References:


“Ecological goods and services pilot projects”. www.gorsuch.ca/ALUS wiki


GLOSSARY OF TERMS

ALUS: Alternative Land Use Services. This is a voluntary, incentive-based method of recognizing and rewarding farmers and possibly other rural landowners for maintaining, creating or enhancing environmental features and functions for the benefit of the public good.

ANSI: Area of Natural or Scientific Interest. Defined as areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education.

CESCC: Canadian Endangered Species Conservation Council. Formed in 1998 by federal, provincial and territorial Wildlife Ministers to provide national leadership and direction for preventing wild species from becoming at risk.

CH: Conservation Halton. Conservation Halton is a conservation authority under the Conservation Authority Act that protects, restores and manages the natural resources in its watershed. Staff includes ecologists, land use planners, engineers, foresters and educators along with a network of volunteers who are guided by a Board of Directors comprised of municipally elected councillors and appointed citizens. CH is recognized for stewardship of creeks, forests and Niagara Escarpment lands through science based services and sustainable recreation programs. Conservation Halton owns and operates six conservation areas, including Crawford Lake, Mountsberg, Rattlesnake Point, Hilton Falls, Kelso and Mount Nemo. As well, they also operate the Glen Eden Ski and Snowboard Centre.

CLI: Canada Land Inventory. The Canada Land Inventory is a comprehensive multi-disciplinary land inventory of rural Canada, covering over 2.5 million square kilometers of land and water. Land capability for agriculture, forestry, wildlife, recreation, wildlife (ungulates and waterfowl) was mapped. Over 1000 mapsheets at the 1:250,000 scale are available site for on-line map making and download of desktop publishing, or GIS formats.

CMT: Core Management Team. Comprised of Regional and Town of Caledon staff.

COSEWIC: Committee on the Status of Endangered Wildlife in Canada. COSEWIC determines the national status of wild Canadian species, subspecies, varieties or other designatable units that are suspected of being at risk of extinction or extirpation. They are an independent advisory organization of experts that reports their assessments to the Canadian Endangered Species Conservation Council (CESCC) and the public.

COSSARO: Committee on the Status of Species at Risk in Ontario. Formed in 1995, COSSARO is an independent body made up of up to 11 members from both the public and private sectors, only some of which come from the government. The committee maintains criteria for assessing and classifying species at risk, maintaining a list of species to be assessed in the future, classifying species and reporting results to the Ministry of Natural Resources.
**CVC:** Credit Valley Conservation Authority. The CVC was formed in 1954 and has been working for over 50 years to protect the natural environment. CVC is one of 36 conservation authorities operating in Ontario, and is a partnership of the municipalities within the Credit River Watershed.

**ELC:** Ecological Land Classification. Ecological land classification is a process of delineating on a map and describing ecologically distinctive areas of the Earth’s surface. Each area can be viewed as a discrete system which has resulted from the mesh and interaction of the geologic, landform, soil, vegetative, climatic, wildlife, water, and human factors which may be present. The dominance of any one or a number of these factors varies with the given ecological land unit. The holistic approach to land classification can be applied incrementally on a scale-related basis from site-specific ecosystems to very broad ecosystems.

**EFP:** Environmental Farm Plan. A program where farmers learn about and implement environmentally sound practices.

**EPA:** Environmental Policy Area. A defined policy category in the Regional Official Plan.

**ESA:** Environmentally Sensitive or Significant Area. These are places where ecosystem functions or features warrant special protection. These may include but are not limited to rare or unique plant or animal populations or habitats, plant or animal communities, or concentrations of ecological functions. Environmentally Sensitive or Significant Areas are identified by the conservation authorities according to their established criteria.

**ESPA:** Environmentally Sensitive Policy Area

**GTA:** Greater Toronto Area. The Greater Toronto Area (GTA) stretches over 7,000 sq km (4,350 sq mi) along the northern shore of Lake Ontario. The area consists of 25 municipalities and is home to over four million people, making it the fourth largest populated area in North America.

**KHF:** Key Hydrologic Features. Defined in the *Greenbelt Plan*, 2005.

**KNHF:** Key Natural Heritage Function. Defined in the *Greenbelt Plan*, 2005.

**LEAR:** Land Evaluation and Area Review. An objective tool developed by the Province to help municipalities identify the long-term agricultural potential of land, used by several municipalities in official plans for protection of these areas.

**LEED:** Leadership in Energy and Environmental Design.

**LSRCA:** Lake Simcoe Region Conservation Authority. LSRCA was formed in 1954 and is a community-based environmental agency that for more than 50 years has worked to protect natural resources in the Lake Simcoe watershed in partnership with the watershed’s municipalities. The mission and goals must be achieved in partnership with the community, municipal and other government partners who also have a goal to support conservation.
**MSWG:** Municipal Staff Working Group, consisting of staff from the Region of Peel, the City of Mississauga, the City of Brampton and the Town of Caledon

**MNR:** Ministry of Natural Resources

**MMA:** Ministry of Municipal Affairs

**NAC:** Natural Areas and Corridors. This term is specific to the Region of Peel Official Plan, environmental policies.

**NCC:** Nature Conservancy of Canada.

**NEP:** Niagara Escarpment Plan. Development in the area of the Niagara Escarpment is guided by the Niagara Escarpment Plan, Canada’s first large-scale environmental land use plan.

