Livable by Design

URBAN DESIGN MANUAL





Site Design and Development Standards for Oakville

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OAKVILLE

Site Design and Development Standards for Oakville

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1.0 Introduction and Overview

1.1 Introduction

The ***Livable by Design Manual*** (LbDM) provides comprehensive and detailed urban design direction for development and capital projects to ensure designed and built elements are integrated with their surroundings and result in projects that function effectively, are aesthetically pleasing, support community vitality and improve the overall livability of Oakville.

The complete LbDM consists of the following three integrated components:

Part A ***Urban Design Direction for Oakville*** is applicable to lands associated with the Livable Oakville Plan. This document provides clear design-focused direction to create high-quality urban design outcomes for all municipal undertakings and for all development undertaken through a planning process

Part B a series of documents that provide comprehensive design direction tailored to specific districts and/or specific forms of development in Oakville

Part C ***Site Design and Development Standards for Oakville*** establishes a benchmark by which development proposals will be reviewed in order to achieve a consistent level of quality built environments throughout the Town

Each of the documents developed under the LbDM umbrella have incorporated the following design guiding principles: sense of identity, compatibility, connectivity, sustainability, legacy and creativity (all are described in Section 1.4 of the ***LbDM Urban Design Direction for Oakville*** document).

The ***LbDM Site Design and Development Standards for Oakville*** provides specific and detailed direction, through text and images, of the town's practice and expectations for achieving …

"… a high standard of urban design and architectural quality to provide an innovative and diverse urban form that promotes a sustainable, dynamic and livable environment."

(Section 6, Part C ***Livable Oakville Plan***)

1.2 Purpose and Objectives

The ***Livable by Design Manual – Site Design and Development Standards for Oakville*** **(LbDM – SDDSO)** establishes a benchmark by which development proposals will be reviewed in order to achieve a consistent level of quality built environments throughout the Town. The document, through text and images, outlines detailed standards and technical direction and requirements to achieve the best possible site development and functioning.

The objectives for creating and implementing this document include:

- setting clear expectations and standards for development
- documenting established current practices
- incorporating best practices
- instituting requirements and benchmarks
- establishing uniformity in the development review process to achieve consistency in site design and development

The standards and technical direction contained in this document are intended to incorporate and complement the Town of Oakville's policies, engineering standards, by-law requirements, other guiding documents prescribing design direction and solutions, as well as regional and provincial policies, regulations, and guidelines.

It is through the strategic organization of the site – the placement and interconnectivity of buildings, pedestrian spaces, landscaping, vehicular routes and service elements – that site function can be optimized and the overall appearance enhanced.

Effective site organization creates the potential to capitalize on local assets, create interesting and livable places, and foster compatibility with adjacent sites and the public realm.

(Section 4 preamble, ***Livable by Design Manual: Urban Design***

1.3 Document Structure

Focus
The ***Livable by Design Manual – Site Design and Development Standards for Oakville*** **(LbDM – SDDSO)** has been structured to align with the subsections under the 'design direction for site development' section of the ***LbDM Urban Design Direction for Oakville*** document.

The primary focus for the **LbDM – SDDSO** is on-site development, that is, proposed works located within the boundaries of the subject property. The direction is focused on under broad headings of landscape, hardscape and on-site service standards. In addition, for certain proposals, direction is provided for off-site works related to streetscape enhancement or remediation.

Links
This manual is designed as a digital document and intended to reside on and be accessed by users from the web. The document incorporates links within the table of contents that connect users to specific sections of the document, and once in these sections, links are provided to companion documents and other resources. These linkages are intended to assist with navigation and ease of use of the manual and resources.

Margin Notations
To reinforce and reference the established governing provincial, regional and municipal policies, regulations and standards, each section and subsection of this document contains references to and excerpts from relevant sections of these guiding parent documents to establish the connection to broader development objectives. The full listing of guiding parent documents are in 'Section 1.5 Companion Documents and Resource Materials'. The references and excerpts are positioned in the right margin at the outset of each section/subsection.

Graphics and Photographs
The graphics and photographs that accompany the standards are intended to provide a visual description and should not be interpreted as the only possible design solution. Captions are incorporated to direct attention to specific information and/or conditions depicted in the graphic or photograph, as well as referencing the specific standard(s). In some instances, the graphics and photographs provided may incorporate the direction of several related standards.

1.4 Implementation

The ***Livable by Design Manual – Site Design and Development Standards for Oakville*** **(LbDM – SDDSO)** is applicable to the design and review of development proposals that are subject to planning process approval(s) by the Town. The **LbDM – SDDSO** will predominantly be used in the detailed review process of site plan control; however, it will also be referenced in the review and consideration of official plan amendments, zoning by-law amendments, and Committee of Adjustment applications where detailed site review is warranted to assist in decision-making and preparing conditions of approval.

The site design and development standards contained within this document are to be read and applied in conjunction with all other applicable ***Livable by Design Manual*** component documents.

Direction

The direction provided throughout the **LbDM – SDDSO**, in the form of 'shall', 'should', and 'recommend', is intended as follows:

- 'shall' means the standard is mandatory (predominantly based in regulation or policy)
- 'should' means the standard is expected to be achieved unless proven otherwise on good design grounds or an alternative solution meets the intent
- 'recommend(ed)' means the standard be taken into consideration and incorporated where feasible

While the standards contained in this manual endeavor to provide the best possible site development guidance, these standards may not be able to address the nuances and complexities of each individual site. As a result, it may be necessary for designers to generate site-specific solutions that maintain the intent and direction of these standards.

Staff may consider adjustments to the standards in instances of unique site conditions or constraints, which will be identified at pre-consultation and discussed/addressed early in the application review process. In addition, as staff undertake the comprehensive site review, adjustments to the standards may be considered in order to achieve balanced site design and improved functionality.

Monitoring and Updates

The **LbDM – SDDSO** is intended to be a dynamic resource that will be actively monitored and updated as policies and regulations are modified, as standards improve, and as new resources and companion materials are created. Each update will be identified through date and document version on the title page and each page footer.

1.5 Companion Documents and Resource Materials

Key Direction and Content

The following documents, regulations and resources provide key direction and content for the ***Livable by Design Manual: Site Design and Development Standards for Oakville***:

- **Livable by Design Manual – Urban Design Direction for Oakville** (LbDM Part A; 2014)
- **North Oakville Urban Design and Open Space Guidelines** (2009)
- **North Oakville Urban Forestry Strategic Management Plan** (2012)
- **Zoning By-law 2014-014** (as amended)
- **Zoning By-law 2009-189** (as amended)

Reference Documents

The following documents provide additional relevant direction and should be referenced, where applicable and as amended:

Town of Oakville documents:

General

- Livable Oakville Plan (as amended)
- Town of Oakville Development Application Guidelines (on-line terms of reference resource)
- Town of Oakville Development Engineering Procedures and Guidelines
- Town of Oakville Public Works Standard Drawings
- Town of Oakville Sign By-law (as amended)
- Town of Oakville Private Tree By-law (as amended)
- Town of Oakville Street Tree By-law (as amended)
- Town of Oakville Site Alteration By-law (as amended)
- Town of Oakville Public Nuisance By-law (as amended)
- Town of Oakville Fence By-law (as amended)
- Town of Oakville Municipal Right of Way By-law (as amended)
- Town of Oakville Site Plan By-law (as amended)

This listing of companion documents and resource materials will be **updated semi-annually** as policies and regulations are modified, as standards are improved, and as new resources materials are created.

The companion documents and resource materials are grouped based on the following hierarchy:

- Town of Oakville documents that provide **key direction** and content
- **reference documents** and materials that have been generated by:
  - Town of Oakville
  - Regional
  - Provincial
  - Other

For Town of Oakville Facilities

- Oakville Universal Design Standards (2014)
- Sustainable Design Guidelines (2010)

Urban Design

- Midtown Oakville Strategy (2013)
- Old Bronte Road / Khalsa Gate Streetscape Plan (2012)
- The Plan for Kerr Village (2009)
- Downtown Transportation and Streetscape Study and Master Plan (2015)
- Bronte Village Revitalization Study (2009)
- Uptown Core Review (2009) - Part 1, Part 2, Part 3
- Drive-thru facilities (2003)

Heritage

- Downtown Oakville Heritage Conservation District Plan (2013)
- Trafalgar Road Heritage Conservation District Plan (1994)
- First and Second Street Heritage Conservation District Plan (1991)
- Old Oakville Downtown Residential Area Heritage Conservation District Plan (1982)

Environmental

- Environmental Sustainability Policy EN-GEN-001 and related Procedures
- Oakville's Climate Change Strategy (2015)
- Oakville's Urban Forest: Our Solution to Our Pollution (UFORE) (2006)
- Urban Forestry Strategic Management Plan (2008)
- Tree Protection Policy EN-TRE-001
- Tree Protection During Construction Procedure EN-TRE-001-001

Transportation

- Downtown Transportation and Streetscape Study and Master Plan (2015)
- Switching Gears Oakville's Transportation Master Plan (2013)
- Town of Oakville Streetscape Strategy (2014)
- Town of Oakville Active Transportation Master Plan (2009)

Lighting

- Town of Oakville Municipal Outdoor Lighting Standards (2011) (municipally owned sites, facilities, rights of way)
- Sports Field Lighting Standards (2010) and By-law 2010-070 (for public and private outdoor sports fields)

Regional documents:

- Regional Official Plan (as amended)
- Region of Halton Development Design Guidelines for Source Separation of Solid Waste (2014)
- Region of Halton Urban Services Guidelines (2014)
- Region of Halton Development Engineering Review Manual (2005)
- Region of Halton Transportation Impact Study Guidelines (2015)
- Region of Halton Access Management Guidelines (2015)
- Region of Halton Healthy Communities Guidelines (2009)
- Conservation Halton Landscaping and Tree Preservation Guidelines (2010)

Provincial documents:

- Ontario Planning Act (current version is applicable)
- Ontario Building Code (current version is applicable)
- Ontario Traffic Manual - Book 12 (2012) – Traffic Signals, Ministry of Transportation of Ontario
- Geometric Design Standards for Ontario Highways, Ministry of Transportation of Ontario
- Transportation Association of Canada (TAC) “Geometric Design Guides for Canadian Roads” (updated 2011)
- Accessibility for Ontarians with Disabilities Act (2005)
- Freight-Supportive Guidelines

Other documents:

- International Society of Arboriculture Guide for Plant Appraisal
- IESNA – The Lighting Handbook (refer to current version)
- Planning & Design Guidelines for Child Care Centres, Ministry of Children and Youth Services (2006)

This listing of resources will be updated on a semi-annual basis to reflect revisions to these documents and additions of new documents with content relevant to this Manual.

Please contact LbDManual@oakville.ca for any questions or assistance with these resources. We would appreciate notification should any of the above links become non-functional or problematic.

2.0 Soft Landscape Standards

Effective landscape design defines and enhances the form, function and appeal of public and private space by reinforcing human scale and softening urban environments.

… whenever possible, preserve, protect and enhance existing, healthy vegetation within natural areas, parks, street right-of-ways and on private properties.

(Section 4.1 of ***LbDM – Urban Design Direction for Oakville***)

Soft landscape refers to horticultural elements and treatments, which include trees, shrubs, plant materials, and ground cover on a site.

The purpose of incorporating soft landscaping elements into site design and development is to provide enhancements to the site and interface with the public realm, screening and buffering site elements from view from the public realm and between different uses, and provide various environmental and health benefits.

The soft landscape standards address the retention of existing vegetation, selection and installation criteria for proposed plantings, soil requirements, site grading considerations, treatments for required landscape areas, and direction for greening amenity areas and surface parking facilities.

Provincial regulation:

… a municipality may require the owner of the land to, … provide to the satisfaction of and at no expense to the municipality …

… walls, hedges, trees, shrubs or other ground-cover or facilities for the landscaping of the lands or the protection of adjoining lands *(Planning Act S. 41 (7)(a)6.)*

… grading or alteration in elevation or contour of the land *(Planning Act S.41 (7)(a) 9.)*

2.1 Canopy Cover

The town-wide tree canopy coverage target of 40%, to be achieved by 2057, can be met by establishing and implementing improved landscape planting standards that will yield the best growing environments to foster optimal tree health and longevity.

Targets

1. New development north of Dundas Street shall demonstrate adherence with the canopy cover targets established for the following zones. South of Dundas Street, development should implement the target canopy to help achieve Oakville's town-wide 40% canopy coverage objective:

Land Use in ZBL 2009-189 (lands north of Dundas St.)	Land Use in ZBL 2014-014 (lands south of Dundas St.)	Canopy Coverage Target
Open Space, Recreation, and Conservation	Open Space	50%
Cemetery	Cemetery	34%
Institutional	Institutional	25%
Community	Community	20%
Employment	Employment, Office, Hospitality and Motor Vehicle	20%
Residential (all types)	Residential and Accessory Residential (all types)	20%
Commercial, Service and Related Uses	Retail and Service Commercial	15%
Storm Water Management Facility	Storm Water Management Facility	15%
Other		
Arterial, Connector, and Avenue Roads	Arterial and Collector Roads	34%
Transitional		15%

Town policy:

Development should preserve and enhance the urban forest by … maintaining existing healthy trees, where possible; providing suitable growing environments; increasing tree canopy coverage; incorporating trees with historic or cultural significance; and integrating a diverse mix of native plant species.
(Livable Oakville 6.10.2 a) b) c) d) e))

The general objectives for sustainability are … to maintain the existing urban forest; and to progressively increase the urban forest to achieve a canopy cover of 40% Town-wide …
(Livable Oakville 10.1.1 f))

Related documents:

For a complete listing of related documents and links, refer to Section 1.5

2.2 Proposed Planting

Species selection

1. Species variation will depend on the amount of trees to be planted:
   a. if more than 10 trees are proposed, a mix of tree types should be selected
   b. if 20 to 40 trees are proposed, no more than 25% of the trees should be of the same genus
   c. if more than 40 trees are proposed, no more than 10% of the trees should be of the same genus

2. A minimum of 30% of the trees planted on a site should be native tree species. Refer to Conservation Halton Landscaping and Tree Preservation guidelines for a list of permitted native species. Locally rare native species may be accepted on a case by case basis. Cultivars of native trees will not be credited towards the minimum 30% requirement.

