

ENVIRONMENTAL
SYSTEMS

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3.0 ENVIRONMENTAL SYSTEMS

Markham's landforms and watercourses provide key ecological functions and linkages that connect and integrate its natural features and systems with a broader ecosystem encompassing the Oak Ridges Moraine, the Niagara Escarpment and surrounding major lake and *watershed* system identified by the Province, the Region and the Toronto and Region Conservation Authority. In particular, the tributaries of the Rouge *watershed* and the Little Rouge River located in Markham serve as vital ecological corridors linking the environmental systems of Lake Ontario to the Oak Ridges Moraine. Portions of the Don, Highland, Petticoat and Duffins watersheds are also located in Markham.

By defining a system of linked natural heritage and hydrologic features and associated lands to support their functions, the natural heritage areas establish limits and priorities for protection of Markham's significant environmental features relative to the use of lands within and adjacent to them. This "environment first" approach to land use planning ensures that significant natural heritage and hydrologic features and the lands needed to support the function of these features are protected.

The Oak Ridges Moraine is a geological landform that extends from the Niagara Escarpment to the Ganaraska Forest and includes parts of the Greater Toronto Area. The Province enacted the Oak Ridges Moraine Conservation Plan to protect, restore and enhance its ecological and hydrological features and functions. Portions of the southern toe of the Oak Ridges Moraine extend into Markham at the northern boundary of the City.

The Greenbelt is an area identified by the Province for the long-term protection of environmental and agricultural lands. In Markham, the Greenbelt extends along the major tributaries of the Rouge *watershed* north of Major Mackenzie Drive and in eastern Markham on lands predominantly owned by the Toronto and Region Conservation Authority and Provincial and Federal governments.

Markham lies on a relatively flat till plain south of the Oak Ridges Moraine bisected by the major tributaries of the Rouge River. This portion of Rouge River *watershed* is of particular significance serving as a vital ecological corridor linking the environmental systems of Lake Ontario to the Oak Ridges Moraine. There has been extensive public investment in establishing the Rouge Park in eastern Markham with all levels of government involved in the preparation of the Rouge North Management Plan.

A systems approach to natural heritage, agricultural, *urban forest* and water resource planning has been undertaken by Markham within the context of the Council Endorsed Growth Alternative to 2031 and this Plan.

The Greenway System includes natural heritage areas, enhancement lands and protected agricultural lands, which enhance human health and well-being by providing for the protection of natural heritage and hydrologic

By defining a system of linked natural heritage and hydrologic features and associated lands to support their functions, the natural heritage areas establish limits and priorities for protection of Markham's significant environmental features.

features, improvements to air and soil quality, and the protection and restoration of flora and fauna habitat. The Greenway System policies further support ecological linkages that connect and integrate the natural landscape in Markham across five *watersheds*. The Oak Ridges Moraine and the Greenbelt are included as part of the Greenway System.

The Urban Forest System provides a variety of health and environmental benefits to the community and, in particular, contributes to the quality and character of the urban environment. It is important that the *urban forest* be protected and enhanced and that public awareness of the benefits of the *urban forest* be promoted through public education and stewardship programs.

Markham's Water System identifies a more specific policy framework for addressing *watershed* planning, groundwater and surface water resources and stormwater management.

The policies in Chapter 3 provide policies for the identification, protection and enhancement of the Greenway System, the Urban Forest System and the Water System and associated Environmental Reporting Policies. The land use policies for protecting these systems are contained in Chapter 8 of this Plan.

3.1 GREENWAY SYSTEM

The Greenway System encompasses approximately 33 percent of the land base in Markham comprising natural heritage and hydrologic features and their functions, *vegetation protection zones*, protected agricultural lands and enhancement lands. Markham's Greenway System lands are not available for urban development.

The purpose of the Greenway System policies is to maintain and enhance, as a permanent landscape, an interconnected system of natural open space, agricultural lands and enhancement areas and linkages that will preserve areas of significant *ecological value* and protected agricultural lands while providing, where appropriate, opportunities to improve *biodiversity* and connectivity of natural features and *ecological function*.

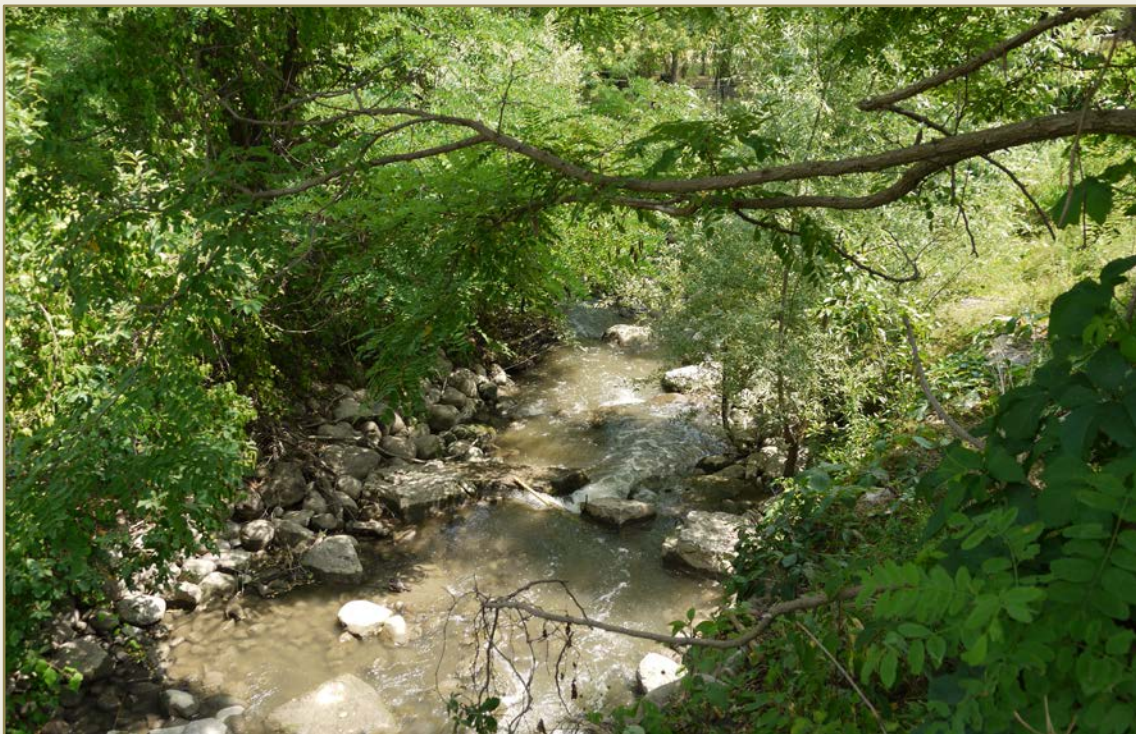
Markham's Greenway System also forms part of the Region's Greenlands System connecting and assisting with the implementation of the Greenlands System and supporting other agency natural heritage programs by providing a finer level of detail for protected features. Markham's Greenway System is one its most valuable assets to be maintained and enhanced over the long term. Markham is committed to protecting, rehabilitating and actively managing the natural heritage landscape.

The land use policies for protecting the Greenway System are contained in Section 8.6 of this Plan.

The Greenway System encompasses approximately 33 percent of the land base in Markham comprising natural heritage and hydrologic features and their functions, vegetation protection zones, protected agricultural lands and enhancement lands.

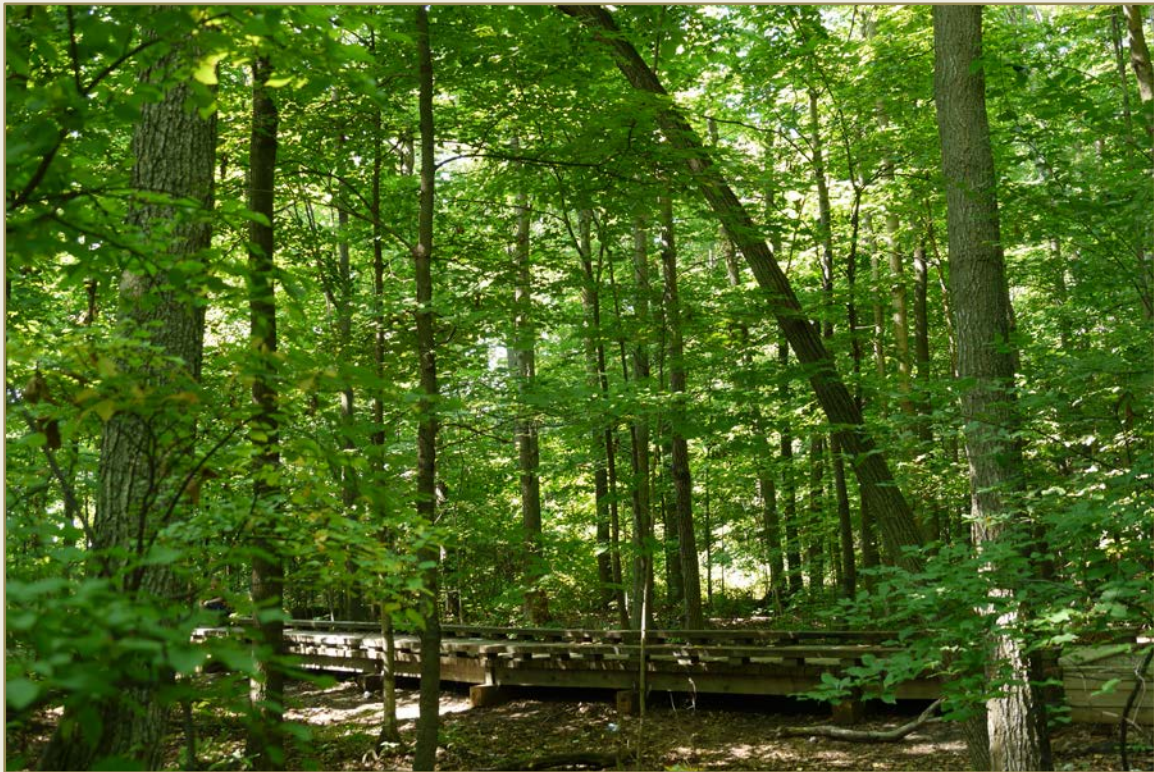


Markham will continue to be a leader in natural heritage preservation, protection and enhancement.





Markham will encourage that approximately 33 percent of the City's land area will remain untouched by future urban development.