**NGO:** Non-governmental organization.

**NHIC:** The Natural Heritage Information Centre (NHIC) compiles, maintains and distributes information on natural species, plant communities and spaces of conservation concern in Ontario. This information is stored in a spatial database used for tracking this information. The Centre also has a library with conservation-related literature, reports, books, and maps, which are accessible for conservation applications, land use planning, and natural resource management.

**NHRM:** Natural Heritage Reference Manual, also known as “the Manual”. The Natural Heritage Reference Manual is one of a number of documents issued by the Province to assist planning authorities and other participants in the land use planning system. This Reference Manual, developed in consultation with practitioners, represents the most up-to-date information available at the date of publication on specific technical issues relating to the PPS.

**NHSS:** Natural Heritage Systems Strategy. A modeling system with a leading approach that incorporates consideration of the nature of the land base surrounding natural heritage features. This is referred to as a “matrix”. Land uses adjacent to natural features have varying potential to impact negatively on the feature and its functions.

**NVCA:** Nottawasaga Valley Conservation Authority

**OMAFRA:** Ontario Ministry of Agriculture, Food and Rural Affairs

**OMB:** Ontario Municipal Board

**OP:** Official Plan

**ORM:** Oak Ridges Moraine

**ORMCP:** Oak Ridges Moraine Conservation Plan.
ORMLT: Oak Ridges Moraine Land Trust.

PPS: Provincial Policy Statements. Issued under the authority of the Planning Act these provide direction on matters of provincial interest related to land use planning and development and promote the provincial “policy-led” planning system.

PNAC: Potential Natural Areas and Corridors. This term is specific to the Region of Peel Official Plan, environmental policies.

PROPR: Peel Region Official Plan Review

ROP: Regional Official Plan

ROPA: Regional Official Plan Amendment. Denotes a policy revision to the Official Plan, usually accompanied by a number to identify the policy number, i.e., ROPA 13.

SWH: Significant Wildlife Habitat

SWHTG: Significant Wildlife Habitat Technical Guide.

TAT: Technical Advisory Team. Included staff from the Region’s conservation authorities and provincial staff from the Ministry of Municipal Affairs and Housing, Ministry of Natural Resources, Ministry of the Environment and the Ministry of Infrastructure and Energy.

TEEM: Terrestrial Ecosystem Enhancement Model. CVC is currently developing a modeling system to assist in the protection of natural heritage in the CVC watershed. The model is still under development, but is expected to provide important input to the development of a Regional natural heritage system.

TRCA: Toronto Region Conservation Authority
Proposed Methodology to Update Mapping of Core Valley and Stream Corridors

Appendix A

October 2008
Proposed Methodology to Update Mapping of Core Valley and Stream Corridors

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1.0 Introduction

This technical appendix outlines a proposed methodology for mapping Core valley and stream corridors shown on Schedule A to the Region of Peel Official Plan (ROP). Led by a Core Management Team consisting of staff from the Region and the Town of Caledon, the proposed methodology has been developed with input from a municipal staff working group consisting of staff from the Region of Peel, Town of Caledon and the Cities of Mississauga and Brampton. It is a collectively recommended methodology agreed to by the Region, Town and Cities to identify the approach for mapping Core valley and stream corridors in accordance with policy direction in the Region of Peel Official Plan. Further references to Core valley and stream corridors in this document will use the term “Core valleylands” which will have the same meaning.

Schedule A is being reviewed and updated to reflect more accurate and up-to-date mapping data for Core valleylands that have been developed since Schedule A was first prepared in 1997. Schedule A was later updated through the Regional Official Plan Strategic Update (ROPSU) which resulted in adoption of Regional Official Plan Amendment 13 (ROPA 13) in 2005. In 2005, Core Valleyland mapping updates for the Cities of Brampton and Mississauga were completed and incorporated in the ROPA 13 amendment. ROPA 13 is currently under appeal to the Ontario Municipal Board (OMB) and not yet in full force and effect pending a hearing and decision by the Board.

At the time that the ROPSU mapping updates were initiated in 2002, the Town of Caledon was not included within ROPA 13 due to the potential for affecting mapping in Caledon Official Plan Amendments 124 and 161 (OPAs 124 and 161). OPAs 124 and 161 had been adopted by Caledon Council, however, were not yet approved by the OMB. As both OPAs are now approved, it is proposed that the refined Core valleylands mapping, using the updated data and in accordance with the recommended methodology, be extended to include the Town of Caledon.

Subsequent to when mapping was updated in 2005 through ROPA 13, additional valley land mapping interpretations and refinements in the Cities of Brampton and Mississauga have been completed by the conservation authorities. These updates are not included in the ROPA 13 mapping. Therefore, it is proposed that the PROPR mapping update also include minor refinements to the Core Valleyland mapping within the Cities of Brampton and Mississauga to reflect more up-to-date mapping data and to ensure consistency of mapping within the Region.

