

3

Environment

3.1 Environmental Management

3.1.1 A Commitment to Environmental Stewardship

3.2 Vaughan's Natural Heritage Network

3.2.1 Building a Network based on Ecosystem Function

3.2.2 Developing and Maintaining a Natural Heritage Inventory

3.2.3 Components of Vaughan's Natural Heritage Network

3.3 Features of the Natural Heritage Network

3.3.1 Valley and Stream Corridors

3.3.2 Wetlands

3.3.3 Woodlands

3.3.4 Species and Risk and Significant Wildlife Habitat

3.3.5 Fisheries and Aquatic Habitat

3.3.6 Environmentally Significant Areas and Areas of Natural and Scientific Interest

3.3.7 The Oak Ridges Moraine

3.3.8 Key Natural Heritage Features and Key Hydrologic Features in the Greenbelt Plan

3.3.9 Significant Landforms

3.4 Protecting Water Resources

3.4.1 Watershed Planning

3.4.2 Protecting Groundwater

3.4.3 Hazardous Lands and Sites

3.4.4 Flooding Hazards

3.4.5 Special Policy Areas

3.4.6 Stormwater Management

3.4.7 Erosion and Sediment Control

3.5 The Greenbelt Plan

3.6 Air Quality and Climate Change

3.6.1 Improving Air Quality

3.6.2 Responding to Climate Change

3.7 Soil Quality and Site Remediation

3.8 Environmental Reporting related to the Natural Heritage Network

3.1 Environmental Management

3.1.1 A Commitment to Environmental Stewardship

The natural environment is among Vaughan's most important and cherished assets. The Humber and western Don Valley systems are prominent on the City's landscape and the overall health of those systems is reliant on the stewardship provided by Vaughan. The watercourses, *woodlands*, *wetlands* and related open spaces and agricultural lands each have an important function in maintaining ecological vitality and diversity in the City. Protecting flood prone areas from inappropriate development is critical to ensuring public safety. Ensuring the quality of our air, water and soil is fundamental to maintaining overall environmental health. We must also recognize the impacts of climate change on our environment and plan for both mitigation and adaptation.

Environmental management is a multi-jurisdictional effort. Vaughan must work in consultation with the Toronto and Region Conservation Authority, whose mandate it is to further the conservation and restoration of the Humber and Don watersheds in Vaughan. York Region is also a significant partner as together the City and Region are responsible for various components of environmental management. Finally the Province has a major role to play. Numerous Provincial regulations and requirements are incorporated into the policies of this Plan. Additionally, the Provincial Greenbelt Plan and Oak Ridges Moraine Conservation Plan establish specific policies for large areas of Vaughan.

This Chapter provides policy direction for managing Vaughan's natural environment and establishing a legacy of stewardship that it will remain healthy and robust for generations to come. The growth management strategy set out in Chapter 2 is a major part of that legacy as it designates approximately 40% of the overall City as **Natural Areas and Countryside**. This Chapter provides the framework for protecting and enhancing those areas and others throughout the City.

It is the policy of Council:

- 3.1.1.1 To provide for the long-term health of Vaughan's natural environment for the benefit of present and future generations.
- 3.1.1.2 To support the ability of Vaughan's residents to live in a manner that has a low impact on the natural environment.
- 3.1.1.3 To work with the Toronto and Region Conservation Authority, the Region, the Province and landowners to define and protect the Natural Heritage Network within Vaughan and provide policies to enhance that Network over time.
- 3.1.1.4 To work in consultation with the Toronto Region and Conservation Authority to identify flood and erosion prone areas of the City and provide policies that provide for public safety within those areas.
- 3.1.1.5 To enhance and maintain the quality of air, water and soil.
- 3.1.1.6 To recognize the impacts of global climate change on the natural environment and to plan for mitigation of and adaptation to such impacts.

3.2 Vaughan's Natural Heritage Network

3.2.1 Building a Network based on Ecosystem Function

The natural environment performs many functions that benefit ecological and human health. Trees clean excess pollutants from the air; *wetlands* filter the water that enters our drinking supply; vegetated areas provide natural flood control by allowing water to infiltrate the ground; and, natural areas provide habitat for a wide variety of species that create a healthy biodiversity in the City. By also providing recreational opportunities and visual respite the natural environment contributes to a high quality of living for Vaughan residents.

The Natural Heritage Network defined in this Plan, and the related policies, are built on an understanding of the functions that each identified natural heritage feature performs independently and as part of a connected system. The intent is to protect the specific natural features, and their functions within the overall Natural Heritage Network are maintained and enhanced. This approach protects the defined Natural Heritage Network while allowing flexibility in how to promote enhancement and improved connectivity to better link the Network.

Ecosystem functions provide a wide variety of environmental benefits. Specific functions that provide benefit to people may also be referred to as ecosystem services. Examples of ecosystem functions include:

- Natural water filtration – a higher amount of forest cover, and /or an increase in *wetlands* will reduce the cost of water treatment;
- Carbon sequestration – vegetation, soil and other natural elements naturally absorb atmospheric carbon dioxide and other pollutants, cleaning the air we breathe;
- Flood control – both *wetlands* and other vegetated areas allow stormwater to attenuate, infiltrate, and Evapotranspire;
- Food production – most food crops require pollination by bees to produce future generations of the crop. The bees themselves require natural areas as a habitat.

An ecosystem function approach considers the biodiversity contribution of natural areas as well as the added benefits of nature for people, such as clean air, clean water and flood protection. This approach to planning not only seeks to sustain ecological function for wildlife habitat, but also to maintain critical ecological processes (e.g. groundwater flow) and urban biodiversity as an element of community infrastructure to improve human health and well-being.

It is the policy of Council:

- 3.2.1.1 To recognize the various functions performed by the natural environment that benefit ecological and human health and that these functions improve the overall quality of life for Vaughan residents.
- 3.2.1.2 To maintain the long-term *ecological function* and biodiversity of the Natural Heritage Network by utilizing an ecosystem function approach to planning that protects, restores and, where possible, enhances natural features and their functions.
- 3.2.1.3 To utilize an ecosystem function approach to enhancing and better linking Vaughan's Natural Heritage Network. Such an approach will clearly indicate areas for enhancing and linking the Network but allow for some flexibility in how that is achieved.

3.2.2 Developing and Maintaining a Natural Heritage Inventory

A comprehensive inventory of natural heritage features and understanding of their functions are the first steps in natural heritage management. Building an inventory is an ongoing process that involves cooperation between the City, the Toronto and Region Conservation Authority, York Region, the Province and private landowners. The information in Schedule 2 represents the most detailed and up-to-date information available. Vaughan is committed to updating this information through an ongoing process of environmental reporting associated with land-use planning studies, infrastructure development and related Environmental Assessments and development applications.

It is the policy of Council:

- 3.2.2.1 To use environmental data gathered through land-use planning studies, Environmental Assessments, infrastructure development, development applications, and other means, to maintain and update Vaughan's natural heritage inventory and Schedule 2 of this Plan, as appropriate.
- 3.2.2.2 To evaluate Vaughan's natural heritage inventory from time to time to maintain effective natural heritage management is being achieved. Such a review may be coordinated with a comprehensive review of this Plan.

3.2.3 Components of Vaughan's Natural Heritage Network

Vaughan's Natural Heritage Network consists of a wide range of natural features. It reaches throughout the City and forms part of the larger York Regional Greenlands System. The Natural Heritage Network is represented on Schedule 2. It has been developed through analysis, modelling and review of previous work prepared by the Toronto and Region Conservation Authority, including the Watershed Plans for the Don and Humber Rivers, and other agencies. The Natural Heritage Network is consistent with the Provincial Policy Statement, which requires that "the diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features." Furthermore, the Provincial Policy Statement defines a natural heritage system to include lands that have been restored and areas with the potential to be restored to a natural state.

The Natural Heritage Network represents an interconnected system of natural features and the functions they perform. Natural features such as *wetlands*, *woodlands* and the extensive *valley and stream corridors* are identified as Core Features to be protected and enhanced. To support these features and create the connections that establish a strong network, Enhancement Areas are identified that either add to or connect the Core Features. The Natural Heritage Network also includes the Provincial Greenbelt and Oak Ridges Moraine lands and specific policies are provided for these areas consistent with Provincial Plans and York Region policies. Natural areas also exist in Vaughan where past development has taken place and buildings currently exist. These uses may continue with minor alterations but no new such uses will be allowed in order to maintain the integrity of the Network.

In determining the Natural Heritage Network the policy text prevails over the mapping shown on Schedule 2. As more detailed studies are undertaken, either through the development process or by other agencies such as the TRCA, Region of York or the Province new instances of Natural Heritage Network components may be found, than were able to be determined at the City wide scale of the Official Plan Review. For example, the Province has recently evaluated the East Humber Wetland Complex but this mapping has not been released.

Core Features include *valley and stream corridors*; *woodlands*; *wetlands*; fish and wildlife habitat; significant habitat of endangered and threatened species; and Environmentally Significant Areas and Areas of Natural and Scientific Interest. Core Features also include key natural heritage features and key hydrological features within the Greenbelt and Oak Ridges Moraine Plan areas. These features are the core elements of the Natural Heritage Network to be protected and enhanced as identified on Schedule 2. Development and/or site alteration will not be permitted in such areas, and significant alteration or expansion of any existing development in such areas will not be permitted.

Enhancement Area opportunities have been identified consistent with the Region of York Official Plan policies to identify potential Enhancement Area and linkages that complement the Regional Greenlands System. In consultation with the Toronto and Region Conservation Authority, the potential Enhancement Area reflect the best opportunities on remaining undeveloped land to provide additional habitat and/or ecological connectivity of the Natural Heritage Network through restoration or renaturalization of specific natural features. Enhancement Area have been identified conceptually on Schedule 2. The request for and precise limits of Enhancement Area to add to the Natural Heritage Network will be determined through appropriate studies to be initiated by the City or prepared as part of the development approvals process.

Built-up Valley Lands recognize existing and occupied developed lands located below the physical top of bank. Such lands are found in and around Woodbridge and Kleinburg in the Humber Valley and contribute to the overall Natural Heritage Network. Minor modifications or additions within these areas may be permitted with restrictions.

Oak Ridges Moraine and Greenbelt include those areas of the Oak Ridges Moraine Conservation Plan and Greenbelt Plan areas that are located within Vaughan. These lands provide important groundwater recharge and open space functions, including providing habitat to species that require open areas to complete their life cycles, such as Eastern Meadowlark, or rare vegetation communities. These areas are identified on Schedule 2 as an overlay. Where lands within these areas are also identified as Core Features, they will be subject to those policies of the Plan. Otherwise, specific policies have been developed for these areas that are in conformity with the Provincial Plans and York Region policies.

It is the policy of Council:

- 3.2.3.1 To protect and enhance the Natural Heritage Network, as identified on Schedule 2, by:
- a. restricting development or site alteration within the Natural Heritage Network in accordance with the policies of this Plan;
 - b. seeking opportunities to expand and better link the Natural Heritage Network;
 - c. seeking the dedication of Core Features and their associated minimum vegetation protection zones through the development approval process to an appropriate public agency at no public expense; and,
 - d. securing new natural and open space linkages for improved connectivity of the Natural Heritage Network through the development approvals process, conservation easements, donations or purchases.
- 3.2.3.2 That the policy text prevails over the mapping shown on Schedule 2 in determining the Natural Heritage Network. Identification of elements comprising the Natural Heritage Network is an ongoing process and as such the Natural Heritage Network identified on Schedule 2 is based on the best information available. Schedule 2 may not identify all the natural heritage features in Vaughan. The precise limits of mapped natural heritage features, and any additions to the mapped network, will be determined through appropriate study undertaken in consultation with the Toronto and Region Conservation Authority and the Province. This may occur on a site-by-site basis through the development process or through studies carried out by the City, Region, Toronto and Region Conservation Authority or other government agencies.
- 3.2.3.3 That any development lawfully existing within the Natural Heritage Network on the date this Plan is approved is permitted to remain, as recognized in Policy 10.2.1.3. Minor alterations or additions to such existing development are permitted subject to the policies of this Plan and which may include consultation with the Toronto and Region Conservation Authority, York Region, or Province as required.