3.1.1 General Policies

It is the policy of Council:

3.1.1.1 **To identify, protect and enhance** Markham's Greenway System as shown on Map 1 – Markham Structure by:

- a) directing permitted development, *redevelopment* and *site alteration* away from natural heritage and hydrologic features within the Greenway System;
- b) protecting a network of natural heritage and hydrologic features and their functions, *vegetation protection zones*, protected agricultural lands and enhancement lands, to improve the *biodiversity* and connectivity of natural heritage features and their *ecological function*;
- c) protecting the *ecological integrity* of the Oak Ridges Moraine;
- d) providing protection for agricultural lands and *ecological features* and functions in the Greenbelt;
- e) providing public access to publicly owned natural areas for nature-based recreation uses, where appropriate, in a manner that respects ecological sensitivities in support of a healthy and active community; and
- f) encouraging public acquisition of the Natural Heritage Network lands where possible over the long term.

3.1.1.2 **That** the components of the Greenway System include the following:

- a) Natural Heritage Network lands;
- b) Natural Heritage Network Enhancement Lands;
- c) Rouge Watershed Protection Area lands;
- d) Oak Ridges Moraine Conservation Plan Area lands;
- e) Greenbelt Plan Area lands; and
- f) certain naturalized stormwater management facilities.

To the extent possible, given the limitation of available data, these components are generally identified on Map 4 – Greenway System, Map 5 – Natural Heritage Features and Landforms, Map 6 – Hydrologic Features and Map 7 – Provincial and Federal Policy Areas.

3.1.1.3 **That** the boundaries of the Natural Heritage Network as shown on Map 4 – Greenway System, the *woodlands* as shown on Map 5 – Natural Heritage Features and Landforms, and *valleylands* and *permanent and intermittent streams* and *wetlands* shown on Map 6 – Hydrologic Features reflect the most accurate information available and may be refined or modified as follows:

- a) refinements to the boundaries and location of features may be considered by Council without an amendment to this Plan, where supported by a *subwatershed plan*, master environmental servicing plan, environmental impact study, natural heritage evaluation and/or hydrological evaluation or equivalent;
- b) major modifications to the boundaries of the Greenway System components, as determined by the City, shall only occur through an



amendment to this Plan. An amendment to this Plan shall not be required to add lands to the Greenway System where confirmed through an appropriate study; and

- c) the outer boundaries of the Oak Ridges Moraine Conservation Plan Area and the Greenbelt Plan Area can only be modified by the Province through amendments to the relevant Provincial Plan or as identified in applicable legislation. Any modifications to these boundaries approved by the Province shall not require an amendment to this Plan.

Where the removal of natural heritage and hydrologic features is supported through one or more of the studies referred to above, appropriate compensation shall be provided by the landowner at their cost.

- 3.1.1.4 **To prepare** a Natural Heritage Compensation Protocol to address compensation for the removal of natural heritage and hydrologic features identified for removal in appropriate studies.
- 3.1.1.5 **To coordinate** with Parks Canada, the Province, York Region and the Toronto and Region Conservation Authority efforts to ensure a consistent approach towards the protection of a system of natural heritage and hydrologic features and their functions.
- 3.1.1.6 **To incorporate** the protection and enhancement of the Greenway System as a component of the parks and open space system in accordance with Section 4.3.1.2 and a required secondary plan in accordance with Section 10.1.1.
- 3.1.1.7 **That** lands within the Greenway System are subject to the policies of this Plan, and where applicable, policies in the Greenbelt Plan, Oak Ridges Moraine Conservation Plan, and Minister's Zoning Order – Airport and other applicable land use policy regulations and/or standards. In the event of conflict among plans, regulations and standards the most restrictive requirements prevail, except in the case of agriculture, mineral aggregates and wayside pits where provincial plans and policies prevail.
- 3.1.1.8 **To collaborate** with Parks Canada and the Toronto and Region Conservation Authority, where appropriate, to prepare plans to guide the management of public parks and recreation uses within the Greenway System while safeguarding and enhancing natural features and functions.
- 3.1.1.9 **To minimize** the impacts of nature-based recreation infrastructure such as trails, trailheads, foot bridges, parking, signage, picnic facilities, washrooms and interpretative facilities on the *ecological integrity* of the Greenway System.
- 3.1.1.10 **To require** minimum *vegetation protection zones*, as identified in Section 3.1.2.23, where development, *redevelopment* or *site alteration* is approved on lands adjacent to natural heritage features and hydrologic features.
- 3.1.1.11 **To ensure** that connectivity is maintained or where possible enhanced between *key natural heritage* and/or *key hydrologic features* to ensure the movement of native plants and animals across the landscape where



development, *redevelopment* and *site alteration* is proposed in the Greenway System.

- 3.1.1.12 **To discourage** the removal of other natural heritage features, including hedgerows and smaller woodlot features not identified as part of the Natural Heritage Network identified in Section 3.1.2.1, where they:

- a) provide a linkage to other natural heritage features;
- b) provide for wildlife habitat and movement; or
- c) comprise healthy and mature trees.

- 3.1.1.13 **To encourage** the incorporation of the natural heritage features referred to in Section 3.1.1.12 into the planning and design of proposed development, wherever possible, and where identified for protection in an environmental impact study.

3.1.2 Natural Heritage Network

The Natural Heritage Network as shown on Map 4 – Greenway System is a core element of the Greenway System and includes natural heritage and hydrologic features, and associated *vegetation protection zones*. These features and their functions are the best remaining examples of Markham's natural ecosystem and are essential for preserving Markham's *biodiversity* and providing representation of the natural environment in which Markham was established.

Natural heritage and hydrologic features are generally intended to be conveyed into public ownership with the approval of development. Markham has also committed funds and developed a land securement strategy for the purpose of identifying and securing important natural heritage and hydrologic features within the Natural Heritage Network and the Natural Heritage Network Enhancement Lands.

General Policies

It is the policy of Council:

- 3.1.2.1 **That** the Natural Heritage Network, as shown on Map 4 – Greenway System, includes the following components:
- a) natural heritage and hydrologic features and their functions:
 - i. *key natural heritage features and key hydrologic features*;
 - ii. *valleylands*; and
 - iii. *woodlands and wetlands*;
 - b) *vegetation protection zones* associated with the features identified in 3.1.2.1a);
 - c) *hazardous lands and hazardous sites*; and
 - d) certain naturalized stormwater management facilities in accordance with Section 3.3.3.9.
- 3.1.2.2 **That** where natural heritage and hydrologic features and functions have been damaged, destroyed or removed without the approval of Council, appropriate compensation in the form of rehabilitation and enhancement to the impacted area shall be provided by the landowner at their cost. There shall be no adjustment to the Natural Heritage Network boundary or

The Natural Heritage Network features and their functions are essential for preserving biodiversity and providing representation of the natural environment in which Markham was established.

redesignation of lands where natural heritage and hydrologic features are damaged or destroyed without required approvals.

- 3.1.2.3 **To work** cooperatively with landowners, governments and agencies to ensure that restoration activities within 'Natural Heritage Restoration Areas' shown on Map 4 – Greenway System:
- a) support a natural linkage and ecological corridor function;
 - b) achieve the naturalization of publicly owned lands over time; and
 - c) minimize impacts to agricultural operations.
- 3.1.2.4 **To require** conveyance of lands within the Natural Heritage Network to a public authority as part of the *development approval* process at no cost to Markham. Conveyance of lands within the Natural Heritage Network shall not be considered as contributing towards the parkland dedication requirements under the Planning Act.
- 3.1.2.5 **That** where lands in the Natural Heritage Network cannot be secured in public ownership, the following stewardship and regulatory tools shall be used to secure the appropriate protection and/or public access for the lands:
- a) municipal land use controls;
 - b) education;
 - c) stewardship and other agreements; and
 - d) conservation easements.
- 3.1.2.6 **To work** in partnership with the Region, other senior levels of government, community partners and landowners, to secure in public ownership strategic land parcels within the Natural Heritage Network for the purpose of environmental protection.
- 3.1.2.7 **That** in addition to conveyance of lands within Natural Heritage Network through *development approvals* in Section 3.1.2.4, Markham may also consider the following options for acquiring land into public ownership:
- a) public acquisition;
 - b) land exchanges;
 - c) donations, gifts, bequests; and
 - d) other appropriate methods.
- 3.1.2.8 **That** the Markham Environmental Land Securement Fund or other funding sources as may be appropriate, may be used to contribute to the costs of acquisition of properties within the Natural Heritage Network.
- 3.1.2.9 **To prepare** Natural Heritage Network Edge Management Guidelines to address appropriate mechanisms for protecting and managing the interface between lands within the Natural Heritage Network and other land uses.
- 3.1.2.10 **To minimize** the impact of required infrastructure on the Natural Heritage Network, where need is demonstrated and no reasonable alternative is available, by:
- a) avoiding *key natural heritage features* and *key hydrologic features* and the associated *vegetation protection zone* where feasible in accordance



- with the recommendations of an appropriate study;
- b) minimizing the amount of the Natural Heritage Network traversed and/or occupied by such infrastructure;
- c) locating planned linear infrastructure parallel to *valleylands* outside of the minimum *vegetation protection zone* identified in Section 3.1.2.23;
- d) minimizing the impacts and disturbance of the existing landscape including, but not limited to, impacts caused by light intrusions, noise and road salt through planning, design and construction practices;
- e) optimizing existing capacity and coordination with different infrastructure services;
- f) working with senior governments and agencies to address appropriate mitigation measures to minimize the impact of public infrastructure improvements and human activity on wildlife habitats; and
- g) ensuring compliance with the applicable policies of the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan by demonstrating how the policies are being met through environmental approvals.

Key Natural Heritage Features, Key Hydrologic Features and Species at Risk

Key natural heritage features and *key hydrologic features* are the principal features of the Natural Heritage Network that are identified by the Province for protection.

Key natural heritage features and *key hydrologic features* support a wide variety of habitat for both plant and animal species and in particular, habitat for *endangered species*, *threatened species* and *special concern species*. *Endangered* and *threatened species* may be subject to Provincial regulations governing habitat and species protection.

It is the intent of this Plan that *key natural heritage features* and *key hydrologic features* shall be assessed, expanded and planned for in a comprehensive and integrated manner, which builds upon and supports the Natural Heritage Network.

