

How Zoning Can Regulate Trees



Purpose

Trees are important to our communities – providing a wide range of benefits from climate change mitigation, improving public health, and adding to our economic and aesthetic well-being. The importance of trees needs to be balanced in consideration to infill and growth. Along with the Urban Forest Management Plan, and the Tree Protection By-law – the new Zoning By-law is an essential tool in protecting and enhancing the urban tree canopy. Join the conversation to help ensure that we preserve and grow the city of Ottawa’s urban forest for the benefit of everyone.

Introduction

There has long been a tension between new infill development and trees. Trees have not been well addressed through Zoning thus far. In general, trees have been considered very late in the development process – if at all – and along with soft landscaping, generally relegated to the “remainder” of the lands after all other uses and priorities on a site have been considered. This has resulted in the removal of trees for purposes other than a direct conflict with the permitted building envelope – including removal to make way for service laterals, driveways, parking areas, amenity features such as pools and patios, grading and fill work, and other incidental uses of the surrounding yards beyond the building itself.

Further, trees have, to date, not been something that has been considered possible to regulate by Zoning under s.34 powers of the *Planning Act*. Under current law, zoning cannot require the planting of trees. However, there is opportunity for zoning to better regulate above and below grade areas for trees to be planted and survive successfully in an infill environment through other s.34 powers including:

- Restricting and/or regulating the use of lands, including incidental lands, yards and spaces associated with a use;
- Regulating the construction of buildings and structures including height, bulk, location, size, spacing, depth and proportion of area occupied by the same.

The use of incidental lands have been identified and ruled through land use tribunal decisions to be within the purview of zoning’s ability to regulate character, which includes the use and treatment of those lands incidental to the building and structure. This allows for landscaping, driveways, walkways, amenity areas and other features and pressures of the lands to be considered and regulated by zoning provisions. Zoning has the ability to regulate the type of surface material that can be provided in these spaces, including monolithic asphalt extents, hard landscaped elements such as pavers and interlock, permeability of materials provided, and so on. The question to be explored in this paper is the extent to which the powers to regulate “landscape” extend to improving conditions for the retention of, or new planting, of trees in keeping with Official Plan directions to retain and expand the urban tree canopy. This paper



explores the potential for Zoning to provide more discrete control specific to how trees can interact and occur within a landscaped environment as a support for providing healthy, livable neighbourhoods, and complementary to the necessary housing demands we need to meet growth targets. Housing and urban trees need not be in competition, and both are better with the addition of the other.

What is the Problem to be Solved?

Why do we want trees in our neighbourhoods? There are variety of benefits that accrue from trees – from climate and public health, to economic and aesthetic. We know that trees provide a significant role in cooling our communities, protecting the urban landscape from rising temperatures as a result of climate change through reducing the urban heat island effect, and improving thermal comfort, all of which have critical human health impacts. Trees can help mitigate climate change and clean the air, which supports health. They contribute to reducing sunlight exposure, which helps prevent skin cancers and other health effects of UV radiation. Trees also play an important role in protecting us against noise by scattering sound and also buffering us from wind. Exposure to trees can improve mood, healing and feelings of well-being. Through their beauty, they can make streets more attractive for walkability, provide framing and visual interest to a Neighbourhood, and contribute to an environment that encourages physical activity and social connections, providing significant mental and physical health benefits.

The urban forest is also a vital part of the city's green infrastructure. Trees help to reduce stormwater runoff, they provide shading and cooling of private and public lands, and when located along the street right of way, they can even increase the lifespan of asphalt through shading of roads.

