

July 2026

Natural Heritage System Strategy

Town of Orangeville Official Plan
Review

Prepared for

Town of Orangeville



Town of Orangeville Land Acknowledgment

We would like to acknowledge the treaty lands and territory of the Williams Treaty Nations and the Mississaugas of the Credit First Nation. We also recognize that Dufferin County is the traditional territory of the Wendat and the Haudenosaunee and is home to many Indigenous people today.

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1. Introduction

The Town of Orangeville (the ‘Town’) is in the process of reviewing and updating its Official Plan (OP) (Town of Orangeville 2025a) to ensure consistency with provincial planning policies and conformity with the County of Dufferin’s (the ‘County’) OP, as per Section 26 of the *Planning Act* (Government of Ontario 1990a). There have been recent amendments to the County’s OP (County of Dufferin 2025) which have been approved by the Ontario Ministry of Municipal Affairs and Housing (MMAH), including OP Amendment (OPA) No. 3 (County of Dufferin 2023a) which refined and updated the Natural Heritage System (NHS) policies and mapping for consistency with the Provincial Policy Statement (2020) (MMAH 2020) and other Provincial Plans (e.g., Greenbelt Plan 2017).

As an urbanized area, the Town includes a mosaic of developed lands and diverse natural areas, which include woodlands, watercourses, wetlands, valleylands, and other natural areas that provide habitat for wildlife. Further, the Town is uniquely located within the Greenbelt Plan area and the headwaters of the Credit River, which further underpins the need for an integrated NHS that considers the existing natural features and linkages to maintain biodiversity, ecological processes and resilience, and to provide important habitat for wildlife within the Town’s boundaries and beyond through the County’s NHS.

The Town’s Municipal Comprehensive Review (MCR) identified the need for a Natural Heritage System Strategy (NHSS) to be prepared to inform the implementation of policy direction of the County’s OP, with respect to the natural environment. This background paper provides a summary of the existing planning context and supporting, guidance documents, as well as the planning and mapping framework recommendations for the NHS for the Town.

2. Background Review

The following background review provides the policy and regulatory context that informs the NHSS. It examines relevant provincial policy and guidance documents, applicable federal legislation, and supporting direction from municipal and conservation authority sources. Together, these materials establish the framework for natural heritage protection, restoration, and management, outlining both legislative requirements and best practices. This review is intended to guide natural heritage policy direction and recommendations updates to the mapping of the NHS.

2.1. Provincial Policy

The following policy documents and plans provide the provincial planning context for the NHS for the Town.

2.1.1. Planning Act (R.S.O. 1990, c. P.13)

The *Planning Act* provides the basis for decisions in land use planning in Ontario, aiming to promote sustainable economic development in a healthy environment, providing provincial policies to guide land use planning, consider and incorporate provincial interests into municipal decision-making, create

equitable and coordinated planning processes in Ontario, and to recognize the authority and accountability of municipalities in land-use planning (Government of Ontario 1990a). The natural environment is recognized as a key component of the planning process, with Section 1.1a) of the *Planning Act* underpinning the importance of sustainable development within consideration for the natural environment. Section 2 of the *Planning Act* describes for municipalities to have regard for provincial interests related to the natural environment including the protection of ecological systems and agricultural resources, conservation of natural resources, mineral resources, and significant cultural or scientific features, energy and water conservation, sustainable growth and development, and climate change mitigation and adaptation (Government of Ontario 1990a).

To achieve the purposes of the *Planning Act* and integration of provincial interests, Section 3(5) requires that all planning decisions be consistent with the policy statements (i.e., the Provincial Planning Statement) and conform to Provincial Plans (Government of Ontario 1990a). Further, Part III of the *Planning Act* outlines the policies related to municipal official plans, aiming to provide consistency in the implementation of official plans and municipal decision-making across Ontario.

2.1.2. Provincial Planning Statement (2024)

The Provincial Planning Statement (2024), issued under Section 3 of the Planning Act, provides detailed policy direction for land use planning in Ontario in relation to provincial interests (MMAH 2024a). It serves as the foundation of Ontario's policy-led planning framework, guiding development while balancing environmental, economic, health, and social considerations. Municipal official plans are identified as the primary tool for implementing PPS policies and supporting coordinated, long-term planning.

Chapter 4: Wise Use and Management of Resources of the PPS provides policies for natural heritage (Section 4.1) and water resources (Section 4.2), and natural hazards (Section 5.1 & 5.2) and a high-level summary can be found in the Policy Comparative Analysis Policy in **Appendix 1**.

Section 4.1 outlines that natural features and areas shall be protected for the long-term and recognizes the need to maintain, restore, or improve NHS and their biodiversity and ecological function (MMAH 2024a). This section also provides policies that requires that NHS be identified in EcoRegions 6E and 7E (MMAH 2024a), which includes the Town. In the PPS, an NHS is defined as a system of natural features, areas, and linkages, supporting the natural processes necessary to maintain diversity, natural functions, viable populations of native species, and ecosystems (MMAH 2024a). In general, an NHS includes natural features and areas, parks and conservation reserves, lands that have been restored or have the potential to be restored to a natural state, areas that support hydrologic function, and working landscapes that support ecological functions (MMAH 2024a). While the Province provides guidance on identifying these systems, which is currently the Natural Heritage Reference Manual (OMNR 2010), municipalities may use their own approaches if they meet or exceed provincial objectives (MMAH 2024a).

Section 4.2 of the PPS focuses on water resources and outlines that planning authorities shall protect, improve or restore water quality and quantity through a watershed-based approach, minimizing negative

impacts across jurisdictions, identifying water resource systems, maintaining linkages and function of these systems, protection of drinking water and vulnerable surface and ground water function, and planning for water conservation and sustaining water quality (MMAH 2024a). Watershed planning provides a framework for protection and enhancement of water resources and evaluates and considers the impact of climate change on water resources systems (MMAH 2024a). Water resource systems are defined in the PPS as a system comprised of groundwater features and areas, surface water features including shorelines, natural heritage features and areas, and hydrologic functions that are necessary for ecological and hydrological integrity of the watershed (MMAH 2024a).

Chapter 5: Protecting Public Health and Safety includes policies for natural hazards including an overarching policy stating that development shall be directed away from areas of natural hazards, where there is an unacceptable risk to public health and safety or property damage, avoiding creation or exacerbation of existing natural hazards. Specifically, Section 5.2 of the PPS describes that planning authorities should identify hazardous lands and sites and manage development, in collaboration with conservation authorities, where present. Hazardous lands are defined as property or lands that could be unsafe for development during naturally occurring processes consisting of flooding, erosion, and dynamic beach hazards (MMAH 2024a). Whereas hazardous sites are unsafe for site alteration due to naturally occurring processes such as unstable soils or bedrock (MMAH 2024a).

2.1.3. Species Conservation Act (S.O. 2025, c.4, Sched. 10)

The *Species Conservation Act (SCA)*, 2025 came into effect on March 30, 2026 replacing the *Endangered Species Act, 2007* (Government of Ontario 2025). The purpose of the SCA is to identify species at risk (SAR) and their habitat based on the best available scientific information, including community knowledge and Indigenous traditional knowledge and to provide protection and conservation of SAR, while considering the social and economic considerations including the need for sustainable economic growth in Ontario (Government of Ontario 2026).

The SCA sets out the rules and requirements for classification of SAR and provides the Committee on the Status of Species at Risk in Ontario (COSSARO) with the authority to classify species as special concern, threatened, endangered, extirpated, or extinct (Government of Ontario 2026). Species that are classified as extirpated, endangered or threatened may be included on the Protected Species in Ontario List (PSOL) and qualify for legal protection. An activity that results in, or is likely to result in the killing, harming, capturing or taking of a member of a species that is listed on the PSOL or damage to or destruction of the habitat of a species that is listed on the PSOL is considered a Section 16 activity and requires a registration, a permit or may qualify as an exception (Government of Ontario 2026).

While the PPS recognizes habitat for Endangered and Threatened species as part of the NHS, mapping of these features is often limited or incomplete due to data sensitivity (e.g., restricted species information), potential updates to species status and varying definitions of habitat. As a result, municipalities use a range of tools, including desktop screening, agency consultation, environmental studies (e.g., Environmental Impact Studies), and Official Plan policies to identify and address habitat for endangered and threatened species.

2.1.4. Greenbelt Plan (2017)

The Greenbelt was established for the Greater Golden Horseshoe area of Ontario in 2005 under the *Greenbelt Act* to act as the foundation for land use planning in the Growth Plan for the Greater Golden Horseshoe (Growth Plan 2019) (Government of Ontario 2019), which has since been revoked (Government of Ontario 2019). While the Growth Plan (2019) has been revoked, the Greenbelt Plan (2017) remains in effect. The Greenbelt Plan works with other provincial plans and the PPS to identify areas where urban development should be focused and to provide permanent protection to important agricultural, ecological, and hydrological features within the landscape. Lands within the Greenbelt Plan area for the Town are designated as ‘Protected Countryside’, with the Protected Countryside designation aiming to enhance the area of protected agricultural and environmentally-sensitive lands, as well as improving linkages between the Greenbelt and other provincial plan areas (i.e., Oak Ridges Moraine Conservation Plan Area, Niagara Escarpment Plan Area). Within the Protected Countryside, there are three policy areas, the ‘Agricultural System’, ‘Natural System’, and ‘Settlement Areas’. **Figure 1** shows portions of the Greenbelt NHS adjacent to the Town.

The Town is located within a Settlement Area and is designated as a ‘Town / Village’. As such, most policies of the Greenbelt Plan are not applicable (per Policy 3.2.2.4 of the Greenbelt Plan); however, Section 3.4.3 describes the implementation of the Greenbelt Plan for the Town / Village designation related to the agri-food network, water resource systems, external connections, open space / parkland / trails, and the general Settlement Area policies (Government of Ontario 2017). If an expansion to a Settlement Area is proposed, within the Protected Countryside, then the Natural System policies apply; however, Towns / Villages are not permitted to expand into the Greenbelt NHS, per Policy 3.2.2.6 (Government of Ontario 2017).

2.1.4.1. Greenbelt Plan Amendment No. 4

The Greenbelt Plan was amended on August 15, 2024, following the revocation of Growth Plan (2019) and Provincial Policy Statement (2020), to specify that the policies of these documents continue to apply, where referenced within the Greenbelt Plan (2017) (Government of Ontario n.d.). This amendment aims to maintain existing protections for the Greenbelt following the changes to provincial policy / plans (Government of Ontario 2024a).

This amendment provides additional text to Section 1.4.1 of the Greenbelt Plan (2017) stating “A reference in this Plan to the PPS is a reference to the Provincial Policy Statement, 2020 as it read immediately before it was revoked and a reference in this Plan to the Growth Plan is a reference to the Growth Plan for the Greater Golden Horseshoe 2019 as it read immediately before it was revoked”.

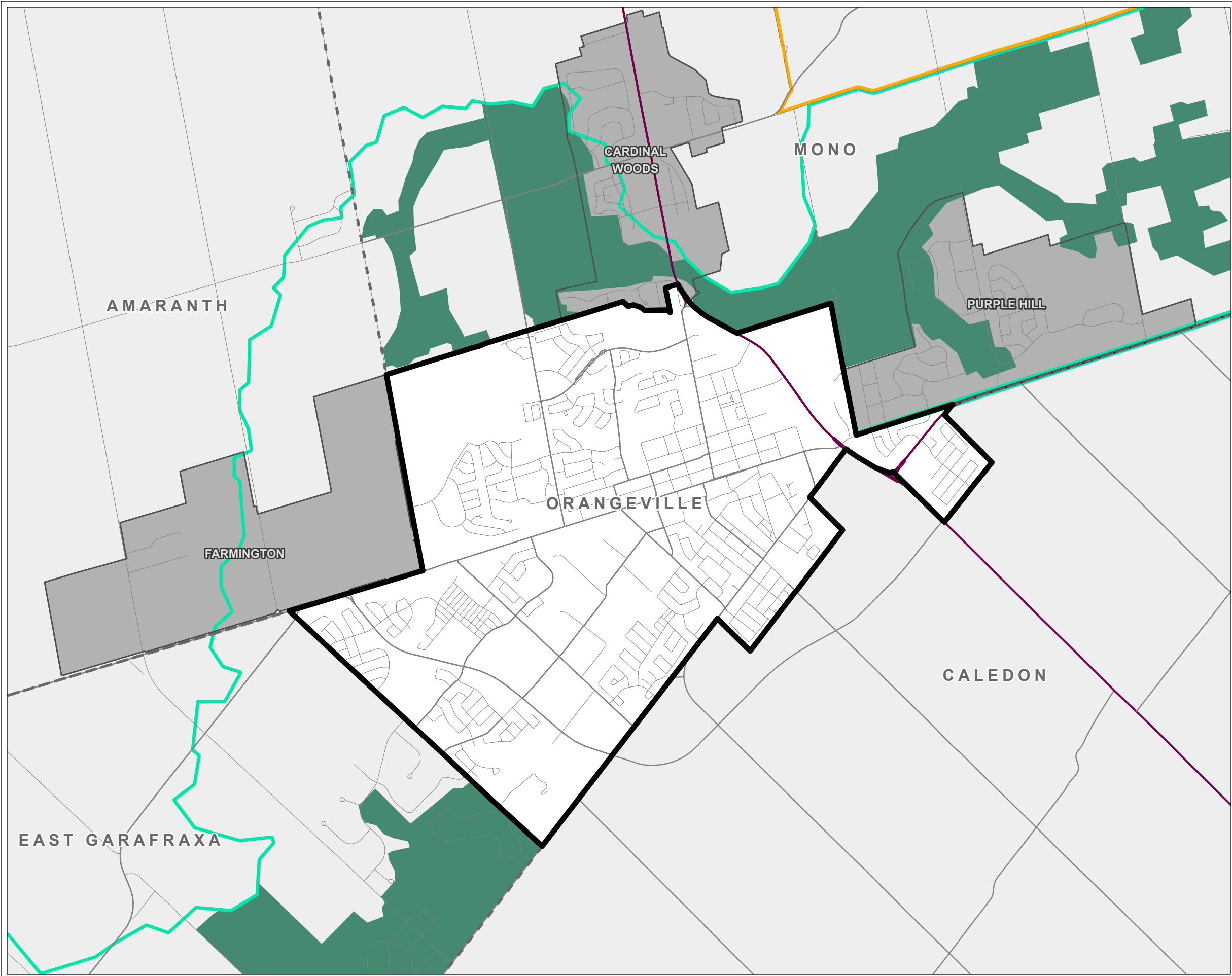


Figure 1. Natural Heritage Systems
Natural Heritage Study

Legend

- Orangeville Settlement Area Boundary
- Municipal Boundary
- Community Settlement Area
- Highway
- Major Road
- Local Road

Provincial Plans

- Greenbelt Natural Heritage System
- Greenbelt Plan Protected Countryside Area
- Niagara Escarpment Plan Area
 - Escarpment Natural Area
 - Escarpment Protection Area



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2.1.5. Clean Water Act (S.O. 2006, c. 22)

The *Clean Water Act, 2006* is provincial legislation implemented with the aim to protect both existing and future sources of drinking water in Ontario (Government of Ontario 2006). The *Clean Water Act, 2006* provides a locally-driven, science-based process to protect municipal and designated private drinking water sources through a watershed-based source water protection approach. The local watershed-based source water protection committees work with municipalities, conservation authorities, First Nations, and other stakeholders to prepare assessment reports and subsequent source protection plans (Government of Ontario 2006). These plans identify vulnerable areas, assess potential threats, and set out policies to manage risks. The Town falls under the Credit Valley – Toronto and Region – Central Lake Ontario (CTC) Source Protection Region, and a Source Protection Plan (SPP) came into effect on December 31, 2015 (most recently amendment in effect as of October 15, 2025).

2.1.6. Conservation Authorities Act (R.S.O. 1990, c. C.27)

The *Conservation Authorities Act, 1990* provides the basis for the establishment of conservation authorities in Ontario and aims to provide the organization and implementation of programs and services that advances the conservation, restoration, development, and management of natural resources for watersheds in Ontario (Government of Ontario 1990b). Under the *Conservation Authorities Act*, the established conservation authorities have the powers including completing watershed-based research and enacting regulations to control development and site alteration that interfere with water resources and pose natural hazards, such as wetlands, watercourses, shorelines and hazard lands (e.g., floodplains) (Government of Ontario 1990b).

Recently *Bill 97, Plan to Protect Ontario Act, 2026* was passed in April 2026 amending the *Conservation Authorities Act* to consolidate 35 existing watershed-based conservation authorities to eight regional conservation authorities, with the transition anticipated in 2027. This relates to local watershed and natural hazard management under the governance of the Credit Valley Conservation, which is anticipated to transition into the Western Lake Ontario Regional Conservation Authority under recent legislative changes.

2.1.6.1. Ontario Regulation 41/24: Prohibited Activities, Exemptions and Permits

Ontario Regulation 41/24, issued under the *Conservation Authorities Act* and in force as of April 1, 2024, establishes a single, province-wide regulatory framework for all conservation authorities in Ontario, replacing the previous 36 individual regulations (Government of Ontario 2024b). The regulation standardizes requirements for development and site alteration, including where they are prohibited, where exemptions may apply, and where permits are required, with a focus on hazardous lands, wetlands, and watercourses. It also enhances oversight by the Ministry of the Environment, Conservation and Parks in relation to regulatory approvals and permitting decisions.

2.2. Provincial Guidance Documents

The following provincial documents provide the technical guidance for implementing the provincial planning context for the NHS for the Town.

2.2.1. Natural Heritage Reference Manual (2010)

The NHRM is a technical guidance document that was drafted by the Province to aid in implementing the policies of, and achieving consistency with, the Provincial Policy Statement (2005) (OMNR 2010). Notwithstanding there have been several iterations of the Provincial Policy Statement (now Provincial Planning Statement) since 2005, the identification of natural heritage systems and guidance for the interpretation of natural heritage policies continue to be widely accepted given that the scientific principles that inform the NHRM and the natural heritage policies of the Provincial Planning Statement have not changed substantially since the 2010 NHRM was published.

The NHRM aims to provide the information necessary for planning authorities and proponents to identify and evaluate natural heritage systems, features, and areas including significant wetlands and coastal wetlands, woodlands, valleylands, wildlife habitat, Areas of Natural and Scientific Interest (ANSIs), fish habitat, as well as habitat for endangered and threatened species (under the previous *Endangered Species Act*) (OMNR 2010). Although the NHRM still provides valuable information and industry standards on the identification and evaluation of natural heritage features and areas, changes to policy and legislation requires the use of more recent provincial direction (e.g., updated Ontario Wetland Evaluation System [OWES], updated guidance on habitat regulation for the in-effect *Species Conservation Act*). Through the identification and evaluation of these natural features and areas, planning authorities can implement policies that achieve the long-term protection of natural heritage features and areas (Policy 4.1.1 of the PPS). The NHRM also provides municipal planning tools (e.g., guidance on Official Plans, Zoning By-laws, etc.) and information to address impacts from development and site alteration (e.g., mitigation, monitoring, environmental impact studies, etc.) (OMNR 2010).

2.2.2. Significant Wildlife Habitat Technical Guide (2000)

Significant Wildlife Habitat (SWH) was first defined as a natural heritage feature in the original Provincial Policy Statement (1996) issued under the *Planning Act*, leading to the Ontario Ministry of Natural Resources (now the MNRF) developing the first version of the NHRM (1999) and the Significant Wildlife Habitat Technical Guide (SWHTG) (OMNR 2000). While the NHRM provides more general guidance on identifying natural features and areas, the SWHTG establishes detailed, technical guidance on how to identify, describe, prioritize, and protect SWH in municipal planning and decision-making (OMNR 2000). The SWHTG specifies that the technical guidance is based on the most up-to-date information available at the time, with the intent to update the technical information as new scientific information and tools / techniques becomes available. Further, it is outlined in the SWHTG that the guidance provided is not the only acceptable approach to identifying and evaluating SWH, providing opportunities for planning authorities to implement their own guidance and criteria, if they are consistent with the policies and

objectives in the PPS (OMNR 2000). However, the SWHTG (and subsequent criteria schedules discussed in **Section 2.2.3**) are generally accepted as the industry standard technical guidance for SWH.

The SWHTG divides SWH into four, general categories, seasonal concentration areas, rare vegetation communities or specialised habitats for wildlife, habitats of species of conservation concern, and animal movement corridors. As existing information on confirmed SWH is not readily available across Ontario and cannot be reliably delineated through desktop exercises, it is not common for municipalities to map SWH as part of the NHS. However, protection of SWH is generally achieved through official plan policies (consistent with the PPS) and the identification of SWH as part of environmental studies (e.g., Environmental Impact Studies) using the guidance provided by the Province or municipal approaches, where available. The SWHTG also references the Significant Wildlife Habitat Mitigation Support Tool (OMNRF 2014), which aids in identifying function of SWH, potential impacts, and possible mitigation options.

2.2.3. Significant Wildlife Habitat Criteria Schedules for EcoRegion 6E (2015)

The Significant Wildlife Habitat Ecoregion Criteria Schedules (SWHECS) were released by the Province to support the implementation of the SWHTG across EcoRegions 3E, 5E, 6E, and 7E (OMNRF 2015). The SWHECS are intended for anyone evaluating SWH in the applicable EcoRegions and provides geographic-specific criteria based on updated science and expert knowledge (OMNRF 2015). The SWHECS outline descriptions of different wildlife habitat, criteria for identification of SWH, background information sources to aid in assessment, and methods for confirming the SWH (OMNRF 2015). The criteria include reference to suitable habitat using Ecological Land Classification (ELC for Southern Ontario in EcoRegion 6E) (Lee et al. 1998), indicator wildlife species, and additional criteria for delineation of the SWH type (OMNRF 2015).

2.2.4. Ontario Wetland Evaluation System for Southern Ontario (2022)

The Ontario Wetland Evaluation System (OWES) is a system used to evaluate the relative value (i.e., provincial significance) of wetlands in Ontario and provides the evaluation criteria referred to in the PPS regarding wetlands. The first edition of the OWES, and associated manuals for southern and northern Ontario, was developed in 1983 and is now on the fourth edition (2022). In general, the results of an evaluation under OWES is intended for use by municipal governments in their planning process and the implementation of the PPS policies related to wetlands. The manual outlines four components of wetland evaluation as follows (OMNRF 2022):

- **Biological:** this component recognizes that wetlands vary in productivity and diversity of habitat.
- **Social:** this component recognizes that humans directly use wetland for economic products (e.g., wild rice, fisheries, furbearing mammals), recreation, and education / awareness.
- **Hydrological:** This component recognizes the water-related value of wetlands including flood storage / water retention, groundwater recharge and discharge, and water quality / filtration.
- **Special Features:** This component recognizes the geographic rarity of wetlands, ecosystem age, and quality of wildlife habitat.

Wetland evaluators are certified through Ministry of Natural Resource, and once an evaluation is complete the results and mapping must be provided to the Ministry within 30 days to be uploaded to provincial mapping (i.e., Geospatial Ontario) for the inclusion in municipal OPs.

2.3. Federal Legislation

The following policy and legislation provide the applicable federal planning context for the NHS for the Town.

2.3.1. Species at Risk Act (S.C. 2002, c. 29)

The federal *Species at Risk Act* (SARA) aims to prevent wildlife species from becoming extirpated or extinct, provide for the recovery of SAR listed as extirpated, endangered, or threatened, and to avoid special concern species from becoming threatened or endangered through management (Government of Canada 2022). The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is responsible for recommending species to be listed on Schedule 1 of SARA. The SARA provides legal protection for federally listed SAR on federally owned lands, as well as for aquatic species and federally listed migratory birds listed under the *Migratory Birds Convention Act, 1994* (MBCA) anywhere they occur (Government of Canada 2022). Individuals and their residences are protected under Policies 32 and 33 of the SARA and identified critical habitat is protected under Policy 58 (Government of Canada 2022). The Species at Risk Act (SARA) sets federal requirements that must be considered in land use planning, particularly where federally protected species, migratory birds, or aquatic species may occur. While it is primarily enforced on federal lands and for federally regulated species, its protections apply broadly in planning contexts through development review, environmental assessment, and permitting processes.