3. Invasive species shall not be planted. Refer to Conservation Halton Landscaping and Tree Preservation guidelines for a list of prohibited invasive species.

4. Species selection should reflect the site conditions, such as soil and light conditions, drainage, slope, aspect, moisture level and salt exposure. Use of locally sourced plant material is recommended.

5. Species selection and arrangement should provide visual interest through diversity and seasonal variety.

6. Artificial plant materials are not recommended.

Size and spacing

7. The minimum acceptable size for plant material should be:
   a. for deciduous trees, 60 mm caliper and 3.0 to 3.5 m in height
   b. for coniferous trees, 1.75 m in height
   c. for shrubs, 600 mm in height and spread
   d. for perennials, 1 gallon pot

Town policy:

Landscaping design and treatments should enhance the visual appeal and human scale of development; create an attractive environment for pedestrian movement; frame desired views or focal objects; define and demarcate various functions within a development; and, provide seasonal variation in form, colour, and texture. *(Livable Oakville 6.10.1)*

Development should preserve and enhance the urban forest by integrating a diverse mix of native plant species. *(Livable Oakville 6.10.2 e))*

Landscaping shall enhance natural areas and open space features by incorporating native and non-invasive species. *(Livable Oakville 6.10.5)*

Related documents:

For a complete listing of related documents and links, refer to Section 1.5

8. Tree spacing should reflect the projected canopy size based on the species selected and its growing environment:
    a. small stature trees (3.0 m to 9.0 m spread), should be spaced 3.0 m to 9.0 m on centre
    b. medium stature trees (10.0 m – 13.0 m spread), should be spaced 10.0 m to 13.0 m on centre
    c. large stature trees (14.0 m or greater spread), should be spaced 14.0 m on centre

9. To avoid overcrowded or sparse planting beds, the spacing of shrub, perennial, and ornamental grasses should reflect the mature size of the plant.

10. For naturalization plantings a variety of sizes and successional species should be included to accelerate establishment. Refer to Conservation Halton Landscaping and Tree Preservation guidelines when planning these types of environments for further design direction.

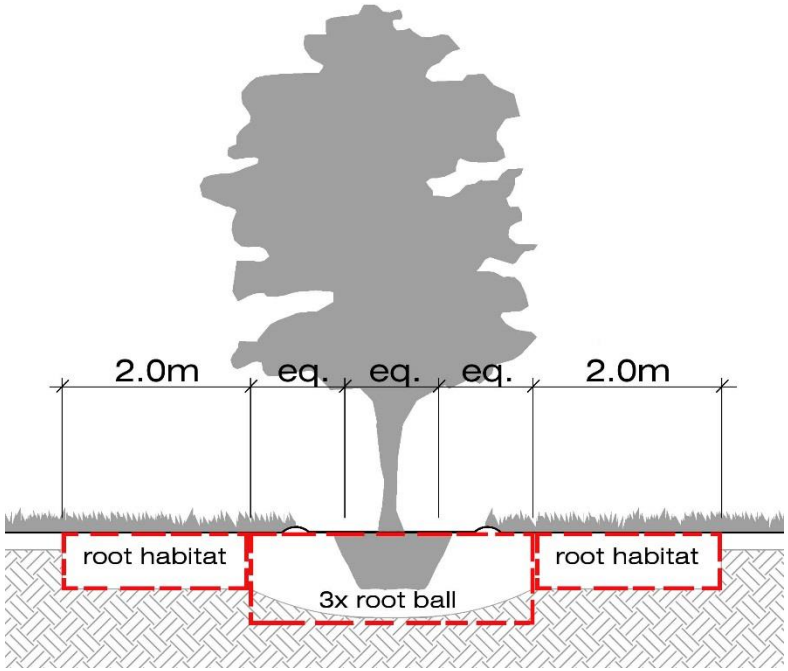
Nursery standards

11. All plant material should conform to the Canadian Nursery Landscape Association specifications and standards.

12. All sod should conform to the Nursery Sod Growers Association of Ontario specifications.

Installation

13. Typical tree plantings within a soft landscape environment are recommended to incorporate the following:
    a. a tree pit diameter three times (3x) the root ball diameter
    b. a root habitat preservation zone encircling the edge of the tree pit with a minimum width of 2.0 m to a depth of 400 mm to 500 mm
    c. non-compacted soils within the expanded tree pit and root habitat preservation zone.



Soils with a penetration resistance above 300 psi, measured with a penetrometer while the soil contains average moisture (field capacity), may indicate the presence of compacted soils. In these instances further analysis is warranted, with a bulk density assessment or Proctor test (up to 80 to 85% SPD), to determine whether compaction levels in the soil can support healthy plant growth.

14. Trees are recommended to be planted at or slightly above ground level, not mounded or depressed. Shrubs planted slightly above ground level, by no more than 25 mm, is recommended.

15. Services and utilities, such as lighting standards, fire hydrants, and hydro ducts, should not conflict with planting materials, both above and below ground.

16. Services and utilities should not encroach into the soil volume required for new tree plantings.

17. All shrubs should be planted in continuous planting beds.

18. Mulch should be placed on all planting beds to aid in weed suppression and moisture retention.

19. For the purpose of ensuring installation performance, all tree planting should have a two-year warranty period from substantial completion of the development. A longer warranty period, to a maximum of 4 years, may be required in limited instances where challenging growing environments bring the long term survivability of the tree into question.

20. All substitutions to an approved species list shall be discussed with and approved by Town of Oakville staff.

Setbacks

When siting plant material, adequate space should be provided to accommodate normal long term growth both above and below ground. Consider the potential negative impacts of providing insufficient space, such as injury to pedestrians, damage to property, increased maintenance expenses, and poor landscape performance.

Plant material screens transformer while not interfering with access or maintenance (2.2.15)

Shrubs in continuous planting bed (2.2.17)

21. To accommodate the base of the tree, space should be provided for tree openings that are at least:
    a. 3.0 m wide for a large stature tree
    b. 2.5 m wide for a medium stature tree
    c. 2.0 m wide for a small stature tree

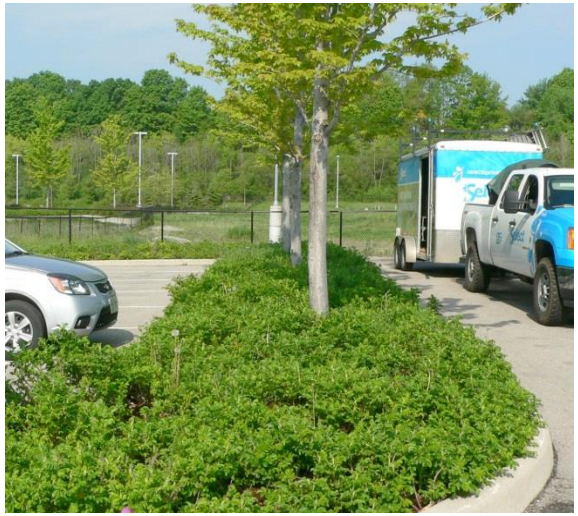
    These minimums could be reduced if enhanced rooting techniques are employed that mitigate possible damage to the surrounding landscape while providing for the long term growth of the tree.

22. Where underground services or utilities are present/proposed, consider the potential negative impacts to the base of the tree should future maintenance require soil excavation in close proximity to the tree. To mitigate this and other risks, trees should not be planted within:
    a. 1.0 m of the edge of a utility or service easement that is 3.0 m in width or greater
    b. 2.5 m of any underground utility or service, where space permits. However, at a main and lateral intersection a 2.0 m setback shall be maintained
    c. 3.0 m of a transformer or hydrant

    Local utility companies shall be contacted for further information when planting, or proposing other works, near utilities.

23. To respect the crown of the tree, trees should not be planted:
    a. within 7.0 m of a stop sign or other traffic control signage
    b. in locations where the growing canopy may come into contact with buildings, structures, or fencing
    c. in locations where growing canopy may come within 3.0 m of a primary powerline or within 1.0 m of a secondary powerline or communication asset.
    d. overhanging pedestrian areas if it is a species that drop fruit or seed pods

24. Shrubs should not be placed within 600 mm of a curb adjacent to vehicular parking and not within 3.0 m of the opening side of a transformer or 1.5 m on all other sides.



Tree planting within wide planting bed (2.2.21)

Appropriate tree form for growing environment (2.2.23)

2.3 Existing Vegetation

Tree Retention

1. The retention of all existing healthy trees on the subject site is recommended.

2. Buildings and site development should be designed, both above and below grade, to prevent negative impacts or injury to existing boundary trees or neighbouring trees within 6.0 m of the subject site.

3. Existing healthy trees with a diameter at breast height (DBH) less than 150 mm that cannot be accommodated in their current location due to development constraints are recommended as candidates for transplantation on-site or to other lands within the town.

Preserve existing trees with new development. (2.3.1)

Town policy:

Development should preserve and enhance the urban forest by . . . maintaining existing healthy trees, where possible; increasing tree canopy coverage; incorporating trees with historic or cultural significance. *(Livable Oakville 6.10.2 a) c) d))*

Landscaping treatments should preserve and complement the existing natural landscape. *(Livable Oakville 6.10.4)*

The general objectives for sustainability are . . . to maintain the existing urban forest; and to progressively increase the urban forest to achieve a canopy cover of 40% Town-wide. *(Livable Oakville 10.1.1 f))*

For every square metre of leaf area that is removed from Town property or from Town road rights-of-way, sufficient trees will be replanted to replace the lost square metres of leaf area. *(Livable Oakville 10.12.1)*

Town regulation:

Site Alteration By-law 2003-021 (construction standards for tree protection barriers)

Procedure EN-TRE-001-001
(Tree Protection during Construction)

Related documents:

For a complete listing of related documents and links, refer to Section 1.5

Tree protection zones

4. Retained trees should have a Tree Protection Zone (TPZ) delineated and installed, based on the following tree diameters:

Diameter at Breast Height (DBH)*	Tree Protection Zone (TPZ)
<10 cm	1.8 m
11 – 40 cm	2.4 m
41 – 50 cm	3.0 m
51 – 60 cm	3.6 m
61 – 70 cm	4.2 m
71 – 80 cm	4.8 m
81 – 90 cm	5.4 m
91 – 100 cm +	6.0 m

**Diameter at breast height (DBH) measurement of tree trunk shall be taken at 1.4 m above ground*

5. The perimeter of the Tree Protection Zone (TPZ) shall be measured from the outside edge of the tree base outwards to the drip line. The TPZ may be minimally encroached upon by an existing paved surface provided that surface remains intact and undisturbed throughout the site alteration activities.

6. Within the Tree Protection Zone (TPZ), no site alteration or disturbance to the existing grade through deposit of fill, trenching, excavating, scraping, or paving should be permitted. Storage or stockpiling of materials within the TPZ is prohibited.

No disturbance of grade or storage of materials permitted within tree protection zones (2.3.6)

2.4 Soft Landscape Grading

General design

1. Maintaining and integrating the exiting natural topography of the site during the development process is recommended.

2. Existing grades should match at property lines and at edges of tree protection zones.

3. Where changes in grade at the perimeter of a property cannot be avoided, subtle transitioning to surrounding areas should be achieved. Drainage onto abutting properties is not permitted.

4. Changes in grade along street frontages, parks, ravines and other public realm areas should include subtle transitioning and not incorporate retaining walls. However, where retaining walls cannot be avoided, the height of the walls should be minimized using terracing and the appearance of the wall enhanced with attractive, durable materials and screened with extensive soft landscape treatment. (Also refer to standard 3.4.9)

Terraced retaining walls providing appropriate transition in grade (2.4.4)

5. For sites located adjacent to properties that are also expected to undergo alterations to the existing grade along a shared property line, the property owners should coordinate the site works and incorporate provisions in development agreements which will permit the matching and blending of finished grades across shared property lines though future development.

6. Wherever possible, clean rainwater should be directed to on-site soft landscape areas that can accommodate natural infiltration to recharge groundwater and decrease loads on municipal services.

Town policy:

[with regard to stormwater management] The use of permeable surfaces and soft landscaping shall be encouraged where possible. *(Livable Oakville 10.10.8)*

Town regulation:

Site Plan By-law 2005-06

… provide to the satisfaction … to the municipality … grading or alteration in elevation or contour of the land and provision for the disposal of storm, surface and waste water from the land and from any buildings or structures thereon.

Related documents:

For a complete listing of related documents and links, refer to Section 1.5

Slopes

7. All soft landscape areas should have a minimum slope of 2% (50:1) to assist in overland flow and drainage.

8. The maximum slope in soft landscape areas should not exceed 33% (3:1). In areas where power mower access is required, a 25% (4:1) maximum slope is recommended for enhanced operator safety.

