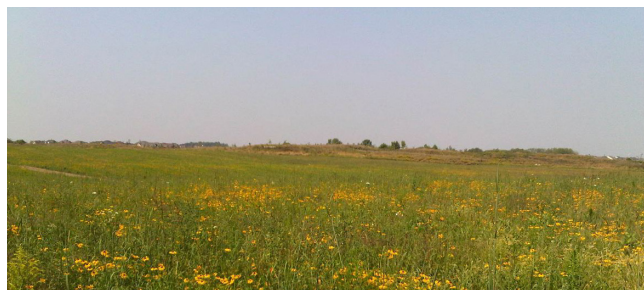


City of MARKHAM



Comprehensive
Zoning By-law
Project



**Task 15: Review &
Assessment - Hazardous
Lands and Greenway**

April 20, 2015



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1 INTRODUCTION

Task 15 of the City's Request for Proposal is, to identify issues that need to be addressed in the new comprehensive zoning bylaw with regard to "floodplains, hazard lands and special policy areas". This report responds to that requirement.

During the course of the work, City staff asked that this report be broadened to incorporate material on how the new bylaw might best address the Official Plan Greenway designation. While the Request for Proposal did not identify Greenway issues for detailed assessment, the Task 2 report, "City Official Plan and City Guidelines, Policies and Plans" (January 2015 draft) does speak to appropriate treatment of the Greenway in the new bylaw. However, it was felt that given the close geographical and functional relationship between the City's Greenway lands and hazardous lands, zoning treatment of the two should be considered in a more integrated fashion in the Task 15 report.

Sections 2 and 3 of this report briefly address policies and bylaws relevant to the Greenway designation, following more detailed consideration of the same for hazardous lands. Sections 4 and 5 present case studies and conclusions for hazardous lands only. Section 6 provides an integrated discussion of considerations for a new zoning bylaw, for lands that are hazardous and/or subject to the Greenway designation. Much of the Greenway material is adapted from the Task 2 report.

The following terms used in this report have the following meanings when used with respect to Markham. They are also used with respect to other municipalities, and with appropriate adaptation have the same meaning.

- "Hazardous lands" is the term used in the Provincial Policy Statement (PPS). As used here, it has the same meaning as in the PPS, and includes all of the lands subject to the Task 15 requirement. For the purposes of this report, it includes only those hazardous lands "adjacent to river, stream and small inland lake systems" in the words of the PPS, as there are no other

types of hazardous lands in Markham. (It must be remembered, however, that there is no comprehensive, definitive mapping of “hazardous lands”; generally, these are only mapped as required on a site-specific basis.)

- “Special policy areas” means the special policy areas recognized by the Province along the Rouge River in Unionville, as shown on Official Plan Map 8. These are collectively known as the Unionville Special Policy Area.
- “Regulated area” means the development control area prescribed by the Toronto and Region Conservation Authority (TRCA) in Regulation 166/06 under the *Conservation Authorities Act* and shown on TRCA maps (the regulation text is definitive, while its mapped interpretation is always subject to change). The regulated area is also shown for information on Official Plan Appendix A. The regulated area includes all hazardous lands, as well as other lands (in Markham, primarily wetlands and their adjacent lands).
- “Flood plain” means the flood plain as determined by TRCA. The flood plain is shown for information on Official Plan Appendix A, but is always subject to change. All of the flood plain lies within the hazardous lands area, which also includes other lands. (The PPS’s and TRCA’s “flood plain” is used in preference to the Official Plan’s “floodplain”.)
- “Regulatory flood” means the flood determined by TRCA as delimiting the flood plain, or in other words, the flood whose elevation is the flooding hazard limit.
- “Greenway” means the Greenway System as shown on Official Plan Map 1. The locations of the Greenway and hazardous lands largely coincide, except east of Ninth Line where the Greenway is much more extensive.
- “Development”, where used in general terms in this report, unless otherwise indicated includes lot creation, infrastructure, drainage works, construction and alteration of buildings and structures, and changes in use of land, buildings and structures. This encompasses “development” as defined in either or both of the PPS and *Conservation Authorities Act* (see table in Section 2.3 of this report). Where used specifically in reference to *Planning Act* processes, “development” normally includes the PPS definition plus site alteration, unless otherwise indicated.

Staff of the following agencies were consulted in person, by telephone, or by email, and provided input, in preparing this report:

- City of Markham
- Toronto and Region Conservation Authority
- City of Brampton
- City of Guelph
- City of Mississauga
- City of Toronto
- City of Vaughan
- Town of Whitchurch-Stouffville.

2 APPLICABLE POLICIES AND REGULATIONS

2.1 Provincial Policies

Hazardous lands is the only topic identified for special study in this project, where it is first and foremost Provincial policy that drives the agenda. Most of the study topics deal with matters where the City has available to it various alternatives for shaping development to best conform with Official Plan policies that represent the City's preferred development direction. Regarding hazardous lands, however, there are few alternatives when it comes to zoning bylaw implementation of Official Plan policies, largely dictated by Provincial policy, that prohibit or severely restrict development. This is of course equally true of Official Plan policies derived from the Greenbelt Plan and Oak Ridges Moraine Conservation Plan.

Section 3.1, Natural Hazards, of the PPS lays out the policy direction for hazardous lands. The majority of these are directive policies with little scope for municipal discretion. For this reason, the City may be left with little option but to reduce the scope of, or eliminate, existing development permissions on some hazardous lands.

Key elements of the PPS Natural Hazards policies as they apply to Markham are as follows.

- "Hazardous lands" include all lands subject to flooding and/or erosion hazards. (PPS definitions)
- Hazardous lands consist of all of the following (see also the PPS guidance document Understanding Natural Hazards, Ministry of Natural Resources, 2001, and TRCA's Living City Policies, 2014):
 - lands within the flood plain (subject to flooding under the regulatory flood),
 - lands below the predicted top of stable slope or within the predicted meander belt,

- erosion access allowance, generally 10 m inland from the predicted top of stable slope or predicted meander belt.
- Development is “generally . . . directed” away from hazardous lands. (Policy 3.1.1(b))
- Development is not permitted within the flood plain, except for extremely limited uses that must locate within the flood plain, or in special policy areas. (Policies 3.1.2(d) and 3.1.4)
- Certain development types are not permitted on any hazardous lands: institutional uses, essential emergency services, and hazardous substance uses. (Policy 3.1.5)
- Other types of development may be permitted on hazardous lands beyond the flood plain, where risks are minor and subject to specified standards being met (the “two-zone concept”, which Markham does not use). (Policy 3.1.7)
- Development may be permitted in special policy areas, except for those uses prohibited by Policy 3.1.5. Any changes to approved special policy areas or to the policies applicable to them must be approved by the Province. (Policy 3.1.4(a); see also Procedures for Approval of New Special Policy Areas (SPAs) and Modifications to Existing SPAs, Ministry of Natural Resources, 2009, which elaborates on these requirements.)

Provincial policies that underlie Greenway designation include:

- The PPS requirements to protect natural heritage and water resources (Sections 2.1 and 2.2) and that the City have a natural heritage system (Policy 2.1.3).
- Protection requirements in the Oak Ridges Moraine Conservation Plan, Greenbelt Plan, and Rouge North Management Plan.

Key implications for new bylaw

- PPS policies leave little scope for municipal discretion. The City may be left with little option but to reduce the scope of, or eliminate, existing development permissions on some hazardous lands.
- Only an absolute minimum of development is permitted within the flood plain, except for special policy areas.

2.2 Official Plan

Hazardous Lands

Key policies of the new Official Plan (as approved by York Region, June 2014) that would affect zoning of Markham’s hazardous lands are as follows.

- “Hazardous lands” are defined the same as in the PPS (see Section 2.1 above). (Chapter 11)
- All hazardous lands are included within the Natural Heritage Network. So are “valleylands” (defined the same as in the PPS), but not “stream corridors” (see next policy). (Section 3.1.2.1)
- Official Plan Map 6 identifies “valleylands and stream corridors”, which roughly coincide with the river and stream portion of the TRCA regulated area. Development is not permitted within these lands, except in special policy areas, or (staff have advised this is the intent of the policy) elsewhere where permitted by TRCA under the *Conservation Authorities Act*. (Section 3.1.2.14)

Section 3.4.1 of the Official Plan was deferred from Regional approval. As a result of discussions between the City, Region, TRCA, and Province, City Council endorsed proposed modifications to this section on February 24, 2015. The following refers to the modified text, which remains subject to change before being forwarded to the Ontario Municipal Board.

