

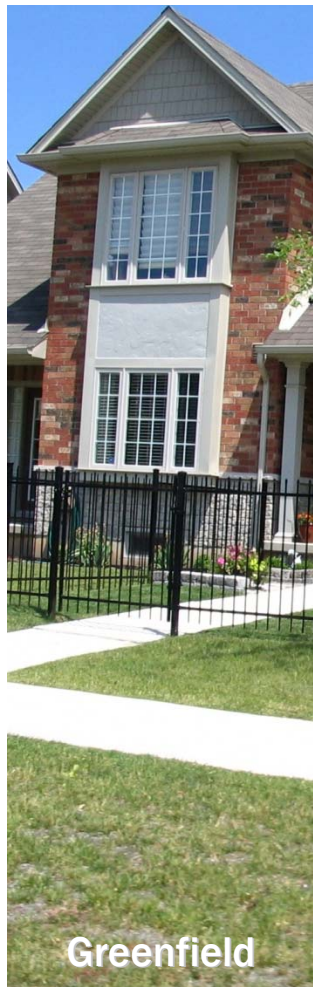


Town of The Blue Mountains

Community Design Guidelines



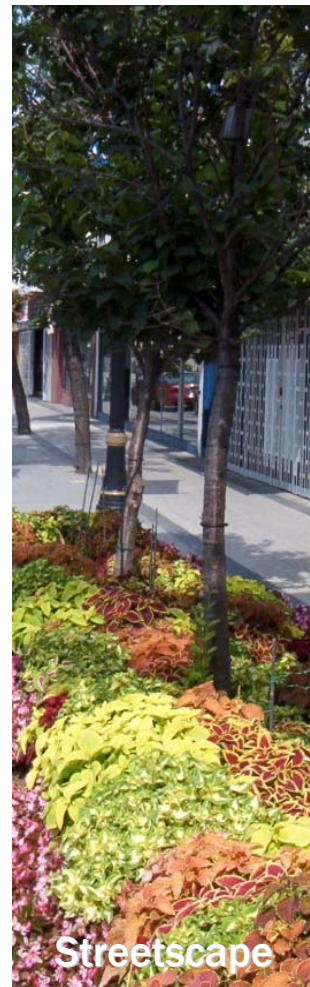
Commercial



Greenfield



Industrial



Streetscape



Sustainability

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1. Introduction

1.1 Purpose

Urban design is a key component of improving the quality of the built environment within the Town. It is an important planning tool used to assist with maintaining and enhancing a recognizable image for the Town, enhance the quality of life, and promote greater economic vitality. Given this importance, the Community Design Guidelines are meant to be a design tool that provides “mid-level” guidance for design, operating between the general policies, principles and objectives of the Town of The Blue Mountains Official Plan and the specific details and plans of the development review process. These Community Design Guidelines express the design expectations for development review and are intended to facilitate high quality design within the Town.

The Design Guidelines are intended to be a flexible guide for the design and development of various forms of development in different situations and areas throughout the Town. They are not written as policy, and are not meant to be a design “checklist”, rather they are to be used on a case-by-case basis, recognizing the different context and character of the various areas of the Town. They are intended to be used by a number of different participants in the design and development process, as well as the design of public buildings and public spaces, including Town staff when reviewing planning applications and when designing municipal projects; developers and consultants in designing new development and redevelopment; and, landowners and business owners in undertaking site and building improvements.

1.2 Organization

The Design Guidelines are organized into five topics, each with a different intent, objectives, and applicability:

- Commercial Design Guidelines (Section 2);
- Industrial Design Guidelines (Section 3);
- Greenfield Design Guidelines (Section 4);
- Streetscape Design Guidelines (Section 5); and
- Sustainability Design Guidelines (Section 6).

The Design Guidelines use various phrases or terms such as heritage block, heritage area or core area. The phrases or terms should be interpreted liberally versus having specific regard to an Act, Regulation or other definition that may be contained in any municipal planning document.

1.3 How to use the Guidelines

The Design Guidelines apply to all properties within the Town of The Blue Mountains, depending on the nature of the development. They are meant to provide design guidance, with the understanding that they are to be applied on a case-by-case basis. They are not meant to be a “checklist”, in that every guideline applies, but rather that the specific situation of the particular building determines how they are to be applied. Furthermore, they are not meant to be used as “policies” or “regulations”, but rather as a guidance tool during the planning and design process. This document is intended to serve as a guide for development and redevelopment of land within the Town and, as such, it will be applied in a flexible fashion and not restrict creativity in design.

1.4 Application of the Guidelines

The Design Guidelines are intended to be used by the various participants involved in the planning and design process. Principally, there are several instances when the Design Guidelines would be applied:

- (1) By property owners and developers when planning and designing their projects and developments;
- (2) By the Town when reviewing applications for planning and development approvals;
- (3) By property and business owners when preparing, and by the Town when evaluating, applications for financial incentive programs that may be offered as part of a Community Improvement Plan; and
- (4) By the Town when undertaking streetscape improvement projects and other public projects throughout the municipality.

2. Commercial Design

There are numerous opportunities for intensification within the existing commercial areas of Craigleith, Thornbury and Clarksburg as well as opportunity for development in close proximity thereof. This range of opportunities spans from development on vacant properties, to redevelopment of underutilized properties and brownfield properties, to additions to existing buildings, to adaptive reuse of vacant buildings. Taking advantage of these opportunities will do much to improve the existing and future commercial areas of the Town.

The Commercial Design Guidelines are intended to guide the development review and approval process. These Guidelines may also be tied to financial incentive programs that may be offered by the Town through a Community Improvement Plan. The overall goal for commercial development is the continuation and extension of the form and character of the main street type development in the core areas of Thornbury and Clarksburg to other commercial area to ensure that new commercial development respects the cultural heritage of the community. This includes encouraging developments that are visually interesting, are appropriately scaled and massed, provide a strong street edge presence, have pedestrian-scaled façades, and are safe and functional.

The Commercial Development Guidelines contain a number of different elements that are generally associated with three different themes:

- Building Form (character and style, scale and proportions, orientation and siting);
- Façade Elements (materials, colour, storefront elements, awnings, upper storey windows, signage, roofline, and murals); and,
- Site Planning (parking, plantings, fences and walls, site lighting, fences and walls, service areas and equipment, and sidewalk patios).

Commercial Design Objectives:

1. A low-rise profile form of development characteristic of a main street environment.
2. A continuous building façade edge that frames the street and facilitates a strong pedestrian environment.
3. New buildings or additions that match the scale and massing of the historic main street environment.
4. Articulated and visually interesting façades for new buildings that complement rather than replicate the heritage main street environment.
5. A safe, secure and comfortable pedestrian environment for all users.
6. Green treatments that provide visual interest along the streetscape.
7. Inclusion of design treatments that are durable and easily maintained.
8. Provision of appropriate transitions between properties within and outside the downtown.
9. Minimization of the extent, visual appearance and impacts of parking and service areas.

2. Commercial Design

2.1 Character and Style

- a) Use building styles for new buildings that reflect the historic character and theme of the respective commercial area or, reflect the commercial character and theme of the community, and are a “main street” type with commercial or similarly active uses on the ground floor.
- b) Provide additional design emphasis for buildings located at street intersections, gateways or terminating views along visual corridors through façade treatments, architectural elements and materials appropriate for these locations.

2.2 Scale and Proportions

- a) For infill development or additions to buildings within the existing core areas align architectural elements with those of the adjacent building to ensure visual continuity.
- b) Clearly define the three façade zones on new buildings and additions to existing buildings through the use of horizontal elements such as sign bands, cornices, and projections.
- c) Design building widths to generally be between 7.5 metres to 15.0 metres.
- d) For new buildings wider than 15.0 metres, include a symmetrical and balanced pattern of bays, defined by vertical elements, to emphasize the individual units of the buildings.
- e) Delineate bays with vertical elements, such as changes in materials, building projections, columns, or other vertical architectural elements.
- f) For existing buildings in the “heritage block” of Thornbury, improve any building façades that are wider than 15.0 metres by dividing the larger façade through a symmetrical pattern of bays to emphasize the individual units of the building or divide a large single store’s façade.
- g) Design and situate new buildings to maximize the building frontage along the street, preferably up to 100% from side property line to side property where permissible, not including any frontage required for pedestrian connections, vehicle

access points or complementary urban design/landscape features.

- h) For corner sites, design buildings up to three storeys to punctuate and heighten these prominent locations.
- i) Where possible and practical considering the context and surrounding built form of the areas design buildings with a minimum height of two storeys and a maximum height of three storeys.
- j) For corner buildings located at street intersections, locate the tallest portion of the building along the street frontage to punctuate the street corner.
- k) Design the building with taller first floors (at least 4 metres) while still maintaining pedestrian scale.

Façade “Zones”:

Typically buildings found within traditional main street areas are generally comprised of three basic façade sections or zones:

- (a) **Storefront Zone:** the portion relating to the ground floor of the commercial building. The storefront contains the principal building entrance, the shop display windows, and signage elements of the commercial façade. The design of the storefront zone is important given it is the zone that most interacts with the pedestrian.
- (b) **Upper Façade Zone:** the portion above the storefront and below the roofline. The upper floor façade for taller buildings typically contains the largest area of the overall façade. Containing upper storey windows, the upper façade zone can contain a variety of horizontal and vertical architectural elements.
- (c) **Roofline Zone:** the portion located above the upper façade and is the smallest component of the façade in terms of area. The roofline plays an important role of “capping” the building

2. Commercial Design

2.3 Orientation and Siting

- a) Orient all buildings parallel to the street right-of-way so that they frame and animate the street and strengthen the street edge's definition.
- b) For corner sites, buildings can be angled at their corners facing the intersection provided an entrance is located at those corners.
- c) Site buildings as close to possible as the front property edge, ideally with a 1.0 metre setback, and a maximum setback of 3.0 metres.
- d) Within the core areas, set back new buildings and changes to existing buildings to align with the established setback of the immediately adjacent buildings.
- e) Use larger setbacks for increased pedestrian access or active outdoor use, such as patio space accessible from the inside of the building.
- f) Use any setback space between the street right-of-way edge (1.0 metre) and the building front (3.0 metres) for landscaped areas, amenity areas, seating opportunities, or display areas.
- g) Maximize north/south exposures where possible. North exposures provide glare-free, diffuse daylight to spaces, while south exposures allow for passive solar heating to occur.
- h) Couple south exposures with exterior shading elements to control excess heat gain and glare during the summer.



Precedent: small setbacks and high quality building materials provide a strong street presence.

2.4 Façade Materials

- a) Ensure the use of materials will not compete visually and will not overshadow the character of the commercial area as a whole.
- b) Use materials that are of high quality, durable, and easily maintainable.
- c) Ensure façade materials are complementary to one another and appropriate for the architectural style of the building.
- d) Limit the number of building façade materials, not including windows and door materials, generally to no more than 3 materials.
- e) Design publicly visible side and rear elevations in a similar fashion to the front elevation in terms of material use and treatment in relation to façade proportions and horizontal and vertical divisions.
- f) For new developments within the heritage areas, use traditional materials that are natural and local, preferably pressed brick but also natural rock/stone is acceptable.
- g) For new developments outside of the heritage areas, use base materials such as pressed brick; natural, local rock and stones; concrete, either poured or block; or plaster or stucco.
- h) Use other materials on the façade only as accent materials to complement the base materials, such as finished and painted wood trim, copper, or steel.
- i) Do not use the following as a base material: materials that mimic other materials ("faux" materials); aluminum or sheet metals; other siding systems; or non-local stone materials.
- j) When multiple building materials are used, make a change in material at the point of a recession/projection along the façade, on the inside corners of the recession/project. Along a single, flat building wall, define the change in materials with a pronounced expansion joint.
- k) If using bricks, ensure they are unglazed, earth tone in colour, and in a horizontal orientation. Mortar any brick and stone veneer and wrap around corners to give an appearance of structural function to minimize a "veneer" appearance.

