refinements to the RNHS and these will be supported through a Subwatershed Study or EIA. In general, it is clarifying the appellant's right to refine the RNHS in the future using ROP s.116.1.	Order #5 notes that the North Milton Lands will be considered in the "next" comprehensive review, which is this ROPR. (Note: any mapping changes resulting from re-designated Land Use done as part of the ROPR would be undertaken by the Region, probably in Phase 3 of the ROPR).	Probably none as any approved refinements to the RNHS would have been provided as part of the mapping to update. Review Order #5 & attached Exhibit "A" as part of Policy and Mapping reviews to confirm.
OMB File #PL11358	6 Nov 2014	<p>This provides a plain language policy interpretation of how section 116.1 and 118(2) work together to support RNHS refinements during the large scale study process.</p> <ul style="list-style-type: none"> • Para. 4 of MOS states: <i>To provide further clarity respecting the interpretation of Sections 116.1 and 118(2) of the Plan as it applies to the <u>Subject Lands</u>, the <u>Parties</u> agree that the document attached hereto as Schedule "C" represents the Region's position regarding the application of these policies and that the Appellants relied on this document in making settlement. (emphasis added).</i> • According to I. Tang, Schedule "C" was included to resolve appellants concern that all natural features and areas on the 	<p>The MOS contain an interpretation of policy that applies Region-wide and hence is implemented through our involvement in all large-scale study processes. Region, verbal – September 14, 2018</p> <p>As part of SWS RNHS refinement processes, natural features and areas in a study area should be mapped and assessed to verify whether or not they are Key Features per 115.3(1) of the ROP. Those that are Key Features, are significant natural features and areas and by virtue of this, are considered to significantly contribute to the functions of the NHS. As such, they must remain or be added to the RNHS and any development within or adjacent to them must maintain an appropriate buffer and must not result in any negative impacts. If a feature is a significant one, but will be isolated by the urban development proposed around it, the</p>	Maintain this approach. It makes sense and was accepted during last ROPA.

PL Number(s)/ Document Type	Date	Description	Relevance for ROPR	Direction for Policy and/or Mapping Technical Memos
		<p>landscape would need to be protected in place on the landscape.</p> <ul style="list-style-type: none"> • No site specific concerns/examples were discussed, but general issues relating to watercourse and headwater drainage feature relocations were. • R. Glenn read evidence to clarify that not all natural features and areas would be considered significant and that those that were not could be removed, relocated or have their functions replicated elsewhere. • Para. 4, Schedule "C" states: <i>...In the large scale study process set out in Section 116.1a), all the features and areas would be identified first, for the ecological value and contribution to the system. Features and areas that do not significantly contribute to the ecological value of the system may be removed, re-located, or have their functions replicated elsewhere in the NHS. Other areas may be added or enhanced. (emphasis added)</i> 	<p>RNHS should include a corridor to provide habitat linkage functions as necessary, unless it is demonstrated that it's relocation can occur without negatively impacting the feature and its functions. This is what the Region does for all SWS process and is consistent with the interpretation of Regional policy outlined in the MOS. Small, isolated, non-Key Features (such as small wetlands and hedgerows which are not SWH), can be removed, relocated, replicated. Non-significant wetlands, certain watercourses and head water features, Fish habitat and habitat of threatened or endangered species can be removed, re-located, or replicated per applicable CA, federal, and provincial requirements, unless these features and areas are also considered SWH. SWH relocation would be subject to NNI test.</p>	
091166, 111358, 110857 Partial Approval Order	17 March 2015	<p>This disposition modifies and approves policies to ROPA 38 resulting from MOS with Paletta, Ontario Sand & Gravel and Fieldgate, It confirms approval of portions of the 2006 ROP not affected by ROPA 38, provides a partial approval of ROPA 38 resulting from settlements, and updates the organization of Phases 4 and 5 of the hearing.</p>	<p>Schedules 2 and 2A document changes to the 2006 ROP resulting from ROPA 38, and from other sources respectively, that are not contested.</p>	<p>None, since the modifications documented in this disposition have already been incorporated into the ROP.</p>
111358 Willis MOS Executed	9 April 2015	<p>This document describes the MOS regarding the Willis Lands.</p>	<p>The settlement recognizes the rights for refinements and commits the Region to looking at the Land Use Designations on the Willis Lands as part of the "next" 5-year review (i.e., this ROPR).</p>	<p>This settlement indicates that the appropriateness of refinements to the RNHS on the Willis Lands will be undertaken as part of the "next" 5-year review (this ROPR). This will not result in any policy</p>