2.0 Why are Core valleylands important?

Valleylands contain essential ecological systems or ecosystems that contribute to the overall health and sustainability of the natural environment. Valleylands also offer important economic, recreational and social opportunities that contribute to the quality of life for communities. Providing essential ecological functions, valleylands contain a diversity of habitats and maintain biodiversity as linkages that facilitate the movement and dispersal of flora and fauna over long distances. In the Region of Peel, the major valley systems provide bioregional linkages connecting the Niagara Escarpment, the Oak Ridges Moraine and the Greenbelt to Lake Ontario and other natural features.
In addition to their ecological functions, valleylands convey flood waters and contain areas that are subject to flooding and erosion or facilitate groundwater flow including groundwater recharge and discharge. In highly urbanized and fragmented landscapes, valleylands represent a significant portion of the remaining natural areas. Such features are important landforms that contribute to the character of a community and are areas that are highly valued for their recreational opportunities and cultural heritage. By 2031, publicly owned valley lands in the Region of Peel will be providing recreational opportunities for over 1.6 million people.

The Region of Peel, the Cities of Brampton and Mississauga and the Town of Caledon must identify and protect significant valley lands in a manner that is consistent with the Provincial Policy Statement (PPS). The respective policies of the Regional and area municipal official plans guide the identification and protection of regionally and locally significant valley lands in accordance with the PPS. Significance is defined in the PPS to mean “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” (PPS, 2005). As a component of the Core Areas of the Greenlands System, Core valleylands contain ecological features, forms and functions that provide for uninterrupted natural systems and maximum biodiversity. They are considered significant at a Regional scale and therefore represent a subset of the overall valley and stream corridor system in Peel.

Regionally significant Core valleylands in the ROP are identified as the main branches of the Credit River, Etobicoke Creek, Mimico Creek, West Humber River, and Humber River, and include identified smaller watercourses draining directly to Lake Ontario. These Core valleylands have been identified for their regional significance recognizing their contributions in providing:

- important ecological functions that are regional in scale;
- habitat for endangered or threatened species; and
- linkages to other Core Areas of the Greenlands System across municipal boundaries.

The following criteria are also considerations for identifying valley lands for their significance under the PPS:

- containment of flood and erosion hazards; and
- restoration opportunities.

Mapping criteria consistent with the definition for regional significance are set out in Section 4.0.

**3.0 Basis for Mapping Methodology**

The basis and criteria for the mapping of Core valleylands are derived from policy in the ROP and the definition of Core valleylands in Section 2 of the Plan.
Policy 2.3.2.2 (Core Valleylands)

g) Only those valley and stream corridors shown on Schedule A associated with the main branches of the Credit River, the Etobicoke Creek, the Mimico Creek, the West Humber River and the Humber River with the other identified watercourses draining directly to Lake Ontario; except for those portions of the Rural Service Centres and the rural settlements in the Rural System as designated in an area municipal official plan. These valley and stream corridors are continuous linkages connecting to other elements of the Greenlands System Core Areas. The width of all of these valley and stream corridors shall be determined in accordance with the definition in the Glossary of this Plan. Their length shall be determined in accordance with Schedule A.

The ROP’s Glossary contains the following definition for valley and stream corridors: “valley and stream corridors are the natural resources associated with the river systems characterized by their landform, features and functions, and include associated ravines. Valley corridors and ravines are distinguished from stream corridors by the presence of a distinct landform. The limit of valley and stream corridors shall be determined, jointly with the area municipalities, on a site specific basis by the conservation authorities.”

Core valleylands are comprised of the major drainage systems in Peel and are identified in accordance with the policy and definitions in the ROP.

3.1 ROPA 13 Mapping Methodology

The process of mapping Core valleylands in the Cities of Brampton and Mississauga for ROPA 13 included consideration of factors relevant to the policy and definition in the ROP. The factors considered are as follows:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Evaluation</th>
</tr>
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<tbody>
<tr>
<td>Context</td>
<td>• whether valley or stream corridor was located in an urban or rural setting</td>
</tr>
<tr>
<td></td>
<td>• valley and stream corridors with natural conditions in urban areas were considered regionally significant unless excluded by other criteria (e.g., stream corridor was ill-defined, fragmented or highly urbanized)</td>
</tr>
<tr>
<td></td>
<td>• valley and stream corridors in urban areas represent a significant portion of the remaining natural features in the landscape</td>
</tr>
<tr>
<td>Size of Drainage Area</td>
<td>• valley and stream corridors having a drainage area of 125 ha. or greater and meeting one or more additional criteria were considered regionally significant</td>
</tr>
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<td></td>
<td>• 125 ha. is a minimum drainage area size for consideration of valley and stream corridors as Core Areas or Natural Areas and Corridors of the Greenlands System</td>
</tr>
<tr>
<td>Prominence as a Distinctive Landform</td>
<td>• valley and stream corridors that comprise the major defined valley system in Peel as identified by crest of slope were considered regionally significant unless excluded by other</td>
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<tr>
<td>Criteria</td>
<td>Criteria</td>
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<tr>
<td>• valley and stream corridors included main branches, associated ravines and watercourses draining directly to Lake Ontario</td>
<td>• valley and stream corridors included main branches, associated ravines and watercourses draining directly to Lake Ontario</td>
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<tr>
<td>• defined valley characteristics was a requirement for all valley and stream corridors for regional significance</td>
<td>• defined valley characteristics was a requirement for all valley and stream corridors for regional significance</td>
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<tr>
<td>• ill-defined streams were excluded</td>
<td>• ill-defined streams were excluded</td>
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<tr>
<td>• the significance of ill-defined valley and stream corridors is determined in accordance with area municipal policy</td>
<td>• the significance of ill-defined valley and stream corridors is determined in accordance with area municipal policy</td>
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| Degree of Naturalness/State of Feature | • fragmented valley and stream corridors very disturbed by urbanization were excluded as regionally significant (e.g. Mullet Creek, Cooksville Creek, Mimico Creek – West Branch) |
| Presence of Aquatic Threatened or Endangered Species | • valley and stream corridors providing habitat for endangered or threatened species were identified as regionally significant (e.g. Huttonville Creek, several West Humber tributaries) |
| Provides Linkage to Other Core Areas of the Greenlands System | • valley and stream corridors connecting to other identified Core Areas were considered regionally significant unless excluded by other criteria (e.g. highly fragmented and urbanized valley and stream corridors) |
| Crosses Municipal Boundaries | • valley and stream corridors crossing municipal boundaries were identified as regionally significant unless excluded by other criteria |