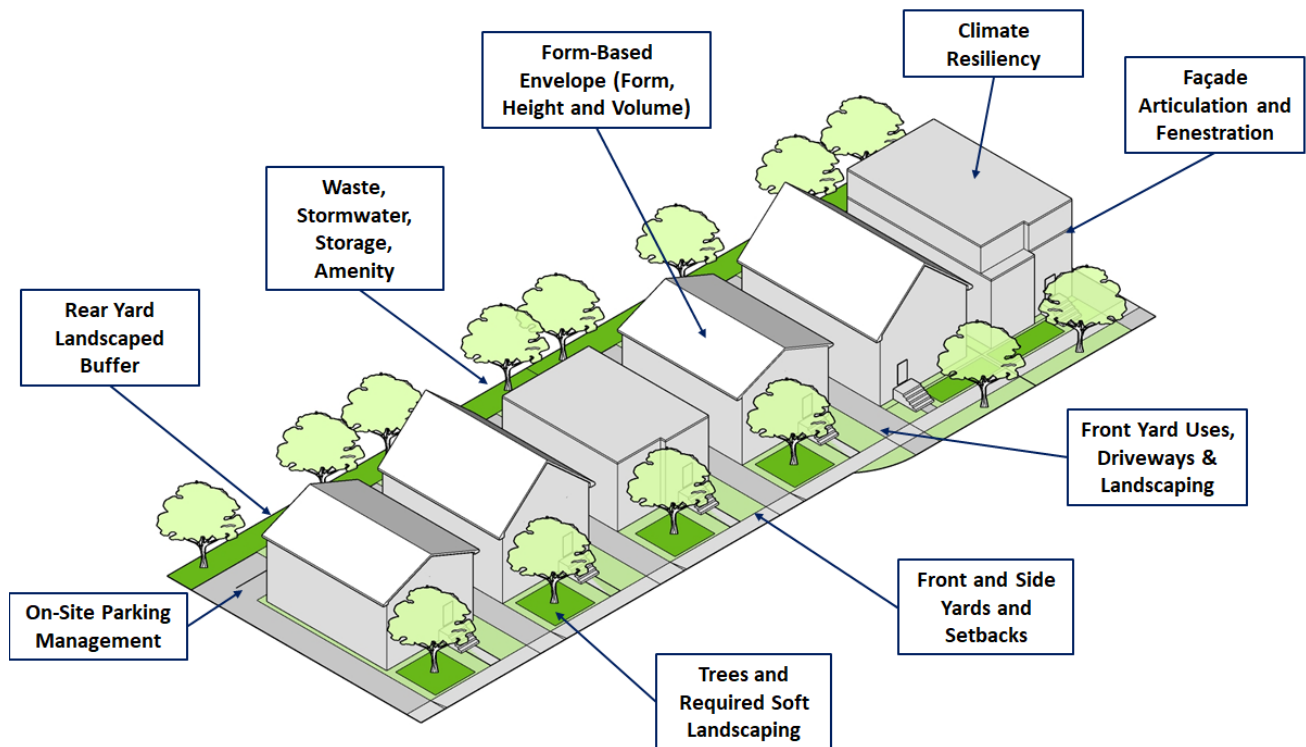
Further, recent changes to municipal processes and policies have provided much more direction towards the retention and renewal of the urban tree canopy. The City's Urban Forest Management Plan (UFMP) provides the strategic and technical guidance on urban forest sustainability. The implementation of the UFMP is key to growing Ottawa's canopy cover to the target of 40%. The new Official Plan includes strong policies to support the protection and growth of Ottawa's urban tree canopy, through, among other things, the early consideration of trees in development and infrastructure projects. Further, the City's Tree Protection By-law includes new provisions and processes for better retaining, protecting, and planting trees in infill development scenarios.

As infill occurs, there are significant pressures on the ability to retain existing trees, and an "order of priority" that must be applied with respect to the many competing interests that accrue on an urban lot. At the top of the list is the demand and provision of housing, as the key and central reason for why neighbourhoods exist at all. However, there are a panoply of other pressures beyond housing including, in no particular order:

- **Parking** – including integral or detached garages, driveways, surface parking areas, lanes, turn arounds;



- **At-grade amenity areas** - including porches, patios, decks, gardens, playgrounds, seating areas, hot tubs, swimming pools;
- **Functional requirements** – including walkways, garbage storage areas, bicycle storage, stormwater and drainage areas, snow storage areas;
- **Building projections** – including features such as bay windows, balconies, stairs, landings, fire escapes;
- **Accessory buildings** –
- including coach houses, storage sheds, renewable energy structures;
- **Environmental features**– including stormwater retention, soft landscaping, trees and critical root zones;
- **Livability** – including contributing to the overall streetscape character and the public realm, providing for reasonable privacy and enjoyment of lands in courtyards or rear yard areas, and managing overall urban heat island effects.



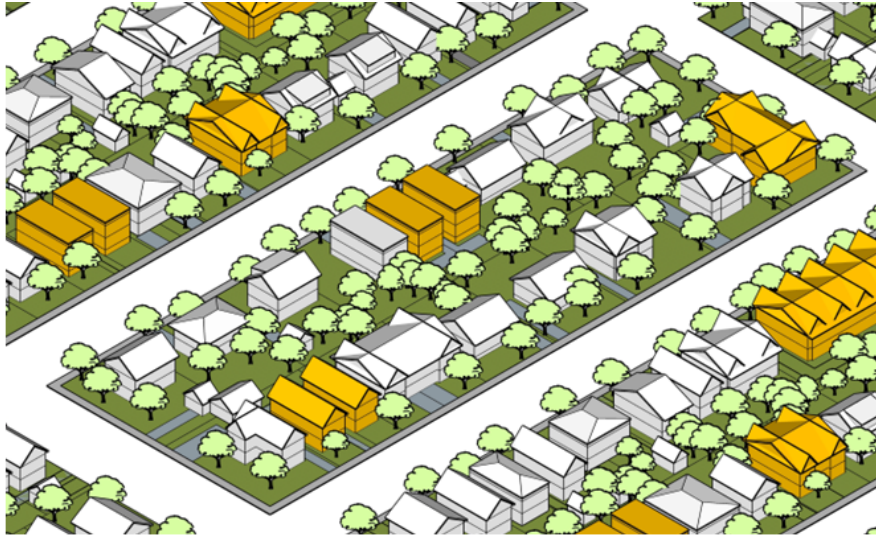
In addition, the location of each of the above pressures on a lot matters greatly. The location and central focus of the lot is the building envelope, as defined by and bounded by zoning regulations – again with respect to the key “task” of the neighbourhood – which is to provide housing. The location of other pressures – parking, amenity, functions, etc. is all in relation to that central principal building, and the importance and pressure from each varies depending on that location aspect. None of these pressures are absolutes, but there must be recognition and prioritization – and to some extent, accommodation where these uses are deemed necessary to the proper functioning and livability of the site.