PL Number(s)/ Document Type	Date	Description	Relevance for ROPR	Direction for Policy and/or Mapping Technical Memos
				refinements, and any mapping refinements would be undertaken by the Region, once any changes in Land Use designation are determined.
091166, 111358, 110857 Phase 2 Decision (No. 20150017)	7 May 2015	This decision deals only with aggregate and mineral extraction policies of ROPA 38.	The decisions and direction from the Board do not have any repercussions for the NHS theme of this ROPR.	None
111358 Nelson MOS Executed	1 June 2015	This document implements the settlement achieved in the hearing on the proposed expansion to the Nelson Quarry in Burlington.	The MOS involves some modifications to the RNHS on Maps 1 and 1G in the ROP.	There are no repercussions or direction for the Policy Audit Technical Memo. However, as part of the Mapping Audit Technical Memo, it should be determined if these changes were made or not.
091166, 111358, 110857 Decision Evergreen	6 April 2016	This hearing involved the extent of key features, buffers, linkages and enhancements for a proposed development. It was agreed that there was no need to amend Map 1 or 1G as minor refinements would be accommodated through edge staking, etc. Buffer width was a major issues relating to the RNHS.	The issue of buffers is one to be addressed in the ROPR and the Board's decision on this file to dismiss the appeal supports the Region's position. The existing policy could be refined to better reflect the Region's position on buffers, as reflected in this decision.	Mapping refinements were made as part of the Agreed Statement of Facts for this hearing and these should be reflected in the ROP mapping, thus check to see if these changes were made as part of the mapping review. The Board's reasoning on buffers, especially paragraphs 15-34, should be reviewed as part of the policy review with respect to buffers.
111358 Paletta MOS Executed	20 Jan 2016	This MOS resulted in mapping modifications to seven properties, some of which involve the RNHS.	The mapping modifications were all refinements based on more detailed work and/or changes in Provincial mapping.	The current ROP mapping needs to be checked to see if these changes were undertaken and if not they should be addressed through the mapping update. There were no policy modifications that

PL Number(s)/ Document Type	Date	Description	Relevance for ROPR	Direction for Policy and/or Mapping Technical Memos
				would affect the Policy Audit Technical Memo.
111358 Don Johnson MOS Executed	17 March 2016	This settlement included RNHS mapping refinements, as well as interpretation of relevant policies.	Paragraphs 8 and 9 of the settlement should be reviewed as part of the policy review to determine if it affects the analysis of the North Aldershot Area. Schedule "B" of the MOS provides the mapping refinements.	The policy review and mapping review need to include consideration of this MOS and the mapping updates should include the revisions as reflected in this MOS.
110857 Partial Approval Order	13 April 2017	This Order mainly deals with administrative matters, clarifies when certain approved sections of the ROP come into effect, update the outstanding appeals and acknowledges agreements dealt with in other MOS (Johnson). It also identifies the approval of modified sections of the 2006 Plan that were not contested, including s.30, which addresses the relationship between agriculture and natural heritage.	None: changes are either detailed in other documents (Johnson MOS) or are policy modifications already incorporated in the ROP (ROP section 30).	Note: Owen McCabe (Regional Planner) indicated this was the last Board order that resulted in policy changes to the ROP. None, as any changes are either detailed in other documents (Johnson MOS) or are policy modifications already incorporated in the ROP.
111358 Crosswinds MOS Final	14 June 2017	This MOS documents agreed refinements to the RNHS. There are no policy refinements proposed.	The ROPR needs to include the refinements to the RNHS on Map 1 and 1G agreed to in the MOS.	As part of the mapping review, ensure that agreed refinements to the RNHS are made for the Crosswinds site. Reference Schedules "A"-"C" to ensure all refinements are made.
111358, 110857 Crosswinds Decision	9 Jan 2018	This Decision implements the MOS for the Crosswinds MOS.	As noted for the MOS with Crosswinds.	As noted for the MOS with Crosswinds.