2.3.2. Fisheries Act (R.S.C., 1985, c. F-14)

The *Fisheries Act* aims to protect and sustain Canada's Freshwater and marine fisheries by preventing pollution and safeguarding fish and their habitats, which include spawning, nursery, rearing and feeding areas, essential to fish life processes (Government of Canada 2002). The act prohibits the death of fish by means other than fishing, and the harmful alteration, disruption, or destruction (HADD) of fish habitat, unless authorized by the Department of Fisheries and Oceans Canada (DFO) (Government of Canada 2002). If impacts caused by proposed works cannot be fully avoided and may result in fish death or HADD of fish habitat, a Request for Review must be submitted, and a *Fisheries Act* authorization may be required under Section 35(2) may be required. The Fisheries Act (1985) also prohibits depositing harmful substances into waters used by fish (Section 34 and 36), and it includes provisions for unimpeded fish passage and sufficient water flow (Section 34.3). Projects that have the potential to obstruct fish passage or affect flows needed by fish require authorization (Government of Canada 2002). These protections apply to all Canadian fisheries waters and works in tandem with the SARA to provide review and associated permitting for federally-listed aquatic SAR.

While the PPS recognizes fish habitat as part of the natural heritage and water resource systems, mapping is often limited or incomplete due to the dynamic nature of aquatic systems and variability in

habitat conditions. As a result, municipalities rely on a combination of desktop screening, agency consultation (e.g., DFO), environmental studies (e.g., Environmental Impact Studies), and OP policies to identify and address fish habitat in the planning process.

2.4. Dufferin County

The following policy documents and plans provide the upper-tier, municipal planning context and strategic direction for the NHS for the Town.

2.4.1. Dufferin Official Plan (Office Consolidation August 2025)

The Dufferin County's OP ("the County's OP") establishes the policy framework and land use planning direction for eight lower-tier municipalities in Dufferin County, implementing provincial policy and addressing matters of County-wide significance. It includes objectives and policies in Section 5 to protect, restore, and enhance natural features and water resources, support a Natural Heritage System (NHS), promote connectivity, and direct development away from significant natural features and water resource areas (County of Dufferin 2025).

OP Amendment No.3 was approved under the *Planning Act* in October 2024 to ensure conformity with the Growth Plan, 2020 and implement the County's Land Needs Assessment (MMAH 2024b). This amendment resulted in expanded settlement areas (excluding the Town), updated Employment Lands designations, refined Prime Agricultural Lands mapping, and implementation of the County's NHS through Schedules E and E1 (County of Dufferin 2023a). The County-wide NHS provides objectives and policies for a long-term approach to land use planning for the protection of natural heritage and biodiversity, as well as provide connectivity among natural features and areas (County of Dufferin 2025). A further amendment (OP Amendment No. 4), approved in July 2025, updated policy language to reflect climate change considerations, adjacent lands guidance, and minor clarifications to natural environment policies.

Schedule E to the County's OP identifies natural heritage features, including Provincially Significant Wetlands (PSWs), ANSIs, woodlands, and unevaluated wetlands or locally / regionally significant wetlands, which form the basis for the NHS depicted on Schedule E1 (see **Figure 2**). In addition to the features depicted on Schedule E, watercourses, flooding hazards, steep slopes, unstable soils, erosion hazards, and natural features are also incorporated into the NHS on Schedule E1.

To ensure consistency between County and lower-tier municipal planning processes, the County's OP encourages a linked NHS. A linked NHS as described in Policy 5.2 e) of the County's OP, is an interconnected network of natural features and corridors that maintains ecological connectivity and biodiversity. It is established through the integration of natural areas, waterways, trails, open spaces, infrastructure corridors, and planning measures across municipal boundaries (County of Dufferin 2025). Section 5.3 of the County's OP outlines that feature boundaries shown on Schedule E are approximate and subject to refinement without requiring an OP amendment. It also establishes policies for development and site alteration within or adjacent to natural features forming the NHS, requiring an

Environmental Impact Study (EIS) prepared by a qualified professional for proposals within adjacent lands (120 m, or 50 m for Earth Science ANSIs). Section 5.3 further sets out criteria for evaluating the significance of natural features, aligned with the Natural Heritage Reference Manual (NHRM). The County also identifies opportunities to explore public ownership of NHS and open space lands with local municipalities, in accordance with the County's OP land acquisition policies, to support long-term protection and public access where appropriate.

Section 5.4 of the County's OP provides policies for the protection of water resources from contamination and degradation associated with certain land uses and activities. This section focuses on integration of land management with the protection surface and groundwater resources, and the associated natural features and areas, to maintain a healthy natural environment (County of Dufferin 2025). Further, protection and restoration of natural heritage features and areas, as well as implementation of watershed planning with applicable conservation authorities (e.g., to guide planning for sewage, water services, stormwater management), are encouraged to improve water quantity and quality within the County. Sourcewater protection, conservation, and management is also outlined as key component of protecting the needs of flora and fauna, baseflow for aquatic features, and to maintain water quality and quantify of drinking water sources (County of Dufferin 2025). The County's OP delegates policy guidance regarding sourcewater protection to the local municipalities, until such a time that SPPs under the *Clean Water Act* are available to the County. Appendix 2 to the County's OP of Orangeville (County of Dufferin 2025).

Section 5.4 addresses water resource protection, focusing on maintaining surface and groundwater quality and quantity through integrated land and watershed management, including collaboration with conservation authorities and support for source water protection. Section 6.2 integrates natural hazards into the NHS framework, directing development away from hazardous lands unless risks can be appropriately mitigated, with local municipal official plans identifying and managing these hazards in accordance with County and provincial guidance.

The County's OP mapping schedules illustrate the geographic application of land use planning through Schedules B and B1 (land use and settlement pattern) and natural heritage mapping through Schedules E and E1 (Natural Heritage System). Appendix 1 also shows Conservation Authority jurisdictions within the County, providing additional context for regulatory oversight related to natural heritage and hazard management. Appendix 2 depicts the boundaries of sourcewater protection areas within the County, including the Town

The County's OP policies related to the natural environment, water resources, and natural hazards have been reviewed, with a high-level summary provided in Table 1 – Summary of Policy Comparative Analysis (**Appendix 1**). The County's OP mapping updates are summarized in Table 2 – Summary of Mapping Comparative Analysis (**Appendix 2**).

Overall, the County's OP amendments reinforce a more integrated NHS framework, strengthening alignment between land use planning, water resource protection, and natural hazard management, which should inform the Town's OP update.

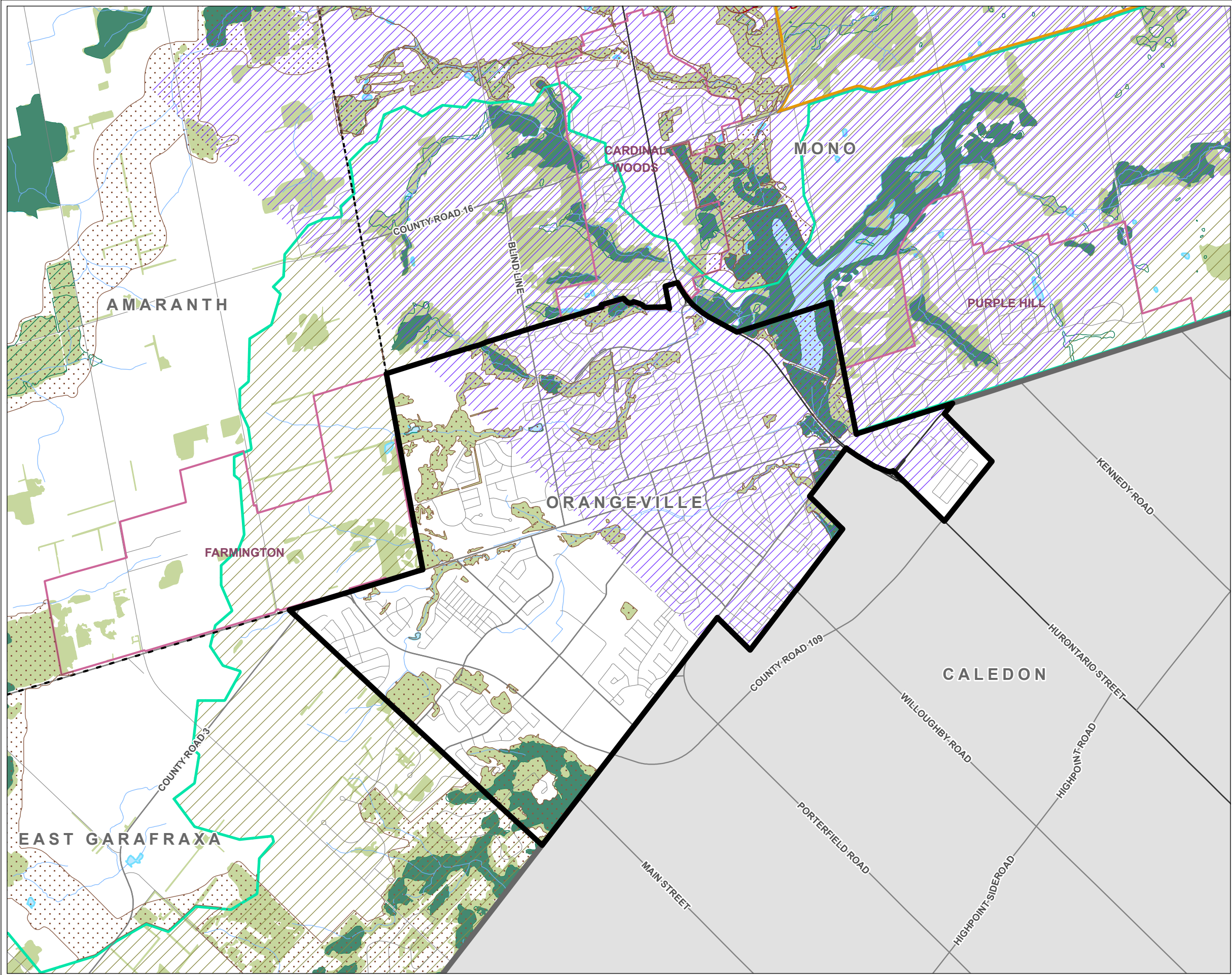


Figure 2. Dufferin County Natural Heritage System (Schedule E)
Natural Heritage Study

- Legend**
- Orangeville Settlement Area Boundary
 - Dufferin County Boundary
 - Municipal Boundary
 - Community Settlement Area
 - Highway
 - Major Road
 - Local Road
 - Watercourse
 - Waterbody
 - Woodland
 - Provincially Significant Wetland
 - Unevaluated Wetland
 - Provincial Plan Areas
 - County Preliminary Natural Heritage System (Schedule E1 of the Official Plan)
 - Greenbelt Plan Protected Countryside Area
 - Niagara Escarpment Plan Area
 - Earth Science ANSI

0 1 2 Kilometers

Project Number
26-1548

Date:
2026-05-04

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Imagery: ESRI

north-south
ENVIRONMENTAL

2.4.1.1. *Natural Heritage System Strategy: Draft Background Report (2021)*

Based on changes to the provincial policy and associated plans including the Growth Plan, Greenbelt Plan, and Provincial Policy Statement (2020), the County identified a need for updates to the natural heritage policies in the in-effect County OP (2015). Further, the County's OP (2015) included a preliminary NHS and objectives for the NHS, which included a recommendation to undertake a County-wide NHSS to aid in refining and formalizing the NHS in more detail. A Draft NHSS was completed (WSP 2021), which underpinned the need for updated natural heritage policies, as well as provided draft criteria and preliminary natural heritage mapping to inform the final NHS, to be implemented by the County through OP Amendment No. 3.

2.4.2. **Dufferin Climate Action Plan (2021)**

Climate change is predicted to impact Dufferin County in the coming years through warmer year-round temperatures, extreme heat and drought, loss of biodiversity, soil erosion and nutrient loss, longer growing seasons, and increased energy demands to deal with these changes to the local climate (WSP 2021). As such, the County has prepared the Dufferin Climate Action Plan (DCAP) (County of Dufferin 2021) to act as a strategy for the County, local municipalities, and citizens to reduce greenhouse gas and establish climate resiliency, with a target of being net-zero by 2050 (County of Dufferin 2021). The DCAP identifies two main objectives, 1) to mitigate climate change through reduction of local greenhouse gas emissions, and 2) to take action to adapt to the impacts of climate change and reduce future risk (County of Dufferin 2021). From a natural heritage perspective, one of the climate action focus areas is 'For Our Land' where actions will be focused on protection, restoration and enhancement of natural systems, reduction of agricultural emissions, protection of people and property from natural hazards, and promotion of climate resilient agricultural practices (County of Dufferin 2021). The DCAP outlines one of the objectives as supporting the protection, rehabilitation, and enhancement of natural systems to foster climate resiliency, resulting five action items relating to the NHS and associated County's OP policies, as follows (County of Dufferin 2021):

- Protect / enhance local natural assets through a natural asset inventory and management plans.
- Increase tree coverage and protection in Dufferin County through an urban forest strategy considering climate change, updated landscape regulations, and exploration of a private / heritage tree by-law for local municipalities.
- Encourage green infrastructure and low-impact development (LID) initiatives to support resiliency goals
- Support conservation and rehabilitation of ecological systems in rural areas.
- Support water protection initiatives including wetland restoration and incorporating a climate lens to water resource initiatives.

Additionally, the 'Planning Our County' focus area complements the above, through action items aimed at minimizing food risks with the enhancement of green infrastructure. These action items include enhancing green space / permeable surfaces, increase tree coverage through planning policy, manage

natural assets through the directives of a natural asset management plan, support wetland creation and restoration, and increase the uptake of LID measures (County of Dufferin 2021).

2.4.3. Together for Change: Dufferin's Climate Adaptation Strategy (2023)

In September 2022, the County Council passed a motion to declare a climate emergency, which reinforces the County's commitment to climate action. To complement the DCAP, the County has prepared a Dufferin Climate Adaptation Strategy (DCAS) with the goal to 'proactively identify opportunities to advance climate resilience in Dufferin's social, economic, built, and natural systems (County of Dufferin 2023b). Following the implementation of the DCAP, the County is now in the process of monitoring progress and reporting results, including vulnerability assessment and associated impact statements relevant to the NHS and the associated County's OP policies, as follows (County of Dufferin 2023b):

- **High Risk:** Increase precipitation in the winter / spring and freezing rain events, resulting in more salt use, damaging aquatic ecosystems, as well as damage to public assets and infrastructure.
- **High Risk:** Increase in frequency and intensity of extreme weather events resulting in loss of natural features including mortality of flora / fauna, loss of green spaces / natural landscape.
- **High Risk:** Increase in average winter temperature resulting in destabilization of the snowpack, reducing water recharge and resulting in a reduction of water quantity to water systems, including wetlands.
- **Medium-High Risk:** Increased frequency and intensity of precipitation, resulting in increased runoff from roads and / or agricultural land, leading to erosion of riverbanks / hillsides, loss of riparian habitat, and increased sediment load affecting in-stream habitat.
- **Medium Risk:** Increased precipitation in winter / spring and rising average annual temperatures resulting in invasive species proliferation and spread of vector-borne diseases.

The DCAS provides recommended actions for each focus area, including objectives, action items, timeframe, and responsibilities. Through the Buildings and Infrastructure focus area, the DCAS recommends partnering with local municipalities, planners, and Conservation Authorities to protect existing natural assets, as well as to seek opportunities to implement nature-based solutions for stormwater management such as creating wetlands on municipal and private property (County of Dufferin 2023b). Natural environment recommendations outlined in the DCAS include increase uptake of sustainable land use and management practices by residents and landowners, and the implementation and support of nature-based solutions to enhance water security, habitat restoration, and reduce habitat fragmentation.

2.4.4. Toward Natural Asset Management in Dufferin County (2022)

A Natural Asset Inventory (NAI) and associated management plans were recommended as actions in the DCAP to achieve the objective of supporting the protection, rehabilitation, and enhancement of natural systems to foster climate resiliency (County of Dufferin 2021). In 2021, the County completed an NAI to identify, quantify, and map natural assets (e.g., forests, wetlands, etc.) to assess the conditions of the

natural assets and to inform future management of resources (Municipal Natural Assets Initiative 2021). The County's NAI breaks out natural assets into four categories: agriculture, forest, wetland, and water and summarizes the number of assets, their rating (very poor, poor, fair, good), and total area of assets, with most assets falling under the 'poor' and 'fair' condition ratings (Municipal Natural Assets Initiative 2021). The County's NAI also provides a risk assessment, which identifies six high-level risks as over-use of trails/dumping, invasive species, development pressure, pollutant loading, flooding in Orangeville and Grand Valley, and future drought (Municipal Natural Assets Initiative 2021). These six high-level risks are identified as priorities and the NAI outlines recommendations for additional inventory (e.g., field verification, integrate climate projections and land-use modelling), as well as the steps propose for full natural asset management plans.²⁸ While natural asset management plans have not been implemented for the county, natural assets are recommended for inclusion in the next iteration of Dufferin's asset management plan, per the existing Dufferin County Asset Management Plan (County of Dufferin 2022).

2.5. Town of Orangeville

The following policy documents and plans provide the Town's planning context and strategic direction for the NHS for the Town.

2.5.1. Town of Orangeville Corporate Strategic Plan (2023)

The Town updated its Corporate Strategic Plan (CSP) to guide decision-making, planning, and budgeting for a five-year period (Deloitte LLP 2023). As part of the CSP, the Town's vision was updated as follows (Deloitte LLP 2023): 'Orangeville is a sustainable, safe, and diverse community that is friendly and open to new people and innovative opportunities'. The CSP defines the guiding principles, including a holistic approach to stewardship incorporating human, social, and environmental assets. Further, strategic goals and objectives related to corporate capacity, future readiness (including sustainability), community vitality, and economic resilience are outlined in the CSP (Deloitte LLP 2023).

2.5.2. Town of Orangeville Official Plan (Office Consolidation March 2025)

The Town's OP provides the general planning context to guide the physical, social, and economic development for the Town for the 20-year planning horizon (Town of Orangeville 2025a). An amendment to a previous consolidation of the Town OP was approved under the *Planning Act* in July 1998 to provide updates to the Open Space Conservation policies and redesignate three parcels owned by the Town to this designation (Town of Orangeville 1998). This amendment included goals for the natural environment and water resources, the basis of subwatershed planning, permitted land uses within the Open Space Conservation designation as shown on Schedule "A" Land Use, requirements for an EMP and EIS, conservation of water resources, stream preservation and restoration, urban forestry, and recreational trails (Town of Orangeville 1998). Amendment No. 56 established the basis for the natural environment, water resources, and natural hazard policies implemented through the in-effect Town OP (Town of Orangeville 1998). The in-effect Town OP outlines natural environment, water resources, and natural hazard goals, as follows (Town of Orangeville 2025a):

- Use an ecosystem-based approach to maintain environmental health of the Credit River subwatersheds.
- Direct development away from lands affected by flooding and / or erosion hazards and ecologically significant or sensitive lands that support natural features and their functions.
- Preserve the quality and quantity of surface and groundwater resources.
- Increase awareness regarding water quality, conservation, and preservation of aquatic habitats.
- Control the nature of future development and improve existing land use practices in wellhead protection areas.

Section E5 sets out policies for the natural environment, water resources, and natural hazards, with a focus on subwatershed planning in partnership with the CVC and other stakeholders. This subwatershed planning approach, guided by *Environmental Planning for the Credit River Headwaters – Subwatershed No. 19* (Aquafor Beech Ltd. 1997), aims to protect and enhance water resources and natural features in response to development pressure in the Town.

While the Town does not currently map a formal NHS, Schedule A designates “Open Space Conservation” areas where development is generally prohibited, subject to permitted uses (e.g., public works, outdoor recreation) and refinement through planning processes. The OP requires an Environmental Management Plan (EMP) prior to draft subdivision approval to identify natural features, restoration areas, stormwater management measures, and infiltration maintenance. An Environmental Impact Study (EIS) is also required for development adjacent to these areas (based on NHRM adjacent lands distances) to confirm boundaries, assess impacts, and recommend mitigation or restoration (Town of Orangeville 2025a).

Section E5.3 further outlines policies related to water resources, with a focus on ensuring that development (and well operation) are completed in a manner that will maintain or enhance groundwater recharge / discharge, as well as the quantity and quality of surface and groundwater resources (Town of Orangeville 2025a). This protection and enhancement includes the requirement to maintain or enhance infiltration post-development, where possible, and regarding the maintenance of water quality. In 2025, the Town adopted Official Plan Amendment 135 to amend the Official Plan to incorporate Town-wide source water protection policies and corresponding mapping from the CTC Source Protection Plan as established the Clean Water Act, 2006.

Section E5.3 also outlines policies and mapping related to natural hazards, defined as ‘flood-prone lands’ in the Town OP. These flood-prone lands are mapped on Schedule B to the Town OP and include the Regional Storm Floodplains (RSFs) associated with Mill Creek and Lower Monora Creek. For certain areas that fall within the limits of the RSF, the Town and CVC have adopted a Two-Zone approach. The Two-Zone policies differentiate between “floodway” and “flood fringe”. Alteration to flood-prone lands, including the flood fringe, in the Two-Zone areas, is not permitted without approval from CVC. Existing uses are zoned in a ‘Special’ Zone within the RSF for Mill Creek and are considered legal conforming uses despite being in hazardous lands; however, expansions of these uses will be discouraged and require approval from CVC (Town of Orangeville 2025a).

In addition to the above policies, Section E5.3 also outlines that watercourses will be maintained in a natural condition and stream bed disturbance will be minimized to prevent erosion pre- and post-development, where possible (Town of Orangeville 2025a). Further, this policy states that natural channel design will be used when the opportunity arises and that streambanks will be maintained in or restored to a natural condition (Town of Orangeville 2025a). To maintain and enhance the forest cover in the Town, the Town OP stipulates that native species are required for plantings on private lands through the development approval process and that a tree by-law may be enacted (Town of Orangeville 2025a). (refer to **Section 2.5.4.2**) of this paper for the proposed tree by-law framework).

Town OP policies related to the natural environment, water resources, and natural hazards were reviewed at a high level and are summarized in the Policy Audit Table in **Appendix 1**.

2.5.3. Town of Orangeville Plans

2.5.3.1. Sustainable Neighbourhood Action Plan (2019)

The Town completed the Sustainable Neighbourhood Action Plan (SNAP) to achieve the vision for a sustainable community that is thriving, green, healthy, and connected (Town of Orangeville 2019). The Town OP also outlines the commitment to sustainability and responsibility for environmental stewardship and climate change mitigation (Town of Orangeville 2025a). The SNAP was recommended as a priority action in the Town's 2017 strategic action plan and was completed by building from previous sustainability efforts for the Town and stakeholder engagement. The SNAP is intended to provide a comprehensive document to guide the incorporation of sustainability into the Town's operations and delivery of services, as well as municipal decision-making (Town of Orangeville 2019). The SNAP focuses on a broad view of sustainability to acknowledge the interconnected nature of the factors that affect the environment, community, and economy. As such, the SNAP outlines seven key theme areas including Energy and Climate Change, Corporate and Fiscal, Economic Development and Culture, Land Use and Planning, Natural Resources and Environment, Social Well-being, and Transportation System (Town of Orangeville 2019).

While the themes are interconnected, the Natural Resources and Environment theme is particularly relevant to this NHSS and outlines strategies to protect and enhance the natural environment through protection, improvement, and / or restoration of the quality and quantity of water resources, as well as natural heritage features and the urban forest (Town of Orangeville 2019). The SNAP identifies 24 actions, as well as the responsibilities within the municipality, that aim to achieve the goals and strategies related to this theme. The SNAP outlines numerous metrics related to the natural environment, water resources, and natural hazards (e.g., fish habitat, contaminants in surface / groundwater, water consumption, green space, etc.) and identifies the total cover (%) for the Town as a future metric (Town of Orangeville 2019).

2.5.3.2. Sustainable Neighbourhood Action Plan Progress Report (2022)

The first progress report for the SNAP (2019) outlines the status of the actions that were recommended as Completed, Underway, On-going, Paused, Not Started, or Future Work Plan (Town of Orangeville 2022). Twenty-nine actions related to the Natural Resources and Environment theme were proposed in

the SNAP (Town of Orangeville 2019), with 20 of these actions on-going, underway, or completed. Completed actions relevant to this NHSS include requiring development to maintain pre-development groundwater recharge, implementation of a Water Conservation Plan, and promotion of planting native vegetation capable of adaptation to predicted climate change (Town of Orangeville 2022). The Town was also recognized as a designated ‘Bee City’ based on its commitment to develop, restore, and preserve pollinator-friendly habitat and the pledge to refrain from pesticide use, when possible (Town of Orangeville 2022).