It is the policy of Council:

- 3.1.2.11 **That** the components of *key natural heritage features* and *key hydrologic features* include the following:
- a) *wetlands*;
 - b) significant portions of the habitat of:
 - i. *endangered species* and *threatened species*;
 - ii. *special concern species* in the Oak Ridges Moraine Conservation Area and Greenbelt Plan Area; and
 - iii. *Provincially rare species* in the Oak Ridges Moraine Conservation Plan Area;
 - c) *fish habitat*;
 - d) Life Science Areas of Natural and Scientific Interest;
 - e) *significant valleylands*;
 - f) *significant woodlands*;
 - g) *significant wildlife habitat*;
 - h) sand barrens, savannahs and tallgrass prairies;

It is intended that key natural heritage features and key hydrologic features be assessed, expanded and planned for in a comprehensive and integrated manner, which builds upon and supports the Natural Heritage Network.

- i) *permanent and intermittent streams*; and
- j) *seepage areas and springs*.

3.1.2.12

To protect and enhance *key natural heritage features* and *key hydrologic features* and their functions by:

- a) prohibiting development, *redevelopment* and *site alteration* within *key natural heritage features* and *key hydrologic features* and their *vegetation protection zones* as determined through an environmental impact study, natural heritage evaluation and/or hydrological evaluation, or equivalent study identified in Section 3.1.2.23 except for uses provided for in this Plan;
- b) evaluating features not identified on Map 5 – Natural Heritage Features and Landforms and Map 6 – Hydrologic Features using procedures developed or applied by the Province to determine if they qualify for protection as *key natural heritage features* and *key hydrologic features*; and
- c) working with other governments and agencies to identify:
 - i. habitat for *endangered species*, *threatened species*, and *special concern species* and provide habitat protection through recovery strategies or management plans in accordance with provincial policy; and
 - ii. Life Science Areas of Natural and Scientific Interest and providing protection policies consistent with senior government requirements.

3.1.2.13

That *key natural heritage features* and *key hydrologic features* on Map 5 – Natural Heritage Features and Landforms and Map 6 – Hydrologic Features shall be precisely delineated on a site-by-site basis using procedures established by the Region, Toronto and Region Conservation Authority and the Province, where applicable, and through the approval of Planning Act applications where supported by the appropriate study. Where approved by Council, the refined boundaries of the features may be identified without an amendment to this Plan.

Valleylands and Stream Corridor Policies

Valleylands and stream corridors as shown on Map 6 – Hydrologic Features comprise *significant valleylands*, and *permanent and intermittent streams* that are defined by the Toronto and Region Conservation Authority and the Province. These lands support flood protection, erosion control, nature-based recreation uses and provide for *fish habitat* and flora and fauna. They are an integral part of the Natural Heritage Network and frequently provide ecological linkage among natural heritage features.

It is the intent of this Plan to ensure the long-term protection of *valleylands* and stream corridors through the policies contained within this Section and the management documents produced by the Toronto and Region Conservation Authority.

Valleylands and watercourse corridors support flood protection, erosion control, nature-based recreation uses and provide for fish habitat and flora and fauna.

It is a policy of Council:

- 3.1.2.14 **To only permit** development, *redevelopment* and *site alteration* within *valleylands* and stream corridors and their associated *vegetation protection zones*, in accordance with Section 3.1.2.23 of this Plan on:
- a) lands identified as Special Policy Areas on Map 8 – Special Policy Areas and in accordance with Toronto and Region Conservation Authority regulations and provincial requirements; and
 - b) existing developed properties regulated under the Conservation Authorities Act with the approval of the Toronto and Region Conservation Authority.
- 3.1.2.15 **To work** in cooperation with the Toronto and Region Conservation Authority to protect and improve *fish habitat* having regard for the recommendations in approved fisheries management plans. Development, *redevelopment* and *site alteration* is not permitted where it impacts *fish habitat* except in accordance with provincial and federal requirements.
- 3.1.2.16 **That** *vegetation protection zones* for *significant valleylands*, *permanent* and *intermittent streams* and *fish habitat* be provided in accordance with Section 3.1.2.23.

Woodlands and Wetlands

Woodlands provide ecological, social, economic, and environmental benefits including enhancing *biodiversity*, providing *wildlife habitat*, moderating temperatures, erosion control, pollution filtration, opportunities for passive recreation and respite from the urban environment. *Woodlands* are generally associated with *valleylands* or fragmented tableland parcels throughout Markham. It is a priority of Markham to protect *woodlands* of all sizes and integrate them into existing and new communities, as well as protect and actively manage the *urban forest*.

The *woodlands* identified on Map 5 – Natural Heritage Features and Landforms are mapped using best available information based on existing data sources from the City, York Region and Toronto and Region Conservation Authority and are subject to additions and refinement in the field. It is the intent of this Plan to protect *significant woodlands* and encourage the protection and enhancement of all other *woodlands* to the extent possible.

Wetlands are areas that are seasonally or permanently covered by shallow water or where the water table is close to or at the ground surface and are generally classified as swamps, marshes, bogs or fens. *Wetlands* control and store surface water to assist in flood control and *groundwater recharge* and support water tolerant vegetation. The *wetlands* shown on Map 6 – Hydrologic Features include those wetlands evaluated using standard provincial procedures and those wetlands that have yet to be evaluated.

It is a priority of Markham to protect woodlands of all sizes and integrate them into existing and new communities, as well as protect and actively manage the urban forest.

It is the policy of Council:

3.1.2.17

To increase the quantity and quality of *woodlands* in Markham by protecting and enhancing:

- a) *significant woodlands* as defined by the Region and Province and their *vegetation protection zones* by:
 - i. prohibiting development, *redevelopment* and *site alteration* on *significant woodlands* and their *vegetation protection zones*;
 - ii. integrating *significant woodlands* into new communities as amenity features which may include a woodlot management plan to the satisfaction of Markham;
 - iii. securing public ownership of *significant woodlands* through the *development approval* process; and
 - iv. securing conservation easements and other protection tools for the long-term protection of *significant woodlands* in private ownership; and
- b) other *woodlands* and their *vegetation protection zones* by:
 - i. prohibiting development, *redevelopment* and *site alteration* on *woodlands* and their *vegetation protection zones* except where all the following requirements are met:
 - the *woodlands* are not connected to the Greenway System;
 - there is a significant net gain in *woodland* cover demonstrated through a woodland compensation plan as described in Section 3.1.2.18;
 - impact to the *woodlands* is unavoidable;
 - the *woodland* is determined through an environmental impact study, natural heritage evaluation or equivalent to be a *cultural or regenerating woodland* and not suitable for restoration and rehabilitation;
 - ii. integrating *woodlands* into new communities as amenity features which may require a woodlot management plan to the satisfaction of Markham;
 - iii. securing public ownership of *woodlands* through the *development approval* process; and
 - iv. securing conservation easements and other protection tools for the long-term protection of *woodlands* in private ownership.

3.1.2.18

That a woodland compensation plan shall address *woodland* restoration in the following areas:

- a) Natural Heritage Network Enhancement Lands; and
- b) areas adjacent to existing *key natural heritage features* and *key hydrologic features*.

Woodland compensation will not be accepted in areas that already meet the definition of *woodland* or within *key natural heritage features* or *key hydrologic features* or their *vegetation protection zones*.

3.1.2.19

To work in collaboration with the Province, Region and other stakeholders involved in woodland management to maintain and enhance private and public woodland resources and to implement good forestry practices.



- 3.1.2.20 **To protect** *wetlands* and their functions where:
- a) shown on Map 6 – Hydrologic Features as Provincially Significant and Locally Significant;
 - b) shown on Map 6 – Hydrologic Features as unevaluated, where their importance and function are determined appropriate for protection by and environmental impact study; and
 - c) not shown on Map 6 – Hydrologic Features, but identified and evaluated by an environmental impact study or hydrologic evaluation using standard provincial procedures.

3.1.2.21 **To only permit** development, *redevelopment* and *site alteration* within 120 metres of a *wetland*, but outside of the *vegetation protection zone*, where it has been demonstrated through an appropriate study that there will be no negative impacts to the feature or its functions. The study shall identify the importance, function and means of protection and/or maintenance of function to the satisfaction of the approval authority.

3.1.2.22 **To work** with the Ministry of Natural Resources and/or Toronto and Region Conservation Authority to confirm *wetlands* and their boundaries. Confirmation of *wetlands* and their boundaries shall not require an amendment to this Plan.

Vegetation Protection Zone

A *vegetation protection zone* is a buffer area adjacent to a natural heritage feature or a hydrologic feature that is intended to protect the feature and its *ecological function* from adjacent land use impacts in order to maximize the long-term viability of the feature. *Vegetation protection zone* requirements vary depending on the feature and the relevant policy application (local, regional or provincial). Where development, *redevelopment* or *site alteration* is proposed on lands adjacent to a feature, the extent of a *vegetation protection zone* is determined by an environment impact study, natural heritage evaluation and/or hydrological evaluation, or equivalent as identified in Table 3.1.2.23.

The Rouge *watershed* tributaries are subject to application of the ecological delineation criteria approved in 2009, and are incorporated into this Plan as the Rouge Watershed Protection Area Criteria in Section 3.1.4. The application of the Rouge Watershed Protection Criteria incorporates *vegetation protection zones*.

It is the intent of this Plan that where development, *redevelopment* and *site alteration* is proposed adjacent to a natural heritage feature or hydrologic feature, a *vegetation protection zone* be provided and secured in public ownership as part of the Natural Heritage Network.

It is the policy of Council:

- 3.1.2.23 **To identify** and protect *vegetation protection zones* adjacent to natural heritage and hydrologic features by:
- a) requiring an environmental impact study, natural heritage evaluation and/or hydrological evaluation, or equivalent to confirm the *vegetation protection zone* where development, *redevelopment* or *site alteration*

A vegetation protection zone is a buffer area intended to protect a natural heritage or hydrologic feature and its ecological function from adjacent land use impacts.

is proposed within the minimum adjacent lands outlined in Table 3.1.2.23. The *vegetation protection zone* shall be based on the minimum standards provided in Table 3.1.2.23 and any additional lands required to protect the feature; and

- b) securing *vegetation protection zones* through:
 - i. conveyance into public ownership through the *development approval* process; and
 - ii. appropriate zoning controls.

MINIMUM VEGETATION PROTECTION ZONES

On the Oak Ridges Moraine Conservation Plan Area and the Greenbelt Plan Area the standards specified by the Provincial Plans will apply. Standards provided in this Table are minimums and their adequacy must be evaluated through site-specific studies.