SECTION 5.0 WATERSHED AND SUBWATERSHED STUDIES

5.1 Summary of Review

5.1.1 Objective of Subwatershed Studies Review

- Subwatershed Studies provide objectives and assessments of watershed planning for smaller drainage areas and are tailored to subwatershed needs and local issues (Growth Plan, 2017). They identify key hydrologic functions and key hydrologic areas, and consider existing conditions and future conditions as a result of development and other impacts. Subwatershed Studies provide a useful inventory and assessment of water resource system features within a subwatershed. Accordingly, Wood has compiled a list of the Subwatershed Studies completed within Halton Region, with the assistance of the local municipalities, in order to review and inform the future tasks of this project: the Best Practices Technical Memo and Mapping Audit Technical Memo.

5.1.2 Identification of Subwatershed Studies

- The Subwatershed Studies were identified based on Wood’s water resources experience in Southern Ontario, and as the author of many of the recent Subwatershed Studies completed in Halton Region. The primary identification of studies resulted in the identification of eight Subwatershed Studies.
- A meeting was held on October 1, 2018 with the Region, local municipalities and Conservation Authorities, where it was determined the local municipalities and Conservation Authorities would provide a data inventory table to the Project Team to aide in the identification of the water resource system information in Halton Region. Four additional Subwatershed Studies were identified through this process.

Subwatershed Studies Reviewed		
Geographic Location	Subwatershed Study	Reviewed in Detail (Y/N)
The City of Burlington	Alton Subwatershed Study (1993)	Yes
The City of Burlington	Tremaine And Dundas Subwatershed Study Update (May 2018)	
The Town of Halton Hills	Black Creek Draft Subwatershed Study (Phase 1 -3) (2009)	No- high-level
	Draft Black Creek Subwatershed Study Management, Implementation, and	

	Monitoring Plan, Phase 3 Study (October 2, 2018)	
	Premier Gateway Scoped Subwatershed Study (2018)	Yes
	Silver Creek Subwatershed Study (2010)	No- high-level
	Draft Vision Georgetown Subwatershed Study (2017)	Yes
	401 Corridor Integrated Planning Project, Scoped Subwatershed Plan (2000)	Yes
	Indian creek/Sixteen Mile Creek Sherwood Survey Subwatershed Management Study (2004)	Yes
The Town of Milton	Sixteen Mile Creek, Areas 2 & 7 Subwatershed Planning Study (2000)	Yes
	Sixteen Mile Creek, Areas 2 & 7 Subwatershed Update Study (2015)	Yes
	South Milton Urban Expansion Area Subwatershed Study (2018)	Yes
The City of Oakville	North Oakville Creeks Subwatershed Study (2006)	No- high-level
Conservation Halton	North Shore Watershed Study (2006)	No- high-level

5.1.3 Best Practices

- The eight studies included in the initial identification were reviewed in detail to determine which features of the water resource system had been assessed and the methodology of their assessment. As the review progressed, the features were divided into two categories: ground water features and surface water features. Ground water features included recharge/ discharge zones and aquifers, and surface water features included Headwater Drainage Features (HDF's), watercourses, wetlands and ponds. The methodology of each feature was reviewed to determine best practices for identification and classification of each feature, such as field investigations versus desktop review.

5.1.4 Mapping Audit

- The methodology used to identify and plot a feature, as well as the year, indicates whether the information is sufficiently accurate to be incorporated into the water resource system mapping. The initial detailed analysis of the Subwatershed Studies included the review of the format of the feature, such as shapefile versus PDF, and the year which it was collected, which resulted in best practices regarding which features should be included in the water resource system and the methodology required to be viable for incorporation into the water resource system mapping.
- The studies incorporated in the second round of identification were analyzed against these best practices, solely to determine which features of the water resource system had been mapped and their format; the methodology of their collection was not reviewed.