2.5.3.3. *Orangeville Community Climate Action Plan (2024)*

In 2018, the Town joined the Partners for Climate Protection program that includes over 500 municipalities in Canada, committing to climate action (Town of Orangeville 2024). This program outlines a five-step framework aiming to reduce local greenhouse gas emissions, while increasing the number of jobs, improving the air quality, health of residents, and financial resources (Town of Orangeville 2024). As part of step three of the framework, the Orangeville Community Climate Action Plan (OCCAP) (Town of Orangeville 2024) was drafted to provide the course of action to reach net-zero emissions by 2050, in alignment with the DCAP (Town of Orangeville 2021) (Town of Orangeville 2024).

The OCCAP outlines several key climate impacts related to this NHSS including heat and drought, loss of biodiversity, and soil erosion and nutrient loss. Subsequently, the OCCAP provides two frameworks, low-carbon resilience and justice and equity, to achieve the local climate goals (Town of Orangeville 2024). Specifically, the low-carbon resilience framework aims to integrate both climate adaptation and mitigation into planning, which includes protection of the local environment (Town of Orangeville 2024). From an environmental perspective, the OCCAP outlines the benefits of climate action as increased tree cover, improved air quality and water retention / absorption, and habitat creation and preservation.

The OCCAP provides priority actions to achieve priority initiatives related to climate change which includes supporting climate-resiliency initiatives in agricultural and natural systems to improve food security, support local farmers, and protect natural systems (Town of Orangeville 2024). Recommendations for this initiative include supporting research, development of a natural asset management plan, supporting water conservation programs, updates to SWM plans and water quality / quantity protection initiatives with consideration for climate change, provide awareness and educational opportunities, and ensure tree planting requirements are implemented for new construction (Town of Orangeville 2024). The OCCAP also outlines an initiative to create green development standards, considering climate change.

2.5.4. Town of Orangeville Urban Forestry and Tree Canopy

2.5.4.1. *Town of Orangeville Urban Forestry Policy (2012)*

In collaboration with CVC, the Town established an Urban Forestry Policy (UFP) to provide guidance and a standard approach to locating, planting, and maintaining trees in the Town to continue and enhance urban forestry practices in Orangeville (Town of Orangeville 2012). The need for a comprehensive UFP was identified to provide policies to ensure stakeholders (e.g., Town staff, residents, land developers)

understand and take action to maintain, enhance, and replace trees in Orangeville (Town of Orangeville 2012). The UFP provides policy direction for Boulevard Trees, Open Spaces / Natural Areas, Parks and Open Spaces, and Site Plans and Subdivisions outlining acceptable species for planting, planting guides and sizes, maintenance / replacement (Boulevard Trees), public education (Boulevard Trees and Site Plan and Subdivisions), and agreements and guidelines (Site Plans and Subdivisions) (Town of Orangeville 2012). For natural areas (currently Open Space Conservation), these areas are intended to be left undisturbed; however, there are permitted uses that may require restoration and enhancement (Town of Orangeville 2012). In general, restoration-type projects will be implemented for natural areas; these areas will be left to naturalize and will not intended to require regular maintenance by the Town (Town of Orangeville 2012).

2.5.4.2. *Municipal Tree Canopy Policy (2020)*

Bill 68 – Modernizing Ontario’s Municipal Legislation Act was passed in 2017 to amend the *Municipal Act, 2001* to address climate change including requiring municipalities to have policy related to protection and enhancement of municipal tree canopy and natural vegetation (Town of Orangeville 2020). The Town has proposed a tree canopy goal of 40% by 2040 and has implemented this Municipal Tree Canopy Policy (MTCP) to formalize the guidance on tree and vegetation maintenance, planting, education, and public engagement into a comprehensive policy document (Town of Orangeville 2020). The MTCP outlines thirteen policy objectives related to the municipal tree canopy, discusses the benefits of enhancing the tree canopy, and provides policies (and associated responsible parties) for the following seven key areas (Town of Orangeville 2020):

- **Inventory** to provide awareness of the current condition of Orangeville’s tree canopy.
- **Plantings** to evaluate opportunities to plant trees, promote biodiversity and adopt a target of 40% tree cover by 2040.
- **Types of Plantings** to identify tree species that will thrive in the site-specific growing conditions, as well as to promote increased tree diversity.
- **Maintenance** to ensure public and employee safety, improve the long-term impact of tree plantings, and encourage cost-effectiveness.
- **Open Space – Conservation Areas** to guide management and preservation of environmental, recreational, and educational resources of these sites.
- **Planning and Development** to review and amend planning and development guidelines to support the care and development of the tree canopy.
- **Education** through creation of digital community education centre to promote tree conservation and protection / preservation of the tree canopy.

The MTCP provides an estimate of tree canopy as of 2020 as ~30%; however, updated analysis completed using 2021 data estimated the tree canopy at 24% (excluding water bodies) and an additional 36% of land cover in Orangeville as possible planting areas (Town of Orangeville 2020).

2.5.4.3. *Boulevard Tree Inventory and Tree Canopy Assessment Report (2023)*

A Boulevard Tree Inventory and Tree Canopy Assessment Report (2023) was completed by the Town to address a motion passed by council in 2021 to identify approaches for growing, managing and protecting the Town's tree canopy and urban forest (Thomson 2023). The assessment included all boulevard, private, and public trees and identified that the tree canopy as of 2021 was 24%, with 79% on private lands and 21% on public lands (Thomson 2023). The report identifies the ecosystem service values (\$) based on the benefits of the Town's tree canopy and urban forest and further identified the required plantings to achieve the goal of 40% tree cover by 2040. It was estimated that 255 ha of additional tree canopy cover, consisting of ~68,500 trees, will be required to achieve the 40% tree canopy goal (Thomson 2023). The report also outlines the existing tree species, diversity and health describing the importance of increasing tree diversity and planting of native species (Thomson 2023).

The report also identified that the current development planning process does not provide the Town with the ability to protect individual, private trees or trees in woodlands less than one hectare in (Thomson 2023). It is recommended that a tree preservation by-law be implemented, as permitted under the *Municipal Act, 2001*, to achieve the Town's urban forestry goals (Thomson 2023). This report identified two approaches to implementing a tree preservation by-law, which is discussed further in **Section 2.5.4.4** below.

2.5.4.4. *Tree Preservation By-Law Framework Report No. 1 (2025)*

Based on the findings of the 2023 tree canopy assessment, a framework for a tree preservation by-law was recommended, supported by public survey results indicating general support for protecting trees in the Town. The Town subsequently initiated the Tree Preservation By-Law Framework (TPBF), which is being completed in two reports. TPBF Report No. 1 (Town of Orangeville 2025b) summarizes the canopy assessment findings, existing urban forestry management practices, and public engagement results, while TPBF Report No. 2 will outline the proposed by-law framework and implementation plan based on Council direction and feedback.

Report No. 1 notes that the existing policies in the Town OP will not be sufficient to achieve the target canopy cover (40%), especially as trees on private properties (consisting of 79% of the tree canopy) are not currently regulated in any way (Town of Orangeville 2025b). The existing policies do not provide any language that restricts the removal of any trees, provides actions for landowners who remove trees outside of *Planning Act* applications, or enacts a by-law for enforcement of tree preservation outside of planning applications (Town of Orangeville 2025b).

As a result, Report No. 1 recommends additional public consultation on the framework presented in TPBF Report No. 2, as well as targeted engagement with local tree service companies and arborists to support education and awareness of the proposed requirements. The report concludes that implementation of a tree preservation by-law is warranted and would align with the Town's SNAP (Town of Orangeville 2019) and CSP (Deloitte LLP 2023).

2.6. Credit Valley Conservation Authority

The following policy documents and plans provide the planning context and strategic direction from a conservation authority perspective for the NHS for the Town.

2.6.1. Watershed Planning and Regulation Policies (2025)

The Watershed Planning and Regulation Policies (CVC 2025) guide the review of development applications and act as the principles for implementation of *O. Reg. 41/24: Prohibited Activities, Exemptions and Permits*. The policies in this document also aid CVC in the review of municipal official plans and amendments, zoning by-laws and amendments, planning applications, and any other review that CVC may be requested to complete. As part of CVC's mandate, the planning and regulation policies document provides the objectives and guiding policies for watershed planning, sustainable water management and infrastructure planning, and natural hazards and wetlands. The document also outlines how the policies should be implemented by CVC for plan input / review, as well as for development application under *O. Reg 41/24*.

2.6.2. Natural Heritage System Strategy (2015)

The Natural Heritage System Strategy (2015) is a plan that characterizes and maps a natural heritage system for the Credit River Watershed (CRWNHS). The Natural Heritage System Strategy was undertaken in four (4) phases, which included characterizing and assessing the existing conditions for the watershed, developing a methodology based on guiding principles and targets to identify the CRWNHS and developing recommendations for the implementation of the CRWNHS

A systems approach was used to develop the CRWNHS to “recognize the long-term ecological and human health and well-being benefits that arise from ecosystems” (CVC 2015). The Natural Heritage System Strategy takes a precautionary approach to the identification of natural heritage features and areas through a systems and watershed approach to achieve these goals and objectives. The primary goals for the CRWNHS are “to protect, restore, or enhance the ecological integrity of the Credits River watershed’s natural features, functions and systems; and to protect or enhance the quantity and quality of surface and ground water for environmental and human uses” (CVC 2015).

The CRWNHS consists of natural heritage features, buffers, and natural heritage areas (e.g., Centres for Biodiversity). The criteria and thresholds used to identify these components were based on federal or provincial guidelines (e.g., NHRM), best practices, professional judgment, and CVC data available at the time.

The Natural Heritage System Strategy is intended as an advisory support tool from CVC to municipalities within its watershed to assist in the review of existing natural heritage system policies and strategies, and to enhance the protection of natural heritage features and functions over the long term. It also identifies recommended natural cover targets for the CVC watershed that can be used by municipalities to inform the development and implementation of their own natural heritage systems.

2.6.3. Credit River Fisheries Management Plan (2002)

The Credit River Fisheries Management Plan (CRFMP) was developed by the Ministry of Natural Resources and Credit Valley Conservation (CVC), in partnership with other government and non-government organizations, to provide recommendations for the protection and rehabilitation of the aquatic ecosystems within the Credit River watershed. The CRFMP is intended to support CVC's watershed planning efforts by guiding initiatives that protect and enhance aquatic habitats.

The Credit River fishery is an important component and indicator of the ecological health and sustainability of the watershed (CVC MNR 2002). The CRFMP emphasizes that the Credit River supports diverse fish communities, with particular emphasis on cold-water fisheries, including brook trout, brown trout, rainbow trout, chinook salmon, coho salmon, and Atlantic salmon. Changes to surrounding land use can alter stream conditions, including water quality, water quantity, flow regime, channel morphology, and riparian habitat, which can, in turn, affect fish communities and their overall productivity (CVC MNR 2002).

The CRFMP characterizes the Credit River watershed and establishes a comprehensive set of fisheries management objectives, strategies, and tactics that seek to protect and restore aquatic habitat, mitigate the impacts of development and other land-use activities, improve water quality, maintain stream connectivity, and support the long-term sustainability of fish populations throughout the watershed. These strategies and tactics are intended to be implemented and supported through monitoring, enforcement and regulatory efforts, and education.

2.6.4. Headwaters Subwatershed Study – Phase 3: Management, Implementation and Monitoring Plan (2021)

The Headwaters Subwatershed Study (HSWS), completed by CVC (2021a), identifies the natural heritage and water resource characteristics of the subwatershed, along with long-term management objectives, opportunities, and threats, and provides guidance for municipalities, landowners, and private industry stakeholders on the protection and restoration of the subwatershed (see **Figure 3** for the study area). This document replaces the *Technical Document: Environmental Planning for the Credit River Headwaters – Subwatershed No. 19* (January 1997), which is referenced in the Town's OP (Policy E5.2.3).

The Phase 1: Characterization Report (2009) identified that the health of the ecosystems within the subwatershed are relatively healthy, although some areas exhibit signs of stress and degradation. The following conclusions were identified regarding the health and sensitivity of the subwatershed (CVC 2021a):

- Groundwater recharge is a critical component for the maintenance and improvement of the health of the subwatershed. As such, potential reduction of groundwater recharge from development requires consideration to maintain drinking water supply and baseflow for streams that support fish habitat.

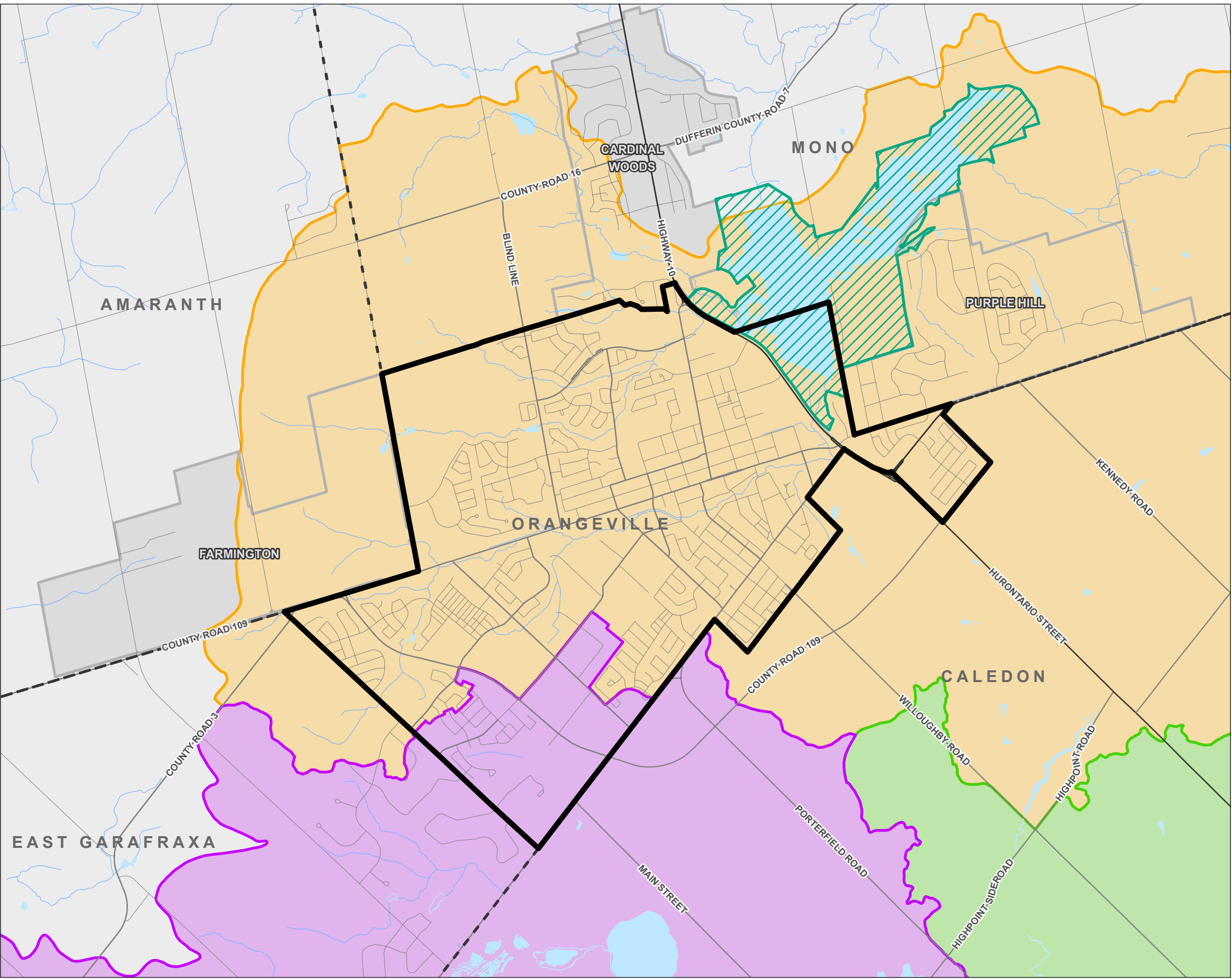
- Watercourses within the subwatershed are key contributors to the Credit River drainage system, including flood attenuation, sediment transport, and temperature moderation, which can affect the erosion and geomorphic stability downstream and contribute to the provision of habitat for diverse wildlife.
- Natural heritage and water resource linkages were assessed as being intact and important for continued health of the system. However, linkages between upland forest habitat and riparian corridors are weak, with opportunities for improvement within the landscape.

Based on the characterization of the subwatershed in Phase 1, the vision identified in the report is as follows: *‘To protect, enhance, and rehabilitate corridors, tablelands and areas important to the ecological functions of the Headwaters subwatershed within the limits of the natural system.’*

The Phase 2: Impact Assessment and Evaluation of Alternative Management Strategies Report (2010) evaluated the potential impacts of land use changes on features, as well as management strategies, which led to the identification of a preferred management strategy for the subwatershed (CVC 2021a). Potential impacts from increased land use change identified risks to surface and groundwater quality from urban runoff, increased water taking and reduced infiltration affecting baseflow and water supply to Island Lake, erosion and flooding issues from increased runoff, a reduction in important baseflow for local fisheries and wastewater assimilation, and continued fragmentation of natural heritage features and their linkages (CVC 2021a).

Utilizing the potential impacts identified, five management scenarios were identified considering existing and projected land use (i.e., considering official plans and the Growth Plan), as well as existing and enhanced SWM and NHS practices and policies (CVC 2021a). Following the identification of the alternative scenarios, modelling analyses and a scoring system was implemented to determine the anticipated outcomes of the different management scenarios. Scenario #4 was identified as the preferred management strategy and includes the implementation of 1) LID measures in development through design and approval of new development, 2) LID measures in existing development as the opportunity arises through land use change, redevelopment, and upgrades to infrastructure, and 3) an enhanced NHS through long-term planning and cooperation among stakeholders (CVC 2021a).

Figure 3. Credit Valley Conservation Authority (CVC) Subwatershed Boundaries and Island Lake Conservation Area
Natural Heritage Study



Legend

- Orangeville Settlement Area Boundary
- Municipal Boundary
- Community Settlement Area
- Waterbody
- Watercourse
- Highway
- Major Road
- Local Road
- Island Lake Reservoir Conservation Area

Subwatersheds (2018)

- Credit River - Melville to Forks of the Credit
- Headwaters
- Shaw's Creek

0 1 2 Kilometers

Project Number
26-1548

Date:
2026-05-01



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ENVIRONMENTAL

As part of the Phase 3: Management, Implementation and Monitoring Plan (CVC 2021a)), a Management Plan has been prepared including recommendations related to policy, site requirements (planning, design, and construction), program and project-based recommendations and stewardship. The Management Plan has been separated into five plans consisting of Stormwater, Groundwater, Surface Water, Natural Heritage, and Stewardship, which are described as follows (CVC 2021a):

- **Stormwater Management Plan:** This plan uses a treatment train approach: infiltration to maintain recharge, filtration/detention for water quality, volume control to reduce erosion, and peak flow control to limit flooding. Detailed design criteria are in Section 4.1 of the Phase 3 report (2021).
- **Groundwater Management Plan:** This management plan is intended to supplement the existing CTC SPP and provides guidance on the maintenance of groundwater recharge and implementing measures to conserve drinking water / reducing risk of contamination. This plan recommends that activities specific to source water protection should refer to the CTC SPP.
- **Surface Water Management Plan:** This management plan addresses challenges related to Island Lake, flood and erosion, water quality, and pollution control, with additional discussion on climate change considerations and water sustainability. The Island Lake recommendations include opportunities to improve the lake flow regime, reduce possible impacts from drought, enhancement of habitat in the lake, and lake discharge patterns.
- **Natural Heritage Management Plan:** This management plan aims to protect core areas, maintain and restore connectivity among these areas, and enhance natural vegetation in adjacent lands and enhancement areas. The plan covers four key areas as follows:
 - **Natural Heritage System:** This part of the plan outlines that NHS planning should use an ecosystem approach (rather than a feature-based approach) to include the feature, linkages, and associated ecological function. The enhanced NHS was determined based on the criteria outlined in Management Scenario #4 (Table 3.7 in the Phase 3 Report) and can act as a tool for developing municipal NHS mapping for official plans and to prioritize land acquisitions, restoration and stewardship areas, and incentives for implementing best management practices. The proposed, enhanced NHS are illustrated on Figure ES6 in the Phase 3 Report (2021).
 - **Restoration Opportunities:** This part of the plan identifies four restoration priority areas as forest, wetland, riparian, and grassland and includes recommended areas with opportunities for restoration in Table 4.4, Figure 4.10, and Figure 4.11 in the Phase 3 Report (2021). Restoration areas within Orangeville are generally limited to riparian restoration opportunities located along existing watercourses.
 - **Fisheries:** This part of the plan identifies priorities for restoration to improve fish habitat, remove fish passage barriers, improve water quality, and reduce stream temperatures.

Monora Creek and Mill Creek continue to provide coldwater habitat for brook trout, particularly throughout most reaches of Monora Creek and within one remaining reach of Mill Creek. Opportunities for restoration and enhancement of fisheries are included in Table 4.5 and Figure 4.10 in the Phase 3 Report (2021). Within Orangeville, natural channel and fish habitat restoration are recommended for Mill Creek, with pond retrofits / dam removals recommended for Mill Creek (and a tributary to Mill Creek) and Lower Monora Creek.

- **Land Use Planning Considerations:** Using an analysis of existing land use designations, policy and planning framework, and NHS considerations including protection and restoration, the feasibility of implementing the NHS was reviewed. Land use compatibility is depicted on Figure 4.13 in the Phase 3 Report (2021), with the western extent of the Town identified as an area of high constraint that could be targeted for stewardship or best management practice incentives.
- **Stewardship Management Plan:** This management plan aims to provide education and outreach for private landowners to protect and restore natural features and function within the subwatershed, in support of the recommendations of the SWS. Stewardship recommendations include natural heritage restoration, agricultural management practices, and urban water management (e.g., pollution prevention). Stewardship priority areas are depicted on Figure 4.14 in the Phase 3 Report (2021).

Implementation of the SWS management plans will require adoption by CVC and municipalities, requiring collaboration between these entities. The SWS recommends an adaptive environmental management approach to address and include updated information, as it becomes available (CVC 2021a).

2.6.5. Draft Shaw's Creek Subwatershed Study – Subwatershed 17 Phase II/III Report: Impact, Management and Implementation (2017)

The Shaw's Creek SWS (SCSWS) Phase II / III report (AECOM and CVC 2017) was completed to identify and evaluate the effects of existing land use and practices on environmental quality and to create a framework for planner and decision makers to assess the potential outcomes of current and future development scenarios for the subwatershed, aiming at protecting, maintaining, and / or enhancing the resiliency and sustainability of the subwatershed (see Figure 3 for the study area). The SCSWS identifies objectives and targets related to hydrology / hydraulics, terrestrial and aquatic rehabilitation, SWM and LIDs, and stewardship (AECOM and CVC 2017). Further, seven main stressor categories were outlined to address existing and future challenges consisting of aggregate, urban development, wastewater treatment, dams and online ponds, climate change, agriculture, and water takings (AECOM and CVC 2017). The SCSWS provides a management and implementation plan, as well as recommended monitoring, to address the seven stressors and to achieve subwatershed goals and objectives.

2.6.6. Credit Valley Conservation Watershed Report Card (2023)

The CVC provides a Watershed Report Card (CVC 2023) to outline the existing conditions of the watershed, which are updated every five years. Surface water quality, forest conditions, and groundwater quality were evaluated and graded from 'A – Excellent' to 'F – Very Poor'. The Town overlaps with both the Headwaters and Shaw's Creek Subwatershed, which scored as follows (CVC 2023):

- **Surface Water Quality:** Headwaters – 'C – Fair'; Shaw's Creek – 'C – Fair'
- **Forest Conditions:** Headwaters – 'D – Poor'; Shaw's Creek – 'C – Fair'
- **Groundwater Quality:** Wells in proximity to the Town were graded as 'A – Excellent'

The CVC Watershed Report Card provides recommendations for agencies including development of strategies for managing the NHS, act as leader in climate action by implementing programs and incentives, continue to support monitoring of long-term changes to the existing environmental conditions, support watershed management by implementing LIDs and enhancing the urban tree canopy.

2.6.7. Source Protection Plan: CTC Source Protection Region (2025)

The CTC SPP provides a strategy and associated policies for the protection of water quality and a quantity for municipal drinking water, which is implemented under the *Clean Water Act, 2006* (CTC Source Protection Committee 2025). This CTC SPP provides an evaluation of vulnerable areas (e.g., wellhead protection areas, highly vulnerable aquifers, etc.) and potential 'drinking water threats' (as defined in the *Clean Water Act, 2006*). The CTC SPP outlines the policies for agencies and decision makers to implement for development approvals and land use change in vulnerable areas follow the requirements of the *Clean Water Act, 2006* (CTC Source Protection Committee 2025). Implementation of the CTC SPP includes collaboration among municipalities, conservation authorities, and provincial ministries.