Feature	Minimum Adjacent Lands **	Minimum Vegetation Protection Zone	Measurement*
<i>Provincially significant wetlands</i> , locally significant wetlands and <i>wetlands</i> on the Oak Ridges Moraine and the Greenbelt	120 metres	30 metres	Edge of the feature
All other <i>wetlands</i> outside the Oak Ridges Moraine and the Greenbelt	120 metres	15 metres	Edge of the feature
<i>Seepage areas</i> and <i>springs</i> on the Oak Ridges Moraine and the Greenbelt	120 metres	30 metres	Edge of the feature
<i>Significant valleylands</i>	120 metres	30 metres	Long-term stable top of bank
<i>Permanent and intermittent streams</i> outside of the Urban Area as identified on Map No. 12 – Urban Area and Built-Up Area	120 metres	30 metres on drainage areas of 30 hectares or greater, and within the Oak Ridges Moraine Conservation Plan Area and Greenbelt Plan Area 10 metres on drainage areas between 10 and 30 hectares Drainage areas less than 10 hectares determined by an environmental impact study	Limit of the <i>floodplain</i> or hazard lands as defined by the TRCA
<i>Permanent and intermittent streams</i> inside the Urban Area as identified on Map No. 12 – Urban Area and Built-Up Area	60 metres	10 metres or in accordance with Section 3.1.2.26	Greater of stable top of bank or <i>floodplain</i>

Feature	Minimum Adjacent Lands **	Minimum Vegetation Protection Zone	Measurement*
<i>Fish habitat</i>	120 metres	30 metres	Edge of water feature
<i>Significant woodlands on the Oak Ridges Moraine and Greenbelt</i>	120 metres	30 metres	Drip line of edge trees or outermost trunks for Oak Ridges Moraine
<i>Significant woodlands off the Oak Ridges Moraine and Greenbelt</i>	120 metres	10 metres	Drip line of edge trees
<i>Woodlands</i>	60 metres	10 metres	Drip line of edge trees
<i>Significant wildlife habitat and habitat of endangered species and threatened species and Provincially rare species on the Oak Ridges Moraine</i>	120 metres	Determined by an environmental impact study evaluation and/or applicable Provincial regulation and guideline	Edge of the feature
Sand barrens, savannahs and tallgrass prairies on the Oak Ridges Moraine or Greenbelt	120 metres	30 metres	Edge of the feature
Rouge River tributaries within the Rouge Watershed Protection Area	120 metres	Determined in accordance with Section 3.1.4.1	Edge of the feature
Natural heritage and hydrologic features in the Urban Area as identified on Map No. 12 – Urban Area and Built-Up Area	NA	10 metres or in accordance with Section 3.1.2.26	Edge of the feature

Table 3.1.2.23

* Measurement may also be determined in accordance with the Ministry of Natural Resources Natural Heritage Reference Manual

** The minimum adjacent lands are those lands contiguous to a natural heritage feature or hydrologic feature as measured from the feature, exclusive of property boundaries.

3.1.2.24 **That** where development, *redevelopment* or *site alteration* outside the Urban Area, as shown on Map 12 – Urban Area and Built-Up Area, is proposed between *key natural heritage features* or *key hydrologic features* within the minimum adjacent lands, the minimum adjacent land requirements identified in Section 3.1.2.23 a) may be increased.

3.1.2.25 **To coordinate** with the York Region requirements for a natural heritage

evaluation and/or hydrological evaluation, or an environmental impact study where lands within the Greenway System and the Region's Greenlands overlap.

- 3.1.2.26 **To consider** a reduced *vegetation protection zone* within the Urban Area, as shown on Map 12 – Urban Area and Built-Up Area', only where:
- a) supported by an environmental impact study satisfactory to the City and the Toronto and Region Conservation Authority;
 - b) site constraints such as existing lot size or physical site characteristics clearly limit the ability to achieve a minimum 10-metre *vegetation protection zone*; and
 - c) the *vegetation protection zone* was delineated through a previous *development approval* or secondary plan or area and site specific policy.
- 3.1.2.27 **That** *vegetation protection zones* shall be managed as part of the feature and where required restored with native plantings. Site grading inside of a *vegetation protection zone* shall only be permitted where it does not impact the feature or the restoration of the *vegetation protection zone* as determined in an environmental impact study.
- 3.1.2.28 **That** should areas of natural or scientific interest (life science or earth science) be identified in Markham, the feature and its *vegetation protection zone* shall be protected in accordance with Provincial requirements.

3.1.3 Natural Heritage Network Enhancement Lands

Natural Heritage Network Enhancement Lands are areas that have the potential to increase the resilience of the Natural Heritage Network by, among other things, facilitating movement of wildlife and dispersal of plants among features. These areas can improve the *biodiversity* and connectivity of *key natural heritage features* and *key hydrologic features*, *valleylands*, and *woodlands*, and improve the *ecological function* of the network. The Natural Heritage Network Enhancement Lands are shown symbolically on Map 4 – Greenway System as 'Core Area Enhancements', 'Core Linkage Enhancements' and 'Natural Heritage Restoration Areas'.

'Core Area Enhancements' have been identified as areas that would greatly enhance the function of existing natural areas by improving their shape and marginally increasing their size to provide the minimum area required to support valued species in the long term. This is done in recognition of the increased stresses put on smaller natural features within urban areas. 'Core Linkage Enhancements' are intended to provide wildlife corridors and mitigate the reduction in connectivity among natural features that generally occurs when agricultural lands are urbanized. 'Natural Heritage Restoration Areas' are publicly owned lands that are targeted for natural heritage restoration activities such as reforestation and wetland rehabilitation.

It is the intent of this Plan to identify and refine 'Core Area

Natural Heritage Network Enhancement Lands are areas that have the potential to increase the resilience of the Natural Heritage Network by facilitating movement of wildlife and dispersal of plants among features.

Enhancements', 'Core Linkage Enhancements' and 'Natural Heritage Restoration Areas', and seek their protection and enhancement through the *development approval* process for development, *redevelopment* and *site alteration*, particularly on lands designated as 'Future Urban Area' on Map 3 – Land Use. In addition, naturalized stormwater management facilities adjacent to *valleylands* and stream corridors have the potential to enhance the function of the Natural Heritage Network.

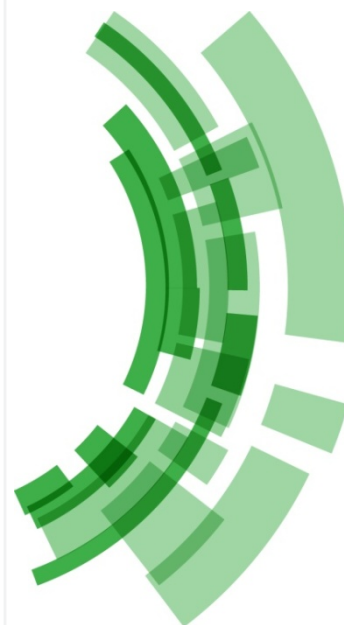
It is the policy of Council:

- 3.1.3.1 **To identify** Natural Heritage Network Enhancement Lands comprising 'Core Area Enhancements', 'Core Linkage Enhancements', and 'Natural Heritage Restoration Areas' shown symbolically on Map 4 – Greenway System and integrate them into the Natural Heritage Network to:
- improve *biodiversity* around existing natural features and protected provincial policy areas;
 - improve connectivity of *subwatersheds* and their features; and
 - improve *ecological function*.
- 3.1.3.2 **To delineate** the Natural Heritage Network Enhancement Lands through one or more of the following studies: a *subwatershed plan*, master environmental servicing plan, environmental impact study, natural heritage evaluation and/or hydrological evaluation, or equivalent and where appropriate, identify additional Natural Heritage Network Enhancement Lands for long-term protection.
- 3.1.3.3 **To require** the protection and enhancement of Natural Heritage Network Enhancement Lands through the *development approval* process for development, *redevelopment* and *site alteration*, particularly on lands designated as 'Future Urban Area' on Map 3 – Land Use, to maintain existing connectivity among natural heritage and hydrologic features and create large blocks of habitat. Natural heritage enhancements may also be secured through greening initiatives, partnership and infrastructure projects to achieve ecological gains.
- 3.1.3.4 **That** Natural Heritage Network Enhancement Lands shall be considered a priority for public acquisition using the Markham Environmental Land Securement Fund or other funding sources as may be appropriate.
- 3.1.3.5 **To work** cooperatively with landowners and agencies to ensure the 'Natural Heritage Restoration Areas' shown on Map 4 – Greenway System are appropriately phased to minimize impacts on agricultural operations.

3.1.4 Rouge Watershed Protection Area

The 'Rouge Watershed Protection Area' as shown on Map 4 – Greenway System comprises the Rouge watercourses, their associated *valleylands* and riparian zones, *key natural heritage features* and *key hydrologic features* associated with the corridor and the associated *vegetation protection zones*. The 'Rouge Watershed Protection Area' forms part of the Natural Heritage Network and the Greenbelt.

The 'Rouge Watershed Protection Area' is of particular significance given



the extensive public investment in establishing the Rouge Park and the efforts of all levels of government in preparing the Rouge North Management Plan.

The Rouge North Management Plan provides the framework for the delineation of the boundary of the 'Rouge Watershed Protection Area' and contains objectives to ensure the long-term protection of Rouge *watershed* tributaries that flow into the Rouge Park. The Rouge North Implementation Manual provides the requirements for the interpretation and refinement of the 'Rouge Watershed Protection Area' boundary. The boundary of the 'Rouge Watershed Protection Area' is preliminary and will continue to be refined through the *development approvals* process.

It is the policy of Council:

3.1.4.1

That where development, *redevelopment* or *site alteration* is proposed adjacent to a watercourse within the Rouge *watershed*, the refinement and confirmation of the boundary of the 'Rouge Watershed Protection Area' as shown on Map 4 – Greenway System will be required in accordance with the 'Rouge Watershed Protection Area' objectives contained in Table 3.1.4.1 below and the requirements of the boundary delineation criteria for the 'Rouge Watershed Protection Area' contained in the Rouge North Implementation Manual.

The Rouge Watershed Protection Area is of particular significance given the extensive public investment in establishing the Rouge Park and the efforts of all levels of government in preparing the Rouge North Management Plan.

