From:	Park Thisismypark
To:	Planning and Growth Management Committee
Subject:	Agenda Item PG6.6 Mid Rise Building Performance Standards Monitoring
Date:	Tuesday, September 15, 2015 1:52:49 PM

Agenda Item PG6.6 Mid Rise Building Performance Standards Monitoring

To all members of Planning and Growth Management Committee:

This information was made available to the public on September 9, and is before you on September 16. Seven days is not sufficient time for the residents' associations and communities to assess it, discuss it, and make feedback available to City Planning.

Please defer this item for a period of two months.

Sincerely,
E L Cramp
Secretary,
High Park Residents' Association


The 1844 Bloor West site before the trees were cut. The area inside the oval demonstrates 50% canopy in an area which is shared by small-footprint buildings. This should be our goal for developments which are close to a Natural Heritage Area.

Mid Rise Performance Standards - the environmental component - E L Cramp - Aug 2015

The Mid Rise Performance Standards do not provide enough protection for *local* Natural Heritage areas. I would like to suggest a few changes which would help to protect the environment. This is quite a long piece, but I felt it was necessary to provide an overview, before focusing on the specific details. The relevant Mid Rise policies have been highlighted in **purple** (digital version), or double underline (if you are reading a printed paper version).

I became aware of this problem as a result of my involvement with two new developments on the northern boundary of High Park: 1844 Bloor West and 1990 Bloor West.
I am using High Park as an example, here, but this applies to all types of Natural Heritage areas -- urban forest, wetlands, and ravines.

The Performance Standards attempt to address protection of the environment at a local level and at a wider level.

Mid Rise Performance Standards

> 1.1 Reurbanization is a co-ordinated approach to the redevelopment of land within the existing urban fabric to accommodate regional growth. Reurbanization improves and makes better use of existing urban infrastructure and services before introducing new ones on the urban fringe. This helps reduce impacts on the natural environment and improves the livability of the urban region by:
> - reducing the pace at which the countryside is urbanized;
> - preserving high quality agricultural lands to protect Toronto's food security;
> - reducing our reliance on the private automobile;
> - reducing greenhouse gas emissions; and,
> - reducing our consumption of nonrenewable resources.

So, 1.1 intends to protect the Greenbelt, agricultural areas, and reduce greenhouse gas emissions.

Mid Rise Performance Standards

> 2.1 Where the recommendations apply.
> The different land use designations that overlap with the identification of an "Avenue" will require different approaches. As the Official Plan is clear in its intent to protect stable residential neighbourhoods, -- Neighbourhoods, Parks and Open Space Areas, and Natural Areas are not subject to intensification. Therefore, these areas will only be subject to streetscape improvements.

So, 2.1 attempts to protect *local* parks and natural areas.

However, a problem arises when we make the mistake of applying the Avenue designation to a street which is too close to a Natural Heritage area. Bloor Street, between Keele and Clendenan, is an extreme example of this situation. Bloor St is an Avenue. On the north side of the street we have a Policy 3 Area, which is one of the Avenue areas. On the south side of the street, we have a Parks and Open Space area.

On the north side, the Avenue designation invites a great deal of new density. On the south side, there is not supposed to be any intensification, at all.

So, what's the problem? Many people would look at this and say "I don't *see* a problem. Just

put the bulildings on the north side of the street."

However, it's not that simple. High Park is an urban forest and is the home of an ANSI (Area of Natural and Scientific Interest) and two ESAs (Environmentally Significant Area).

Ansi is a provincial designation. ANSIs may be either Locally, Regionally, or Provincially Significant. The High Park ANSI is Provincially Significant. Provincially Significant ANSIs have the highest rank, and are afforded the most protection under provincial policy.
ESA is a municipal designation. ESAs are protected under Toronto's Official Plan.
Together, the ANSI and the ESAs comprise more than two thirds of the area of High Park. These areas have been designated in order to preserve species which are rare or endangered. They are also intended to provide opportunities for scientific study.They are *not* intended to be used as recreation areas.