9. Rear yards of residential properties should have slopes less than 5% (20:1) within 5.0 m of the rear face of the building to create functional amenity areas.

10. Grassed swales should have slopes between 2% to 5% (50:1 to 20:1).

11. In residential development where side or flankage yard setbacks are required and a pedestrian access route to the rear of the building is provided, the walkway should not compromise any proposed drainage swale.

Sodded area with 25% slope, maximum 33% in all soft landscape areas (2.4.8)

2.5 Soil

Volume

1. For new tree plantings, 30.0 m^3 of good quality topsoil, with a minimum depth of 750 mm to a maximum depth of 900 mm, should be provided. Trees in common planting areas may share soil volume to a maximum of 15.0 m^3 each.

2. In tree planting areas with less than 30.0 m^3 of good quality topsoil, break-out zones should be provided to allow the roots to access additional soil. Break-out zones should be incorporated that are a minimum of 3.0 m wide by 625 mm deep and constructed with engineered soil or soil cell(s).

3. Enhanced rooting environment techniques, such as engineered soils or soil cell(s), are recommended to attain the required soil volume in compact urban conditions or within hard surface paving areas. Due to the large amount of aggregate contained in engineered soil, only 20% of its total volume will be credited towards the minimum soil volume requirement as per standard 2.5.1.

Depth

4. A minimum topsoil depth of 200 mm should be provided in all landscape areas. In landscape areas with tree plantings, the soil depth should be increased to meet the volume requirement, as per standard 2.5.1.

5. Landscape areas located on an underground structure roof slab should maintain the following minimum topsoil depth of cover:
   a. 900 mm for tree plantings
   b. 600 mm for shrub plantings
   c. 400 mm for sodded areas

Quality

6. Topsoil quality should be as per Town of Oakville requirements as outlined in the *Development Engineering Procedures and Guidelines Manual*.

Town policy:

The general objectives for sustainability are . . . to maintain the existing urban forest; and to progressively increase the urban forest to achieve a canopy cover of 40% Town-wide …
(Livable Oakville 10.1.1 f))

Development should preserve and enhance the urban forest by . . . providing suitable growing environments.
(Livable Oakville 6.10.2 b))

Related documents:

For a complete listing of related documents and links, refer to Section 1.5

7. Good quality native soil should be retained on site. Poor quality soil is recommended to be remediated on site in lieu of replacing the soil.

8. All soft landscape areas should consist of non-compacted soils.

   Soils with a penetration resistance above 300 psi, measured with a penetrometer while the soil contains average moisture (field capacity), may indicate the presence of compacted soils. In these instances further analysis is warranted, with a bulk density assessment or Proctor test (up to 80 to 85% SPD), to determine whether compaction levels in the soil can support healthy plant growth.

2.6 Treatment for Required Landscaping

Treatment for required landscaping through Site Plan Control
This subsection outlines the minimum landscaping treatment that should be provided in locations where landscaping is deemed necessary through Site Plan Control to buffer/screen conflicting uses or to incorporate a landscape separation between similar uses, either within a site or between sites.

1. A landscape area required for buffering/screening/separation should have a minimum dimension of 3.0 m in any direction and a minimum area of 33.4 m^2, to accommodate planting and potential fencing, grading and drainage features. These areas should contain, at a minimum, large stature tree and shrub plantings, which in quantity, height and spacing are proportional to the abutting use being buffered or screened.

Typical 3 m wide buffer providing screening of adjacent property (2.6.1)

Town policy:

New development should contribute to the creation of a cohesive streetscape by … incorporating sustainable design elements, such as trees, plantings, furnishings, lighting, etc. *(Livable Oakville 6.4.2 e))*

Landscaping design and treatment should … enhance the visual appeal and human scale of development; frame desired views or focal objects. *(Livable Oakville 6.10.1 a) c))*

Surface parking areas should incorporate planted landscape areas that … effectively screen parked vehicles from view from the public realm; provide shade, wind break, and visual relief from hard surfaces, clearly define the vehicular circulation route(s); and are sufficiently sized to support the growth of trees and other vegetation. *(Livable Oakville 6.13.4 a) b) c) d))*

In order to minimize and alleviate the conflicts of the railway network with adjacent land uses … implement aesthetic measures to recognize the increasing importance of the railway rights-of-way as a commuter corridor through the Town. *(Livable Oakville 8.11.2 e))*

… to progressively increase the urban forest to achieve a canopy cover of 40% Town-wide beyond the life of the Plan. *(Livable Oakville 10.1.1 f))*

Town regulation:

Zoning By-law 2014-014
Zoning By-law 2009-189
Site Plan By-law 2005-062 … provide to the satisfaction of … to the municipality … walls, fences, hedges, trees, shrubs or other groundcover or facilities for the landscaping of the lands or the protection of adjoining lands.

Related documents:

For a complete listing of related documents and links, refer to Section 1.5

Treatments for landscaping required through Zoning

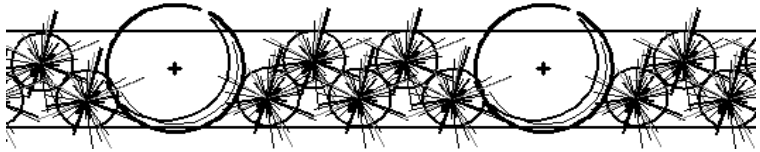
This subsection outlines the minimum landscaping treatments that should be provided within the minimum landscaping widths established and regulated through Zoning By-law 2014-014, as amended and Zoning By-law 2009-189, as amended. In instances where more than one standard is applicable, the provision requiring the greater landscape treatment will apply to achieve the desired buffering.

Required landscaping along and abutting property lines

2. Any required 3.0 m continuous landscape width along or abutting any road should contain, at a minimum, one (1) deciduous tree for every 12.0 m of frontage. For layout and design purposes, trees may be grouped in clusters, but spaced no greater than 15.0 m apart. Trees should be setback from the property line to avoid overlap with existing or proposed street trees.

3. Any required 3.0 m continuous landscape width, other than those abutting a road, should contain, at a minimum:
   a. one (1) deciduous or coniferous tree planting for every 12.0 m of abutting land; and
   b. a hedge, fence, or combination thereof, to form a continuous screening element with a minimum height of 1.5 m

4. Any required 7.5 m continuous landscape width should contain, at a minimum:
   a. one (1) deciduous or coniferous tree planting for every 4.5 m of abutting land, with a minimum of 80% of the trees within the buffer strip as coniferous species; and
   b. a hedge, fence, berm or combination thereof, to form a continuous screening element with a minimum height of 1.8 m



7.5 m wide buffer with deciduous and double row of coniferous tree planting (2.6.4)

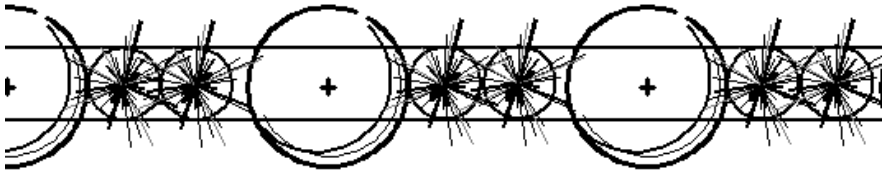
Required landscaping surrounding surface parking areas

5. Any required 3.0 m continuous landscape width along or abutting any road should contain, at a minimum:
   a. one (1) deciduous tree for every 12.0 m of frontage. For layout and design purposes, trees may be grouped in clusters, but spaced no greater than 15.0 m apart. Trees should be setback from the property line to avoid overlap with existing or proposed street trees; and
   b. a hedge, berm, wall, low decorative fence, or combination thereof, to form a continuous screening element with a height of 750 mm to 1000 mm above the parking area grade. Walls and fences should be set back 1.2 m from the property line to accommodate shrub plantings on the street side of the wall or fence

3 m wide buffer providing continuous screening along street frontage (2.6.5)

6. Any required 3.0 m continuous landscape width, other than those abutting a road, should contain, at a minimum, deciduous tree planting that meets the canopy cover target and minimum tree planting requirements.

7. Any required 4.5 m continuous landscape width, should contain, at a minimum:
   a. one (1) deciduous or coniferous tree for every 6.75 m of abutting land, with 60% of the trees within the buffer strip as coniferous species; and
   b. a hedge, fence, or combination thereof, to form a continuous screening element with a minimum height of 1.5 m



4.5 m wide buffer with deciduous and coniferous tree planting (2.6.7)

Required landscaping in yards abutting railway corridors

In order to minimize and alleviate the conflicts of the railway network with adjacent land uses aesthetic measures should be implemented to recognize the increasing importance of the railway rights-of-way as a commuter corridor through the Town.

8. Any required 7.5 m continuous landscape width, should contain, at a minimum:
   a. one (1) deciduous or coniferous tree planting for every 4.5 m of abutting land, with a minimum of 80% of the trees within the buffer strip as coniferous species; and
   b. a hedge, fence, berm or combination thereof, to form a continuous screening element with a minimum height of 1.8 m

2.7 Play spaces and amenity areas

The standards provided in this section are applicable to play spaces and amenity areas associated with condominium developments, private daycares, public and private schools, etc. The standards are not applicable to Town of Oakville owned parks and open spaces.

Access

1. Outdoor play spaces and amenity areas are recommended to incorporate ground surface treatments that are firm, stable, and slip resistant. Active play surfaces are recommended to incorporate impact attenuating properties for injury prevention. Play surfacing should comply with CSA Z614.

2. The surface treatment is recommended to extend beyond the play spaces, site furnishings and other amenities to provide sufficient clearance for all users to access and move through the space.

3. All play structures and other site furnishings should incorporate accessibility features into the design for children and caregivers with various disabilities, such as sensory and active play components (as per the Accessibility for Ontarians with Disabilities Act (AODA) and Accessibility Standard for the Design of Public Spaces).

4. All play structures and other site furnishings are recommended to be located and oriented to provide barrier free access.

Play structure with ramp access (2.7.3)

5. Steps and/or abrupt changes in the grades of the surface treatment of the play/amenity areas and routes of travel are not recommended.

Town policy:

Landscaping design and treatment should … enhance the visual appeal and human scale of development; frame desired views or focal objects; define and demarcate various functions within a development, provide seasonal variation in form, colour, and texture. *(Livable Oakville 6.10.1 a) c) d) e))*

Landscaping should be incorporated to provide shade and wind protection. *(Livable Oakville 6.10.3)*

Town regulation:

Fence by-law 2002-034, as amended

Related documents:

For a complete listing of related documents and links, refer to Section 1.5

Enclosures

6. Enclosure materials are recommended to provide a degree of screening, noise reduction and safety, yet providing transparency to view activities beyond.

7. Enclosures surrounding play areas should be designed to be non-climbable and aesthetically pleasing.

8. Enclosures consisting of metal fencing with vertical pickets, spaced no greater than 100 mm apart, are recommended. Chain link fencing is not recommended.

Landscape

9. Shade trees should be strategically placed near play structures, play areas, and seating areas to provide shade for users.

10. Providing a balance of coniferous and deciduous trees is encouraged. However, coniferous trees should not interfere with views onto playgrounds for monitoring reasons and should be positioned outside of fenced play areas, as low branches and needles may not be appropriate near small children.

11. Learning landscapes, such as bioswales, butterfly gardens and urban agriculture that engage the user and diversify the setting, are recommended.

12. For high traffic areas or within smaller spaces, grass or natural turf should not be installed as it is typically not durable in these contexts.

Trees providing shade for users (2.7.9)

13. Plant material near playgrounds should comply with CSA Z614. Plants with prickly foliage, nettles, thorns and barbs are not recommended.

14. Waste receptacles are not recommended to be located within active play areas to avoid smells, pests and spilling of debris.

15. Fencing, landscape features and site furniture incorporating chemically treated wood, such as Chromated Copper Arsenate (CCA) is not recommended. Consider alternatives such as Cedar, Amine Copper Quat (ACQ) or Copper Azole (CA).

Grading

16. Drainage swales, which may create a fall hazard, should not cross through active play spaces and amenity areas.

17. To facilitate drainage and usability, surface slopes within play spaces and amenity areas should maintain the following:
    a. 0 to 2% (50:1) slope for resilient surfaces (such as limestone screenings or rubberized surfaces with under drainage)
    b. 1% (100:1) minimum slope for concrete surfaces
    c. 2% (50:1) minimum running slope and cross-slope for asphalt surfaces
    d. 2% (50:1) minimum slope and 5% (20:1) maximum slope for open lawn areas
    e. 5% (20:1) maximum slope for paved areas

2.8 Greening Surface Parking and Other Site Areas

The following standards are for landscape areas located within vehicle use areas and complement the landscape area planting requirements for the perimeters of surface parking areas as outlined in standards 2.6.5, 2.6.6 and 2.6.7 of this document. Additional standards for the surface treatment and layout of surface parking areas is outlined in sections 3.2 and 3.3 of this document.