Core Features

- 3.2.3.4 That Core Features, as identified on Schedule 2, provide critical ecosystem functions, and consist of the following natural heritage components and their minimum vegetation protection zones:
- a. *valley and stream corridors*, including provincially significant valleylands and permanent and intermittent streams, with a minimum 10 metre vegetation protection zone, or a 30 metre vegetation protection zone for those *valley and stream corridors* within the Oak Ridges Moraine and Greenbelt Plan Areas;
 - b. *wetlands*, including those identified as provincially significant, with a minimum 30 metre vegetation protection zone;
 - c. *woodlands* including those identified as significant, with a minimum 10 metre vegetation protection zone or a 30 metre vegetation protection zone for those *woodlands* within the Oak Ridges Moraine and Greenbelt Plan Areas, and in accordance with the policies of Section 3.3.3;
 - d. *significant wildlife habitat* and significant *habitat of endangered and threatened species*, including significant habitat of special concern species in the Natural Heritage System of the Greenbelt Plan and significant habitat of rare species in the Oak Ridges Moraine Conservation Plan area, and the minimum vegetation protection zone as determined by an Environmental Impact Study and/or a natural heritage evaluation, such as carried out under section 23 of the Oak Ridges Moraine Conservation Plan;
 - e. fish habitat including a minimum vegetation protection zone of 15 metres or 30 metres depending on the thermal regime of the watercourse, or a minimum 30 metre vegetation protection zone in the Oak Ridges Moraine and Greenbelt Plan Areas;
 - f. Environmentally Significant Areas and Areas of Natural and Scientific Interest;.
 - g. kettle lakes not already captured in valley and stream corridors, and a 30 metre minimum vegetation protection zone for those kettle lakes in the Oak Ridges Moraine; and,
 - h. seepage areas and springs not already captured in valley and stream corridors and a 30 metre minimum vegetation protection zone for those seepage areas and springs in the Oak Ridges Moraine and Greenbelt Plan Areas.

- 3.2.3.5 That specific requirements related to the protection and enhancement of the various elements of Core Features are included in Section 3.3 of this Plan.
- 3.2.3.6 That Core Features, as identified on Schedule 2, represent key natural heritage features and hydrologically sensitive features in the Oak Ridges Moraine Conservation Plan area, key hydrologic features in the Protected Countryside of the Greenbelt Plan, and key natural heritage features within the Natural Heritage System of the Greenbelt Plan, as defined by those Provincial Plans.
- 3.2.3.7 That *development and/or site alteration* in Core Features are prohibited except for the following:
- natural area management, such as for forest, fish and wildlife management, for the purposes of maintaining and enhancing the functions associated with Core Features;
 - conservation and flood or erosion control projects, where such projects are necessary and deemed in the public interest after all alternatives have been considered, and where such projects will not result in a negative impact on the Core Features and will not have a negative impact on the ecosystem function;
 - transportation, infrastructure and utilities, where such projects are necessary and deemed in the public interest after all alternatives have been considered, and where such projects will minimize negative impacts on the Core Features and measures shall be identified to maintain habitat area and enhance overall ecosystem function; and,
 - low-intensity and passive recreational activities where such activities will not result in a negative impact on the Core Features and will not have a negative impact on the ecosystem function.
- 3.2.3.8 That development or site alteration on lands *adjacent* to Core Features shall not be permitted unless it is demonstrated through an environmental impact study that the development or site alteration will not result in a negative impact on the feature or its functions.
- 3.2.3.9 That unauthorized removal or alteration of natural features or functions within areas identified as Core Features is prohibited, and will result in the features and functions being restored to their previous state at no expense to the City of Vaughan and other public agencies. In the case of a development application, the application will not proceed until restoration works have been undertaken to the satisfaction of the City and TRCA and/or York Region, as needed.
- 3.2.3.10 That Core Features and their related vegetation protection zone will be conveyed to the City and/or Toronto and Region Conservation Authority as a condition of development approval. To enable comprehensive management, such features shall not be fragmented but shall be brought into public ownership to ensure their continued protection and management.
- 3.2.3.11 That minor modifications to the boundaries and alignment of Core Features, as identified on Schedule 2, may be considered if environmental studies, submitted as part of the development process to the satisfaction of the City and in consultation with the Toronto and Region Conservation Authority, provide appropriate rationale for such minor modifications and include measures to maintain overall habitat area and enhance ecosystem function. Minor modifications to Core Features from such site-specific studies and/or in accordance with requirements in the Oak Ridges Moraine Conservation Plan, Greenbelt Plan and updated information from the Province, and deemed acceptable by the City in consultation with the Toronto and Region Conservation Authority do not require amendment to this Plan.
- 3.2.3.12 Specific feature policies of the Core Features shown on Schedule 2 are provided in Section 3.3.
- 3.2.3.13 Where regulations or standards of other agencies or levels of government exceed the standards related to Core Features in this Plan, such as may occur with *hazardous lands* under section 28 of the Conservation Authorities Act or with fisheries under the Federal Fisheries Act, the most restrictive provision or standard applies.

Enhancement Areas

- 3.2.3.14 That Enhancement Areas are identified conceptually on Schedule 2 and are important components of the Natural Heritage Network because they have the potential to:

- a. enhance form and function of watercourses;
- b. maintain and/or enhance water flow;
- c. improve wildlife habitat value;
- d. improve species movement and/or dispersal;
- e. provide restoration options;
- f. improve overall connectivity value; and,
- g. improve the likelihood of maintaining self-sustaining vegetation.

3.2.3.15 That Enhancement Areas shown on Schedule 2 are approximate and, as part of the development process, environmental studies will be conducted to determine the final location and boundary of the Enhancement Area.

3.2.3.16 That Enhancement Areas as determined by Policy 3.2.3.15 above will be incorporated into the Natural Heritage Network as Core Features or suitable open space designations. Such changes do not require amendment to this Plan.

Built-up Valley Lands

3.2.3.17 That Built-up Valley Lands, as identified on Schedule 2, recognize existing developed lands located below the physical top of bank and within the area regulated in accordance with the Conservation Authorities Act. As per Policy 3.2.3.3 and Policy 10.2.1.3, minor alterations or additions to such lawfully existing developments may be permitted subject to the policies of this Plan and which may include consultation with the Toronto and Region Conservation Authority, York Region, or Province as required.

3.2.3.18 That new development and/or site alterations on Built-up Valley Lands are prohibited, except in accordance with an approved Secondary Plan, within and in accordance with an approved Special Policy Area, and/or an approved permit under the Conservation Authorities Act. Permits may be issued within a regulated area provided it is demonstrated that development and/or site alteration will not: create unacceptable risk to public health or safety or of property damage; or affect the control of flooding, erosion, pollution or the conservation of land. The proposed development and/or site alteration must minimize impacts on natural heritage features and identify enhancement and/or restoration opportunities.

Oak Ridges Moraine and Greenbelt Lands

3.2.3.19 That the **Oak Ridges Moraine Lands**, as identified on Schedule 2, form part of the Natural Heritage Network and are regulated by the Oak Ridges Moraine Conservation Plan Act. These lands are further defined on Schedule 4 and are subject to the policies of Section 3.3.7 and relevant sections of Chapter 9 of this Plan. Oak Ridges Moraine lands, particularly in Natural Core Areas and Natural Linkage Areas, are also a focus for enhancement opportunities and securement initiatives to further support Vaughan's Natural Heritage Network.

3.2.3.20 That the **Greenbelt Lands**, as identified on Schedule 2, form part of the Natural Heritage Network and are regulated by the Greenbelt Act. These lands are further defined on Schedule 4 and are subject to the policies of Section 3.3.8 and Section 3.5 of this Plan. Lands in the Natural Heritage System of the Protected Countryside are a focus for enhancement and securement initiatives to further support Vaughan's Natural Heritage Network.

3.3 Features of the Natural Heritage Network

3.3.1 Valley and Stream Corridors

Vaughan contains a number of significant valley systems. The largest are formed by the Humber and East Humber Rivers in the western portions of the City, and the Don River in the eastern portion of the City. Stream corridors are the vital link between the headwaters, the mid-reaches, and the lower reaches of watercourses.

Valley and stream corridors are valued landscape features that provide topographic and habitat diversity, act as corridors and linkages, and contain rich *archaeological resources*. Maintaining the integrity of these streams will foster the maintenance of the ecological health of the valley and surrounding land-based features. Vaughan will work with the Toronto and Region Conservation Authority to protect *valley and stream corridors* as critical elements of the Natural Heritage Network. Development will be restricted within *valley and stream corridors* and the natural features and functions within these systems will be protected and enhanced.

It is the policy of Council:

- 3.3.1.1 To protect and enhance *valley and stream corridors* by:
 - a. prohibiting development or site alteration in *valley and stream corridors* and their required vegetation protection zones except as permitted per the provisions of policy 3.2.3.7.c;
 - b. prohibiting uncontrolled storm sewer discharges into *valley and stream corridors* within Vaughan; and,
 - c. requiring that the minimum vegetation protection zone adjoining a *valley and stream corridor* be excluded from any proposed development block and shall be restored and revegetated with native species and maintained as part of the Natural Heritage Network.
- 3.3.1.2 That valley and stream corridors are defined according to the Valley and Stream Corridor Management Program, prepared by TRCA, and as may be amended from time to time.
- 3.3.1.3 That an application for *development* or *site alteration* on lands *adjacent* to *valley and stream corridors* will not be considered by Council unless the precise limits of *valley and stream corridors* have been established to the satisfaction of the City and the Toronto and Region Conservation Authority.
- 3.3.1.4 That those public works considered to be generally compatible for location in the valleys are those associated with flood control, erosion control, reconstruction, repair or maintenance of existing drains approved under the Drainage Act. Public works which because of their linear nature, such as roadways, must cross the valleys at some point are permitted following completion of necessary environmental assessments. Where such structures are necessary, they must be properly sited, designed and constructed with state-of-the-art erosion and sediment control measures to minimize environmental impacts and measures shall be identified to maintain habitat area and enhance overall ecosystem function.
- 3.3.1.5 To recognize that proposals for modifications to watercourses may occur at the time of proposed development or site alteration. Such proposals may only be considered provided that all other policies of this Plan are satisfied and that such modification is associated with a permitted development. Where such alterations are proposed, the proponent must satisfy the requirements of the Toronto and Region Conservation Authority, address the considerations outlined in the Environmental Management Guideline, and demonstrate improvement of the *ecological function* of the watercourse.
- 3.3.1.6 To support the ongoing efforts of the Ministry of Natural Resources and the Toronto and Region Conservation Authority to protect *valley and stream corridors*, and to work cooperatively with these agencies to successfully achieve the goals of this Plan. River valleys that run through existing or approved urban areas and connect the Greenbelt to the Great Lakes are generally depicted on Schedules 1 and 4 of the Greenbelt Plan, but are not within the regulated boundary of the Greenbelt Plan. These urban river valleys are identified as external connections in the Greenbelt Plan. Land conversions or redevelopments in or abutting such urban river valleys, particularly in those areas

identified as Built-up Valley Lands on Schedule 2 of this Plan, shall strive for planning approaches that:

- a) establish or increase the extent or width of vegetation protection zones in *natural self-sustaining vegetation*, especially in the most ecologically sensitive areas (i.e. near the stream and below the stable top of bank);
- b) increase or improve fish habitat in streams and in the adjacent riparian lands;
- c) include landscaping and habitat restoration that increase the ability of native plants and animals to use valley systems as both wildlife habitat and movement corridors; and
- d) seek to avoid, minimize and/or mitigate impacts associated with the quality and quantity of urban run-off into the valley systems.

3.3.2 Wetlands

Wetlands play critical hydrological and habitat roles. Many of Vaughan's *wetlands* are in the headwaters of the Humber and Don Rivers, feeding the small tributaries that in turn feed these large river systems. They also occur along the floodplains of watercourses and in "kettles" once occupied by trapped blocks of glacial ice. *Wetlands* are a vital link in the maintenance of surface and ground water interactions improving water quality, regulating water temperature and providing natural flood control by absorbing peak storm flows. They also provide important habitat for a wide range of plant, fish and other wildlife that require aquatic and semi-aquatic conditions. All *wetlands* and appropriate buffers will be protected from development and site alteration.

It is the policy of Council:

- 3.3.2.1 To protect and enhance *wetlands* by:
 - a. prohibiting *development* or *site alteration* on *wetlands* and their minimum vegetation protection zones;
 - b. encouraging the rehabilitation of privately-owned *wetlands* in order to provide for their continued environmental function;
 - c. encouraging environmental farm programs that would direct livestock grazing areas away from *wetlands* and seek alternative water sources for livestock; and,
 - d. encouraging the creation of *wetlands*, where appropriate, to contribute to increased natural heritage functions in the landscape.
- 3.3.2.2 That all known *wetlands* evaluated as provincially significant and their minimum vegetation protection zone of 30 metres are included as Core Features. Prior to *development* or *site alteration* approval, non-evaluated *wetlands* that may be impacted shall be assessed for their significance, in accordance with criteria provided by the Province, and to determine their importance, functions and means of protection to the satisfaction of the City.
- 3.3.2.3 That an application for *development* or *site alteration* on lands *adjacent* to *wetlands* must demonstrate that:
 - a. there will be no loss of *wetland* features and functions, including the hydroperiod of the *wetland* (timing, volume, and duration of water);
 - b. there will be no loss of contiguous *wetland* area;
 - c. subsequent demand for development will not cause increased pressure on the *wetland* in the future; and,
 - d. the minimum vegetation protection zone between the *wetland* and the proposed development is sufficient to address items (a) through (c) above.