- Development is “directed” outside the flood plain. (Section 3.4.1.1)
- As per the PPS, the following are not permitted on any hazardous lands: institutional uses, essential emergency services, and hazardous substance uses. (Section 3.4.1.2)
- Hazardous lands are “generally” designated Greenway, except for special policy areas, and the “flood vulnerable areas” shown on Official Plan Appendix A. (Section 3.4.1.4)
- Development and lot creation are to be prohibited on hazardous lands. (Section 3.4.1.5)
- However, on certain hazardous land areas, limited development may be permitted: flood or erosion control works, structures associated with passive recreation, and development in special policy areas. (The policy is unclear as to whether it also permits “minor additions” generally.) Any such development must demonstrate that safe access can be provided, and must not include any habitation or accommodation below the flooding hazard limit. (Section 3.4.1.6)
- Any development in erosion hazard areas is subject to a geotechnical report to the satisfaction of the City and TRCA. (Section 3.4.1.9)
- Policies pertaining to special policy areas prevail over all other Official Plan policies (preamble to Special Policy Areas section).
- No new development is permitted in special policy areas if it would be subject to unacceptable risks, it would be susceptible to major structural damage from floods, its flood protection measures would adversely affect neighbouring properties, or it would cause adverse flow or risk effects upstream or downstream. (Section 3.4.1.10)
- Any development in special policy areas is subject to:
 - Meeting technical floodproofing and safe access criteria. (Sections 3.4.1.11, 3.4.1.12)
 - Technical engineering studies that demonstrate no adverse upstream or downstream impacts and no increase in risk, and a flood evacuation plan, to the satisfaction of the City and TRCA, as well as primary building controls above the flooding hazard limit. (Section 3.4.1.13)
 - Where the subject lands are within the Markham Centre Regional Centre boundary on Official Plan Map 2, identification of remediation strategies where required to enable development. (Section 3.4.1.13)
 - Floodproofing of all buildings, structures, and parking to the flooding hazard limit (or if not technically feasible, to the greatest extent feasible and not less than the 1:350 year flood level), to the satisfaction of the City and TRCA. (Section 3.4.1.14)
- Special policy areas are to be zoned as such by an overlay. (Section 3.4.1.16)
- No new lots may be created or additional dwelling units permitted in the Residential Low Rise designation within special policy areas. (Section 3.4.1.17)
- The Province must approve any proposed changes to special policy area boundaries, designations, or policies before Council adopts them. (Section 3.4.1.18)

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- TRCA is to confirm the locations of flood vulnerable areas. (Chapter 3, Flood Vulnerable Areas preamble) (See box below, for definition and identification of “flood vulnerable areas”.)
- The City will work with TRCA to “manage flood risk and develop comprehensive long-term solutions” for flood vulnerable areas, including “specific actions and strategies for flood remediation, floodproofing, flood warning and emergency response matters” to ensure that flood risks for existing development are not increased. (Section 3.4.1.19)

It is also proposed to add the following related policies elsewhere in the Plan:

- Heights and densities in special policy areas may not be increased beyond those permitted in the Plan, without Provincial approval and as part of a comprehensive secondary plan review. (Section 8.1.5)
- Any severance within special policy areas must be to the satisfaction of TRCA. (Section 9.19.2)
- A definition of “flooding hazard”, to clarify that the flooding hazard limit includes any high points surrounded but not inundated by the regulatory flood. (Section 11)

The following policies are directly tied to those in Section 3.4.1, but have not themselves been deferred:

- The prohibition of certain uses on hazardous lands in Section 3.4.1.2, is reiterated, and it prevails over general residential and mixed-use development permissions. (Sections 8.1.2, 8.2.1.2, 8.3.1.2)
- “Flood vulnerable areas” are defined as “flood vulnerable [communities] or [sites] that, as hazardous lands, [require] special development and flood risk management policies to support the continued viability of existing uses while preventing increased risks to public health and safety as a result of development” (Chapter 11)
- Official Plan Appendix A (not legally part of the Plan) identifies seven flood vulnerable areas by general location, but does not delineate any boundaries.

Greenway

The Official Plan’s Greenway designation is intended to protect all natural areas within Markham, including the Natural Heritage Network, Oak Ridges Moraine Conservation Plan area, Greenbelt Plan area, Rouge Watershed Protection Area, and other Greenway System lands (see Map 4). The policies relating to this designation differentiate between these components:

- Section 8.6.1.2 permits a base level of uses across the Greenway. These include agricultural uses, natural area management activities, trails, nature-based recreation, dwelling units, and a range of infrastructure. These also include a wide range of rural uses permitted in Section 8.8.1.2, provided they are outside of natural or hydrologic features or their vegetation protection zones. Some of these uses are subject to conditions which are either identified in Sections 8.6.1.2 and 8.8.1.2 or, in the case of transportation or utility infrastructure, in Section 3.1.2.10.
- Sections 8.6.1.6(b) and 8.6.1.6(c) prevail over Section 8.6.1.2, and prohibit all development within the Natural Heritage Network and Rouge Watershed Protection Area, with very limited exceptions for conservation, resource management, nature-based recreation, and infrastructure. There is also a limited exception for agriculture, but subject to site-specific evaluation. The area subject to these policies includes all of the natural heritage and hydrologic features shown

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on Maps 5 and 6 respectively, as well as additional lands. The subject area also includes the vegetation protection zones associated with the protected features (Section 3.1.2.1(b)).

- Section 8.6.1.3 prevails over Sections 8.6.1.2, 8.6.1.6(b), and 8.6.1.6(c), and permits additional uses in the Greenbelt Protected Countryside designation as shown on Map 7. These include non-renewable resource related activities, home businesses, home industries, bed and breakfasts, and farm vacation homes, as well as a wide range of rural uses permitted in Section 8.8.1.2 regardless of location. This section also permits a similar but not identical set of additional uses in the Oak Ridges Moraine Natural Linkage Area and Countryside designations as shown on Map 7.
- Section 8.6.1.4 prevails over the same sections as above, and prohibits various uses in the Greenbelt Protected Countryside. Again, this section prohibits a similar but not identical set of additional uses in the Oak Ridges Moraine Natural Linkage Area and Countryside. Section 8.6.1.8 also prevails over the same sections, and outlines a number of conditions that would govern development within the Greenbelt Protected Countryside. The conditions of Section 8.6.1.8(f) apply only to that part of the Protected Countryside that is within the Greenbelt Natural Heritage System.

Section 8.6.1.5 specifies that detached dwellings in existence prior to the approval of the Official Plan, agricultural buildings, and parks- and recreation-related buildings are the only buildings allowed in the Greenway. Sections 8.6.1.6 and 8.6.1.7 include a number of development criteria that will mostly provide guidance as part of site plan approval.

The Greenway is also affected by:

- Section 3.1.2.12, which prevails over Section 8, and prohibits all development in key natural heritage and key hydrologic features and vegetation protection zones.
- Section 3.1.5.3, which appears to prevail over Section 3.1.2.12, and which despite the latter section permits very limited exceptions for conservation, resource management, nature-based recreation, and infrastructure, in those key natural heritage and key hydrologic features and vegetation protection zones located in the Greenbelt Protected Countryside and Oak Ridges Moraine Natural Linkage Area and Countryside.

There appears to be an intent to delineate all key natural heritage and key hydrologic features independent of development (Section 3.1.2.13), which is not the case with vegetation protection zones (as discussed below).

As well, the Government of Canada owns a considerable portion of the Greenway, mainly within the Greenbelt and Oak Ridges Moraine plan areas (the Markham portion of the Pickering Airport lands). It is currently proposed that Rouge Park be transferred to Parks Canada jurisdiction, and become Rouge National Urban Park. This would involve transfer of Provincial, TRCA, and municipal lands within Rouge Park to the federal government, and possibly also expansion of the Park to include the Markham airport lands.

The net effect of these policies is to create a complex pattern of development permissions within the Greenway. With respect to those parts of the Natural Heritage Network that constitute key natural heritage and key hydrologic features and vegetation protection zones (which by and large include all hazardous lands), the net effect is somewhat simpler. Development is not permitted in those areas, either with very limited exceptions (Greenbelt and Oak Ridges Moraine plan areas) or no exceptions stated (rest of Markham).

The term “vegetation protection zone” originated in the Oak Ridges Moraine Conservation Area Plan, to prescribe buffers around natural and hydrologic features in which only an absolute minimum of development would be permitted. Similar terminology appears in the Greenbelt Plan. The Official Plan has adopted this term to apply to all buffers protecting natural heritage and hydrologic features, regardless of whether they are in the Oak Ridges Moraine or Greenbelt Plan areas. Key policies include:

- The Plan provides a table of minimum vegetation protection zone widths, varying by feature protected and whether or not the lands are within the Oak Ridges Moraine or Greenbelt Plan areas (Section 3.1.2.23).
- However, it is clear that vegetation protection zones are only intended to be delineated “where development, redevelopment or site alteration is approved on lands adjacent to natural heritage features and hydrologic features” (Section 3.1.1.10).
- This is further emphasized in Section 3.1.2.22: “Vegetation protection zones are established as lands are urbanized or land uses change. They are not intended to alter existing buffers and edge conditions in urban areas of Markham outside of large scale development or redevelopment applications, or prevent agricultural uses contiguous with farm operations on lands which could become a future vegetation protection zone within the ‘Countryside’ and ‘Greenway’ designations.”
- Where vegetation protection zones are established, they should be protected through zoning, as well as conveyance into public ownership as a condition of development approval (Section 3.1.2.23).

Key implications for new bylaw

- Development and lot creation are to be prohibited on hazardous lands designated Greenway.
- Development in special policy areas is subject to strict criteria. The Province must approve any changes in boundaries or zoning permissions.
- Flood vulnerable areas exist in Official Plan policy, but have not been delineated, meaning it is not feasible to zone them.
- The net effect of the Official Plan policies regarding the Greenway designation is to create a complex pattern of development permissions within the Greenway.
- Much of the Natural Heritage Network identified in the Official Plan consists of key natural heritage and key hydrologic features and vegetation protection zones, and by and large this includes all hazardous lands. For these lands, the net effect of the Official Plan policies is somewhat simpler. Development is not permitted, either with very limited exceptions (Greenbelt and Oak Ridges Moraine plan areas) or no exceptions stated (rest of Markham).
- Key natural heritage and key hydrologic features should be delineated by zoning wherever possible. However, vegetation protection zones should only be delineated by zoning as they are identified concurrent with development near key features.