2. Commercial Design

2.5 Colour

- a) Ensure colour selection considers the need to avoid “overcolouring”, in that a building’s architectural features, building signage, and overall character of the area stand out, and not solely the building colour.
- b) Use colours that are muted and soft, as compared to bold and bright. If used, bright/bold colours should only be used as accent colors on façade elements, such as window and door frames, building trim, sign bands and lettering, and other details.
- c) Limit base colours to no more than two, preferably for defining the vertical distinctions of the building (i.e. storefront versus upper storeys) if using more than one colour.
- d) Limit accent colours to two or three, selected to complement the base colours of the façade.
- e) When painting base materials, such as brick, if necessary, use a matte finish for paint.



▲ *Precedent: vibrant colours can be used sensitively and appropriately, in keeping with the character of the business.*

▼ *Precedent: traditional “main street” commercial elements provide the design cues for new developments.*



2.6 Storefront Elements

- a) Ensure that storefront elements are designed to perform the traditional functions of a storefront, including providing area for display space, allowing natural light into shops, and allowing visual communication between the interior of shops and the street.
- b) Design façades with a combination of traditional “main street” storefront elements, including display windows; window bases or “kickplates”; transom windows; and storefront cornices.
- c) Ensure no more than 50 percent of the storefront zone is transparent surfaces, either storefront windows or doors.
- d) Use transparent glass to provide clear views of storefront displays from the street and allow natural surveillance of the street and adjacent outdoor spaces.
- e) Ensure that vertical framing elements, such as building piers or columns, used on the storefront façade appear as “structural” elements for the upper storeys.
- f) Use recessed entrances and/or display windows, where desired, to accommodate outdoor sitting areas or display areas. Ensure the sides of recessed entrances have transparent surfaces to enhance comfort and visibility.

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- g) Ensure that vertical framing elements, such as building piers or columns, used on the storefront façade appear as “structural” elements for the upper storeys. Ensure these items are properly insulated (thermally broken) from the building to prevent cold-bridging and energy loss.
- h) Use vestibule sections in main entrances to serve as a transition from the exterior to the interior spaces. Vestibules should be minimally conditioned (max. 10°C); air-curtains should be avoided.
- i) Use storefront glazing systems that include double glazed insulated glazing units with a soft low-e coating, argon gas fill and a non-aluminum spacer. Frames should include a minimum 4mm thermal break.
- j) Ensure entrances are consistent with “universal design standards”, as they apply, to ensure safe and comfortable access for users of varying mobility needs.

2.7 Awnings

- a) Utilize awnings for a number of different functions, including weather protection and enhanced pedestrian comfort, additional opportunities for building signage, sunlight control entering storefront windows, and visual interest to the storefront façade.
- b) Size awnings to span the façade’s window openings and not entire façade. Ensure awnings do not dominate the storefront façade and diminish the effect of other architectural features.
- c) Limit the entire height of awnings to no more than two-thirds the depth of the awning and limit the front faces of awnings, the valance, to no more than 0.5 metres in height.
- d) Use awnings that are square or triangular in shape, rather than rounded or bubbled. Ensure all awnings on a building have a consistent pattern of size, shape, and placement.
- e) Mount awnings in the storefront zone of the façade, not in the upper façade zone. Ensure that

awnings do not cover storefront display windows, piers, columns, pilasters, clerestory windows, architectural expression lines or details.

- f) Use retractable awnings given they accommodate different seasons and weather patterns. Use fabric awning materials rather than synthetic materials, such as plastic or metal.
- g) Design awnings with shapes and colors that are compatible with and complement those of the façade and its signage.
- h) Use multiple awnings for larger building frontages rather than a single continuous awning. For multi-tenanted buildings, use colors or patterns to represent different businesses.



Precedent: awnings are added pedestrian amenities that contribute to a comfortable walking environment.

2.8 Upper Storey Windows

- a) Ensure that upper storey windows provide visual interest on a building’s upper portion and contribute to creating a high quality streetscape and animation of upper storeys.
- b) Utilize the general location, spacing, size, shape, divisions, and framing of windows in adjacent quality facades, where appropriate.
- c) Space upper storey windows in a manner that establishes a consistent rhythm.

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- d) Use window systems that include double glazed insulated glazing units with a soft low-e coating, argon gas fill and a non-aluminum spacer.
- e) Ensure aluminum frames include a minimum 4 mm thermal break. Alternatives to aluminum (e.g., fiberglass, wood) should be considered.
- f) Use windows that function and can open to encourage natural ventilation. Awning windows are preferred to double-hung/sliding windows as they provide security benefits as well as better performance in terms of air leakage and protection during inclement weather.
- g) Use transparent glass surfaces for upper storey windows.
- h) Ensure shutters fit the size of the window opening, and preferably are functional in nature.
- i) Incorporate window openings that have distinct lintels and sills to provide visual interest on the upper storeys.
- j) Orient upper storey window openings to have a vertical, rectangular orientation.
- k) Recess upper storey windows into the wall surface to assist in articulating the facade and creating interesting shadow patterns.
- l) Include window sills with drip-edges to promote long-term system durability.



Precedent: a regular pattern of upper storey windows provides a consistent rhythm in the upper façade of a building.

Precedent: properly sized and scaled fascia signs using appropriate materials can have a big impact on the quality of a streetscape.



2.9 Signage

2.9.1 Fascia signs

- a) Ensure fascia signage balances between the needs of pedestrians and motorists.
- b) Utilize durable, weatherproof materials that complement those of the building façade. Do not use internally lit, neon or plastic materials.
- c) Avoid obscuring or covering façade features, including windows, doors, storefronts, building entrances, cornices, and columns.
- d) Locate fascia signage only on facades that have building entrances. Design any building signage associated with secondary building entrances relative to the scale of the primary fascia sign.
- e) Use simple lettering typefaces that are clear and easy-to-read and complement with graphics or symbols that relate to the business function.
- f) Use lettering colours that provide an accent to the overall façade and that enhance readability of the sign relative to the base colour of the sign.
- g) Use lettering and images on signs that provide depth to the sign, such as raised lettering or individually cut or carved lettering.
- h) Attach fascia signage so that it is parallel and flush with the building wall and is not angled from the façade.

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2.9.2 Projecting signs

- a) Design projecting signs to complement the form, colours, and lettering of the primary wall signage.
- b) Use simple lettering typefaces that are clear and easy-to-read and complement with images relating to the business function.
- c) Limit the number of projecting signs to one per façade, mounted near the storefront entrance. For wider façades with multiple entrances, one projecting sign per storefront entrance on the façade may be appropriate.
- d) Where lighting of projecting signs is desired, use externally illumination mounted lights to illuminate letters, images, and symbols.
- e) Use mounting hardware for projecting signage that is attractive, durable, and forms part of the sign design, either simple or more decorative.



▲ *Precedent: projecting signs are appropriate and simple ways of adding character to a commercial façade.*

2.9.3 Awning signs

- a) Design the lettering and colours to be consistent with the primary building signage style.
- b) Use a simple lettering typeface, similar to the style of the primary building signage, that is clear and easy-to-read and that is sized to the pedestrian scale.

▼ *Precedent: properly designed window signage can provide additional customer information while still allowing visibility into a shop or business.*



2.9.4 Window signs

- a) Do not use window signage on windows with low-e coatings.
- b) Use windows signs in the storefront zone and not in upper façade windows.
- c) Limit the surface area of windows signs to no more than 25 percent of a window's surface area and ensure they do not obscure the display of goods and viewlines into the building.
- d) Use etched or painted glass for signage on the windows or signs that are attached to the glass or displayed directly behind it. Materials and paint should be durable and fade resistant to ensure their quality over time.
- e) Use a simple lettering typeface, similar to the style of the primary building signage, that is clear and easy-to-read and that is sized to the pedestrian scale.
- f) Use lettering typefaces and colours that match or complement that of the primary building signage.

2.9.5 Portable signs

- a) Limit portable signs to sandwich boards or A-frame styles of signs.

2. Commercial Design

- b) Consider the location of portable signs to avoid the “cluttering” of the streetscape.
- c) Utilize durable, weatherproof materials that complement those of the building façade. Do not use internally lit, neon or plastic materials.
- d) Design projecting signs to complement the form, colours, and lettering of the business’ primary store signage.
- e) Locate portable signs so that they are outside of the primary pedestrian route in front of stores, with a minimum clearance of 1.2 metres.
- f) Ensure portable signs are only used during the hours of operation of the business.



▲ *Precedent: proper design and location for portable signs is important to contribute visual interest to the street, while avoiding any pedestrian conflicts.*

2.9.6 Ground signs

- a) Utilize durable, weatherproof, high quality materials that complement those of the façade. Do not use internally lit, neon or plastic materials.
 - b) Use externally mounted light to illuminate ground signs. Do not use any neon or fluorescent lighting for illumination or accent around or on the sign.
 - c) Use colours that are consistent with the primary building signage style.
- d) Use a simple lettering typeface, similar to the style of the primary building signage, that is clear and easy-to-read and sized to the pedestrian scale.

2.10 Roofline

- a) Design rooflines to match or complement existing roof lines in the area, either immediately adjacent or elsewhere on the block.
- b) Ensure roofline forms, slopes, details, materials, and overall design is compatible with the building’s overall style and character.
- c) Use a flat roof with a parapet or cornice or a sloped roof combined with a roof parapet as the preferred roofline style for new development.
- d) Ensure any visible gutters, downspouts or vents match the trim or body color of the façade.
- e) Use appropriate roof materials that are durable and fit with the overall façade character.
- f) Use a cornice or parapet to define the top of the facade. Coordinate roofline cornices with those distinguishing the storefront façade.
- g) Locate mechanical equipment and servicing away from the roofline edge, or alternatively, screen such equipment with features, such as parapets.
- h) Ensure parapet constructions include a continuous layer of insulation tying the roof and wall assemblies together.



▲ *Precedent: roofline details are important for “capping” the top of a commercial building’s façade.*

2. Commercial Design

Precedent: well-designed murals are effective tools for adding visual interest and reflecting a community's historic roots and character.



2.11 Murals

- a) Ensure that any murals are public art completed by a qualified professional artist, and are not commercial advertising of any sort. Ensure the community is involved in the design of murals as much as possible.
- b) Use themes that are related to the particular village's history, tourism, features, character, or any artistic expression.
- c) Locate murals only on exterior walls that do not contain the primary building entrance.
- d) Ensure that the colours used are consistent with the building and do not overshadow the respective building or the surrounding area.
- e) Properly prepare surfaces for the mural prior to installation including cleaning, scraping debris, and filling holes to ensure a high quality and durable finish.
- f) Use high quality, durable, graffiti-resistant, and weather resistant materials for murals.
- g) Design murals so that they are consistent with the building style and do not obscure the building's architectural details.
- h) Minimize the amount of the surface area of the mural that is dedicated to acknowledging the mural's sponsor, if applicable.
- i) Light murals, where appropriate, with fixtures consistent with the primary building lighting to provide emphasis at night.