3.3.3 Woodlands

Woodlands are comprised of natural areas of vegetation in the landscape and their associated wildlife populations. Those *woodlands* on table lands are smaller and disconnected, but provide important ecological functions that will be preserved. The variety of available woodland resources influences the range of native biodiversity in Vaughan.

Vaughan will support the maintenance of important environmental functions, attributes and linkages of woodland resources, recognizing that this will lead to more stable, resilient systems of vegetation and wildlife.

It is the policy of Council:

- 3.3.3.1 To protect and enhance *woodlands*, by:
- a. prohibiting *development* or *site alteration* in *woodlands* and their minimum vegetation protection zones;
 - b. encouraging that minimum vegetation protection zones be restored using a diversity of native tree species that are sensitive to the realities of the impact of invasive species and invasive destructive pests in new development;
 - c. seeking public ownership of *woodlands* and their ecological buffers through the development process; and,
 - d. using sound woodland management practices that will maintain or enhance existing functions, attributes and linkages, including entering into heritage conservation and other easement agreements, where woodland resources remain in private ownership.
- 3.3.3.2 That an application for *development* or *site alteration* on lands *adjacent* to *woodlands* will not be considered by Council unless:
- a. the precise limits of any woodland within the area of the application have been established to the satisfaction of the City; and,
 - b. an evaluation is carried out to determine that the required minimum vegetation protection zone between the woodland and the proposed development is sufficient to maintain or enhance existing functions, attributes and linkages of the woodland.
- 3.3.3.3 That notwithstanding policy 3.3.3.1 and policy 3.3.3.2, and outside of the Oak Ridges Moraine Conservation Plan and Greenbelt Plan areas, *development* or *site alteration* may be permitted in a woodland if:
- a. the woodland is not a significant woodland as defined in the Region of York Official Plan, as articulated in Policy 2.2.40 and 2.2.45, or in the Provincial Policy Statement;
 - b. the woodland does not contain other natural features for which it has been defined as a Core Feature;
 - c. the *woodland* is a cultural community; (A cultural community unit [code of CU] in accordance with the Ministry of Natural Resource Field Guide for Ecological Land Classification for Southern Ontario. These vegetation communities originate from, or are maintained by, anthropogenic influences and culturally based disturbances and often contain a large proportion of non-native species.)
 - d. the *woodland* is not connected to other parts of the Natural Heritage Network and is more than 120 metres away from other parts of the Natural Heritage Network; and,
 - e. woodland compensation is identified to the satisfaction of the City in consultation with other appropriate agencies, such as the Toronto and Region Conservation Authority and Region of York, that provides ecological gains to the Natural Heritage Network on or adjacent to the site, adjacent to the Natural Heritage Network, or in areas within the Regional Greenlands System.
- 3.3.3.4 To consider the preparation of an urban forest inventory with the objective of creating a forest management plan for Vaughan to include the urban forest (which is a forest resource that occurs within the *urban area*, both in and out of the Natural Heritage Network) and support the active management and long term health of the forest for its intrinsic biodiversity and ecosystem function.
- 3.3.3.5 That *woodlands* in the Oak Ridges Moraine Conservation Plan area and the Greenbelt Natural Heritage System will be evaluated for significance based on the requirements of the Oak Ridges Moraine Conservation Plan or the Greenbelt Plan and associated technical papers.

3.3.4 Species at Risk and Significant Wildlife Habitat

The lands that comprise the Natural Heritage Network provide habitat for a wide variety of plant and animal species. Certain of these species are considered Species at Risk as determined by the Federal Species at Risk Act or Provincial Endangered Species Act. Areas where these species are found, or areas with certain characteristics known to provide habitat for such species, will be protected to maintain the health of the species.

It is the policy of Council:

- 3.3.4.1 To protect and enhance the habitat of species at risk including endangered, threatened and special concern species by:
- a. prohibiting *development* or *site alteration* within the significant *habitat of endangered and threatened species*, as identified on the Species at Risk in Ontario List;
 - b. ensuring appropriate buffers from this habitat are provided as identified in provincial guidelines;
 - c. encouraging stewardship measures to protect the habitat of species at risk; and,
 - d. working with landowners, developers, York Region, the Toronto and Region Conservation Authority and other government agencies to develop management plans or recovery strategies for species at risk in Vaughan.
- 3.3.4.2 To protect and enhance *significant wildlife habitat* by:
- a. identifying *significant wildlife habitat* in accordance with criteria provided by the Province through the appropriate study such as a watershed plan, environmental impact study, or natural heritage or hydrological evaluations, prior to undertaking any development or site alteration;
 - b. working with the Toronto and Region Conservation Authority and other government agencies to identify *significant wildlife habitats* where there are concentrations of biodiversity; and,
 - c. prohibiting *development* or *site alteration* within *significant wildlife habitat* in accordance with the Provincial Policy Statement.
- 3.3.4.3 That *development* or *site alteration* are not permitted on *adjacent* lands to significant *habitat of endangered and threatened species* or *significant wildlife habitat* unless it is demonstrated that there will be no negative impacts on the feature or its *ecological function*.

3.3.5 Fisheries and Aquatic Habitat

Watercourses in Vaughan support a range of fish species and a wide variety of aquatic life. Fishery resources and aquatic habitat are important indicators of overall environmental health and as such they are recognized for protection in the Provincial Policy Statement. Vaughan will work to protect and enhance fish habitat by limiting further impacts from urban development and agricultural activities. Where degradation has occurred due to land use activities, Vaughan will support the remediation of streams and renewal of aquatic habitats.

It is the policy of Council:

- 3.3.5.1 To protect aquatic biodiversity by:
- a. prohibiting development and site alteration in areas identified as fish habitat except in accordance with provincial and federal requirements;
 - b. preserving or remediating natural variation in stream flows to maintain healthy aquatic systems ensuring any permitted development maintains pre-development water balance and groundwater direction;
 - c. encouraging consistency with the framework for fisheries management outlined in the Humber River Fisheries Management Plan (2005) and Don River Fisheries Management Plan, particularly with respect to rehabilitation activities;
 - d. encouraging the protection and improvement of in-stream habitat for target species identified for each fisheries management zone in the Humber River Fisheries Management Plan and Don River Fisheries Management Plan; and,
 - e. requiring any development proposal on lands *adjacent* to existing fish habitat to consider the best management practices for new development as documented in the Humber River Watershed Based Fisheries Management Plan and the Don River Watershed Based Fisheries Management Plan.
- 3.3.5.2 That any development application will be reviewed by the City and appropriate agencies with respect to its potential impact on fish habitat to determine if it will result in a reduction of the ecological functions, attributes, or linkages of the stream which could impair aquatic health. Where adverse impacts are confirmed, authorizations will be consistent with the Fish Habitat Referral Protocol for Ontario (2009).

- 3.3.5.3 That development and associated servicing infrastructure that has an impact on streams identified as habitat for species at risk will provide for the protection and enhancement of aquatic habitat that supports these species. Development will be required to adhere to recommendations in the endangered species recovery plan.
- 3.3.5.4 That, where permitted by the City and Toronto and Region Conservation Authority, stream restoration or alteration will be undertaken using natural channel design principles where alterations to stream channels may be required and/or where channel instability is indicated.
- 3.3.5.5 That *development* or *site alteration* are not permitted on *adjacent* lands to fish habitat unless it is demonstrated that there will be no negative impacts on the feature or its *ecological function*.

3.3.6 Environmentally Significant Areas and Areas of Natural and Scientific Interest

Environmentally Significant Areas (ESAs) are natural areas that have special geological or landform characteristics, hydrological or hydrogeological functions; or which support rare, threatened or endangered species; or provide high quality wildlife habitat or important habitat for a concentration of species such as migratory stop-over areas; or provide a significant linkage function. Life Science and Earth Science Areas of Natural and Scientific Interest (ANSIs) are landscapes that have provincially or regionally significant ecological and geological features, respectively. ESAs are identified by TRCA and ANSIs are identified by the Province. Vaughan will protect all ESAs and ANSIs from development to preserve their unique landscape, species and habitat features.

It is the policy of Council:

- 3.3.6.1 To protect and enhance Environmentally Significant Areas (ESAs) and both Earth and Life Science Areas of Natural and Scientific Interest (ANSIs), as identified on Schedule 3, by prohibiting *development* or *site alteration* in ESAs and ANSIs.
- 3.3.6.2 That an application for development or site alteration on lands *adjacent* to ESAs and or ANSIs must:
- identify planning, design and construction practices that will provide for the protection of the ecological attributes for which the ESA or ANSI was identified;
 - determine the appropriate minimum vegetation protection zone and specify the dimensions of that zone and provide for the maintenance and, where possible, improvement or restoration of the natural vegetation within it; and,
 - assess the potential impact of the development on the *ecological functions* and attributes of the ESA and ANSI and provide a detailed mitigation strategy.

3.3.7 The Oak Ridges Moraine

The Oak Ridges Moraine is a landform that crosses a portion of the Greater Golden Horseshoe. The area of the Moraine known as the Maple Spur is located in north eastern Vaughan. It is notable for its unique geological characteristics, its important groundwater recharge and discharge functions, the coldwater streams that originate within it, its high quality and extensive natural areas, and its landform characteristics. In Vaughan, the Moraine provides a number of significant vistas and panoramic views to the south. The Moraine includes the Maple Upland and Kettle Wetlands Regionally Significant Life Science ANSI and Oak Ridges Moraine Maple Spur Earth Science ANSI as well as the McGill ESA.

The Oak Ridges Moraine Conservation Plan was developed by the Province to protect this landform. Vaughan will support the objectives of the Oak Ridges Moraine Conservation Plan to protect natural heritage and hydrological features and functions.

It is the policy of Council:

- 3.3.7.1 To recognize the Oak Ridges Moraine as a Provincially significant natural feature that requires special regard and protection.

- 3.3.7.2 That the Provincial Oak Ridges Moraine Conservation Plan Area applicable to the City of Vaughan is identified on Schedule 4.
- 3.3.7.3 To assist in the implementation of the Oak Ridges Moraine Conservation Plan by working with the Province in the implementation of tree cutting and site alteration by-laws required by the Oak Ridges Moraine Conservation Act and any subsequent regulations.

Key Natural Heritage Features and Hydrologically Sensitive Features in the Oak Ridges Moraine

- 3.3.7.4 That the key natural heritage features and hydrologically sensitive features and their minimum vegetation protection zones, identified in the Oak Ridges Moraine Conservation Plan, are Core Features of the Natural Heritage Network and are subject to the policies of this Plan applicable to Core Features. Key Natural Heritage Features in the Oak Ridges Moraine Conservation Plan area include *wetlands*, significant portions of habitat of endangered, rare and threatened species, fish habitat, areas of natural and scientific interest (life science), significant valleylands, significant *woodlands*, *significant wildlife habitat*, sandbarrens, savannahs and tallgrass prairies. Hydrologically sensitive features in the Oak Ridges Moraine Conservation Plan area include permanent and intermittent streams, *wetlands* and kettle lakes and seepage areas and springs.
- 3.3.7.5 That notwithstanding policy 3.4.1.15, on lands designated Oak Ridges Moraine Settlement Area on April 22, 2002, a minimum vegetation protection zone less than that specified in Policy 3.2.3.4 may be permitted where it is adopted on the basis of environmental studies or infrastructure planning, environmental assessments, infrastructure servicing studies or through Master Environment and Servicing Plans in accordance with Section 3.2.4 of this Plan.
- 3.3.7.6 That no amendment to this Plan is required where minor changes to the boundary of the key natural heritage features or hydrologically sensitive features are based on studies carried out in accordance with this Plan or the Oak Ridges Moraine Conservation Plan technical papers, or updated information from the Toronto and Region Conservation Authority, Province of Ontario, Department of Fisheries and Oceans or their delegate is provided to the satisfaction of the City of Vaughan.
- 3.3.7.7 That any change to Schedule 2 which affects the boundary of a *wetland* or an area of natural and scientific interest (life science) or confirmation of the boundaries of a feature not included on Schedule 2 including habitat of endangered, rare and threatened species or fish habitat, will only be made after consultation with the District office of the Ministry of Natural Resources and in the case of fish habitat, with the Toronto and Region Conservation Authority as the delegate for the Department of Fisheries and Oceans.
- 3.3.7.8 That the presence or absence of significant portions of habitat of endangered, rare and threatened species, fish habitat, significant valleylands, *significant wildlife habitat*, and seepage areas and springs on the lands subject to a *development* or *site alteration* application and within 120 metres of the application, shall be confirmed through environmental studies using criteria established by the Province of Ontario, to the satisfaction of the City of Vaughan in consultation with the Toronto and Region and Conservation Authority, the Region of York and Provincial Ministries.
- 3.3.7.9 Key natural heritage features and hydrologically sensitive features identified on the Oak Ridges Moraine but not shown on Schedules to this Plan, are subject to the provisions in Sections 3.2 and 3.3 of this Plan respecting key natural heritage features and hydrologically sensitive features. Fish habitat on the Oak Ridges Moraine are to include but are not limited to all hydrologically sensitive features with surface water characteristics.
- 3.3.7.10 That no *development* or *site alteration* is permitted within key natural heritage features or hydrologically sensitive features or their related minimum vegetation protection zones except for those activities identified in policy 3.2.3.7.