All of the main valleys, tributaries, and associated ravines were evaluated using the above criteria to screen for regional significance. The process included a further review of associated ravines to determine how far the mapping should extend up ravine features. Ravines that are well defined and either contain restoration potential or are ecologically important in terms of their individual function or as a linkage to other Greenlands System natural features were included in the mapping of Core valleylands. Ravine sections fragmented by major infrastructure, containing limited restoration potential and having limited ecological value at a Regional scale were not included in preparation of updated mapping. The following factors were used to either include or exclude associated ravines as Core valleylands in Brampton and Mississauga:

- important ecological functions related to the valley landform;
- habitat for endangered or threatened species;
- linkage to other natural features of the Greenlands System;
- flood and erosion hazards; and
- restoration potential.

Ravines were included if one or more of the criteria were met.
Finally, additional refinements were made to the crest of slope data to correct errors in the mapping where more detailed information was available (e.g. tableland incorrectly included as valleyland).

3.2 Policy Amendments to Support Mapping Approach

In the process of developing criteria to identify refined Core Valleyland mapping in Caledon, it became evident that policy amendments were needed to clarify the intent of the ROP. Policy amendments associated with the mapping update for PROPR are therefore proposed as follows:

- to clarify the meaning of “main branches” of the Core Valleyland system to include additional “major tributaries” not currently identified on Schedule A; and
- to guide the development of mapping criteria that recognizes the Urban System and Rural System context within the Region.

The following provides a rationale for the proposed policy clarification.

The existing policy in section 2.3.2.2 of the ROP refers to Core valleylands being associated with the “main branches” of the major river valley systems in Peel. When the mapping for Schedule A was developed and approved in 1997, mapping data (i.e. air photo interpreted crest of slope) was not available and Core valleylands were identified with the best available information at the time. The identification of Core valleylands on Schedule A includes all of the major river valleys in Peel and most but not all of their major tributaries. Examples of mapped “main branches” include the Humber River, the Credit River and Mimico Creek. Main branches mapped on Schedule A also include several major tributaries which include Centreville Creek and Shaw’s Creek, which are tributaries of the Humber River and Credit River respectively. While most of the major valley tributaries are currently identified on Schedule A, several were not included as they were not interpreted at the time to be main branches of Regional significance.

With the availability of crest of slope mapping data that illustrates the full extent of the defined valley system on a comprehensive Region-wide basis, it is now possible to review the major tributaries that are not currently identified as Core valleylands on Schedule A given the intent of existing ROP policy. Therefore, the PROPR Core Valleyland mapping update will extend mapping to all of the major tributaries that are a part of the defined valley system and will include other tributaries that meet at least one other supporting criterion (e.g., the watercourse associated with the valley contains aquatic endangered or threatened species or the watercourse and valley crosses municipal boundaries and connects two or more other Core Areas of the Greenland System within the tributary’s watershed). In order to clarify that main branches include major tributaries, policy 2.3.2.2 will be amended to refer to “major tributaries” in addition to “main branches” of the river valley systems. A watercourse is identified as a major tributary if it has direct confluence (i.e., meets and joins together) with the Credit River, Etobicoke Creek, Mimico Creek, West Humber River or Humber River.

Figure 1 illustrates how major tributaries will be identified and added to Schedule A as Core valleylands. Other tributaries that do not have their confluence with one of the main branches of the major river valley systems in Peel are excluded unless included by other criteria (e.g. presence of aquatic endangered or threatened species).
With respect to associated ravines, a very detailed mapping methodology was employed in the Cities of Brampton and Mississauga when Core Valleyland mapping was updated through ROPA 13. The mapping methodology was developed for the Urban System with its largely urban context and where valley landforms represent the bulk of the remaining natural heritage and many of the smaller natural watercourses and ravines have been removed, channelized or culverted.