The role of trees in all of the above is significant, and the policy desire from Council to find ways to better manage the retention, renewal and growth of the urban forest canopy writ large is front and centre in this policy discussion. As zoning with respect to infill is necessarily focused on how to balance the provision of trees at a lot level in balance with other competing interests, that will be the focus of the discussion below.

What is the desired Outcome?

In recent years, the Planning Department has focused intensely on “making room” for trees in policy and in regulation. This includes the “Infill 3” revised zoning by-law work that restricted paved surfaces such as driveways and walkways and provided dedicated space for soft landscaping suitable for tree plantings in front yards across neighbourhoods inside the Greenbelt, restrictions on rear-yard surface parking relating to low-rise apartment dwellings, and a pilot project to test the feasibility of dedicated soft landscape buffers in rear yards in the Westboro neighbourhood. These are all intended to provide additional room to ensure that when an existing tree is present, adequate space is provided to allow for retention and where a tree is planted, it is given room to grow above and below ground and become a major contributor to the urban forest canopy. All of the above is anchored by the Tree Protection By-law and considerable work underway by our urban foresters to work with developers, and through the Development Review, Committee of Adjustment, and Building Code processes to advance design work that considers tree protection and retention earlier in the development process.





New infill (orange) creates new housing opportunities on the street, while also contributing to the urban forest by providing room to retain, replace or renew trees on the redeveloped lot.

The new Official Plan has a number of new policies that are geared towards supporting the retention and renewal of trees, including in section 4.8.2 (Provide Residents with equitable access to an urban forest canopy). These policies include the following:

4.8.2 (3) *Growth, development and intensification shall maintain the urban forest canopy and its ecosystem services, in accordance with Subsection 4.8.2, Policy (6) and the following:*

- a) *Preserve and provide space for mature, healthy trees on private and public property, including the provision of adequate volumes of high-quality soil;*
- b) *On urban properties subject to site plan control or community planning permits, development shall create tree planting areas within the site and in the adjacent boulevard, as applicable, that meet the soil volume requirements in any applicable City standards or best management practices;*
- c) *Planning and development decisions, including Committee of Adjustment decisions, shall have regard for short-term, long-term and cumulative impacts on the urban forest at the neighbourhood and urban-wide scale;*
- d) *When considering impacts on individual trees, planning and development decisions, including Committee of Adjustment decisions, shall give priority to the retention and protection of large, healthy trees over replacement plantings and compensation; and*



- e) *Planning and development review processes shall support the goals and effective implementation of the Tree Protection By-law, including early consideration of trees in application and business processes.*

Analysis: This policy requires that trees be considered directly and throughout the development process, and provides impetus for space to be provided to allow for retention first, with replacement as second in priority. For the Zoning By-law, this implies that to be effective, policy (a) above requires that Zoning provide for the space necessary for these objectives to be met at a minimum, in order to set a baseline standard upon which site plan and variance decisions can progress.

4.8.2(6) *When considering impacts on the urban forest and trees, approvals and Tree Permits shall not be denied for development that conforms to the Zoning By-law or for Zoning By-law amendments, variances and consents that conform to the Official Plan. Council or the Committee of Adjustment may refuse a planning application if it fails to provide space and adequate volume of soil for existing and/or new tree(s). Approvals granted by Council or Committee of Adjustment may include conditions to support tree protection, removal and replanting. The City and the Committee of Adjustment may refuse a development application where it deems the loss of a tree(s) avoidable. This policy shall also apply to a community planning permit approved through delegated authority or Council.*

Analysis: Despite (3) above, this policy provides recognition that neighbourhoods are for housing first and foremost. The City will not deny a site plan, Zoning By-law Amendment, minor variance application or other such development application or refuse a tree permit, solely on the basis of impacts on trees, provided that the application conforms to the Official Plan. Recognizing that conformity with the Official Plan includes the provision of space for trees, this then puts the focus on the Zoning By-law in setting out the rules under which housing and trees will be balanced under a “reasonable accommodation” framework, and to identify the mechanisms by which adequate soil volume and space can be secured for an existing or new tree planting – while still permitting for viable housing development.