2.6.8. Island Lake Conservation Area Management Plan (2021)

Island Lake Conservation Area (ILCA) is a 329-hectare area located in the headwaters of the Credit River, and within Dufferin County and the Towns of Mono and Orangeville (see **Figure 3**) (CVC 2021b). The ILCA connects the Credit Valley and Nottawasaga watersheds, providing linkage function, flooding protection, climate change mitigation, maintenance of surface and groundwater, as well as supports biodiversity. The ILCA Management Plan (CVC 2021b) provides an update to the 1997 (last updated 2005) management plan based on the direction provided in CVC's Strategic Plan (2020) and Conservation Area Master Strategy (2018). The updated management plan outlines the major projects and policy direction for the ILCA for the next 25-years, resulting from extensive consultation.

The ILCA Management Plan outlines a commitment to stewardship of land and water, as well as to objectives to protect, restore, and enhance ILCA to sustain a healthy, resilient environment, connect people with nature, and sustain the health of the Credit River (CVC 2021b). Table 7 in the ILCA Management Plan further outlines the detailed directions proposed to achieve these objectives and the desired outcomes including protection of significant natural heritage features, enhanced species

diversity, ecological net gain, improved water quality and quantity, and provide education to park visitors and residents (CVC 2021b).

Action-focused directions for development and policy are further separated into six categories (CVC 2021b): 1) Concept Master Plan, 2) Infrastructure Development, 3) Conservation Area Operations and Management, 4) Recreation, Programming and Events, 5) Environmental Restoration and Natural Resource Management, and 6) Community Connections. Under Environmental Restoration and Natural Resource Management, primary actions include reforestation and afforestation, invasive species management, maintenance and / or enhancement of pollinator habitat, plantation management, riparian plantings, wetland and aquatic habitat enhancement, and shoreline enhancements.

The Town's OP recognizes ILCA as an important ecological and open space area, with specific ILCA policies within the Open Space Conservation designation applying to the area itself and Special Policy Area policies applying to adjacent lands to ensure development is compatible with its ecological, hydrological, and recreational functions.

3. Strategic Directions and Recommendations for the Town of Orangeville's Natural Environment: Policy Framework and Mapping

3.1. Key Findings from Background Review

A review was undertaken of the Town's Natural Environment framework and mapping, including policies related to natural heritage features, water resources, and natural hazards, as well as Schedule "A" – Land Use Plan, specifically the Open Space Conservation Lands designation.

This review included a comparative analysis of the Town's policies and mapping against applicable provincial and county policy documents, including the County's OP (August 2025 Office Consolidation) and the Provincial Planning Statement (PPS 2024), as detailed in **Appendices 1** and **2**. Additional background analysis, summarized in **Section 2** - Background Review, considered relevant federal and provincial legislation, as well as county and municipal strategic documents and watershed planning resources from the CVC Authority. The key findings below present the results of this review.

3.1.1. Policy Context and Legislative Context

3.1.1.1. Provincial Policy Framework

Section 2.1 of this paper summarizes the provincial policy that governs natural heritage, water resources, and natural hazards. Key findings from that review include:

- The 2024 PPS establishes the provincial policy framework for natural heritage, water resources, and natural hazards, including:
 - Identification and protection of NHS (natural features, areas, and linkages) under Section 4.1
 - Protection and management of surface water and groundwater systems under Section 4.2

- Identification and management of natural hazards under Sections 5.1 and 5.2
- Provincial implementation is supported by technical guidance, including the Natural Heritage Reference Manual (2010), Significant Wildlife Habitat Technical Guide (2000), and Ontario Wetland Evaluation System (2022)
- The Town's OP adopts an ecosystem-based watershed approach but does not map or fully implement a formal NHS consistent with PPS requirements (4.1.3)
- Key gaps between the Town OP and PPS include:
 - No formal identification of natural heritage features and areas, and linkages, including adjacent lands (PPS 4.1.2 - 4.1.8)
 - Does not conform with PPS protections for woodlands, valleylands, wildlife habitat, Areas of Natural and Scientific Interest, fish habitat, and habitat of endangered or threatened species (PPS 4.1.5 - 4.1.7)
 - PPS policies for water resources (Section 4.2) and natural hazard management (Sections 5.1 and 5.2) need to be incorporated
- The Greenbelt Plan (2017) applies to the Town as it is located within the Protected Countryside and a designated settlement area, as shown on Schedule 1: Greenbelt Plan Area (MMAH 2017)
- Greenbelt NHS policies do not currently apply within existing settlement boundaries but may become relevant in future boundary expansions
- Greenbelt water resource policies support watershed-based planning and long-term protection of water quality and quantity but are not fully reflected in the Town OP

What this means for the Town's planning framework:

Overall, the Town's Official Plan can be strengthened to better align with provincial direction on natural heritage, water resources, and natural hazards.

3.1.1.2. Provincial Legislation Changes

Sections 2.1 and 2.3 summarize key findings from the review of recent legislative and regulatory changes affecting species at risk, conservation authorities, and watershed management. Key findings are summarized as follows:

- Replacement of the *Endangered Species Act, 2007* with the *Species Conservation Act, 2025* (SCA), introducing a Protected Species in Ontario List, and a registration-first approach for activities affecting species at risk (SAR) and habitat
- Continued application of the federal Species at Risk Act (SARA)

- The PPS recognizes threatened and endangered species habitat within the NHS; however, mapping limitations require reliance on municipal policy, environmental studies, and agency consultation for identification and management
- Amendments through *Bill 23 (More Homes Built Faster Act, 2022)* and changes to the *Conservation Authorities Act*, resulting in a greater focus on natural hazards and water resource management and reduced involvement by conservation authorities in broader natural heritage review
- *Ontario Regulation 41/24*, issued under the *Conservation Authorities Act*, establishing a standardized provincial framework for regulating development in hazardous lands, wetlands, and watercourses, implemented locally through CVC Authority Watershed Planning and Regulation Policies (2025)

What this means for the Town's planning framework:

Together, these legislative changes have implications for municipal planning processes, including a reduced role for conservation authorities in natural heritage review and protection, and a greater reliance on municipal policies and development review processes to address SAR, natural heritage, and watershed considerations, which are not fully reflected in the Town's current OP.

3.1.1.3. Regional Policy Updates and Strategic Documents

Dufferin County has recently updated its Official Plan (Office Consolidation, August 2025), including through OPA No. 3 and OPA No. 4, which introduced and refined an updated Natural Heritage System (NHS), Water Resources, Natural Hazards, and climate change policy framework. **Section 2.4.1** of this paper provides an overview of the County's natural heritage, natural hazards, water resources, and climate change-related policy framework, including land use, conservation, stewardship, and restoration direction. Key findings include:

- The County's OP has been updated to align with the 2024 PPS and provincial guidance, and to implement a more system-based approach to natural heritage identification and protection, including features, areas, and linkages
- The updated framework includes policies for environmental impact studies, adjacent lands, updated mapping (Section 4.1.3), and settlement boundary expansion considerations
- The Town's OP is required to conform to the County's OP policy framework including natural heritage, water resources, and natural hazards

While the County's OP represents a more comprehensive system-based approach to natural heritage planning, there remain opportunities to enhance policy clarity and implementation approaches:

- There are no criteria and definitions for locally or regionally significant wetlands and ecological linkages (Section 5.3.6)

- Does not integrate policy direction on ecological buffers outside of the Provincial Plan areas (e.g., Greenbelt)
- Woodland mapping is included; however, significant woodland designation is not a standalone mapped system layer and is instead refined through site-specific studies (Section 5.3.4)
- Limited watershed planning direction beyond PPS policy (4.2.3) and need to incorporate recent legislative changes (e.g., *Species Conservation Act, 2025*)

NHS considerations have also been increasingly integrated into the County's climate strategic direction.

- The Dufferin Climate Action Plan (2021) and Climate Adaptation Strategy (2023), summarized in Sections 2.4.2 and 2.4.3, identify natural systems and water resources as supporting flood attenuation, erosion control, groundwater recharge, and ecological connectivity
- The strategies also identify climate risks (e.g., extreme precipitation, habitat loss, and land use change) as closely linked to watershed conditions and natural system function
- Collectively, the strategies identify interrelationships between climate change, natural heritage, water resources, and natural hazard policy areas, reinforcing the need for integrated policy approaches within the Town's OP

What this means for the Town's planning framework:

Together, these findings highlight opportunities to strengthen the Town's OP through improved alignment with the County's OP and PPS, particularly in advancing a more integrated, system-based approach to natural heritage, water resources, and climate change policy.

3.1.2. Watershed and Subwatershed Context

The Headwaters Subwatershed Study (HSWS, 2021) prepared by CVC, summarized in **Section 2.1.1** of this paper, provides for a watershed-based framework to manage natural heritage and water resource systems of the subwatershed. It replaces the Technical Document: Environmental Planning for the Credit River Headwaters – Subwatershed No. 19 (1997), referenced in the Town's OP (Policy E5.2.3). Key findings include:

- Groundwater recharge is critical for maintaining baseflow and drinking water supply
- Watercourses play an important role in flood attenuation and ecological function
- Coldwater systems within the Headwaters of the Credit River support sensitive fish communities, including coldwater species (e.g., brook trout), and represent important indicators of watershed health.
- Upland forest areas have weaker ecological connections to riparian corridors, indicating fragmentation in the natural system

- Unmanaged growth scenarios result in environmental decline, while Low Impact Development (LID) and stronger natural heritage protection can maintain or improve conditions
- The western portion of the Town is identified as an area of higher environmental constraint, reflecting sensitivity in natural heritage and hydrological features and opportunities for protection and restoration

Findings from the HSWS are consistent with other watershed-scale assessments:

- The Credit River Fisheries Management Plan (CRFMP 2005), summarized in Section 2.6.3, identifies the importance of maintaining and restoring aquatic habitats, protecting coldwater fisheries, and addressing impacts from land-use changes that affect water quality, stream conditions, and fish communities throughout the Credit River watershed.
- The CVC Watershed Report Card (2023), summarized in Section 2.6.6, identifies moderate watershed conditions overall in the HSWS, with fair surface water quality, variable groundwater quality near municipal supply areas, and poor to fair forest conditions
- The Draft Shaw's Creek Subwatershed Study (2017), summarized in Section 2.6.5, identifies ongoing pressures including aggregate, urban development, wastewater treatment, dams and online ponds, climate change, agriculture, and water takings
- The Island Lake Conservation Area Management Plan (ICLA, 2021), summarized in Section 2.6.8, highlights the role of the ILCA in supporting flood attenuation, groundwater recharge, surface water regulation, and ecological connectivity across a developing landscape

What this means for the Town's planning framework:

Together, these studies consistently emphasize the importance of maintaining hydrological function, protecting and enhancing natural heritage systems, improving connectivity, and supporting overall watershed and subwatershed health in the context of ongoing growth, which provides a key evidence base for strengthening related policies within the Town's Official Plan.

3.1.3. Town of Orangeville's Strategic Direction and Climate Change Considerations

Municipal strategic and climate-related planning in the Town, summarized in **Sections 2.5.1 and 2.5.2** of this paper, both recognize that natural systems are a core component of environmental sustainability, climate resilience, and community well-being. Across recent Town initiatives, natural heritage features and urban forest are identified as supporting ecological function, biodiversity, water retention, temperature regulation, and broader environmental health.

A key finding across these documents is that sustainability and climate objectives are increasingly being implemented through actions that integrate natural systems into municipal decision-making. The Sustainable Neighbourhood Action Plan (2019) reinforces this integrated approach through its Natural

Resources and Environment theme, with the 2022 Progress Report indicating that most actions are ongoing, underway, or completed. These actions include:

- Groundwater recharge protection initiatives
- Water conservation programs
- Native vegetation planting to support climate adaptation

The Town’s designation as a “Bee City” further reflects an ongoing focus on biodiversity enhancement through pollinator habitat creation and reduced pesticide use, where feasible.

Urban forestry planning, supported by the Municipal Tree Canopy Policy (2020) and the Boulevard Tree Inventory and Tree Canopy Assessment (2023), identifies the following:

- A gap between existing conditions and the Town’s long-term target of 40% tree canopy cover
- Canopy estimated at approximately 30% (2020), based on the Municipal Tree Canopy Policy
- Revised canopy estimate of approximately 24% (2023 assessment, 2021 data excluding water bodies)
- Approximately 36% of land cover identified as potential planting areas, indicating capacity for expansion, but with implementation constraints
- A significant proportion of existing canopy is located on private land, limiting direct municipal control over retention and expansion

It is important to note that tree canopy, woodland canopy, and the urban forest are distinct metrics, where: woodland canopy refers to forested areas defined through the Ecological Land Classification (ELC) system and tree canopy represents total tree cover across the landscape as referenced in the Town’s strategic and technical reports. The urban forest encompasses all trees within the Town’s boundaries, including individual trees planted along streets as well as those located throughout private properties, parklands, and open spaces.

What this means for the Town’s planning framework:

The Town demonstrates strong strategic support for protecting and enhancing natural systems. Achieving long-term outcomes such as increasing tree canopy and enhancing natural areas to support biodiversity and climate resilience will depend on how effectively these objectives are implemented through municipal tools and initiatives. The Town’s OP will play a key role by carrying forward these objectives and integrating them into policy directions, land use designations, and implementation tools to support their achievement.

3.1.4. Town of Orangeville's Official Plan (Office Consolidation March 10, 2025)

A summary and comparative analysis of the Town's OP natural heritage, water resources, and natural hazard policies and mapping was completed against applicable provincial and County policy frameworks, including PPS (2024) and the County's OP (Office Consolidation August 2025), as detailed in **Appendices 1 and 2**. The Town's OP is summarized in **Section 2.5.2** of this paper.

3.1.4.1. Policy Review and Formatting

The review of the Town's OP in **Table 2 – Summary of Policy Comparative Analysis (Appendix 1)** determined that the Town's OP is not fully consistent with the 2024 PPS or the County's OP (Office Consolidation, August 2025) in how natural heritage, water resources, and natural hazard policies are structured and implemented. While the OP provides policy direction through Section E5 and associated mapping and designations, it does not establish a comprehensive, system-based NHS aligned with provincial direction.

Key findings include:

- Natural environment protection is primarily implemented through the "Open Space Conservation" designation, rather than a mapped system of features, areas, and linkages consistent with the Section 4.1 of the PPS and Section 5.3 of the County's OP
- Reliance on Environmental Management Plans (EMP) and Environmental Impact Studies (EIS) at the site-specific development stage limits system-based natural heritage protection and reflects reduced integration of system-level planning tools within the broader Town's OP framework
- Subwatershed planning is based on a legacy document (*Credit River Headwaters Subwatershed No. 19, 1997*), which reflects an early and innovate approach, it limits alignment with current provincial and watershed-scale planning expectations
- Natural heritage features, ecological connectivity, and adjacent lands are not integrated into a systems-based NHS consistent with Section 4.1 of the PPS (refer to Section 3.1.1.1 – Provincial Policy Framework)
- Water resource and natural hazard policies are fragmented within Section E5 and need to be updated to be consistent with PPS Sections 4.2, 5.1, and 5.2.
- Implementation of restoration and enhancement objectives is encouraged but not clearly implemented within the policy framework

What this means for the Town's planning framework:

Overall, the policy framework reflects a foundational watershed planning approach; however, it does not reflect the systems-based NHS approach consistent with current provincial and County direction.

Policy recommendations for updates to the Town's Natural Environment framework are provided in **Section 3.3**.

3.1.4.2. Data and Mapping Inputs

A comparative analysis of the current natural heritage mapping framework for the Town and Dufferin County was completed to assess alignment with current provincial and County natural heritage system mapping standards and available 'on the ground' environmental features, as outlined in **Appendix 2**. This analysis reviewed the Town's OP mapping for conformity with County's OP mapping, as well as supplementary datasets from sources such as Geospatial Ontario and CVC, where these provided more detailed or current representation of environmental features.

Given the PPS 2024 and the County's OP establish policy direction for natural heritage systems, mapping data was assessed and key findings from the comparative review are summarized below.

- The analysis in **Appendix 2** identifies opportunities to update and refine several mapped natural heritage components, including the Town's "Open Space Conservation" areas and the County's OP mapping, to better reflect current environmental conditions and align with recent development patterns. Revisions to certain datasets may help improve mapping accuracy, update feature extents, and support consistency with provincial and conservation authority data sources. Specific analysis and recommendations are outlined in **Section 3.4**.
- The review identifies opportunities to further consolidate and enhance documentation related to the identification of features within the Town's "Open Space Conservation" designation to support clarity and consistency in policy implementation. Existing local datasets vary in scale, completeness, and spatial resolution, reflecting the range of source materials and timeframes used in their development. While the County's OP mapping establishes a broader NHS and identifies individual features, some components may benefit from continued refinement to support alignment with current local conditions.
- The review also identifies opportunities for ongoing enhancement of natural heritage mapping through the incorporation of updated information from CVC, provincial datasets, and future feature verification or refinement initiatives, including the identification and mapping of significant woodlands and unevaluated wetlands. Continued refinement of these datasets would help ensure mapping reflects current environmental conditions and the evolving policy framework.

What this means for the Town's planning framework:

Overall, the review indicates that the Town's natural heritage mapping requires updating and better alignment with current provincial, County, and conservation authority data to accurately reflect existing environmental conditions and support effective policy implementation.

Mapping Recommendations have been outlined in **Section 3.4**.

3.2. Opportunities and Constraints

This section identifies key opportunities and constraints to be addressed through the OP update, based on the background review and key findings outlined in **Section 3.1**. It summarizes where there are opportunities to strengthen the Natural Environment framework, improve integration of policy and mapping, and enhance system-based planning approaches. It also identifies constraints related to data availability, implementation considerations, and alignment with broader policy and strategic objectives.

Opportunities

1. Strengthen alignment with provincial and County policy frameworks

There is an opportunity to update the Town's Official Plan to improve consistency with the 2024 PPS and the County's OP by advancing a more integrated, system-based approach to natural heritage, water resources, and natural hazards.

2. Transition to an NHS approach

The Town has an opportunity to establish and implement an NHS framework that integrates natural heritage features, areas, and linkages, supported by updated mapping and policy direction.

3. Improve and modernize natural heritage mapping

Updated and higher-resolution datasets (e.g., CVC, provincial data, and ortho imagery interpretation) provide an opportunity to improve the accuracy, consistency, and defensibility of natural heritage mapping, particularly for woodlands, wetlands, and water resources.

4. Enhance ecological connectivity and linkages

There is an opportunity to better identify and integrate ecological linkages and corridors within settlement areas to support landscape connectivity, restoration opportunities, and alignment with watershed-based planning objectives.

5. Strengthen restoration, stewardship, and climate resilience policies

The OP provides an opportunity to integrate and implement restoration and stewardship policies, including clearer support for partnerships, land management tools, and alignment with County policies (e.g., County's OP NHS land acquisition policies)

6. Support implementation of the Natural Heritage System

The OP update provides an opportunity to strengthen the direction on addressing potential impacts to natural heritage features and functions through mitigation measures (e.g., avoidance, ecological offsetting), restoration, and enhancement approaches.

7. Improve watershed-based planning integration

There is an opportunity to strengthen watershed and subwatershed policy integration within the OP, ensuring alignment with current CVC watershed studies and supporting improved protection of hydrological function and ecological systems.

8. Support measurable environmental targets and monitoring

The Town may consider incorporating measurable targets (e.g., woodland canopy cover) to support monitoring, evaluation, and long-term policy effectiveness within the Natural Heritage policy framework. Tree canopy cover may also be considered separately as part of broader urban forestry or climate-related initiatives.

Constraints

1. Need to balance competing planning priorities

The Town's OP update must balance natural environment protection objectives with growth management, housing supply, infrastructure provision, and other provincial planning priorities under the 2024 PPS and County's OP.

2. Limitations in available mapping data and datasets

Natural heritage mapping is dependent on the availability, scale, and currency of external datasets. Differences in methodology, timing, and resolution between provincial, County, and conservation authority data can result in variation in mapped features.

3. Limitations in feature identification

Certain natural heritage features (e.g., Species at Risk, Significant Wildlife Habitat, and wetland significance) require confirmation through site-specific studies and external agency processes, limiting the ability to fully define these features at the Official Plan level.

4. Implementation beyond land use planning tools

Some municipal objectives identified in strategic or corporate documents (e.g., climate change, biodiversity initiatives, or operational programs) may not be fully implementable through land use policy alone and require coordination through broader municipal programs and initiatives.

3.3. Policy Recommendations

Based on the Key Findings in **Section 3.1** and the Opportunities and Constraints identified in **Section 3.2**, a series of recommendations have been identified to update the Town's Natural Environment framework. The recommendations aim to improve policy clarity and implementation, while ensuring consistency with applicable provincial and county policy direction.

3.3.1. Framework and Organization

1. Revise the structure of Section E5 under Land Use Policies (Section E) to separate policies into three distinct sections within the Natural Environment Section: Natural Heritage, Water

Resources, and Natural Hazards. Each subsection within Section B.2.7 should be structured to begin with a clear objective statement to support consistent interpretation and implementation of policy direction.

2. Introduce an Implementation and Interpretation section within the OP to include definitions for key terms used throughout the Natural Heritage, Water Resources, and Natural Hazards policies. The current approach relies on general reference to federal and provincial requirements where clarification is needed, which can result in variability in interpretation. The Definitions section should establish standardized terminology within the Plan, supported by criteria where appropriate (e.g., for features such as significant woodlands). Where external references are still required, direction should be made to the County's OP, applicable provincial legislation and policy, and relevant technical guidance documents, including the Natural Heritage Reference Manual (OMNR 2010).

3.3.2. Natural Heritage

1. Update the goals and objectives in Section B.2.7 (Natural Environment, Water Resources and Natural Hazards) to include language supporting the maintenance, restoration, and, where possible, improvement of the long-term ecological function, biodiversity, and connectivity of the natural heritage and water resource systems. The updated goals should recognize linkages between natural heritage features and areas, surface water features, and groundwater features, in alignment with the PPS and the County's OP.
2. Introduce a structured NHS framework in the OP, consistent with the 2024 PPS and County's OP Amendments No. 3 and 4, to support the identification, mapping, connectivity, and restoration of natural heritage features and areas referenced in **Appendix 1**. The framework should include clear policy direction for:
 - a. the protection of natural heritage features and areas, including adjacent lands policies, consistent with PPS policies 4.1.5 to 4.1.8
 - b. direction regarding development and site alteration, including prohibition of development within significant wetlands and a no negative impact approach in other natural heritage features, in accordance with Section 4.1 of the PPS.
3. Update the Natural Heritage section of the OP to identify and define natural heritage features and areas, including wetlands, woodlands, valley lands, fish habitat, and habitat for threatened or endangered species, aligning with the PPS and the County's OP.
4. Based on the woodland analysis presented in the subsequent **Section 3.4 B**, which identifies relatively low woodland canopy cover within the Town, there is a need to strengthen the identification and protection of woodlands to support informed planning decisions within the NHS framework. This includes consideration of a woodland canopy cover target to support the Town's policy direction and long-term monitoring of woodland retention and enhancement.

5. Introduce regionally and locally significant wetlands within the Town's OP as components of the NHS and provide clear definitions to support consistent interpretation and application of policies. While these wetland categories are identified in the County's OP and are subject to policies restricting development and site alteration within or adjacent to these wetlands subject to the no negative impact, the County's OP does not currently provide clear definitions to guide their local application. Incorporating regionally and locally significant wetlands within the Town's OP will also help maintain municipal-level protection of wetlands that continue to provide important ecological functions regardless of provincial significance status changes resulting from updates to the Ontario Wetland Evaluation System (OWES).

Wetlands regulated under *Ontario Regulation 41/24* are also subject to CVC's permitting requirements and applicable watershed planning policies.