Figure 1: Illustration of major tributaries having direct confluence with major valley watercourse.
In the Town of Caledon, the valley systems and other natural areas make up a larger proportion of the area in the Rural System. Ravine features are also more numerous and a ravine-by-ravine evaluation would be time consuming and inappropriate for Regional-scale official plan mapping in an area that is not subject to more intensive urban development. The principle of developing a rural approach to the identification of Core Valleyland width will therefore be reflected through revised policy to support a mapping approach for the Rural System that is different than for the Urban System.

For consultation purposes, mapping will be prepared to identify the defined valleys that are proposed to be added to Schedule A as Core valleylands (i.e. the major tributaries and other tributaries that are not currently shown on Schedule A).

4.0 Mapping Methodology for Core Valleylands

In order to assist with the preparation of mapping to amend Schedule A, a Municipal Staff Working Group was formed consisting of staff from the Region of Peel, the City of Mississauga, the City of Brampton and the Town of Caledon to jointly determine a recommended mapping methodology consistent with the ROP’s policy for Core valleylands. Technical assistance has been provided by staff from the Region’s conservation authorities.

The methodology to refine mapping of Core valleylands in the Town of Caledon, and to make further minor refinements within the Cities of Brampton and Mississauga, is based on the mapping approach developed for ROPA 13 with modifications to address mapping requirements in the Town of Caledon. Data sources for the mapping include crest of slope data, interpreted from aerial photography, as well as regulatory flood line and meander belt mapping obtained from the Toronto and Region Conservation Authority (TRCA), Credit Valley Conservation (CVC), Halton Region Conservation Authority (HRCA), Lake Simcoe Region Conservation Authority (LSRCA) and Notawassaga Valley Conservation Authority (NVCA).

The following describes the recommended mapping methodology for updating Schedule A.

4.1 Extent of Core Valleylands

The extent of Core valleylands would be determined primarily based on the presence of defined valley landforms (i.e. valley slopes). As a result, Core valleylands would extend from the outlet (mouth or confluence) of the major drainage systems, as defined in the Regional Official Plan, to the furthest upstream extent of the defined valley landforms associated with the main branch, major tributaries and other tributaries (as included) of these watercourses. A defined valley and stream is a required criterion for Regional significance.

During the process of converting rural lands into urban areas, ill-defined headwater drainage features (e.g. known as zero order streams or swales) are reviewed for their potential to contain fish habitat and during the consideration of stormwater management design requirements. These features are conserved in the urban landscape for both their hydrologic and ecological functions; however, realignment, channel invert lowering and sometimes removal are necessary to convey Regional Storm flows and to provide
outlets for stormwater management ponds. Although these engineering works disturb the swales, they also provide opportunities to restore and enhance the swale’s ecological function. Some headwater features are deepened to create defined channel-valley forms, or redesigned to create wetlands, provide fish habitat, or riparian vegetation. Where a headwater drainage feature has been realigned and channelized upstream of the existing natural valley system, it is not the intention of the Region to include these newly created corridors as Core valleylands. While the Region recognizes that these restoration and enhancement efforts contribute to the functions of downstream Core valleylands, their identification and significance is determined locally in accordance with area municipal official plans. The extent of the defined valley landforms that comprise Core valleylands therefore excludes these types of headwater features.

Crest of slope mapping, interpreted from aerial photography, is a recognized method to identify and represent the approximate location where there is a visible transition between tableland and the slopes of the “defined valley system” at a scale and accuracy appropriate for official plan mapping purposes. Defined valley lands in Peel have been mapped using crest of slope data interpreted from 2005 digital aerial photography. Within the Credit River, Etobicoke Creek, Mimico Creek, West Humber River and Humber River watersheds, conservation authority staff utilized information from the 2002 Digital Elevation Model (DEM) as well as field checking to validate or improve the air photo interpreted data. The extent of Core valleylands would be mapped using the crest of slope data subject to other mapping criteria which are discussed below.

Ill-defined headwater streams or drainage features with valley slopes that are not apparent on air photos or in the field, as well as defined valleys and other landform features not connected or associated with the major tributaries, would not be mapped as these are not subject to the Core Valleyland policies of the ROP, except for specific identified watercourses draining directly into Lake Ontario as shown on Schedule A.

The current policy of further refinement of the mapped extent of Core valleylands shown on Schedule A through field surveys and site inspection on a property specific basis will not change, when field survey accuracy is appropriate or needed such as at the time of a development application. The approach of using air photo interpreted data for official plan mapping at a Regional scale with later refinement through field surveys is an accepted and widespread practice owing to the significant cost of collecting field survey data on a Region-wide basis.

Crest of slope mapping is not available or required for watercourses within the Innisfil Creek, West Holland River and Sixteen Mile Creek watersheds as these watercourses are not identified as Core valleylands in the Regional Official Plan.