5.1.5 Application to Future Project Phases

- The findings of the detailed review of the eight studies, including the feature, classification and methodology, can be found in the tables in Appendix A - Subwatershed Study Findings. The best practices regarding water resource system feature identification, collection methodology and mapping standards will be addressed in the best practices technical memorandum in the following phase of the project.
- The inventory of available mapping information of the water resource system will determine the spatial extents of available mapping information, and its viability for incorporation into the water resource system mapping. These findings will be presented in a map and analyzed to identify gaps and recommend alternatives to move forward to complete the water resource system mapping in Halton Region; this will be addressed in the Mapping Audit phase of this project.

SECTION 6.0 NEXT STEPS

- The *Review of the Regional Official Plan Natural Heritage System Policies + Mapping* project provides an opportunity to examine policies and mapping that may need to be updated, enhanced, and refined based on evolving land use trends, the *Provincial Policy Statement, 2014*, the applicable 2017 Provincial plans (Growth Plan, Greenbelt Plan and Niagara Escarpment Plan) and the recently released Provincial Natural Heritage System mapping.
- Phase 2 of the *Review of the Regional Official Plan Natural Heritage System Policies + Mapping* project provides detailed policy recommendations for the Regional Official Plan, utilizing a series of four Technical Memos and a Natural Heritage System Report.
- This report is the *Background Report Technical Memo*. The remaining Technical Memos that the consultant team are:
 - Best Practices Review Technical Memo;
 - Policy Audit of the ROP Technical Memo; and
 - Mapping Audit Technical Memo.
- The Technical Memos will be the subject of stakeholder and public consultation with outputs of this process informing the production of the Natural Heritage System Report with recommendations on policy and mapping refinements to be taken into Phase 3 of the *Review of the Regional Official Plan Natural Heritage System Policies + Mapping* project.

APPENDIX A SUBWATERSHED STUDY FINDINGS

A1 Sixteen Mile Creek Area 2 & 7 SWS (2000) (Milton)

Sixteen Mile Creek, Areas 2 & 7 Subwatershed Planning Study (2000)		
Town of Milton		
Sixteen Mile Creek Watershed		
Water Resource Feature	Identified in SWS	Characterization Methodology
Ground Water Features		
Recharge/ discharge zones	Horizontal groundwater flow west-northwest to east-southeast through Guelph, Eramosa and Gasport units and discharges along face of the escarpment. Locally significant recharge area has been identified in the south-east sector of Subwatershed Area 7.	Desktop review, Field investigations (streamflow measurement and baseflow water quality sampling)
Aquifers	Campbellville Valley aquifer unit discussed.	Desktop review, field investigations.
Wells	Overburden wells, bedrock wells. Generally drilled into the Queenston shale.	Desktop review, field investigations (1998, 1999).
Surface Water Features		
Headwater Drainage Features (HDF's)	Not addressed. *HDF's evaluated as part of watercourse constraint rankings, generally low constraint features.	Not addressed.
Watercourses	Watercourse Constraint Rankings assigned (high, medium and low flood conveyance constraint). East, Middle and West Branches of Sixteen Mile Creek identified as major valley systems.	Site walks, rapid assessments, field investigations. Rapid assessment work concentrated on the Business Park 2 and Phase 3 lands.

Sixteen Mile Creek, Areas 2 & 7 Subwatershed Planning Study (2000)		
Town of Milton		
Sixteen Mile Creek Watershed		
Water Resource Feature	Identified in SWS	Characterization Methodology
Wetlands	Two evaluated wetlands: Milton Heights Marsh and Milton Wetland. Additional suspected unevaluated wetlands.	Desktop review.
Watercourses of Fisheries Significance	Groundwater sources along the east slope of the Niagara Escarpment maintain an important coldwater fishery resource. The East Branch of Sixteen Mile Creek provides habitat for the silver shiner.	Electrofishing, field investigations (1998), desktop review.
Meander Belt	Statement indicated Conservation Halton requires a 15m wide buffer zone from stable top of bank for major creek valleys and 7.5m from minor tributaries. Indicated site-specific geotechnical investigations required which may result in greater setbacks.	Monitoring program, Historical Assessment of aerial photography (1954, 1979), rapid assessments, field investigations. Further refinement required in site-specific geotechnical investigations.
Hydrologic Functions		
Water Quality/ Water Quantity Data	Kelso Branch upstream from urban areas have very good water quality, degrades downstream.	Desktop review of water quality data, water sampling program.