6. Introduce unevaluated wetlands within the Town's OP and provide clear definitions to support consistent interpretation and application of policies that provides for protection pending completion of an evaluation to determine their status and significance, consistent with the County's OP Policy 5.3.6. This approach supports the protection of wetlands until their significance have been confirmed. Unevaluated wetlands may also be regulated by Credit Valley Conservation under *Ontario Regulation 41/24* and applicable watershed planning policies.
7. Introduce clear policies, definitions, and criteria for ecological linkages and buffers to natural heritage features. For ecological linkages, these should be consistent with the County's OP, including Policy 5.2(e), which promotes a connected NHS through the integration of natural heritage features and areas, natural corridors (such as streams, floodplains, valleys, wetlands, and woodlands), public lands and open space, rights-of-way, utility corridors where appropriate, watercourses, and linkages secured through the development approval process and partnerships.
8. Introduce clear policies, definitions and criteria for the identification of enhancement areas that are intended to support the goals and objectives for the protection of the natural heritage system. The Town may consider incorporating preliminary enhancement areas into the mapping of the natural heritage system to inform areas for potential enhancement, subject to detailed study (e.g., EIS), and informed by best practices (e.g., Natural Heritage Reference Manual).
9. Review and update permitted uses within the Natural Heritage designation to ensure consistency with the OP goals, the updated NHS framework, and associated protection policies.
10. Ecological offsetting refers to measures intended to address impacts of land use changes on the NHS through the replacement or creation of natural heritage features, functions, or habitat. Should the Town consider developing ecological offsetting policies, offsetting should

only be considered for residual impacts – i.e., after application of the mitigation hierarchy and demonstration of efforts to avoid, minimize and mitigate negative impacts. The application of ecological offsetting should be limited to circumstances where permitted by applicable provincial policy and legislation, the County’s and Town’s OPs, implementing by-laws, and CVC policies and regulations.

Ecological offsetting will not be appropriate for all natural heritage features and areas (e.g., provincially significant wetlands) and should only be considered where the natural heritage feature’s ecological and hydrological functions can reasonably be replaced within an appropriate timeframe (e.g., 5 years for wetlands and 20 years for woodlands). The objective of ecological offsetting should be to maintain or enhance the NHS by achieving a net environmental gain, with consideration of replacement ratios, ecological functions, and long-term protection. The application of ecological offsetting should be supported by clear criteria for eligibility, implementation, and monitoring. Guidance should include consultation with CVC where appropriate. Further direction regarding the application, administration, and monitoring of ecological offsetting should be provided through a guidance document prepared by the Town, in consultation with the County, CVC and other relevant agencies, where appropriate.

3.3.3. Water Resources

1. The Water Resources section should be updated to be consistent with the policies and definitions of the 2024 PPS and the County’s OP. Policies should be maintained and, where necessary, revised to support continued collaboration with the CVC in subwatershed (SWS) and watershed planning initiatives, particularly in response to updated subwatershed studies.
2. Watercourse mapping should be incorporated into the OP to improve clarity and support implementation of water resource policies.

3.3.4. Natural Hazards

1. The Town’s OP should be updated to be consistent with the 2024 PPS by strengthening and clarifying policies related to natural hazard management. This should include clearer direction regarding coordination with and regulatory approvals from the CVC, as the authority responsible for administering *Ontario Regulation 41/24 - Prohibited Activities, Exemptions and Permits* under the *Conservation Authorities Act (R.S.O. 1990, c. C.27)*, as amended.

3.3.5. Watershed Planning and Implementation

1. The Town’s OP should be updated to reference the Headwaters Subwatershed Study – Phase 3: Management, Implementation and Monitoring Plan (2021), prepared by the CVC, as an important and current source of watershed-based planning direction. References to the 1997 Technical Document prepared by CVC should be updated accordingly, while maintaining flexibility to incorporate new watershed information as it becomes available.

2. Consistent with the Town's existing approach, the OP should continue to support subwatershed planning as a basis for natural resource management and its integration into the planning process through collaboration with CVC, adjacent municipalities, and other interested parties.
3. The OP should continue to encourage the consideration of watershed and subwatershed objectives in land use planning decisions. This includes ensuring that EIS and Master Environmental Servicing Plans are informed by current watershed and subwatershed studies, where appropriate, to support the protection of hydrological functions, aquatic habitats including coldwater fisheries, natural heritage systems, and ecological connectivity, particularly within the context of ongoing growth pressures in the Credit River headwaters.
4. The OP should recognize the importance of the Island Lake Conservation Area, discussed in **Section 2.6.6**, as a key hydrological and ecological area within the headwaters of the Credit River and that potential impacts from surrounding development on the areas ecological and hydrological functions should be addressed as part of land use planning decisions and development applications. Special Policy Area policies (e.g., Policy E8.23) should continue to guide development on adjacent lands to ensure compatibility with the ILCA Management Plan and the protection of its natural heritage features and their ecological functions.
5. The OP should be updated to clarify how implementation tools (e.g., site plan control, zoning by-laws, tree by-laws, etc.) relate to and support the Natural Heritage and Water Resource Systems. These documents should be updated as required to reflect these policies, recognizing that they are administered through separate processes but collectively implement the Town's OP objectives for the natural environment.
6. Existing OP policies related to Environmental Impact Studies and Master Environmental Servicing Plans should be updated to ensure consistency with the County's OP (Policy 5.3.11) and reflect current provincial technical guidance as described in **Section 2.2** of this paper. The Town should also consider preparing study guidelines (e.g., Environmental Impact Study Guidelines) to improve consistency in the preparation and review of environmental studies.
7. The OP should encourage the use of enhanced development standards, including Low Impact Development measures, to support water balance, water quality, and ecological function in alignment with subwatershed objectives identified in the Headwaters Subwatershed Study (Phases 2 & 3) and provincial direction.

3.3.6. Stewardship and Restoration

1. Stewardship and restoration policies should be more directive and linked to subwatershed conditions and recommendations (e.g., the Headwaters Subwatershed Study and SNAP

Progress Report 2022). Policies should prioritize restoration and enhancement within and adjacent to natural features to support climate change adaptation and mitigation. The Town should consider updating the Natural Environment goals and adding policies for stewardship and restoration applicable to both development applications and municipal operations (e.g., property maintenance), in support of the SNAP and the Orangeville Climate Community Action Plan 2024 related to the natural environment and climate change. This may include initiatives such as pollinator programs (e.g., Bee City) and invasive species management to support biodiversity and long-term health of the natural environment.

This recommendation is consistent with Section 4.2 of the Provincial Planning Statement, 2024, which directs that natural heritage systems be maintained, restored, or improved where possible, including the diversity and connectivity of natural features and their ecological functions.

2. The County's NHS land acquisition policies (e.g., Policy 5.2 c) should be incorporated in the Town's OP.
3. Urban forestry policies should be strengthened, including the incorporation of a 40% tree canopy target, consistent with the Town's Municipal Tree Canopy Policy (2020). The OP should include clear objectives and policies to support the protection and expansion of tree canopy cover in line with the Policy's direction, including inventory and monitoring, tree planting and species diversity, maintenance, integration into planning and development review, management of open space and conservation areas, and public education to support tree conservation and awareness.

3.4. Mapping Recommendations

Based on the findings presented in the Table 3 – Summary of Mapping Comparative Analysis (**Appendix 2**), analysis and recommendations are presented for NHS mapping features and components. The assessment considered the age, quality, accuracy, and sources of the data, as well as component-level dataset analysis using statistical evaluation and ortho-imagery interpretation (Orangeville imagery dated 2025). Drawing on the key findings identified in **Section 3.1.4.2** of this paper, general recommendations are outlined below, followed by a detailed analysis of specific component datasets.

3.4.1. General Findings and Recommendations from Mapping

1. Update Schedule A to replace the current Open Space Conservation Lands designation with a defined NHS designation. Introduce a new accompanying schedule to identify and map individual natural heritage features that inform the NHS.
2. Integrate and update natural heritage mapping using the most current available datasets from the County's OP, CVC Authority and provincial sources identified through the Mapping Audit in **Appendix 2**. Updates should focus on incorporating these datasets into the Town's

mapping framework and undertaking limited refinement where mapping overlaps with existing development areas, based on 2025 ortho imagery. Priority updates should include woodlands, provincially significant wetlands, and unevaluated wetlands as discussed in the subsequent recommendations for specific component dataset.

3. NHS mapping changes over time due to development, restoration, succession, and updated field information. The Town should establish a regular review process for updating natural heritage mapping to ensure it reflects the most current information available to the public. This also provides an opportunity to continuously evaluate municipal targets (e.g., woodland canopy cover targets).

3.4.2. Natural Heritage

Woodlands

Analysis: The mapping on Schedule E of the County's OP mapping identifies approximately 305.73 hectares of woodland cover within the Town, whereas Provincial data showed 249.32 hectares (also with discrepancies of areas of woodland where there is now development). Updated CVC ELC mapping identifies approximately 147.44 hectares, representing a variation in total woodland extent. These differences illustrated in **Figure 4**, showing land use change, redevelopment of formerly treed areas, differences in mapping methodology, and improved data resolution in more recent datasets.

Recommendations:

1. The woodland layer should be comprehensively updated using the most current CVC mapping as their woodland ELC features currently follow the most accurate in-situ features. For more detail and identifying both woodland and canopy cover the Town can consider available LiDAR data to update features to better reflect existing conditions and identify canopy cover in the Town. Areas formerly identified as woodland but now developed should be removed or reclassified.

Figure 4 | Woodland Comparison Mapping
Natural Heritage Study

- Legend**
- Orangeville Boundary
 - ELC Woodlands
- Woodland Comparison**
- Dufferin County (2004)
 - Dataset Overlap
 - Ontario Ministry of Natural Resources (2007-2009)
- Aerial Imagery (2025)

Example: Woodland areas to be removed from Dufferin as now developed features. Re-evaluate woodland features from Province as well since possible succession based on ortho imagery and CVC ELC features.

Example: Areas to be completely removed from Dufferin as from the aerial imagery (2025) you can see these feature are now developed.

Example: Possible increases to woodlands from successional features as ELC shows this whole area as Cultural Woodland, and aerial imagery (2025) displays woodland succession.

Example: Woodlands in both Provincial layer and Dufferin County Official Plan mapping to be refined.

0 100 200 Meters

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north-south
ENVIRONMENTAL

Significant Woodlands

Analysis: Significant woodlands are not identified within the Town's OP; however, Section 5.3.4.1 of the County's OP identifies criteria for mapping and identifying significance criteria. When defining criteria for mapping significant woodlands within Orangeville, distribution of mapping features within the Town will help determine which size and density threshold to apply. The following statistics summarize woodland patch sizes based on the CVC ELC woodland dataset:

Table 1. Woodland Statistics and Patch Sizes clipped to the Town Settlement Boundary

Woodland Size (hectares)	Number of Patches	Woodland Area (hectares)	Woodland Area (Percent)
0.07-0.5	3	0.72	0.05
0.5 – 1	10	7.22	0.47
1 – 2	11	15.44	1.00
2 – 4	6	15.32	0.99
4 – 10	5	31.60	2.05
10-50	2	77.04	4.99
Total	---	147.33	9.55

Note: Woodland features are clipped to the boundary of Orangeville so some smaller patch features could be attached to a larger woodland patch feature when considering if the portion within the Town would be considered significant.

Based on the Town's woodland cover of 9.55%, Table 7-2 (Recommended Significant Woodland Evaluation Criteria and Standards) of the Natural Heritage Reference Manual (OMNR 2010) identifies a minimum woodland patch size of 4 ha as the appropriate threshold for determining significance.

Recommendations:

2. The OP should establish mapping criteria for significant woodlands based on the Natural Heritage Reference Manual (OMNR 2010). These criteria should inform initial mapping using the most current available woodland datasets from CVC Authority and provincial sources. Woodland identification should be confirmed at the Environmental Impact Study (EIS) stage through application of the full Natural Heritage Reference Manual criteria to ensure site-specific validation. Establishing mapping at the OP stage provides a policy-level screening layer that supports clarity in decision-making, ensures consistent application of natural heritage policies across the municipality, and improves efficiency in the development review process by identifying potential constraints early.

Provincially Significant Wetlands

Analysis: The mapping review identified some differences in the Provincially Significant Wetland features within the Town. The mapping on Schedule E of the County's OP mapping identifies 80.5 ha of Provincially Significant Wetlands where the most update provincial layer for the area reveals an area of 83 ha. Both have inaccuracies based on land use change and development that are outlined in **Figure 5** and will need to be further reviewed. However, to change these features they will need to be submitted

for review to the province as these wetland features are regulated by the province through the Ontario wetland evaluation system (OWES) process by the Town.

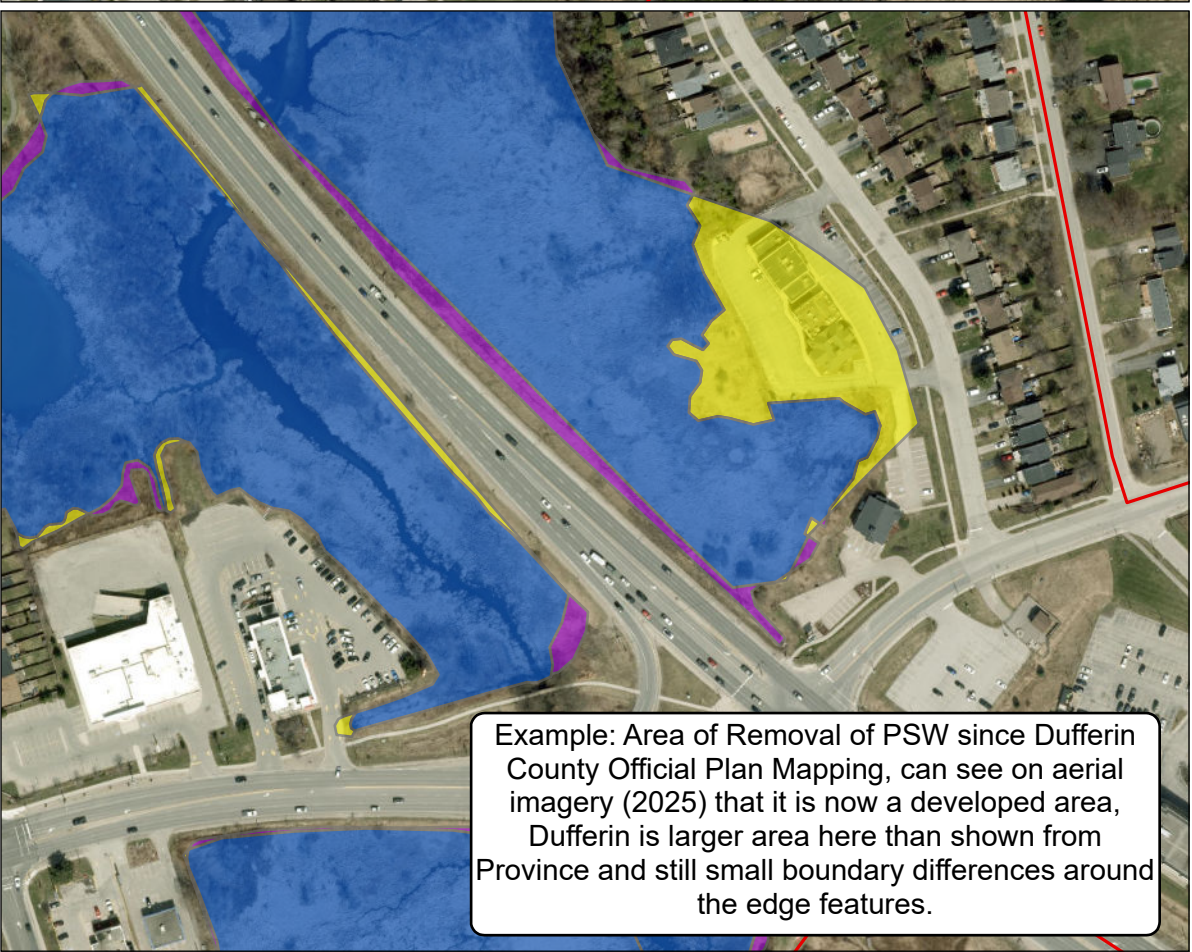
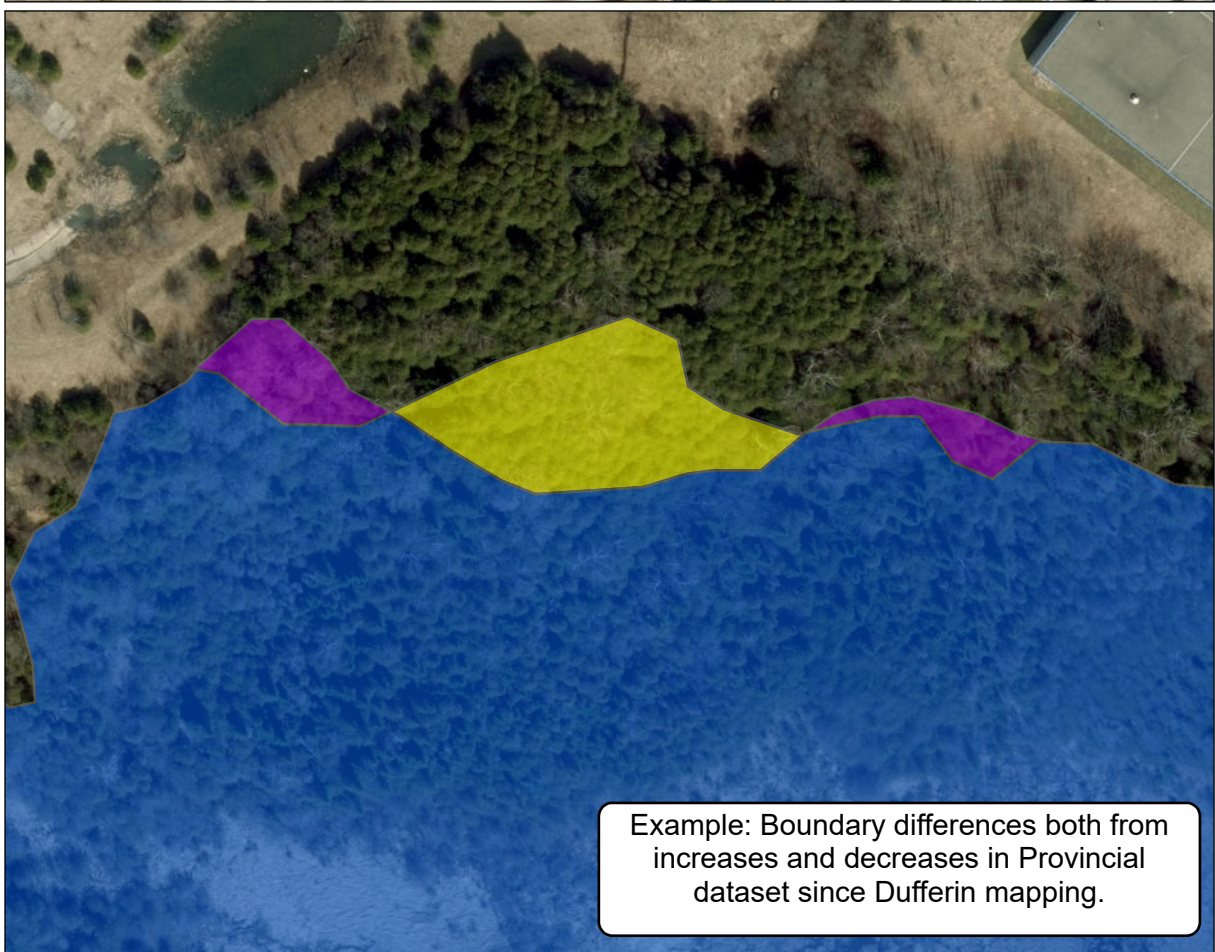
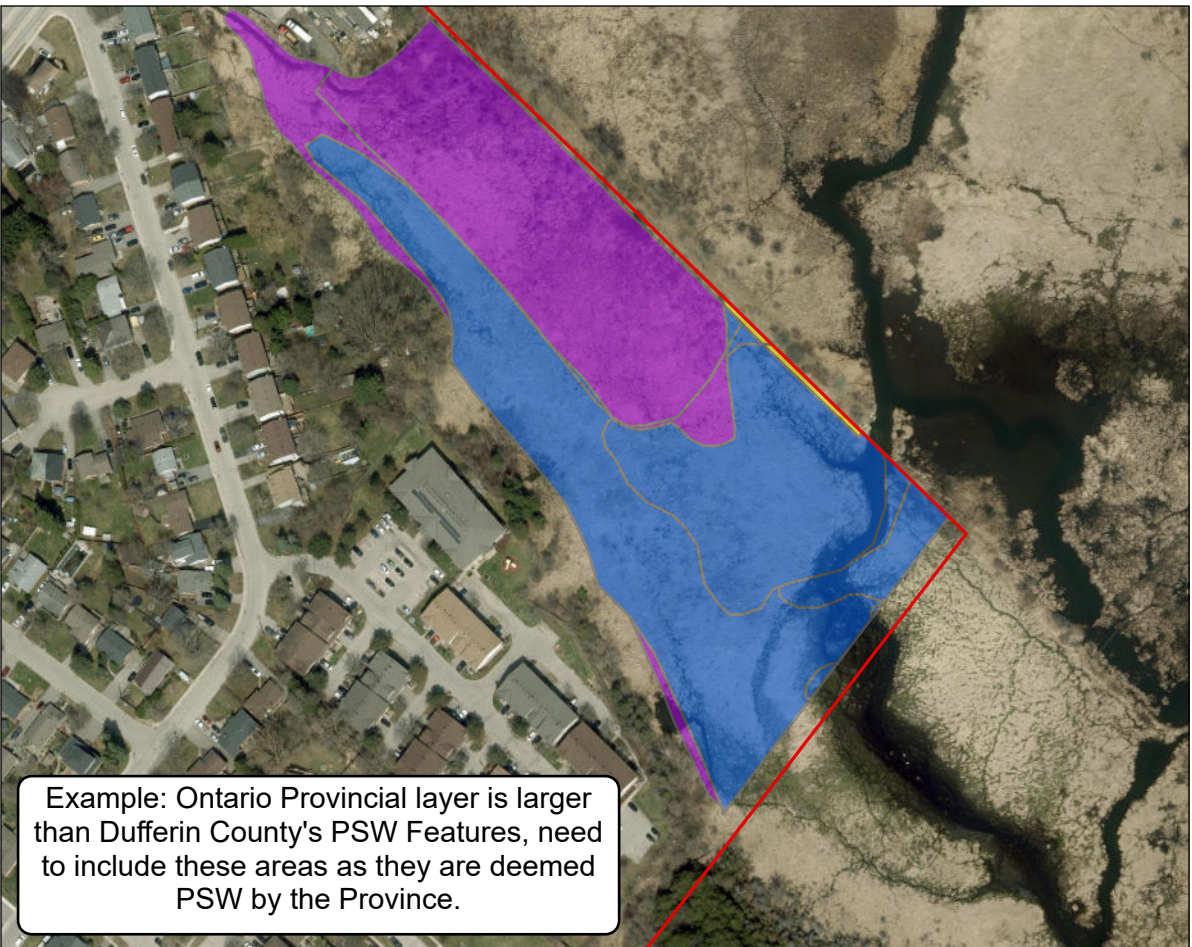
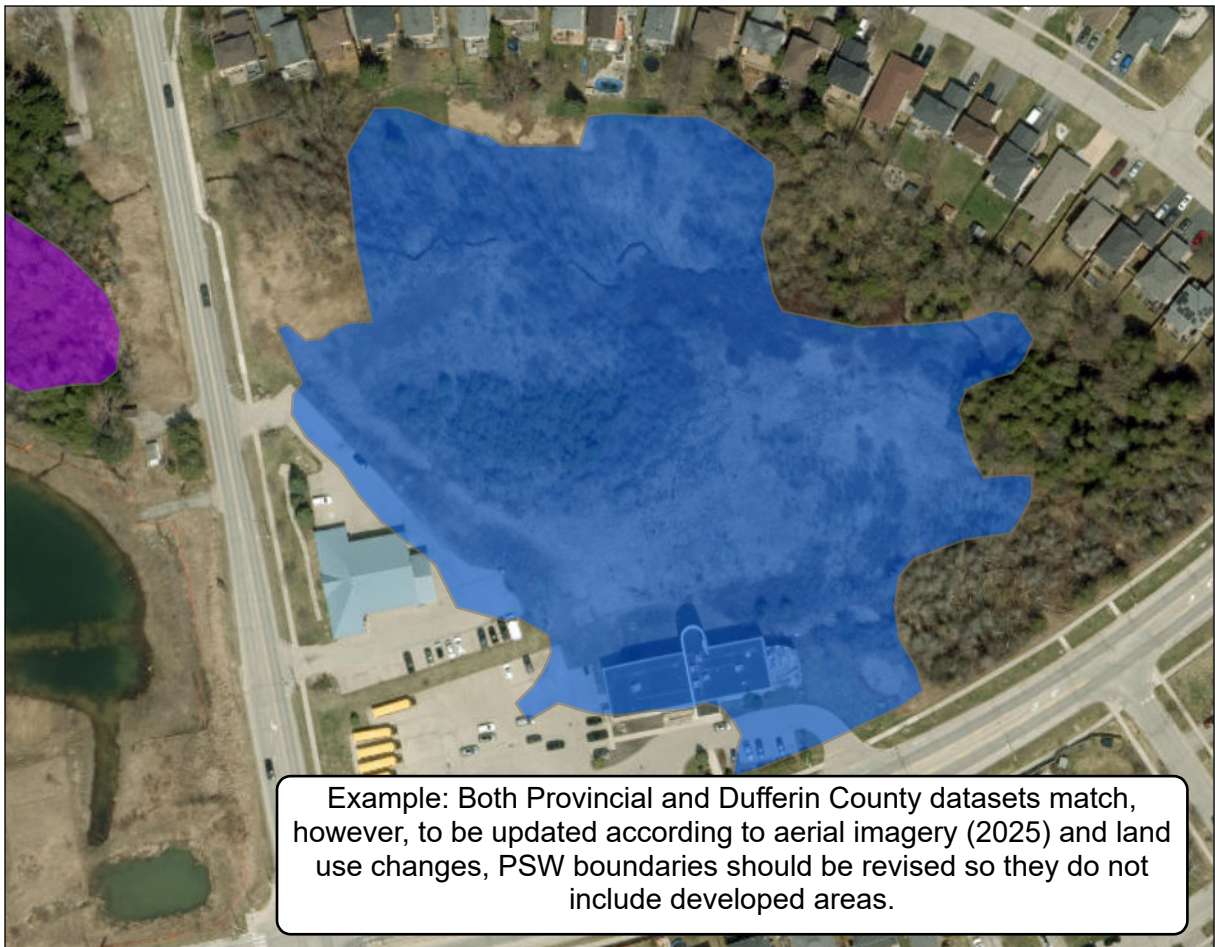


Figure 5 | Provincially Significant Wetland Comparison Mapping
Natural Heritage Study

Legend

Orangeville Boundary

Provincially Significant Wetland Comparison

Dufferin County (2004-2007)

Dataset Overlap

Ontario Ministry of Natural Resources (2011-2018)

Aerial Imagery (2025)



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Recommendations:

3. Update Provincially Significant Wetland mapping using the most up-to-date features from Geospatial Ontario's significant wetlands produced by the Ontario Ministry of Natural Resources.