- 3.3.7.11 That applications for *development* or *site alteration* with respect to land within 120 metres of a key natural heritage feature or hydrologically sensitive feature, shall be accompanied by a natural heritage and/or hydrologic evaluation.
- 3.3.7.12 That the evaluation referenced in policy 3.3.7.11 shall:
- a. demonstrate that the *development* or *site alteration* applied for will have no adverse effects on the key natural heritage feature or hydrologically sensitive feature or on the related *ecological functions*;
 - b. identify planning, design and construction practices that will restore the health, diversity and size of the key natural heritage feature or hydrologically sensitive feature and its connectivity with other key natural heritage and hydrologically sensitive features;
 - c. in the case of an application relating to land in a Natural Core Area, Natural Linkage Area or Countryside Area, demonstrate how connectivity within and between key natural heritage features or hydrologically sensitive features will be maintained and, where possible, improved or restored before, during and after construction;
 - d. determine whether the specified minimum vegetation protection zone is sufficient, and if it is not sufficient, specify the dimensions of the required minimum vegetation protection zone and provide for the maintenance and, where possible, improvement or restoration of *natural self-sustaining vegetation* within it;
 - e. if no minimum vegetation protection zone is specified, determine whether one is required, and if one is required, specify the dimensions of the required minimum vegetation protection zone and provide for the maintenance and, where possible, improvement or restoration of *natural self-sustaining vegetation* within it;
 - f. in the case of a key natural heritage feature that is also fish habitat, ensure compliance with the requirements of the Department of Fisheries and Oceans;
 - g. in the case of Areas of Natural and Scientific Interest (Life Science), the basis on which the determination and specification in policy 3.3.7.12.e. is undertaken shall include, without limitation, an analysis of land use, soil type, slope class and vegetation type, using criteria established by the Government of Ontario, as amended from time to time; and
 - h. in the case of permanent and intermittent streams and seepage areas and springs, the basis on which the determination and specification mentioned in policy 3.3.7.12.g., is undertaken shall include, without limitation, an analysis of land use, soil type and slope class, using criteria established by the Government of Ontario, as amended from time to time.
- 3.3.7.13 That within the Oak Ridges Moraine Conservation Plan, no new *agricultural uses*, *agriculture-related uses*, or accessory uses shall be permitted within key natural heritage features and hydrologically sensitive features and their associated minimum *vegetation protection zone* if the lands were not being used for that use on November 15, 2001.
- 3.3.7.14 That the technical papers associated with the Oak Ridges Moraine Conservation Plan be consulted to provide clarification in implementing the policies related to key natural heritage features and hydrologically sensitive features. In the event of a conflict in the interpretation of the provincial technical papers and the policies of this Plan, the policy which is more protective of the feature will apply.

3.3.8 Key Natural Heritage Features and Key Hydrologic Features in the Greenbelt Plan

Natural Heritage System Policies in the Greenbelt Plan

- 3.3.8.1 That within the Greenbelt Natural Heritage System as identified on Schedule 4 **Agricultural** and existing **Rural Residential** uses are permitted as identified on Schedule 13 and subject to the applicable policies of Section 9.2.2 and subject to the policies of 3.3.8.2 through 3.3.8.11 below.
- 3.3.8.2 That new buildings or structures for agriculture, agricultural-related and secondary uses within lands identified as Greenbelt Natural Heritage System on Schedule 4 are not subject to policies 3.3.8.3 below, but are subject to the policies on key natural heritage features and key hydrologic features.

- 3.3.8.3 That new *development* or *site alteration* on lands identified as Greenbelt Natural Heritage System on Schedule 4 (as permitted by the policies of this Plan) shall demonstrate that:
- a. there will be no negative effects on key natural heritage features or key hydrologic features or their functions;
 - b. connectivity between key natural heritage features and key hydrologic features is maintained, or where possible, enhanced for the movement of native plants and animals across the landscape;
 - c. the removal of other natural features not identified as key natural heritage features and key hydrologic features shall be avoided. Such features shall be incorporated into the planning and design of the proposed use wherever possible; and
 - d. the disturbed area of any site does not exceed 25 percent, and the impervious surface does not exceed 10 percent, of the total developable area, except for major recreational uses described in policies 3.5.1.3 to 3.5.1.6 or non-renewable resources described in policies 3.5.1.22 to 3.5.1.29. With respect to golf courses, the disturbed area shall not exceed 40 percent of the site.
- 3.3.8.4 That where non-agricultural uses are contemplated on lands identified as Greenbelt Natural Heritage System, applicants shall demonstrate that:
- a. at least 30 percent of the total developable area of the site will remain or be returned to *natural self-sustaining vegetation*, recognizing that policies 3.5.1.22 through 3.5.1.29 establish specific standards for the non-renewable resource uses;
 - b. connectivity along the system and between key natural heritage features or key hydrologic features located within 240 metres of each other is maintained or enhanced; and
 - c. buildings or structures do not occupy more than 25 percent of the total developable area and are planned to optimize the compatibility of the project with the natural surroundings.

Key Natural Heritage Features and Key Hydrologic Features Policies

- 3.3.8.5 That key hydrologic features in the Protected Countryside of the Greenbelt plan and key natural heritage features within the Natural Heritage System of the Greenbelt Plan, including any associated vegetation protection zone, are Core Features of the Natural Heritage Network and are subject to the policies of this Plan applicable to Core Features. Key natural heritage features in the Greenbelt Plan area include significant habitat of endangered species, threatened species and special concern species, fish habitat, *wetlands*, Life Science Areas of Natural and Scientific Interest (Life Science ANSIs), significant valleylands, significant *woodlands*, *significant wildlife habitat*, sandbarrens, savannahs and tallgrass prairies. Key hydrologic features in the Greenbelt Plan area include permanent and intermittent streams, lakes, seepage areas and springs, and *wetlands*.
- 3.3.8.6 *Development* or *site alteration* is not permitted in key hydrologic features and key natural heritage features within the Natural Heritage System, including any associated vegetation protection zone, with the exception of:
- a) Forest, fish and wildlife management;
 - b) Conservation and flood or erosion control projects, but only if they have been demonstrated to be necessary in the public interest and after all alternatives have been considered; or
 - c) Infrastructure, aggregate, recreational, shoreline and *existing uses*, as described by and subject to the general policies of section 4 of the Greenbelt Plan and interpreted in Section 3.5 of this Plan.
- 3.3.8.7 That, in the case of *wetlands*, seepage areas and springs, fish habitat, permanent and intermittent streams, lakes, and significant *woodlands*, the minimum vegetation protection zone shall be a minimum of 30 metres wide measured from the outside boundary of the key natural heritage feature or key hydrologic feature.
- 3.3.8.8 That a proposal for new *development* or *site alteration* within 120 metres of a key natural heritage feature within the Natural Heritage System or a key hydrologic feature anywhere within the Protected Countryside of the Greenbelt Plan requires a natural heritage evaluation and hydrological evaluation, which identify a vegetation protection zone which:
- a) Is of sufficient width to protect the key natural heritage feature or key hydrologic feature and its functions from the impacts of the proposed change and associated activities that may occur

before, during, and after, construction, and where possible, restore or enhance the feature and/or its function; and

b) Is established to achieve, and be maintained as *natural self-sustaining vegetation*.

- 3.3.8.9 That expansions to existing agricultural buildings and structures and farm and non-farm dwellings, together with accessory uses, are permitted in key natural heritage features, subject to the *existing use* policies of section 4.5 of the Greenbelt Plan as interpreted in section 3.5 of this Plan.
- 3.3.8.10 That within the Greenbelt Plan Area, no new *agricultural uses, agriculture-related uses, or accessory uses* shall be permitted within key natural heritage features and key hydrologic features and their associated minimum vegetation protection zone if the lands were not being used for that use on February 28, 2005.
- 3.3.8.11 That notwithstanding the Core Features policies of section 3.2.3 of this Plan, new buildings and structures for agricultural uses will be required to provide a 30 metre *vegetation protection zone* from a key natural heritage feature or key hydrologic feature, but may be exempted from the requirement of establishing a condition of *natural self-sustaining vegetation* if the land is, and will continue to be, used for agricultural purposes. Despite this exemption, agricultural uses should pursue best management practices to protect and/or restore key hydrologic features and functions.

3.3.9 Significant Landforms

The City of Vaughan has a variety of significant landform features that provide interesting character to the landscape and offer many scenic views and vistas. The most important of these are the Oak Ridges Moraine and Humber and Don River Valleys. The Oak Ridges Moraine is characterized by rolling terrain with sandy and gravelly soils that perform an important groundwater recharge function. The many rivers and streams flowing south from the Moraine, including the Humber and Don systems, depend on groundwater discharge to sustain their baseflow. Their broad valleys also provide topographic relief in the City, which is otherwise largely dominated by the broad Halton Till Plain.

Mass grading and other extensive land alteration activities are a significant threat to Vaughan's distinctive landscape features. Vaughan will implement landform conservation measures ~~are in place~~ for development and infrastructure projects to protect significant landforms.

It is the policy of Council:

- 3.3.9.1 That landform conservation planning will be undertaken to the satisfaction of the City in consultation with the Region of York and Toronto and Region Conservation Authority. Landform conservation planning will demonstrate that the landform character of the site will be maintained.
- 3.3.9.2 That landform conservation measures will be addressed in planning, design and construction, including:
- demonstrating approaches to land use planning, siting and design which will be compatible with existing landform character and the existing settlement landscape;
 - the specific planning, site design, grading, construction, and restoration of landform character of the site will be addressed to the satisfaction of the City and other appropriate agencies; and
 - site design and construction practices will minimize mass grading and the disturbance of steep slopes.
- 3.3.9.3 To preserve significant landform features and landscape character by:
- allowing increased flexibility in design standards for subdivision layout and building setback requirements;
 - ensuring appropriate implementation of the built form and urban design policies of this Plan; and
 - considering modifying engineering and design standards in order to achieve the objective of landform conservation.
- 3.3.9.4 To prohibit *site alteration* prior to the approval of development applications.

3.4 Protecting Water Resources

While the Natural Heritage Network described in Section 3.2 protects the lands that encompass Vaughan's rivers, streams and *wetlands*, urban development activities beyond the Natural Heritage Network have impacts on the surface and ground water that eventually drains into the major tributaries of the Humber and Don River systems, ultimately ending up in Lake Ontario. Vaughan will promote water quality and maintain natural stream flows, to the extent possible. Vaughan will also work with neighbouring municipalities and partners such as the Toronto Region and Conservation Authority to monitor and enhance water quality and natural stream flows throughout the Humber and Don watersheds.

It is the policy of Council:

3.4.1 Watershed Planning

- 3.4.1.1 That the goals and objectives of watershed plans shall be supported through the implementation of this Plan.
- 3.4.1.2 That the quality and quantity of groundwater and surface water and the function of sensitive groundwater recharge/discharge areas, aquifers and headwaters will be protected and enhanced, especially for those stream reaches that are heavily reliant on local sources of groundwater discharge.
- 3.4.1.3 To work with York Region in the preparation of source water protection plans to protect the quality and quantity of Regional water supply from incompatible uses and sources of contamination.