2.12 Parking

- a) Locate the parking for any new developments at the rear of the development and not between the front or side of a building and abutting public street right-of-way.
- b) Locate the access to an off-street surface parking lot from the secondary street, whenever possible, particularly where parking areas for individual properties can be coordinated.
- c) Where parking in the front yard is unavoidable or not practical given the context of the surrounding areas, screen such parking areas with fences/walls and landscaping to minimize the visual impact on the streetscape.
- d) For longer blocks or properties, create central pedestrian connections that connect parking areas to building entrances. Design such connections with weather-protection and tree plantings, where feasible and where necessary.
- e) Orient parking aisles to be perpendicular to the building's primary entrance in order to minimize the number of potential pedestrian-vehicle movement conflicts.
- f) Coordinate parking areas across several properties, or within one larger property, as much as possible particularly regarding access in order to limit the number of interruptions of the streetscape and public sidewalks.
- g) Divide larger off-street parking areas into smaller parking areas through the use of landscaped islands to minimize the visual extent of the paved area.
- h) Ensure pedestrian routes through off-street parking areas are safe, convenient and clearly demarcated. Ensure they are a similar size to a public sidewalk, are barrier-free, and are served by adjacent shade trees and pedestrian lighting.
- i) Where possible, provide shade trees around, and throughout parking areas to maximize shaded hard surfaces.
- j) Where possible and practical, do not exceed the zoning minimum number of parking spaces.

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- k) Provide preferred parking spaces for carpool and carshare vehicles.

2.13 Drive-Through Facilities

- a) Where ever possible and practical, particularly when the site is not within a Highway Commercial area, locate drive-through stacking and pick-up lanes so that they are not located between the face of the building and a public street right-of-way so as to minimize the impact on the streetscape and to ensure a positive contribution to the pedestrian environment.
- b) Landscape the drive-through and stacking lanes to soften the visual elements.
- c) Locate drive-through facilities such that they minimize the visual, traffic and noise impacts on adjacent residential development.

2.14 Plantings

- a) Landscape and regularly maintain the following areas on a site: yards that are visible from streets, sidewalks, and/or other public spaces; yards that are abutting adjacent residential properties; common outdoor areas within the site; and surface parking lots.
- b) Use tree and shrub species that are native, low maintenance, and salt tolerant.
- c) Plant trees along sidewalks, walkways, and near parking spaces, that provide a canopy of shade in the summer and that do not drop heavy cones, sap, fruit, and seedlings.
- d) Ensure trees have an adequately sized planting area based on the amount of room needed for tree roots. Structural soil, root barriers, tree guards, and tree grates are encouraged for trees that are planted near sidewalks and walkways.
- e) Provide seasonal interest through the use of coniferous and deciduous plant materials throughout the site.
- f) Maintain and trim shrubs and perennials adjacent to the public right-of-way so that they are no more

than 0.9 metres in height to preserve sight lines into and from the site.

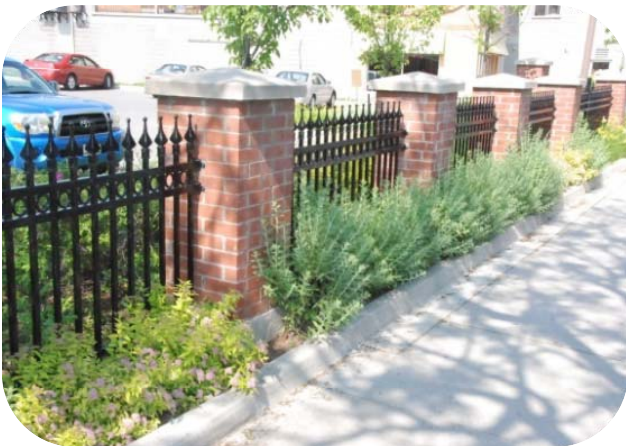
- g) Ensure raised planters are at least 0.4 metres in height to promote informal seating areas along a street frontage. Use high quality materials for raised planters that complement the character and style of the development.
- h) Ensure that any screening methods for parking be well-maintained to avoid unsightly conditions that negatively impact the pedestrian safety and the area's character.
- i) Use flowerpots and planter boxes that are compatible with the architecture style of the building to add colour and variety to the landscape. Potential locations include overhangs, columns or posts, balconies, and below windows.
- j) For parking lots, aim to plant one tree planted per four parking spaces. Orient trees to provide maximum shade during summer conditions (i.e. on south side of spaces).
- k) Use deciduous trees on the south side of buildings to provide shade in summer and allow passive solar heating in the summer; coniferous trees on east and west facades provide protection from glare caused by low-level sun.
- l) Use tree-pits and planter boxes as part of the storm water management strategy. Allow runoff from buildings to drain to these areas to be infiltrated/consumed by plantings.



2. Commercial Design

2.15 Fences and Walls

- a) Use a landscaped area of plantings in conjunction with walls or fences to provide separation of off-street parking areas from adjacent land uses or establishments.
- b) Ensure fences and walls are compatible with the architecture of the building on the site.
- c) Limit any pergolas or entrance arbors on fences/walls to 2.5 metres in height.
- d) Use fences and walls that are articulated with regularly spaced posts, changing the height, and using different building materials at the base, posts, or the cap of the fence or wall.
- e) Use materials such as wood, natural stone or brick (unpainted), wrought iron, concrete masonry, or similar materials.
- f) When painted, ensure fence and wall colours match or complement the color of the building.



Precedent: low, decorative fences that match the architecture of the associated development can effectively separate a parking lot from the street edge.

2.16 Site Lighting

- a) Ensure that buildings and sites are not over-lit in order to maintain a desirable nighttime setting and environment.
- b) When comprehensively planning lighting for a site, balance the need for safety and security with the

reduction of energy consumption and nuisance impacts.

- c) Light areas on the site used by pedestrians at night, including surface parking lots; building entrances; sidewalks and walkways; garbage disposal areas; and other areas.
- d) Locate and direct building and sign lighting to light the intended area of illumination and limit off-site glare impacts on adjacent buildings or properties.
- e) Incorporate lighting at regular intervals to prevent the creation of light and dark pockets to ensure visibility into and out from all areas on the site requiring lighting.
- f) Design lighting poles and fixtures to be consistent with and complement the architecture of the building and the site.
- g) Direct light downward wherever possible to avoid spillover to surrounding areas.
- h) Provide a photometric plot for the lighting design to confirm light spillage is minimized.
- i) Use pedestrian-scaled lighting, such as low profile fixtures, along pedestrian routes through an off-street parking area.
- j) Coordinate the location of lighting and lighting fixtures with pedestrian routes and plantings.
- k) Limit lighting power requirements (measured in watts per square metre) for parking and walk areas to a level that is 80% below the most current version of ASHRAE Standard 90.1; limit lighting for other façade and landscape areas to 50% below Standard 90.1.

2.17 Service Areas and Equipment

- a) Locate building utility meters in less visible locations such as the rear of building, or screen them with an appropriate design that complements the overall façade building design.
- b) Locate service areas, including areas for loading/unloading and garbage, in locations that are not directly visible from a public street, such as in the rear yard of a building or in a properly screened portion of the side yard.

2. Commercial Design

- c) Coordinate and share service areas between buildings or within developments as much possible to prevent disruptions to vehicular or pedestrian flows.
- d) Ensure such service areas are screened appropriately, through landscape materials, fencing or building design, from the views of adjacent properties or from the upper stories of the building to which they serve.
- e) Design any screening structures so that they complement the character form, materials, and colours of the building.
- f) Locate the accesses to service areas from secondary streets or the rear of buildings wherever possible to reduce the number of driveways.
- g) Site all rooftop equipment, such as HVAC equipment or green energy infrastructure, so that they are setback from the roof edge and/or screened through roofline design elements wherever possible.
- h) Include adequate space waste management areas to accommodate collection containers for general waste, recyclables and organics.
- e) Ensure that any awnings associated with the café/patio do not extend past the extent of the projection into the right-of-way.
- f) For patios entirely on private property, use surface materials that complement those in the public right-of-way, although distinctive enough to define the boundary.
- g) Ensure that any patios are located and designed to ensure privacy and limited nuisances to surrounding residential uses, particularly any located above the ground floor.



2.18 Sidewalk Patios

- a) Locate patios so that at least a 2.0 metre unobstructed route on the public sidewalk is maintained.
- b) Maintain at least a 1.0 metre direct and unobstructed route through a patio to the primary entrance of the business.
- c) Ensure that the public sidewalk's alignment remain straight within the right-of-way, or alternatively, angled following the configuration of the bump-out along the street.
- d) Design any structures, such as railings or walls, to complement the building's design using materials that allow visibility to and from the space. Ensure such structures can be easily removed and stored elsewhere.



Precedents: outdoor patios provide activity and interest along the street, but do not impact pedestrian movements along the sidewalk.

3. Industrial Design

There are several areas throughout the Town that are designated for industrial activities and uses. These activities include a variety of manufacturing, warehousing and associated office space located on different lot sizes. Industrial opportunities range from development on vacant properties, to redevelopment of underutilized properties and brownfield properties, to additions to existing buildings, to adaptive reuse of vacant buildings. Given potential compatibility and nuisance issues associated with these types of industrial activities, appropriate design of industrial developments is important to achieve a good fit into the surrounding context.

Similar to the Commercial Design Guidelines, the Industrial Design Guidelines are intended to guide the development review and approval process, principally the zoning and site plan control processes. The overall goal for industrial development is to ensure that there will be great variation in the types of businesses within the Town, a consistent application of design principles to provide attractive street edges, and efficient site design that minimizes potential impacts of new industrial developments on the surrounding neighbourhood.

The Industrial Design Guidelines contain a number of different elements that are generally associated with three different themes:

- Site organization and layout;
- Building form and design; and
- Landscape design.

Industrial Design Objectives:

1. Encouragement of high quality industrial developments that strengthen the local economy.
2. Compatibility between activities through appropriate site design and treatments.
3. A low-rise profile form of development characteristic of a main street environment;
4. Articulated and visually interesting façades for new industrial buildings that provide a strong image to the street.
5. A safe environment for vehicular movements on the site, particularly concerning large vehicles associated with industrial activities.
6. A safe, secure and comfortable pedestrian environment for all users.
7. Green treatments that provide visual interest along the streetscape.
8. Provision of appropriate transitions to adjacent properties, particularly nonindustrial properties.
9. Minimization of the extent, visual appearance and impacts of parking and service areas.
10. Limited nuisances and impacts on surrounding properties, particularly nonindustrial properties.

3. Industrial Design

3.1 Site Design

- a) Incorporate any existing natural features of a site such as existing trees, contours and water courses, where appropriate and feasible.
- b) Site buildings close to the street edge as much as possible to frame the street.
- c) Set building back from existing natural features to create buffer areas.
- d) Site buildings to ensure that adjacent properties are protected from the new development's site illumination, noise, odour, and outdoor service areas.
- e) Incorporate outdoor amenity areas into the overall site design, defined by building facades, fencing or landscaping.

3.2 Building Design

- a) Use architectural features and materials to emphasize main building entrances, particularly those facing a public street.
- b) Use architectural detailing to break up long wall elevations, including the use of windows, projections and recessions, and changes in building material or colour.
- c) Design roof forms to be compatible with the style and massing of the building, and use roof materials and colours that complement the overall design.
- d) Use cornices or similar treatments to articulate and define the building top.
- e) Use changes in the building materials at wall projections or recessions to define the wall elevation.
- f) Use high quality exterior cladding materials such as brick, stone, steel, glass, and metal paneling, particularly on publicly facing wall elevations.
- g) Coordinate all materials, colours and finishes on all exterior elevations to achieve a continuity and comprehensiveness of application.
- h) Enclose or screen rooftop mechanical equipment from view from streets.