Valleylands

Analysis: Valleylands are not mapped on Schedule E of the County's OP or the Town's OP. Significant Valleylands are identified as a natural heritage feature in the PPS and the County's OP.

Recommendations:

4. Valleyland natural heritage features should continue to be confirmed and refined through site-specific environmental studies at the development application stage.

Threatened and Endangered Species and Significant Wildlife Habitat

Analysis: There is no publicly available or open-data mapping of Significant Wildlife Habitat or habitat for Threatened and Endangered Species within the study area. In particular, Species at Risk (SAR) occurrences are not typically mapped in public datasets due to data sensitivity and protection considerations, and are instead addressed through site-specific studies and regulatory review processes.

Some Significant Wildlife Habitat areas have been identified by CVC in the Island Lake Management Plan. Within CVC's watershed, Migratory Waterfowl Stopover and Stageing Areas; and Rare Vegetation Communities have also been mapped. These areas will require confirmation and refinement through site-specific Environmental Impact Studies (EIS) to account for current conditions and refine boundaries where appropriate.

CVC maintains ELC data that can be screened against the qualifying ELC community types identified in the Significant Wildlife Ecoregional Criteria Schedules to identify candidate Significant Wildlife Habitat. In addition, CVC maintains its own SAR data, which can be used alongside information obtained from the Natural Heritage Information Centre (NHIC) to support screening for potential SAR habitat. The ELC mapping can be used to identify candidate habitat for Species at Risk. However, this information is intended as a screening-level tool and does not replace detailed field-based assessment or confirm the presence of Species at Risk or regulated habitat features.

While datasets such as CVC's ELC mapping, and significant wildlife and SAR data may be used to support preliminary screening and inform potential areas of sensitivity, these tools are not suitable for definitive mapping of Significant Wildlife Habitat or habitat for Species at Risk due to data limitations, scale constraints, and species data sensitivity. As such, they should be applied as supporting information only within a broader EIS-based assessment framework rather than as standalone mapping layers.

Recommendations:

5. Natural heritage features that have not been mapped, including habitat for threatened or endangered species and significant wildlife habitat, should continue to be confirmed and refined

using provincial guidance (refer to **Section 2.2** of this paper) through site-specific environmental studies at the development application stage.

Fish Habitat

Analysis: Fish habitat has not been mapped on Schedule E of the County's OP or the Town's OP. Fish Habitat is identified as a natural heritage feature in the PPS and the County's OP.

Recommendations:

6. CVC's fisheries data can be used to map fish habitat within the Town. Where fisheries data is not available or incomplete, watercourses and waterbodies should be used as a proxy to map fish habitat. Fish habitat should continue to be confirmed and refined through site-specific environmental studies at the development application stage.

3.4.3. Other Natural Heritage Features

Unevaluated Wetlands

Analysis: The mapping review identified notable variation among available wetland data sources within the Town. County mapping identifies approximately 4.42 hectares of unevaluated wetlands, primarily associated with features adjacent to Provincially Significant Wetlands, while some individual wetland features are captured within broader waterbody mapping layers and may not reflect the full extent of wetland features within the Town. In comparison, the provincial unevaluated wetland layer identifies approximately 50.7 hectares of wetland features within Orangeville, while more recent CVC data identifies approximately 89.5 hectares of wetland features outside of PSW areas. These differences reflect variations in source data, mapping methodologies, timing of data collection, and evolving environmental conditions. Examples of comparison feature mapping differences is provided in **Figure 6**.

Recommendations:

1. Unevaluated wetlands should be identified in the Town's OP mapping and it is recommended that the CVC and provincial current datasets are used as this reflect the most up-to-date available information.

Regionally or Locally Significant Wetlands

Analysis: No regionally or locally significant wetlands are mapped within the Town, however the County's OP Section 5.3 outlines iv. locally or regionally significant wetlands within their NHS but does not map these features.

Recommendations:

1. Regionally or locally significant wetlands can be identified in the Town's OP mapping by using updated wetland mapping, including the most current regulated wetland mapping from CVC. These wetlands can be confirmed and refined through site-specific environmental studies at the development application stage

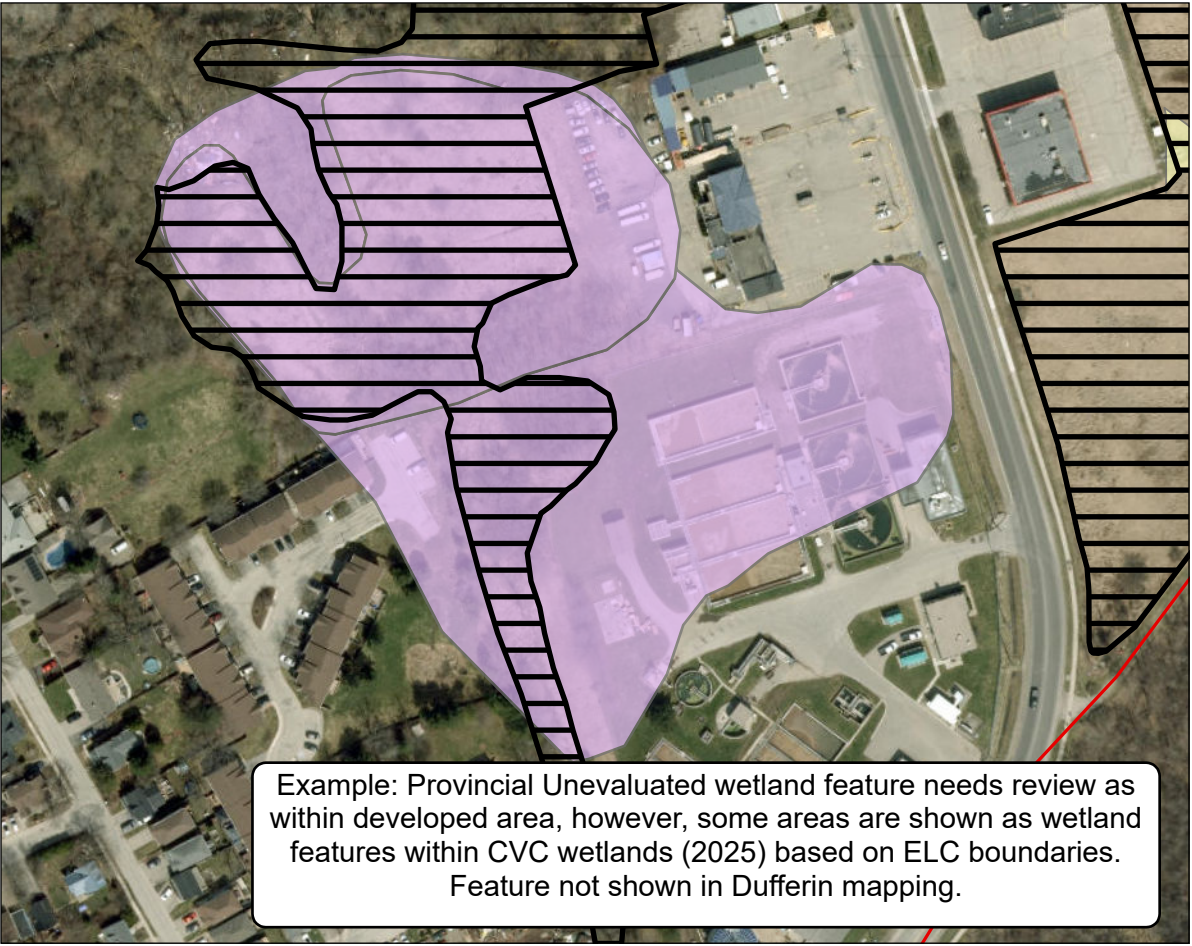
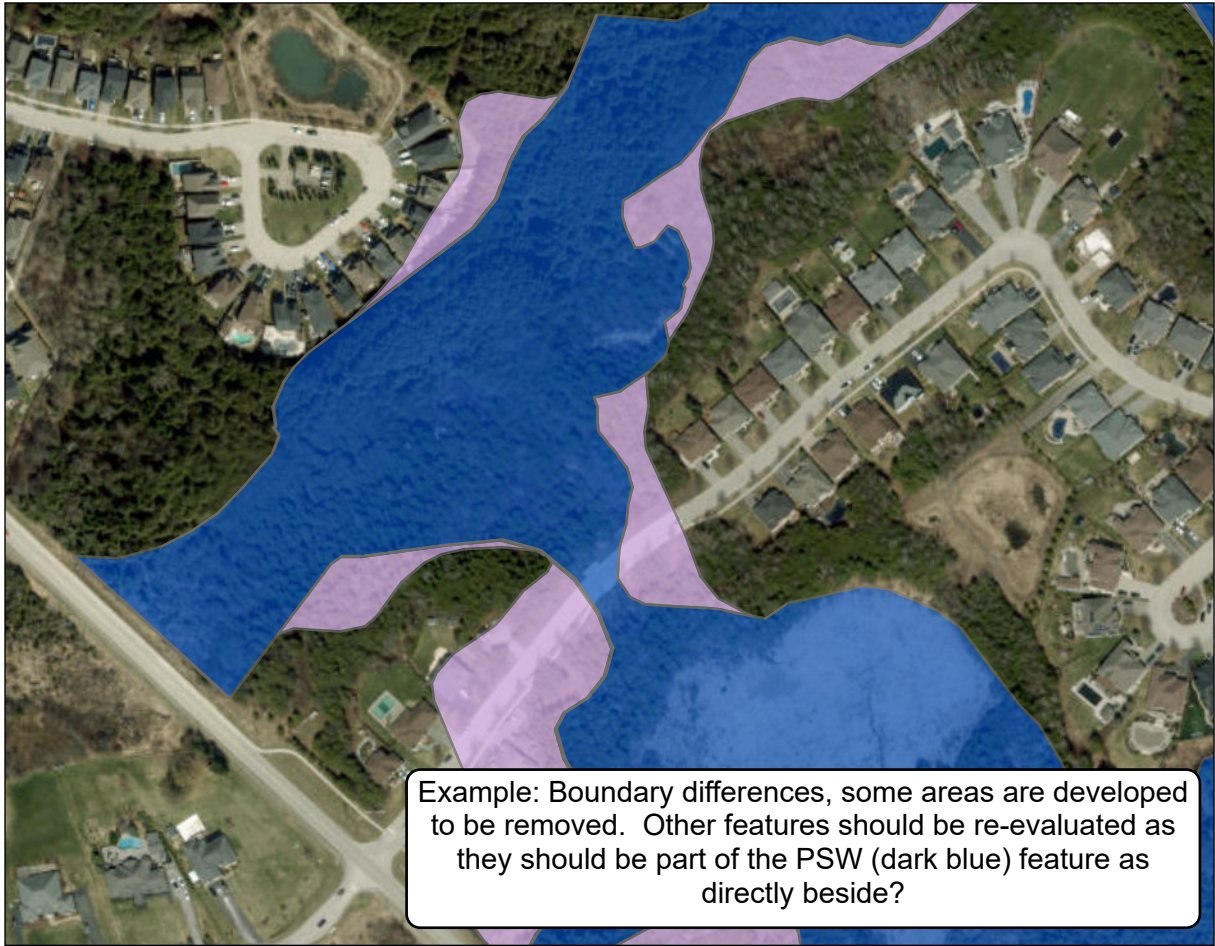
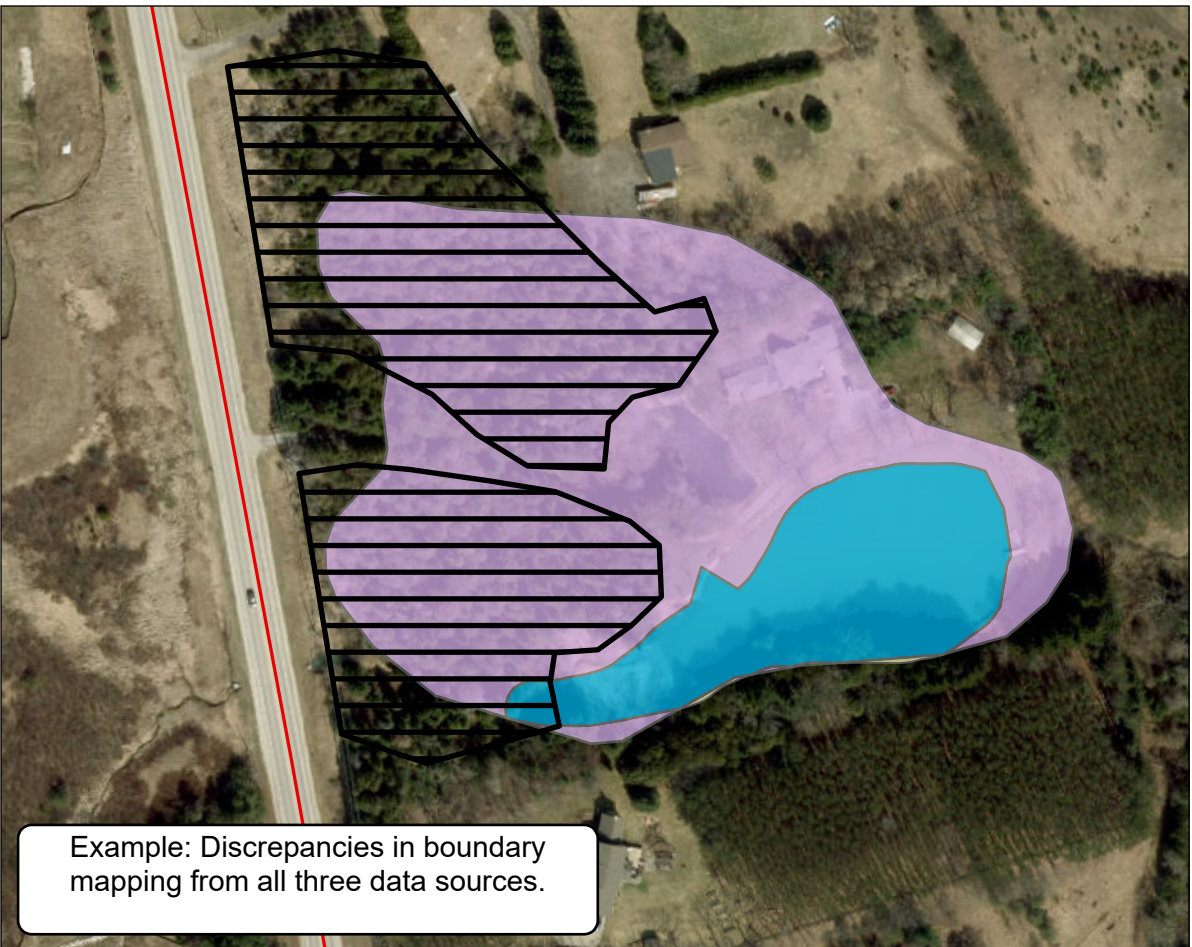
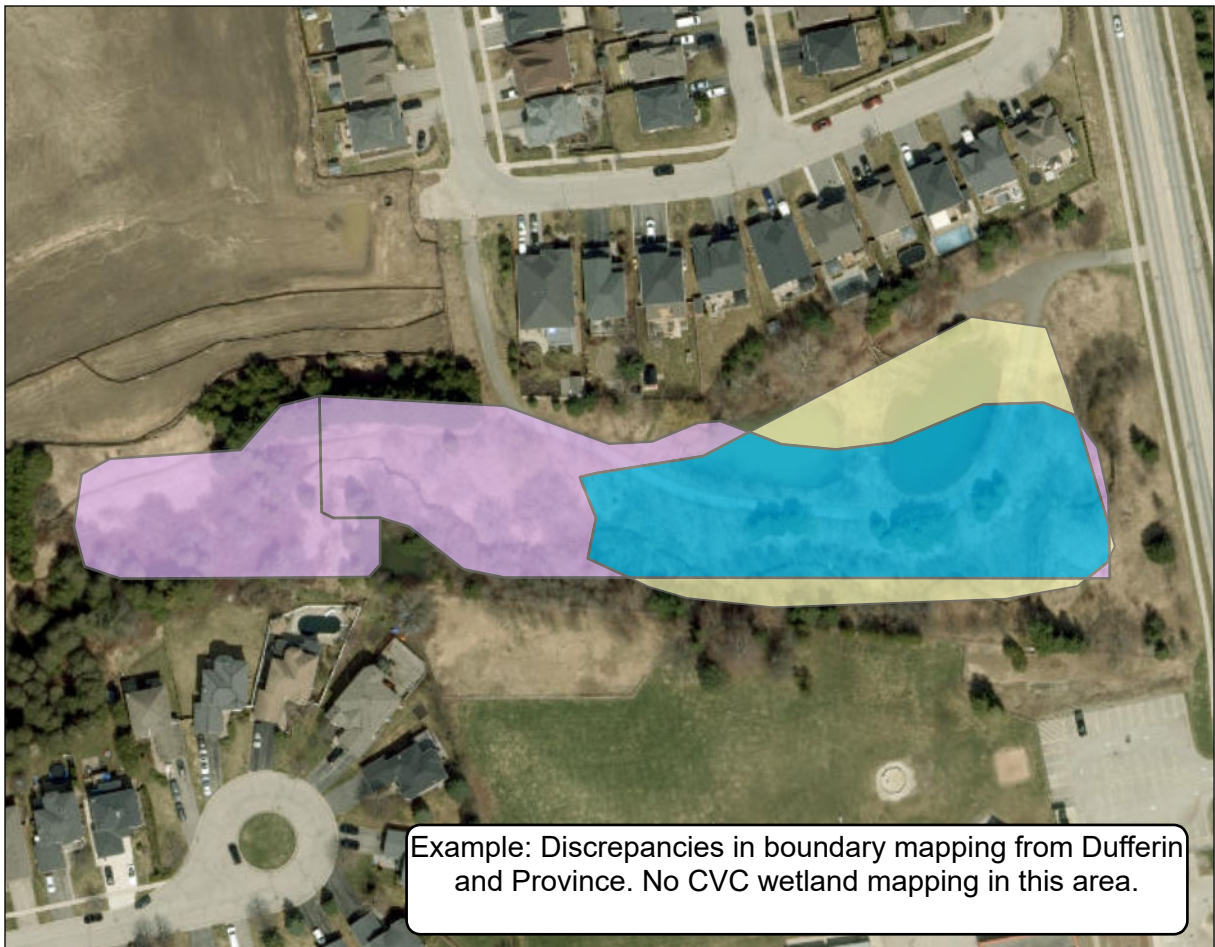


Figure 6 | Unevaluated Wetland Comparison Examples
Natural Heritage Study

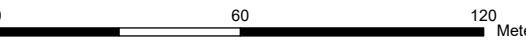
Legend

- Orangeville Boundary
- CVC: Wetlands (2026)

Unevaluated Wetlands Comparison

- Dufferin County (Date unknown)
- Dataset Overlap
- Ontario Ministry of Natural Resources (2006)

Aerial Imagery (2025)



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3.4.4. Supporting Components

Linkages

Analysis: Ecological linkages are an important component of natural heritage systems within settlement areas because they maintain connectivity between otherwise isolated natural features such as woodlands, wetlands, watercourses, and open space areas. Currently, ecological linkages are not mapped within the Town. However, the Greenbelt NHS, which is directly adjacent to the Town's settlement boundary, identifies and protects key natural heritage features and associated influence areas, including connectivity functions. While the County's OP recognizes ecological linkages in rural areas, they have not been identified within settlement areas. As a result, opportunities to maintain or enhance ecological connectivity within the Town may not be fully considered through existing mapping.

Recommendations:

1. Where appropriate, linkages should be identified and mapped based on established criteria to support system connectivity. The Town can utilize Linkage Mapper, a GIS-based modelling tool designed to analyze and map ecological connectivity, to help identify existing functional connections, areas where restoration could improve connectivity, and locations where future growth should consider maintaining or enhancing ecological movement routes. Rather than relying solely on visual interpretation or simple proximity mapping, the tool evaluates landscape resistance factors such as roads, development intensity, barriers, and land cover types to determine where ecological movement is most feasible.

3.4.5. Water Resources

Waterbodies

Analysis: The mapping review identified some differences in the Waterbody features within the County's OP dataset in comparison to the CVC data, specifically around Island Lake Conservation Area Management Plan (2021).

Recommendations:

1. Waterbodies should be mapped using the most up to date waterbody features from Geospatial Ontario produced by Ontario Ministry of Natural Resources and CVC to ensure any changes within the Town boundary are up to date.

Watercourses

Analysis: Ontario Ministry of Natural Resources (Geospatial Ontario) and the County's OP use a consistent watercourse feature dataset for base mapping purposes. CVC provides more recent and higher-resolution watercourse linework, which in some instances includes additional features that, based on ortho imagery interpretation, also appear to function as watercourses but are not consistently captured in the provincial dataset.

Recommendations:

1. Waterbodies should be mapped using CVC watercourse data, as it provides more current and higher-resolution linework that more accurately reflects features identifiable through ortho imagery interpretation.

3.4.6. Natural Hazards

Analysis: CVC had updated their regulation mapping as of March 3, 2026, a comparison of Dufferin OP mapping of regulated areas including wetlands and flood zones shows mainly areas of removal from previous regulated features, with some small additional areas.

1. The Town's OP should include an appendix identifying regulated areas associated with natural hazards. This appendix should be designed to allow for regular updates as mapping is refined, updating these layers to reflect the most recent mapping from CVC.

4. Conclusion

This background report provides a detailed, comparative analysis of existing policies and mapping to inform the Town's OP update and align with provincial and regional planning frameworks. The policy and technical document review provided in this report identifies the importance of maintaining both natural heritage and hydrologic features and their functions, in the context of the existing urban setting in Orangeville. An updated natural environment policy framework and implementation of an NHS are recommended to provide clear, defensible, policies, and to achieve the natural environment goals and objectives of the Town. The comparative mapping analysis further outlines recommendations for the implementation of NHS mapping and updates to the Town's OP mapping criteria to incorporate the most recent data and best practices. In addition to aligning with regional and provincial planning frameworks, the policy and mapping reviews underpin the need for a fulsome NHS to inform the protection of natural heritage features, water resources, and hazard lands using an ecosystem-based approach. The recommendations provided in this report are intended for consideration in a Directions and Recommendations Report for the development of updated natural environment policies and mapping in the Town's OP.