Section 6.3 governs how the Official Plan envisions neighbourhoods, and again reinforces the foundational principle that neighbourhoods are for housing. However, the policies in 6.3 assert the need to provide for and achieve balance among the push/pull of competing interests. In particular:

6.3 (2) *The City will establish form-based regulation through the Zoning By-law, Site Plan Control and other regulatory tools as appropriate, consistent with Transect direction. Such form-based regulation may include requirements for articulation, height, setbacks, massing, floor area, roofline, materiality and landscaped areas having regard for:*

- a) *Local context and character of existing development;*
- b) *Appropriate interfaces with the public realm, including features that occupy both public and private land such as trees;*



- c) *Appropriate interfaces between residential buildings, including provision of reasonable and appropriate soft landscaping and screening to support livability;*
- d) *Proximity to Hubs, Corridors and rapid-transit stations;*
- e) *Transition in building form to and from abutting designations;*
- f) *The intended density to be accommodated within the permitted building envelope; and*
- g) *The provisions of Subsection 4.2 Policy 1)(d).*

Analysis: Policies (b) and (c) above build on the policies from Section 4.8.3 in identifying the role of the Zoning By-law is setting aside lands within the development area for purposes of provision of soft landscaping -and particularly – for trees. Further, (b) requires the Zoning By-law to have regard for the availability of lands abutting the private lot that may or may not have suitability for tree plantings, which in turn may be reflected in the development standards as provided for in the individual zone.

Taken as a whole, the policies in 4.8.3 and 6.3 appreciate that neighbourhoods are for housing first, but recognize the important role trees play in health, livability, environment and indirect economic impacts. Tree policy therefore hinges around retention, replacement, renewal, and the Zoning By-law will set the minimum baseline conditions necessary to accomplish this.

Further, the role of trees with respect to climate change and neighbourhood resiliency are also covered in the Official Plan in the following policies:

10.3(1) Trees will be retained and planted to provide shade and cooling by:

- a) *Applying the urban tree canopy policies in Subsection 4.8 and other sections of the plan;*
- b) *Prioritizing them in the design, and operation of parks and the pedestrian and cycling networks and at transit stops and stations for users wherever possible;*
- c) *Encouraging and supporting maintenance and growth of the urban tree canopy on residential, commercial and private property.*

10.3 (3) Office buildings, commercial shopping centres, large-format retailers, industrial uses and largescale institutions and facilities, shall incorporate heat mitigation measures.

Analysis: The intent of the above is to leverage the use of the urban forest canopy to assist with building resiliency to extreme heat in neighbourhoods and city-wide, and to recognize the role that trees have as a natural mechanism in responding to the impacts of a changing climate.

Ultimately, the desired outcome is to meet a “reasonable accommodation” between the need to provide new housing, and the need to retain, replace and renew the urban forest canopy. Where



a tree is within the development envelope it can't be retained. But beyond that, there is room for discussion on retention and give and take. Where the building envelope can be adjusted to allow for tree retention and survival, the policies are supportive of that – provided that it does not result in an unviable development. In addition, the policy framework is supportive of regulatory amendments with respect to planting of new trees in appropriate soil volumes to allow for fulsome growth with time.

What Options could we consider?

There are several ways in which zoning could indirectly regulate and provide for opportunity for the retention, replacement and renewal of trees in support of the Urban Forest Management Plan. These are:

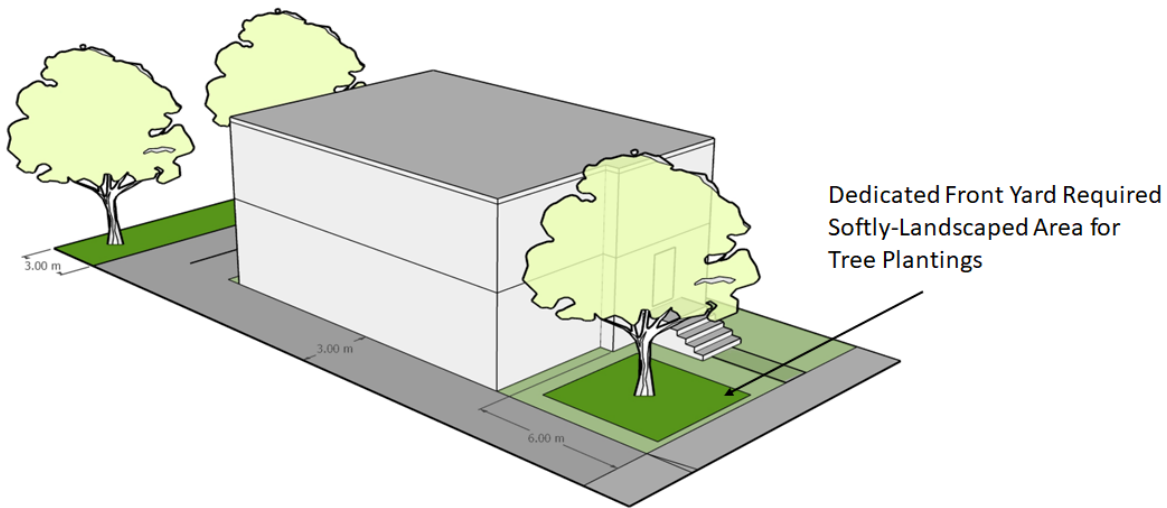
- Provision of consolidated areas of soft landscaping in available yards;
- Requirement for soil volumes associated with these areas;
- Regulation of “protected trees” as identified by the Tree Protection By-law; and
- Conditions under which trees may be considered with respect to other land uses.