- i) Ensure that the architectural style of buildings accommodating multiple tenants is cohesive over the entire building.
- j) Include individual entry points of multiple tenant buildings that are identifiable without detracting from the overall appearance of the building.



Precedents: industrial buildings sited close to the public street edge (top) and with architecturally defined primary entrances (bottom).

3. Industrial Design

3.3 Signage

- a) Ensure signs complement the architecture and landscape design and not detract from or overpower the building and site.
- b) Use ground signs in the front yard to identify the project and its street number.
- c) Incorporate building identification signage as an integral, coordinated element of the principal building facade that is compatible with the building design, scale, colour and materials.
- d) Multiple tenant developments should use a thematic sign design to contribute to a unified building presence. A sign uniformity plan should be prepared to establish the frame work for visual coherence and compatibility across the building.
- e) Use directional signage, as necessary, to assist in the orientation of pedestrians and traffic to the street, parking, service and open space systems.
- f) Locate signs where they will not obstruct sight lines, driveways and intersections or interfere with pedestrian or motorist safety.
- g) Select landscaping around the base of the sign that takes into consideration the continued visibility of the sign in the future as the landscaping matures.

3.4 Vehicular Circulation and Parking

- a) Minimize the number of driveway connections to the public street, and consider common driveways to further minimize the number of driveways on public roadways.
- b) Locate driveways to provide easy access and egress for staff, visitors, delivery vehicles and emergency vehicles.
- c) Locate driveways opposite existing or proposed driveways and streets to avoid offset intersections and traffic difficulties.
- d) Locate driveways for corner lots away from the street intersection.
- e) Provide sufficient area on the site for truck movements.

3.5 Pedestrian Circulation

- a) Incorporate a well-defined and continuous pedestrian system on the site with connections to the public street, parking areas, and outdoor amenity areas.
- b) Ensure pedestrian connections are barrier-free, and are provided directly from the public street sidewalk to the principal building entrance and parking areas.
- c) Sidewalks should be provided between transit stops and building entrances. Building entrances should be coordinated with transit stops to minimize walking distance and provide weather protection.
- d) For larger developments, incorporate major pedestrian routes that are easily identifiable through the use bollards, trees, continuous paving materials, signage and lighting.



Precedent: clearly defined pedestrian walkway through a parking lot to the primary building entrance.

3. Industrial Design

3.6 Parking

- a) Locate parking areas close to building entrances and provide an easily identifiable pathway to the building entrance.
- b) Locate primary parking areas to the side and/or rear of the building preferably, with visitor parking, barrier-free parking, and drop off areas possibly located between the building and street.
- c) Limit parking areas in the front yard to a single or double loaded row, with a landscaped strip between the street and parking.
- d) Use planted parking islands and planting areas to break up large parking lots, that are raised and at least 2.5 metres in width.
- e) Align rows of parking perpendicular to the building for larger parking areas to minimize the number of crossings of drive aisles for pedestrians.
- f) Locate well-drained snow storage areas adjacent to parking areas and away from catch basins, if possible, if snow will not be trucked off site.
- g) Provide bicycle racks or indoor bicycle storage should be provided near the entrances to buildings, ensuring the racks and bicycles do not impede pedestrian circulation.



Precedent: parking lot of an industrial development divided physically with landscaped islands.

3.7 Loading and Service Areas

- a) Orient loading bays and other service areas away from public street views and preferably screened from the street by building mass, fencing or screen walls compatible with the building architecture.
- b) Locate waste storage areas inside buildings, wherever possible. Where necessary, locate outdoor storage in the rear and interior side yard of the building, although not in rear yards that face major roads.
- c) Use building design, siting, landscaping and planting or fencing to screen views from the public street to outdoor waste storage areas.
- d) Design truck access to service and loading areas with sufficient space so that truck movements will not disrupt vehicular and pedestrian circulation on the site or the public street.
- e) Locate utilities underground, wherever possible, to improve the appearance of the development. Where aboveground utilities are necessary, ensure their design is integrated and compatible with other site elements and screened from public view having regard for maintenance and access practices.

3.8 Landscape Design

- a) Incorporate existing site features into the landscape design, where practical, taking advantage of on-site conditions such as view corridors or existing trees.
- b) Select native and non-invasive plant species, as much as possible, with regard to their characteristics of soil type, sun, root spread, growth rate, density of canopy, and salt tolerance.
- c) Group plant materials to frame building elevations, add visual interest to blank building facades, and accentuate building entrances.
- d) Use landscape plantings and elements to assist in visually breaking up longer building wall elevations, coordinated with architectural elements and details on the wall elevation.
- e) Locate plant materials so that they will not interfere with sight lines at driveway intersections, lighting and emergency apparatus such as fire hydrants.

3. Industrial Design

- f) Plant parking islands with plant material that is salt and drought tolerant, is easily maintained, and is hardy and strongly branched. Also, use hardy ground covers, stone mulch or similar materials, in parking lot landscape islands.
- g) Ensure landscape strips along the outside edges of parking areas abutting public streets or adjacent properties are at least 3.0 metres wide, and planted with tree, shrubs and appropriate bed materials.
- h) Use landscape materials to screen and buffer service areas on the site, such as waste disposal, loading areas, or open storage areas. This could consist of a wall or fence, a landscaped screen, dense landscaping planting, a landscaped berm, or a combination of these features.
- i) Consider outdoor furniture and fixtures such as special lighting, trellises, arbours, raised planters, benches and fencing for outdoor amenity areas on the site.

3.9 Lighting

- a) Design site lighting as an integrated system that considers all pedestrian, motorist and building needs.
- b) Design lighting systems that carefully consider the areas to be lit, only illuminating areas which need to be illuminated given necessary activities and routes.
- c) Avoid over-lighting a site, preferably using more fixtures with low wattage than few fixtures with higher wattage.
- d) Focus lighting on pedestrian areas, clearly identifying pedestrian walkways and building entrances, at a general height of approximately 3.5 to 4.0 metres.
- e) Direct lighting onto the site to avoid spill-over to adjacent development and natural areas.
- f) Integrate lighting fixtures and poles with the overall architecture and landscape design of the project.
- g) Use lighting to accent and highlight building, signage and landscape features where appropriate.

3.10 Safety and Security

- a) Create clear sight lines to allow people to see and be seen and avoid blind corners, bends, grade changes and other elements which may obscure clear views.
- b) Site buildings and locate windows to maximize informal surveillance opportunities by building users.
- c) Locate all parking areas and open spaces to maximize natural surveillance from buildings, public roads and walkways.
- d) Design walkways to be direct, follow natural desire lines and avoid unobstructed sight lines.
- e) Design buildings and sites to avoid creating potential areas of entrapment.
- f) Clearly identify buildings with street address numbers that are well lit at night.
- g) Provide lighting levels that are appropriate for nighttime visibility, illuminating only those areas which need to be illuminated, preferably with metal halide lighting or similar.
- h) Balance landscape screening objectives with the need with views into spaces and buildings so as to not create potential hiding areas.
- i) Landscape parking lots so that users may be seen from different vantage points such as building entrances, windows and sidewalks.



Precedent: dense landscape plantings that screen the parking lot of this industrial development from the public street edge.

4. Greenfield Design

There are several larger properties within the Town's settlement area that present significant greenfield opportunities for adding uses and residents to the areas. These properties essentially offer a "clean slate" for developing new neighbourhoods which can provide a critical mass for supporting other uses and functions in other areas. The focus of these neighbourhoods should be the provision of areas that are sustainable, mixed, diverse and definable.

The goal of the Greenfield Development Design Guidelines is to provide specific guidance for the design and development of greenfield properties, expressing the Town's expectations in order to facilitate high quality urban design within new neighbourhoods. These design guidelines are intended to be used by all participants involved in the development review and approval process, including municipal representatives, developers, builders, and consultants, as a tool for achieving high quality neighbourhood design.

A broad range of topics are addressed to ensure that all aspects of development are considered in the development process. The Greenfield Development Design Guidelines are organized into six general components, as follows:

- Natural areas;
- Streets;
- Parks
- Stormwater management areas;
- Residential areas; and
- Commercial areas.

Greenfield Development Design Objectives:

1. Comfortable pedestrian and cycling environment and attractive streetscapes.
2. Connected and accessible system of parks and greenspaces.
3. Establishment of a strong sense of place.
4. Maintenance and incorporation of significant natural features.
5. Incorporation of sustainable design and building practices.
6. Provision of a variety of housing options for a range of different household types.
7. Creation of a connected street network to provide multi-directional access.
8. Establishment of development parcels that accommodate flexibility for unit types and lot sizes.
9. High quality architecture to provide a high level of visual interest.
10. Safe neighbourhoods based on crime prevention principles.

4. Greenfield Design

4.1 Natural Areas

4.1.1 Watercourses

- a) Maintain all existing vegetation to every extent possible within watercourse corridors.
- b) Naturalize watercourse corridors where feasible with native species to promote the habitat and aesthetic characteristics of such features.
- c) Incorporate linear pedestrian pathways along watercourse corridors while maintaining the environmental sensitivity of such features.
- d) Design pathways to be consistent with the character of the watercourse feature, preferably using permeable natural materials to permit infiltration.

4.1.2 Woodlots

- a) Incorporate woodlots or stands of trees into the fabric of the street and block layout.
- b) Use appropriate buffers to woodlots to ensure their ecological protection. Consider plantings such buffers with complementary native species to enhance their function and to prevent invasive species from being established.
- c) Ensure that woodlots have a significant amount of public frontage and visibility, through such means as single-loaded streets or incorporation into a park or stormwater management area.
- d) Incorporate trails within woodlots to connect to the neighbourhood's pedestrian network, where feasible keeping in mind user safety and the feature's environmental integrity.
- e) Design trails to be consistent with the character of the woodlot feature.

4.1.3 Individual Trees and Hedgerows

- a) Locate street and development blocks to incorporate existing quality hedgerows into side or rear lot lines or along linear pedestrian corridors.
- b) Incorporate existing healthy trees within building lots by varying building setbacks and varying building design.
- c) Physically protect any trees to be retained during construction and grading to avoid disruption to their roots.



Precedents: retained mature trees in a neighbourhood can provide "instant" greenery in a new greenfield development.

4. Greenfield Design



Precedent: collector streets are key connecting spines through a new greenfield neighbourhood.

4.2 Streets

4.2.1 Street Network

- a) Incorporate landform features and topography in the design of road and block patterns to maximize vistas and visual interest and to reduce the need for soil movement.
- b) Use a connected pattern of arterial, collector, and local streets that is linked to existing street connections in adjacent neighbourhoods.
- c) Design street patterns, particularly arterial and collector street, so that they are continuous and direct.
- d) Design the street pattern so that development blocks are between 200 and 250 metres in length to promote movement permeability and connectivity.
- e) Where blocks are longer than 250 metres, provide mid-block walkways that are at least 6.0 metres wide.
- f) Modify the street network to incorporate the existing natural features on the site, such as woodlots, watercourses, hedgerows, or individual trees.
- g) Design street patterns to maximize the number of blocks with south facing exposures for increased solar orientation.
- h) Design street patterns so that blocks are generally rectangular in shape to accommodate design flexibility and efficiency.
- i) Use deflections and curves in the street layout to add visual interest along the streetscape through interesting viewlines.
- j) Design the street network to terminate streets or provide deflections in streets in order to provide viewlines to primary neighbourhood focal points such as parks or natural features.