4.2 Ill-defined Sections of Major Valleys

Between the outlet of the major valley systems and the furthest upstream distinct valley landform, there are sections of Core valleylands that may be ill-defined in localized areas (do not have distinct and identifiable valley slopes) due to local geology, physiography, and historic drainage. To reflect the intent of the Regional Official Plan that Core valleylands are continuous linkages connecting to other Greenlands System Core
Areas\(^1\), the ill-defined sections of the main branches, major tributaries and other tributaries of the Credit River, Etobicoke Creek, Mimico Creek, West Humber River and Humber River would be schematically shown using the limits of the regulatory flood plain\(^2\) and/or meander belt hazard. Flood plains and meander belts represent areas where flood and erosion hazards are greatest and areas that are potentially significant for their ecological value or restoration potential.

When the ROP was first adopted, Core valleylands were schematically shown as 150 metre wide buffer strips. With the availability of updated regulatory flood plain and meander belt mapping it is now possible to improve the schematic illustration of Core valleylands for ill-defined sections where it is not appropriate or possible to illustrate major valley systems using crest of slope techniques.

The width of the schematic illustration of Core valleylands within the ill-defined valley sections shall be the greater of the regulatory flood plain or meander belt limit. The use of regulatory flood plain and meander belt mapping for these ill-defined sections will not be interpreted to indicate the confirmed limits of Core valleylands as further evaluation using other criteria is required. The width would continue to be determined in accordance with the policy of the ROP through field study when warranted.

When Schedule A was updated through ROPA 13, ill-defined sections of Core valleylands in the Cities of Brampton and Mississauga were mapped schematically using watercourse data layers (shown as line features) provided by the conservation authorities. It is proposed that the watercourse line features be replaced in Brampton and Mississauga with regulatory flood line or meander belt mapping, where appropriate, so that ill-defined sections are mapped consistently with a single approach on a Region-wide basis. The approach is illustrated on Figure 2 on the following page.

### 4.3 Associated Ravines

Ravines are landform depressions formed by past glacial or ongoing erosion processes that may or may not contain standing or flowing water. They provide important ecological and hydrological functions and may contain areas susceptible to flooding and erosion. The ROP defines Core valleylands to include associated ravines and therefore a recommended methodology to map these features is required. For the purposes of the mapping methodology, “associated ravines” are defined as those ravines that directly connect with the main branches, major tributaries, and other tributaries meeting criteria as Core valleylands.

In consultation with area municipal staff, it is recommended that refinement of Core valleyland mapping include an approach to recognize differences for determining regional and local scales of significance for associated ravine features based on whether the features are located in the Urban System or the Rural System. This involved identifying a method for mapping associated ravines in urban areas and a different method for mapping associated ravines in rural areas. For this purpose, the boundary

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1 Region of Peel Official Plan, Policy 2.3.2.2
2 Where engineered flood line mapping is not available, estimated flood line mapping is used where available.
4.3.1 Mapping Urban Ravines

In the Urban System, valley landforms represent the bulk of the remaining natural areas. Within the Urban System which comprises the Cities of Brampton and Mississauga, Core valleylands would be mapped to include ravines associated with the defined valley

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3 In the Regional Official Plan, the Urban System includes all of the Cities of Mississauga and Brampton within the 2031 Regional Urban Boundary as shown on Schedule D. The Rural System consists of lands outside the 2031 Regional Urban Boundary encompassing all of the Town of Caledon. Components of the Rural System include the three Rural Service Centres of Bolton, Mayfield West and Caledon East, Rural Settlements and rural areas outside of the Rural Service Centres and Rural Settlements.
system (i.e. main branches, major tributaries and other tributaries meeting criteria for Core valleylands). The evaluation of associated ravines as to their Regional significance, and therefore identification of ravines as Core valleylands, would be based on the following criteria initially developed through ROPA 13:

- important ecological functions related to the valley landform;
- habitat for endangered or threatened species;
- linkage to other natural features of the Greenlands System;
- flood and erosion hazards; and
- restoration potential.

Ravines that are well-defined and either contain restoration potential or are determined to be ecologically important in terms of their individual function or as a linkage to other natural features of the Greenlands System would be included in the mapping of Core valleylands in the Urban System. Ravine sections fragmented by major infrastructure, containing limited restoration potential and having limited ecological value would be excluded from the mapping. This process determines how far the mapping would extend up urban ravine features (See Figure 3 for example).

The identification of urban ravines as Core valleylands would be determined at a Regional scale for official plan mapping purposes. It is recognized that further assessment and field study on a site specific basis would be required to refine boundaries and to verify the status of individual ravines as Core valleylands identified in accordance with the Regional scale mapping methodology. The criteria identified in the technical appendix will be applied and refined through more detailed field assessment in accordance with study requirements acceptable to the Region and area municipality in consultation with relevant agencies.

Individual ravines previously evaluated during the preparation of mapping for ROPA 13 in the Cities of Mississauga and Brampton would not be re-evaluated for the purposes of updating mapping through PROPR except where new information or data is available that warrants re-examination (i.e. updated crest of slope extending ravine features or new ravines not previously evaluated and mapped).