3.4.2 Protecting Groundwater

- 3.4.2.1 To direct compatible land uses with low imperviousness, including natural areas, parks and open spaces, to potentially significant recharge areas through the development processes. These areas will be determined in consultation with the Toronto and Region Conservation Authority and the City during the development process.
- 3.4.2.2 That low-impact development techniques, as described in the Toronto and Region Conservation Authority's Low Impact Development Stormwater Management Planning and Design Guide (2010), will be established, where appropriate, for all new Block Plans, or Site Plans for large development sites, in order to protect groundwater resources and aquatic habitat, and overall groundwater flow patterns. The Master Environment and Servicing Plans shall reflect these best practices.
- 3.4.2.3 That, where development occurs in significant recharge areas, the Master Environment and Servicing Plan will include a hydrogeological study to define the local predevelopment water balance, establish site-specific water balance criteria that maintain *ecological functions* and demonstrate how the appropriate proportion of infiltration and evaporation/reuse measures for stormwater management will achieve the water balance objectives established through the Master Environment and Servicing Plan study.
- 3.4.2.4 That significant groundwater infiltration functions be maintained at the predevelopment levels or enhanced where practical, particularly in those areas identified as hydrogeologically sensitive areas. In such areas, source and conveyance controls as may be appropriate, may be required by the City to maintain or enhance predevelopment groundwater infiltration levels.
- 3.4.2.5 That transportation and infrastructure projects should minimize interference with recharge areas and should be located in the least sensitive locations for infrastructure.
- 3.4.2.6 That development located in areas of groundwater discharge, including many valley corridors, shall maintain significant discharge functions. Buildings and structures that require substantial below-ground excavation will not be permitted in areas where there is a high potential for groundwater interference and dewatering. The City, in consultation with the Toronto and Region Conservation

Authority, may approve a mitigation plan where it can be demonstrated that interference and dewatering can be mitigated.

3.4.3 Hazardous Lands and Sites

Development in certain areas of the City poses risks to human health and safety and private property because of proximity to flood vulnerable areas, or areas with unstable slopes or erosion issues. Accordingly, the Provincial Policy Statement requires that development be directed away from these areas. Permission for development or site alteration in these areas is regulated by the Toronto and Region Conservation Authority.

It is the policy of Council:

- 3.4.3.1 To protect the safety of the public by directing development to locations outside of *hazardous lands* and *hazardous sites*.
- 3.4.3.2 To take a comprehensive approach to natural hazard management for all development and site alteration proposals considering factors including but not limited to:
 - a. risk to life and property;
 - b. upstream and downstream impacts and the cumulative impacts of development on the overall hazard level;
 - c. climate change effects on the overall hazard level; and,
 - d. impacts to natural features and areas including their ecological and hydrologic functions.
- 3.4.3.3 To prohibit new lot creation in *hazardous lands* and *hazardous sites* except in accordance with an approved Special Policy Area.
- 3.4.3.4 To seek public ownership of hazardous lands and hazardous sites through the development process.
- 3.4.3.5 To require any proponent for development in proximity to hazardous lands or hazardous sites to determine the limit and extent of such hazardous lands and hazardous sites to the satisfaction of the City and the Toronto and Region Conservation Authority, through appropriate study in a manner consistent with Provincial standards.
- 3.4.3.6 To promote and encourage mitigation and remediation works for existing development within hazardous lands and hazardous sites.
- 3.4.3.7 That, in accordance with the Provincial Policy Statement, the following uses shall not be permitted to locate in hazardous lands and hazardous sites:
 - a. hospitals, nursing homes, pre-schools, school nurseries, *day cares* and schools, where there is a threat to the safe evacuation of the sick, the elderly, persons with disabilities or the young during an emergency as a result of flooding, failure of floodproofing measures or protection works, or erosion;
 - b. an essential emergency service such as that provided by fire, police and ambulance stations, which would be impaired during an emergency as a result of flooding, the failure of floodproofing measures and/or protection works, and/or erosion; and
 - c. uses associated with the disposal, manufacture, treatment or storage of hazardous substances.
- 3.4.3.8 That all development shall be set back a minimum of 10 metres from the stable top of bank and may require greater setbacks based on geotechnical review.
- 3.4.3.9 To minimize risk associated with erosion, in areas where slopes exceed 10% and/or in areas *adjacent to valley and stream corridors*, development may be permitted only if the erosion and siltation control measures are satisfactory to the City of Vaughan and the Toronto and Region Conservation Authority, and subject to the policies of this Plan.

3.4.4 Flooding Hazards

It is the policy of Council:

- 3.4.4.1 That within the City of Vaughan, a One Zone approach to flood plain management, based on the regulatory flood, will be implemented, in accordance with Provincial standards and policies except where the Province has designated and approved a Special Policy Area.
- 3.4.4.2 The limits of the flood plain will be determined in accordance with Provincial standards, to the satisfaction of the Toronto and Region Conservation Authority. Where flood plain limits are required and not available, or where existing flood plain information is outdated, the City may require the regulatory flood plain to be mapped by a qualified professional, at the expense of the proponent, to the satisfaction of the City and the Toronto and Region Conservation Authority.
- 3.4.4.3 That development within the flood plains is regulated in accordance with Provincial floodplain management policies and the regulations of the Toronto and Region Conservation Authority and that (a) new development below the top-of-bank of *valley and stream corridors*, which are included in Core Features on Schedule 2, is prohibited; and (b) applications for development and/or site alteration in Built-up Valley Lands as shown on Schedule 2 shall also conform to Policy 3.2.3.14 and Policy 3.2.3.15.
- 3.4.4.4 That any development, redevelopment or land use change that would result in *intensification* within flood vulnerable areas will not be permitted until such time as it has been demonstrated through an appropriate comprehensive study that the flood risk has been reduced through flood remediation, flood proofing, flood warning and emergency response measures, to the satisfaction of the City and the Toronto and Region Conservation Authority.
- 3.4.4.5 To update the City's Emergency Response Plan on a regular basis to reflect best practices for disaster response.

3.4.5 Special Policy Areas

Existing Special Policy Area (SPA) policies and boundaries are included in this section and Schedule 8, respectively, in this Plan. The existing SPA policies and boundaries shall remain in effect and in force until the proposed SPA policies and boundaries in Section 7.3 and Schedule 9, respectively, of the Woodbridge Centre Secondary Plan have been approved by the Ministry of Municipal Affairs and Housing and the Ministry of Natural Resources.

The Provincial Flood Plain Planning Policy generally prohibits development or redevelopment below the Regulatory Flood as determined by the Toronto and Region Conservation Authority.

However, the Provincial Flood Plain Planning Policy also recognizes that parts of certain *urban areas* have historically developed within floodplains. In accordance with the Special Policy Area provisions of the Provincial Flood Plain Planning Policy, certain lands within the Regulatory Floodplain of the Humber River in the Woodbridge Community have been identified as "Special Policy Area" on Schedule 8. The continued viability of these areas depends on a reasoned application of the Provincial standards for flood plain management.

The Provincial Flood Plain Planning Policy recognizes the concept of special policy area status as a possible option for flood prone communities or portions thereof where the Province, Conservation Authority and the City agree to accept a higher level of risk to floodplain management. The implementation of flood proofing measures will be a condition of development approval by the City in co-operation with the TRCA.

It is the policy of Council:

- 3.4.5.1 The "Special Policy Area" includes all lands designated SPA on Schedule 8. The policies for the land use designations as shown on Schedule 13 located within the "Special Policy Area" and related policies continue to apply.
- 3.4.5.2 Within the limits of the Special Policy Area, new development, redevelopment, rehabilitation of and addition to existing buildings and structures, shall only be permitted subject to the following policies:

- a. The proposed development is flood protected to the Regulatory Flood, as defined by regulations made under Section 28 of the Conservation Authorities Act, and to the satisfaction of the City in co-operation with the Toronto and Region Conservation Authority;
- b. No buildings or structures other than for conservation or flood control projects will be permitted within the "floodway" of the Humber River as defined by the Toronto and Region Conservation Authority;
- c. Notwithstanding 3.4.5.2.b above, in the area located west of Islington Avenue, north of Legion Court Road, designated "Commercial Mixed Use" and located within the floodway, no new buildings or structures, or additions shall be permitted, until these lands are removed from the floodway through remedial measures undertaken by the Toronto and Region Conservation Authority or otherwise removed from the floodway through remedial measures undertaken by the Toronto and Region Conservation Authority and the City.
- d. Notwithstanding the provision of 3.4.5.2.a above, where it is technically impractical to flood protect a building or structure, or an addition thereto, to the level of the Regulatory Flood, the city in consultation with the Toronto and Region Conservation Authority, may permit a lower level of flood protection to a minimum of the 1:350 year flood.
- e. The specific level of flood protection to be imposed, and any flood protection measures to be implemented relative to individual development applications, shall be determined by the Toronto and Region Conservation Authority in consultation with the City. The level of protection to be required shall be the highest level determined to be technically feasible or practical.
- f. All applications for development approval on lands designated Special Policy Area shall be accompanied by engineering studies, prepared by a qualified professional, detailing such matters as flood frequency, the velocity and depth of storm flows, proposed flood damage reduction details, stormwater management techniques and other information and studies as may be required by the Toronto and Region Conservation Authority and the City.
- g. Prior to development proceeding, the Toronto and Region Conservation Authority and the City of Vaughan shall approve any proposed flood damage reduction measures including such matters as setbacks from the floodway, the use of fill, columns or design modifications to elevate openings in buildings and structures above the regulatory flood level, the use of water tight doors, waterproof seals at structural joints, berms/floodwalls, strengthened foundation walls, the installation of backwater valves and sump pumps.
- h. For all types of development, dry, passive floodproofing measures shall be implemented to the extent technically and/or practically feasible. Where dry passive floodproofing may not be achieved or practical, wet floodproofing and/or dry, active floodproofing measures may be considered by the Toronto and Region Conservation Authority and the City. The placement of fill as a method of flood damage reduction shall be minimized.
- i. Upon completion of the foundation of any building or structure, the Toronto and Region Conservation Authority and the City may require a letter from an OLS or Professional Engineer verifying the required floodproofing levels.
- j. Ingress and egress for all buildings should be "safe", pursuant to the Provincial floodproofing standards, and/or achieve the maximum level of flood protection determined by the Toronto and Region Conservation Authority in consultation with the City to be feasible and practical.

3.4.5.3 Notwithstanding the provisions of 3.4.5.2, no new development, including additions, shall be permitted on any parcel of land which is designated Special Policy Area if:

- a. the building or structure will be subject to a risk of flooding in excess of 25% over an assumed life of 100 years (approximately 1:350 flood - a probability of occurrence once in every 350 years).
- b. the development will be subjected to flows which due to their velocity and/or depth would be a hazard to life or susceptible to major structural damage as a result of a flood less than or equal to the Regulatory Storm.
- c. the necessary flood damage reduction measures would increase the risks associated with flooding and erosion on adjacent, up stream or downstream properties.

3.4.5.4 The following uses shall be prohibited on lands designated Special Policy Area:

- a. public or private elementary school, *day care* centre, hospital, nursing home, senior citizens housing, a home for the physically or mentally handicapped; and

- b. an automobile service station or any development which includes the storage, handling, production, disposal or use of a chemical, flammable, explosive, toxic, corrosive, or other dangerous material which would pose an unacceptable threat to public safety if they were to escape their normal containment and the treatment, collection or disposal of sewage; and
- c. a building or structure directly related to the distribution and delivery of an essential or emergency public service including police, fire, ambulance and electric power transmission.

3.4.5.5 Modifications to the boundaries of the Special Policy Area designation as shown on Schedule 8 may be considered, based on flood or erosion control remedial measures, approved by the Toronto and Region Conservation Authority. Such modifications, if approved by the City shall be adopted by amendment to the Official Plan.

3.4.5.6 The Zoning By-law may be amended to show lands designated Special Policy Area on Schedule 8 and to include the necessary provisions to implement policy 3.4.5.4.

3.4.5.7 Any new restricted area zoning by-laws within the Special Policy Area shall contain provisions, where appropriate, relating to minimum building or structure setbacks, maximum lot coverage, minimum building or structure setbacks, minimum height of any building or structure opening, and other such matters as determined by the Toronto and Region Conservation Authority and the City of Vaughan.

3.4.5.8 The implementation of flood proofing and all other requirements of the Toronto and Region Conservation Authority shall be a condition of the City for development in the Special Policy Area.

3.4.6 Stormwater Management

3.4.6.1 To recognize the value of stormwater as a resource and encourage the reuse of stormwater and snowmelt for on-site, non-potable uses, such as greywater systems and irrigation.

3.4.6.2 To recognize stormwater management facilities as a functioning part of Vaughan's natural water system and ecosystem. New development will employ stormwater management practices that are sensitive to the natural environment and natural heritage features.

3.4.6.3 That new development must satisfy the City and demonstrate consistency with the Toronto and Region Conservation Authority (TRCA) Stormwater Management Criteria for water quantity (flood flow) control, water quality control, erosion control, groundwater recharge and water balance; for the protection of hydrologically sensitive features. TRCA Stormwater Management Criteria are based on current research, watershed planning and hydrology studies, therefore the criteria is subject to change based on the approval and adoption of updated studies.