2.3 TRCA Policies and Regulations

Conservation authorities have two roles relevant to municipal lands planning: as regulators of development, and as “public commenting bodies” that comment on planning applications. Authorities have a special commenting role when it comes to hazardous lands, as they are responsible for representing Provincial interests with respect to Section 3.1 of the PPS as described in Section 2.1 of this report.

The City lies entirely within the jurisdiction of TRCA.

Through Ontario Regulation 166/06 under the *Conservation Authorities Act*, TRCA regulates development within the “regulated area” (this term is explained in Section 1 of this report), which includes all hazardous lands in the City.

Most conservation authorities have adopted policy documents that guide how they deal implement their development regulations and comment on planning applications. TRCA approved a new document that serves both (as well as other policy) purposes, the Living City Policies, in November 2014.

Therefore, two development control systems operate within the City’s hazardous lands: City zoning under the *Planning Act*, and TRCA permits under the *Conservation Authorities Act*. If Ontario’s natural hazards protection program were being designed from scratch today, it might not rely on two separate statutes and two concurrent processes. However, this is the system we have - it originates in Ontario’s early and continuing leadership in both natural hazard protection and policy-led planning, and is a relatively sophisticated product of decades of evolution. The challenge now is to ensure that this dual system serves Markham residents and property owners in the most complementary and efficient, least intrusive way possible.

These two development control systems overlap but are not the same. Some development is subject to municipal zoning, some to TRCA approval, and some to both. The following table (adapted from *Policies in Transition: Comparative Review Working Paper*, Greater Golden Horseshoe Conservation Authorities, 2008) provides a quick comparison.

	City (<i>Planning Act</i>) process	TRCA (Reg. 166/06 under <i>Conservation Authorities Act</i>) process
<i>Subject lands</i>	Valley and stream corridors, to flooding hazard and erosion hazard limits	Regulated area, consisting of valley and stream corridors roughly similar to but usually more extensive than <i>Planning Act</i> subject lands, plus wetlands and allowances
<i>Development subject to process</i>	<ul style="list-style-type: none"> - Lot creation - Land use change, only if a <i>Planning Act</i> approval is required - Construction and alteration of buildings and structures, only if a <i>Planning Act</i> approval is required - Site alteration in some cases 	<ul style="list-style-type: none"> - Construction, alteration, and change of use of buildings and structures - Site alteration - Infrastructure authorized under <i>Environmental Assessment Act</i> - Works under <i>Drainage Act</i>

	City (<i>Planning Act</i>) process	TRCA (Reg. 166/06 under <i>Conservation Authorities Act</i>) process
<i>Development not subject to process</i>	<ul style="list-style-type: none"> - Anything not requiring a <i>Planning Act</i> approval (e.g., only a building permit required) - Infrastructure authorized under <i>Environmental Assessment Act</i> - Works under <i>Drainage Act</i> - Site alteration in some cases 	<ul style="list-style-type: none"> - Lot creation - Land use change not involving a building or structure or site alteration
<i>Regulatory document</i>	Official Plan and zoning bylaw	Regulation 166/06
<i>Development approval instrument under <u>Planning Act/Conservation Authorities Act</u></i>	<ul style="list-style-type: none"> - Zoning bylaw amendment/ minor variance, development permit, plan of subdivision/ condominium description, consent, site plan agreement - Also building permit under <i>Building Code Act</i> 	Permit under Reg. 166/06
<i>Decision-maker and approval authority for development approval instruments</i>	City	TRCA
<i>Public process for development approval instruments</i>	Full process as per <i>Planning Act</i> , site plan agreement excepted; none for building permits	None
<i>Applicant may appeal to</i>	Ontario Municipal Board (Building Code Commission for building permits)	Mining and Lands Commissioner

Among the questions that arise from this dual system are: which should come first, the planning decision or the permit decision? Should one decision, or statement of intended decision, inform the other? Should one dictate the other? These are frequent subjects of discussion in the planning and conservation authority communities.

The policy of TRCA on these matters is as follows:

“In addition to TRCA’s regulatory responsibilities under the Conservation Authorities Act, TRCA has a significant advisory role under the Planning Act to member municipalities . . . including the delegated responsibility to represent the ‘Provincial Interest’ on natural hazards. In participating in the review of applications under the Planning Act, TRCA will ensure the applicant and municipal planning authority are aware of the Section 28

Regulation [166/06] and requirements under the Conservation Authorities Act, where applicable, and assist in the coordination of these applications to avoid ambiguity, conflict and unnecessary delay or duplication in the process. Although permission under Section 28 may not be issued for many years after a planning application, in order to support the planning application, TRCA needs to ensure that the requirements under the Regulation process can likely be fulfilled at the time a permit application is received. . . . Where comments or conditions provided by TRCA on these applications have not been duly addressed or applied by the approval authority, such planning decisions do not bind TRCA's permitting process.

"Alternatively, it is also recognized that there may be historic planning approval decisions that were made in the absence of current technical information related to natural hazards or natural features such as wetlands, which would now preclude development. The *Conservation Authorities Act* is the jurisdictional authority in the permitting process and does not provide for the "grandfathering" of historical planning decisions. Where it is technically feasible and appropriate, innovative design approaches may be considered to address site constraints and accommodate the development while still meeting current regulatory requirements." (Living City Policies, pp. 8-1 and 8-2.)

This makes clear that, where both processes apply:

- they are legally independent of and do not bind each other,
- in the normal course of events, planning permission is applied for first, but in commenting on the planning application, TRCA considers whether permission under Regulation 166/06 would likely be given.

Key implications for new bylaw

- TRCA regulates development within its regulated area, which includes (and extends beyond) all hazardous lands in the City.
- All buildings, structures, infrastructure, and site alteration in the regulated area are subject to TRCA approval.
- TRCA expects that applicants will normally seek planning permission (where required) before they seek a TRCA permit. In commenting on the planning application, TRCA will consider and advise whether its own approval will likely be forthcoming. However, the City's planning and TRCA's regulatory processes are legally independent of and do not bind each other.

2.4 Other Municipal Bylaws

Since the purpose of the planning regime in hazardous lands and the Greenway is to control not only the location and erection of structures but also the alteration of natural conditions, it is important to note other bylaws that serve those purposes.

York Region's Forest Conservation Bylaw 2013-68 regulates tree cutting within woodlands 1 ha or greater or woodlots 2,000 m² or greater (regardless of the lot area and independent of whether the woodland/ woodlot patches cover one or more lots, it would appear).

The City's Tree Preservation Bylaw 2008-96 regulates tree cutting outside woodlands or woodlots subject to the Regional bylaw.

The City's Site Alteration Bylaw 2011-232 regulates site alteration independent of planning approvals. However, in accordance with the *Municipal Act, 2001*, it does not apply to the TRCA regulated area.

Key implications for new bylaw

- The Region's and City's tree cutting bylaws provide additional tools for controlling development within the regulated area.

3 EXISTING ZONING BYLAW PROVISIONS

Typical general provisions for hazardous lands in the existing zoning bylaws are as follows. (Where permitted uses are defined, they are shown in quotation marks.) The Task 3 report, *Review & Assessment of Existing City Parent By-laws*, November 2014 draft, was relied on for the occurrence of various zones within existing bylaws. However, that report does not identify all occurrences of zones that may have not been in the original bylaws but were later added on a site-specific basis, so the information below on zone occurrences may be incomplete.

O (Open Space) Zone

- In Bylaw 1229 (1965) only
- Appears to have been identified by contemporary desktop methods without technical analysis
- Permits public parks, fairgrounds, and conservation areas only (section 10.1).

O1 (Open Space) Zone

- In 22 bylaws; the oldest (2150 - 1965), an intermediate (72-81), and the newest (19-94) were reviewed
- In Bylaw 2150, appears to have been identified by contemporary desktop methods without technical analysis
- In Bylaws 72-81 and 19-94, appears to have been identified through technical analysis; staff advise that generally, the O1 zone is intended to represent the flood plain
- Bylaws 72-81 and 19-94 deem the O1 boundaries to follow top of bank (more or less, the erosion hazard limit not including erosion access allowance) (sections 6.5.3 and 9.3 respectively)
- Bylaw 2150 permits “agricultural uses”, community centres, conservation works, golf courses, parks and playgrounds, and “private clubs” only (section 10.1)

- Bylaw 72-81 permits “golf courses”, “private parks”, “public parks”, athletic fields, and public conservation projects only (section 6.5.1)
- Bylaw 19-94 permits “private parks”, “public parks”, and public conservation projects only (section 9.1)
- Bylaw 72-81 prohibits all new structures, except those constructed by TRCA for a conservation project (section 6.5.2)
- Bylaw 19-94 prohibits all new structures, except those approved by TRCA (section 9.2).