4.2.2 Collector Streets

- a) Design collector street right-of-ways to include the following components:
 - i) Boulevards that contain street trees, street lighting, sidewalks and/or trails;
 - ii) Cycling lanes in both directions;
 - iii) Parking where deemed appropriate and desirable; and
 - iv) Vehicle lanes in both directions and, where warranted, turning lanes.
- b) Design collector streets at the entrance to neighbourhood with such elements as enhanced landscape treatment, planted centre medians, and neighbourhood identification signage.
- c) Use special surface treatment, such as coloured or stamped materials, at key pedestrian crossings such as the intersection of two collector streets in order to visually identify pedestrian crossings.

4.2.3 Local Streets

- a) Design local street right-of-ways to include the following components:
 - i) Boulevards that contain street trees, street lighting and sidewalks;
 - ii) Parking where deemed appropriate and desirable; and
 - iii) Vehicle lanes in both directions.

4. Greenfield Design

- b) Use “single-loaded” streets for local streets:
 - i) Adjacent to arterial street right-of-ways to act as “window” in to a neighbourhood;
 - ii) Adjacent to natural features such as woodlots or wetlands to provide views into these features; and
 - iii) Adjacent to stormwater management ponds to provide views into and to incorporate these amenities into the neighbourhood.
- c) Reduce right-of-way widths for single-loaded streets along arterial streets.
- d) Design primary local streets, which connect to key pedestrian destinations, such as commercial areas, parks or school sites, with sidewalks on both sides.
- e) Design other local street with sidewalks on at least one side of the street.



▲ *Precedent: street trees and sidewalks on local streets are important for creating a comfortable walking environment in greenfield neighbourhoods.*

4.2.4 Amenities and Utilities

- a) Bury services and utilities, where possible and where feasible, to minimize their visual impact.
- b) Use shared-use utility trenches as much as possible in order to minimize the required right-of-way width.
- c) Select street furniture and related streetscape amenities with a consistent character and style.

- Ensure they do not obstruct pedestrians on sidewalks, vehicular access to properties, or maintenance of the street.
- d) Ensure community mailboxes are well-designed and consistent with the streetscape theme.
- e) Site community mailboxes at locations with higher levels of activity, such as adjacent to or within parks, walkways, commercial areas, and transit stops. Coordinate mailbox location with the location of on-street parking spaces.
- f) Locate above-grade utilities away from key public view lines such as intersections, day lighting triangles and parking lot entrances. Screen the utilities with landscaping wherever possible.



▲ *Precedent: mid-block walkways enhance the connectivity of greenfield neighbourhoods without the need for additional public streets.*

4.3 Parks

- a) Ensure that all parks are connected to the overall greenspace system of parks, natural areas, and stormwater management ponds through sidewalks, trails, pathways, or mid-block walkways.
- b) Design pathways to enhance the function and character of the type of the park they occupy, keeping in mind user safety, lighting and intended operational hours.

4. Greenfield Design

- c) Organize parks so that dwelling units are generally within a 400 metre distance.
- d) Design street patterns around a park so that a majority of the park's frontage is open to the street.
- e) Incorporate a variety of active and passive uses within parks, both structured and unstructured, to accommodate a variety of user needs within the neighbourhood.
- f) Provide trees and sidewalks along the edge of parks and greenspaces. Use a consistent species of street tree and spacing (8 to 10 metres) on the other side of the street.
- g) Locate park entrances at the intersection of two streets where possible to encourage safe pedestrian access, and define entrances with soft and hard treatments, signage, and sitting areas with appropriate amenities.
- h) Design parks to ensure that potential noise sources of activity are sufficiently distanced from adjacent residential lots.



Precedent: neighbourhood park that plays one role in the broad spectrum of recreation needs and opportunities.

Precedent: stormwater management area as a natural feature, and not only a neighbourhood utility.



4.4 Stormwater Management Areas

- a) Ensure that all stormwater management areas are designed as green "amenities" within a neighbourhood, and not solely "utilities".
- b) Connect stormwater management ponds to the overall greenspace network through pedestrian and cyclist linkages.
- c) Design stormwater management ponds with majority of their frontage open to public streets to enable visual and physical connections.
- d) Where rear yards face a stormwater area, ensure that the fencing enables visibility into the space.
- e) Design stormwater management ponds and any adjacent parks in a consistent manner to provide a visually continuous greenspace.
- f) Use naturalized edges to the water body portion of the stormwater management area instead of fencing to deter public access to such areas.
- g) Use native species for the naturalized edges to stormwater management areas.
- h) Where fencing is required for safety reasons, use decorative fencing that complements the natural character of the stormwater management area.
- i) Incorporate amenities such as benches, garbage receptacles, information boards, and lookout areas into the design of the stormwater management area to complement passive recreation use.

4. Greenfield Design

4.5 Residential

4.5.1 Single Detached Dwellings

- a) Vary dwelling types and forms on each street and on each block.
- b) Locate prominent community buildings or uses at key locations, such as at the termination of streets, at deflections in the street network, or at neighbourhood gateways.
- c) Site residential buildings such that they are sensitive to their environment with their primary façade and/or entrance approximately parallel to the street.
- d) Design residential buildings on corner lots so that both the front and side of the building are oriented to the respective public street and are treated in a similar fashion.
- e) Use a variety of front yard setbacks along a street to provide visual interest and depth along the streetscape.
- f) Ensure that architectural styles employed in design are consistent with the character of the Town and the local context.
- g) Vary elevations for residential units along a single block and along the entire street in terms of such elements as design, material, and colour.
- h) Ensure that identical elevations are not on consecutive lots on one side of the street or across from each other on opposite sides of the street.
- i) Design building elevations so that clear and transparent windows and doors comprise a large portion of the front façade of the building, and at for flanking facades for corner sites or for lots adjacent to a pedestrian walkway.
- j) Use a variety of building materials and architectural elements on the front, side and roofline of each residential unit or block of units.
- k) Incorporate porches that can accommodate furnishings, that are part of the overall architecture of the building, and that wrap around the building façade for corner units.
- l) Design units so that garages do not project in front of the front wall of the dwelling, or in front of the porch where a unit contains a porch.
- m) Design residential units so that garages occupy no more than 50% of the front façade's width and driveways so that they are no wider than the garage.
- n) Design rear lane garages for end units that flank public streets to be complementary to the principal dwelling in terms of materials and windows.
- o) Locate the driveways for corner lots with access to the secondary street.
- p) Locate the driveways for lots adjacent to parks, natural areas or pedestrian walkways on the side that is not adjacent.
- q) Space driveways and curb cuts to maximize opportunities for on-street parking and street tree placement.



Precedents: residential façade treatment with depth and articulation provide visual interest throughout a greenfield neighbourhood.

4. Greenfield Design

4.5.2 Ground-Oriented Multiple Dwellings

- a) Locate residential buildings close to the property line with their primary façade and/or entrance addressing the street, while making room for trees and utilities.
- b) Provide visual interest along the streetscape with a variety in setbacks.
- c) Ensure that architectural styles employed in design are consistent with the character of the area and the local context.
- d) Design the elevations of blocks to have a variety of different features and treatments, including variations in colour, materials, projections and recessions, and windows.
- e) Vary the elevation types along a single street to enhance the visual interest and variety of the streetscape.
- f) Use a varied pattern of building recessions and projections on individual blocks and along the entire street to enhance the visual interest and variety of the streetscape.
- g) Design corner units so that the side of the dwelling unit is treated similar to the front façade in terms of continuity of materials, colour, and window placement.
- h) Use a variety of roofline types along an individual block and along the entire street to enhance the visual interest and variety of the streetscape.
- i) Incorporate “functional” porches, which can accommodate sitting areas, into the building design to provide interaction space between dwellings and the street.
- j) Consider “wrapping” porches around the building façade on corner units.
- k) Design units to minimize garage projections past the front wall of the unit, or past the front of a porch where units have porches, in order to reduce the visual prominence of the garage.
- l) Twin driveways between adjacent units, where practical, to reduce the amount of front paved surface area that is required and to maximize the amount of on-street parking and number of street trees that can be accommodated.
- m) Design driveways so that they are not wider than the garage.
- n) Orient the driveway and garage for corner units to the street that is secondary in terms of traffic volume and function.



Precedents: ground-oriented multiple dwellings that add residential density to a neighbourhood yet still fit with overall form of the neighbourhood.

4. Greenfield Design

4.5.3 Apartment Dwellings

- a) Ensure that the architectural styles employed in design are consistent with the character of the Town and the local context.
- b) Physically define streets through the location of buildings close to the street edge or through a combination of built form and landscaping.
- c) Locate apartment buildings at corner sites close to both street right-of-ways to reinforce the street edge.
- d) Site apartment buildings with appropriate setbacks to minimize the impacts, including shadowing and wind effects, on surrounding buildings and activities.
- e) Consider providing ground floor units with individual at-grade access to increase building pedestrian-orientation while keeping in mind safety and security.
- f) Design apartment buildings with definable base, middle and top treatments through building architecture, materials and colours.
- g) Design the base two storeys of buildings as pedestrian-oriented in terms of size, scale, materials, and window location.
- h) Design upper floor elevations with an articulated elevation, including different colours and materials from the base floor, a variety of windows, balconies, and projections and recessions.
- i) Design rooftop mechanical equipment as an integral part of the building design, including setting back equipment from the roof's edge or screening equipment.
- j) Consider special building features, such as increased height, window treatment, and architectural elements, for the corner of apartment buildings that are located on corner sites in order to reinforce the prominence of these locations.
- k) Locate primary building entrances so that they are directly connected to pedestrian routes.
- l) Design the building elevation to clearly define the building entrance with special architectural features that emphasize its location.
- m) Use a combination of street trees, foundation planting, and decorative fencing within the site's

landscape edges that provides a suitable visual edge while ensuring visibility into and from the site.



Precedents: low rise apartment and mixed-use buildings that fit into the scale and character of the surrounding neighbourhoods.

4. Greenfield Design

4.5.4 Priority Lot Design

- a) Design buildings at the following prominent locations within the neighbourhood as priority lots with enhanced design treatment and special considerations:
 - i) Gateway lots: lots located near entrance streets to the neighbourhood;
 - ii) Corner lots: lots located at the corner of two streets within the neighbourhood;
 - iii) Window street lots: lots located on a “window” street facing or flanking an arterial street;
 - iv) Park/open space lots: lots adjacent to or facing a park, stormwater management pond, natural feature, or walkway block; and
 - v) Viewline lots: lots that terminate an important viewline, such as a primary collector street.
- b) Depending on the particular type of priority lot, consider the following design elements:
 - i) Increased height and massing;
 - ii) Highly articulated façades;
 - iii) Garage and driveway access from secondary street (corner lots);
 - iv) Wrapped façades and porches;
 - v) Enhanced fence design;
 - vi) Driveway location on far side of lot for flanking units (park lots); and
 - vii) Orientation of key façade features with viewline (viewline lots).



Precedents: buildings at priority locations that provide an appropriate gateway impression (top), terminate a street's viewline with unique architectural elements (middle), and that wrap the façade for a corner lot (bottom).