ROUGE WATERSHED PROTECTION AREA CRITERIA

	Criterion	Objective
1	Watercourses and existing regulatory <i>floodplain</i>	To protect form, function, ecological health and <i>floodplain</i> function of the watercourses.
2	Meander belt	To provide for the natural evolution of stream morphology and minimize long-term risk to life and property.
3	<i>Valleylands</i> and stream corridor features	To preserve the stability and integrity of the <i>valleylands</i> and stream corridors and to preserve and enhance <i>valleylands</i> and stream corridors consistent with the intent of the TRCA policy.
4	Natural vegetation communities and riparian vegetation communities and interior forest conditions	To preserve and protect existing natural vegetation, riparian zones, aquatic habitats, <i>woodlands</i> and interior forest condition consistent with TRCA programs.
5	<i>Wetlands</i> (evaluated and unevaluated)	To preserve and protect <i>wetlands</i> (evaluated and unevaluated) and Life Science Areas of Natural and Scientific Interest in accordance with Markham, TRCA and Provincial policy and regulations.
6	<i>Significant habitat for endangered, threatened, special concern</i> or provincially rare species	To protect habitats for vulnerable, <i>threatened and endangered species</i> and <i>species of concern</i> as identified by TRCA, Provincial and Federal governments.
7	Terrestrial corridor habitat function and woodland	To provide, maintain and enhance corridors required for species movement, maintain appropriate

	Criterion	Objective
	restoration requirement	<i>Biodiversity</i> consistent with TRCA policy and programs and to provide for the enhancement of natural vegetation communities and interior forest conditions and to enhance <i>woodland</i> connectivity and reduce fragmentation.
8	Seepage areas and areas exhibiting groundwater discharge	To ensure maintenance of baseflow for habitat for aquatic and <i>wetland</i> species and maintain and enhance water quality, consistent with TRCA programs
9	Vegetation community maintenance area to protect riparian zones	To protect vegetation communities, species and habitats from edge effects; to protect from invasive species colonization; to achieve TRCA restoration targets; to protect interior forest habitat; to accommodate access; to protect adjacent properties from damage, and to accommodate recreational uses
10	Cultural and archaeological resources	To identify and protect cultural heritage and archaeological resources and to provide for cultural heritage interpretation.

Table 3.1.4.1

3.1.4.2 **That** the 'Rouge Watershed Protection Area' boundary along the main branch of the Little Rouge Creek on lands in private ownership shall be interpreted as coincident with the Greenbelt Plan boundary.

3.1.4.3 **To support** the long-term protection of the Little Rouge Creek corridor as shown on Map 6 – Hydrologic Features as a functional and sustainable ecological corridor generally extending 600 metres in width, with the long-term goal of achieving interior forest habitat conditions within the corridor.

3.1.4.4 **That** in the event that the minimum *vegetation protection zone* identified in Section 3.1.2.23 is not consistent with the boundary as established through the application of the 'Rouge Watershed Protection Area' criteria identified in Section 3.1.4.1, the boundary of the Natural Heritage Network shown on Map 4 – Greenway System shall be deemed to be the boundary which provides the greatest protection for the natural feature.

3.1.4.5 **That** where lands are located both within the Rouge North Management Plan Area and the Greenbelt Plan Area the most restrictive policies shall prevail.

3.1.5 Oak Ridges Moraine Conservation Plan and Greenbelt Plan

The Provincial Oak Ridges Moraine Conservation Plan provides policies and guidelines for the protection of the *landform features* and natural heritage resources within the Oak Ridges Moraine Conservation Plan Area shown on Map 7 – Provincial and Federal Policy Areas. The Provincial Greenbelt Plan provides policies and guidelines for the management of lands within the Greenbelt Plan Area shown on Map 7 – Provincial and Federal Policy Areas. In addition to the land use policies in Section 8.6, the following

policies apply to all lands within the Oak Ridges Moraine Conservation Plan Area and the Greenbelt Plan Area.

It is the intent of this Plan to support the Provincial Plans and implement the requirements of the Provincial Plans. The Oak Ridges Moraine Conservation Plan Area and the Greenbelt Plan Area form part of the Greenway System as shown on Map 4 – Greenway System.

It is the policy of Council:

- 3.1.5.1 **To protect** and manage lands within the Oak Ridges Moraine Conservation Plan Area and the Greenbelt Plan Area as shown on Map 7 – Provincial and Federal Policy Area in accordance with the policies of the appropriate Provincial Plans and this Plan where applicable. Development, *redevelopment* and *site alteration* shall only be permitted where they comply with applicable provincial legislation.
- 3.1.5.2 **That** for the purpose of interpretation of Provincial and Regional policy, agricultural lands within the Oak Ridges Moraine Conservation Plan Area and the Greenbelt Plan Area are classified *prime agricultural lands*.
- 3.1.5.3 **To prohibit** development, *redevelopment* or *site alteration* within key *natural heritage features* and *key hydrologic features* and their *vegetation protection zones* in the Oak Ridges Moraine Conservation Plan Area and the Greenbelt Plan Area with the exception of conservation, resource management, nature-based recreation and infrastructure.
- 3.1.5.4 **That** existing uses, expansion to existing uses, reconstruction of existing buildings and structures and conversions of existing uses to more compatible uses may be permitted subject to satisfying the specific applicable policies in the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan providing that the use or expansion was lawfully used for that purpose on or before November 15, 2001 within the Oak Ridges Moraine Conservation Plan Area and on or before December 15, 2004 in the Greenbelt Plan Area.
- 3.1.5.5 **That** activities related to non-renewable resources, including mineral aggregates and wayside pits, may be permitted in the Oak Ridges Moraine Conservation Plan Area and the Greenbelt Plan Area subject to an amendment to this Plan and the specific policies in the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan.
- 3.1.5.6 **That** the technical papers prepared by the Province associated with the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan shall be used to provide guidance in the definition and implementation of policies related to *key natural heritage features* and *key hydrologic features* as identified in the Plans.
- 3.1.5.7 **That** lands identified as ‘Oak Ridges Moraine Countryside’ and ‘Oak Ridges Moraine Natural Linkage Area’ on Map 7 – Provincial and Federal Policy Areas, and ‘Oak Ridges Moraine Landform Conservation Area Category 2’ on Map 5 – Natural Heritage Features and Landforms, and ‘Oak Ridges Moraine Areas of High Aquifer Vulnerability’ on Map 6 – Hydrologic

It is the intent of this Plan to support and implement the requirements of the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan.

- Features, are subject to the specific policies of the Oak Ridges Moraine Conservation Plan.
- 3.1.5.8 **To recognize** that the southern boundary of the Oak Ridges Moraine is based on the 245-metre contour established by Ontario Regulation 01-02. Where lands are certified by an Ontario Land Surveyor as below the 245-metre contour to the satisfaction of Markham and the Region such lands shall be exempt from the provisions of the Oak Ridges Moraine Conservation Plan, but shall be subject to the 'Protected Countryside' policies of the Greenbelt Plan.
- 3.1.5.9 **To maintain** and where possible restore lands identified as 'Natural Heritage Restoration Areas' shown on Map 4 – Greenway System within the 'Oak Ridges Moraine Natural Linkage Area' shown on Map 7 – Provincial and Federal Policy Areas that support a regional scale natural linkage and ecological corridor function consistent with the Natural Linkage objectives of Section 12 of the Oak Ridges Moraine Conservation Plan.
- 3.1.5.10 **That** lands identified as 'Oak Ridges Moraine Countryside' on Map 7 – Provincial and Federal Policy Areas are intended to support and provide for the continuation of *agricultural uses* and form part of the Greenway System.
- 3.1.5.11 **That** applications for development, *redevelopment* or *site alteration* on lands identified as 'Oak Ridges Moraine Landform Conservation Area' Category' on Map 5 – Natural Heritage Features and Landforms shall be accompanied by a Landform Conservation Plan and be consistent with the policies and requirements in the Oak Ridges Moraine Conservation Plan.
- 3.1.5.12 **That** applications for development, *redevelopment* or *site alteration* on lands identified as 'Oak Ridges Moraine Areas of High Aquifer Vulnerability' on Map 6 – Hydrologic Features shall be subject to the policies of Section 8.6.1.4 b) of this Plan.
- 3.1.5.13 **To only permit** consents on lands identified as Oak Ridges Moraine Conservation Plan Area on Map 7 – Provincial and Federal Policy Areas, subject to meeting all the requirements of Section 32 of the Oak Ridges Moraine Conservation Plan.
- 3.1.5.14 **That** lands identified as Greenbelt Natural Heritage System on Map 7 – Provincial and Federal Policy Areas are subject to additional Natural Heritage System policies contained in the Greenbelt Plan and Section 8.6.1.8 of this Plan. Refinements to the boundary of the Natural Heritage System shall only be considered through a provincial review process.
- 3.1.5.15 **To only permit** consents on lands identified as the Greenbelt Plan Area on Map 7 – Provincial and Federal Policy Areas, subject to meeting all the requirements of Section 4.6 of the Greenbelt Plan.



3.2 URBAN FOREST SYSTEM

The Urban Forest System comprises all *woodlands*, hedgerows and small woodlots, individual trees and shrubs, understorey and soils that grow on public and private property in Markham. The *urban forest* provides various benefits to Markham including reduction in air pollution, moderation of urban heat island effect, energy savings, mitigating climate change effects, habitat for urban adapted wildlife, stormwater management, recreation and opportunities for physical activity, *biodiversity*, improving mental well-being and contributing to the quality and character of the urban environment and supporting Markham's Greenway System.

It is the policy of Council:

- 3.2.1 **To protect**, expand and integrate the *urban forest* in existing and new communities.
- 3.2.2 **To develop** in cooperation with York Region an Urban Forest Management Plan to address local *tree canopy* targets, tree species diversity, invasive species management, soil conservation strategies to implement *tree canopy* targets and provide for the long-term maintenance of Markham's *urban forest*.
- 3.2.3 **To encourage** the enhancement of the *urban forest* through tree planting and restoration of public and private lands in the urban area. Restoration sites may include hydro corridors, municipal parks, schools, stormwater management ponds and other public infrastructure sites. Diversity of tree species shall be encouraged to ensure a resilient and healthy *urban forest*.
- 3.2.4 **To require** appropriate compensation in the form of rehabilitation and enhancement of the *urban forest* where the *urban forest* has been impacted by the provision of infrastructure.
- 3.2.5 **To maintain** and update the Tree Preservation By-law to manage the preservation of trees on private property and cooperate with the York Region in the implementation of the Regional Tree By-law.
- 3.2.6 **To protect** and enhance the *urban forest*, including hedgerows and small woodlots identified for protection by an environmental impact study, and integrate the *urban forest* into development, *redevelopment* and *site alteration* where possible, particularly where it provides a linkage to other natural areas, provides for wildlife habitat and movement, and is composed of healthy and mature trees.
- 3.2.7 **To increase** awareness of the benefits of the *urban forest* and promote public education and involvement in the stewardship of Markham's *urban forest*.
- 3.2.8 **To work** in cooperation with York Region to track and measure the health and environmental benefits of the *urban forest*.