O2 (Institutional/Institutional and Open Space/Special Use) Zone

- In 25 bylaws; however, it seems that in all except the single most recent in which it appears, the zone does not relate to hazardous lands, and permits a variety of institutional uses
- In Bylaw 19-94, not clear how identified, but appears to relate to hazardous lands or TRCA regulated area above and beyond the O1 and O3 zones
- Bylaw 19-94 permits “golf courses”*, “public parks”, “private parks”, athletic fields*, and “cemeteries”* (section 10.1) (*the asterisked uses not permitted in the O1 zone in the same bylaw).

O3 (Open Space (Environmental Buffer)) Zone

- In Bylaw 19-94 only
- Schedule shows a 10± m strip between the O1 and O3 zones, presumably the erosion access allowance
- Text says, “Where lands abut an [O1] ZONE, a strip of land immediately adjacent to the said [O1] ZONE and extending 10 metres in width from the O1 ZONE boundary, shall be deemed to be zoned [O3]” (section 11.4) - the schedule is not entirely consistent with this - and it is unclear whether the text or the schedule prevail
- Permits “environmental buffer landscaping” only (section 11.1)
- All new structures, and parking lots, prohibited (sections 11.2, 11.3)
- Staff advise that the O3 zone approach is now used in site-specific amendments to older bylaws.

OS1 (Open Space) Zone

- In Bylaw 177-96 only
- Hazardous lands-related zoning appears to have been identified through technical analysis; also includes open space areas unrelated to hazardous lands
- Permits “public parks” only, further limited to minimal conservation and recreation facilities (section 4.1, table A3).

OS2 (Open Space) Zone

- In Bylaw 177-96 only
- Does not generally appear to relate to hazardous lands (although does appear to include flood plain in some cases)
- Permits “public parks” plus several institutional uses (section 4.1, table A3).

G (Greenway) Zone

- In Bylaw 177-96 only
- Very seldom used and when it is, not used to protect natural heritage/open space lands at a large scale as intended by the Greenway designation
- Permits “public parks” only, further limited to minimal conservation and recreation facilities (section 4.1, table A3) (same as OS1 zone).

Unionville Special Policy Area

- Falls within six bylaws:
 - Bylaws 1229 (1965), 11-72, 122-72, 134-79, and 304-87 - amended by Bylaws 162-90, 203-92, 163-90, 164-90, and 165-90 respectively to add appropriate provisions,
 - Bylaw 177-96 - includes appropriate provisions.
- In the five older bylaws amended in 1990/1992, special policy areas are shown as an overlay on a separate schedule; in Bylaw 177-96, as an overlay on the base zoning schedule.
- In the five older bylaws, the following are additionally prohibited within the special policy areas: various institutional and emergency service uses, “automobile service station”, use, production, etc. of hazardous materials, and sewage treatment and disposal (Bylaw 1229, section 5.13.1 for example).
- In Bylaw 177-96, the following are additionally prohibited within the special policy areas: various institutional uses, “motor vehicle body shop”, “motor vehicle repair garage”, “motor vehicle service station”, and use, production, etc. of hazardous materials (section 6.20). As this bylaw fails to prohibit emergency service uses, an amendment to remedy this is being included in a housekeeping amendment to existing bylaws that is currently being drafted.
- In the five older bylaws, a “detailed development proposal” must be approved in consultation with TRCA, before issue of a building permit (Bylaw 1229, section 5.13.2 for example).

ORM Overlay Zones

All of the Oak Ridges Moraine Conservation Plan area within the City, falls within Bylaw 304-87.

This bylaw was amended by Bylaw 2003-311 (effective 2006), to add “ORM” suffixes to all zones (including OS1 zones) within the Plan area. These suffixes indicated the designations within the Moraine Plan and in combination with other provisions of the amending bylaw, have the effect of bringing development permissions into conformity with the development permissions in the Plan.

4 CASE STUDIES: BEST PRACTICES ELSEWHERE

4.1 Introduction

Six municipalities - Brampton, Guelph, Mississauga, Toronto, Vaughan, and Whitchurch-Stouffville - were identified for study of best practices regarding hazardous lands zoning, based on the following criteria:

- Mix of municipal type (three large urban, two medium urban, one medium urban-rural)
- All have recently approved or updated official plans (consolidated 2010 or later), all at least partly in force
- All have single municipal-wide bylaws of varying original dates (1988 to 2013), all at least partly in force
- All within conservation authority jurisdiction (two wholly TRCA, three shared between TRCA and Credit Valley or Lake Simcoe Region CAs, one wholly Grand River CA)
- Five have special policy areas
- Three have flood vulnerable areas in some form.

Hazardous lands policies are only discussed as they relate to valley and stream corridors. Some of the case study municipalities also have Great Lakes shorelines, but those hazardous lands policies aren't relevant to Markham.

Some of the official plan policies and zoning provisions referred to may be under appeal and not yet in force.

Where permitted uses or related terms are defined, they are shown in quotation marks.

4.2 Brampton

Hazardous Lands Identification

Flood plains (outside special policy areas) are generally zoned as Floodplain. In some cases, they are zoned as Open Space, or in undeveloped areas, the default zoning (e.g., Agricultural).

Flood Plain Policies

The Floodplain zone permits only flood and erosion control, any “conservation area” or purposes, “public park”, or “golf course” (section 44.2).

The Floodplain zone cannot be used to calculate or contribute to lot area, frontage, or setbacks in other zones that may occur on the same lot (section 6.14).

The Open Space zone permits only publicly owned or mandated recreational facilities, a lounge or restaurant in conjunction with such facilities, any “conservation area” or purposes, and accessory uses (section 44.1).

Hazardous Lands Policies Beyond the Flood Plain

In some areas, Open Space zones have been identified corresponding with what appears to be the erosion access allowance.

Special Policy Areas

Brampton has three special policy areas, all within TRCA jurisdiction (part of the City is within Credit Valley CA jurisdiction). With the exception described below, they have not been and are not identified or regulated in the zoning bylaw. They are not identified in the City’s online zoning mapping.

The Downtown Brampton Special Policy Area is a floodway vulnerable to overflow from Etobicoke Creek in Brampton’s historic downtown. This special policy area has recently been the subject of a comprehensive flood risk and management analysis, leading to the first Provincial approval of revised boundaries, policies, and regulations under the new Procedures of 2009 (described in Section 2.1 of this report). This review also resulted in an Official Plan amendment (2006-099) and zoning bylaw amendment (129-2014).

Bylaw 129-2014 shows the special policy areas as an overlay on a separate schedule. This schedule also divides the special policy areas into four subareas, to allow regulations to be targeted to the subareas.

This amendment, now consolidated into the City’s comprehensive bylaw:

- caps the number of new residential units that may be built, and the cumulative nonresidential gross floor area, in three of the four subareas (section 6.35(a))
- requires that new residential development, and commercial accommodation development in some subareas, provide emergency pedestrian access above the flooding hazard limit (sections 6.35(b)(i),(ii))
- requires for all new structures, floodproofing to the flooding hazard limit (or if not technically feasible, to the 1:350 year flood level, to the satisfaction of the City and TRCA), and location of primary building controls above the flooding hazard limit (sections 6.35(b)(iii),(iv))

- prohibits new residential units and commercial accommodation suites below the flooding hazard limit (section 6.35(b)(v))
- prohibits various institutional and emergency service uses, and the use, production, etc. of hazardous materials (section 6.35(f)).

Flood Vulnerable Areas

There is one reference in the Official Plan to a flood vulnerable area, as part of a site-specific exception. In this Special Land Use Policy Area 3, no structures are permitted within flood vulnerable areas (not defined) or other areas abutting the Credit River valley (section 4.14.3.3.2(iii)). This policy has not been implemented by zoning.

Relationship to Natural Heritage System

In the Official Plan, hazardous lands (outside special policy areas) generally fall within the Valleyland/Watercourse Corridor overlay designation (Schedule D), which is part of the City's natural heritage system. Generally, hazardous lands are also within the Open Space base designation (Schedule A).

There are no zones specifically targeted to the natural heritage system. Most of the system is zoned Floodplain or Open Space, as described above for hazardous lands.

4.3 Guelph

The City of Guelph has no flood vulnerable areas.

Hazardous Lands Identification

Guelph has adopted a two-zone flood plain concept in some areas. Floodways (outside special policy areas) are generally zoned as Floodway or Wetland.

Flood Plain Policies

The Wetland zone permits only a "wetland", "flood control facility", "recreation trail" approved by Grand River CA, or "wildlife management area" (section 13.2.1).

The Floodway zone additionally permits only "conservation areas", municipal services and public utilities, "outdoor sportsfield facilities" approved by Grand River CA, picnic areas, and "recreation trails" even if not approved by Grand River CA (section 12.2.1).

All new structures are prohibited in the Wetland zone (section 13.2.2).

All new structures are prohibited in the Floodway zone, except those associated with flood and erosion control or sewage treatment facilities as approved by Grand River CA (sections 12.2.2.1 and 12.2.2.1.1).

Hazardous Lands Policies Beyond the Flood Plain

These areas do not appear to be specially zoned (aside from overlay zoning of the flood fringe).

Special Policy Areas

Guelph has a special policy area in downtown Guelph, shown as an overlay on the zoning schedules.