These standards apply to the following site areas, deemed 'vehicular use areas':

- surface parking areas, including drive aisles and driveways with the exception of any paved areas designed to be used solely for access between the street and the site
- loading areas and spaces
- outside areas for storage of automobiles, trucks, or other vehicles
- service areas outside storage areas

Typical parking lot layout

Landscaping areas

1. Vehicular use areas that are greater than 700.0 m^2 should contain protected landscape areas located entirely within the edges of the vehicular use area, which serve to break up the expanse of pavement, and should meet the following interior landscaping requirements:
   a. within the interior of the vehicular use area, interior landscape areas should be provided at the following ratios:

Vehicular Use Area	Landscape to Vehicular Use Area Ratio
700.0 – 4,599.9 m^2	1:20 m^2
4,600.0 – 13,999.9 m^2	1:15 m^2
14,000.0 m^2 and over	1:10 m^2

Town policy:

Surface parking areas should incorporate planted landscaped areas that … effectively screen parked vehicles from view from the public realm; provide shade, wind break, and visual relief from hard surfaces; clearly define the vehicular circulation route(s); and are sufficiently sized to support the growth of trees and other vegetation. *(Livable Oakville 6.13.4 a) b) c) d))*

Related documents:

For a complete listing of related documents and links, refer to Section 1.5

b. to be credited toward meeting the requirements of this section, each interior landscape area should have at minimum area of 33.4 m^2, with a minimum dimension of 3.0 m in any direction.
c. any landscaping located outside the edges of the vehicular use area will not be credited toward satisfying this requirement. Landscaped areas within the corners of the vehicular use area may be counted, if at least 1 deciduous tree is located within that area, and the minimum area and width are also provided.

2. In large parking areas, landscape areas should be arranged to divide the parking area into smaller, separate parking courts consisting of no more than 100 – 125 parking stalls and the associated drive aisles.

3. Continuous landscape areas, extending the full length of a parking aisle, are recommended for every three banks of parking, where a bank of parking consists of two rows of parking and the shared drive aisle.

4. Landscape areas are recommended to be consolidated to enhance tree and plant material growing conditions.

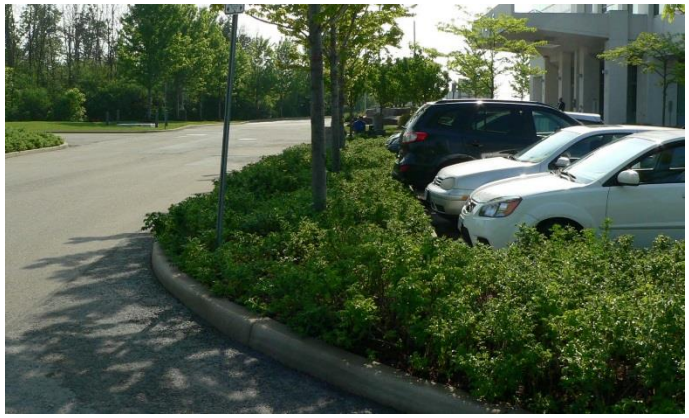
5. For drive-through facilities, stacking lanes should be separated from any aisle, driveway, or parking space by a continuous landscape area. The landscape area should incorporate a hedge, shrub and perennial plantings, or combination thereof, to form a continuous screen at a height of 750 mm to 1000 mm above the stacking lane grade.

3 m wide continuous parking island breaks up large areas on surface parking and supports healthy tree growth (2.8.3 & 2.8.4)

Planting

6. Landscape areas should include tree and understory planting, such as shrub, perennials, ornamental grasses and groundcover.

7. For new tree plantings, 30.0 m^3 of good quality topsoil, with a minimum depth of 750 mm to a maximum depth of 900 mm, should be provided. Trees in common planting areas may share soil volume to a maximum of 15.0 m^3 each.



Landscape island with understory planting (2.8.7)

8. Within surface parking areas, each of the following tree planting conditions should be provided:
   a. a minimum of one (1) 60 mm caliper deciduous tree planted for every five (5) parking spaces;
   b. for parking lots with more than 75 parking stalls, locate all required trees in or within 5.0 m of the vehicle use area
   c. all parking spaces are positioned no farther than 30.0 m from a tree

3.0 Hardscape Standards

Pedestrian connections are essential linkages to the public realm that provide convenient, barrier-free and predictable access to on-site destinations.

(Section 4.2 of ***LbDM – Urban Design Direction for Oakville***)

Design parking areas to support site uses and activities and to not dominate or dictate the site layout.

(Section 4.3 of ***LbDM – Urban Design Direction for Oakville***)

Hardscape refers to hard landscaping materials and treatments that typically provide for pedestrian and vehicular access and circulation routes to and through a site.

The hardscape standards address the design and functionality of pedestrian routes, including walkways, ramps and stairs; vehicular access and circulation; passenger loading areas; and surface parking areas, including vehicle stalls, drive aisles, and bicycle parking facilities.

While the standards in the section predominantly address on-site conditions, direction is also provided for designing the interface with the municipal boulevard for pedestrian and vehicle access. When designing this interface, also reference *Section 5.0 Streetscape Standards* of this document.

Provincial regulation:

… a municipality may require the owner of the land … provide to the satisfaction of and at no expense to the municipality …

… facilities to provide access to and from the land such as access ramps and curbing and traffic direction signs. *(Planning Act S. 41 (7)(a) 2.)*

… off street vehicular loading and parking facilities, either covered or uncovered, access driveways, including driveways for emergency vehicles, and the surfacing of such areas and driveways; facilities for the lighting, including floodlighting, of the land or of any buildings or structures thereon. *(Planning Act S. 41 (7)(a) 3, 5.)*

… walkways and walkway ramps, including the surfacing thereof, and all other means of pedestrian access *(Planning Act S. 41 (7)(a)4.)*

… facilities designed to have regard for accessibility for persons with disabilities. *(Planning Act S. 41 (7)(a)4.1)*

… walls, fences, hedges, trees, shrubs or other groundcover or facilities for the landscaping of the lands or the protection of adjoining lands. *(Planning Act S. 41 (7)(a)6.)*

… grading or alteration in elevation or contour of the land … *(Planning Act S.41 (7)(a)9.)*

3.1 Pedestrian Circulation

Exterior paths of travel for pedestrian circulation include walkways, ramps, curb ramps, stairs and depressed curbs.

Network of exterior paths of travel

1. Exterior paths of travel should provide safe, direct, predictable, and barrier-free access routes that connect pedestrians with the municipal boulevard, multi-use trails, transit stops, urban squares, amenity areas, parking areas, primary building entrances and emergency exits. Where appropriate, exterior paths of travel are recommended to connect with pedestrian areas on abutting sites.

2. Exterior paths of travel should be designed and positioned to:
   a. clearly demarcate the pedestrian route at driveway crossings and along other major drive aisles and internal intersections
   b. guide pedestrian circulation to minimize the number of pedestrian and vehicle crossing points
   c. minimize obstructions to pedestrian and driver sight lines
   d. provide adequate illumination, preferably with pedestrian scale lighting fixtures

Well defined exterior path of travel (3.1.1)

3. The International Symbol of Accessibility should be displayed on barrier-free parking stalls, barrier-free passenger-loading zones, barrier-free ramps along barrier-free exterior paths, and barrier-free building entrances. Building entrances that are not accessible should display directional signage to identify the barrier-free path of travel leading to the nearest barrier-free building entrance.

Town policy:
Access to pedestrian walkways should be barrier-free. *(Livable Oakville 6.11.1)*

Developments should incorporate safe and direct access and circulation routes to and through the site that connects pedestrians to principal entrance of building(s), amenity areas and parking areas; the public sidewalk and transit facilities; and adjacent developments where appropriate. *(Livable Oakville 6.11.2 a) b) c))*

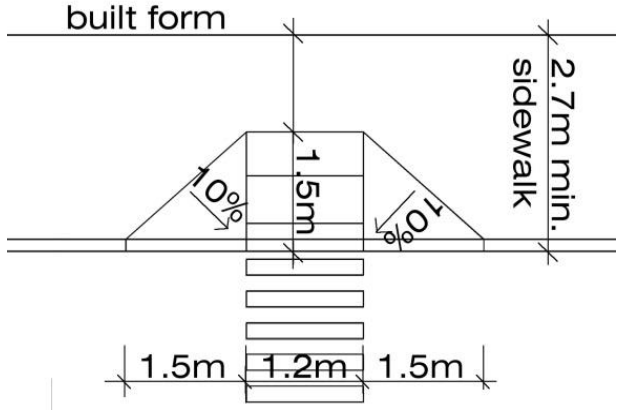
Transit stops should be located in close proximity to principal building entrances and connected by a pedestrian walkway. *(Livable Oakville 6.11.4)*

Walkways should provide continuous routes across driveway entrances and drive aisles and through parking areas to promote safety and signify priority over driving surfaces. *(Livable Oakville 6.11.5)*

Related documents:
For a complete listing of related documents and links, refer to Section 1.5

Walkways

4. Walkways should be designed and installed with a minimum clear width of 1.5m. However:
   a. where the walkway connects with a curb ramp, a 1.2 m wide level area should be provided at the top of the ramp to continue the path of travel and serve as a turning space for a mobility device
   b. where the walkway is adjacent to parking stalls oriented perpendicular to the exterior path of travel, the walkway should be increased to a minimum clear width of 1.8 m to accommodate vehicle overhang
   c. where the walkway is located within high volume pedestrian areas, the walkway should be increased to a minimum clear width of 2.4 m



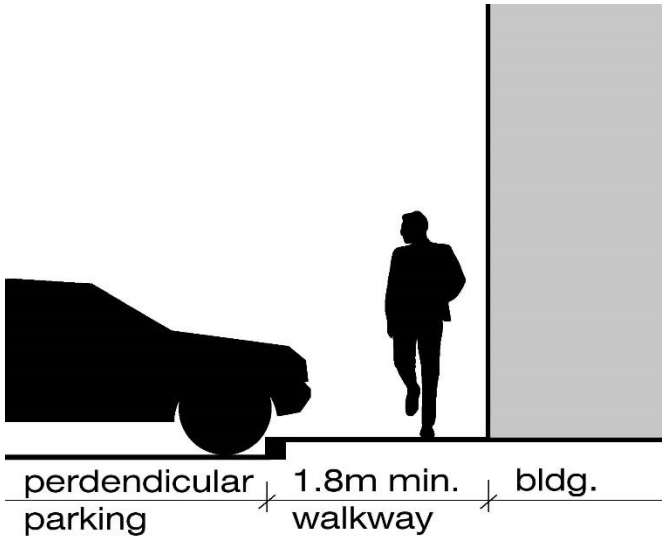
Walkway with minimum 1.2 m wide level area at top of ramp to provide path of travel and turning area at top of the ramp (3.1.4)

5. Walkways should have a maximum running slope no steeper than 5% (20:1). Where the walkway is adjacent to a private roadway or drive aisle, the slope of the walkway should be no steeper than the slope of the adjacent vehicle surface. Where the slope of the walkway exceeds 5% (20:1), the path of travel should incorporate a ramp for barrier-free access or stairs.

6. Walkways should have a maximum cross slope no steeper than 5% (20:1). However, where the walkway surface is asphalt, concrete or other hard surface, a cross slope of 2% (50:1) is recommended.

7. Walkways should incorporate a surface treatment that is firm, stable, slip resistant and capable of withstanding winter maintenance.

8. Walkway surface treatments should incorporate changes in materials, colour, and/or texture to differentiate pedestrian crossings, passenger loading areas, dedicated parking areas and bicycle storage areas from vehicular parking and circulation areas. Within barrier-free paths of travel, incorporating tactile warning strips at the intersection of walkways and vehicular areas is recommended.



Provide 1.8 m wide walkway adjacent to perpendicular parking stalls (3.1.4)

9. Where openings in the walkway surface are proposed, such as grates or spaces between unit pavers, all openings should be no greater than 20 mm wide and all elongated openings should be oriented perpendicular to the direction of travel.

10. On sites with 200 parking stalls or more, exterior paths of travel that connect parking areas to the municipal sidewalk, multi-use trails, primary building entrances, site amenities and/or other parking areas should incorporate a minimum 1.5 m wide walkway with a minimum 3.0 m wide landscaped zone that includes shade trees.

11. In residential development where side or flankage yard setbacks are required, a pedestrian access route to the rear of the building should be provided along at least one (1) side of the building. The access route is recommended to incorporate a maximum cross slope away from the foundation of 2% (50:1). The access route should be a minimum width of 860 mm for low-density residential development, such as detached or semi-detached houses, and a minimum width of 1.5 m for all other residential uses.

Ramps

12. Ramps should be designed and installed with:
    a. a minimum clear width of 900 mm, however a clear width of 1.1 m is preferred
    b. a maximum running slope of no greater than 6.6% (15:1)
    c. a surface treatment that is firm, stable and slip resistant
    d. no openings, such as grates or expansion joints, that are greater than 20 mm wide and all elongated openings oriented perpendicular to the direction of travel

Barrier free ramp (3.1.12 & 3.1.13)

13. Ramps should be designed and installed with landings located at the top and bottom of the ramp, at abrupt changes in direction of the ramp, and on long ramps at horizontal intervals not greater than 9 m apart. Ramp landings should incorporate a cross slope no steeper than 2% (50:1).

14. For in-line ramps, the ramp landings should be a minimum length of 1.67 m and at least the same width of the ramp. For non in-line ramps, the ramp landings should be a minimum clear width of 1.67 m by 1.67 m.

15. Both sides of a ramp should be equipped with handrails that are continuously graspable along the entire length. Handrails are required to:
    a. be installed at a height no less than 865 mm and no greater than 965 mm high, measured vertically from the surface of the ramp. However, handrails which do not meet these requirements are permitted provided they are installed in addition to a required handrail
    b. extend horizontally no less than 300 mm beyond the top and bottom of the ramp and terminate in a manner that will not obstruct travel
    c. incorporate a clearance of no less than 50 mm between the handrail and any wall or surface to which it is attached
    d. incorporate a circular cross-section with an outside diameter of no less than 30 mm and no greater than 40 mm, or a non-circular shape with a graspable portion with a perimeter no less than 100 mm and no greater than 155 mm and whose largest cross-sectional dimension is no greater than 57 mm

Barrier free ramp with hand rails and guards (3.1.15)

16. Ramps greater than 2.2 m in width should incorporate one or more intermediate handrails that run continuous between landings and are positioned so that the space between handrails is no greater than 1.65 m.