These are discussed in more detail below.

Front Yard Consolidated Landscaped Area

Currently, the Zoning By-law provides a “landscape first” approach towards provision of soft landscaped area in front yards for residential lots inside the greenbelt – including lots in the Downtown, Inner-Urban and Outer-Urban transects. A dedicated area of soft landscaping must be provided in all front yards of new residential development or continued on existing development if such has already been set aside. Driveways, walkways, projections and other front yard pressures can only be accommodated provided that the soft landscaped areas have been set aside per zoning requirements. Note that this does not apply to residential lots in the Suburban or Rural transects.





For all low-rise residential lots inside the greenbelt, the Zoning By-law currently requires a dedicated area in the front yard to be set aside as soft landscaping. This area is sized to provide room for a small, medium or large tree proportional to the area of the front yard.

The provided landscaped area is based on a surface area – but can be readily translated to an approximation of potential soil volume based on area and depth of soil, resulting indirectly in an approximate soil volume that could allow for successful planting or retention of tree species of varying size ranges depending on the width of a lot. The “required soft landscaped areas” provide a foundation for the work of other departments, including Forestry, Natural Systems, Development Review and so on to seek appropriate soil volume and tree plantings for new development, while making clear the priority in terms of spatial allocation to do so. As such, while not providing the soil volume or trees themselves, they create the opportunity for trees to occur by other means.

This regulation has been successful at providing improved tree planting outcomes, for both as-of-right development and where development permissions have been sought and has provided the anchor point that the urban foresters have been able to leverage to provide for better outcomes. The intent would be to carry this requirement forward into the new Zoning By-law for front and corner side yard locations, and to expand these requirements to apply to any residential lot across all transects.

Rear Yard consolidated Landscaped Area

Rear yards represent an opportunity to extend this perspective of “setting aside” area for trees inside the block. Currently, there are no requirements for dedicated and contiguous areas of soft



landscaping – except for recent changes to the R4 zones where a contiguous area of soft landscaping is required, and in the Westboro pilot study area, where a required “rear yard landscaped buffer” has been introduced to run along the rear property line. In both cases, the primary intent is to provide for protection and opportunity to plant and/or retain trees within a rear yard, complementary to the use of the rear yard for private recreational and amenity purposes for the residents. Additionally, the rear yard buffer as provided in Westboro provides additional screening and separation potential between new infill, rear yard parking, waste management, etc. and adjacent neighbours – providing some social benefit in addition to the environmental benefit.

The pressures on a rear yard are not dissimilar to the front yard – particularly for a multi-unit dwelling. Parking is the big issue – taking 60% or more of a rear yard where rear yard parking occurs. Rear yard drainpipes are common in new subdivisions and are a requested element in infill circumstances in areas with existing drainage challenges. Then there are the demands that come with an outdoor space attached to homes – gardens, patios, in-ground swimming pools, storage and accessory buildings, the various functions that people make of their private outdoor space. How can these be balanced with space for trees?

In many of these circumstances, the issue is not all or nothing. With the exception of swimming pools or rear yard parking, many of the other uses of a rear yard are of low intensity in terms of soil compaction, critical for root survival and propagation. The opportunity to overlap uses exists, including allowing hardscaped patios to extend over, and form part of a required landscaped area. Rear yard parking is another matter though. The compaction of soil and subsoils required to support the weight and movement of a car is just as problematic as it is in the front yard. However, the use of permeable materials and structural soil elements such as Silva cells to help reduce compaction can also assist. In-ground swimming pools are another challenge which will require further discussion on balancing needs versus desired amenities.

Bringing forward a requirement for contiguous soft landscaped area for tree retention/planting in the rear yard will be considered for the new Zoning By-law, but in balance with the other competing pressures on a rear yard. Where feasible, offsets and opportunities to layer uses – and get credit for doing so, will be provided.

Soil Volume Requirement

Every large tree in a neighbourhood was once a small tree that was given room to grow. Ample soft landscaping is necessary to ensure trees have the necessary room to grow but is not necessarily sufficient on its own without proper soil volume.