4.3.2 Mapping Rural Ravines

In the Rural System, comprising of the Town of Caledon, the valley systems and other larger natural areas make up a larger portion of the land base. Throughout the majority of the Town of Caledon, ravines are not susceptible to impacts from more intense urban land use where a more detailed evaluation of the regional significance of associated ravines is warranted. Associated ravines in the Town of Caledon would not be identified or mapped as Regional Core valleylands. The significance and identification of associated ravines in the Rural System would continue to be determined in accordance with the Greenlands System policies for Natural Areas and Corridors, Potential Natural Areas and Corridors and the Ecosystem Planning policies in the Town of Caledon Official Plan.
4.4 Rural Service Centres

In accordance with the Regional Official Plan (policy 2.3.2.2), Core valleylands do not extend within designated Rural Service Centre boundaries. These reaches are subject to the applicable policies in the Town of Caledon Official Plan.

4.5 Rural Settlements in the Town of Caledon

In accordance with the Regional Official Plan (policy 2.3.2.2), Core valleylands do not extend within designated Rural Settlement boundaries. These reaches are subject to the applicable policies in the Town of Caledon Official Plan.

Figure 3 – Examples illustrating the criteria in ROPA 13 used to refine mapping of ravines in the Urban System (Brampton and Mississauga).
5.0 Oak Ridges Moraine Conservation Plan

The official plans for both the Town of Caledon and the Region of Peel were recently brought into conformity with the Oak Ridges Moraine Conservation Plan (ORMCP). Significant valley lands are a key natural heritage feature in the Oak Ridges Moraine Conservation Plan Area. Technical criteria to assist in the identification and delineation of key natural heritage features (KNHFs), including significant valley lands, is provided in the Oak Ridges Moraine Conservation Plan (ORMCP) Technical Paper #1 – Identification of Key Natural Heritage Features. Regional Core valleylands would be shown within the ORMCP Plan Area on Schedule A in accordance with the methodology outlined in this technical appendix. Within the ORMCP Plan Area, the technical guidelines for the ORMCP provide additional criteria for the identification of significant valley lands in accordance with the ORMCP, ROP and Caledon Official Plan policies.

6.0 Greenbelt Plan

Significant valleylands are also identified as a key natural heritage feature in the Greenbelt Plan. Within the Natural Heritage System of the Greenbelt Plan, technical criteria to assist in the identification and delineation of significant valley lands may be provided in guidelines issued by the Province. Outside of the Natural Heritage System within the Protected Countryside of the Greenbelt Plan, significant valleylands are defined pursuant to the PPS which allows municipal approaches for the identification of significant features. Regionally significant Core valleylands would be identified, mapped and shown on Schedule A within the Protected Countryside in accordance with the recommended methodology outlined in this technical appendix to conform with requirements of the Greenbelt Plan. When provincial guidelines for identifying key natural heritage features within the Greenbelt Natural Heritage System are available, the provincial guidelines may include additional criteria for the identification of significant valley lands but only within the Natural Heritage System of the Greenbelt.

7.0 Summary of Mapping Methodology

The following summarizes the proposed mapping methodology for updating and refining Core valleylands shown on Schedule A:

<table>
<thead>
<tr>
<th>Summary of Core Valley and Stream Corridor Mapping Methodology and Criteria</th>
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<tbody>
<tr>
<td><strong>Core Valley and Stream Corridor Component</strong></td>
</tr>
<tr>
<td>▪ Main branches, major tributaries, other tributaries and identified watercourses draining directly to Lake Ontario</td>
</tr>
<tr>
<td>▪ Valley and stream corridors are the natural resources associated with</td>
</tr>
</tbody>
</table>
| the river systems characterized by their landform, features and functions, and include associated ravines. | ▪ Other tributaries are to be included and mapped to the limit of their defined valley portion if they meet the following criteria:

  • contains habitat of aquatic endangered or threatened species; or

  • watercourse crosses municipal boundaries and provides linkage to other Core Areas of the Greenlands System.

  ▪ Excludes ill-defined headwater drainage features including created headwater valley/stream corridors, discontinuous defined valley features and other non-valley landforms

| ▪ Ill-defined sections of major valleys | ▪ Ill-defined sections are to be illustrated using regulatory floodplain and meander belt hazards whichever is greater unless site specific assessment has determined valley width in accordance with text of Plan

  ▪ Shown schematically and subject to site specific evaluation to confirm width of Core valley and stream corridor

| ▪ Associated Ravines | Associated ravines within Urban System are to be included if meeting one of the following criteria:

  ▪ important ecological functions related to the valley landform;

  ▪ habitat for endangered/threatened species;

  ▪ linkage to other natural features of the Greenlands System;

  ▪ flood and erosion hazards; and

  ▪ restoration potential.

  Associated ravines within the Rural System are not considered Regional Core valley and stream corridors

  ▪ Significance is determined in accordance with the Town of Caledon policies. |
8.0 Summary of Proposed Amendments to the Regional Official Plan

The following summarizes the proposed amendments to policy 2.3.2.2 of the ROP to support the PROPR mapping of Core valleylands. Underlined text is proposed to be added to the ROP; strikethrough text is proposed to be deleted.