While this report provides the most up-to-date planning frameworks at the time of development, the County is currently initiating Official Plan Amendment (OPA) No. 5. This OPA No. 5 is anticipated to update policies and mapping related to the County's NHS and complete a land needs assessment, aligning with provincial plans and legislation, and incorporate climate considerations and local priorities (County of Dufferin 2026). It is anticipated that the OPA No. 5 will be implemented in Spring 2027 (County of Dufferin 2026).

5. Abbreviation Glossary

ANSI	Area of Natural and Scientific Interest
CCRNHS	Central Cataraqui Regional Natural Heritage Study
COSSARO	Committee on the Status of Species at Risk in Ontario
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CSP	Corporate Strategic Plan
CTC	Credit Valley – Toronto and Region – Central Lake Ontario
CVC	Credit Valley Conservation Authority
CWA	Clean Water Act (2006)
DCAP	Dufferin Climate Action Plan
DCAS	Dufferin Climate Adaptation Strategy
DFO	Department of Fisheries and Oceans
EIS	Environmental Impact Study
ELC	Ecological Land Classification
EMP	Environmental Management Plan
ESA	Endangered Species Act (2007)
HADD	Harmful alteration, disruption, or destruction
HDF	Headwater Drainage Feature
HSWS	Headwaters Subwatershed Study
ILCA	Island Lake Conservation Area
LID	Low Impact Development
LiDAR	Light Detection and Ranging
MBCA	<i>Migratory Birds Convention Act, 1994</i>
MCR	Municipal Comprehensive Review

MMAH	Ontario Ministry of Municipal Affairs and Housing
MNRF	Ministry of Natural Resources and Forestry
MTCP	Municipal Tree Canopy Policy
NAI	Natural Asset Inventory
NHIC	Natural Heritage Information Centre
NHRM	Natural Heritage Reference Manual (2010)
NHS	Natural Heritage System
NHSS	Natural Heritage System Strategy
OCCAP	Orangeville Community Climate Action Plan
OMNRF	Ontario Ministry of Natural Resources and Forestry
OMNR	Ontario Ministry of Natural Resources
OPA	Official Plan Amendment
OP	Official Plan
OWES	Ontario Wetland Evaluation System (2023)
PPS	Provincial Planning Statement (2024)
PSOL	Protected Species in Ontario List
PSW	Provincially Significant Wetland
RSF	Regional Storm Floodplain
SARA	<i>Species at Risk Act</i>
SAR	Species at Risk
SCA	<i>Species Conservation Act, 2025 (2026)</i>
SNAP	Sustainable Neighbourhood Action Plan
SPP	Source Protection Plan
SWH	Significant Wildlife Habitat

SWHECS	Significant Wildlife Habitat Ecoregion Criteria Schedules
SWHTG	Significant Wildlife Habitat Technical Guide
SWM	Stormwater Management
SWS	Subwatershed Study
SCSWS	Shaw's Creek Subwatershed Study
TPBF	Tree Preservation By-law Framework
UFP	Urban Forestry Policy

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APPENDIX 1 | Summary of Policy Comparative Analysis

Table 2. Summary of Policy Comparative Analysis

This table presents a comparative analysis of natural environment policies in the Town of Orangeville Official Plans (OP) against the Provincial Planning Statement (2024) and the Dufferin County's OP (August 2025). Policies are organized by natural heritage features and supporting system components, including connectivity, ecological function, and restoration, as well as water resources and natural hazards. They are assessed for consistency with the PPS (2024) and conformity with the County's Official Plan, with commentary identifying alignment and policy gaps. Provincial guidance documents are referenced where they support the policy comparative analysis and interpretation of direction.

The Town of Orangeville is identified as a Town/Village in the Greenbelt Plan Protected Countryside (Schedule 1, Greenbelt Plan 2017). The Greenbelt Natural Heritage System policies do not apply within settlement areas but apply to settlement area expansions. This table therefore considers Greenbelt Natural Heritage System policies, where applicable.

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
Natural Heritage System	---	Requires protection of natural features and areas for the long term (PPS 4.1.1).	Consistent with the PPS 2024, natural heritage features and areas will be protected for the long-term (5.1f).	Does not contain policies specific to the protection of natural heritage features and areas for the long term. The Town's OP does contain similar language in Section F - Sustainability.	Update Town OP to add policy language to the natural heritage section ensuring the long-term protection of natural heritage features and areas, consistent with PPS 2024 Policy 4.4.1.
Natural Heritage System	---	Requires identification of natural heritage systems in Ecoregions 6E & 7E1, recognizing variation by land use context (PPS 4.1.3)	The County's Natural Heritage objectives emphasize the protection and conservation of natural heritage and water resources through the implementation of a natural heritage system, including restoration, enhancement, and promotion of their interconnectivity (5.1c).	Requires an ecosystem-based approach to maintain and enhance environmental health within the Credit River subwatersheds (E5.1.)	While the Town's OP provides broad protection for natural resources (e.g., wetlands, woodlands, and linkages), it does not implement a structured natural heritage system approach as set out in the PPS 2024, lacking formal feature identification and classification, system connectivity, and restoration-oriented policy direction. The OP should be updated to be consistent with the PPS 2024 by introducing a clearer natural heritage system framework to strengthen ecological connectivity, support restoration objectives, and improve policy implementation consistency.

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
Natural Heritage System	----	The PPS defines a natural heritage system as follows: means a system made up of natural heritage features and areas, and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species, and ecosystems. These systems can include natural heritage features and areas, federal and provincial parks and conservation reserves, other natural heritage features, lands that have been restored or have the potential to be restored to a natural state, areas that support hydrologic functions, and working landscapes that enable ecological functions to continue. The Province has a recommended approach for identifying natural heritage systems, but municipal approaches that achieve or exceed the same objective may also be used.	Definition is consistent with the PPS 2024.	Does not contain a definition for natural heritage system.	A definition for natural heritage system, consistent with the PPS 2024, should be added to the Town's OP.
Significant Natural Features and Areas	Significant Wetlands	Significant Wetlands are defined and should be identified using criteria and procedures established by the Province. Development and site alteration is prohibited in Significant Wetlands (PPS 4.1.4).	Provincially Significant Wetlands are identified as a natural heritage feature and have been mapped on Schedule E (and designated on Schedule B) Development and site alteration will not be permitted in significant wetlands (5.3a) & 5.3.1b)) Requires that Provincially Significant Wetlands will be designated in the local municipal official plans (5.3.1a) The County's OP allows for the boundary refinements of Provincially Significant Wetlands without an amendment to the OP, subject to an assessment being completed by a qualified professional and submitted to the County and the Ministry of Natural Resources and Forestry. Addition or removal of Provincially Significant Wetlands from Schedules B & E require an amendment to the OP.	General policy to protect, conserve and enhance natural resources, including wetlands, woodlands and linkages; no feature-specific identification or classification provided. Development and site alteration are not permitted within Provincially Significant Wetlands; policy explicitly aligns with PPS direction, but references outdated policy and sections.	Update Town OP to identify Significant Wetlands as a key natural heritage feature and designate them as no-touch (prohibitive) areas consistent with the County's OP; add policy language to prohibit development and site alteration, consistent with the PPS 2024; incorporate applicable County OP policies and mapping.

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
Significant Natural Features and Areas	Significant Coastal Wetlands	Significant Coastal Wetlands are defined and should be identified using criteria and procedures established by the Province. Development and site alteration is prohibited in Significant Wetlands (PPS 4.1.4).	There are no coastal wetlands identified in the County of Dufferin.	No coastal wetlands have been identified in the Town of Orangeville.	---
Significant Natural Features and Areas	Significant Woodlands	Significant woodlands are defined and should be identified using criteria and procedures established by the Province. Development and site alteration shall not be permitted unless it has been demonstrated that there will be no negative impacts on significant woodlands or their ecological functions (PPS 4.1.5).	Significant Woodlands are identified as a natural heritage feature (5.3) Woodlands are mapped on Schedule E. Evaluation criteria for evaluating woodlands to determine if they are considered significant is provided in the County's OP (5.3.4.1) Development and site alteration will not be permitted within or adjacent to Significant Woodlands unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions (5.3 b) page 64 i. & 5.3.4.),	General policy to protect, conserve and enhance natural resources, including wetlands, woodlands and linkages; no feature-specific identification or classification provided.	Update the Town Official Plan to identify Significant Woodlands as a natural heritage feature; include policy language prohibiting development and site alteration unless it is demonstrated that there will be no negative impacts, consistent with the PPS 2024; add a definition and reference provincial criteria for delineating Significant Woodlands, refined to reflect local conditions in Orangeville; and incorporate applicable County Official Plan policies.
Significant Natural Features and Areas	Significant Valleylands	Significant Valleylands are defined in the PPS 2024 as "ecologically important features defined in relation to their functions, representation, and contribution to the quality and diversity of a natural heritage system". Development and site alteration shall not be permitted unless it has been demonstrated that there will be no negative impacts on Significant Valleylands or their ecological functions (PPS 4.1.5).	Significant Valleylands are identified as a natural heritage feature (5.3) Valleylands is a defined term but have not been mapped in the County's OP. Valleylands would be considered significant if they are considered to be ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system (5.3 c page 64). Development and site alteration will not be permitted within or adjacent to Significant Valleylands unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions (5.3 b) ii. page 64)	General policy to protect, conserve and enhance natural resources, including wetlands, woodlands and linkages; no feature-specific identification or classification provided.	Update Town OP to identify Significant Valleylands as a natural heritage feature; add policy language to prohibit development and site alteration except where no negative impact is demonstrated, consistent with the PPS 2024; add a definition and reference provincial criteria for delineation of a valleyland; incorporate applicable County OP policies.

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
Significant Natural Features and Areas	Significant Wildlife Habitat	Wildlife habitat is defined in the PPS as areas that provide food, water, shelter and space for species, including migratory and seasonal concentration areas. Wildlife habitat is determined based on technical guidance from the Province (e.g., Significant wildlife Habitat Technical Guide, 2000) Development and site alteration shall not be permitted unless it has been demonstrated that there will be no negative impacts on Significant Wildlife Habitat or their ecological functions. (PPS 4.1.5)	Significant Wildlife Habitat are identified as a natural heritage feature (5.3) Significant Wildlife Habitat is a defined term but has not been mapped in the County's OP. Significant Wildlife Habitat would be considered significant if they are considered to be ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system (5.3 c) page 64 & 5.3.5). Development and site alteration will not be permitted within or adjacent to Significant Woodlands unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions (5.3 b) iii, page 64)	General policy to protect, conserve and enhance natural resources, including wetlands, woodlands and linkages; no feature-specific identification or classification provided.	Update Town OP to identify Significant Wildlife Habitat as a natural heritage feature; add policy language to prohibit development and site alteration except where no negative impact is demonstrated, consistent with the PPS 2024; add a definition and reference provincial criteria for identification of wildlife habitat, incorporate applicable County OP policies.
Significant Natural Features and Areas	Significant Areas of Natural and Scientific Interest	Significant Areas of Natural and Scientific Interest are defined and should be identified using criteria and procedures established by the Province. Development and site alteration shall not be permitted unless it has been demonstrated that there will be no negative impacts on Significant Areas of Natural and Scientific Interest or their ecological functions. (PPS 4.1.5)	Significant Areas of Natural and Scientific Interest are identified as a natural heritage feature (5.3). Significant Areas of Natural and Scientific Interest is a defined term and has been mapped on Schedule E. Development and site alteration will not be permitted within or adjacent to Significant Woodlands unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions (5.3 b) iv, page 64 & 5.3.3).	General policy to protect, conserve and enhance natural resources, including wetlands, woodlands and linkages; no feature-specific identification or classification provided.	Update Town OP to identify Significant Areas of Natural and Scientific Interest as a natural heritage feature; add policy language to prohibit development and site alteration except where no negative impact is demonstrated, consistent with the PPS 2024; add a definition and incorporate applicable County OP policies and mapping.
Significant Natural Features and Areas	Coastal wetlands	Coastal wetlands in accordance with the PPS 2024 are wetlands located on the Great Lakes or their connecting channels, or certain tributary wetlands within defined geographic limits. Development and site alteration shall not be permitted unless it has been demonstrated that there will be no negative impacts on Coastal Wetlands or their ecological functions. (PPS 4.1.5)	There are no coastal wetlands identified in the County of Dufferin.	No coastal wetlands have been identified in the Town of Orangeville.	----

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
Significant Natural Features and Areas	Fish Habitat	The PPS 2024 identifies that Fish Habitat is defined in the Fisheries Act. Development and site alteration shall not occur except in accordance with provincial and federal requirements. (PPS 4.1.6)	Fish Habitat has been identified as a natural heritage feature (5.3). Fish Habitat is a defined term but has not been mapped in the County's OP. Development and site alteration shall not occur except in accordance with provincial and federal requirements (5.3 c).	No feature-specific identification or classification provided for fish habitat. Development affecting fish habitat subject to Conservation Authority and DFO approval with required technical studies.	Update Town OP to identify fish habitat as a natural heritage feature; add a definition and policy language consistent with the PPS 2024, development and site alteration shall not occur except in accordance with provincial and federal requirements.
Significant Natural Features and Areas	Habitat of endangered species and threatened species	The PPS 2024 identifies that the Endangered Species Act, 2007 (recently repealed and replaced with the Species Conservation Act, 2025) defines the meaning of habitat. Development and site alteration shall not occur except in accordance with provincial and federal requirements (PPS 4.1.6).	Habitat of endangered species and threatened species has been identified as a natural heritage feature (5.3). Habitat of endangered species and threatened species is a defined term but has not been mapped in the County's OP. Development and site alteration shall not occur except in accordance with provincial and federal requirements (5.3 d). Habitat of endangered and threatened species is identified with reference to the Species List and the administration of the Endangered Species Act, 2007 by the Ministry of the Environment, Conservation, and Parks (5.3.2).	No feature-specific identification or classification provided for Habitat of endangered species and threatened species. General policy to protect, conserve and enhance natural resources, including wetlands, woodlands and linkages; no feature-specific identification or classification provided.	Update Town OP to identify habitat of endangered species and threatened species as a natural heritage feature; add a definition and policy language consistent with the PPS 2024, development and site alteration shall not occur except in accordance with provincial and federal requirements. As a result of the recent repeal of the Endangered Species Act, 2007 (ESA), references shall be replaced with the Species Conservation Act, 2025, with additional reference to the federal Species at Risk Act, 2002, to maintain consistency with the current legislative framework.

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
Other Natural Heritage Features	Unevaluated wetlands	Unevaluated wetlands may be considered significant through evaluation using criteria and procedures established by the Province.	Wetlands that are not classified as Provincially Significant Wetlands are considered unevaluated wetlands (5.3.6). Prior to development or site alteration within or adjacent to any unevaluated wetland an evaluation will be required to determine its significance (5.3.6). Development and site alteration will not be permitted within any unevaluated wetland or locally or regionally significant wetland or adjacent land unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions (5.3.6).	Not identified in the Town's OP.	Update Town OP to identify unevaluated wetlands; add policy language to prohibit development and site alteration except where no negative impact is demonstrated, consistent with the County's OP; add a definition and a policy that requires the evaluation of these wetlands using criteria and procedures established by the Province to determine its significance when development and site alterations are proposed within and/or adjacent to these wetlands; and incorporate applicable County OP policies.
Other Natural Heritage Features	Locally or Regionally Significant Wetlands	Not identified in the PPS as Significant Natural Feature.	Wetlands that are not classified as Provincially Significant Wetlands are considered Locally or Regionally Significant Wetlands (5.3.6). Prior to development or site alteration within or adjacent to any Locally or Regionally Significant Wetlands, an evaluation will be required to determine its significance (5.3.6). Development and site alteration will not be permitted within any unevaluated wetland or locally or regionally significant wetland or adjacent land unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions (5.3.6)	Not identified in the Town's OP.	Amend the Town Official Plan to include locally and regionally significant wetlands within the Natural Heritage System mapping and policies; introduce policy language prohibiting development and site alteration within these wetlands except where it is demonstrated that no negative impacts will occur, consistent with the County Official Plan; and add a definition of locally and regionally significant wetlands, including criteria for their identification and evaluation aligned with County's guidance.

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
Other Natural Heritage Features	Watercourses (Surface Water Features)	The PPS 2024 identifies surface water features, which includes headwaters, rivers, permanent and intermittent streams and associated riparian lands that can be defined by their soil moisture, soil type, vegetation or topographic characteristics (page 53, MMAH). These features are recognized as integral to natural heritage systems and their ecological function (PPS 4.1.2).	It is the intent of the County's OP to protect natural watercourses from incompatible development to minimize the impacts of such development on their function (5.3.8). There are various policies regarding the health of watercourses under the Water Resource System section (5.4.1). Refer to policy comparative analysis on the Water Resource System below.	The Town's OP does not contain comprehensive policies regarding the protection of watercourses; however, Policy E5.3.28 provides that, wherever possible, existing watercourses will be maintained in a natural condition and stream bed disturbance minimized to prevent erosion during pre- and post-development periods. The policy also encourages the use of natural channel design where opportunities arise and requires stream banks to be maintained or restored to a stable condition to prevent erosion and sedimentation.	The Town's OP provides limited policy direction regarding the protection of watercourses from incompatible development. While there are provisions intended to maintain watercourses in a natural condition and reduce erosion impacts, the County's OP provides more explicit direction to protect natural watercourses and minimize impacts on their ecological function, with additional detailed policies set out within the Water Resource System framework. The Town's OP should be updated to strengthen and clarify policies for watercourse protection to better align with the County's OP and PPS 2024 direction.

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
Supporting Components	Linkages (Connectivity)	PPS 2024 Policy 4.1.2 recognizes the importance connectivity of natural features, including linkages between natural heritage features, surface water, and groundwater systems. The PPS 2024 also contains a definition for a natural heritage system, that identify linkages as a component as they are intended to provide connectivity “(at a t the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species, and ecosystems” (page 47, OMNR).	Section 1.1.5 Goals of the County’s OP include: f) Protect natural heritage features and the environment and implement an enhanced and connected natural heritage system, and recognize the importance of provincially significant features and land forms located within the Niagara Escarpment, the Oak Ridges Moraine, and the Greenbelt Plan Area. Outside of provincial plan areas, linkages have not been mapped in the County’s Official Plan Natural Heritage System mapping. The County’s OP carries forward the definition of natural heritage system from the PPS 2024. Policy 5.2(b) contains general language that watercourses and hazard lands (e.g., flooding and steep slopes) and their role in establishing linkages between natural heritage features and areas. Potential linkages between and among natural heritage features and areas, surface water, and groundwater features should be identified through Environmental Impact Studies to support implementation of the County’s Natural Heritage System (5.3.11). Through it’s Parks and Open Space policies (3.8.2), the County and local municipalities encourage the creation of a linked open spaces that may include natural heritage features and areas in public ownership or linkages obtained through draft plan approvals processes (3.8.2).	The Town’s OP has a general policy under E5. Natural Environment, Water Resources and Natural Hazards to protect, conserve, and enhance natural resources, including wetlands and woodlands, with explicit emphasis on maintaining and strengthening ecological linkages [underlined for emphasis for this table] between natural heritage features.(E5.3.1)	The Town’s OP should integrate Provincial PPS 2024 Policy 4.1.2 and the definition of a natural heritage system to explicitly recognize ecological linkages as a component of the system. The Town’s OP should also carry forward the County’s objective of an enhanced and connected natural heritage system by recognizing linkages and requiring their identification and confirmation through site-specific studies in development review. A definition for linkage and criteria could be developed based on guidance from the Natural Heritage Reference Manual (2010, OMNR) and best practices, to ensure clear and consistent implementation. There is opportunity to identify and map local linkages areas along defined valleylands / watercourse, while confirming and refining linkages through site-specific environmental studies to support development review.

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
Supporting Components	Buffers / Vegetation Protection Zone	Buffers are not explicitly referenced in PPS 2024. However, the Natural Heritage Reference Manual (2010, OMNR) provides guidance on buffers and their role in mitigating impacts of land use changes on adjacent lands to natural features, which supports PPS 2024 Policy 4.1.8 in avoiding negative impacts to natural heritage features and maintaining their ecological function. The Greenbelt Natural Heritage System has been mapped on lands adjacent to the Town, where applicable Greenbelt Plan 2017 policies apply. The Plan establishes Vegetation Protection Zones as standardized 30-metre buffers for certain natural heritage features, while in other contexts their width is determined through environmental studies; these Vegetation Protection Zones function as buffers intended to protect natural features and their ecological functions.	The County's OP includes policies for Vegetation Protection Zones in provincial plan areas (5.3.10). The water resource policies require that there is an appropriate buffer from watercourses to allow for pedestrian movement and passive recreation areas, where feasible (5.4.1 j) iv.).	Not identified in the Town's OP.	Buffers can be defined in policy or minimum buffer widths can be identified or buffer widths can be identified and confirmed through an Environmental Impact Study (EIS) or other study requirements. A definition for buffers should be developed based on guidance from the Natural Heritage Reference Manual (2010, OMNR) and best practices to inform implementation and application.
Enhancements	---	PPS 2024 Policy 4.1.2 recognizes the importance of maintaining, restoring, and where possible, improving diversity and connectivity of natural features in an area, and the long-term ecological function.	While the County's OP does not explicitly identify or define enhancement areas, there are various goals and objectives throughout the County's Goals (1.1.5) and Section 5: Natural Heritage and Water Resources that enhance natural heritage features and the environment where possible to support the overall environmental health of the county.	The Town's OP does not explicitly identify or define enhancement areas, there are various goals, objectives, and policies that support the protection and enhancement of natural features and water resources through planning, development control, service functions, and subwatershed planning (E5.1 a) & e), E5.2.1, E5.2.2, E5.3.1.2, E5.3.5, 5.3.17).	There is an opportunity to strengthen the Town's OP natural heritage and water resources goals, objectives, and policies by introducing a clearer framework, including definition, criteria, and the identification of enhancement areas for natural heritage features and areas, and their ecological functions, to better support implementation and policy clarity.
Adjacent Lands	---	The PPS 2024 requires the evaluation of development and site alteration on adjacent lands to natural heritage features and areas to demonstrate that there will be no negative impacts on the natural features or on their ecological functions (4.2.8).	The County's OP establishes defined distances for "adjacent lands," which are defined as lands located within a specified distance from the boundary of natural heritage features and areas, as outlined in Table 5.1 and Policy 5.3.9.	The Town's OP does not explicitly establish distances for adjacent lands; however, it references the Natural Heritage Reference Manual, which prescribes applicable distances for determining adjacent lands.	Update required to ensure consistency with the County's OP and provincial direction on adjacent lands (Natural Heritage Reference Manual 2010, OMNR).

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
No Negative Impacts	---	Development and site alteration shall not be permitted unless it has been demonstrated that there will be no negative impacts on significant woodlands, significant valleylands, coastal wetlands, significant wildlife habitat, and significant areas of natural and scientific interest or their ecological functions (PPS 4.1.5). The PPS 2024 requires the evaluation of development and site alteration on adjacent lands to natural heritage features and areas to demonstrate that there will be no negative impacts on the natural features or on their ecological functions (4.2.8). The PPS 2024 also requires that in terms of protection, improvement or restoration of water quality and quantity, negative impacts should be minimized, including cross-jurisdictional and cross-watershed impacts (4.2.1b)). The PPS 2024 has a definition for negative impacts in regard to fish habitat, natural heritage features and areas, water quality and quantity of water, sensitive surface water features and sensitive ground water features (page 48, MMAH)	The County's OP is consistent with the PPS 2024.	The Town's OP does not contain the definition and policies specific to negative impact from the PPS 2024.	An update is required to ensure consistency with PPS 2024. Applicable County policy direction and definition should be carried forward into the Town's OP.

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
Environmental Impact Study Requirements	---	The PPS 2024 requires the evaluation of development and site alteration to demonstrate that there will be no negative impacts on the natural features or their ecological function (4.2.5) and on adjacent lands to demonstrate that there will be no negative impacts on natural features or on their ecological functions (4.2.8).	Policy 5.3.11 Environmental Impact Studies (EIS) in the County's Official Plan outline the purpose of the study and its requirements. The County and local municipality, in consultation with the applicable Conservation Authority, must be satisfied with an EIS prior to the granting of development approvals.	Environmental Management Plans and Environmental Impact Studies triggers and requirements are described in E5.3.15 and E5.3.16.	The County's policy outlining EIS requirements should be carried forward into the Town's OP. The Town's OP should maintain references to EIS requirements in its policies in accordance with the Natural Heritage Reference Manual (2010, OMNR), which provides guidance and criteria for, but not limited to, the identification of natural heritage features, prescribed study areas (i.e., adjacent lands), and the assessment of potential impacts. Through Bill 23 More Homes Built Faster Act, 2022, the roles of Conservation Authorities have been refocused on hazard management and regulatory review, and they may no longer provide ecological technical support to municipalities. Therefore, references to the Conservation Authority's role in the review of Environmental Impact Studies should be revised, where applicable, to reflect this change in mandate.