The Urban Forest System comprises all woodlands, hedgerows and small woodlots, individual trees and shrubs, understorey and soils that grow on public and private property in Markham.

3.3 WATER SYSTEM

Water is a resource that sustains aquatic and wetland habitats, provides drinking water and supports day to day residential and employment activities and recreational opportunities. The Water System policies in this Section provide a framework for *watershed* planning, guide the delivery of safe and sustainable water and wastewater services as well as provide direction for the protection of local surface water and groundwater resources.

3.3.1 Watershed Planning

Watershed plans provide management direction for the protection of natural heritage and hydrologic features at the *watershed* scale using an ecosystem approach. *Watershed plans* have been prepared for the five *watersheds* located in Markham including the Don, Rouge, Duffins, Petticoat and Highland *watersheds* identified on Map 6 – Hydrologic Features. These plans provide a community vision and policy framework to achieve a sustainable and healthy *watershed* through the protection of safe and sustainable local surface water and groundwater resources and an integrated water conservation approach.

Markham recognizes *watershed* and *subwatershed* planning and its ecosystem-based approach to resource management as an important tool for guiding land use and infrastructure decisions that protect water and land resources.

It is the policy of Council:

- 3.3.1.1 **To work** in cooperation with the Toronto and Region Conservation Authority and other partners in the preparation and update of the Don, Rouge, Duffins, Petticoat and Highland *watershed plans* where required.
- 3.3.1.2 **To work** in partnership with the Toronto and Region Conservation Authority, York Region and other partners in the preparation of a framework for the implementation of the Don, Rouge, Duffins, Petticoat and Highland *watershed plans* that may include the preparation of detailed implementation plans and the consideration of appropriate best management practices and sustainable technologies in development of the 'Future Urban Area' lands shown on Map 3 – Land Use.
- 3.3.1.3 **To work** in cooperation with the Toronto and Region Conservation Authority, Ministry of Natural Resources and other partners, in the preparation of *subwatershed plans* for smaller drainage areas within Markham's *watershed* area boundaries.
- 3.3.1.4 **To require** the preparation of *subwatershed plans* prior to development in the 'Future Urban Area' as shown on Map 3 – Land Use to guide land use options and identify mitigation and restoration strategies required to protect and enhance natural heritage and hydrologic features and their *ecological functions* and hydrologic functions.
- 3.3.1.5 **To implement** *watershed* and *subwatershed plans* in the preparation of

Markham recognizes watershed and subwatershed planning and its ecosystem based approach to resource management as an important tool for guiding land use and infrastructure decisions that protect water and land resources.

master environmental servicing plans and all other required studies prepared in support of development, *redevelopment* and *site alteration*, where appropriate.

3.3.2 Groundwater and Surface Water Resources

Groundwater resources sustain rural drinking water supplies and support sensitive aquatic habitat and natural features throughout Markham. Features considered to be critical to the protection of these resources include recharge areas, discharge areas, and lands above aquifers that are susceptible to contamination.

Land uses impacting drinking water supplies are managed through the Clean Water Act and local source protection plans that consider the sensitivity of specific features. In Markham, the sensitivity of local aquifers to potential contamination is limited. *Highly vulnerable aquifers* identified in the local source protection plan are low and moderate risk areas and are subject to salt management best practices. From a drinking water quantity perspective, *significant groundwater recharge areas* and intake protection zones lie beyond Markham boundaries and will be managed by adjacent municipalities through implementation of source protection plan policies.

Groundwater and surface water resources in Markham are important from an ecological perspective and sensitive features are protected through this Plan and the provincial Oak Ridges Moraine Conservation Plan and the Greenbelt Plan. *Watershed plans* prepared by the Toronto and Region Conservation Authority have also identified potential *significant local groundwater recharge areas* which contribute to maintaining aquifer levels and aquatic habitat and may be further defined through a *subwatershed plan*. At a local scale, sensitive features such as small streams will be identified and protected through the *development approval* process.

It is the policy of Council:

- 3.3.2.1 **To direct** development, *redevelopment* and *site alteration* away from *sensitive groundwater features* and *sensitive surface water features*.
- 3.3.2.2 **To work** with the Toronto and Region Conservation Authority to manage the water balance as a result of development to maintain the natural quality, hydrological function and *ecological integrity* of *key hydrologic features* as much as possible using best management practices suited to terrain and hydrogeological conditions.
- 3.3.2.3 **To work** with provincial agencies, York Region, adjacent municipalities and private landowners to manage activities which pose potential contamination risks on *highly vulnerable aquifers* as identified on Appendix J – Toronto and Region Source Protection Area including salt management and the manufacturing, handling and storage of organic solvents and dense non-aqueous phase liquids (DNAPLS) in accordance with industry and provincial standards.

Groundwater and surface water resources in Markham are important from an ecological perspective and sensitive features are protected through this Plan and the provincial Oak Ridges Moraine Conservation Plan and Greenbelt Plan.

- 3.3.2.4 That applications for development approval within *highly vulnerable aquifers* identified on Appendix J – Toronto and Region Source Protection Area involving the manufacturing, handling and storage of bulk fuel or hazardous chemicals defined under Ontario Regulation 347, shall be accompanied by a *contaminant management plan* as deemed necessary by Markham.
- 3.3.2.5 **That** where potentially *significant local groundwater recharge areas* are identified in an approved *watershed plan* and/or *subwatershed plan*, Markham shall require a *subwatershed plan*, a master environmental servicing plan, an environmental impact study, a natural heritage evaluation and/or hydrological evaluation, or equivalent. These studies shall include a hydrogeological study and modeling component to confirm:
- a) recharge conditions;
 - b) groundwater levels and flow patterns;
 - c) areas of groundwater/surface water interaction; and
 - d) reliance of aquatic habitat for target species on groundwater discharge.
- 3.3.2.6 **To support** programs developed by York Region and the Toronto and Region Conservation Authority to monitor the quality and quantity of surface water and groundwater systems.
- 3.3.2.7 **That** where development, *redevelopment* or *site alteration* is proposed on lands containing small drainage features as identified on Appendix B – Small Streams and Drainage Features, the features shall be evaluated and protected where required using Markham’s Small Streams Classification System and Management Protocol. The Protocol shall be updated periodically to address updated standards and Ontario Regulation 166-06.
- 3.3.2.8 **To prepare** and maintain an Erosion Restoration Master Plan for eroded and degraded watercourses for the purpose of protecting infrastructure, restoring natural form and function, and where possible improving *fish habitat* through the restoration of natural riparian vegetation and removal of barriers to fish migration.
- 3.3.2.9 **To prohibit** permanent dewatering associated with development, *redevelopment* or *site alteration*, unless it can be demonstrated to the satisfaction of the City, in consultation with the Ministry of Environment and the Toronto and Region Conservation Authority, that the negative environmental impact of dewatering can be mitigated.

3.3.3 Stormwater Management

Stormwater management is the control of stormwater runoff and snowmelt for the purpose of water quantity and erosion control, and water quality control. It is the means by which broad goals for management of the water cycle and pollution are implemented to address the negative impacts of development and human activities.

The Province, the Toronto and Region Conservation Authority and Markham have regulations and guidelines in place to ensure best practices in stormwater management. The goal of these practices is to mitigate the



effects of development and human activities on the hydrologic cycle including increased runoff, and decreased infiltration, of rain and snowmelt, and deteriorated water quality.

An integrated design approach to stormwater management considering engineering, landscape architecture, geosciences, planning and ecology aspects is required to achieve technical as well as complementary social and environmental objectives.

Markham continues to support innovative methods to manage and integrate stormwater as a resource including the use of water retention facilities to control the release rate into receiving streams and low-impact development measures that preserve natural hydrologic functions and protect natural systems.

It is the policy of Council:

3.3.3.1 **To require** stormwater management for all development, *redevelopment* or *site alteration* that addresses Provincial and Toronto and Region Conservation Authority regulations and requirements to the satisfaction of the City.

3.3.3.2 **To apply** best management practices in stormwater management to:

- a) maintain groundwater quality and flow and stream baseflow;
- b) protect water quality;
- c) minimize the disruption of natural drainage patterns wherever possible;
- d) mitigate stream channel erosion;
- e) mitigate flood risk;
- f) protect aquatic species and their habitat;
- g) minimize vegetation removal, grading, soil compaction, and sediment erosion;
- h) use an integrated treatment approach where appropriate to minimize stormwater management flows and structures;
- i) address recommendations, standards or targets contained within *watershed plans* and water budgets; and
- j) comply with the specific requirements of the Oak Ridges Moraine Conservation Plan and Greenbelt Plan, *watershed plans* and *subwatershed plans*.

3.3.3.3 **To encourage** an integrated design approach in the selection and design of innovative best management practices for stormwater management in order to improve technical effectiveness, minimize maintenance and operation requirements, advance other initiatives (water conservation) and to promote naturalized solutions that integrate with other features in the public and private realms.

3.3.3.4 **That** all stormwater management reports submitted to Markham in support of applications for development, *redevelopment* or *site alteration*, identify best management practices that will meet or exceed the minimum design criteria specified for flood control, erosion control (as specified in a

An integrated design approach to stormwater management considering engineering, landscape architecture, geosciences, planning and ecology aspects is required to achieve technical as well as complementary social and environmental objectives.

sediment and erosion control report), water quality treatment and infiltration (water balance) identified in Markham's Stormwater Management Guidelines and Engineering Design Standards, other applicable agency requirements and any large-scale supporting studies. Minimum criteria specified in the guidelines may be superseded by additional requirements for drinking water protection, Oak Ridges Moraine and Greenbelt conservation, and/or protection of sensitive and endangered aquatic species.