The zoning bylaw:

- prohibits all development in the "hydraulic floodway" (the minimum channel required to pass the regulatory flood) (however, the hydraulic floodway is not mapped in the zoning bylaw, and its identification is left to Grand River CA) (section 12.4.1.1)

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- prohibits “vehicle service stations”, “vehicle gas bars”, and the use, production, etc. of hazardous materials (section 12.4.1.3)
- requires that parking lots be designed to the satisfaction of the City and Grand River CA (section 12.4.1.4)
- requires that all new structures be designed so that their structural integrity is maintained during the regulatory flood (section 12.4.2.1)
- requires that all new buildings be floodproofed to the satisfaction of the City and Grand River CA, and prescribes detailed requirements, particularly for residential development (sections 12.4.2, 12.4.3, 12.4.4).

A footnote in the bylaw (section 12.4) reminds readers that Grand River CA regulatory permission may also be required for development in the special policy area. A similar footnote is provided with respect to development in the flood fringe (section 12.3), also shown as an overlay on the zoning schedules. However, no corresponding footnotes are provided for the Floodway zone, or for other lands that may fall within the regulated area and that are not identified on the schedules.

Relationship to Natural Heritage System

In the Official Plan, hazardous lands (outside special policy areas) generally fall within either the Significant Natural Areas and Natural Areas base designation (the City’s natural heritage system), or the Open Space base designation (Schedule 1).

There is no single zone specifically targeted to the natural heritage system. Most of the system is zoned Floodway or Wetland, as described above for hazardous lands, or P.1 (Conservation Land) which is one of several park zones.

4.4 Mississauga

The City of Mississauga has no flood vulnerable areas.

Hazardous Lands Identification

The flood plain (outside special policy areas) is generally zoned G1, which is one of two Greenbelt zones.

Flood Plain Policies

The G1 zone permits only “flood control”, “stormwater management”, “erosion management”, and “natural heritage features and areas conservation” (section 10.2.1, table 10.2.1).

Also permitted are the following accessory uses:

- “trails”, “passive recreational use”, and permeable “parking areas”, accessory to “natural heritage features and areas conservation”
- “passive recreational use”, accessory to a “stormwater management” facility (section 10.1.1).

Hazardous Lands Policies Beyond the Flood Plain

It appears that much of the hazardous lands area beyond the flood plain is zoned G1. In some areas, G2 (also Greenbelt) zones have been identified corresponding with what appears to be the erosion access allowance.

Special Policy Areas

Mississauga has two special policy areas, both in the lower Etobicoke Creek watershed which is part of TRCA jurisdiction (part of the City is in Credit Valley CA jurisdiction). These are shown as an overlay, titled “Greenbelt Overlay”, on the zoning schedules. This overlay is also used for other purposes - see Relationship to Natural Heritage System, below.

The zoning bylaw:

- indicates that all development requires specific City and TRCA approval, subject to “environmental technical studies” (section 2.1.18.2.1)
- for residential development, prohibits any bedroom or any openings below the flooding hazard limit (section 2.1.18.2.2).

Relationship to Natural Heritage System

In the Official Plan, most hazardous lands (outside special policy areas) fall within the Natural Areas System overlay designation, which is the City’s natural heritage system (Schedule 3). Most hazardous lands also fall within the Greenbelt base designation (Schedule 10).

The G1 zone, as described above for hazardous lands, is specifically targeted to the natural heritage system. Most of the system is zoned G1. As well, the zoning bylaw utilizes a Greenbelt overlay on development zones for several purposes, as described in section 2.1.18:

“The greenbelt overlay shall apply to lands that are designated Greenbelt in [the Official] Plan but are not zoned G1 or G2. The greenbelt overlay also applies to lands within the Regulatory Floodplain, Special Policy Areas [as described above] and the Lake Ontario Waterfront as identified in [the Official] Plan.”

The zoning bylaw also requires that where nonresidential zones abut G1 or G2 zones, all structures, parking areas, other paved areas, and outdoor storage areas be set back at least 5 m from the zone boundary (section 2.1.17.1).

4.5 Toronto

The City of Toronto has no flood vulnerable areas.

Hazardous Lands Identification

Undeveloped hazardous lands are generally zoned Open Space Natural. More developed recreational lands are zoned Open Space Recreation, and golf courses, Open Space Golf (there are six zones in the Open Space category, three of which generally do not occur in hazardous lands). Much of the City’s hazardous lands are developed for other purposes and zoned accordingly. As well, significant areas of the City, including some hazardous lands, are still subject to former zoning bylaws, which are not addressed here.

The City’s new comprehensive (2013) zoning bylaw includes purpose statements for each zone. For Open Space Natural, the purpose is “to provide areas for the conservation of lands such as ravines and waterways that are part of the natural system” (section 1.40.90(3)(B)).

Flood Plain Policies

The following uses are permitted in the predominant Open Space Natural zone:

- existing “public schools” and “private schools” (which may be replaced or expanded) (section 90.5.20)
- ambulance depot, “agricultural use”, fire hall, “park”, police station, “public utility”, “transportation use” (section 90.20.20.10)
- “club”, “education use”, “entertainment place of assembly”, “place of assembly”, or “recreation use”, provided they are combined with a “park” or “agricultural use” and are not in a wholly enclosed building (sections 90.20.20.20 and 90.20.20.100(1))
- “cogeneration energy” or “renewable energy” production, provided they are combined with another permitted use (sections 90.20.20.20 and 90.20.20.100(2))
- “retail store”, provided it is associated with an “agricultural use” and not in a wholly enclosed building (sections 90.20.20.20 and 90.20.20.100(3))
- “stable”, provided it is associated with a “park” or “agricultural use” (sections 90.20.20.20 and 90.20.20.100(4)).

The Open Space Recreation and Open Space Golf zones are more permissive (sections 90.30.20 and 90.40.20).

If a lot is not zoned in the Open Space category and lies part within the regulated area, no structure may be located within 10 m of the stable top of bank, or below it, except an “ancillary” (accessory) structure if in the Residential category, or for the purpose of conservation works, “public utilities”, or “transportation uses” (sections 5.10.40.1(3), 5.10.40.70(6), 5.10.40.80(1)). As well, the part of the lot below the stable top of bank may not be used to calculate the floor space index for that lot (section 5.10.40.40(1)).

Hazardous Lands Policies Beyond the Flood Plain

It appears that significant portions of the hazardous lands beyond the flood plain are zoned in one of the three Open Space zones described above. As well, the above restrictions related to stable top of bank apply beyond the flood plain.

Special Policy Areas

The Official Plan shows 10 special policy areas (Map 10), but only four of those are Provincially approved (Black Creek, Hoggs Hollow, Lower Don, Rockcliffe - TRCA Living City Policies, Appendix A).

Most of the area of the four approved special policy areas is still exclusively subject to former zoning bylaws.

There is no reference to special policy areas in the 2013 zoning bylaw text. The online mapping, in those portions of the special policy areas that are subject to the 2013 bylaw, does not show the special policy areas. The special policy areas were established under the former zoning bylaws, and the former bylaws may include some special policy area-specific provisions that still apply under the 2013 bylaw, as most zones in the 2013 bylaw are subject to some provision or other from a former bylaw. However, information on former bylaws is not easily accessible.

The Province has not yet approved the Official Plan policies and map that deal with special policy areas. As a result, the City has decided to defer consideration of zoning bylaw provisions that would appropriately regulate the special policy areas.

Relationship to Natural Heritage System

In the Official Plan, hazardous lands generally fall within the Natural Heritage System, which is an overlay designation on Map 9. As described above, the Open Space Natural zone is the only zone specifically targeted to the natural heritage system, and is generally only applied to undeveloped lands.

4.6 Vaughan

Hazardous Lands Identification

Most hazardous lands are zoned Open Space Conservation. Hazardous lands in the Oak Ridges Moraine Conservation Plan and Parkway Belt West Plan areas are generally zoned Open Space Environmental Protection and Parkway Belt Open Space respectively.

Flood Plain Policies

The Open Space Conservation zone:

- permits driving ranges, “golf courses”, miniature golf courses, “recreational uses” open to the general public, “cemeteries” and related uses, and conservation and forestry projects (sections 7.1.2 and 7.2)
- prohibits any structure except for conservation or flood control (section 7.2.1)
- cannot be used to calculate or contribute to lot area, frontage, coverage, and setbacks in other zones that may occur on the same lot (section 7.2.3).

Permissions for the Open Space Environmental Protection zone are fairly similar (section 7.4b).

Permissions for the Parkway Belt Open Space zone within the flood plain are the same as for the Open Space Conservation zone (section 7.5.2).

Hazardous Lands Policies Beyond the Flood Plain

These areas do not appear to be specially zoned.

Special Policy Areas

Vaughan has one complex of special policy areas, in Woodbridge.

At present, there is no reference to special policy areas in the zoning bylaw text, nor do the map schedules show the special policy area.

In 2009, the City initiated concurrent development of the Woodbridge Centre Secondary Plan, and a review of the Woodbridge Special Policy Area under the 2009 Procedures described in Section 2.1 of this report. Approval of the Secondary Plan has been appealed and the Plan is now before the Ontario Municipal Board. Meanwhile, in May 2014, Council endorsed a Special Policy Area Justification Report, and forwarded the report and accompanying material to the Province for approval. The Justification Report includes a flood risk assessment, while the Secondary Plan includes proposed boundaries and policies for the special policy area.