17. Where the adjacent surface is greater than 600 mm below the ramp surface, the ramp should incorporate a wall or guard that is no less than 1.07 m high measured vertically to the top of the guard from the ramp surface. To prevent climbing, the wall or guard should be designed so that no member, attachment or opening is positioned between 140 mm and 900 mm above the ramp surface that is protected by the guard.

18. Edge protection should be incorporated where no solid enclosure or solid guard is provided along a ramp. Edge protection should be positioned on either side of the ramp at a height of 50 mm above the finished paving surface.

Curb ramps

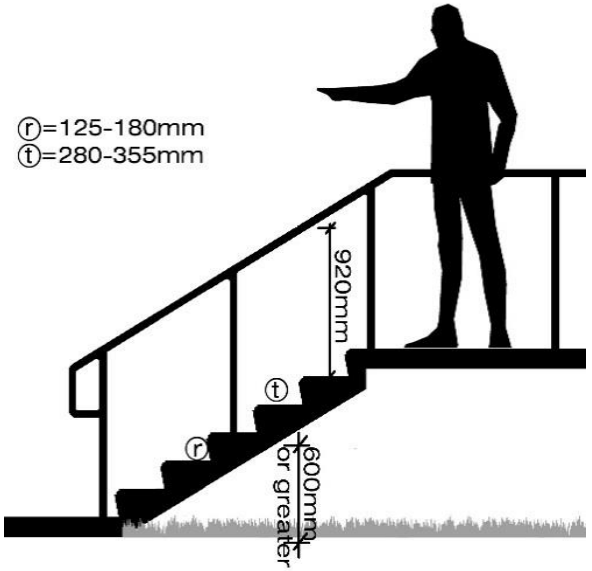
19. Where an exterior path of travel incorporates a cut through, or is built up to a curb, the curb ramp should be in alignment with the direction of travel and designed and installed with:
    a. a minimum clear width of 1.2 m, exclusive of flared sides
    b. an adjacent exterior path, with a minimum width of 1.2m, to provide a turning space
    c. a maximum running slope of 12.5% (8:1), where the change in elevation is less than 75 mm, or a maximum of 10% (10:1) where the change in elevation is greater than 75 mm and less than 200 mm
    d. a maximum cross slope no greater than 2% (50:1)
    e. a maximum slope for the flared sides no greater than 10% (10:1)

Curb ramps creating accessible exterior path of travel (3.1.20)

20. Where a curb ramp is provided at a pedestrian crossing through a vehicular area, the ramp should have tactile surface indicators that:
    a. have raised tactile profile(s) and high tonal contrast alongside abutting surface(s)
    b. are located at the bottom edge of the curb ramp and set back between 150 mm and 200 mm from the curb edge
    c. extend the full width of the curb ramp and a minimum length of 610 mm

Stairs

21. Where an exterior path of travel incorporates stairs, the stairs should be designed and installed with a uniform depth and height of risers and runs in any one flight, and incorporate:
    a. a rise of 125 mm to 180 mm between successive treads
    b. a run of 280 mm and 355 mm between successive steps
    c. a maximum nosing projection on a tread no greater than 38 mm and no abrupt undersides



Easily navigated exterior stairs (3.1.21)

22. A flight for stairs should not exceed 8 to 10 risers without incorporating a mid-run landing. It is recommended that a minimum of 3 risers be incorporated to adequately signal the change in grade.

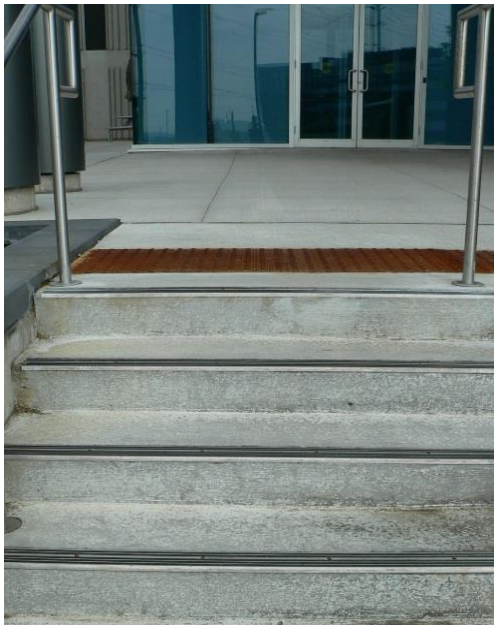
23. Stairs should incorporate a slip-resistant tread surface finish and closed risers.

24. Stairs should incorporate high tonal contrasts alongside abutting surface(s) and extend the full width of the tread along the leading edge of each step. At the top of all flights of stairs, raised tactile profiles should be incorporated and extend the full tread width to a minimum length of 610 mm and commencing one tread depth from the edge of the stair.

25. Where the difference in elevation between ground level and the top of the stair is greater than 600 mm, a guard should be incorporated which is no less than 920 mm high, measured vertically from the top of the guard from a line drawn through the outside edges of the stair nosing to the tread. A guard of 1.07 m high should be incorporated around the landings. A guard is not required along the side of the stair that abuts a wall.

26. Both sides of stairs should be equipped with handrails that are continuously graspable along the entire length and that comply with the requirements as set out for handrails in 3.1.12 of this document.

27. Stairs greater than 2.2 m in width should incorporate one or more intermediate handrails that run continuous between landings and positioned so that the space between handrails is no greater than 1.65 m. Handrails should comply with the requirements as set out in 3.1.15 of this document.



Slip resistant stairs with high tonal contrast (3.1.23 & 3.1.24)

3.2 Vehicular Access and Circulation

This subsection provides guidelines for location of driveway entrances to minimize vehicle-pedestrian conflict and design requirements to ensure that the vehicles turning movements are adequately accommodated on site

Street access driveway entrances

1. Limiting the number of street access driveway entrances is recommended to minimize interruptions to pedestrian movement along the public sidewalk and to the streetscape and perimeter landscaping. Where feasible, street access driveway entrances are recommended to be shared between adjacent sites.

2. The width of street access driveway entrances should be minimized to limit site access to the optimal number of lanes of operation, as a means to control the location and angle of vehicular movement and to discourage erratic manoeuvers. Refer to town STD 10-2 (Public Works Standard Drawings) for driveway design criteria.

3. Street access driveway entrances should be located opposite existing or proposed municipal roadways, private laneways and other street access driveways to avoid offset intersection conditions.

4. Where possible, street access driveway entrances should be located along secondary streets to minimize interruptions along the higher order roadway/primary street.

5. The municipal sidewalk and/or multi-use trail shall be continuously level approaching and crossing all street access driveway entrances (refer to OPSD 350.010, noting that the tapered curb shown in the driveway apron may be required to be installed at full barrier curb height, to the satisfaction of Engineering and Construction). Where minimal or no boulevard width is available, the installation of a partially depressed or fully depressed walk may be acceptable (refer to OPSD 310.050).

Continuous sidewalk through vehicular entrance (3.2.5)

Town policy:
Developments should incorporate safe and direct vehicular access and circulation routes with defined internal driving aisles to direct traffic, establish on-site circulation, and frame parking areas. (Livable Oakville 6.12.1)

Consolidated driveway accesses are encouraged to maximize the areas available for landscaping, minimize disruption of the public sidewalk, and minimize expanses of pavement.
(Livable Oakville 6.12.2)

Town regulation:
By-law 2009-072
(Municipal Right of Way By-law), as amended

Related documents:
For a complete listing of related documents and links, refer to Section 1.5

6. Street access driveway entrances should be designed to accommodate emergency vehicles. Stand-alone emergency vehicular entrances are not encouraged.

7. Access driveways for large and/or heavy vehicles servicing site facilities should be:
   a. located at the rear or side of the property and not accessible directly from major thoroughfares
   b. shared amongst on-site tenants and with abutting sites, wherever possible and appropriate

8. Street access driveway entrances, including the entire curb radius, should be located fully within the property limits and the projection of those limits onto the municipal boulevard.

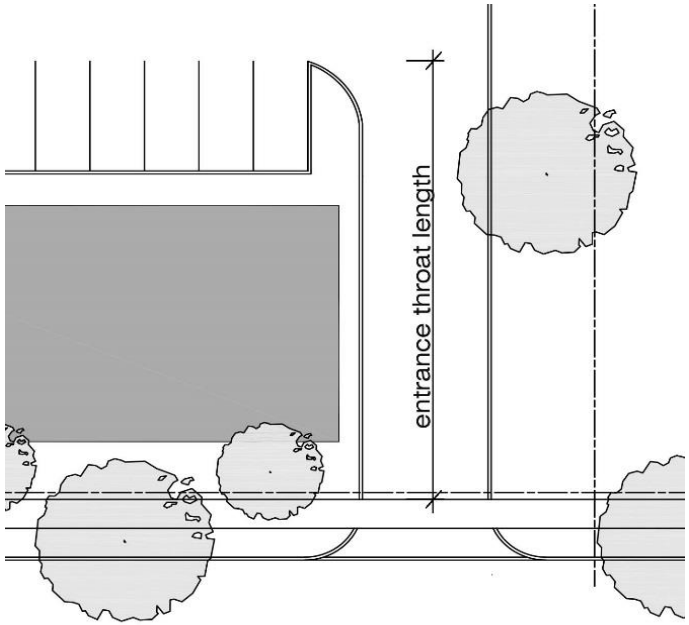
9. The maximum slope for a low density residential driveway should not exceed 7% (14:1). For all other land uses, the maximum slope for a street access driveway should not exceed 5% (20:1) within 7.5 m of the property line, the remainder of the driveway should not exceed a maximum 10% (10:1) or 15% (6.5:1) if the driveway is heated or covered. Driveway slopes should accommodate barrier-free exterior paths of travel as described in section 3.1.

Driveway throat length

10. A clear driveway throat, as measured from the property line to the point the driveway turns or parking stalls are provided, should be provided for uninterrupted inbound and outbound vehicular movements. The length of a street access driveway throat should be no less than 6.0 m, however, a greater length may be required depending on the site context, land-use and other factors, which will be determined by Transportation Engineering staff.

On-site vehicular routes and turning radii

11. Vehicular circulation routes should be predictable and well-defined throughout the site. These routes should be distinct from exterior paths of pedestrian travel and loading areas.



Vehicular entrance must incorporate driveway throat length appropriate for use on site (3.2.10)

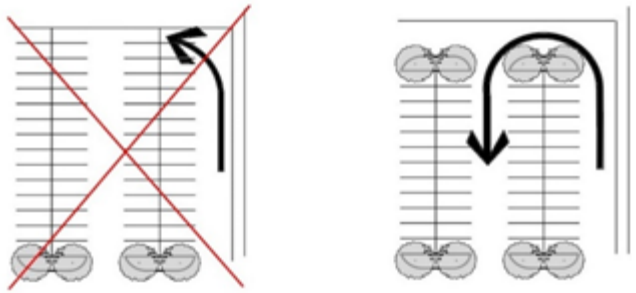
12. Vehicular routes should be designed such that vehicles move in a forward only direction. Vehicular routes should not incorporate dead-end aisles that may result in vehicles reversing down drive aisles or onto the right-of-way.

13. Clearly marked pedestrian crossings are recommended to be incorporated at the intersection of vehicular routes and exterior paths of travel.

14. Vehicular circulation routes should be appropriately dimensioned according to the site context and land use to ensure adequate on-site and off-site maneuvering room is available wherever trucks are required to make turning movements to, from and within the site and to avoid over built or excessively wide drive aisles and turning radii. Where wider drive aisles and turning radii are required to accommodate fire lanes and service areas, the location of these routes should be combined with the major drive aisles.

15. For a drive-through facility a 14.0 m spacing from the property line to the end of the stacking lane is recommended.

16. Fire lanes shall be designed to accommodate a 12 m turning radii. Halton Region waste management vehicles require a 13 m turning radii. Refer to Halton Region's Development Design Guidelines for Source Separate of Solid Waste for more information.



Dead end parking aisles must not be created (3.2.12)

Passenger loading areas

17. Passenger loading areas should be located in close proximity to the main building entrance(s) and along a barrier-free exterior route of travel.

18. Surface treatments within passenger loading areas should be firm, stable, and slip resistant.

19. Passenger loading areas should accommodate vehicle unloading from the passenger side and provide direct access to the barrier-free exterior route of travel.

Pedestrian loading area located in close proximity to main entrance (3.2.17)

20. The International Symbol of Accessibility should be displayed on barrier-free passenger-loading zones, barrier-free ramps along barrier-free exterior paths, and barrier-free building entrances. Building entrances that are not accessible should display directional signage to identify the barrier-free path of travel leading to the nearest barrier-free building entrance.

21. Passenger loading areas that also serve para-transit vehicles should incorporate a barrier curb in a portion of the loading area to accommodate ramp deployment.

22. Weather protection features are recommended over the passenger loading area, path of travel and main building entrance, either as an extension of the built form or as a free standing structure. A weather protection feature should incorporate the appropriate height clearances to accommodate a variety of vehicle types and sizes.