A2 Sixteen Mile Creek Area 2 & 7 SWS (2015) (Milton)

Sixteen Mile Creek, Areas 2 & 7 Subwatershed Update Study (2015)		
Town of Milton		
Sixteen Mile Creek Watershed		
Water Resource Feature	Identified in SWS	Characterization Methodology
Ground Water Features		
Recharge/ discharge zones	Recharge/discharge areas identified.	Desktop review, Field investigations (streamflow measurement and baseflow water quality sampling).
Aquifers	Not addressed.	Not addressed.
Wells	Overburden wells, bedrock wells.	Desktop review, field investigations (2007, 2008).
Surface Water Features		
Headwater Drainage Features (HDF's)	Not addressed. *HDF's evaluated as part of watercourse constraint rankings, generally low constraint features.	Not addressed.
Watercourses	Watercourse Constraint Rankings assigned (high, medium and low constraint). Indian Creek, West Tributary, Main Branch, East Tributary, Omagh Tributary, Centre Tributary, East Branch.	Site walks, rapid assessments, field investigations. Rapid assessment work concentrated on the Business Park 2 and Phase 3 lands.
Wetlands	Three evaluated wetlands: Mill Pond Wetland Complex, Milton Heights Wetland Complex, Indian Creek Wetland Complex Provincially Significant Wetland (PSW). Eight unevaluated wetlands and two small features.	Desktop review, field investigations.

Sixteen Mile Creek, Areas 2 & 7 Subwatershed Update Study (2015)		
Town of Milton		
Sixteen Mile Creek Watershed		
Water Resource Feature	Identified in SWS	Characterization Methodology
Watercourses of Fisheries Significance	<p>Main Branch and East Branch of Sixteen Mile Creek in the Phase 3 and Business Park 2 lands are high quality fish habitat.</p> <p>Classified: permanent, seasonal, contributing.</p> <p>Two headwater field sites located in Milton Business Park 2.</p>	<p>Field investigations (2007, 2008)</p> <p>Electrofishing, desktop review, historical assessment of aerial photography (1954, 1983), field investigations.</p>
Meander Belt	<p>Meander belt widths and valley setbacks defined per reach.</p> <p>Meander belt widths identified in Derry Green (Phase 2), Outside Phase 2 and 3, and Boyne (Phase 3) lands.</p>	<p>Monitoring program, Historical Assessment of aerial photography (1954, 1983), rapid assessments, field investigations.</p>
Hydrologic Functions		
Water Quality/ Water Quantity Data		

A3 Indian Creek/ Sixteen Mile Creek Sherway Survey SWS (2004) (Milton)

Indian Creek/ Sixteen Mile Creek Sherwood Survey Subwatershed Management Study (2004) Town of Milton Sixteen Mile Creek Watershed, Bronte Creek Watershed Study		
Water Resource Feature	Identified in SWS	Characterization Methodology
Ground Water Features		
Recharge/ discharge zones	Groundwater recharging on top of the escarpment discharges to varying extents along the toe of the escarpment. Mapped. Nine of the groundwater source areas at the base of or within the wooded escarpment face, and four groundwater source areas approximately 1 km downslope of the escarpment face.	Desktop review, Field investigations (baseflow measurements)
Aquifers	Main aquifer for domestic wells is the Queenston shale.	Desktop review, Field investigations (baseflow measurements)
Wells	Domestic wells located in the Queenston shale.	Desktop review, Field investigations (baseflow measurements)
Surface Water Features		
Headwater Drainage Features (HDF's)	Not addressed. *HDF's evaluated as part of watercourse constraint rankings, generally low constraint features.	Not addressed.
Watercourses	Watercourse Constraint Rankings assigned (high, medium and low constraint). Main Branch of the Sixteen Mile Creek, Main Branch of the Indian Creek.	Desktop review, field investigations (streamflow and rainfall data collection).
Wetlands	Indian Creek Wetland Complex identified as a Provincially Significant Wetland (PSW) complex, two previously identified locally significant wetlands	Desktop review.