3.4.6.4 To satisfy the City and demonstrate consistency with the Toronto and Region Conservation Authority (TRCA) Stormwater Management Criteria, innovative stormwater management approaches must be implemented and designed in accordance with the Ministry of Environment Stormwater Management Practices Planning and Design Manual and with reference to TRCA's Low Impact Development Stormwater Management Planning and Design Guide (2010), as may be updated from time to time. For all development, a treatment train approach to stormwater must be considered consisting of source controls (for example, green roofs, permeable paving, improved urban tree canopy), conveyance controls (for example, bioswales and permeable pipes), and end of pipe treatment (for example, *wetlands* and ponds).

3.4.6.5 That new stormwater facilities shall be:

- a. located outside of *valley and stream corridors*, unless approved by the City and the Toronto and Region Conservation Authority; and
- b. integrated into the design of the proposed development to positively contribute to the overall character of the development.

3.4.6.6 To require new stormwater management facilities to be designed as local amenities while also providing a utilitarian function, in part by:

- a. locating stormwater facilities adjacent to open spaces, parks and/or natural heritage areas contributing to a connected system and to encourage public access to these facilities, where appropriate;
 - b. integrating stormwater facilities into surrounding developments as publically accessible open space; and
 - c. designing stormwater facilities as naturalized or formal landscapes that are complementary to adjacent features, including adjacent landscapes or natural heritage features.
- 3.4.6.7 To require that proposed stormwater management quality, quantity, erosion control and water balance for ground water and natural features be developed as part of a Master Environment and Servicing Plan in order to permit proper assessment of development impacts upon environmental features.
- 3.4.6.8 That the Master Environment and Servicing Plan will apply a range of stormwater management practices, including Low Impact Development, to address water quality control, baseflow management, temperature moderation and aquatic habitat protection. The selection of stormwater management techniques will be governed by flood and erosion conditions, the type of fisheries present, soil conditions and local groundwater conditions. Preliminary and final design will be to the satisfaction of the City and the Toronto and Region Conservation Authority. Potential stormwater management practices to be considered in development are identified in the TRCA's Low Impact Development Stormwater Management Planning and Design Guide (2010) and will consider innovative naturalized approaches to stormwater management and maximize opportunities to enhance open space and natural heritage resources.
- 3.4.6.9 To require that road, transit and other infrastructure projects that entail expansion of an existing service provide full stormwater management for new and existing infrastructure, where practically feasible.
- 3.4.6.10 To require that stormwater be treated as close to the source as possible. Roof leaders will not be directly connected to the storm sewer system, in conformity with City of Vaughan policy. In highly sensitive sub-watershed areas, alternative, innovative stormwater management approaches will be considered if such approaches will improve stormwater quality and quantity.
- 3.4.6.11 To require the use of source controls in parking lots and other large paved surfaces such as oil/grit separators where deemed necessary by the City.
- 3.4.6.12 To encourage, where existing development has outdated or absent stormwater controls, stormwater retrofitting to the greatest extent possible to incorporate a treatment train hierarchy with source, conveyance and end-of-pipe measures that provide water quality treatment, erosion control, flood control and address water balance objectives.
- 3.4.6.13 To implement end-of-pipe stormwater retrofits as outlined in the City's stormwater management retrofit study (as updated).
- 3.4.6.14 To require that all *significant development* provide post-development stormwater quantity control to pre-development levels for the 2 through 100 year storm events and stormwater quantity control in accordance with current guidelines in consultation with the Toronto and Region Conservation Authority. Should a subsequent Toronto and Region Conservation Authority-approved watershed hydrology study indicate that an alternative runoff control requirement is appropriate, alternative criteria may be established by the City in consultation with the Toronto and Region Conservation Authority.
- 3.4.6.15 That all development will undertake stormwater management on a volume control basis that maintains recharge rates, flow paths and water quality to the extent possible, in addition to peak flow control, and to maintain pre-development water balance. Particular emphasis will be placed on areas confirmed as significant recharge areas.
- 3.4.6.16 To support the Toronto and Region Conservation Authority in establishing programs for ongoing monitoring of ambient conditions as part of the Regional Watershed Monitoring Program, including

evaporation, stream flow, channel form, groundwater levels, water quality and terrestrial communities and species to provide baseline data to facilitate an adaptive management approach.

- 3.4.6.17 To work with the Toronto and Region Conservation Authority to monitor the effects of new development and redevelopment in *urban areas* on receiving watercourses and the hydrologic balance in order to apply adaptive management measures as necessary to maintain water balance and evaluate flooding on downstream flood vulnerable areas.

3.4.7 Erosion and Sediment Control

- 3.4.7.1 That all proposed development shall have sediment control measures in place to the satisfaction of the City in consultation with the Toronto and Region Conservation Authority before topsoil removal and grading of lands.
- 3.4.7.2 To prohibit top soil removal and grading until approval of a draft Plan of Subdivision or a Site Plan for large sites that are not subject to Plan of Subdivision, and to require that construction practices, erosion and sediment controls are to the satisfaction of the City in consultation with the Toronto and Region Conservation Authority.
- 3.4.7.3 That the Master Environment and Servicing Plan will consider the use of sediment retention basins to control the large quantities of suspended matter washed off sites during construction.
- 3.4.7.4 That construction practices and sediment control measures during construction shall be implemented and maintained to the satisfaction of the City of Vaughan in consultation with the Toronto and Region Conservation Authority.
- 3.4.7.5 To require that proponents design and undertake a monitoring program for construction sites to maintain effective sediment control measures throughout the entire construction period and subsequent landscaping.

3.5 The Greenbelt Plan

The Province's Greenbelt Plan provides for the protection of a system of agricultural and environmental lands that are linked to other major features in the Province including the Oak Ridges Moraine. The Greenbelt Plan recognizes the functional inter-relationships between the natural heritage features, open spaces and agricultural lands within the Greenbelt Plan area and the lands surrounding it, and is therefore an important part of Vaughan's Natural Heritage Network.

It is the policy of Council:

- 3.5.1.1 That the Provincial Greenbelt Plan Area, as identified on Schedule 4, is an important feature in Vaughan intended to protect lands for natural heritage and agricultural uses.

Greenbelt Protected Countryside

- 3.5.1.2 That, within the Protected Countryside of the Greenbelt as identified on Schedule 4, **Agricultural** and existing **Rural Residential** uses are permitted as identified on Schedule 13 and subject to the applicable policies of section 9.2.2 of this Plan.

Recreational Uses in the Greenbelt

- 3.5.1.3 That residential dwelling units, other than for an employee, shall not be permitted in association with recreational uses.
- 3.5.1.4 That an application to establish or expand a *major recreational use* in the Greenbelt Natural Heritage System will be accompanied by a vegetation enhancement plan that incorporates planning, design, landscaping, and construction measures that:
- maintain or, where possible, enhance the amount of natural self sustaining vegetation on the site and the connectivity between *adjacent* key natural heritage features or key hydrologic features;
 - wherever possible, keep intermittent stream channels and drainage swales in a free-to-grow, low-maintenance condition;
 - minimize the application and use of pesticides and fertilizers; and
 - locate new *natural self-sustaining vegetation* in areas that maximize the ecological value of the area.
- 3.5.1.5 That an application to expand or establish a *major recreational use* shall be accompanied by a conservation plan demonstrating how water use and nutrient and biocide will be kept to a minimum, including the establishment and monitoring of targets.
- 3.5.1.6 That small-scale structures for recreational uses (such as boardwalks, footbridges, fences, docks and picnic facilities) are permitted within key natural heritage features and key hydrologic features; however, the negative impacts on these features shall be minimized.

General Infrastructure in the Greenbelt

- 3.5.1.7 That all existing, expanded or new infrastructure subject to and approved under the Canadian Environmental Assessment Act, the Environmental Assessment Act, the Planning Act, the Aggregate Resources Act, the Telecommunications Act or by the National or Ontario Energy Boards, or which receives a similar environmental approval, is permitted within the Protected Countryside of the Greenbelt Plan, subject to the policies of this section and provided it meets one of the following two objectives:
- It supports agriculture, recreation and tourism, rural settlement areas, resource use or the rural economic activity that exists and is permitted within the Greenbelt; or
 - It serves the significant growth and economic development expected in southern Ontario beyond the Greenbelt by providing for the appropriate infrastructure connections among urban growth centres and between these centres and Ontario's borders.

- 3.5.1.8 That the location and construction of infrastructure and expansions, extensions, operations and maintenance of infrastructure in the Protected Countryside of the Greenbelt Plan, are subject to the following:
- a) Planning, design and construction practices shall minimize, wherever possible, the amount of the Greenbelt, and particularly the Natural Heritage System, traversed and/or occupied by such infrastructure;
 - b) Planning, design and construction practices shall minimize, wherever possible, the negative impacts and disturbance of the existing landscape, including, but not limited to, impacts caused by light intrusion, noise and road salt;
 - c) Where practicable, existing capacity and coordination with different infrastructure services is optimized so that the rural and existing character of the Protected Countryside and the overall urban structure for southern Ontario established by Greenbelt and any provincial growth management initiatives are supported and reinforced;
 - d) New or expanding infrastructure shall avoid key natural heritage features or key hydrologic features unless need has been demonstrated and it has been established that there is no reasonable alternative; and
 - e) Where infrastructure does cross the Natural Heritage System or intrude into or result in the loss of a key natural heritage feature or key hydrologic feature, including related landform features, planning, design and construction practices shall minimize negative impacts and disturbance on the features or their related functions, and where reasonable, maintain or improve connectivity.
- 3.5.1.9 That infrastructure serving the agricultural sector, such as agricultural irrigation systems, may need certain elements to be located within the vegetation protection zone of a key natural heritage feature or key hydrologic feature. In such instances, these elements of the infrastructure may be established within the feature itself or its associated vegetation protection zone but all reasonable efforts shall be made to keep such infrastructure out of key natural heritage features or key hydrologic features or the vegetation protection zones.

Sewage and Water Infrastructure in the Greenbelt

- 3.5.1.10 That proposals for infrastructure within or crossing the Protected Countryside of the Greenbelt Plan shall demonstrate that:
- a) Sewage and water servicing can be provided in a manner that does not negatively impact ecological features and functions, quality and quantity of ground and surface water, including stream baseflow, and is sufficient to accommodate the proposed use(s);
 - b) Applicable recommendations, standards or targets within the Humber River Watershed Plan, Don River Watershed Plan, and water budgets are reflected; and
 - c) Any sewage and water servicing installation is planned, designed and constructed to minimize surface and groundwater disruption.
- 3.5.1.11 That where settlements do not currently have Great Lake or Lake Simcoe based water and sewage services, extensions to or expansions of existing Great Lake or Lake Simcoe based services to such settlements is not permitted, unless such servicing is required to address failed individual on-site sewage or water services or to ensure the protection of public health where it has been determined by a medical officer of health (or health authority) that there is a public health concern associated with existing services within the settlement. The capacity of the services provided in the these circumstances will be restricted to that required to service the affected existing settlement plus the capacity for potential *development* within the approved settlement boundary as it existed on the date this Plan came into effect.
- 3.5.1.12 That where settlements currently have, or have approvals for, Great Lake based water and/or sewer services as of December 16, 2004, the date the Greenbelt Plan came into effect, such services may be extended and expanded to service growth within an approved settlement boundary as it existed on the date the Greenbelt Plan came into effect. Where only Great Lake water exists or has been approved, corresponding municipal sewage service shall be required in order for any expansion of the current settlement boundary where such expansion would be permitted by the Greenbelt Plan.

- 3.5.1.13 That the extension of municipal or private communal sewage or water services outside of a settlement boundary shall only be permitted in the case of health issues or to service *existing uses* and the expansion thereof adjacent to the settlement. Notwithstanding the above, where municipal water services exist outside of settlements areas, *existing uses* within the service area boundary as defined by the environmental assessment may be connected to such a service.
- 3.5.1.14 That new or expanded partial servicing, where site conditions are suitable for the long-term provision of such services, is only permitted in the following circumstances:
- a) Where such servicing is necessary to address failed individual on-site sewage or water services serving existing development; or
 - b) To allow for infilling and *intensification* within settlement areas served by partial services as of the date this Plan came into effect.
- 3.5.1.15 That in the siting of new municipal and other wells, consideration shall be given to the location of *vulnerable areas*.