Islands and medians

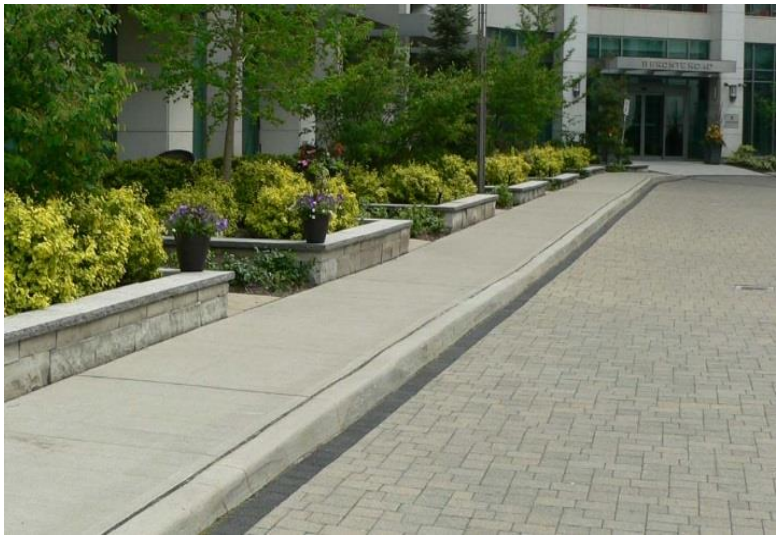
23. Islands and medians should be incorporated to clearly define vehicle circulation routes. These features should be curbed and enhanced with landscaping or hardscaping treatments. Also refer to section 2.8.

Surface and edge treatments

24. Landscape areas abutting vehicular hard surfaces should be delineated with a continuous 150 mm high barrier curb to prevent soil and other landscape material from spreading over adjacent surfaces and to prevent damage from vehicles and snow clearing operations. Intermittent breaks in the curbing may be warranted to permit sheet flow drainage as part of an alternative engineered stormwater management system, such as a bioswale.

25. A variety of surface treatments and edge materials is recommended to be incorporated to differentiate between vehicle and pedestrian routes and to create visually appealing hard surface areas.

26. Heavy duty paving treatments should be incorporated to accommodate the intended use(s) and site function of fully loaded vehicles, such as fire, garbage and loading vehicles. On sites where vehicles drive over a supported structure an Ontario Professional Engineer shall certify the supported structure can accommodate the intended fully loaded vehicles.



Variety of materials create visually appealing composition (3.2.25)

Directional signage and markings

27. Directional signage shall conform to the Ontario Traffic Manual.

28. On large sites, directional signage is recommended to be incorporated that clearly identifies and provides orientation to key site and building access points and to amenities.

29. Directional signage should be strategically placed to not obstruct pedestrian and motorist site lines, paths of travel, and views into buildings.

30. The International Symbol of Accessibility should be displayed on barrier-free parking stalls, barrier-free passenger-loading zones, barrier-free ramps along barrier-free exterior paths, and barrier-free building entrances. Building entrances that are not accessible should display directional signage to identify the barrier-free path of travel leading to the nearest barrier-free building entrance.

3.3 Parking Areas

Vehicle parking stalls and drive aisles

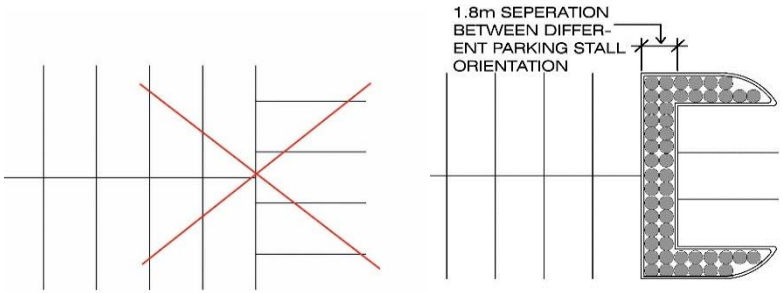
1. To avoid potential conflicts between moving vehicles, parking stalls should not be located along or accessed from major drive aisles and the required throat of a street access driveways.

2. To avoid potential conflicts with pedestrians, parking stalls are not recommended to be located directly in front of primary building entrances and amenity areas.

3. Parking drive aisles should be positioned perpendicular to main building entrance(s) to provide for unimpeded and predictable pedestrian movement.

4. Parking stalls are not recommended to be oriented parallel to drive aisles.

5. Parking stalls should not be oriented perpendicular to each other, which may result in vehicle overhang conflicts. If this orientation cannot be avoided, a curbed median with a minimum width of 1.8 m, should be installed between the parking stalls.



Parking stalls perpendicular to each other must be separated by a curbed median at least 1.8 m wide (3.3.5)

Town policy:

Developments should incorporate safe and direct vehicular access and circulation routes with defined internal driving aisles to direct traffic, establish on-site circulation, and frame parking areas. *(Livable Oakville 6.12.1)*

To provide safe and attractive pedestrian environments, surface parking areas should be organized into appropriately sized areas (parking courts) separated by a combination of built form, landscaping, and pedestrian facilities. *(Livable Oakville 6.13.1)*

Surface parking areas should be … located in the rear or side yard, or in areas that can be appropriately screened, so they do not dominate the streetscape, but are sufficiently visible for safety and functionality; and are connected to the on-site pedestrian network and streetscape through landscaped pedestrian linkages. *(Livable Oakville 6.13.2 a) b))*

Barrier-free parking spaces should be located in close proximity to principal building entrances. *(Livable Oakville 6.13.3)*

Surface parking areas should incorporate planted landscape areas that … effectively screen parked vehicles from view from the public realm; provide shade, wind break, and visual relief from hard surfaces; clearly define the vehicular circulation routes(s); and are sufficiently sized to support the growth of trees and other vegetation. *(Livable Oakville 6.13.4 a) b) c) d))*

Town regulation:

Refer to **Zoning By-law 2014-014** for vehicular facilities requirements including minimum number of parking spaces, minimum aisle widths, standard parking space dimensions, barrier-free parking space dimensions including associated barrier-free path of travel (access aisle).

Related documents:

For a complete listing of related documents and links, refer to Section 1.5

6. Parking stalls and drive aisles are recommended to be organized to create consolidated soft landscape areas and, where warranted, opportunities for on-site stormwater management. Also refer to sub-Section *2.8 Greening Surface Parking Areas*.

7. Within parking areas, slopes should not exceed 5% (20:1) to assist in pedestrian movement and to prevent car door swings.

Barrier-free vehicle parking stalls and access aisles

8. Barrier-free parking stalls should be located in close proximity to barrier-free building entrance(s) and along barrier-free exterior paths of travel. The design and layout of barrier-free exterior paths of travel that connect barrier-free parking stalls to the principal barrier-free building entrance(s) should not require the user to cross vehicular circulation routes.

9. The required barrier-free access aisle from the parking area to the barrier-free exterior path of travel should:
   a. be connected to a barrier-free exterior path of travel to the principal building entrance(s) and to other barrier-free site amenities
   b. incorporate high tonal contrast diagonal markings to demarcate the route and discourage parking on the access aisle
   c. incorporate a barrier-free curb ramp where there is a change in level from the parking area pavement to the barrier-free external path of travel. Also refer to standards 3.1.19 and 3.1.20 of this document.

Barrier free parking stalls located close to main entrance providing adequate access to adjacent exterior paths of travel (3.3.8)

10. Barrier-free parking stalls should have a maximum running slope of 5% (20:1) and a maximum cross slope of 2% (50:1)

11. Barrier-free parking stalls should be distinctly identified by:
   a. a vertical post-mounted sign located in front of the space, with the centre of the sign approximately 1.5 m above the ground. The sign shall be in accordance with Ontario Highway Traffic Act, Ontario Reg. 581,
   b. a painted pavement marking of the International Symbol of Accessibility (1.0 m in length) located in the centre of the stall and in a contrasting colour to the pavement,
   c. an additional sign at Type A spaces indicating the stall is “Van Accessible”

12. The International Symbol of Accessibility should be displayed on barrier-free parking stalls, barrier-free passenger-loading zones, barrier-free ramps incorporated within barrier-free exterior paths, and barrier-free building entrances. Building entrances which are not accessible should have directional signage to indicate the barrier-free path of travel to the nearest barrier-free entrance.

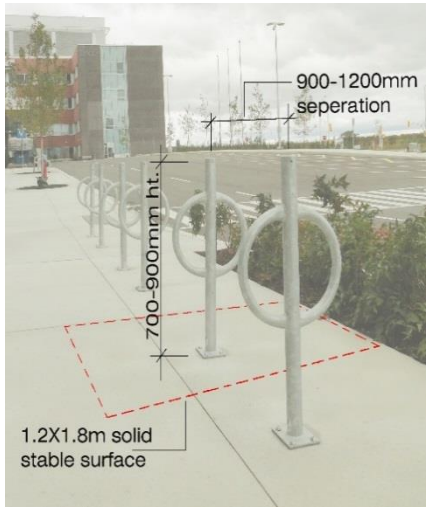
Bicycle parking spaces

13. Bicycle parking areas should:
    a. be a minimum of 1.8 m x 1.2 m in area to accommodate one (1) bike rack for two bicycles
    b. be positioned at an appropriate distance from structures to permit movement around the rack(s)
    c. not encroach into exterior paths of travel and landscaping areas

14. Bicycle racks should be designed/selected with:
    a. the bicycle frame supported horizontally at two or more places
    b. the frame and at least one wheel of the bicycle can be locked to the rack with a standard U-type lock
    c. the user is not required to lift the bicycle onto the rack
    d. each bicycle parking space can be accessed without moving another bicycle
    e. a height of 750 mm to 900 mm and minimum width of 450 mm between the two points of contact
    f. spaces in each rack are a minimum of 300 mm in both width and length to prevent entrapment
    g. no sharp edges or moving parts

15. Bicycle racks should be installed:
    a. on a hard, permanent surface with a maximum slope of 5% (20:1). Installation on soil or grass is not permitted.
    b. in well illuminated areas and, where possible, areas providing weather protection
    c. within 10 m of a main building entrance and/or in a highly visible area on site with a clear and direct walkway link to the main building entrance

16. Bicycle racks should be installed with a minimum separation distance of:
    a. 900 mm to 1.2 m between bicycle racks, when positioned side by side
    b. 750 mm from light poles, trash receptacles, tree pits and other site furnishings/features
    c. 1.2 m from parking stalls, pedestrian crossings, curb ramps, vehicular ramps and passenger loading zones
    d. 1.2 m from the curb edge to the centre of the rack, when oriented perpendicular to a curb
    e. 1.5 m from fire hydrants and siamese connections



Minimum parking area dimensions (3.3.13)

Bicycle parking area with weather protection (3.3.15)

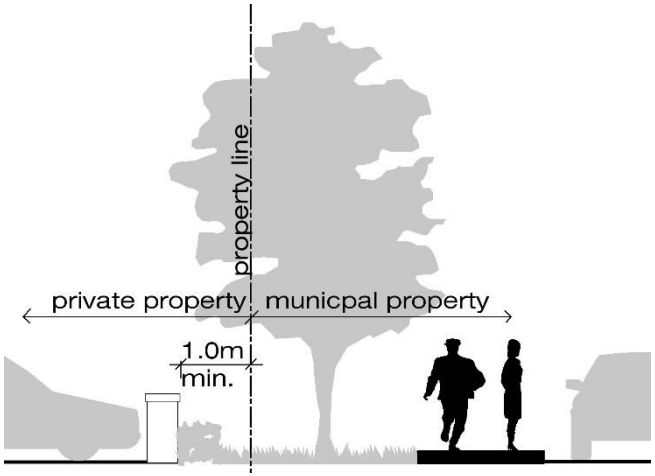
3.4 Fences, Walls and Guards

Fences and free-standing walls

1. Fence and free-standing wall design, construction and material selection shall comply with the Fence By-law 2002-034, as amended.

2. Fences and free-standing walls are recommended to be set back a minimum of 1.0 m from the front or flankage property line abutting a right-of-way to provide space for shrub plantings to soften the fence or wall and provide visual interest.

3. Flankage yard fences and free-standing walls, which abut a right-of-way, pedestrian walkways, parks, and other public spaces, are recommended to incorporate different materials and planting to provide visual interest.



Set wall and fences at least 1.0 m from municipal property line to accommodate planting (3.4.2)

4. The posts and structural members of a single-sided fence shall not be positioned facing the public right of way or an abutting property.

5. Private properties shall be delineated from public open space areas by installing a 1.2 m high black vinyl chain link fence 150 mm from the property line on town land. This fence is town owned and private gates are prohibited.

Guards

6. Guards are required by the Ontario Building Code (OBC) and/or Accessibility for Ontarians with Disabilities Act (AODA). Where not specified by the code/standards, proposed guard design and construction should reflect the potential users and the context of the site.