Because High Park is so environmentally sensitive, development around it needs to be carefully controlled.

Policy
In Ontario, protection is given to Natural Heritage Areas at the Provincial and Municipal levels.

The Planning Act
The Provincial Policy Statement
The Growth Plan for the Greater Golden Horseshoe
Toronto's Official Plan
Natural Heritage Reference Manual, 2010

Reference:
Natural Heritage Reference Manual, 2010

> 1.1 Purpose and Scope
> The second edition of the Natural Heritage Reference Manual (the manual) provides technical guidance for implementing the natural heritage policies of the Provincial Policy Statement.

I will be referring mostly to this document.

High Park is part of a Natural Heritage System, which includes core areas (3.4.2.1), buffer areas (4.5, C.1.2) and corridors or linkages (3.4.2.2).

...

> 3.3 Why Protect?
> Stresses on the natural environment from human activity are particularly evident in southern Ontario . . . The prevailing patterns of growth and settlement have not always been sensitive to the fact that individual features and areas have strong ecological ties to each other, as well as to other physical features and areas in the overall landscape. Historic planning approaches to protecting natural heritage have been limited to trying to preserve remnant individual features in a reaction to development pressure. At a landscape level, this approach has led to isolated and fragmented natural features and areas. Compared to features that were part of a connected system, isolated features have lower ecological functioning.

High Park is such a large area, that it seems odd to think that it could become isolated. Yet

it could, without the presence of corridors, or linkages to connect it to other natural areas, perhaps several miles distant.

> 3.4.2.2 Linkages / Corridors
> Linkage (also referred to as 'corridor') components of natural heritage systems should be designed to accommodate the natural movement patterns of plants and animals because movement is necessary for biodiversity conservation and the long-term viability of ecological systems. In identifying a natural heritage system, linkages that are ecologically functional should be incorporated. . . .
>
> Table 3-4 Linkage / core Attributes
> Smaller patches of natural cover that are closely spaced can serve as stepping stones for species movement, and thus be identified as a linkage.

When High Park was created, we did not have our present understanding about the needs of the environment. We did not set aside areas to function as corridors. At that time, there were enough trees in the neighborhood to perform that function. Now, when we plan for infill developments, we need to be careful not to fill up all of the green spaces with new buildings. Some green spaces will need to be maintained as "stepping stones" in order to protect the health of High Park.

Each development has a different impact on the park, depending on its location. When 20 Gothic was built, its huge footprint completely obliterated one of those "stepping stone" green spaces.

> P. 216 Buffers
> A buffer is an area or band of permanent vegetation, preferably consisting of native species, located adjacent to a natural heritage feature and usually bordering lands that are subject to development or site alteration. The purpose of the buffer is to protect the feature and its functions by mitigating impacts of the proposed land use . . .

The function of a buffer zone is to protect the interior of the forest and the edges. Without a buffer, there are changes in the microclimate, invasive species take root at the edges, and heat, noise, pollution and light are able to penetrate further into the forest's interior. When the forest's interior is disrupted, the interior-dwelling bird species leave.

Usually a buffer is defined as a vegetated strip which does not contain buildings. However, in conversations with environmental scientists and arborists, I learned that a built up area can function as a buffer zone.

The Reference manual gves us some flexibilty in determining where to create adjacent lands and buffers.(4.4.2)

I asked an arborist what the canopy requirement would be in High Park's buffer area. He replied "50%." The appropriate width of High Park's buffer area has not yet been determined. It is unlikely to be less than 100 metres. It could be much wider.

Buffer widths depend on:
- -- Adjacent land use activities;
- -- The amount and configuration of development in the adjacent lands and landscape;
- -- The structure and type of vegetation in the buffer; and
- -- The particular species the buffer is being designed to protect. (Adamus 2007)

So, in order to protect High Park, it needs a buffer area, on all sides, at least 100 metres wide, providing 50% canopy.
In other words, High Park's buffer zone will be located ***in*** the residential areas to the west,

north and east of the park. To the south, it will be located in the area through which The Queensway passes.