Indian Creek/ Sixteen Mile Creek Sherwood Survey Subwatershed Management Study (2004)		
Town of Milton		
Sixteen Mile Creek Watershed, Bronte Creek Watershed Study		
Water Resource Feature	Identified in SWS	Characterization Methodology
	(Britannia Road Marsh and Milton Wetland Complex No. 3).	
Reservoirs	Reservoirs: Kelso, Hilton Falls, Sixteen Mile Creek.	Desktop review of aerial photography, digital topographic mapping.
Watercourses of Fisheries Significance	Diverse fish community despite the degraded nature of watercourse.	Desktop review, field investigations, electrofishing.
Meander Belt	Addressed, lack of meander belt.	Desktop review.
Hydrologic Functions		
Water Quality/ Water Quantity Data	High water temperatures. The major contributors to overall poor water quality within Indian Creek are lack of riparian cover, ponding, channelization, and cattle access to the creek.	Desktop review, field investigations, water sampling.

A4 Premier Gateway Scoped SWS (2018) (Halton Hills)

Premier Gateway Scoped Subwatershed Study (2018)		
Town of Halton Hills		
Subwatershed 4 of the Sixteen Mile Creek Watershed		
Water Resource Feature	Identified in SWS	Characterization Methodology
Ground Water Features		
Recharge/ discharge zones	Recharge limited by lower permeability of the surficial soils. Groundwater flows north and west to south-east generally.	Desktop review, potentiometric water level surface developed.
Aquifers	Proposed that a larger groundwater connection feeds the bedrock valley and associated basal aquifer in the study area thus providing the hydraulic gradient driving the flowing wells.	Desktop review, potentiometric water level surface developed.
Wells	Overburden (155) and bedrock (62) wells.	Desktop review, potentiometric water level surface developed.
Surface Water Features		
Headwater Drainage Features (HDF's)	HDF delineation. A number of smaller features considered HDFs.	Scoped field investigations (baseflow measurements), mapping, historic aerial mapping assessment. Followed HDF protocol. Rapid Geomorphic Assessment (RGA).
Watercourses	Watercourses part of two systems: Hornby Tributary in the east and the Middle Branch of Sixteen Mile Creek in the west. The Hornby Tributary consists of two branches: HT-2a and HT-2b. The main branch is HT-2a, while HT-2b was a smaller watercourse consisting mainly of HDFs. The Middle Branch of Sixteen Mile Creek consists of an east branch, west branch, and HDF branch.	Scoped field investigations (baseflow measurements), mapping, geodetic topographic survey.

Premier Gateway Scoped Subwatershed Study (2018)		
Town of Halton Hills		
Subwatershed 4 of the Sixteen Mile Creek Watershed		
Water Resource Feature	Identified in SWS	Characterization Methodology
	<p>Subwatershed 4 discharging to the tributaries of the Middle Branch of Sixteen Mile Creek.</p> <p>The headwaters of Middle Sixteen Mile Creek originate from the Niagara Escarpment flowing down through the base of the escarpment through Scotch Block Reservoir to join East Branch.</p> <p>Reach delineation.</p> <p>Watercourse delineation: confined, unconfined.</p>	
Wetlands	Three unevaluated wetlands, too small to be evaluated.	Desktop survey, field investigations.
Ponds	Assessed as potential habitat.	Desktop review, field investigations.
Watercourses of Fisheries Significance	<p>Yes. Assessed by significance to species.</p> <p>East Branch of the Middle Branch of Sixteen Mile Creek demonstrated best habitat within study area.</p> <p>Classified: permanent, intermittent, or ephemeral. Designated: cold, cold-cool, cool, cool-warm, or warm water.</p>	Desktop review, field investigations, electrofishing.
Meander Belt	Meander belt widths identified for Middle Branch of Sixteen Mile Creek reaches and Hornby Tributary reaches.	Desktop review, historic data (aerial photography).
Hydrologic Functions		
Water Quality/ Water Quantity Data	Water quality/nutrient loading assessment. Water quality within Middle Sixteen Mile Creek generally of high quality, potentially attributable to	Desktop review (water quality samples).

Premier Gateway Scoped Subwatershed Study (2018) Town of Halton Hills Subwatershed 4 of the Sixteen Mile Creek Watershed		
Water Resource Feature	Identified in SWS	Characterization Methodology
	the increased infiltration of the surrounding soils.	