Town policy:

Streetscapes shall . . . provide cohesion and seamless transition between the public and private realms *(Livable Oakville 6.4.1 e))*

Landscaping design and treatments should . . . enhance the visual appeal and human scale of development; create an attractive environment for pedestrian movement; frame desired views or focal objects. *(Livable Oakville 6.10.1 a) b) c))*

Town regulation:

Fence by-law 2002-034, as amended

Related documents:

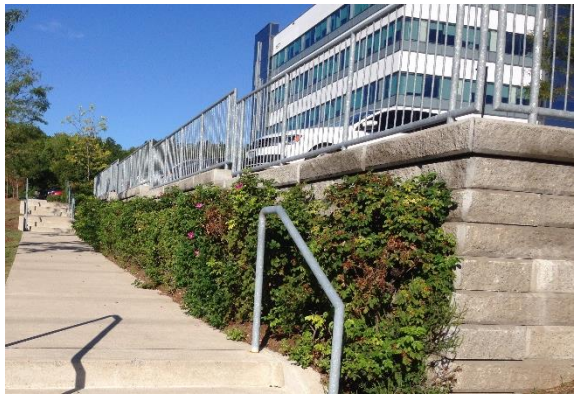
For a complete listing of related documents and links, refer to Section 1.5

Retaining walls

7. Retaining walls that exceed 1.0 m in height shall have design drawings signed and stamped by a qualified professional engineer.

8. Retaining walls associated with access/egress around a building shall incorporate fall protection that includes a guard for any portion of the wall over 600 mm in height from the nearby grade.

9. Retaining walls located in landscape areas where the public has access shall incorporate fall protection that includes a guard for any portion of the wall exceeding 1.0 m in height from nearby grade.

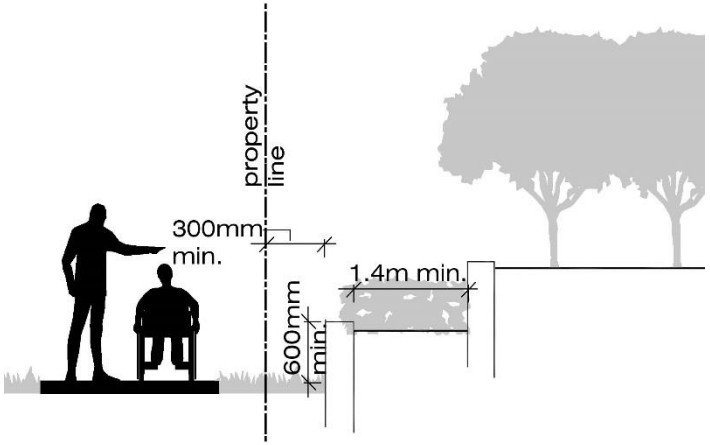


Retaining wall with incorporated guard rail (3.4.9)

Setback guards, fencing, or walls from parking stalls to prevent damage (3.4.10)

10. A minimum 900 mm wide soft landscape area should separate retaining walls from the edge of parking areas to prevent vehicular damage to the wall and associated guard(s).

11. Retaining walls located within landscape areas adjacent to rights-of-way, and public realm areas should be avoided. Where a retaining wall cannot be avoided, the wall(s) should:
    a. be setback from the property line a minimum of 300 mm to prevent encroachments and accommodate plantings for screening
    b. be constructed in terraces with minimized wall height recommended no higher than 600 mm
    c. be spaced at least 1.4 m from another wall to incorporate extensive soft landscaping between the walls of the terraces
    d. incorporate aesthetic and durable materials



Where retaining walls cannot be avoided, they should be terraced to provide a gradual transition (3.4.10)

4.0 Service Facilities Standards

Service and loading areas should be:

a. *located and oriented away from the general circulation of pedestrians and motor vehicles both on-site and in the public right-of-way;*
b. *accessible but not visible from the public realm; and*
c. *separated and buffered from residential areas.*

(Livable Oakville 6.16.1 a) b) c))

Service Facilities typically include, but are not limited to, the following:

- refuse storage, compaction and collection areas
- loading areas and delivery docks
- outdoor product/material storage areas
- large vehicle parking areas
- snow storage areas
- air handling equipment and vents
- storage tanks and containers
- utility areas (transformers, meters, ducting, etc.)
- exterior lighting

In this section, broad standards are described, related to locating and configuring service facility areas, and are followed by additional standards associated with specific facility types.

Of note, site plan approval by Development Engineering is one of the general prerequisites prior to the issuance of a Building Permit. Additional details on and standards for Site Plan Development may be found in Section 6.0 of Development Engineering Procedures & Guidelines Manual.

Provincial regulation:

… a municipality may require the owner of the land … provide to the satisfaction of and at no expense to the municipality …

… off street vehicular loading and parking facilities … *(Planning Act S. 41 (7)(a)3)*

… facilities for the lighting, including floodlighting, of the land or of any buildings or structures thereon. *(Planning Act S. 41 (7)(a)5.)*

… vaults, central storage and collection areas and other facilities and enclosures for the storage of garbage and other waste material. *(Planning Act S. 41 (7)(a)7.)*

Regional guidelines:

For Regional service facilities standards refer to Halton Region's 'Development Design Guidelines for Source Separation of Solid Waste'

4.1 Locating and Configuring Facilities

1. Where feasible and functional, facilities are recommended to be consolidated into a multi-functional area(s) on the site.

2. Facilities should be appropriately sized to accommodate and contain the range of functions that will occur to prevent user conflicts and/or overflow or impacts onto adjacent areas of the site or beyond.

3. Where feasible and functional, the distance that vehicles are required to backup at servicing facilities should be minimized to reduce the potential disturbance from auditory backup alarms. All collection should be in a forward motion, refer to Halton Region guidelines for more information.

4. Facilities, where required and proposed, should:
   a. be integrated into the overall site design to maximize service functionality and to minimize impacts on site users
   b. be positioned in areas on the site with low visibility from the public realm
   c. be designed to accommodate all associated vehicular servicing and maneuvering within the site
   d. be adequately separated and buffered from adjacent sensitive uses
   e. have collection points for waste that are accessible to all residents/occupants and do not hinder residents from participating in the recyclable materials and organic waste programs and comply with Ontario's Accessibility for Ontarians with Disabilities Act

5. Facilities should not be located in front or flankage yards, along building facades facing the street, public realm or sensitive land use, or within view of main building entrances, customer/visitor parking areas, bicycle parking areas and pedestrian areas.

Town policy:
Service and loading areas should be … located and oriented away from the general circulation of pedestrians and motor vehicles both on-site and in the public right-of-way; accessible but not visible from the public realm; and separated and buffered from residential areas. *(Livable Oakville 6.16.1 a) b) c))*

The visual and noise effects of activities associated with service and loading areas on the surrounding environment should be minimized by locating such areas behind buildings, erecting noise walls and fences, and screening with tree and shrub plantings. *(Livable Oakville 6.16.2)*

For all development in the Growth Areas and on lands adjacent to residential land uses, service and loading areas should be located internal to the building or appropriately screened from the public realm and, where required, from adjacent uses. *(Livable Oakville 6.16.3)*

Site and building services and utilities such as waste storage facilities, air handling equipment, hydro transformers and telecommunications equipment should be located within the rear yard or away from or screened from public streets, adjacent residential areas and other sensitive land uses. *(Livable Oakville 6.16.4)*

Town regulation:
Zoning By-law 2014-014
Zoning By-law 2009-189

Related documents:
For a complete listing of related documents and links, refer to Section 1.5

4.2 Refuse Storage, Compaction and Collection Areas

The following standards apply to all properties in the Town. Where waste is to be collected by Halton Region, or could be collected by Halton Region in the future, the following standards must also be applied in conjunction with the appropriate sections of Halton Region's Development Design Guidelines for Source Separation of Solid Waste: section 1.9 contains storage and internal handling requirements, section 2.3 contains waste collection standards for multi-residential apartment buildings, and section 3.0 contains standards for waste collection from industrial, commercial and institutional developments.

1. Within specific zones (as identified in ZBL 2014-014 s.4.7 and NOZBL 2009-189 s. 4.23), refuse compaction and storage areas ('garbage containment') shall be located within a main or accessory building(s) or fully enclosed structure on site. The intent is to mitigate odour and pest impacts on the subject site, adjacent sites and public realm.

2. Where refuse storage and compaction inside a building or structure is not a zoning requirement and is not feasible, the following alternative design options for locating the facility(s) should be utilized (listed based on greatest mitigation of potential impacts):
   a. facility directly abutting the building it serves and fully screened by an extension of the main building wall that incorporates the same materials as the main building facade
   b. facility located adjacent to the building it serves and fully screened with an opaque enclosure that complements the materials of the nearby main building
   c. facility located discreetly in the rear yard with an opaque enclosure that complements the materials of the main building(s)

Wing wall matching building façade effectively screens waste enclosure (4.2.2)

3. The enclosure walls of the facility should be comprised of sturdy, durable, and high quality materials (such as decorative block, brick, or stone) that are compatible with the design and materials of the main building(s). The enclosure walls should extend a minimum of 500mm above the height of the collection bin(s).

4. Access doors to the enclosure should be oriented away from direct view from the public realm. The doors/gates should have industrial quality hinges and closures to withstand frequent use and climate fluctuations. Where storage areas are located within a building, installation of roll-up doors are recommended.

4.3 Loading Areas and Outside Product/Material Storage Areas

1. Facilities should be fully screened to reduce visual and auditory intrusion on the public realm and surrounding users. Screening for these facilities should be designed with:
   a. the overall height of the screening exceeding the height of the vehicles, containers, and materials confined and operating within the area
   b. durable and quality materials that are selected based on the type of facilities being screened and the acoustic control properties required
   c. dense, year-round landscaping incorporated between the screening treatment and the public right-of-way to provide additional screening and noise buffering for the facilities

Loading areas with screening sufficient to buffer use (4.3.1)

4.4 Snow Storage Areas

The storage of snow must be considered and addressed in order to achieve a site design that functions well year round and to minimize potential negative impacts to soft landscape features and to neighbouring properties.

1. Snow should not be placed or stored in a manner that may damage private or public property, including, but not limited to, trees, hedges, shrubs and other groundcover, walls and other structures, and fencing.

2. The storage of snow should be accommodated within the site. Where and when there is insufficient on-site snow storage, all snow cleared from hard surface areas must be removed from the site and is the sole responsibility of the owners/tenants.

3. The size of a designated snow storage area or areas should be equal to 15%, at a minimum, of all hard surface areas on the site, including access ramps and driveways, parking and loading areas, drive aisles, and pedestrian areas. Each snow storage area should be a minimum of 4.5 m by 1.5 m.

4. Wherever possible, designated snow storage areas should be located in close proximity to catch basins to facilitate drainage and to prevent ice formation due to freezing of run-off.

5. Snow storage should not occur upon/within:
   a. any barrier free parking space
   b. any parking spaces, drive aisles or landscape areas, as required by Town of Oakville Zoning By-laws, as amended
   c. exterior paths of travel
   d. municipal rights of way, adjacent publically-owned lands and/or private property
   e. immediate vicinity of vehicular and pedestrian site access points, including emergency vehicular entrances
   f. fire hydrants
   g. stormwater management features, such as ponds, swales, etc.
   h. a 1.5 m radius of any existing or proposed tree
   i. other on-site locations with configurations or attributes that may not tolerate the storage of snow

Designated snow storage area located outside of required soft landscape areas and required parking spaces (4.4.5)

6. Snow storage areas located on soft landscaping, should only contain sod or plant material that dies back annually.

7. Trees and soft landscape areas should be protected from damage caused by typical snow plowing operations by:
   a. providing continuous 150 mm high barrier curb where soft landscape area abuts vehicular hard surfaces
   b. providing a minimum setback of 1.5 m between trees and vehicular hard surfaces
   c. providing additional protection measures for trees that, due to site constraints, are located in close proximity to snow storage areas

      It is recommended the additional protection consists of a solid bollard, at least 1.2 m in height, appropriately positioned between the tree and the vehicular hard surface area.

      Other protection measures will be considered provided they are visible to snow plow operators and robust to withstand typical snow plowing operations. Barriers should be aesthetically pleasing and compatible with other site elements and activities.

8. Incorporating shrub planting beds in lieu of sod is recommended in soft landscape areas where snow storage is not appropriate.

9. During winter months, the boundaries of designated snow storage areas should be identified with markers that are installed and visible during winter conditions.

4.5 Exterior Lighting

Site and building lighting should provide effective and safe night-time visibility and orientation for pedestrian and motorist circulation, while minimizing glare and light intrusion onto adjacent private properties, public lands and public rights-of-way.

'Exterior Lighting' is defined as lighting equipment installed within the property boundary and outside building envelopes, whether attached to poles, buildings, structures, the ground, or any other location and including any associated lighting control equipment.

Site lighting

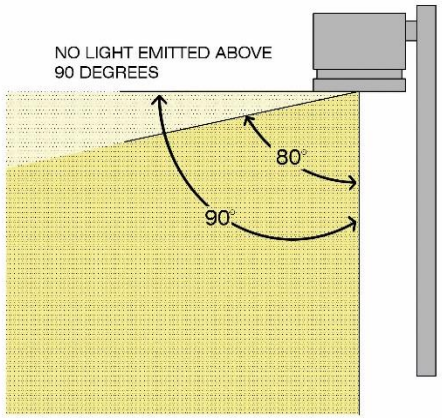
1. All exterior lighting fixtures shall be full cut-off to direct illumination downward and dark sky compliant to reduce light pollution, sky glare and light trespass onto neighbouring properties.

2. All lighting fixtures, whether mounted on poles, building walls, roofs, and under canopies, should be shielded and the refractor not visible, from a horizontal plane, to abutting public rights of way, residential areas and other sensitive land uses.

3. Light shall not be broadcast directly onto an abutting property.

4. All lighting fixtures located within 15.0 m of a residential or sensitive use property are recommended to be mounted no higher than 3.5 m from the surrounding grade.