The buffer zone does not need to be devoid of buildings in order to perform its protective function. Buildings situated in the buffer area need to have a small enough footprint that there will be room to plant trees on the site.

The 1844 Bloor West condo building is an example of a development built within the park's buffer zone. Preconstruction, and before demolition, the 1844 Bloor West site had the desired balance between built form and vegetation. The buildings were single family homes or small apartment buildings. There were many mature trees between the buildings. The original trees will be replaced by trees in trenches along the sidewalks and by several green roof areas on the building. When complete, the canopy on the 1844 site will have been reduced from 50 % to 10 %. If the trees survive, it will take many years for them to reach a mature size. In the meantime, there is a gap in the protective buffer zone, along the 91 metre width of the site.

Also, replacement trees will be planted inside High Park. At first glance, this seems like a good idea. However, it is not. Trees planted *inside* the park cannot protect the *edge* of the park.

There seems to be some confusion about Bloor Street. A lawyer to whom I spoke said "Everyone knows that Bloor Street is a buffer." I cringed when I heard that. Environmentally, Bloor Street is not, itself, a buffer. A buffer is a vegetated area. Bloor Street runs *through* a buffer area. The buffer area continues to do its job, even though a road passes through it. A road does not cause a problem for biodiversity conservation unless the road is very wide or the traffic volume is sufficient to create high noise levels..

So, intensification *can* occur north of Bloor Street, but it needs to be done carefully, because that area must also serve as part of the park's buffer area.

> **Performance Standard #8A : Continuous Street Wall**
> **==========**
>
> The vision for the Avenues is based on the evolution of a generally continuous street wall lined with shops, restaurants, cafés and other community and commercial services. A break in the continuity of the street wall and building fabric is disruptive to the success of the public function of the Avenue. For this reason, front yard parking, automotive uses and buildings with large setbacks are detrimental to the evolution of the Avenues in mixed-use and commercial areas. The “street wall” portion of a building’s front façade is defined as a minimum of 10.5 metres (3 storeys) and up to the 80% height. The streetwall should therefore generally be built to the side property line.

I would like to suggest that, for Mid Rise buildings which are situated close to a Natural Heritage area, the streetwall *not* be built from side lot line to side lot line.

- --If we build a continuous row of buildings along a street, side to side, with no space between them, we create a solid wall of built form.
- -- If these buildings are taller than the trees (taller than 8 storeys), we are creating a barrier to movement.
- -- If we place infill buildings in the lots behind the Mid Rise buildings, we are creating a deeper barrier.
- -- If this solid built-form barrier were deep enough (75 to 200 metres), it would completely fill up the buffer zone.
- -- If this solid barrier were to completely surround the Natural Area, it would become an isolated area, and its health would deteriorate.
- -- One row of trees, planted in the sidewalk, may not be sufficient to function as a buffer.

(At this point, in this paper, I am not limiting the topic to High Park. This pertains to all Natural Heritage areas. I don't

want to get sidetracked by a discussion regarding whether mid rise buildings would ever be built on Parkside Drive or Ellis Park Road.)

If some space were provided for the planting of trees between the buildings, the trees could be scattered throughout the buffer area, and their canopy could cover the entire buffer area.

Therefore, I would like to request an **exception to Standard #8A.**

Also, in general, aim for smaller buildings in the buffer area.

Reference:
Natural Heritage Reference Manual, 2010

> 13.5.4.1 Mitigation through Design of Land Uses
> The first step toward reducing impacts is to develop designs that have the least potential for impacting natural features. . . .

Reference:
Natural Heritage Reference Manual, Draft Version for Environmental Registry, 2009

> 13.2.5 Approaches to Mitigation
> Mitigation through Design of Land Uses
> Some land uses have the potential for lower environmental impacts and where feasible, these should be located adjacent to natural features. . . . . **Many impacts are density related**, so housing forms with high density (e.g., apartment buildings, townhouses) have the potential for greater impacts than single-family dwellings (This was not included in the 2010 version of the Reference Manual. It was replaced by a brief, more general sentence which encompasses the same meaninig. However, it is food for thought. The full quote is included at the end of this pdf.)