4. Greenfield Design

4.6 Commercial

4.6.1 Layout

- a) Physically define the arterial street edge through either the location of buildings close to the street edge or through appropriate landscaping along the street edge.
- b) Provide an internal circulation system that is clearly defined, logical, and connected for access to and from the site.
- c) Divide parking areas into smaller units through internal drive aisles, a network of connected walkways, and landscaped islands.
- d) Locate and design site signs as an attractive feature for the site, with complementary surrounding landscaping, which matches the scale, character, and architecture of the development.
- e) Ensure that the transition area between residential and non-residential uses within the neighbourhood is landscaped and buffered.
- f) Provide a consistent width for the landscaped area along the site's edges.
- g) Use a combination of street trees, foundation planting, and decorative fencing within the site's landscape edges that provides a suitable visual edge while ensuring visibility into and from the site.



Precedent: strong edge treatment of commercial development with plantings and landscape elements.

4.6.2 Building Elevations and Design

- a) Orient the front façade to face the public street and locate front doors to be visible, and directly accessible, from the public street.
- b) Design multi-tenanted buildings with a variety of colours, materials, and design on the elevation so that individual units are differentiated.
- c) Ensure that the range of materials and colours used in building design still achieves a unified image for the development.
- d) Use a variety of horizontal and vertical building treatments to create visual interest.
- e) Treat building side elevations adjacent to streets with a similar treatment to that of the front façade.
- f) Treat buildings at corners with enhanced built form design, such as increased height with towers, similar façade treatment on both sides, and window placement.
- g) Design rooflines with alternatives to a flat roof, such as pitched roofs or towers, or a combination of different types to promote visual interest.
- h) Integrate rooftop mechanical equipment with the building design. Screen rooftop units and vents using materials that are complementary to the building.
- i) Use clear windows and doors to make the pedestrian level façade of walls facing the street highly transparent.
- j) Locate and design wall-mounted signs to complement the character and scale of the development, keeping in mind a balance between vehicular orientation and pedestrian orientation.
- k) Consider locating on-site furniture and related amenities near building entrances for larger tenants.
- l) Use the placement of buildings and the location of windows to maximize casual surveillance by building users.

4. Greenfield Design

4.6.3 Pedestrians/Cyclists

- a) Provide direct, continuous and clearly-defined pedestrian routes from public sidewalks to building entrances.
- b) Ensure that defined pedestrian routes from arterial streets are linked to any transit stops.
- c) Provide a direct, continuous and clearly-defined pedestrian route from the adjacent residential areas to the building entrances on the site.
- d) Differentiate pedestrian routes on vehicular driving surfaces with special treatment, such as different paving materials and raised walkways.
- e) Provide sheltered bicycle parking in visible locations near building entrances, while ensuring that such locations do not conflict with pedestrian routes.
- f) Design large parking areas so that the number of pedestrian aisle crossings from the public street is minimized.



Precedent: well-defined pedestrian walkway through the parking lot of a commercial development.

4.6.4 Parking

- a) Where ever possible locate surface parking area to the rear of buildings and not between the public right-of-way and the front of the building, or front and exterior side for buildings on corner sites.
- b) Use landscaped buffers to physically and visually separate parking areas from the sidewalk or street.
- c) Where parking in the front yard is unavoidable or not practical given the context of the surrounding area, screen such parking areas with fences/walls and the landscaping to minimize the visual impact on the streetscape.
- d) Divide surface parking areas into smaller areas through landscaped parking islands.
- e) Ensure parking islands are of sufficient size to accommodate the sustainable growth of planting materials and trees within the island area.

4.6.5 Utilities and Services

- a) Screen all utility equipment and loading areas from public view either by locating within buildings or visually screening it through site and building design.
- b) Ensure there is a sufficient building setback and adequate landscape area to buffer the rear of any commercial buildings from adjacent residential properties.
- c) Design lighting so that there is no light cast over adjacent residential areas.
- d) Provide lighting that is appropriate to the ground floor use and focuses on pedestrian areas.



Precedent: coniferous screening of a commercial development's loading area to block views.

4. Greenfield Design

4.6.6 Drive-through Facilities

- a) Where ever possible and practical, particularly when the site is not located in a Highway Commercial area, locate drive-through stacking and pick-up lanes so that they are not located between the face of the building and a public street right-of-way. so as to minimize the impact on the streetscape and to ensure a positive contribution to the pedestrian environment.
- b) Landscape the drive-through and stacking lanes to soften the visual elements.
- c) Locate drive-through facilities such that they minimize the visual, traffic and noise impacts on adjacent residential development.



***Precedent:** dense landscape plantings can effectively screen drive through stacking lanes and facilities.*

5. Streetscape Design

Streets are generally the largest component, in terms of area, within the public realm in a commercial area. A streetscape is comprised of all of the elements that collectively form a street's character, including the road, street furniture, bike lanes, on-street parking, boulevards, and sidewalks, as well as adjoining buildings. While streets provide a primary role of connecting different areas of the Town and moving people in various modes of transportation, streetscapes are key “people places” where residents and visitors can gather and socialize.

The general goal of the Streetscape Design Guidelines is to assist in creating a vibrant, comfortable and visually interesting main street environment for the commercial areas. Ultimately, streetscape design needs to unify the commercial areas of the Town through consistent design treatment while enabling specific treatments that emphasize the individuality of each. Implementation of streetscape design will principally be achieved by the owner of land adjoining the public realm in accordance with the provisions of Section 41 of the *Planning Act* and by works undertaken by the Town.

The Streetscape Design Guidelines apply only to the elements within the public right-of-way, as the building form element is guided by the other design guidelines. A broad range of topics are addressed to ensure that all aspects of streetscape design are considered. The Streetscape Design Guidelines outline the following street right-of-way components:

- Vehicle lanes;
- Bicycle lanes;
- On-street parking;
- Boulevard / planting strip;
- Trees and plantings;
- Lighting;
- Crossings;
- Sidewalks;
- Furnishings;
- Public art;
- Wayfinding signage; and
- Gateway features.

Streetscape Design Objectives:

1. A safe and comfortable environment for all users.
2. A visually interesting streetscape working with built form efforts.
3. Accommodation of all forms and modes of transportation.
4. Incorporation of design features that reflect the area's character.
5. Provision of visually connected commercial areas through consistent streetscape treatment.
6. Implementation of sustainable streetscape design practices.
7. Addition of greenery and colour to break up hardscape appearance.
8. Introduction of traffic calming measures.

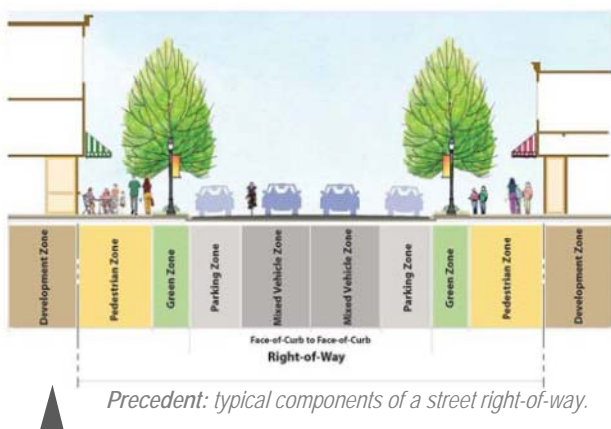
5. Streetscape Design

5.1 Vehicle Lanes

- a) Ensure that vehicle lanes through the commercial areas are minimized wherever possible, keeping in mind the safe and efficient accommodation all forms of vehicular transportation.
- b) Use “urban” cross section standards for vehicle lane widths through the commercial areas, particularly in the core areas, typically 3.25 to 3.5 metres in width.
- c) Consider, where necessary, wider vehicle lanes (up to 4.25 metres) for areas outside of the core areas that may have higher travel speeds and larger proportions of truck traffic.

5.2 Bicycle Lanes

- a) Where right-of-way width permits, incorporate dedicated and marked on-street bicycle lanes that are at least 1.5 metres in width.
- b) Consider increasing bicycle lane widths to 1.8 metres where such lanes are adjacent to the on-street parking spaces.
- c) Where space does permit, most likely in the core areas, incorporate shared vehicular lanes that are 4.0 to 4.25 metres in width, and which have clear shared lane pavement markings.
- d) Ensure there is signage identifying bicycle routes where necessary, and adequate bicycle parking near storefronts.
- e) Consider alternatives for the location of bicycle lanes in specific situations throughout the community, where a different approach may be warranted.



5.3 On-street Parking

- a) Provide on-street parking spaces on all streets, where possible given the nature of the street, that have land use activity that fronts the street and that is directly accessible from the street.
- b) Ensure on-street parking spaces are at least 2.5 metres in width.
- c) Consider on-street parking spaces for specialty vehicles, coordinated with accessible ramps to the sidewalk.
- d) Ensure on-street parking spaces are coordinated with any curb extensions that may be incorporated at intersections.

5.4 Boulevard/Planting Strip

- a) Provide a minimum 1.5 metre wide area between the public walkway and the back of the curb to accommodate all street furnishings including raised planters, tree plantings, waste receptacles, bike racks, light fixtures, traffic bollards, and other vertical elements in a consistent manner, with consideration for pedestrian safety from traffic.
- b) Locate streetscape elements in the boulevard clear of the unobstructed sidewalk, including trees, paving, benches, newspaper boxes, bicycle parking, and parking meters.



5. Streetscape Design

5.5 Trees and Plantings

- a) Plant street trees at curbside along all streets, depending on the location of any underground utilities.
- b) Choose tree species that create a tree canopy at its ultimate height which provides unobstructed views to the storefronts of buildings, including the fascia and projecting signage on the buildings.
- c) Choose tree, shrub and other planting species that are native, non-invasive, low maintenance, salt tolerant, and suited to the soil conditions in order to ensure they thrive in a downtown environment.
- d) Plant trees along all public streets in a consistent pattern, preferably 8.0 to 10.0 metres on-centre, and coordinate with the location of street amenities and utilities.
- e) Locate street trees so that they are not within 1.5 metres of a driveway access, 1.5 metres of a building or service box or transformer, or 4.5 metres from any light standard or hydro pole.
- f) Maintain and trim shrubs and perennials adjacent to the public right-of-way so that they are no more than 0.9 metres in height to avoid the creation of hiding spaces and be respectful of pedestrian safety.
- g) Provide seasonal interest through a combination of coniferous and deciduous plant materials.



Precedent: consistent street tree spacing along a street that provides a comfortable and shaded walking environment.

Use high quality materials such as brick or stone for raised planters that are reflective of the desired character.

- i) Ensure raised planters are at least 0.40m in height to promote informal seating areas along the street frontage.
- j) Plant trees so that their growth and development will not create a situation where they cannot be maintained and may impede pedestrian travel or safety.
- k) Select street trees species for areas located below hydro wires that do not grow to heights greater than 6.0m in height.
- l) Plant the bases of trees with shrubs, perennials, or groundcovers, or metal tree grates in narrow walkway conditions, to prevent soil compaction.
- m) Incorporate electrical receptacles, where appropriate, at all new tree installations for seasonal lighting opportunities.

5.6 Lighting

- a) Lights should consist of a coordinated family of luminaires and poles with regard to design, materials and color.
- b) Lighting should define and reinforce the hierarchy of street systems to promote a sense of site orientation and organization.
- c) Use lighting sources that provide good color recognition appropriate for the use.
- d) Provide illumination levels and lighting sources that minimize areas or points of glare while providing adequate levels of light for safety and security.
- e) Utilize the current street light standard in Thornbury to ensure visual consistency and continuity.
- f) Affix additional amenities such as banner signage, or hanging flower pots to light standards or hydro poles where minimum heights can be accommodated in order to add further visual interest and character.
- g) Consider additional pedestrian scale lighting such as bollards or accent lighting within gateway areas or in areas to accent signage, murals or public art.