Examples of full cut-off light fixtures (4.5.1)



Full cut-off beyond 90 degrees (4.5.1)

Town policy:

Lighting levels shall be appropriate for the size, character and function of buildings and sites. *(Livable Oakville 6.14.1)*

Appropriately-scaled pedestrian lighting should be provided at building entrances, pedestrian walkways, steps and ramps, amenity areas, transit stops, parking areas and other features. *(Livable Oakville 6.14.2)*

All building and site lighting shall be mitigated at the source to minimize impact on adjacent properties and public roads. *(Livable Oakville 6.14.3)*

Outdoor lighting fixtures shall direct light away from the night sky. Energy efficient outdoor lighting fixtures are encouraged. *(Livable Oakville 6.14.4)*

Incorporating subtle accent lighting on prominent buildings, monuments and other built features to accentuate civic and architectural design is encouraged. *(Livable Oakville 6.14.5)*

Town regulation:

***Public Nuisance By-law 2007-143*, as amended**

Related documents:

For a complete listing of related documents and links, refer to Section 1.5

5. Over-illuminating the site and up-illuminating buildings and structures is not recommended.

6. The location of lighting fixtures should not conflict with existing or proposed vegetation and above-and below-ground utilities.

Sustainability features

7. Energy efficient luminaires, off-grid powered fixtures, and greener power sources are recommended to achieve reductions in energy consumption.

8. Where appropriate and practical, automated controls (timers, photo cells, sensors) are recommended to shut off or dim illumination levels of exterior fixtures when building(s) or portions of the site are not in use to reduce overall energy consumption and eliminate unnecessary lighting.

9. 'White light' producing luminaires (metal halide, incandescent, fluorescent, LED) are recommended to provide more accurate colour rendition and crisper detail.

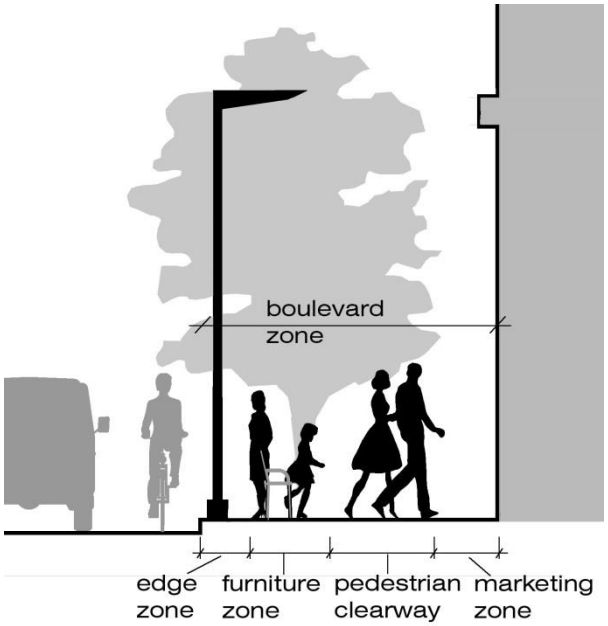
5.0 Streetscape Standards

Streetscape is the design quality of a street, the visual effect of all of its components set against the context of the built form and landscape that frame it, give it scale, and provide varying degrees of enclosure.

(Section 2.2 of ***LbDM – Urban Design Direction for Oakville***)

The standards contained within this section are intended to provide direction for developing a Streetscape Plan for the public realm when streetscape enhancement work and/or boulevard remediation is required in conjunction with a development application and in the absence of a streetscape master plan. The standards are focused on the treatment of the boulevard, predominantly the 'pedestrian realm', and do not provide direction for vehicle and bicycle lanes, on-street parking and commercial loading spaces/zones.

These standards are intended as a starting point for the streetscape design by identifying expectations for boulevard design treatments. Any streetscaping design proposed shall meet the minimum engineering requirements of Development Engineering and Engineering and Construction and any criteria of Planning and Parks and Open Space prior to approval.



Typical zones comprising the pedestrian realm

The proposed Streetscape Plan will be reviewed, modified and signed-off by various Town departments, and Regional staff depending on jurisdiction.

Provincial regulation:

Drawings showing … the sustainable design elements on any adjoining highway under a municipality's jurisdiction, including without limitation trees, shrubs, hedges, planting or other ground cover, permeable paving materials, street furniture, curb ramps, waste and recycling containers and bicycle parking facilities … *(Planning Act S. 41 (4)2.(e))*

Town policy:

The creation of new streetscapes and improvements to existing streetscapes by the Town shall be consistent with the process outlined in the Streetscape Strategy (February 2014), as amended. *(Livable Oakville 6.4.4)*

Related documents:

For a complete listing of related documents and links, refer to Section 1.5

- ***Downtown Transportation and Streetscape Master Plan (2015)***
- ***Old Bronte Road / Khalsa Gate Streetscape Plan (2012)***
- **Municipal Outdoor Lighting Standards (2011)**
- ***Uptown Core Review (2009) Streetscape Master Plan (need to get proper name)***
- ***Streetscape Strategy document***

5.1 Trees

1. Every effort should be made to retain town-owned trees through alternative design and/or technical solutions.

2. The relocation or removal of town-owned trees, as a result of construction activities, requires approval from the Town. If tree relocation is approved, the applicant shall assume all relocation and establishment costs. If tree removal is approved, the applicant shall assume all costs involved and undertake in accordance with Tree Protection During Construction Procedure EN-TRE-001-001.

3. Street trees should be installed in open tree planting beds where possible and located within the planting zone of the boulevard (typically located between the curb zone and the pedestrian path of travel). Tree planting beds should incorporate a minimum soil depth of 750 mm.

4. Street tree plantings shall incorporate a minimum of 30.0 m^3 of good quality topsoil. In planting beds with less than 30.0 m^3 of quality topsoil, break-out zones shall be incorporated to allow the roots to access additional soil. Break-out zones shall be a minimum of 3.0 m in width by 625 mm deep, and constructed with engineered soil (including 19mm – 39mm unwashed crushed non-recycled aggregate) or soil cells.

5. Where tree soil volume is located beneath hard surface paving, appropriate enhanced rooting environment techniques, such as engineered soils or silva cells shall be provided.

6. Street trees are recommended to be setback a minimum of 1.5 m from the back of curb to avoid potential damage from vehicles and snow clearing activities.

7. The tree rooting environment located below the hard surface paving are recommended to be enhanced with passive irrigation systems, such as permeable paving, trench drains, or diverting catch basin stormwater.

8. Above and below grade utilities parallel to the site frontage should be located outside of the boulevard planting zone where possible.

Town policy:

Streetscapes shall … enhance the local context and create a sense of identity; promote a pedestrian-oriented environment that is safe, attractive and barrier-free; provide well designed and coordinated tree planting, landscaping, lighting and furnishings … provide cohesion and seamless transitions between the public and private realms. *(Livable Oakville 6.4.1 a) b) c) d) e))*

New development should contribute to the creation of a cohesive streetscape … where applicable; incorporating sustainable design elements, such as trees, plantings, furnishings, lighting, etc. ... *(Livable Oakville 6.4.2 d) e) f) g))*

Above-ground utilities should be grouped to minimize visual and physical intrusions on the streetscape. Locating utilities underground is encouraged. *(Livable Oakville 6.4.3)*

Town regulation:

EN-TRE-001-001

Related documents:

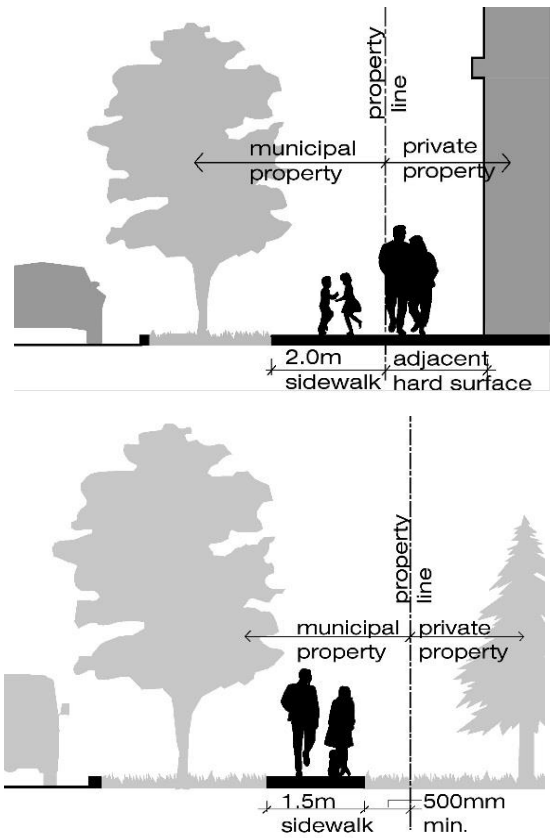
For a complete listing of related documents and links, refer to Section 1.5

5.2 Sidewalk and Hard Surfaces

1. The municipal sidewalk shall be a minimum width of 1.5 m. Where the abutting private property incorporates a soft landscaping treatment, the sidewalk should be offset from the property line by a minimum of 500 mm. Where the abutting private property incorporates a hard surface treatment, the minimum width of the sidewalk should be increased to 2.0 m and located abutting the property line with no offset**.**

2. The municipal sidewalk (and/or multi-use trail, where provided) shall be continuously level at the approach and crossing of street access driveway entrances and not interrupted by changes in grade or curbing (refer to OPSD 350.010). In instances where minimal to no boulevard width is available, the installation of a partially depressed or fully depressed walk may be deemed acceptable (refer to OPSD 310.050).

3. The municipal sidewalk should be a minimum thickness of 130 mm and a minimum thickness of 180 mm at street access driveway entrances. Concrete sidewalks at driveway entrances shall incorporate four 15 M rebar, spaced 300 mm apart, through the driveway and extending 1.0 m beyond on either side.



Typical location of sidewalk within municipal right-of-way (5.2.1)

4. The municipal sidewalk (and/or multi-use trail, where provided) should have a maximum running slope of 5% (20:1). The slope may be increased but shall not be steeper than the slope of the abutting roadway.

Town policy:

Streetscapes shall … enhance the local context and create a sense of identity; promote a pedestrian-oriented environment that is safe, attractive and barrier-free; provide well designed and coordinated tree planting, landscaping, lighting and furnishings; provide wayfinding and navigational information; and provide cohesion and seamless transitions between the public and private realms. *(Livable Oakville 6.4.1 a) b) c) d) e))*

New development should contribute to the creation of a cohesive streetscape by … connecting active uses to the public realm to enhance the liveliness and vibrancy of the street, where applicable; incorporating sustainable design elements, such as trees, plantings, furnishings, lighting, etc.; coordinating improvements in building setback areas to create transitions from the public to private realms; and improving the visibility and prominence of and access to unique natural, heritage, and built features. *(Livable Oakville 6.4.2 d) e) f) g))*

Related documents:

For a complete listing of related documents and links, refer to Section 1.5

5. The municipal sidewalk (and/or multi-use trail, where provided) should have a cross slope of 2% (50:1). However, the maximum slope may be 4% (25:1) where deemed appropriate, such as at street access driveway entrances.

6. Unit paving within public right-of-way, where deemed appropriate, shall be installed on a concrete base, except when installed over a paving stabilizing system such as soil cells.

7. Private walkways shall meet flush with the municipal sidewalk. Pouring the walkway and sidewalk in a single pour is recommended; alternatively the walkway shall be connected to the sidewalk with dowels to avoid settlement.

5.3 Street Furniture

Street furniture, such as benches, bicycle racks, waste receptacles, light poles, and bollards, adds to the design and functionality of streets and other outdoor public spaces.

These standards should also be applied for the selection and placement of site furnishings in play spaces and amenity areas (section 2.7 of this document)

1. Street furniture should be selected based on durability, ease of maintenance, compatibility with local climate, and availability for furniture replacement. The design, colours and materials of street furniture should represent a coordinated scheme.

2. Street furniture should be placed within the furnishing and planting zone, typically located between the curb and the pedestrian path of travel. Street furniture may be placed within the frontage and marketing zone, provided ample space is available and the pedestrian exterior path of travel remains constant and unaffected.

3. The placement of street furniture shall not impede the pedestrian exterior path of travel, access for emergency and maintenance vehicles, and snow removal operations.

4. Seating, waste receptacles and bicycle rack areas should be sited and maintained to be functional year round.

5. Waste receptacles should be located at regular intervals along the streetscape and in high-volume pedestrian areas.

Street trees and furnishings located between curb and sidewalk, providing unimpeded pedestrian clearway (5.3.2 & 5.3.3)

Town policy:

Streetscapes shall … enhance the local context and create a sense of identity; promote a pedestrian-oriented environment that is safe, attractive and barrier-free; provide well designed and coordinated tree planting, landscaping, lighting and furnishings; provide wayfinding and navigational information; and provide cohesion and seamless transitions between the public and private realms. *(Livable Oakville 6.4.1 a) b) c) d) e))*

New development should contribute to the creation of a cohesive streetscape by … connecting active uses to the public realm to enhance the liveliness and vibrancy of the street, where applicable; incorporating sustainable design elements, such as trees, plantings, furnishings, lighting, etc.; coordinating improvements in building setback areas to create transitions from the public to private realms; and improving the visibility and prominence of and access to unique natural, heritage, and built features. *(Livable Oakville 6.4.2 d) e) f) g))*

Above-ground utilities should be grouped to minimize visual and physical intrusions on the streetscape. Locating utilities underground is encouraged. *(Livable Oakville 6.4.3)*

Related documents:

For a complete listing of related documents and links, refer to Section 1.5