Mid Rise Perfomance Standards
Recommendations

> **4.4.2 Design Review Panel**
> **==========**

I would like to request this change: for mid rise developments which are to be located fairly close to a natural area (perhaps within 200 metres), the Design Review Panel should include one environmental scientist and one arborist. Planning professionals tend to see the world in terms of planning policy, rather than asking what the environment needs.

> **4.5.5 Outdoor amenity space requirements**
> **==========**
> The Avenues are often close to parks, and other outdoor spaces. Often the Avenues themselves are the “public amenities”. Rather than providing outdoor amenity space as a part of small midrise developments, specifically in areas with an abundance of park space nearby, developers could provide cash in-lieu of providing outdoor amenity space on-site, or contribute to local streetscaping enhancements.

I would like to request that 4.5.5 be completely deleted.

Natural areas will become stressed if more and more people use them for recreation. The greater the density, the greater the stress on the natural area.Therefore we must not be sending a message to developers that it is OK to skimp on outdoor amenity space - and then compensate for the lack of amenity space by sending the residents to the park.

The exact opposite should happen. We need to *match* the increase in density with an increase in the number of local open green spaces. And these green spaces need to be large enough that people can actually use them for recreation. Allowing the developer to give cash in lieu of amenity space will not necessarily solve the problem. How will that money be used? If it is used to buy a bench here and a piece of sculpture there, that won't help the natural area to remain healthy.

Reference:
Environmentally Significant Areas (ESAs) in the City of Toronto, 2012

7.0 Summary and Conclusions
Sites verified as meeting ESA criteria through this study together include the most significant and most ecologically sensitive natural heritage features and functions within the City of Toronto. . .

Sites that meet the established ESA criteria should be protected from development, site disturbance, encroachment and inappropriate uses to ensure that the natural features and functions for which they have been identified continue to persist and flourish for the long term.

In the City of Toronto, identification and protection of ESAs is particularly important because:
• they are located in a dense urban area where the population is expected to grow by an additional 360,000 residents by 2031, with resulting increased pressures on natural areas;
• many parts of the natural heritage system where ESAs are located (e.g., along the lakeshore and in the ravine/valley system) also support a range of recreation uses, are traversed by infrastructure, and are under continual pressure to provide additional uses; and
• even under the current population levels the existing natural areas are subject to a wide range of impacts and stressors, so there is a need to identify and protect the most sensitive and least degraded areas quickly to ensure they are not further degraded as the population continues to grow.

Reference:
Parks Plan 2013 - 2017

P. 37 Heavy use and sustainability
Rising population density and limited opportunities for parkland growth are resulting in more people using the City's parkland. This is, for the most part, a positive trend that can be supported by adjusting maintenance practices and the design and distribution of park features and amenities. In some settings, however, overuse or misuse negatively affects the quality and sustainability of parkland. Natural areas are vulnerable to heavy use, as they have low 'wear tolerance', and natural ecosystems deteriorate relatively quickly under conditions of overuse.
. . .
Natural environments have a threshold (or "tipping point") for disruption, beyond which severe and possibly irreversible damage is done to ecological health. . . .
The use of parkland needs to be compatible with its physical capacities. Parks, Forestry and Recreation currently has little data on how many people use city parks, how parks are used, and how high levels of use impact parks. This makes it challenging to prevent issues that might arise and as a result problems are dealt with case-by-case, often once damage has already been done.