The package forwarded to the Province includes a draft zoning bylaw amendment which, however, is intended to be an interim measure only. Full zoning implementation is to be undertaken as part of bringing the comprehensive zoning bylaw into conformity with the 2010 Official Plan once approval of the Plan (including the Woodbridge Centre Secondary Plan) is complete. The purpose of the draft zoning bylaw is to prohibit certain commercial accommodation and institutional uses within the Special Policy

Area, and to prohibit specific residential or commercial accommodation uses on specific properties, to address immediate concerns of the Province.

Flood Vulnerable Areas

The Official Plan refers to flood vulnerable areas, but does not identify them; it references the City's Drainage Study Report, which is not a published document. The Plan considers the flood vulnerable areas to be hazardous lands and part of the regulated area, and in fact implies that the City's hazardous lands and flood vulnerable areas are one and the same (section 3.6.3). The Plan also indicates that no intensification of development will be permitted in flood vulnerable areas, until appropriate studies and measures have demonstrated reduction of flood risk to the satisfaction of the City and TRCA (section 3.6.4.4).

Absent any Official Plan identification of exactly what flood vulnerable areas constitute, there is no basis for the zoning bylaw to address them, and it doesn't.

Relationship to Natural Heritage System

In the Official Plan, hazardous lands generally fall within the Core Features or the Built-Up Valley Lands of the Natural Heritage Network, which is the City's natural heritage system, and is an overlay designation on Schedule 2. All of the Core Features are included within the Natural Areas and Countryside designation (also an overlay) on Schedule 1. Most hazardous lands fall within the Natural Area, Park, or (within the Oak Ridges Moraine Conservation Plan area) Agricultural base designations on Schedule 13.

There is no single zone targeted to the natural heritage system. As described above, most of it is zoned Open Space Conservation, Open Space Environmental Protection or Parkway Belt Open Space; outside hazardous lands, some other protective zones are also used.

4.7 Whitchurch-Stouffville

The Town of Whitchurch-Stouffville has no special policy areas.

Hazardous Lands Identification

The flood plain is generally zoned Flood Hazard.

Flood Plain Policies

The Flood Hazard zone:

- permits "agricultural uses, buildings, and structures" and "unserviced parks" (section 4.1)
- prohibits any new structure in an "unserviced park" except for flood or erosion control purposes (section 4.1).

Fish, wildlife, and forest management, conservation projects, and flood and erosion control uses are permitted in all zones as-of-right (section 3.29).

Flood Hazard zones are defined as a 30 m setback from each side of the meander belt, where the actual flood hazard limit is not known (sections 2.3.1(iv) and 3.20.3).

Within the Oak Ridges Moraine Conservation Plan area, additional provisions apply to Flood Hazard zones to conform with the Plan, including prohibiting all new structures (section 3.20.4).

Hazardous Lands Policies Beyond the Flood Plain

These areas do not appear to be specially zoned.

Flood Vulnerable Areas

The Official Plan does not refer to flood vulnerable areas. However, the Plan recognizes a two-zone concept along Stouffville Creek in Stouffville (though approval of this portion of the Plan has been deferred), and as a result there are some very small areas of flood fringe in downtown Stouffville.

The zoning bylaw provides for a suffix “f”, for flood vulnerable, to be added to any zone. In fact, the “f” has only been applied to the above-mentioned flood fringe areas in downtown Stouffville. Where this suffix is added, no new building is permitted unless approved by TRCA (or, if added within its portion of the Town, Lake Simcoe Region CA).

Relationship to Natural Heritage System

In the Official Plan, flood plains fall within the Significant Environmental Area component of the Greenlands System, which is the City’s natural heritage system, and is an overlay designation (Schedule A). They also generally fall within the Significant Environmental Area, or Greenland Area in Stouffville, base designations (Schedules B and F).

There is no single zone targeted to the natural heritage system. As described above, flood plains are zoned Flood Hazard; outside the flood plains, various other protective zones are also used.

5 CASE STUDIES CONCLUSIONS

Hazardous Lands Identification

Whitchurch-Stouffville appears to be unique, in zoning all of its flood plains in a single, hazardous lands-oriented zone.

Mississauga and Vaughan generally zone their flood plains (in the case of Mississauga) and hazardous lands (in the case of Vaughan) in a single, natural heritage-oriented zone.

Brampton and Guelph use a mix of hazardous lands-oriented and natural heritage/open space-oriented zones. Toronto uses a mix of natural heritage/open space-oriented zones.

It is important to emphasize once again that whereas flood plains are known, and often mapped in official plans or zoning bylaws, hazardous lands are not known until site-specific study is undertaken. Any opinion that an individual municipality's zoning is based on hazardous lands versus flood plains, may be no more than an educated guess. In developing a comprehensive bylaw, a municipality can set out to zone its flood plains but not its hazardous lands; the latter can only be identified later, site by site.

Flood Plain Policies

Flood and erosion control, other resource conservation activities, and parks/open space uses that do not involve structures are generally permitted in all cases.

Brampton and Vaughan permit a wide range of recreational facilities and structures.

Toronto permits a wide range of educational, institutional, public service, and recreational facilities and structures.

Whitchurch-Stouffville permits agricultural buildings and structures (and is the only municipality studied whose area is predominantly rural).

Guelph and Vaughan prohibit all structures except those related to flood control, conservation (Vaughan), or sewage treatment (Guelph). (Guelph entirely prohibits structures in its Wetland zone.)

Hazardous Lands Policies Beyond the Floodplain

Again, reaching conclusions on this point is difficult because the extent of hazardous lands is not known until site-specific study is undertaken.

Brampton and Mississauga have made some efforts to specially zone erosion access allowances, presumably as a result of site-specific study.

Mississauga and Toronto apply natural heritage/open space-oriented zones to a considerable extent in these lands.

Guelph, Vaughan, and Whitchurch-Stouffville do not appear to specially zone these lands.

Special Policy Areas

Of the six municipalities studied, only Whitchurch-Stouffville does not have any special policy areas.

Guelph and Mississauga show their special policy areas as overlays on their zoning schedules. Brampton, Toronto, and Vaughan (the first two of which have online mapping) do not show the special policy areas in their comprehensive zoning mapping/schedules.

Guelph and Mississauga have regulations specifically addressing their special policy areas. Brampton recently amended its comprehensive bylaw to specifically address its Downtown Brampton Special Policy Area (and the amendment identifies that area on a schedule), but the bylaw text does not refer to the City's two other special policy areas. The texts of Toronto's and Vaughan's bylaws also do not refer to special policy areas, although Vaughan has prepared a draft interim bylaw and submitted it to the Province for approval.

The three regulatory approaches (Downtown Brampton, Guelph, Mississauga) have little in common:

- Brampton and Guelph both prohibit hazardous materials uses and require floodproofing.
- Brampton has a sophisticated scheme for controlling the quantity (residential units and nonresidential gross floor area) of additional development.
- Brampton also requires emergency pedestrian access, prohibits residential and commercial accommodation units below the flooding hazard limit, and prohibits institutional and emergency uses.
- Guelph also prohibits all development in the "hydraulic floodplain", prohibits automobile service uses, requires structures be designed to maintain their integrity during the regulatory flood, and requires parking lots be designed to the satisfaction of the City and Grand River CA.
- Mississauga prohibits dwelling openings below the flooding hazard limit.

Given its newness and recent Provincial sanction, the 2014 Downtown Brampton Special Policy Area bylaw amendment undoubtedly comes closest to "best practice".

Flood Vulnerable Areas

Of the municipalities studied in depth, only one, Whitchurch-Stouffville, addresses flood vulnerable areas in its zoning bylaw. However, those bylaw provisions actually amount to a prohibition on development, except as permitted by TRCA, within a flood fringe in Stouffville where TRCA permission is required in any event.

TRCA's Living City Policies contemplate flood vulnerable areas, defining them as "[sub-areas] within the Regulatory Storm Flood Plain containing multiple existing structures and/or roads for which a single, comprehensive flood remediation approach may be viable."

Brampton, Vaughan, and Whitchurch-Stouffville refer to flood vulnerable areas in their official plans. However, it appears that each municipality has its own, somewhat different understanding of that term, and that none of those understandings necessarily jibe with the use of the term in the Markham Official Plan.

It does not appear that any useful conclusions can be drawn at this time regarding flood vulnerable areas.

Relationship to Natural Heritage System

In all the municipalities, most or all hazardous lands fall within the natural heritage system designated in the official plan.

Only two municipalities use a zone specifically targeted to the natural heritage system: Mississauga's G1 Greenbelt zone, and Toronto's Open Space Natural zone (undeveloped areas only). Otherwise, the natural heritage system is generally zoned with the mix of zones described for floodplains or hazardous lands above.

Consistent with the general direction of Provincial and official plans that vegetation protection zones are normally identified only concurrent with development applications, none of the municipalities systematically and proactively zone buffers.

Only one municipality appears to zone vegetation protection zones concurrent with adjacent development: Guelph, which frequently zones buffers (as they are called in its Official Plan) as Conservation Land (P.1).