5. Streetscape Design

- h) Locate light standards in a coordinated manner that does not obstruct pedestrian circulation on the sidewalk or driveways.

5.7 Crossings

- a) Design crosswalks in areas with higher pedestrian and vehicular traffic volumes to be visually different from the street surface.
- b) Use curb extensions at key intersections, at the end on-street parking spaces, that extend into the street right-of-way. Ensuring allowance of any plantings in the curb extensions is given for vehicle turning and sight-lines.
- c) Ensure the paving of crossings is flush with the adjacent and/or existing sidewalk paving.
- d) Ensure any crossing at any intersections or mid-block are at least 2.5 metres in width.
- e) Incorporate accessible curb cuts at all intersections and mid-block crossings.



▲ *Precedent: textured surface material that provides visual and physical cue to pedestrians and motorists.*

▼ *Precedent: simple, easy to maintain, and effective poured concrete for sidewalks along this street.*



5.8 Sidewalks

- a) Provide a minimum 2.0 metre wide concrete sidewalk and a 1.5 metre boulevard for street furniture, trees, and utilities; next to the sidewalk where possible.
- b) Provide an area adjacent to storefronts for canopies, outdoor patios or special merchant displays.
- c) Use poured concrete for public sidewalks and sidewalk boulevards, given the durable and accessible nature of this material.
- d) Limit the use of differentiated paving materials on sidewalks (such as concrete pavers, textured asphalt, coloured concrete or asphalt), focusing such materials at points of emphasis and pedestrian points within the commercial area.

5.9 Furnishings

- a) Choose and install streetscape furnishings that are of a consistent style and material in order to read as a single, coordinated entity. These should include: benches, trash and recycling receptacles, bicycle racks, tree guards and grates, banners and banner standards, hanging basket standards, and planters.
- b) Ensure the style chosen for the streetscape furnishings is consistent with the desired character of the commercial areas as traditional, small town main street environments.

5. Streetscape Design

- c) Cluster or group streetscape furnishings wherever possible to minimize clutter. Coordinate tree and street light locations with above and below-grade utilities.
- d) Accessible design and placement of street furniture; and,
- e) Accessible design and placement of street amenities.

5.9.1 Benches

- a) Locate benches in a manner that does not obstruct pedestrian circulation on the sidewalk.
- b) Install benches close to the entrances of designated heritage and public buildings, bike storage receptacles, open space areas, and transit locations where a shelter and associated seating is absent.
- c) Orient benches to face the roadway or toward the sidewalk with a minimum 0.3m offset from the public walkway.

5.9.2 Waste Receptacles

- a) Install multi-purpose waste and recycling containers when additional waste containers are required, or existing units are replaced.
- b) Locate waste receptacles in proximity to seating areas, transit stops, and park entrances.
- c) Locate waste receptacles in a manner that does not obstruct pedestrian circulation on the sidewalk and that is offset appropriately from on-street parking spaces.

5.9.3 Bike Racks

- a) Provide bike racks at a minimum one in each block and in proximity to all public buildings and open spaces.
- b) Locate bike racks in a manner that does not impede pedestrian circulation.
- c) Site bike racks offset at least 1.0m from the public walkway, where space permits, or at least 1.0m from the back of the curb.
- d) Ensure the bike rack style that is chosen is intuitive to use correctly, has a no-maintenance finish that won't chip, peel, or rust, and preferably are

galvanized steel finishes, and allows removal of the front wheel and locking it with the rear wheel and frame to the rack.

- e) Ensure bike racks are no less than 0.8 metres in height so they are not a tripping hazard.
- f) Ensure bike racks are installed as close to, without being directly in front of, the main entrance(s) of a building or site.
- g) Ensure bike racks have adequate clearance from driveways, curb ramps, transit loading areas and immediately adjacent to shelters, and utility poles.



▲ *Precedents: a consistent package and style of streetscape amenities for this street (above); bike racks that provide security and encourage bicycle use (bottom).*

5. Streetscape Design

5.10 Public Art

- a) Locate any public art to limit any conflicts with vehicular, bicycle, or pedestrian transportation circulation.
- b) Ensure that any public art installed is an original piece of artwork.
- c) Ensure that public art is accessible and visible to members of the public, located either within a public street right-of-way or other publicly owned space, or on a private property where it has an interface and connection with the public realm.
- d) Encourage public art installations that may serve a combination of different purposes, such as functional, interpretive, abstract, or historical.
- e) Encourage public art to take a range of sizes, artistic mediums (metal, stone, paint), and variety of different forms (architectural features, sculptures, landscape features, street amenities, public works, or paintings).
- f) Ensure that public art has the primary function of providing visual interest without any commercial advertising function.



Precedent: a public art piece that adds interest to the street and reflects a community's history and character.

5.11 Wayfinding Signage

- a) Ensure characters and symbols contrast with their background for readability (light background with dark letters or dark background with light letters).
- b) Ensure the physical placement, installation and illumination of signs is suitable for all users of all abilities.
- c) Use simple and universally readable signs with a consistent design template which complements the design of the wayfinding signage.
- d) Ensure a coordinated and comprehensive system of wayfinding signage designed and oriented to balance needs of people whether arriving by foot, bicycle, transit or car.
- e) Include at the minimum, the following destinations in a comprehensive wayfinding program: civic or public buildings, public parking areas, open spaces and trails, and other significant destinations or features.
- f) Wayfinding signs affixed to light standards or pole mounts are typically the most utilized and likely the most appropriate.

5.12 Gateway Features

- a) Use one style of gateway feature for the overall system in commercial areas that allows all to read as Town-wide system, but which accommodates the uniqueness of each commercial area through special design elements.
- b) Use local materials for gateway features that reflect the character of the area.
- c) Emphasize gateway features with surrounding planting material that is native, non-invasive, low maintenance, salt tolerant, and suited to the soil conditions.
- d) Design gateway features with materials and elements that ensure they are durable and easily maintained.
- e) Use simple and universally readable lettering for any signage that is part of a gateway feature.
- f) Consider energy-efficient forms of lighting to highlight the gateway features at night.

6. Sustainable Design

The Sustainable Design Guidelines are not intended to be a stand-alone set of design guidance, but are instead meant to be read and applied in conjunction with the other design guidelines.

While it is understood that the Ontario Building Code specifies the minimum requirements to obtain a building permit, builders are encouraged to meet the following guidelines where ever possible and practical.

The Sustainability Design Guidelines apply to three different categories of work, as follows:

1. New & Significantly Renovated Public Buildings

In terms of sustainable design, public realm buildings should show leadership in the community. As a minimum, public buildings should be designed and constructed to the Canada Green Building Council's Leadership in Energy and Environmental Design (LEED) Standard. Beyond the minimum targets, specific green strategies should be included to ensure these buildings minimize their environmental footprint in a manner which complements the regional priorities of the Town.

2. Private Developments

Private developments are encouraged to pursue LEED Certification. However, it is understood that, in some instances, the rigour and capital outlay required to meet LEED, may not be appropriate for all developments. As a minimum, new private developments should review and incorporate as many of the items listed in subsequent sections, as is economically feasible.

3. Minor Renovations to Buildings

Minor renovations to buildings, both public and private, should focus on improving energy efficiency. Starting from the outside, in, these projects should consider insulation and window upgrades as paramount in terms of building improvements. Once these items have been

considered, upgrades to HVAC and lighting systems should be considered; they will also be more cost effective as the system sizing (for HVAC systems) has been reduced. Beyond energy improvements, there are a number of other opportunities specifically related to material selection and indoor air quality that should be considered. These are outlined in the following sections.

Sustainable Design Objectives:

1. Maximize the use of existing infrastructure and minimize the impacts on that infrastructure.
2. Limit the impact the development has on the site and the surrounding ecosystem.
3. Use landscaping to minimize resource requirements and provide comfortable outdoor spaces.
4. Minimize the use of potable water for both interior and exterior applications.
5. Minimize impact of sanitary stream on existing (or non-existing) infrastructure.
6. Achieve building energy consumption that is at least 40% below the average for that building type.
7. Minimizing the dependence on single occupancy vehicles for transportation.
8. Include energy savings technologies into buildings that will reduce long term operating costs and carbon impact.
9. Ensure buildings are operating within their optimal range, and as expected.
10. Reduce the impact that building materials have on the waste stream, during construction and operation.
11. Provide a safe and healthy indoor environment for

6. Sustainable Design

6.1 Site Infrastructure

- a) Whenever possible, site new buildings close to existing infrastructure, including energy, storm and sanitary systems, as well as transportation options.
- b) Ensure that infrastructure capacity will not be compromised by the requirements of the new development.
- c) Collect and infiltrate storm water on-site, whenever possible. A storm water management system linking swales, pipes and settling ponds/constructed wetlands should be incorporated into each design. Water from hard landscaped surfaces (parking, roadways and paths) should be fed into this system.
- d) Building runoff should be diverted into natural vegetated systems or can be captured in cisterns and reused for building sanitary conveyance and/or landscape irrigation.
- e) Use low-consumption fixtures in buildings.
- f) Design sites such that there is no net increase in pre to post development storm water rate and quantity.
- g) Reduce the amount of impervious surfaces by using alternative paving materials such as open pavers and open rubber mats.



Precedent: capture and infiltration techniques of water within a surface parking lot.

6.2 Environmental Preservation and Enhancement

- a) Protect and restore parklands, wetlands and other significant natural ecosystems to their native state, where previous development has occurred.
- b) Control soil erosion from development sites during construction and maintenance. Implement a rigorous erosion and sedimentation control plan that address any soil from the site that may be carried off by overland water flow, wind erosion or by vehicle traffic.
- c) Maximize the amenity green space available to users and nature. Soft landscaping comprising native/adaptive and drought tolerant plants will help to attract wildlife, thereby promoting biodiversity and ensuring a high level of biomass.
- d) Construct bio swales to concentrate overland flow from impervious surfaces. Swales help to control runoff quality by filtering out suspended solids and absorbing dissolved phosphorous. Additionally, these vegetated water paths comprise part of the overall approach to greening the site, activating it during storm events and keeping it cool on hot summer days.
- e) Green roofing systems reduce the amount of roof runoff during a storm by absorbing the rainwater, and reducing both the rate and quantity of its discharge. However they can be expensive, require irrigation, and reduce the amount of rainwater that can be utilized within the building for sewage conveyance. Green roofs should be used in a limited capacity on the site to maximize occupant benefits, and provide a modest amount of storm water control.

6.3 Water Use

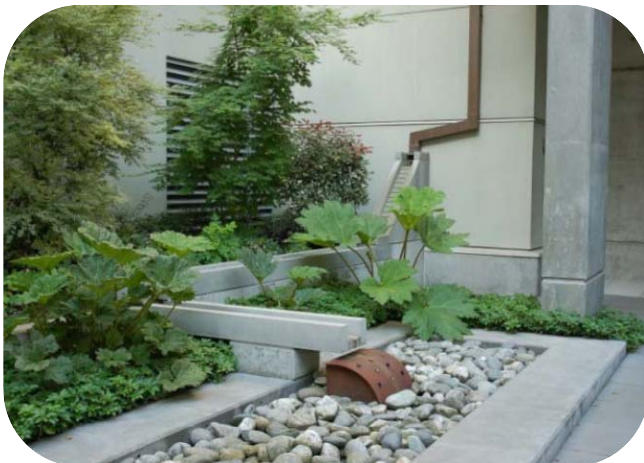
- a) Select native/adaptive and drought tolerant plants to minimize irrigation requirements.
- b) Harvest and utilize rainwater for irrigation if needed.
- c) Install low-consumption plumbing fixtures.
- d) Use captured rainwater for non-potable applications, including sewage conveyance, floor cleaning, and cooling tower make-up.