The effects of ever- increasing population density on an environmentally sensitive natural area:

example: Doggy Liberation Front

Some dog owners are aware that certain areas of High Park are environmentally sensitive, and they respect the signage and the efforts of park staff. Other dog owners believe that the entire park should be an off-leash area. Repeatedly, gates are destroyed and fences are cut. People and dogs tromp around in the sensitive areas.
The vandals *know* that neither they nor their dogs are permitted beyond the fences. The problem is not a lack of awareness. The problem is their sense of entitlement.

http://www.metronews.ca/news/toronto/2015/04/13/has-the-doggy-liberation-front-returned-to-torontos-high-park.html

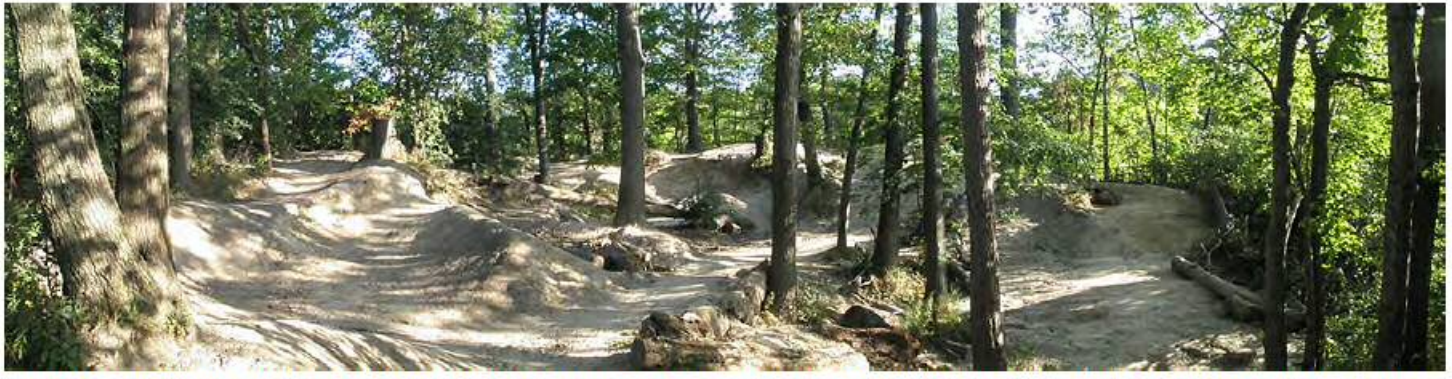
example: the bike pit

Cyclists took shovels into High Park, into an environmentally sensitive area, and dug up the soil, to create ramps and jumps. This area is protected; it is situated in an ANSI *and* an ESA. Extensive damage was done over a very large area. Since 2009, this area has been fenced off, so that it may be restored. A "bike park" has been provided for cyclists, outside the park. Protecting environmentally sensitive areas is an ongoing challenge for staff. There are only a handful of bylaw officers to monitor 1600 parks.

Reference:
Stage 1-2 Archaeological Resource Assessment of the "Bike Pit" and Picnic Area 7, High Park, City of Toronto, Ontario

> 3.1 The Bike Pit
> P.11 The Bike Pit consists of a bowl bounded by ridges and steep slopes rising to tableland to the north and west, steep slopes descending to the Lower Duck Pond to the east, and to level terrain, which may represent formerly poorly drained lands, to the south.
> P.14 The Stage 2 assessment of the Bike Pit determined that the area has been thoroughly disturbed by the unauthorized activities of cyclists, who have cut trails and built numerous ramps and jumps throughout the area, resulting in the removal of almost all original A-horizon topsoil from the area.

http://www.cbc.ca/toronto/news/pdf/ara-bike-pit.pdf



4. PANORAMIC VIEW OF THE BIKE PIT FROM THE SOUTHWEST. NOTE THE EXPOSED B- AND C-HORIZON SOILS THROUGHOUT AND THE RAMPS AND JUMPS FORMED BY DIGGING AND HEAPING UP OF SOILS.

5. OVERLOOKING THE BOTTOM OF THE PIT FROM THE NORTH RIM.

6. A RARE INSTANCE OF REMNANT A-HORIZON IN THE PIT, AT THE BASE OF A TREE.

7. EXCAVATING A TEST PIT ON THE SLOPING OUTER RIM OF THE PIT.

Reference:
OMB Decision PL090333 - 200 Keele Street - November 25, 2013

The proponent had wished to build rental townhouses in a ravine area, next to a public park, and had wanted to omit the provision of outdoor amenity space, putting forth the idea that the park could substitute for the amenity space.