Guelph is also the only municipality that proactively identifies adjacent lands in its zoning bylaw, at least with respect to wetlands. The zoning maps show a shaded overlay, "Lands Adjacent to Provincially Significant Wetlands". The text requires that where lands are shaded, an "environmental impact study" is required as part of a development application, and that term is defined such that the study is determinative as to whether the application should proceed (Sections 13.1, 13.3). (While the text indicates that "adjacent lands" are the standard 120 m distant from the wetland boundary, the mapping generally does not correspond with that distance.)

Different approaches can be found in other municipalities beyond those studied. For example, the Township of Muskoka Lakes zones all its provincially significant wetlands in a special protective zone. All lands within 120 m of that zone are zoned based on their present or appropriate use, but are subject to special exception 12.1600 (which is mapped) whereby they are also subject to an "H" (holding provision). Under this provision, development is generally prohibited until the "H" is removed, the precondition for which is preparation of an environmental impact study that demonstrates no negative impacts to the satisfaction of the municipality.

Other Municipal Bylaws

Although not analyzed municipality by municipality, some mention should be made of tree cutting and site alteration bylaws, for comparison with Section 2.4 of this report.

All municipalities studied have tree cutting bylaws, except Whitchurch-Stouffville. However, the latter municipality is subject to York Region's Forest Conservation bylaw, as is Vaughan in addition to its own bylaw.

Brampton, Guelph, Vaughan, and Whitchurch-Stouffville have generally applicable site alteration bylaws. Toronto has site alteration bylaws that apply to some of its former municipalities.

Toronto's Ravine and Natural Feature Protection bylaw is unique - both a tree cutting and site alteration bylaw. It applies only within valley and stream corridors, plus some uplands deemed to have natural heritage value. Within hazardous lands, the Ravine bylaw is the only applicable tree cutting bylaw (Toronto's Trees bylaw does not apply within the area subject to the Ravine bylaw), and it is not a site alteration bylaw (as under the *Municipal Act, 2001*, site alteration bylaws do not apply within the regulated area).

6 CONSIDERATIONS FOR MARKHAM'S NEW ZONING BYLAW

Zoning

To start with flood plains (excepting special policy areas which will be considered later), there are two basic alternatives, based on the municipalities studied:

- ▶ zone all flood plains in a single hazardous lands- or natural heritage-oriented zone,
- ▶ zone undeveloped flood plains in a variety of zones reflecting their existing state and (in the case of undeveloped lands intended to remain open space) their intended conservation/parks/open space use.

Flood plains can only be specifically zoned if they can be readily identified. Although flood plains appear to have been mapped throughout Markham, some of the mapping may be outdated. Flooding hazard limits are continually being refined, at both watershed/ subwatershed and site-specific levels. This presents problems for any zoning scheme based on flood plains only.

As noted earlier, flood plains (excepting special policy areas and flood vulnerable areas) generally fall within the Official Plan's Greenway and Natural Heritage Network designations. The Official Plan's Natural Environmental Hazards and Greenway policies (sections 3.4.1 and 8.6 respectively) are generally consistent in contemplating only an extremely limited range of development permissions in flood plains and other hazardous lands, and the Natural Heritage Network generally. The O1 and OS1 zone development permissions in the City's more recent existing bylaws are similarly compatible with that approach. Therefore, it would certainly simplify matters to include flood plains (along with, generally, all hazardous lands) in a system of zones that would cover the entire Natural Heritage Network.

Hazardous lands require a zoning approach that conforms to the Official Plan, is simple and straightforward, and minimizes requirements for future zoning bylaw amendments. This must be balanced with the need to implement the complex pattern of development permissions that the Official Plan contemplates for the Greenway as a whole in the new bylaw, as described in Section 2.2 of this report.

Consideration 1 - Single Greenway zone category

The Greenway should be included within a single zone category whose purpose is to protect the Greenway.

Consideration 2 - Zones within the Greenway category

Given that the Official Plan indicates that a variety of different permissions apply to different portions of the Greenway, there are three different ways in which individual zones could be identified within the Greenway category:

Option 2a - multiple zones plus overlay: Identify several different zones, each of which would have different permissions - provisionally, these might be as follows:

- i. G1 - Natural Heritage Network (including vegetation protection zones where delineated), and Rouge Watershed Protection Area, outside the Greenbelt Plan area and Oak Ridges Moraine Conservation Plan area. This zone should include all flood plains, excepting the Unionville Special Policy Area, outside the Greenbelt and Oak Ridges Moraine plan areas.
- ii. G2 - Oak Ridges Moraine Conservation Plan, Natural Linkage and Countryside designations. This zone should include all flood plains in the Oak Ridges Moraine plan areas.
- iii. G3 - Greenbelt Plan, Protected Countryside designation within Natural Heritage System. This zone should include all flood plains in the Greenbelt Plan area.
- iv. G4 - Greenbelt Plan, Protected Countryside designation outside Natural Heritage System.
- v. G5 - All other lands within Greenway as shown on Official Plan Map 4 (specifically, remaining "Other Greenway System Lands").
- vi. GX - An overlay zone consisting of key natural heritage and key hydrologic features, as they are delineated.

Option 2b - multiple zones plus more limited overlay: The same as Option 2a, except that the GX zone would overlay the G2 and G3 zones only.

Option 2c- single zone plus overlay: Maintain a single Greenway zone with minimal permissions, plus a GX overlay zone consisting of key natural heritage and key hydrologic features as they are delineated.

Option 2d - combination: Some combination of Options 2a (or 2b), and 2c.

Including the GX overlay zone would conflict with keeping the new bylaw as simple as possible, which is a key guiding principle of this project. The GX zone would fall entirely within the G1 (under some options), G2, and G3 zones, and there may be some other way for the regulations for the latter zones to ensure the minimal permissions required for the GX areas.

Consideration 3 - Zoning vegetation protection zones

All vegetation protection zones, that exist now and as they are created in future through development, should be assigned to a separate zone within the Greenway zone category. (This may be best referred to as a Greenway buffer zone, to avoid confusion between “vegetation protection zones” as they are created and defined under Provincial plans and the Official Plan, and a “vegetation protection zone” in a zoning bylaw.)

As indicated earlier in this report, it would not conform with the Official Plan to prezone a Greenway buffer zone in undeveloped areas. In already developed areas, key natural heritage and key hydrologic features most often either abut development, or are buffered by existing publicly owned open space zones - in either case, creating a Greenway buffer zone would serve no purpose.

There are certainly a few cases where prior development approvals near key features included buffer zones, which were zoned as O3 or some other protective zone. These lands, which can only be identified through careful review of the existing bylaws, should become part of the Greenway buffer zone.

The Official Plan (Section 3.1.2.23) already prescribes adjacent lands distances for development impact assessment, and minimum vegetation protection zones where development is approved. Should a more expansive approach be desired than what has been suggested in Consideration 3, the only realistic alternative would appear to be to create a mapped overlay zone corresponding to adjacent lands distances as per the Official Plan, similar to what has been done in Muskoka Lakes (by use of holding provisions) and Guelph (without an “H”) (see Section 5 of this report).

This adjacent lands overlay zone would need to require submission of an environmental impact study or equivalent demonstrating no negative impacts, to the satisfaction of the City, before development could proceed. Such an overlay zone should not include areas already developed, except possibly where those areas were judged to have a substantial possibility of more intensive redevelopment.

An adjacent lands overlay zone could also be accomplished through text only (see for example Township of Leeds and the Thousand Islands, Section 3.30(c)). However, this alternative would seem less likely to be observed, and therefore less effective. The online mapping tools expected to accompany the new bylaw will only increase dependence and reliance on the maps, as the first point of contact with and for understanding the new bylaw’s provisions.

Split Zoning

Scaling from the Official Plan schedules to the lot fabric is likely to lead to split zoning of lots.

Some of the municipalities studied appear to have tried more than others to avoid split zoning situations. However, they all have situations where lots are divided between zones intended to protect hazardous lands and/or natural heritage, and zones intended to enable development.

Consideration 4 - Whether to map lots in more than one zone:

There are two different ways of delineating the boundaries of Greenway zones relative to lot lines:

Option 4a - whole lot in same zone: Where part of a lot would be included in the zone, include the entire lot. This will lead to understandable concerns among property owners. Owners with a justifiable case for development on the “outside” part of their lots would have to apply for a rezoning or minor variance to permit the desired use (preferably, without changing the zone).

Option 4b - split lot among zones: Stick with the extrapolated Official Plan boundary. This will lead to education and enforcement problems - as City staff have noted, it is hard to keep owners of

already developed residential properties in particular, from doing on one part of their property what they are allowed to do on the other part.

The municipalities studied vary in their approaches to regulating lots with more than one zone.

- Mississauga (Section 1.1.4.1) and Toronto (Section 1.20.3(6)) have general provisions applying to all zones, most simply stated in the Toronto bylaw: “the regulations for each zone apply to the portion of the lot within the respective zone”.
- Brampton and Vaughan do not have such a general provision, but as described in Sections 4.2 and 4.6 of this report respectively, have provisions specific to the Floodplain zone in Brampton, and the Open Space Conservation and Open Space Environmental Protection zones in Vaughan. These indicate that the part of a lot within a protective zone cannot contribute to calculations of permitted area, frontage, yards, or (in Vaughan) coverage in the rest of the lot.
- Whitchurch-Stouffville has a general provision similar to that used by Mississauga and Toronto (Section 3.35). However, it does not apply to the Flood Hazard or other rural and environmental zones. If part of a lot is in the Flood Hazard zone, it may contribute to calculations of permitted area and frontage in the rest of the lot (Section 4.1.1.6(ii)). It is not clear what rules, if any, apply to other rural and environmental zones.
- We were unable to identify any pertinent regulation in the Guelph bylaw.
- In Mississauga, Toronto, and Whitchurch-Stouffville, the above requirements are worded such that each zone’s setback requirements apply with respect to the boundary between the zones.