- 3.3.3.5 **To require** all stormwater management facilities to be designed and constructed to meet or exceed provincial requirements for stormwater management best practices and in accordance with Markham's Stormwater Management Guidelines and Engineering Design Standards, and in partnership with the Toronto and Region Conservation Authority.
- 3.3.3.6 **That** low-impact development measures be promoted as part of overall stormwater management strategies in order to address impacts at-source and to maintain or restore components of the natural water balance.
- 3.3.3.7 **That** naturalized stormwater management facilities, including wetland configurations, be located and designed to complement the Greenway System and further enhance the function of the Natural Heritage Network.
- 3.3.3.8 **To prohibit** stormwater management facilities in the Natural Heritage Network except where provided for in Section 3.3.3.9.
- 3.3.3.9 **To only consider** naturalized stormwater management facilities in *vegetation protection zones* associated with *significant valleylands* and *valleylands* where it can be demonstrated that site conditions prevent the location of these facilities outside of the *vegetation protection zones*. These facilities may be only permitted in specific locations within the *vegetation protection zones* provided a hydrological evaluation or environmental impact study demonstrates further enhancement to the function of the Natural Heritage Network and that:
- there is minimal impact to existing features or enhancement areas;
 - sufficient riparian buffering is provided;
 - sufficient land is protected for trail and amenity features surrounding the facility;
 - bird hazard impacts are addressed, where subject to airport regulation;
 - the facility is integrated into the Natural Heritage Network;
 - the facility is located a minimum of 30 metres from the edge of the watercourse and outside of the meander belt and 100-year floodplain; and;
 - the requirements of the Greenbelt Plan are met where applicable.
- 3.3.3.10 **That** infrastructure associated with stormwater management facilities, including outfall channels, shall generally:
- be placed close to the base of the slope above the 25 year floodline and located outside of the meander belt of a stream, wherever possible; and
 - avoid disturbance to natural heritage features.



3.3.3.11 **That** all proposed development, *redevelopment* or *site alteration* shall have erosion and sediment control measures in place to the satisfaction of Markham.

3.3.3.12 **That** construction practices and sediment control measures during construction shall be implemented, monitored and maintained to the satisfaction of Markham and the Toronto and Region Conservation Authority in accordance with best management practices.

3.3.3.13 **To prepare** a Stormwater Management Retrofit Master Plan to identify and prioritize opportunities to:

- a) improve stormwater management in the urban area;
- b) improve existing water quality treatment and erosion control; and
- c) restore pre-development hydrologic functions.

3.3.3.14 **To require** that stormwater management facilities be inspected and maintained on an on-going basis to ensure their proper function.

3.4 ENVIRONMENTAL HAZARDS

Environmental hazards can pose a threat to public health and safety. Environmental hazards include natural hazards such as *floodplain* lands and erosion sites, as well human environmental hazards resulting from soil contamination and air pollution resulting from the burning of fossil fuels in homes, transportation vehicles and industrial operations.

It is the intent of Markham to take a proactive and precautionary approach to protecting public health and safety through prevention, protection and emergency preparedness.

3.4.1 Natural Environmental Hazards

Natural environmental hazards such as flooding and erosion can present an inherent risk to life and property damage. Policies respecting restrictions on *hazardous lands* and *floodplain* management in *Special Policy Areas* and *flood vulnerable areas* can reduce this risk and enhance public health and safety. Appendix A – Toronto and Region Conservation Authority Regulatory Framework outlines the key components of the Toronto and Region Conservation Authority Regulatory Framework related to *floodplain* management and *flood vulnerable areas* including:

- the screening area for development, *redevelopment* or *site alteration* established through Ontario Regulation 166-06;
- *flood vulnerable areas* that are shown symbolically and are potentially susceptible to flood events where the flood risk must be assessed and addressed prior to development, *redevelopment* or *site alteration*; and
- the *floodplain* and erosion hazards where development, *redevelopment* or *site alteration* is regulated.

Map 8 – Special Policy Areas identifies areas that have historically existed within the *floodplain* where site-specific policies approved by the Province are intended for the continued viability of existing uses.

Environmental hazards include natural hazards such as floodplain lands and erosion sites, as well human environmental hazards resulting from soil contamination and air pollution.

General Policies

It is the policy of Council:

- 3.4.1.1 **To protect** the safety of the public and reduce property damage by directing development, *redevelopment* or *site alteration* to locations outside of the *hazardous lands* and *hazardous sites* generally shown as Floodplain in Appendix A – Toronto and Region Conservation Authority Regulatory Framework with the exception of *Special Policy Areas*.
- 3.4.1.2 **To prohibit** the following uses on *hazardous lands*, *hazardous sites* and *Special Policy Areas*:
- a) uses associated with hospitals, nursing homes, pre-school, school nurseries, daycare 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) uses associated with essential emergency services such as that provided by fire, police and ambulance stations and electrical substations, that would be impaired during an emergency as a result of flooding, the failure of floodproofing measures and/or protection works or erosion; and
 - c) uses associated with the manufacture, storage, disposal or treatment of hazardous substances.

- 3.4.1.3 **To promote** and encourage mitigation and remediation works for existing development within *hazardous lands* and *hazardous sites*.

Hazardous Lands and Hazardous Sites

Hazardous lands and *hazardous sites* pose risks to human health and safety and private property due to potential flood impacts and/or unstable slopes and erosion issues. *Hazardous lands* and *hazardous sites* are regulated in accordance with the natural hazard policies of the Provincial Policy Statement and the regulations of the Toronto and Region Conservation Authority. It is the intent of Markham to direct development, *redevelopment* and *site alteration* away from these areas to protect the safety of the public. *Hazardous lands* and *hazardous sites* are generally designated 'Greenway'.

It is the policy of Council:

- 3.4.1.4 **That** *hazardous lands* and *hazardous sites* located within the areas as generally shown as floodplain in Appendix A – Toronto and Region Conservation Authority Regulatory Framework, with the exception of *Special Policy Areas* and certain *flood vulnerable areas*, shall be generally designated as 'Greenway' lands on Map 3 – Land Use. The limits of *hazardous lands* and/or *hazardous sites* and the boundary of the corresponding 'Greenway' designation will be confirmed through the *development approval* process.
- 3.4.1.5 **To prohibit** development, *redevelopment* or *site alteration* and lot creation in *hazardous lands* and *hazardous sites* contained within the

Natural environmental hazards such as flooding and erosion can present an inherent risk to life and property damage.

'Greenway' designation in accordance with Provincial policies, Conservation Authority regulations and the policies of this Plan.

3.4.1.6 **To require** conveyance of *hazardous lands* and *hazardous sites* within the 'Greenway' designation at no cost to a public authority as part of a *development approval*.

3.4.1.7 **That** the management of *floodplain* lands as generally shown in Appendix A - Toronto and Region Conservation Authority Regulatory Framework be based on the *regulatory flood standard* in accordance with Provincial standards and mapping produced by the Toronto and Region Conservation Authority.

3.4.1.8 **That** where development, *redevelopment* or *site alteration* is proposed in areas subject to *erosion hazards* and slope instability, a geotechnical report shall be prepared by the proponent to address the nature and extent of the erosion and identify appropriate setbacks and remediation measures to prevent long-term erosion hazards to the satisfaction of Markham and the Toronto and Region Conservation Authority.

Special Policy Areas

Special Policy Areas are areas within Markham that have historically existed within the *floodplain* where site-specific policies approved by the Province provide for the continued viability of existing uses. Specific policies are provided to address the management of these areas including criteria and procedures for development, *redevelopment* or *site alteration* as established by the Province.

Markham's *Special Policy Areas* are shown as an overlay on Map 8 – Special Policy Areas with the underlying land use designation reflecting existing uses, existing zoning and statutory approvals shown on Map 3 – Land Use. It is the intent that the *Special Policy Area* provide for the continued viability of existing uses and manage development and *redevelopment* where provided for in this Plan. A *Special Policy Area* is not intended to allow for intensified development if a community has feasible opportunities for *intensification* outside of the *floodplain*.

It is the policy of Council:

3.4.1.9 **To work** with the Toronto and Region Conservation Authority to ensure that development, *redevelopment* or *site alteration* within a *Special Policy Area* shown on Map 8 – Special Policy Areas will not result in an unacceptable hazard risk to life or property or where flood protection measures would have a negative impact on adjacent properties.

3.4.1.10 **That** development, *redevelopment* or *site alteration* within the *Special Policy Area* is permitted subject to meeting technical floodproofing and safe access criteria in accordance with the underlying land use designations and the policies of this Plan and in accordance with Section 3.4.1.2. Development applications which would intensify the level of development beyond what is permitted by this Plan, must demonstrate that no alternatives exist outside of the *floodplain* and shall be assessed in

Special Policy Areas are areas within Markham that have historically existed within the floodplain where site-specific policies approved by the Province provide for the continued viability of existing use.

a comprehensive manner and require the review and endorsement of the Province.

3.4.1.11 **That** ingress and egress to all buildings and structures shall comply with all applicable provincial and Toronto and Region Conservation Authority safety standards and shall achieve the maximum level of flood protection determined feasible.

3.4.1.12 **To require** that applications for development, *redevelopment* or *site alteration* on lands in a *Special Policy Area* shall include:

- a) technical engineering studies detailing information such as flood velocity and depth of storm flows, flood damage reduction measures and stormwater management techniques, or other information as determined appropriate by Markham and the Toronto and Region Conservation Authority;
- b) scoped study requirements to the satisfaction of Markham and the Toronto and Region Conservation Authority where applications are considered minor such as additions or replacement structures;
- c) an emergency response plan prepared by a qualified professional where determined appropriate by Markham and the Toronto and Region Conservation Authority; and
- d) a comprehensive floodproofing and management review to identify any remediation strategies as may be required to support larger *redevelopment* parcels in Markham Centre.

Technical studies shall only be approved where it is demonstrated that there are no adverse downstream or upstream impacts and no increase in risk to life or property as a result of flooding.

3.4.1.13 **That** the approval of buildings and structures in the *Special Policy Areas* shall be conditional upon the landowner incorporating flood protection measures to the *regulatory flood standard* on all new buildings and new additions to minimize flooding impacts to the satisfaction of Markham and the Toronto and Region Conservation Authority. The greatest feasible level of flood protection, to a level not less than the 1:350 year storm event, may only be permitted where the *regulatory flood standard* is not technically feasible and where determined acceptable to Markham and the Toronto and Region Conservation Authority.

3.4.1.14 **That** prior to the issuance of a building or *site alteration* permit, applications for development on lands wholly or partially within a *Special Policy Area* shall require approval and permits from the Toronto and Region Conservation Authority in accordance with applicable criteria, procedures, standards and regulations.

3.4.1.15 **That** *Special Policy Area* lands shall continue to be identified with a *Special Policy Area* zone overlay in all applicable zoning by-laws including the necessary provisions to implement the relevant policies and shall be subject to site plan approval.

3.4.1.16 **That** modifications to the *Special Policy Area* boundary, new *Special Policy*



Areas or modifications to *Special Policy Area* policies shall be approved by the Ministers of Natural Resources and Municipal Affairs and Housing prior to the adoption and approval by Markham and York Region, except where the zoning by-law is in keeping with the original intent of the use as of the date of the approval of the *Special Policy Area*, in which case York Region is the approval authority.