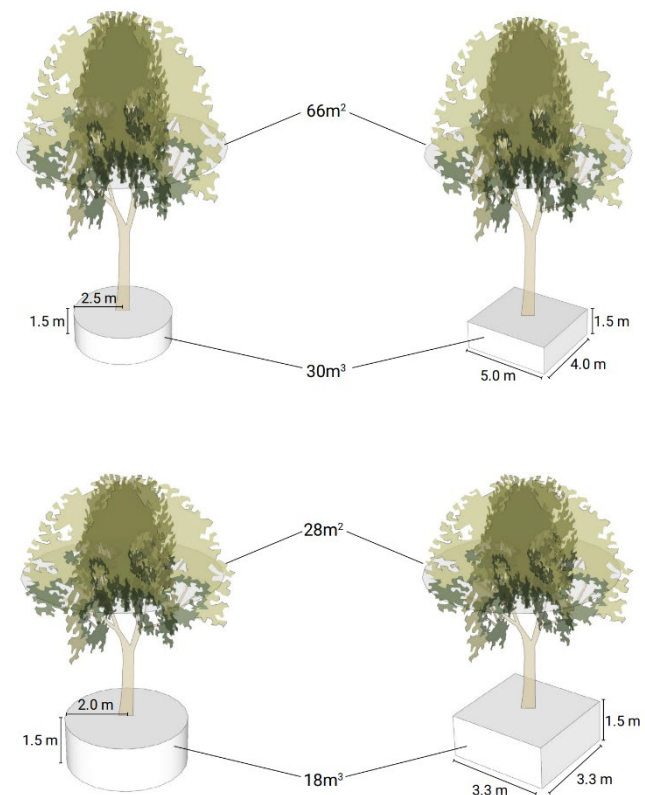
One potential option could be for the Zoning By-law to explicitly set out requirements for minimum soil volume to be provided on a lot or in front and/or rear yards.



The main caveat to such an option is that such requirements have not commonly been applied in zoning in Ontario, although s. 34 does not explicitly prohibit municipalities from establishing such a regulation in zoning. With this in mind, effective implementation would have to depend on the context of a lot, both in terms of whether it is suburban or urban in form and also the size and width of the lot itself. Such requirements would need to assume a reasonable amount of soil volume while still requiring sufficient surface area to support a tree, while also being clear on what type of mediums would be acceptable to satisfy this requirement.

There is also the opportunity under such a requirement to provide flexibility in the means by which the soil volume is provided. Rather than providing a set-aside area of contiguous soft landscaped area, an applicant could demonstrate the use of structural soil elements that continue to allow the propagation of root structure under hardscaped surfaces, thus giving a landscape designer another option by which to realize an outcome and giving more flexibility to the uses of lands – this may be of value in tight urban lot situations.

This approach is an option that will be considered in the new Zoning By-law. It will require further technical discussion to determine appropriate soil volumes that could reasonably and efficiently be achieved on a repeatable circumstance, and additional conditions to the range of flexibility for the use of this tool to ensure that designers receive flexibility, while the desired public interest outcome is achieved – room for a tree to grow successfully.



Regulating “Protected Trees”

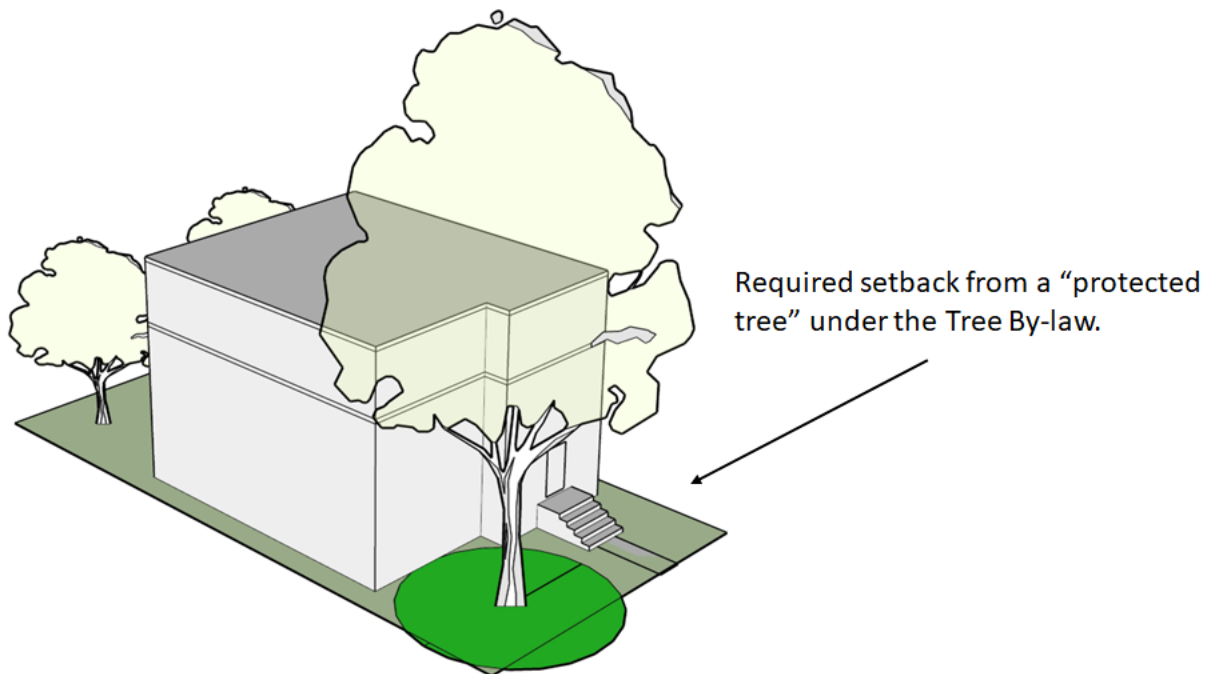
The Tree Protection By-law provides protection to both City-owned trees as well as privately-owned trees above a certain diameter, depending on property size, and prohibits their removal prior to obtaining a tree permit. The Tree Protection By-law defines certain trees as “protected trees” for which a tree permit is always required for its removal. This is defined as:

- 30 centimetres (11.8 inches) or more on properties in the inner urban area (urban lands inside the Greenbelt). A tree with a diameter of 30 centimetres (11.8 inches) has a circumference of 94 centimetres (37 inches); and

- 50 centimetres (20 inches) or more on properties in the suburban area (urban lands outside the Greenbelt). A tree with a diameter of 50 centimetres (20 inches) has a circumference of 157 centimetres (62 inches).

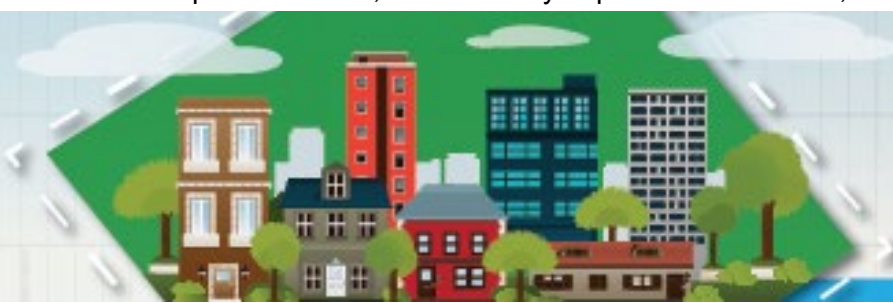
Given their size and importance to the tree canopy, protected trees are different from other smaller landscaping “elements”. While zoning cannot directly require the planting of a tree, there is potential to use zoning regulations to ensure the protection of a distinctive tree, given that such trees are explicitly defined features.

Potential ways in which protected trees could be regulated in zoning may include setback requirements between the tree and any portion of a building, and/or restriction or prohibition of ground-level projections or similar architectural features in close proximity to a distinctive tree. Any such requirements would have to consider in a general sense to what extent construction and similar work can be performed in close proximity to a distinctive tree, given that the extent of the tree’s critical root zone may change depending on its exact size – and zoning does not have the flexibility to match species requirements.



A setback area could be established in Zoning to protect the critical root zone of a tree recognized by the Tree By-law, to a standard radius sufficient to provide root protection among various species.

When considering the use of such a regulatory tool to provide additional protection for a protected tree, it will be very important to consider, first and foremost, the primacy of housing as



the use of land. As such, any use of setbacks, or minimum distance separation, must be balanced with the ability of the development envelope to reasonably maintain opportunity to provide for habitable space. To provide for this kind of balance, it will be important to recognize that if a protected tree is to have additional space provided around it, that space must be in turn compensated for in some manner – perhaps through equal offsets elsewhere to the building envelope and including into otherwise required yards. A key objective will be to provide for the development envelope to be “made whole” as reasonably as can be achieved, while achieving a public interest objective of providing continuity for a protected tree.

The regulation of setbacks or distance separation around a “protected tree” will be reviewed for the new Zoning By-law, balanced against conditional incentives to provide an offset to an unreasonable encroachment into the built envelope. This will include consideration for waiving other required zoning elements and allowing for encroachment into other required yards in exchange. The principle of “reasonable accommodation” will guide this review.

Balancing Uses On-Site

Trees can be encountered all over a property, whether in the front yard, rear yard, or to the side of an existing building. It is not uncommon for trees to be located within the permitted zoning footprint of a property – that is, the portion of the lot in which one is permitted to build after considering yard setback and lot coverage requirements. Where a tree is located on a given property thus impacts what the City may be willing to consider in terms of what may be done with it.

In general, where a tree is contained completely within the permitted zoning envelope, Official Plan policy is clear – the tree will be removed to accommodate new construction as-of-right, as the public interest priority is to the benefit of the housing units to be constructed on site. The focus will not be retention, but will be replacement and renewal elsewhere on site, in accordance with the Urban Forest Management Plan through identification of soft landscaped areas that may be leveraged by forestry staff for successful new plantings.

Trees that are partially within the permitted envelope, or in close proximity to that envelope, may be reviewed on a more case-by-case basis depending on factors such as the design of the building and what specific features of the building are driving the need for removal of the tree. Retention may be available through use of offsets (as described above), but where such an approach is not available, the focus will be tilted towards replacement and renewal.