Certainly, it would be desirable for the new zoning bylaw to include regulations addressing split zoning. However, this would appear to be a broader issue best addressed in another component of the project, as the same considerations can arise in other types of split zones (e.g., part residential, part commercial).

Other Mapping Considerations

Online mapping provides an excellent opportunity to inform property owners who are consulting zoning information that they are in the regulated area and that as a result, they may (also or instead) need *Conservation Authorities Act* permission from TRCA. While the ideal of “one-stop shopping” for regulated area property owners cannot be attained under the current regulatory system, it can be somewhat more closely approached if the City at least provides this information.

While most municipalities do not show the regulated area in their zoning bylaws, some do. The Town of Innisfil shows the boundary on its base zoning maps and it is legally part of the bylaw. The Town of Oakville shows the boundary for information, in an appendix which is not legally part of the bylaw.

Consideration 5 - Mapping TRCA regulated area

An always-current overlay showing the regulated area, provided by TRCA, should be shown in the bylaw mapping as information only, not as a legal part of the bylaw.

Permissions

To remain consistent with the Official Plan, there is only a very short list of uses that can be permitted in the G1 and GX zones provisionally identified in Option 2a. Completely forbidding all uses does not seem a very practical alternative, and all other municipalities studied have at least a minimum list consistent with that proposed below. As well, this minimum list would be fairly consistent with the permissions in the existing O1 and OS1 zones.

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Consideration 6 - Use permissions in G1 zone

Only the following uses (using the below or equivalent terminology) should be permitted in the G1 zone:

- flood and erosion control
- conservation and resource management
- trails and nature-based public recreation
- infrastructure.

The limited exception for agriculture subject to site-specific evaluation that is described in Section 8.6.1.6(c) of the Official Plan, would be best addressed through rezoning to permit the proposed use once the Official Plan criteria have been satisfied.

Consideration 7 - Use permissions in other Greenway zones

There are two different ways in which uses could be permitted in the other Greenway base zones provisionally identified in Consideration 2, as follows:

Option 7a - permissions for multiple zones: If multiple Greenway zones are preferred as per Option 2a, permit uses as follows:

- G2 zone - as per Official Plan sections 8.6.1.2, 8.6.1.3, 8.6.1.4, 8.6.1.6 (b) and (c), 8.8.1.2
- G3 zone - as per sections 8.6.1.2, 8.6.1.3, 8.6.1.4, 8.6.1.6 (b) and (c), 8.6.1.8, 8.8.1.2
- G4 zone - as per sections 8.6.1.2, 8.6.1.3, 8.6.1.4, 8.6.1.8 except (f), 8.8.1.2
- G5 zone - as per 8.6.1.2, 8.8.1.2.

Option 7b - permissions for single zone: Should a single Greenway zone be preferred as per Option 2c, the permissions should be the same as proposed for the G1 zone in Consideration 6. The additional uses contemplated in Option 7a could then be allowed on a site-specific basis where justified. This could be accomplished either through site-specific rezonings, or by permitting the additional uses subject to an “H” (holding provision).

Consideration 8 - Use permissions in GX zone

Uses should be prohibited in key natural heritage and key hydrologic features (the GX overlay zone provisionally identified in Consideration 2), as follows:

- Outside the Greenbelt Plan area and Oak Ridges Moraine Conservation Plan area - no development.
- Inside the Greenbelt Plan area and Oak Ridges Moraine Conservation Plan area - the uses permitted in the G1 zone (see Consideration 6).

Consideration 9 - Restricting structures and site alteration in G1 and GX zones

Recognizing that all structures and site alteration in the G1 and GX zones provisionally identified in Option 2a will in any event require TRCA permission, there are two different ways in which structures and site alteration could be regulated:

Option 9a - regulate through bylaw only: Prescribe what types of structures and site alteration the City permits, which would in any event be limited to those accessory to the permitted uses, and those permitted by Official Plan Section 8.6.1.5.

Option 9b - regulate through bylaw plus rely on TRCA regulation: Prohibit all structures and site alteration, except those permitted by Section 8.6.1.5, and those that are approved by TRCA and are accessory to the permitted uses (to foreclose the possibility that TRCA might inadvertently approve something outside the scope of the permitted uses).

Option 9a would leave matters entirely in the hands of the City. However, in the TRCA regulated area, which includes all hazardous lands and most of the Greenway not owned by public agencies, it would subject much activity to regulation and approval by both the City and TRCA.

Option 9b would leave detailed regulation to TRCA, while maintaining City surveillance in terms of the permitted uses. However, this option defers decision-making to another agency.

There are two schools of thought about whether a zoning bylaw should include provisions that defer to another agency. Almost all zoning bylaws defer to some extent - every reference to a Provincial statute involves deferral to the possibility that the Legislature may change the statute without reference to the City. The two schools of thought are carried to the point that most bylaws of municipalities with rural lands apply the Ministry of Agriculture, Food and Rural Affairs's Minimum Distance Separation Formulae by reference, but some include the entire MDS publication as an appendix.

Deferral to conservation authorities is commonplace. In the municipalities studied, Brampton and Toronto prescribe minimum elevations and defer to TRCA for their establishment. Guelph defers to the Grand River Conservation Authority for approval of various types of structures in the Floodway zone (Section 12.2.2). Elsewhere, the Township of Clearview (Section 3.39.1) and the Township of Leeds and the Thousand Islands (Section 16.1(b)) prohibit all structures and site alteration in the regulated area, except for those approved by the applicable conservation authorities.

Other Regulatory Considerations

Creation of the suggested G1 and GX zones will result in a considerable number of legal nonconforming uses and structures, even if a split lot zoning approach is followed - many of these may already be legal nonconforming under the existing bylaws.

Official Plan section 10.2.7.3 can be interpreted as allowing considerable scope for extension and enlargement of existing uses and structures. At the same time, section 10.2.7.3(c) appears to require that, among other things, such permission needs to take into account the nature of the zone.

Consideration 10 - Legal non-conforming and non-complying uses

The development of legal non-conforming and legal non-complying provisions in the new bylaw should consider whether such provisions should be more restrictive in the G1 and GX zones provisionally identified in Option 2a.

Special Policy Areas

Although some of the municipalities studied do not show special policy areas on their zoning schedules or address them in their bylaw texts, such an approach would not seem to be consistent with the PPS, nor would it comply with the City's obligation to bring its zoning bylaw into conformity with the Official Plan. An overlay zone, over base zones that reflect existing or intended uses, is the only mapping approach consistent with the intent and purpose of special policy areas.

Consideration 11 - Unionville Special Policy Area

The Unionville Special Policy Area should be shown as an overlay zone over base zones showing existing or intended uses, and appropriate supplemental regulations for this overlay zone should be included in the bylaw text.

It is premature to address the specific regulations that should apply. The pertinent Official Plan policies are still subject to change before being forwarded to the Ontario Municipal Board. It is clear that the Province will not only be providing very strong direction on the final shape of those policies, but on the zoning provisions themselves.

The 2014 Downtown Brampton Special Policy Area zoning bylaw amendment is certainly an example of what the Province considers “best practice”, but it’s designed to fit within a different planning regime, and a quite different specific situation. However, the modifications endorsed by City Council in February 2015 clearly bring the Official Plan policies closer to the Brampton model.

TRCA staff raised the concern that whatever regulations are developed for the Special Policy Area, need to take into account the following:

- the extent to which legal non-conforming and legal non-complying provisions in the new bylaw can or should be relied on to regulate existing uses in the special policy area, and the relationship between these provisions and specific regulations for the Special Policy Area,
- the changes in how density will be controlled in the new bylaw flowing from the Official Plan (for example, floor space index standards replacing units per hectare standards), and the need to ensure that these changes do not inadvertently increase the amount of development permitted in the Special Policy Area. It appears that this concern will be addressed by Section 8.1.5, proposed to be added to the Plan through the recently endorsed modifications.

Flood Vulnerable Areas

It is premature to address any specifics at this point. Unless and until the City can delineate flood vulnerable areas, it does not seem possible to address those areas in the new bylaw.

Other Municipal Bylaws

The Toronto Ravine and Natural Feature Protection Bylaw is a unique Toronto solution that is not necessarily applicable outside that municipality’s borders, particularly in a municipality like Markham that has a fully developed set of the protective bylaws permitted under the *Municipal Act, 2001*.

Markham has a Tree Preservation bylaw, complementary to York Region’s Forest Conservation bylaw, that applies throughout the City’s hazardous lands. The regulation of site alteration on hazardous lands is the exclusive province of TRCA. If necessary, special provisions can be added to the Tree Preservation bylaw apply to flood plains or the regulated area only, to better tailor the bylaw to protection needs in those areas. (Markham’s Site Alteration bylaw already includes special provisions that apply to the Oak Ridges Moraine Conservation Plan area.)