The decision:
[76] Although outdoor amenity space is a separate requirement in the zoning by-law, and although it is not specifically referenced in the OP, the proponent's decision to provide no outdoor amenity space for the apartment condominium Building A contributes to the Board's finding that the massing and scale of the proposal is not appropriate for the site.

[77] The planning and urban design witness called by the proponent was candid in acknowledging that the lack of outdoor amenity space and the reduced amount of landscaped open space are, in his expert opinion, cured by the fact that the proposal is adjacent to a large public park.

[78] The Board finds that it is neither reasonable nor appropriate to rely on the prior existence of a public park as a justification for failing to provide either the minimum requisite private landscaped open space or the minimum requisite private outdoor amenity space.

[79] Lithuania Park is there to serve all the residents in the broader neighborhood. It is not there to be a substitute for landscaped open space or private outdoor amenity space that is intended to be provided on the subject site.

We *must* find a way to create more small open green spaces, scattered throughout the neighborhood.
These spaces are needed to:
-- provide "stepping-stone" linkages between the larger green spaces, since we do not have a formal system of corridors, in this built-up area.
-- provide some "relief" spaces for recreation, in order to take the pressure off the Natural Heritage areas. The more people we add to an area, the more "relief" green spaces we will need to add.

20 Gothic Avenue is an example. The lower part of the site used to be a park. Why was it allowed to be filled up by a building? Who owned the park before it was developed? If it was owned by the City, this was a perfect opportunity to provide High Park with some of the protection it needs, without having to buy surrounding property. It was already a park.
It should have been retained as a park.

What tools are available?

Reference:
Natural Heritage Reference Manual, 2010

The Reference Manual gives useful guidance regarding how the Mid Rise Performance Standards could be updated, in order to provide more protection for the environment.

Examples:

4.4.2 Developing Municipal Approaches for Determining the Extent of Adjacent Lands
Similarly, if planning authorities wish to define certain areas of their jurisdiction (e.g., **existing built up areas**) for alternative adjacent lands widths, they need to be confident that the range of permitted uses, the natural heritage characteristics of the area, the existing development pattern and other factors will ensure that there will be no negative impacts, as defined in the PPS, beyond the proposed adjacent lands width.

The buffer will be created from the adjacent land. In allowing municipalities to define an existing built up area as an adjacent land, the manual gives us the flexibility to create a buffer zone which would include both vegetation and built form. In other words, we *can* protect our urban natural areas, without having to banish all buildings from the buffer. The buildings would need to have a small enough footprint that the site could be shared by trees. The trees need to be scattered among the buildings, so that their canopy extends across the full width of the buffer area.

12.3.2 Identification and Protection
Natural heritage systems, known features and areas . . . Official plan policies should restrict permitted uses in these areas (and adjacent lands) to existing uses and/or those uses that are compatible with the long-term protection of the natural heritage areas.

"existing uses and/or those uses that are compatible with the long-term protection" -- gives us the discretion to limit the size and type of built form which would be permitted in a buffer area, since the buffer area is a part of the adjacent lands.

13.5.4.1 Mitigation through the design of land uses
Policies 2.1.4 and 2.1.6 (2.1.4, 2.1.5, 2.1.8 - 2014 version) of the PPS are clear, however, in their requirement of no negative impacts on natural features. Planning authorities must make minimizing environmental impacts a high priority in the design process for proposed developments adjacent to natural features, to be consistent with the PPS.

Related policies

Reference:
Tree Planting Solutions in Hard Boulevard Surfaces

This is an excellent initiative, but it appears that this "40% average tree canopy" idea has migrated into the Toronto Green Standard.