Policy 2.3.2.2 (Core Valley and Stream Corridors)

g) Only those valley and stream corridors shown on Schedule A associated with the main branches and major tributaries of the Credit River, the Etobicoke Creek, the Mimico Creek, the West Humber River and the Humber River with the other identified watercourses draining directly to Lake Ontario; except for those portions of the Rural Service Centres and the rural settlements in the Rural System as designated in an area municipal official plan. These valley and stream corridors are continuous linkages connecting to other elements of the Greenlands System Core Areas. The width of all of these valley and stream corridors shall be determined in accordance with the definition in the Glossary of this Plan. Their length shall be determined in accordance with Schedule A. The limit of Core valley and stream corridors shall be determined with the area municipalities in accordance with the definition in the Glossary of this Plan and criteria to recognize the unique urban and rural character of the Region.

The ROP’s Glossary contains the following definition for valley and stream corridors: “valley and stream corridors are the natural resources associated with the river systems characterized by their landform, features and functions, and include associated ravines. Valley corridors and ravines are distinguished from stream corridors by the presence of a distinct landform. The limit of valley and stream corridors shall be determined, jointly with the area municipalities, on a site specific basis by the conservation authorities.”

In addition to the proposed amendments in policy 2.3.2.2 g) and to the Glossary, policy 7.2.2.3 would be amended to clarify that the mapped boundaries shown on Schedule A are approximate boundaries for illustrative purposes only and that further refinement of boundaries will be identified through further assessment and field study on a site specific basis.

Policy 7.2.2.3

The exact lines and boundaries for the information contained in the generalized schedules will be defined in the area municipal official plans, where applicable. The boundaries of the Core Areas of the Greenlands System shown on Schedule A are intended to be general in nature. More detailed mapping of the Core Areas of the Greenlands System will be included in the area municipal official plans. The precise boundaries of Core Areas shall be determined on a site specific basis through appropriate studies, as may be required through the planning approval process, in consultation with the relevant agencies. Due to the general nature of the Core Areas boundaries on Schedule A, an amendment to the Plan is not required for minor boundary adjustments to the Core Areas of the Greenlands System.
9.0 Definitions

Associated Ravines

Associated ravines are those ravines that directly connect with the main branches, major tributaries, and other tributaries identified as Core valleylands in the Region of Peel Official Plan.

Confluence

The point where two or more water bodies meet.

Crest of Slope

An interpreted line representing the transition from tableland to valley slopes as determined through remote sensing and sometimes referred to as the physical existing top of bank.
**Defined Valleys**\(^4\) (from Ministry of Natural Resources, 2008)

Defined river and stream valleys are ones in which the physical presence of a valley corridor containing a river or stream channel, which may or may not contain flowing water, is visibly discernible (i.e. valley walls are clearly definable) from the surrounding landscape by either field investigations, aerial photography and/or map interpretation.

**Digital Elevation Model (DEM)**

Digital model derived from geospatial data illustrating an estimation of the relief and elevations of a landscape.

**Floodplain**

For river, stream, and small inland lake systems, means the area, usually low lands adjoining a watercourse, which has been or may be subject to flooding.

**Headwater Drainage Features**

Small, sometimes poorly defined watercourse channels, swales, or first order streams, which convey surface runoff or groundwater discharge from the upper reaches of a watershed or subwatershed.

**Ill-defined Valleys**\(^4\) (from Ministry of Natural Resources, 2008)

Ill-defined river and stream valleys are ones in which a river or stream is present but there is no discernible valley slope or bank that can be detected from the surrounding landscape. For the most part, ill-defined valley and stream corridors are found in fairly flat or gently rolling landscapes and may be located within the headwater areas of drainage basins. The river or stream channels contain either perennial (i.e., year round) or ephemeral (i.e. seasonal or intermittent) flow and range in channel configuration from seepage and natural channels to detectable channels.

**Major Tributaries**

Major tributaries are identified as tributaries having direct confluence with the Credit River, the Etobicoke Creek, the Mimico Creek, the West Humber River and the Humber River.

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\(^4\) The Development, Interference and Alteration Regulations approved under the *Conservation Authorities Act* describe river or stream valleys as “apparent” and “not apparent”. Provincial Technical Guides for hazard mapping use the terms “confined” and “unconfined”. The current Natural Heritage Reference Manual (1999), which provides guidance on the implementation of natural heritage policy in the Provincial Policy Statement including the identification of significant valleylands, uses the terms “defined” and “ill-defined”.


**Meander Belt (from Ministry of Natural Resources, 2008)**

Lands associated with the migration and meandering of a watercourse over time. Meander belts are determined for riverine systems where the watercourse is free to shift in response to natural hydrologic processes.

**Ortho-rectified Aerial Photography**

Aerial photography that has been corrected to compensate for distortions.

**Ravine**

A small narrow steep sided landform depression formed by erosion or glacial processes that may or may not contain standing or flowing water.

**Remote Sensing**

The collection of data and measurements on an object from a distance through the processing and analysis of data.

**Significant (from Provincial Policy Statement, 2005)**

In regard to valleylands, means 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. Criteria for determining significance are recommended by the Province, but municipal approaches that achieve or exceed the same objective may also be used.

**Tableland**

A broad relatively level upland area.

**Top-of-bank**

The point at which the slope of a valley or shoreline meets the horizontal plain of the adjacent tableland.
Tributary

A river or stream that flows into a larger river, stream or other body of water.

*Watercourse (from Black’s Law Dictionary)*

A body of water flowing in a reasonably definite channel with bed and banks.

10.0 References