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
Permitted Uses – Natural Heritage System	---	PPS does not specify permitted uses in the Natural Heritage System.	The County's OP does not specify permitted uses within the Natural Heritage System. Schedules E and E1 identify Natural Heritage Features, Areas, and the Natural Heritage System, but do not set out what land uses are permitted within it. For context, Schedule B identifies the settlement structure of the County but does not list permitted uses within settlement areas. In contrast, the Countryside Area includes defined permitted uses through the agricultural land use policies of the Plan. Instead, permitted uses and associated land use policies are established in local municipal official plans, in accordance with the policies of this Plan. Provincially Significant Wetlands are identified on Schedule B, and are to be designated in local municipal official plans. Development and site alteration are prohibited in Provincially Significant Wetlands (5.3.1).	Areas designated as Open Space Conservation on Schedule 'A' identify natural features where development is prohibited, with conservation of the natural environment as the primary land use. Limited permitted uses include public works (e.g., watercourse-related infrastructure such as bridges, wells, and sewage treatment facilities), outdoor recreational uses, and accessory uses, subject to approval by relevant agencies and supporting technical studies (E5.3.6). Development and site alteration are not permitted within Provincially Significant Wetlands, in accordance with the Provincial Policy Statement (E5.3.6)	For natural heritage features, areas, and the Natural Heritage System, low-risk, passive uses (e.g., pedestrian trails, natural area restoration, and flood or erosion mitigation) and essential municipal infrastructure projects are typically considered within Natural Heritage System policy frameworks, subject to compatibility with natural heritage objectives and maintenance of ecological function. The Town's OP should be updated to clarify permitted uses within natural heritage features and the Natural Heritage System to ensure consistency with the PPS and improve implementation clarity. The Town's OP should carry forward the policies that restrict development and site alteration within Provincially Significant Wetlands as per the PPS Policy 4.1.4.

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
Watershed Planning	---	Municipalities are encouraged to undertake, and large and fast-growing municipalities shall undertake watershed planning to inform planning for sewage and water services and stormwater management, including low impact development, and the protection, improvement or restoration of the quality and quantity of water (4.2.3). Municipalities are encouraged to collaborate with applicable conservation authorities when undertaking watershed planning (4.2.5).	The County's OP is consistent with the PPS 2024, encouraging local municipalities to undertake watershed planning with the applicable conservation authorities (5.4.1k)).	The Town's OP contains Section 5.2 Subwatershed Planning, which provides the basis for the protection and enhancement of water resources and related features as land use change occurs and development pressures increase. As the entire Town of Orangeville is located within the headwaters subwatershed of the Credit River (Subwatershed 19), Council recognizes subwatershed planning as a foundation for natural resource conservation and integrates it into the planning process. Council will integrate subwatershed planning into the planning process and will work in partnership with municipalities and other stakeholders to achieve integrated subwatershed management within the two subwatersheds in which the Town of Orangeville is located, including collaboration with Credit Valley Conservation and support for voluntary stewardship initiatives for the protection, enhancement, and restoration of natural features. Subwatershed planning is informed by technical studies and updated information as it becomes available; however, supporting technical documents do not form part of the Official Plan.	The PPS policies should be integrated into the Town's Official Plan to ensure consistency with provincial direction. Given the Town's location within the Credit River headwaters subwatershed and its partnership with Credit Valley Conservation, there is an opportunity to strengthen alignment with updated subwatershed plans and watershed-based planning to better integrate land use planning, water resource management, ecological function, and natural heritage objectives. References to specific subwatershed studies should be updated to reflect current subwatershed planning documents and associated technical studies.

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
Settlement Area Expansion – Natural Heritage	---	The PPS policies in Section 4.1 – Natural Heritage shall apply in the event of a settlement area expansion. Given that lands adjacent to the Town are within the Greenbelt Protected Countryside, the Natural Heritage System does not apply within existing settlement areas but does apply to settlement area expansions. Municipalities are also encouraged to consider Natural Heritage System connections within settlement areas when implementing policies, plans, and strategies (Section 3.2.2.4). Towns/Villages are not permitted to expand into the Natural Heritage System (3.2.2.6).	Section 3.5 – Settlement Area Expansions and Growth Allocation contain policies that provide direction for accommodating anticipated urban settlement area expansions to allocate future reserved population and employment growth over the planning horizon, through an Official Plan Amendment. Policy 3.5.1.1(d) requires that the feasibility and most appropriate location of a proposed expansion be determined based on the application of all policies of this Plan, including the following specific sub-policies: v. Key hydrologic areas and the Natural Heritage System shall be avoided where possible; ix. The proposed expansion shall meet any applicable requirements of the Greenbelt Plan, Oak Ridges Moraine Conservation Plan, Niagara Escarpment Plan, Lake Simcoe Protection Plan, and any applicable source protection plan. Policy 3.5.1(f) requires that lands be physically suitable for development, considering constraints such as topography, hazard lands, natural heritage features and areas, natural heritage systems, natural resources, source water protection, and the long-term protection of prime agricultural areas. Policy 3.5.1(g) further, expansion into the Natural Heritage System identified in the Greenbelt Plan is prohibited, and any expansion must be consistent with the policies of the Greenbelt Plan, where applicable.	The Town's Official Plan does not include specific policies addressing natural heritage considerations in the context of settlement area expansions. However, it contains general goals (Section E5.1) to direct development away from lands affected by flooding and erosion hazards and from ecologically significant or sensitive lands that support natural features and functions.	The Town's OP would benefit from updates to better align with Provincial and County policy direction on settlement area expansions. More explicit policies addressing natural heritage considerations in expansion areas would improve consistency and provide clearer guidance for future growth.

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
Stewardship and Restoration	---	The PPS directs that natural heritage systems be restored and, where possible, improved, while maintaining their diversity, connectivity, and long-term ecological function, including linkages among natural heritage features and surface and groundwater systems (PPS 4.1.2).	The County's OP contains various objectives and policies to support and encourage the protection, restoration and where possible, enhancement of natural heritage features, and functions, water resources, and water quality and quantity (5.1 c), 5.3, 5.4.1 d) & k)) .	The Town's OP supports stewardship, partnerships, and public awareness initiatives to advance subwatershed management and a sustainable environment. In collaboration with Credit Valley Conservation, the Town also promotes voluntary stewardship efforts to identify, protect, enhance, and restore natural features through subwatershed planning (E5.2.2 & E5.3.3).	The Town's OP includes strong direction supporting stewardship, partnerships, and public awareness to advance subwatershed management and environmental sustainability, including collaboration with Credit Valley Conservation. Opportunities exist through updates to the natural heritage system policies to further emphasize restoration outcomes for natural features aligning with broader provincial direction on restoring and improving ecological function within natural heritage systems.
Land Acquisition – Natural Heritage	---	PPS does not contain policies regarding land acquisition of natural heritage features and areas.	Policy 5.2(c) of the County's OP recognizes that public ownership of natural heritage and open space lands can support long-term protection and, where appropriate, public access. The Plan supports consideration of land acquisition options to secure natural heritage features, areas, and linkages, while noting there is no obligation for public agencies to acquire such lands. The County's OP identifies that the County and local municipalities, in collaboration with partner agencies such as the Ministry of Natural Resources and Forestry and the Niagara Escarpment Commission, will seek opportunities to create linked open space systems through the integration of natural heritage features and areas in public ownership and through land acquisition initiatives (Policy 3.8.2 b) i. & ix).	The Town's OP does not contain any policies regarding land acquisition of natural heritage features and areas.	The Town's OP does not contain policies related to the acquisition of natural heritage features and areas. This differs from County policy direction, which recognizes land acquisition as a potential tool to support the protection and linkage of natural heritage and open space systems. Additional policy direction in the Town's OP would address land acquisition as part of its broader natural heritage and open space goals, objectives, and planning framework.

Category	Subtheme	Provincial Planning Statement (PPS) (2024) / Greenbelt Plan (2017), where applicable	Dufferin County Official Plan (August 2025)	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Commentary
Water Resources	---	The PPS 2024 directs that water resources be protected, improved, or restored through a watershed-based planning approach that supports integrated and long-term decision-making, while minimizing negative impacts and maintaining linkages and functions within water resource systems. It requires the identification of water resource systems and the application of development restrictions to protect vulnerable surface and groundwater features and their hydrologic functions. The PPS also promotes sustainable and efficient water use, considers environmental lake capacity where applicable, and requires or encourages watershed planning to guide servicing, stormwater management, and water quality protection, including collaboration with conservation authorities (PPS 4.2). The Greenbelt Plan (2017) contains policies that apply throughout the Protected Countryside and provide for a comprehensive, integrated, and long-term approach to the protection, improvement, or restoration of water resources (e.g., including water quality and quantity) through watershed-based planning and coordination with conservation authorities, as appropriate (Section 3.2.3).	The County's OP contains objectives for the protection and conservation of water resources (Section 5.1 Objectives). Policies specific to water resources are found in Section 5.4.1 - Water Resources. These policies are generally consistent with the PPS 2024 and provides for the encouragement and protection of the health of watercourses, where possible, through conservation, enhancement, erosion control, and tree planting measures (Section 5.4.1 j).	The Town's OP contains general policies for the protection and conservation of water resources, including the quantity and quality of surface and groundwater resources upon which the Town relies. It also provides for the protection and enhancement of water resources and related features through subwatershed planning, coordination with the Credit Valley Conservation Authority, and the use of applicable guidelines (Sections B.2.7 d) and e), E5.1 d), E5.2.1, and E5.3.17–E5.3.22)	The Town's OP would benefit from revisions to better align with PPS 2024 and County OP direction on water resources. More explicit policies supporting watershed-based planning and the protection of watercourses, including surface and groundwater systems and their hydrologic functions, would improve consistency and provide clearer direction for implementation.
Natural Hazards	---	The PPS 2024 directs development away from natural and human-made hazards where there is risk to public health and safety, and requires that it not create new or aggravate existing hazards. It generally restricts development in floodplains, erosion-prone areas, dynamic beaches, and other hazardous lands, while limiting sensitive uses in these areas. Development may only be permitted where risks can be safely mitigated in accordance with provincial standards (PPS 5.1 & 5.2).	The County's OP (Section 6.2.1) is generally consistent with the PPS 2024 policies for natural hazards, which direct that development be generally located outside hazardous lands and hazardous sites, including areas impacted by flooding, erosion, and dynamic beach hazards, while allowing limited development where risks can be mitigated and safe access can be demonstrated. Policy 6.2.1 j) identifies prohibited uses in hazardous lands in alignment with PPS direction and also prohibits additional residential units, which represents a more restrictive approach than the PPS, where such uses may be considered subject to hazard mitigation and safe access requirements.	The Town's OP contains general policies for the management of natural hazards, including directing development away from hazardous lands and sites to protect public health and safety and coordination with the Credit Valley Conservation Authority, with hazard assessments and mitigation measures required to the satisfaction of the Credit Valley Conservation Authority (B2.7b) & E5.3.12).	The Town's OP should be updated to better align with PPS 2024 direction by strengthening and clarifying policies for natural hazard management, including clearer requirements for coordination with the Credit Valley Conservation Authority.

APPENDIX 2 | Summary of Mapping Comparative Analysis

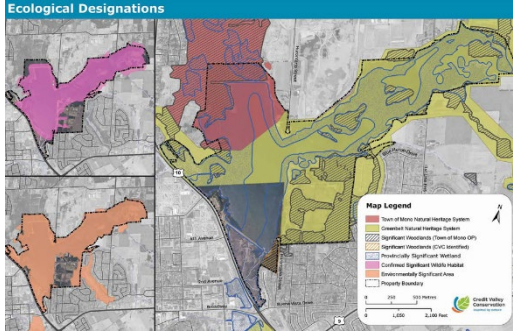
Table 3. Summary of Mapping Comparative Analysis

This table presents a comparative analysis of mapped features of natural heritage, water resources, source water protection and natural hazards. These features are from the Town of Orangeville Official Plans (OP) Schedules, Dufferin Official Plan Schedules, data available from the Ontario Ministry of Natural Resources through Geospatial Ontario, and Credit Valley Conservation Authority. Mapping is organized by natural heritage features, water resources, source water protection, and natural hazards. Data was assessed for age, quality, accuracy and sources of information, as well as ortho imagery interpretation (Ortho imagery for Orangeville dated 2025) to evaluate the most up-to-date features. The following table outlines any gaps in the data and commentary is presented for this data to identify which feature data set is the most accurate or if further assessment is needed.

Categories	Data Layers	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Dufferin County Official Plan (August 2025)	Other Data Sources (Conservation Authorities, Ontario Ministry of Natural Resources(OMNR))	Commentary
Natural Heritage Features and Functions	Natural Heritage System	Town of Orangeville’s Natural areas are included as Open Space Conservation within Schedule A. Based on land use class planning.	County of Dufferin’s natural heritage system mapping found within Schedule E1 is composed of natural heritage features outlined in Schedule E within the Town of Orangeville which includes Provincially Significant Wetlands, Woodlands, unevaluated wetlands, waterbodies, woodlands, and watercourses.	CVC: Credit Valley Conservation (CVC) has Ecological Land Classification (ELC) data for 2025 that has more precise boundary delineation for natural features than most of the County and Town data layers reviewed in the mapping audit.	Data for both Dufferin County and the Town of Orangeville’s Open Space Conservation are outdated in terms of feature components as well as on the ground features based on ortho imagery. The CVC dataset supports detailed classification into Natural Heritage Features and is recommended for use throughout this review where more accurate boundary delineation is needed. Note for mapping outside the settlement area and differences between rural and settlement area features: Oak Ridges Moraine and Greenbelt NHS is directly adjacent to the Town of Orangeville’s settlement boundary and reflects key natural heritage features and areas, including buffers. Dufferin’s Official Plan does not consider linkages or buffers within settlement areas but has captured these features in rural areas.

Categories	Data Layers	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Dufferin County Official Plan (August 2025)	Other Data Sources (Conservation Authorities, Ontario Ministry of Natural Resources(OMNR))	Commentary
Natural Heritage Features and Functions	Provincially Significant Wetlands	No separate wetland mapping present in the Town of Orangeville Official Plan mapping.	Includes the Provincially Significant Wetlands dataset from 2004-2007.	CVC: The Conservation Authority considers provincially significant wetland boundary features within their wetland data layer, adhering to province boundaries, except where there are incorrect boundaries based on ortho imagery interpretation i.e., If there is development in a feature and the feature is no longer natural, these areas have been adjusted to capture the changes. These changes are not reflected in the OMNR provincial PSW dataset so will need to be submitted for review. OMNR: Provincially Significant wetlands have been updated since Dufferin did their Official Plan, PSW data has been updated 2011-2018.	Provincially Significant Wetland are part of Schedule E mapping features, and PSW's are to be captured within natural heritage systems, therefore using OMNR's most updated PSW features will be more accurate than Dufferin County's Official Plan PSW mapping. Some of the newest OMNR mapping for PSWs also overlap with existing development. The Town, in coordination with CVC, could consider submitting updates to PSW boundaries to the province based on CVC wetland boundaries, shown in <i>Figure 5 Provincial Significant Wetlands</i> in the background paper.
Natural Heritage Features and Functions	Unevaluated Wetlands	No separate wetland mapping is present in the Town of Orangeville Official Plan mapping.	Dufferin's unevaluated wetland features are outdated and missing features identified in other datasets. No known data source or date, but data is from Official Plan Schedule E.	CVC: Wetlands outside of PSW boundaries are delineated using their ELC features from 2025 and are consistent with in-situ features in that they do not overlap with development but with features that are likely wetland based on the ELC and orthoimagery. OMNR: Contain only unevaluated wetland features (are dated 2006 and originated from SOLRIS data, Southern Ontario Land Resource Information System) feature dataset gets updated regularly but outdated for Orangeville Region.	Unevaluated wetlands will need to be re-accessed for what exists within the settlement boundary of Orangeville. CVC has ELC from 2025 with accurate boundary delineation for wetlands, recommend updating unevaluated wetlands with this feature layer, shown in <i>Figure 6 Unevaluated Wetland Comparison Examples</i> in the background paper. Dufferin Official Plan unevaluated wetland features are outdated and are reflective of boundary differences surrounding PSW's and any separate individual wetland was a waterbody feature, missing other wetland throughout the Town of Orangeville settlement area. OMNR unevaluated wetlands are also missing some features from identified CVC wetlands, and have some features incorrectly identified as now they are currently developed. Dufferin Official Plan Section 5.3 outlines iv. <i>locally or regionally significant wetlands</i> but does not map these features.

Categories	Data Layers	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Dufferin County Official Plan (August 2025)	Other Data Sources (Conservation Authorities, Ontario Ministry of Natural Resources(OMNR))	Commentary
Natural Heritage Features and Functions	Habitat of Endangered or Threatened Species	The habitat of endangered species and threatened species is not shown on Schedule A, since species and habitat information is limited or not published.	The habitat of endangered species and threatened species is not shown on Schedule E, since species and habitat information is limited or not published.	N/A	No open data sources for habitat of endangered or threatened species. Typically done on a site-by-site basis based on species in the area listed as endangered or threatened and due to data sensitivities. Habitat suitability can be changed over time due to species life cycle, environmental changes and seasonal variations.
Natural Heritage Features and Functions	Areas of Natural or Scientific Interest (ANSI)	No ANSI within the Town of Orangeville.	No ANSI within the Town of Orangeville.	OMNR: ANSI directly south of Orangeville based on OMNR, this falls outside of Dufferin County, date for this feature is 2016 and named the Orangeville Moraine and Caledon Lakes (Candidate, Earth Science)	No ANSI's within the boundary of the Town of Orangeville.
Natural Heritage Features and Functions	Woodlands	No separate woodland mapping is present in the Town of Orangeville Official Plan mapping.	Dufferin's Official Plan woodland layer is from 2004, has features that are no longer woodland from the orthoimagery in areas that have been developed already. Based on boundary similarities likely derived from Province woodland layer in 2004 with no changes since.	OMNR: Provincial woodland layer is dated 2007-2009, that is the last time the woodlands in Orangeville were updated OMNR. Woodland layer has changed since Dufferin's Official Plan woodland features but still has inaccuracies as there are features captured as woodlands that have since been developed. CVC: CVC woodland layer based on ELC features – this shows the most accurate boundaries for current woodlands in-situ within Orangeville. Some clean-up will be need surrounding boundaries and the definition of woodlands (ie. % cover)	Woodland data for all sources will need to be updated, CVC has the most accurate boundaries using ELC for boundaries within the Town of Orangeville, based on reviewing the ortho imagery. Boundary discrepancies outlined in <i>Figure 4 Woodlands Comparison Examples</i> in the Background Report. No Significant Woodlands mapped within Dufferin County, however, outlined in Section 5.3 of the Official Plan: <i>Development and site alteration will not be permitted in significant wetlands. b) Development and site alteration will not be permitted in i. Significant woodlands.</i> The Natural Heritage Reference Manual has outlined criteria for mapping significant woodlands with potential to refine, utilizing this criteria can help identify significant woodland criteria for mapping these significant features.
Natural Heritage Features and Functions	Environmentally Significant Areas (ESA)	No areas of ESA's mapped within the Town of Orangeville Official Plan.	No areas of ESA mapped within Dufferin Official Plan.	Island Lake Management Plan Document: Island Lake Management Plan has boundaries of ESA's outlined within a static map.	ESA boundaries are only shown on static maps within the Island lake management plan document.

Categories	Data Layers	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Dufferin County Official Plan (August 2025)	Other Data Sources (Conservation Authorities, Ontario Ministry of Natural Resources(OMNR))	Commentary
Natural Heritage Features and Functions	Wildlife Habitat Areas (Significant Wildlife Habitat (SWH))	No SWH mapped	No SWH mapped	EIS Studies: Possible information from Environmental Impact Studies, subjective based on unique habitat requirements for wildlife species. Island Lake Management Plan Document: There is a noted SWH in the Island Lake Management Plan Static map. CVC: CVC has ELC information (2025) so possible identification of a SWH based on a vegetation community with a provincial ranking of S1, S2 or S3 (according to NHIC).	No open data sources of Significant Wildlife Habitat usually identified through the preparation of an EIS. There is a noted Significant Wildlife Habitat in the Island Lake Management Plan within a static map.  Dufferin Official Plan Section 5.3.5. Significant wildlife habitat may include areas where there are: seasonal concentrations of animals; rare vegetation communities and specialized habitats for wildlife; habitats of species of “special concern” and other significant wildlife habitat, or animal movement corridors. CVC has ELC information so can identify SWH based on a vegetation community with provincial rankings from NHIC.
Natural Heritage Features and Functions	Valleylands/Significant Valleylands	No Valleylands mapped	No Valleylands mapped	No open source valleyland mapping	No Valleylands mapped within Dufferin County or Town of Orangeville, however, outlined in Section 5.3 of the Official Plan: <i>Development and site alteration will not be permitted in : ii.significant valleylands</i>
Natural Heritage Features and Functions	Fish Habitat	No Fish Habitat mapped	No Fish Habitat mapped	CVC: CVC has fisheries communities and management zones identified for mapped streams in the Credit River watershed.	CVC fisheries data can be used to identify and map fish habitat within the Town. Where fisheries data are unavailable, waterbodies and permanent watercourses can be used as a proxy for fish habitat, providing a precautionary approach to identifying potential fish habitat.

Categories	Data Layers	Town of Orangeville Official Plan (Office Consolidation March 10, 2025)	Dufferin County Official Plan (August 2025)	Other Data Sources (Conservation Authorities, Ontario Ministry of Natural Resources(OMNR))	Commentary
Water Resources	Permanent and Intermittent Streams	Maps as a reference feature, same watercourse layer as CVC	Dufferin has watercourse mapping dated 2010 for Orangeville and based on features originating from provincial watercourse data.	OMNR: OMNR watercourses matches linework for Dufferin's watercourse layer, provincial layer is dated 2010-2011. CVC: CVC has some additional watercourses and updated features to watercourses but major watercourses are similar, date of data is 2025.	OMNR (Geospatial Ontario) and Dufferin have same watercourse feature mapping. CVC has more updated linework and captures some additional features that from ortho imagery interpretation appear on the mapping. Orangeville uses this as reference data in their mapping, recommended using CVC watercourse features as slightly more accurate linework based on ortho image interpretation and date of most recent data.
Water Resources	Lakes/Waterbodies	--	Dufferin uses OMNR waterbody, most features are dated 2010, one is 1998.	OMNR: Waterbodies from OMNR are same feature mapping as Dufferin County, with most features dated 2010 and one is 1998. The Island lake waterbody feature has an update date of 2023, this is due to some geometry updates for Island Lake outside of the Town of Orangeville boundaries, but same geometry within the Town of Orangeville.	Same geometry within the boundary of Orangeville, some differences outside of Orangeville and within Dufferin County Use either Dufferin or OMNR as they have the same geometry of features within the Town of Orangeville boundaries.
Natural Hazards	CVC Regulated Areas	No regulation limits presented in schedule mapping.	Dufferin County provided regulation limit data, no date was found. Removal in some areas across the Town of Orangeville based on comparison of the new CVC regulated area dated March 3, 2026.	CVC: CVC has developed a Water Resource System: Summary Report and Technical Guidance. This includes mapping of water resource and sourcewater protection features, along with this they have updated their regulated area floodplain mapping with a date of March 3, 2026	Utilize CVC most updated Regulated Areas as of March 3, 2026. A comparison of these features shows mainly areas of removal from the previous regulated areas within the Town of Orangeville. With some small additional areas as well.
Natural Hazards	Floodplains	No regulation limits presented in schedule mapping	Dufferin county has floodplain mapping within the Town of Orangeville, however, no date was provided within mapping.	CVC: CVC has floodplain mapping and also includes estimated floodplain mapping that is not included within Dufferin's layer. For engineered regulatory floodplain areas these match Dufferin County's Floodzones.	CVC has the same geometry of floodplain mapping as Dufferin, no updates have been added, however, CVC includes estimated floodplain areas.