Reference:
Toronto Green Standard

We need to be careful not to become so fixated on one aspect of the environment that we lose sight of the big picture. Aiming for 40% canopy in the City is a well-intentioned idea, but it is heading off in the wrong direction. It is more important to plant trees where they are *needed, in order to perform a specific ecological function.*

For example, if it is determined that a Natural Area needs a buffer zone, composed of large mature trees, at 50% canopy, and 100 metres wide, than *that* is where the trees need to be planted. It is more important to plant them there, than along a street, or somewhere else where it is convenient for us to fit them in. And we definitely do not want to plant them inside the Natural Area. They can't buffer the Natural Area from inside the Natural Area.

Also, you can't buffer a natural area by planting trees on a rooftop. The trees need to be down on the ground. If we are really serious about protecting our environmental resources, we need to make more room for them at ground level.

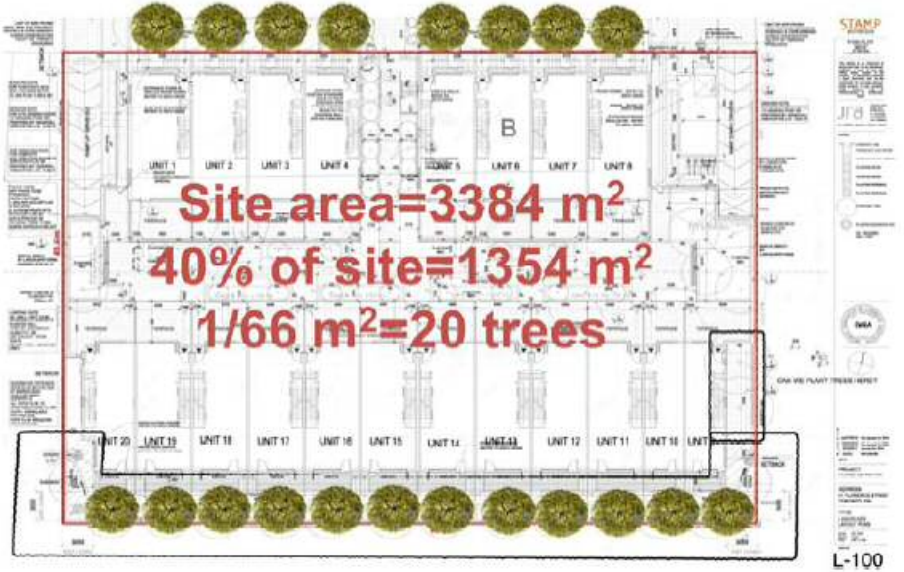
The drawing below is from Toronto Green Standard: making a sustainable city happen
2014 Update
Version 2 Highlights
p.19 Urban Forest Enhancement

There are two problems, here.
First -- again we are planting the trees where it suits our fancy, because we are focusing on attaining a 40% average city-wide canopy. We should be examining the needs of the nearby natural areas. *Then*, decide where the trees need to be planted, in order to serve the highest ecological function.

Second -- There is a row of trees at the front of the building, and another row at the back. If the building is taller than the trees, then it becomes a "barrier to movement". Birds and insects need to hop from tree to tree. If they cannot move easily from one row of trees to the other, then these trees lose their function as part of a corridor or linkage.

Between 2006 and 2008, the reports regarding the Toronto Green Standard mentioned the intent to increase soft lanscaping area. That seems to have disappeared.

URBAN FOREST ENHANCEMENT



Live green Toronto

Reference:
Provincial Policy Statement, 2014

> 2.1.3 Natural heritage systems shall be identified in Ecoregions 6E & 7E, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas.

Has this been undertaken yet? A comprehensive Natural Heritage System would map large and small core areas, where native species still exist. It would allow us to determine where corridors and linkages formerly existed, and where they can be restored or recreated.
It would make sense to have our Natural Heritage System plan in place, before we proceed with any further intensification.

Reference:
Natural Heritage Reference Manual, 2010

> 12.3.4 Implementation Considerations for Natural Heritage Systems
> A natural heritage system approach should be applied at various scales to protect natural heritage features at the local, regional, provincial or even the national level. . .