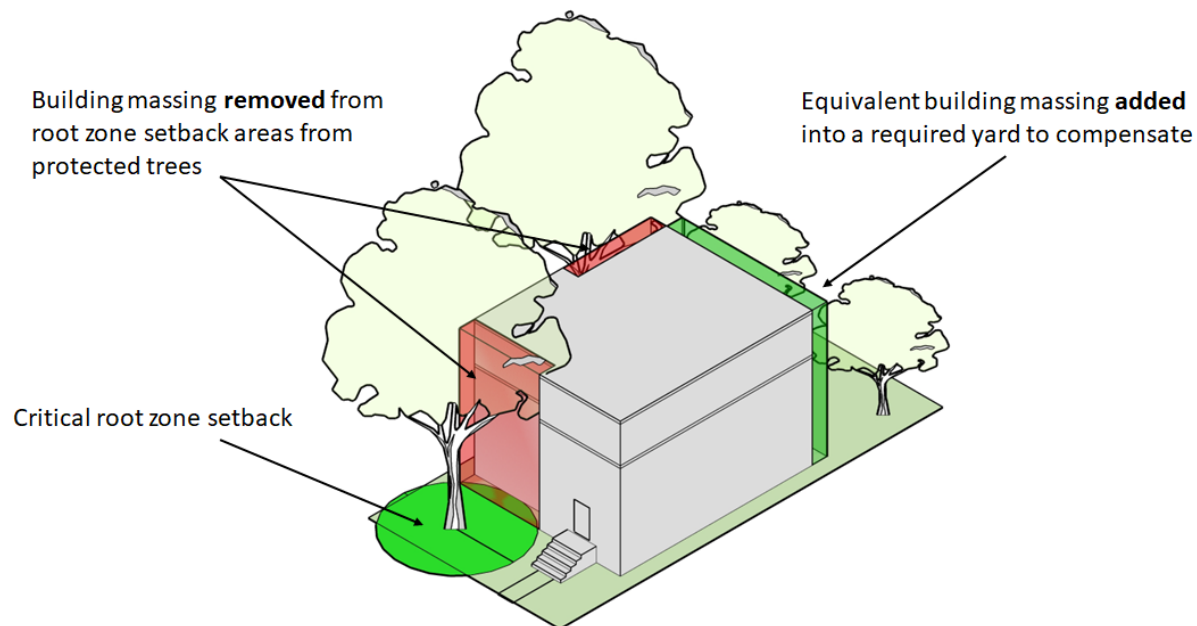
Generally, trees fully beyond the zoning envelope and not in its close proximity, let alone trees on neighbouring properties that may be impacted by development on-site, will be the primary focus for retention.

Central to this discussion is the on-site uses of a property that tree protection must be balanced with. As previously noted, where the loss of a tree is in support of a greater quantity of housing, the public interest benefit accrued from the gain of new housing units is positive. However, trees



will take precedence over parking and similar uses that rely on a large quantity of hard surfacing. This is particularly important to keep in mind in the case of trees in proximity to the footprint, which could potentially be retained through changes to the building design.

One potential option that could be considered is to add a degree of flexibility to the permitted envelope in support of tree retention. This could be expressed through adjustments to setback requirements: if it is necessary to increase the front yard setback a certain distance to protect a distinctive tree in the front yard, the rear yard setback could be reduced by an equivalent amount to permit the same-sized footprint in a manner that is more respectful of existing conditions with respect to trees. Building this flexibility into the by-law satisfies the need to retain ability to provide housing, while also accommodating the public interest value of the urban forest canopy.



As an incentive to retain trees and maintain floor area for housing, massing that is set back to provide room for trees could be added into a different required yard in an equivalent exchange, without need for a variance.

Recommended Approach to Regulating Trees

In the New Zoning By-law, the recommended approach for how zoning will regulate trees consistent with the new Official Plan and in partnership with the Tree Protection By-law is as follows:



Landscaping requirements in front and rear yards based on yard area. This could take the form of surface soft landscaping requirements, as are set out in the current Zoning By-law, or it could additionally or alternatively take the form of new regulations such as those tied to minimum soil volume.

Regulations geared directly toward the retention and protection of protected trees, as defined in the Tree Protection By-law. This may include setback requirements specifically to trees, either from the protected trees themselves or to support more “flexible” building footprints that are more conducive to the retention of these trees than the “standard” zoning footprint determined by yard setbacks.

When a tree is proposed to be removed in favour of development, consider what element of the project is resulting in the need for tree removal. As a general rule, trees should not be removed to support parking for a development, especially where in support of parking spaces that are not required to be provided under the Zoning By-law. Other elements may need to be considered on a case-by-case basis which factors in the utility of the design, the size of the project and number of dwelling units, and the ability to provide the same building footprint with increased setbacks away from the tree in question.

What Do You Think?

The City of Ottawa is inviting residents to participate in a survey that accompanies this discussion paper. Your input and feedback on this discussion paper will be used to create an “As We Heard It” report and will play a critical role in the development of the city’s new Zoning By-law. This survey is your first chance to have your voice heard and shape the future of Ottawa.

Please click on the following link to access the survey: [Trees Discussion Paper Survey](#)