Flood Vulnerable Areas

Flood vulnerable areas are lands contained within the *floodplain* within the urban area containing multiple structures and roads for which the Toronto and Region Conservation Authority has identified the potential to address flood risk issues through a comprehensive flood remediation approach. The location of *flood vulnerable areas* will be confirmed by the Toronto and Region Conservation Authority. Markham will work with the Toronto and Region Conservation Authority and other agencies and landowners to ensure the flood risk is assessed and addressed.

Markham will work with the Toronto and Region Conservation Authority and other agencies and landowners to ensure flood risks issues in flood vulnerable areas are assessed and addressed.

It is the policy of Council:

- 3.4.1.17 **To work** with the Toronto and Region Conservation Authority, other agencies and landowners to:
- a) explore opportunities to manage flood risk and develop comprehensive long-term solutions for *flood vulnerable areas*;
 - b) establish a process to address major development, *redevelopment* or *site alteration* within *flood vulnerable areas* to ensure that the level of risk is maintained or decreased through specific actions and strategies for flood remediation, floodproofing, flood warning and emergency response measures; and
 - c) allow minor development, *redevelopment* or *site alteration* within *flood vulnerable areas* subject to the one zone floodplain management policies of the Toronto and Region Conservation Authority.
- 3.4.1.18 **To work** with the Toronto and Region Conservation Authority and upstream municipalities to ensure development, *redevelopment* or *site alteration* upstream of *flood vulnerable areas* provide for stormwater management controls that decrease existing flooding levels on properties within Markham for storms up to and including the Regulatory Storm event.

3.4.2 Other Environmental Hazards

Environmental hazards resulting from human activities such as air quality impacts and contaminated lands as well as noise, vibration and light impacts, have the potential to adversely impact human health and quality of life.

Air Quality and Climate Change

Direct or indirect air pollution impacts human and ecosystem health. The most significant sources of air pollution are related to the burning of fossil fuels and emission of greenhouse gases, which directly contribute to global warming and climate change. By managing and reducing these

sources of air pollution and enhancing greenspaces, the impacts on human and ecosystem health can be mitigated.

Markham's Greenprint Community Sustainability Plan is a long-term strategy prepared to address climate change mitigation and adaptation in a comprehensive manner and serves as Markham's Climate Action Plan. Priority climate change adaptation and mitigation policies have been incorporated throughout this Plan.

It is the policy of Council:

- 3.4.2.1 **To work** cooperatively with the Region and other partners to support and implement locally based climate change adaptation actions identified in Markham's Greenprint Community Sustainability Plan.
- 3.4.2.2 **To work** in consultation with other public health agencies and stakeholders to develop outreach and programs to raise awareness of air quality issues and encourage behavioural change in order to reduce air pollution and improve air quality.
- 3.4.2.3 **To provide** leadership in the reduction of the impact of climate change through the design of municipal buildings, public infrastructure, transportation services and municipal policies and procedures.
- 3.4.2.4 **That** certain *sensitive land uses* such as *day care centres* and *public schools* not be located near significant known air emission sources including the provincial 400 series highways.
- 3.4.2.5 **To require** air quality impact studies be undertaken for development approvals where potential or known air quality emission levels can potentially impact certain *sensitive land uses*.

Noise and Vibration

Noise and vibration policies address the management of impacts associated with noise generating uses such as airports, railways, highways, arterial roads and primary transit corridors.

It is the policy of Council:

- 3.4.2.6 **To require** that applications for *development approval* for *sensitive land uses* adjacent to a Provincial Highway, an airport, an arterial road, a rail line or an industrial use shall be accompanied by a noise and vibration analysis prepared in accordance with the Ministry of Environment Guidelines and York Region noise policies including required mitigation measures prepared to the satisfaction of Markham and York Region.
- 3.4.2.7 **To require** development, *redevelopment* and *site alteration* on lands adjacent to *sensitive land uses* to be appropriately designed and buffered using land use restrictions, building design, location of outdoor living spaces and landscaping such as berms and fencing to address noise and vibration impacts.
- 3.4.2.8 **That** the *noise exposure forecast* as may be in place for an airport site and Airport Zoning Regulations shall be used as a basis for land use planning

Environmental hazards resulting from human activities such as air quality impacts and contaminated lands as well as noise, vibration and light impacts, have the potential to adversely impact human health and quality of life.

and development control on affected lands.

Brownfields and Site Remediation

Brownfield sites are abandoned, underutilized or active properties where previous or current development activities such as waste disposal sites, recycling facilities or activities involving fuel and chemicals have led to environmental contamination of the soil or groundwater. In order to minimize the risk on human and ecosystem health, *brownfield sites* have to be remediated before they can be redeveloped. Former waste disposal sites are lands previously used for the disposal of waste materials by burial. Markham will support the reuse and *redevelopment* of *brownfield sites* and former waste disposal sites for community improvement in accordance with provincial legislation and guidelines and in a manner that protects human and ecosystem health and safety.

It is the policy of Council:

- 3.4.2.9 **To encourage** and support the remediation and reuse of *brownfield sites* and former waste disposal sites.
- 3.4.2.10 **To restrict**, where appropriate, land uses on *brownfield sites* and former waste disposal sites subsequent to clean-up and subject to satisfactory approval of all technical studies.
- 3.4.2.11 **To require** environmental site assessments and a record of site condition prepared by a qualified person in accordance with the Environmental Protection Act and its regulations, for any *redevelopment* of a *brownfield site*.
- 3.4.2.12 **To require** that a record of site condition, confirmed by the Ministry of Environment, be submitted for all land conveyances to Markham. Conveyances of minor road widenings may be exempt from the requirement of a record of site condition.
- 3.4.2.13 **That** *redevelopment* or reuse of lands identified as a former waste disposal site on Appendix I – Former Waste Disposal Sites shall require approval from the Minister of the Environment in accordance with the Environmental Protection Act. The symbol on Appendix I – Former Waste Disposal Sites may be removed without an amendment to this Plan subject to confirmation by the Ministry of Environment that the site has been decommissioned and rehabilitated in accordance with applicable legislation and to the satisfaction of Markham.
- 3.4.2.14 **That** where development, *redevelopment* or *site alteration* is proposed within 500 metres of a known or suspected former waste disposal site, the following requirements shall be completed to the satisfaction of Markham and the appropriate approval authority:
 - a) determination of the impacted area;
 - b) submission of technical studies prepared by qualified persons identifying the level of contamination and remediation measure and post clean up conditions as required by legislation; and
 - c) implementation of cleaning and remediation measures in accordance

Markham will support the reuse and redevelopment of brownfield sites and former waste disposal sites for community improvement in accordance with provincial legislation and guidelines and in a manner that protects human and ecosystem health and safety.

with provincial criteria, the policies of this Plan and technical study recommendations.

3.4.3 Emergency Preparedness

Emergency situations are unpredictable and can happen anywhere and anytime. These could include naturally caused events such as storms or health emergencies, technological failures such as power outages or human caused actions such as a terrorist event. Markham has in place a coordinated emergency management program and response plan.

It is the policy of Council:

- 3.4.3.1 **To develop** and update an Emergency Response Plan to coordinate emergency management measures and best practices for disaster response including a flood hazard warning system prepared in consultation with applicable agencies.

Markham has a coordinated emergency management program and response plan in place for unpredictable emergency situations.

3.5 ENVIRONMENTAL REPORTING

Markham requires the preparation of environmental reports such as master environmental servicing plans, environmental impact studies, natural heritage evaluation and/or hydrologic evaluations, in support of certain development, *redevelopment* and *site alteration*.

A master environmental servicing plan is a comprehensive study intended to address:

- the delineation and protection of *key natural heritage features, key hydrologic features, hazardous lands and hazardous sites*;
- provincial requirements relative to water resources and *endangered species, threatened species, and special concern species*;
- municipal servicing in the context of urban development; and
- compliance with higher order *subwatershed* plans where prepared.

A scoped master environmental servicing plan for intensification areas may be provided where there are site specific requirements for a major *intensification area*.

An environmental impact study or natural heritage evaluation and/or hydrological evaluation is required to address and manage the impacts of development, *redevelopment, site alteration* or land use changes on lands adjacent to *key natural heritage features* or *key hydrologic features* and their *vegetation protection zones* or other Natural Heritage Network features.

The environmental impact study is used for lands outside of the Oak Ridges Moraine Plan Area or the Greenbelt Plan Area identified on Map 7 – Provincial and Federal Policy Areas. Within the Oak Ridges Moraine Plan Area or the Greenbelt Plan Area a natural heritage evaluation and/or hydrological evaluation will be required to address the requirements of the respective Provincial Plan.

Other environmental studies may also be required by Markham to address soil contamination, tree preservation and other specific environmental issues. Markham's Submission Requirements for Development Applications will be prepared for specific study requirements referenced in the Official Plan and in Section 10.6.2. The Submission Requirements will include guidelines for planning studies prepared in consultation with appropriate agencies and approved by Markham.

It is the policy of Council:

- 3.5.1 **To require** the preparation of a master environmental servicing plan to the satisfaction of Markham, the Toronto and Region Conservation Authority and other agencies where appropriate prior to any development of lands designated 'Future Urban Area' on Map 3 – Land Use and major developments, as deemed appropriate. The master environmental servicing plan shall have regard for the recommendations of applicable *watershed plans* and *subwatershed plans* where prepared and endorsed by Council.
- 3.5.2 **To require**, where appropriate, the preparation of a scoped master environmental servicing plan for intensification areas to address issues related to municipal servicing, stormwater management, protection of natural heritage and hydrologic features and sustainability requirements.
- 3.5.3 **To require** a natural heritage evaluation and/or hydrological evaluation or equivalent where development, *redevelopment* or *site alteration* is proposed adjacent to a *key natural heritage feature* or a *key hydrologic feature* within the Oak Ridges Moraine Conservation Plan Area and the Greenbelt Plan Area to identify and confirm the protection of the feature and its associated *vegetation protection zone* in accordance with the requirements of the applicable Provincial Plan.
- 3.5.4 **To require** an environmental impact study or equivalent where development, *redevelopment* or *site alteration* is proposed adjacent to a natural heritage feature or hydrologic feature outside of the Oak Ridges Moraine Conservation Plan Area and the Greenbelt Plan Area to identify and confirm the protection of the feature and its *vegetation protection zone*.
- 3.5.5 To prepare, where appropriate, a management plan for lands subject to ecological stress or in a degraded state, as part of an environmental impact study or natural heritage evaluation and/or hydrological evaluation or equivalent study to address the rehabilitation and enhancement of Natural Heritage Network lands.