Two final comments from the 2009 draft version of the Natural Heritage Reference Manual, during its five year review.

> 4.4 Adjacent Lands
> P.37 In recent years, as development has accelerated in Ontario, particularly in some parts of southern Ontario, MNR biologists and others have noted and documented the ongoing loss of species and habitats, despite the policies of the province and other planning authorities, and efforts by the development community. This is believed in part to be a result of an underestimate of the impacts associated with development.

> 13.2.5 Approaches to Mitigation -- Mitigation Through Design of Land Uses
> P.112 It is recognized that minimizing envronmental impacts is just one consideration of design. However, policies 2.1.4 and 2.1.6 (2.1.4, 2.1.5 and 2.1.8 - 2014 version) of the PPS are clear in their requirement of no negative impacts to natural features and this should be a high priority in the design process for applications adjacent to natural features.
>
> Some land uses have the potential for lower environmental impacts and where feasible, these should be located adjacent to natural features. Employment uses, especially those with large campuses (e.g.,corporate headquarters, medical facilities, prestige industrial developments, etc.) generally have the least impact as there is little use of adjacent areas by employees, impacts such as encroachment are easily controlled, and there are no domestic pets to prey on wildlife. Schools have the potential for the greatest impact, especially when adjacent to woodlands, as students use woodlands for various activities and generally, there are high impacts from human traffic in woodlands near schools. Residential housing falls between these two extremes. Many impacts are density related, so housing forms with high density (e.g., apartment buildings, townhouses) have the potential for greater impacts than single-family dwellings. Industrial uses cannot be categorized easily because of the wide range of possible activities and building requirements (e.g., security lights, porous parking and storage areas, industrial processes which generate a lot of noise, etc.). This information is general and does not imply that housing or other uses should never be located adjacent to natural features, however, when they are, wider buffers and other forms of mitigation may be required.

Archaeologist report re: the bike pit
http://www.cbc.ca/toronto/news/pdf/ara-bike-pit.pdf

Doggy Liberation Front
http://www.metronews.ca/news/toronto/2015/04/13/has-the-doggy-liberation-front-returned-to-torontos-high-park.html

An Austrian paper re: a research project re: how to best protect one of Europe's natural areas. They tried modelling a type of buffer area which would absorb some of the heavy recreational use from the natural area. They found that this wasn't sufficient.
This is their concluding statement:

> P. 44-45 Agent based simulations indicated that the planned buffer zones can only absorb about 30% of the recreation use pressure. The use pressure on the protected areas will drastically increase. Therefore, **additional green spaces in the urban sprawl region are required to further reduce recreational use pressure on the protected areas**.

http://www.mmv2012.se/MMV-2012-Proceedings.pdf

Natural Heritage Reference Manual, 2010
http://www.ontario.ca/document/natural-heritage-reference-manual

Best Practies Guide to Natural Heritage Systems Planning
http://www.ontarionature.org/discover/resources/PDFs/reports/nhs-guide-web.pdf

Toronto Green Standard, Version 2, 2014
http://www1.toronto.ca/City%20Of%20Toronto/City%20Planning/Developing%20Toronto/Files/pdf/TGS/TGS_MidHiRise_Standard.pdf

Tree Planting Solutions in Hard Boulevard Surfaces
https://www1.toronto.ca/city_of_toronto/parks_forestry__recreation/urban_forestry/files/pdf/TreePlantingSolutions_BestPracticesManual.pdf

City of Vaughan Natural Heritage System Study
https://www.vaughan.ca/projects/policy_planning_projects/natural_heritage/General%20Documents/Reports/Vaughan%20NHN%20Phase%202-4%20Draft%20Final%20Report%2029%20May%202014.pdf

Palo Alto, California
(Palo Alto's planning department is really serious about making room for trees)
http://www.cityofpaloalto.org/civicax/filebank/documents/6436

http://www.cityofpaloalto.org/civicax/filebank/documents/36187