A5 South Milton Urban Expansion Area SWS (2018) (Milton)

South Milton Urban Expansion Area Subwatershed Study (2018)		
Town of Milton		
Sixteen Mile Creek Watershed		
Water Resource Feature	Identified in SWS	Characterization Methodology
Ground Water Features		
Recharge/ discharge zones	<p>Significant groundwater recharge and discharge areas are considered to be limited in this area, due to the predominance of Halton Till (i.e. low permeability) and glaciolacustrine silt and clay.</p> <p>Groundwater flow map developed.</p> <p>Horizontal groundwater flow from the west northwest and converging within the West Branch of Sixteen Mile Creek and the Middle Branch of Sixteen Mile Creek.</p>	Desktop review, field investigations (2015, 2016), monitoring wells, groundwater quality sampling.
Aquifers	Queenston shale: generally poor quality/quantity, however lack of other aquifers renders important zone of groundwater movement.	Desktop review, field investigations (2015, 2016).
Wells	Water supply wells: 35% of wells in overburden deposits, remainder in shale bedrock.	Desktop review, field investigations.
Surface Water Features		
Headwater Drainage Features (HDF's)	A number of smaller features within the Primary and Supplemental Study Areas are considered as Headwater Drainage Features (HDFs).	Desktop review, field investigations, rapid assessments, monitoring program.
Watercourses	West Branch, East Branch, Lower Middle Tributary, Middle Branch – Mid East Branch – Lower Middle Branch,	Desktop review, mapping, field monitoring (2016).

South Milton Urban Expansion Area Subwatershed Study (2018)		
Town of Milton		
Sixteen Mile Creek Watershed		
Water Resource Feature	Identified in SWS	Characterization Methodology
	<p>Lower Middle Branch of Sixteen Mile Creek. Regulated watercourses.</p> <p>Watercourse delineation: confined, unconfined.</p> <p>Watercourse Constraint Rankings assigned (high and medium constraint).</p> <p>Distinguished between watercourses and HDF's.</p>	
Wetlands	Discussed as habitat, not directly assessed.	Desktop review, field investigations.
Watercourses of Fisheries Significance	Yes. Watercourses and HDF's classified by fish habitat constraints to development. Fish communities assessed by branch.	Background review, field investigations, fish sampling.
Meander Belt	Watercourse delineation: confined, unconfined. Meander belt widths delineated for unconfined stream reaches that have defined bed and banks by reach.	Desktop review, mapping, field monitoring (2016).
Hydrologic Functions		
Water Quality/ Water Quantity Data	Surface water quality along the Sixteen Mile Creek downstream of the South Milton SWS study area is generally of relatively high quality, potentially attributable to the influence of stormwater management practices within urbanized areas of the watershed.	Desktop review (reports, water quality samples).

A6 Southwest Georgetown SWS (2017) (Halton Hills)

Southwest Georgetown Subwatershed Study (2017) Vision Georgetown Subwatershed Strategy Report Town of Halton Hills Sixteen Mile Creek Watershed		
Water Resource Feature	Identified in SWS	Characterization Methodology
Ground Water Features		
Recharge/ discharge zones	Recharge rates generally low in study area due to low permeability. Regionally, lateral groundwater flow from below the Niagara Escarpment is south and east toward Lake Ontario with flow converging at local creeks and rivers where groundwater discharge can occur. Convergence of flow is very prominent in the study area as groundwater flow is north and east toward Silver and Sixteen Mile creeks.	Desktop review, field investigations.
Aquifers	Local aquifers are not considered highly vulnerable to surface contamination, due to the presence of the Halton Till aquitard at surface that impedes infiltration to the lower aquifer units.	Desktop review.
Wells	Approximately half of water wells in bedrock: 64% for domestic use, 5% agriculture use, 10% public use, 4% commercial use, remaining unknown.	Desktop review, field investigations.
Surface Water Features		
Headwater Drainage Features (HDF's)	HDF's make up 70-80% of drainage network in terms of flow and channel length. Stream characterization: protection, conservation, mitigation.	Desktop review, field investigations.
Watercourses	Headwater area for the Silver Creek and the Sixteen Mile Creek subwatershed. Tributaries A and C are tributaries of the East Branch of the Sixteen Mile Creek, Tributary B confluences with Silver Creek. Stream order classification, 60% drainage features are first order	Desktop review, field investigations.