Stormwater Management Infrastructure in the Greenbelt

- 3.5.1.16 That stormwater management ponds are prohibited in key natural heritage features or key hydrologic features or their vegetation protection zones.
- 3.5.1.17 That applications for *development* or *site alteration* in the Protected Countryside of the Greenbelt Plan shall be accompanied by a stormwater management plan which demonstrates that:
- a) Planning, design and construction practices will minimize vegetation removal, grading and soil compaction, sediment erosion and impervious surfaces;
 - b) Where appropriate, an integrated treatment approach shall be used to minimize stormwater management flows and structures through such measures as lot level controls and conveyance techniques such as grass swales; and
 - c) Applicable recommendations, standards or targets within the Humber River Watershed Plan and/or Don River Watershed Plan and water budgets are complied with.
- 3.5.1.18 That the objectives of a stormwater management plan are to avoid, minimize and/or mitigate stormwater volume, contaminant loads and impacts to receiving water courses in order to:
- a) Maintain groundwater quality and flow and stream baseflow;
 - b) Protect water quality;
 - c) Minimize the disruption of pre-existing (natural) drainage patterns wherever possible;
 - d) Prevent increases in stream channel erosion;
 - e) Prevent any increase in flood risk; and
 - f) Protect aquatic species and their habitat.

Renewable Resources in the Greenbelt

- 3.5.1.19 That for lands within the Protected Countryside of the Greenbelt Plan, renewable resources are those non-agriculture-based natural resources that support uses and activities such as forestry, water taking, fisheries, conservation, and wildlife management.
- 3.5.1.20 That activities related to the use of renewable resources are permitted in the Protected Countryside of the Greenbelt Plan, subject to the policies of the Greenbelt Plan and all other applicable legislation, regulations and municipal planning documents, including the Provincial Policy Statement. All such uses shall be undertaken in accordance with the applicable recommendations, standards or targets of the Humber River Watershed Plan, Don River Watershed Plan and/or water budget.
- 3.5.1.21 That within a key natural heritage feature or key hydrologic feature, renewable natural resource activities should be carried out in a manner that maintains or, where possible, improves these features and their functions.

Non-renewable Resources in the Greenbelt

- 3.5.1.22 That activities related to the use of non-renewable resources are permitted in the area shown on Schedule 4 as Greenbelt Protected Countryside, subject to all other policies of this Plan, applicable legislation, regulations and by-laws. The availability of mineral aggregate resources for long-term use will be determined in accordance with the Provincial Policy Statement, except as provided below.
- 3.5.1.23 For lands within the Protected Countryside of the Greenbelt Plan, non-renewable resources are those non-agriculture based natural resources that have a finite supply, including mineral aggregate resources.
- 3.5.1.24 That notwithstanding the policies of Section 3.3.8 of this Plan, within the Greenbelt Natural Heritage System, *mineral aggregate operations* and *wayside pits and quarries* are subject to the following:
- a. no new *mineral aggregate operation* and no *wayside pits and quarries*, or any ancillary or accessory use thereto will be permitted in the following key natural heritage features and key hydrologic features:
 - i. significant *wetlands*;
 - ii. significant *habitat of endangered and threatened species*; and
 - iii. significant *woodlands* unless the *woodland* is occupied by young plantation or early succession habitat (as defined by the Ministry of Natural Resources). In this case, the application must demonstrate that the specific provisions of policy 3.5.1.26.c, 3.5.1.26.d and 3.5.1.27.c have been addressed, and that they will be met by the operation;
 - b. an application for a new *mineral aggregate operation* or new *wayside pits and quarries* may only be permitted in other key natural heritage features and key hydrologic features not identified in policy 3.5.1.24(a) above and any vegetation protection zone associated with such other feature where the application demonstrates:
 - i. how the Water Resource System of the Greenbelt will be protected or enhanced; and
 - ii. that the specific provisions in policy 3.5.1.26.c, 3.5.1.26.d and 3.5.1.27.c have been addressed, and that they will be met by the operation;
 - c. Any application for a new *mineral aggregate operation*, or the expansion of an existing *mineral aggregate operation* shall be required to demonstrate:
 - i. how the connectivity between key natural heritage features and key hydrologic features will be maintained before, during and after the extraction of mineral aggregates;
 - ii. how the operator could immediately replace any habitat that would be lost from the site with equivalent habitat on another part of the site or on *adjacent* lands; and
 - iii. how the Water Resource System will be protected or enhanced; and
 - d. An application for the expansion of an existing *mineral aggregate operation* may be permitted in the Natural Heritage System, including key natural heritage features and key hydrologic features, and in any associated vegetation protection zone only if the related decision is consistent with the Provincial Policy Statement.
- 3.5.1.25 That within the Protected Countryside of the Greenbelt Plan Area, existing and new *mineral aggregate operations* and *wayside pits* shall comply with the Aggregate Resources Act as directed by the Ministry of Natural Resources and the provisions of the applicable Provincial Plan.
- 3.5.1.26 That when operators are undertaking rehabilitation of *mineral aggregate operation* sites in the Greenbelt Protected Countryside, the following provisions apply:
- a. they shall work with the Ministry of Natural Resources to consider the development and implementation of comprehensive rehabilitation plans in areas of high concentration of *mineral aggregate operations*;
 - b. the disturbed area of a site will be rehabilitated to a state of equal or greater ecological value, and for the entire site, long-term *ecological integrity* will be maintained or restored, and to the extent possible, improved;
 - c. if there are key natural heritage features or key hydrologic features on the site, or if such features existed on the site at the time of application:
 - i. the health, diversity and size of these key natural heritage features and key hydrologic features will be maintained or restored and, to the extent possible, improved to promote a net gain of ecological health; and

- ii. any permitted extraction of mineral aggregates that occurs in a feature will be completed, and the area will be rehabilitated, as early as possible in the life of the operation;
- d. aquatic areas remaining after extraction are to be rehabilitated to aquatic enhancement, which shall be representative of the natural ecosystem in that particular setting or ecodistrict, and the combined terrestrial and aquatic rehabilitation shall meet the intent of policy 3.5.1.26.c; and
- e. outside the Greenbelt Natural Heritage System, and except as provided in policy 3.5.1.26.b, 3.5.1.26.c and 3.5.1.26.d, final rehabilitation will appropriately reflect the long-term land use of the general area, taking into account applicable policies of this Plan and, to the extent permitted under this Plan, existing municipal and provincial policies.

- 3.5.1.27 That final rehabilitation in the Greenbelt Natural Heritage System will meet these additional provisions:
- a. where there is no underwater extraction, an amount of land equal to that under natural vegetated cover prior to extraction, and no less than 35% of each license, is to be rehabilitated to forest cover, which shall be representative of the natural ecosystem in that particular setting or ecodistrict;
 - b. where there is underwater extraction, no less than 35% of the non-aquatic lands of each license is to be rehabilitated to forest cover, which shall be representative of the natural ecosystem in that particular setting or ecodistrict; and
 - c. rehabilitation will be implemented so that the connectivity of the key natural heritage features and the key hydrologic features on the site and on *adjacent* lands will be maintained or restored, and to the extent possible, improved.

3.5.1.28 To encourage operators to consider providing public access to former aggregate sites upon final rehabilitation.

3.5.1.29 To require that all land use activities related to the post extraction rehabilitation of *mineral aggregate operations* are consistent with any relevant approved source protection plan and relevant Watershed or Sub-Watershed Plan.

Cultural Heritage Resources in the Greenbelt

- 3.5.1.30 That protection of cultural heritage resources is provided for in the policies of Section 6 of this Plan, including creating inventories of cultural heritage resources and planning for their ongoing protection and appropriate use.
- 3.5.1.31 That the City will collaborate with York Region in implementing the York Region Archaeological Management Plan, including developing and implementing a consultation protocol with aboriginal groups and other stakeholders to identify and protect cultural heritage resources and plan toward maintaining, developing and using these resources in a manner that will benefit the local community and be compatible with the Greenbelt's vision and goals.

Existing Uses in the Greenbelt

- 3.5.1.32 All *existing uses* lawfully used for such purpose on the day before December 16, 2004, being the day the Greenbelt Plan came into force, are permitted.
- 3.5.1.33 Single dwellings are permitted on existing lots of record, provided they were zoned for such as of December 16, 2004, or where an application for an amendment to a zoning by-law is required as a condition of a severance granted prior to December 14, 2003 but which application did not proceed.
- 3.5.1.34 Outside of **Community Areas**, expansions to existing buildings and structures, accessory structures and uses, and/or conversions of legally *existing uses* which bring the use more into conformity with the Greenbelt Plan, are permitted subject to a demonstration of the following:
- a) Notwithstanding Policy 3.5.1.14 regarding new or expanded partial servicing, new municipal services are not required; and
 - b) The use does not expand into key natural heritage features and key hydrologic features, unless there is no other alternative in which case any expansion shall be limited in scope and kept within close geographical proximity to the existing structure.

- 3.5.1.35 Expansions to existing agricultural buildings and structures, residential dwellings, and accessory uses to both, may be considered within key natural heritage features and key hydrologic features if it is demonstrated that:
- a) There is no alternative and the expansion, alteration or establishment is directed away from the feature to the maximum extent possible; and
 - b) The impact of the expansion or alteration on the feature and its functions is minimized to the maximum extent possible.
- 3.5.1.36 Expansion, maintenance and/or replacement of existing infrastructure is permitted, subject to the infrastructure policies 3.5.1.7 to 3.5.1.18.

3.6 Air Quality and Climate Change

3.6.1 Improving Air Quality

Clean air is often taken for granted, but is critical to the health of all Vaughan residents and the natural environment. Air pollutants are a by-product of many day-to-day activities, including driving, home heating and industrial activities. These activities produce a variety of harmful emissions, including airborne particulates, smog-forming gases and gases that contribute to global climate change, such as carbon dioxide.

Vaughan can play an important role in changing how these day-to-day activities occur in order to reduce air quality impacts, by supporting and encouraging emissions reductions from major sources of pollution. The policies of this Plan work in conjunction with those in Green Directions Vaughan to improve air quality in the City.

It is the policy of Council:

- 3.6.1.1 To work with York Region and other agencies to develop and implement clean air initiatives.
- 3.6.1.2 To reduce air emissions and impacts from air emissions by:
 - a. increasing opportunities for natural carbon sequestration by establishing annual targets to grow the urban forest through tree planting programs;
 - b. encouraging energy efficient development and energy efficient retrofitting;
 - c. supporting alternatives to single occupant vehicle use and automobile travel;
 - d. encouraging emissions reductions in industries;
 - e. directing the location of industrial and other activities with high emissions such that they reduce impacts on sensitive uses such as residential areas; and,
 - f. supporting programs and initiatives that aim to reduce air emissions.
- 3.6.1.3 To support the adoption and use of zero emissions vehicles by:
 - a. supporting the establishment of fuelling and recharging stations for zero emissions vehicles; and,
 - b. exploring opportunities to include low and zero emissions vehicles in Vaughan's vehicular fleet to showcase available technologies.
- 3.6.1.4 To support reductions in emissions from travel by:
 - a. planning for and supporting a compact pattern of urban growth that is designed to support pedestrian, cyclist and transit use;
 - b. supporting transportation initiatives that encourage the use of low or zero emissions vehicles to the extent possible; and
 - c. supporting measures to reduce unnecessary automobile and truck travel and enforcement of regulations to reduce vehicular idling.
- 3.6.1.5 To require health, environmental and cumulative air quality impact studies that assess the impact on human health for development with significant known or potential air emission levels near *sensitive uses* such as schools, daycares and seniors' facilities.
- 3.6.1.6 That *sensitive uses* such as schools, daycares and seniors' facilities not be located near significant known air emissions sources such as controlled access provincial 400-series highways.

3.6.2 Responding to Climate Change

In addition to local environmental impacts, the effects of global climate change will also be felt in Vaughan. Human-induced climate change, through carbon dioxide and greenhouse gas emissions, is expected to cause more extreme hot days, changes to wildlife habitat and natural heritage, changes to farming yields, more extreme weather events, decreased water levels, and increased infrastructure issues such as electricity supply and transmission. Vaughan will play an important local role in the global effort to reduce carbon dioxide and

other greenhouse gas emissions, and will respond to the reality of climate change through mitigation and adaptation. This will be achieved through a comprehensive approach to environmental protection. Vaughan will be a leader in ensuring clean air, pure water, healthy soil, preserving natural heritage features and supporting climate stability.

This Plan outlines a pattern of compact growth and development that supports energy efficient transportation options and protects natural heritage features, which will contribute significantly to reducing greenhouse gas emissions which are the leading cause of climate change. In addition, Vaughan will encourage energy efficient development and retrofitting of existing development to significantly reduce air emissions while ensuring saving on heating and cooling costs. Consistent with the policies of Green Directions Vaughan the City will also prepare a climate change action plan, which will target reductions in greenhouse gas emissions from a variety of sources and will identify adaptation measures to respond to impacts from climate change.

It is the policy of Council:

- 3.6.2.1 To implement the climate change actions in Green Directions Vaughan in coordination with York Region and other agencies to:
 - a. undertake a risk assessment with respect to Vaughan's need for adaptation to climate change;
 - b. develop targets for greenhouse gas reductions;
 - c. identify adaptation measures to respond to impacts from climate change; and
 - d. establish a long-term target of carbon neutrality for Vaughan's facilities, infrastructure and operations.

- 3.6.2.2 To establish Vaughan as a leader in greenhouse gas reductions by:
 - a. applying high standards of energy performance in new construction and retrofits;
 - b. reducing demand for single-occupant vehicle trips and supporting alternative transportation means;
 - c. supporting agricultural practices that reduce greenhouse gas emissions from farm vehicles, livestock and waste;
 - d. undertaking carbon sequestration and storage audits for the existing forest and urban forest and establish targets for forest renewal and expansion;
 - e. supporting the use of low-impact alternative energy sources;
 - f. pursuing and supporting pilot projects to reduce industrial greenhouse gas emissions; and
 - g. establishing and achieving greenhouse gas reduction targets or meeting international, national, provincial and/or regional targets, where appropriate.

3.7 Soil Quality and Site Remediation

Clean air and water are vital to the health of the environment and human health. Soil quality can also have a direct impact on human and environmental health. *Brownfield* sites are abandoned or underutilized properties where development or activities have led to environmental contamination of the soil. In order to minimize risk of health impacts, sites with contaminated soils are severely restricted in terms of the uses that can occur on the lands.

As Vaughan matures, redevelopment and *intensification* will result in the identification of an increasing number of *brownfield* sites. Many of these sites will be found in **Intensification Areas**, where a significant portion of new growth must occur. *Brownfield* sites are an important part of the urban fabric and an environmental legacy for which solutions must be identified and implemented. Vaughan will support their reuse and redevelopment, and will support development on or adjacent to *brownfields* to incorporate these sites into the urban fabric.

It is the policy of Council:

- 3.7.1.1 To support and encourage the cleanup, renewal and redevelopment of *brownfield* and other contaminated sites for a variety of uses.
- 3.7.1.2 That *brownfields* and other contaminated sites are a legacy of past or current use that must be addressed when new development or a change in land use is proposed. New development on or adjacent to *brownfield* sites must plan for the redevelopment and reintegration of the *brownfield* site. Secondary plans and other planning exercises will also be required to plan for the redevelopment of *brownfield* sites.
- 3.7.1.3 To encourage the use of municipal funding mechanisms and funding sources from other tiers of government to support the cleanup, renewal and redevelopment of *brownfield* and other contaminated sites. Potential municipal funding mechanisms are identified in Chapter 10 of this Plan.
- 3.7.1.4 That, where development is proposed on a site which, in the opinion of the City or other approval authority, may be contaminated due to previous use, environmental assessment reports are required to be submitted in accordance with provincial regulations and guidelines.
- 3.7.1.5 To require that, prior to considering to permit development on contaminated sites, the following be completed to the satisfaction of the City or other approval authority:
 - a. determination of the impacted area of the site, in consultation with the City or appropriate approval authority, on the basis of technical studies;
 - b. submission of studies by the proponent identifying the level of contamination of the site, proposed remediation measures and post clean-up conditions as deemed necessary for the proposed use; and
 - c. cleaning or remediation of the site in accordance with provincial criteria, the policies of this Plan, and the directions identified in studies submitted to support redevelopment.

3.8 Environmental Reporting related to the Natural Heritage Network

As part of the development process, all development with the potential to impact the Natural Heritage Network shall be supported by studies which demonstrate compliance to the policies of this Plan. All development applications within 120 metres of the identified Natural Heritage Network will prepare an Environmental Impact Study. In the case of a Block Plan application, a more significant study called a Master Environment and Servicing Plan is required, regardless of proximity to the Natural Heritage Network. The Master Environment and Servicing Plan will examine the complete range of environmental resources with which the environmental policies of this Plan are concerned and align new development, infrastructure and municipal service provision with the protection and enhancement of natural heritage features and related ecosystem functions.

To guide the preparation of environmental reports, including the Environmental Impact Studies and Master Environment and Servicing Plans, the City has developed an Environmental Management Guide that sets out the general requirements for specific studies that must be undertaken to satisfy the environmental reporting required in this Plan. It also provides additional detail on how certain features and functions of the Natural Heritage Network will be treated.

It is the policy of Council:

3.8.1 Environmental Management Guideline

- 3.8.1.1 That the City of Vaughan Environmental Management Guideline identifies key management issues and provides guidance in support of the policies of Chapter 3 for the preparation of environmental reporting, to be confirmed based on area-specific issues, in support of development applications.
- 3.8.1.2 To review, update and refine the Environmental Management Guideline from time to time, to (a) facilitate the successful implementation of the ecosystem function approach, (b) establish the scope and technical requirements for the preparation of environmental reports, and (c) ensure that development activity successfully achieves the environmental objectives of this Plan.

3.8.2 Environmental Impact Studies

- 3.8.2.1 That any proposal for *development* or *site alteration* in the Natural Heritage Network, or within lands *adjacent* to the Natural Heritage Network (generally 120 metres), shown on Schedule 2 shall be supported by an Environmental Impact Study.
- 3.8.2.2 That the specific requirements of the Environmental Impact Study will be outlined in the Environmental Management Guide, but at a minimum will address the following:
 - a. the condition of the Natural Heritage Network, and its ecosystem functions, on the subject lands or *adjacent* to the subject lands;
 - b. the manner in which the proposed development might have an impact on the Natural Heritage Network, and its ecosystem functions, on the subject lands or *adjacent* to the subject lands;
 - c. mitigation of any impacts on the Natural Heritage Network, and its ecosystem functions, on the subject lands or *adjacent* to the subject lands; and,
 - d. proposed improvements to the Natural Heritage Network, and its ecosystem functions, on the subject lands or *adjacent* to the subject lands.

3.8.3 Master Environment and Servicing Plan

- 3.8.3.1 That as part of the preparation of a Block Plan or development application for a large site, a Master Environment and Servicing Plan will be completed to the satisfaction of the City of Vaughan, in consultation with public agencies such as the Toronto and Region Conservation Authority, and Region of York prior to the approval of the Block Plan.

- 3.8.3.2 That, prior to initiation of a Master Environment and Servicing Plan, a Terms of Reference that outlines a work plan will be prepared to the satisfaction of the City, in consultation with the public agencies such as the Toronto and Region Conservation Authority, pursuant to the policies of this Plan and the detailed requirements of the Environmental Management Guideline.
- 3.8.3.3 That the study area boundaries for the Master Environment and Servicing Plan may be required to extend beyond the boundaries of the Block Plan, or development application site, in order to properly identify the existing functions and the extent of impact related to the Natural Heritage Network within the context of its watershed or sub-watershed.
- 3.8.3.4 That any documents or reports associated with a Master Environment and Servicing Plan will be prepared in consultation with the relevant public agencies, and will be available for review by the general public.
- 3.8.3.5 That a Master Environment and Servicing Plan, to be undertaken by qualified professionals, will be conducted in a manner consistent with an ecosystem functions approach to planning, involving a rigorous analysis of the environmental functions of the natural system, and the inter-relationships among these functions.
- 3.8.3.6 That the specific requirements of the Master Environment and Servicing Plan will be outlined in the Environmental Management Guideline, and at a minimum will address the following:
- a. an inventory of all natural heritage features and ecosystem functions on the site and on *adjacent* and nearby sites, including groundwater resources;
 - b. proposed measures to improve natural heritage features and ecosystem functions;
 - c. the limits of development;
 - d. the proposed approach to development informed by the evaluation of features and functions to be maintained and/or enhanced, and additional infrastructure requirements;
 - e. an assessment of impacts on natural heritage features and ecosystem functions, including cumulative impacts from development;
 - f. proposed environmental management techniques and measures to mitigate anticipated impacts;
 - g. an assessment of impacts on natural hazards, including cumulative impacts of development and proposed mitigation or remediation measures;
 - h. recommendations for long-term management, monitoring requirements and contingency plans for the Natural Heritage Network; and,
 - i. a statement on overall compliance with the environmental policies of this Plan.
- 3.8.3.7 That the Master Environment and Servicing Plan may be subject to peer review at the discretion of the City in consultation with the Toronto and Region Conservation Authority, the cost of which shall be borne by the affected landowners within the subject block.

DEFINITIONS

Early Successional

Early successional means a previously non-wooded, currently regenerating area in which:

- a. there is less than 2 square metres of basal area per hectare in trees that are 10 centimetres or more in diameter from any combination of species listed in the following Table; and,
- b. there is less than 2 square metres of basal area per hectare in trees that are 25 centimetres or more in diameter from any combination of species listed in the following Table plus White Ash (*Fraxinus americana*), Black Cherry (*Prunus serotina*), White Cedar (*Thuja occidentalis*), White Elm (*Ulmus americana*) or Red Elm (*Ulmus rubra*).

Mid to Late Successional or Site Restricted Tree Species

Abies balsamea - Balsam Fir
Acer nigrum - Black Maple
Acer pensylvanicum - Striped Maple
Larix laricina - Tamarack
Ostrya virginiana - Hop-hornbeam
Picea glauca - White Spruce
Acer rubrum - Red Maple
Acer saccharinum - Silver Maple
Acer saccharum - Sugar Maple
Betula alleghaniensis - Yellow Birch
Carpinus caroliniana - Blue-beech
Carya cordiformis - Bitternut Hickory
Carya ovata - Shagbark Hickory
Cephalanthus occidentalis - Buttonbush
Fagus grandifolia - Beech
Fraxinus nigra - Black Ash
Juglans cinerea - Butternut
Juglans nigra - Black Walnut
Picea mariana - Black Spruce
Pinus resinosa - Red Pine
Pinus strobus - White Pine
Quercus alba - White Oak
Quercus macrocarpa - Bur Oak
Quercus rubra - Red Oak
Quercus velutina - Black Oak
Sorbus americana – American Mountain-ash
Tilia americana - Basswood
Tsuga canadensis - Hemlock
Ulmus thomasii - Rock Elm

Ecological Function

The natural processes, products or services that living and non-living environments provide or perform within or between species, ecosystems and landscapes. These may include biological, physical and socio-economic interactions.

Existing Uses

When applicable to the Greenbelt Plan, uses legally established prior to the date that the Greenbelt Plan came into force. Existing agricultural accessory buildings and structures including farm dwellings can expand on the same lot subject to the provisions of the municipal zoning by-law.

Hazardous Lands

Property or lands that could be unsafe for development due to naturally occurring processes. Along river, stream and small inland lake systems, this means the land, including that covered by water, to the furthest landward limit of the flooding hazard or erosion hazard limits.

Hazardous Sites

Property or lands that could be unsafe for *development* and *site alteration* due to naturally occurring hazards. These may include unstable soils (sensitive marine clays [leda], organic soils) or unstable bedrock (karst topography).

Major recreational uses

Major recreational uses are recreational uses that require large-scale modification of terrain, vegetation or both and usually also require large-scale buildings or structures, including but not limited to the following: golf courses; serviced playing fields; serviced campgrounds; and ski hills.

Natural self-sustaining vegetation

Vegetation dominated by native plant species that can grow and persist without direct human management, protection, or tending.

Sensitive Use/Sensitive Land Uses

Buildings, amenity areas, or outdoor spaces where routine or normal activities occurring at reasonably expected times would experience one or more adverse effects from contaminant discharges generated by a nearby major facility. *Sensitive land uses* may be a part of the natural or built environment. Examples may include, but are not limited to: residences, day care centres, and educational and health facilities.

Valley and Stream Corridors

Valley and stream corridors are the natural resources associated with river systems characterized by their landform features and functions. Valley and stream corridors are distinguished from other physiographic features or resources by their connectivity to the river system as a whole.

The physical landform of a valley corridor can visually be identified from its surrounding landscape (it is well-defined). The physical landform of a stream corridor cannot be visually identified from its surrounding landscape (it is ill-defined). Therefore, valley corridors are distinguished from stream corridors by the presence of a distinct landform.

Valley corridors may or may not have a defined watercourse channel. Stream corridors will typically have a defined watercourse channel, except at the upper limit of the corridor - source area - where the watercourse (headwater stream) is characterized by surface flow and/or high water tables originating from springs and seepage areas.

Where a Significant Area, as defined in the Valley and Stream Corridor Management Program, is within and/or immediately adjacent to a valley or stream corridor, the corridor boundary is extended to include the Significant Area and a minimum 10 metres inland.

Valley and stream corridors are significant valleylands and will be further clarified through ongoing studies such as the Natural Heritage Network Study and studies in support of development applications.

Vulnerable

Surface and groundwater that can be easily changed or impacted by activities or events, either by virtue of their vicinity to such activities or events or by permissive pathways between such activities and the surface and/or groundwater.