Southwest Georgetown Subwatershed Study (2017) Vision Georgetown Subwatershed Strategy Report Town of Halton Hills Sixteen Mile Creek Watershed		
Water Resource Feature	Identified in SWS	Characterization Methodology
	channels and 26% are second order channels.	
Wetlands	Assessed, no PSW's. Some wetlands but small.	Desktop review.
Watercourses of Fisheries Significance	Yes, classified by Tributary.	Desktop review, field investigations (aquatic habitat assessments 2013).
Meander Belt	Channel form classification: undefined, poorly defined, defined. Meander belt widths provided by reach.	Desktop review, historical assessment (aerial photography).
Hydrologic Functions		
Water Quality/ Water Quantity Data	Nutrient exceedances.	Desktop review, field investigations (2013).

**A7 Functional Stormwater Environmental Management Strategy (2000)
 Highway 401 Industrial/Business Park Secondary Plan Area (Milton)**

Functional Stormwater and Environmental Management Strategy (2000) Highway 401 Industrial/Business Park Secondary Plan Area Town of Milton Sixteen Mile Creek Watershed		
Water Resource Feature	Identified in SWS	Characterization Methodology
Ground Water Features		
Recharge/ discharge zones	Not addressed.	Not addressed.
Aquifers	Queenston shale, generally poor quality and limited quantity.	Desktop review.
Wells	Private domestic wells generally drilled into the Queenston shale.	Desktop review.
Surface Water Features		
Headwater Drainage Features (HDF's)	Not addressed. *HDF's evaluated as part of watercourse constraint rankings, generally low constraint features.	Not addressed.
Watercourses	Sixteen Mile Creek, Tributary N-2B, Tributary NW-2-G1, Tributary EU-3-A. Watercourse constraints (high, medium, low).	Desktop review, field investigations.
Wetlands	Two evaluated, locally significant wetlands.	Not addressed.
Watercourses of Fisheries Significance	Yes. Kelso Branch is of good quality and supports coldwater fish community, northwest Tributary (N-2B and NW-2-G) support diverse fish communities.	Desktop review, data from previous field investigations (1998).
Meander Belt	Summary of existing belt widths.	Not addressed.
Hydrologic Functions		
Water Quality/ Water Quantity Data	Only potential impacts addressed.	Not addressed.

A8 Alton SWS (1993) (Burlington)

Alton Subwatershed Study (1993) City of Burlington Sixteen Mile Creek Watershed		
Water Resource Feature	Identified in SWS	Characterization Methodology
Ground Water Features		
Recharge/ discharge zones	Upward gradients identified. Recharge/discharge areas identified. Recharge to groundwater flows occurs 1km north of SEW along East Sheldon Creek to areas north of Upper Middle Road. Discharge occurs predominantly south of Upper Middle Road.	Field investigations (piezometers).
Aquifers	Halton Till overlays Queenston Shale.	Desktop review, well water records MOE.
Wells	Domestic wells present north of Upper Middle Road, between 3m and 6m below surface.	Desktop review.
Surface Water Features		
Headwater Drainage Features (HDF's)	Not identified. *HDF's evaluated as part of watercourse constraint rankings, generally low constraint features.	Not identified.
Watercourses	Sheldon Creek Main Branch, Watercourse W2, Watercourse W1, Watercourse E, East Sheldon Creek, Bronte Creek Tributary. Watercourses characterized as enclosed, ditched, channelized, streamed or artificial channel.	Field investigations.
Wetlands	Non-evaluated wetlands, some identified along watercourses.	Desktop review and field investigations.
Watercourses of Fisheries Significance	Watercourses characterized as enclosed, ditched, channelized or streamed or artificial channel.	Field investigations.
Meander Belt	Meander belt not identified, assessment of stream and valley wall erosion potential undertaken.	Field investigations.
Hydrologic Functions		
Water Quality/ Water Quantity Data		