6. Sustainable Design

- e) Use low water/energy consuming appliances, such as clothes dryers and dish-washers.
- f) Capture waste heat from drains (e.g., PowerPipe™).
- g) Collect and use non-potable water generated from building operations, such as air conditioner condensate and greywater from lavatories.

6.4 Wastewater

- a) Use low-consumption sanitary plumbing fixtures.
- b) Use captured greywater (e.g., water from lavatories) for sanitary conveyance.
- c) Use an on-site water treatment system (e.g., Waterloo Biofilter) where sanitary infrastructure is not available. Treat water to tertiary quality prior to discharge in a shallow pressure trench, rather than a typical septic bed system.



▲ *Precedents: simple capture and re-use of rainwater for irrigation purposes.*

6.5 Building Operation Optimization

- a) Utilize an energy model to develop a design strategy that will achieve a 25% energy consumption savings, relative to ASHRAE 90.1-2004. This is a targeted estimate, based on an energy model which includes a number of assumptions related to building operation and components. A 40% “real life” savings can only be ascertained by comparing real-life building data (i.e., utility bills), to standardized data sets.
- b) Engage a building energy specialist and building commissioning agent from early design stages to provide enhanced services geared toward optimizing building energy use.
- c) Include energy end-use monitoring, measurement and analysis in each building to help optimize building operations.
- d) Design the building from the “outside-in”. Focus on trade-offs in equipment sizing provided by enclosure performance enhancements.
- e) Optimize building orientation and form, including the following:
 - i) Maximize exposures to the north and south, as north provides diffuse daylighting while south provides passive solar heating;
 - ii) North facing clearstories or dormers are preferable to horizontal glazed skylights;
 - iii) Thin profile buildings provide daylighting benefits;
 - iv) Optimize window to wall ratios in buildings: Approximately 40% glazing is the ideal maximum;
 - v) Include exterior shade structures/blinds on South, East and West facades to limit glare and excessive solar heat gain; and
 - vi) Use rooftops with high albedo materials or colours (i.e. white rooftops).

6. Sustainable Design

6.6 High Performance Components

- a) Select minimum R20 (including thermal bridging), with a continuous layer of insulation, for walls.
- b) Select minimum R30 for roofs.
- c) Selected double glazed windows, avoiding dark reflective coatings, with a soft low-e coating, non-aluminum edge spacer and argon gas fill.
- d) Select aluminum window frames greater than a 4 mm thermal break, such as fibreglass or wood frames.
- e) Insulate below grade assemblies, including slab-on-grade and below grade floors. In existing buildings, specifically those with brick facades, be conscious of the building science implications of adding insulation to the interior of a building enclosure. A detailed review of the thermal and moisture impacts of these upgrades should be undertaken.
- f) For the lighting design:
 - i) Design at or below ASHRAE 90.1-2004 power density requirements (eg. office: <10W/m²);
 - ii) Provide occupancy/vacancy controls to allow lighting to be shut off when not needed;
 - iii) Limit corridor and stairwell lighting to Ontario Building Code minimums;
 - iv) Provide daylight sensors/controls and dimmable fixtures to provide additional savings when adequate daylight is available;
 - v) Use direct/indirect lighting fixtures to provide even lighting levels;
 - vi) Select efficient light fixtures (measured in lumens/watt); and
 - vii) Use LED fixtures for spot-lighting, rather than halogen or incandescent.
- g) For the HVAC design:
 - i) Decouple heating and cooling from ventilation;
 - ii) Design cooling systems for >500 square feet per ton of cooling;
 - iii) Use heat recovery (eg. an enthalpy wheel ("ERV"), heat pipe or plate ("HRV")) to temper incoming air with reclaimed heat from exhaust air;
 - iv) Use occupancy sensors/CO₂ controls to reduce ventilation provided, when it's not needed;
 - v) Utilize variable speed pumps and fans;
 - vi) Move heating/cooling energy via water, rather than air; and
 - vii) Minimize parasitic loads (eg. additional small distributed fans and pumps)
- h) For the energy plant:
 - i) Use low-grade (temp) heat coupled with a condensing boiler to produce building heat (must have a low return water temperature);
 - ii) Select heating/cooling equipment that modulates to meet building loads; and
 - iii) Where feasible, use a ground coupled heat pump system as a "battery" system to store excess energy seasonally for use in another season.

6.7 Carbon Impact

- a) Purchase green power offsets for building energy use, which increases the amount of available green energy on the grid (thereby displacing the need for high-emitting energy sources).
- b) Install a Renewable Energy Technology System (RETs) on-site to produce green power, such as:
 - Photovoltaic power systems, which produce electric energy from the sun, which can be sold back to the power grid (currently at a significant premium). PV panels require an unobstructed southerly exposure;
 - Wind power systems, which produces electric energy from the wind, which can be sold back to the grid; and
 - Solar thermal systems, which can be used to heat water or air to supplement, or replace, traditional heating systems.

6. Sustainable Design

6.8 Material Impact

- a) Re-use existing buildings and structures whenever feasible, re-cladding them to bring their energy performance up to high-performance standards.
- b) Purchase locally sourced (extracted and manufactured) materials whenever possible to reduce the carbon impact of materials transportation.
- c) Purchase building components that contain high levels of recycled content to eliminate the need to extract raw materials from the natural environment.
- d) Design and construct buildings that are intended to last 50 years, or more. Ensure building components provide sufficient service lives to support a long building life. Ensure building enclosures are air and water tight by way of good design controls, as well as on-site inspections and reviews.
- e) Include an area in each building designated for the collection of recyclable materials, compostable and organic materials, and general waste.
- f) During construction, divert construction waste from landfill by separating waste on-site and sending it to specific receiving facilities (e.g., concrete and wood in their own bins) and contract a waste hauler who is able to provide off-site sorting of waste products from construction.
- g) Track wastes generated and sent off site to determine the percentage of waste diverted from landfill, targeting a diversion ratio of at least 75%.



Precedent: re-use of materials from existing building in the construction of a new commercial building on the site.

6.9 Plantings

- a) Use native/adaptive and drought tolerant plant species in soft landscaping to minimize (eliminate) the need for irrigation and high levels of maintenance.
- b) Use harvested rainwater to irrigate, if irrigation is necessary.
- c) Where irrigation is required, use efficient systems (e.g., drip delivery) and controllers with moisture sensors, designed to ensure water is only provided when it is absolutely necessary.
- d) Avoid large expanses of manicured turf areas.
- e) Use light coloured surfaces (i.e. "high albedo") in designing hardscaped areas to limit any microclimate impacts (i.e. "heat island" effect).
- f) Provide shading over hardscaped areas to minimize micro-climate heat islands.
- g) Border hardscaped areas with soft/permeable surfaces to allow storm water to be slowed and infiltrated.



Precedent: use of hardy, native species enables landscaping to survive and thrive with fewer inputs and effort.

6. Sustainable Design

6.10 Transportation and Accessibility

- a) Design all streets and streetscapes using “universal design standards”, including the design and location of all elements and amenities, to ensure safe and convenient access for all users with varying mobility needs.
- b) Maximize sidewalk activity with landscaped streetscapes and engaging retail spaces.
- c) Consider single level surfaces (e.g., roads and walks without an elevation change), divided by decorative bollards (also acting as bicycle securing points), or planters with trees.
- d) Bicycle racks and lockers should be situated close to buildings to afford users the opportunity to ride to and from their intended destinations.
- e) Ensure cycle and walking paths are easily accessible, safe, well lit, and protected. Cycle and walking paths should be separated, or designated differently, from automobile traffic to promote safety.
- f) Provide designated space for carshare, hybrid and carpool vehicles in all larger developments, where feasible and practical.
- g) Do not exceed zoning minimums when developing parking lots.
- h) Implement traffic calming measures, including limiting speed limits to 30-40 km/hr in certain locations, roundabouts and curving roadways.



Precedent: universal accessibility for users is important for all commercial developments.

6.11 Indoor Environment

- a) Design building ventilation systems according to the ventilation rate procedure outlined in the most recent version of the ASHRAE 62.1 standard.
- b) Be conscious not to locate building air intakes close to exhaust ports or areas where indoor air contamination may occur (e.g., near idling cars)
- c) Select interior finishes that contain low levels of volatile organic compounds (VOCs). These include: paints, coatings, adhesives, sealants, carpet and furniture.
- d) Provide indoor spaces that are thermally comfortable, meeting human comfort conditions for temperature and humidity, as outlined by the most recent version of ASHRAE 55.
- e) Provide daylight to interior spaces, in concert with the energy efficiency upgrades in the building. A 40% window to wall ratio will provide the optimum mix of daylight to the space, without compromising the building's energy performance. Floor to ceiling windows provide no more daylight to an area than do windows of a similar height, with 900 mm sill – a windows' daylight penetration is roughly twice its height.
- f) Ensure proper glare controls are included in the design and be aware that light coloured surfaces, below eye level (e.g. white desk tops) will reflect light upwards.
- g) Provide views to the outdoors, at eye level. Moreover, provide interesting views to the outdoors. Consider installing vegetated roofs in areas where people will be able to see, or access, roof-tops. Consider not installing highly reflective roofing materials on areas where people may be forced to look for prolonged periods.

6.12 Operations and Maintenance

While the design and construction of a building can be done in a sustainable manner, it eventually falls upon building operations staff to ensure the building performs as expected; continues to operate in an efficient/green manner; and is maintained in such a way that its long term impact on the environment is minimized. There are

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a number of strategies that can be implemented to achieve these, as well as other, operating and maintenance goals. Many of these strategies can be considered “No Cost” or “Low Cost” items. While some of these can be associated with LEED credits, others fall under the category of “best practices”.

- a) Perform regular/routine maintenance of lighting.
 - i) Ensure fixtures, lenses, lamps and reflective surfaces are cleaned regularly. By removing grease, dust and other dirt, the output of lamps and light fixtures will be maximized.
 - ii) Where used, replace acrylic lenses on fluorescent fixtures every 5-10 years, or as necessary, to avoid discolouration.
 - iii) Monitor and change lamps and ballasts, as required, to ensure consistent lighting levels.
 - iv) Schedule regular preventative maintenance reviews/audits of fixtures. Quarterly visual inspections, or inspections with a calibrated light meter, will be adequate to assess light performance and cleanliness.
 - v) Develop a building map highlighting acceptable/expected light levels; include it in maintenance checklists. Where degradation of light quality is discovered, thorough cleaning should be the first level of action. As lamps age, light quality degradation is expected. As such, lamp ages should be included in maintenance documentation and cross referenced to expected lamp life for the selected product to avoid early re-lamping.
 - vi) Provide building occupants a forum to provide feedback on lighting quality or occupant comfort issues to building operators.
- b) Clean Heat Exchangers and Perform Routine Maintenance
 - i) Include equipment cleaning in all routine maintenance procedures. This should include cleaning of heating/cooling coils, condenser coils, and fan blades, adjusting drive belts and changing air filters. These simple measures will ensure the most efficient operation of HVAC equipment.
- c) Turn off Machines and Equipment when not needed. Achieve significant energy savings by eliminating “phantom loads”; turning off computers, monitors, power-bars, printers, and copiers overnight and on weekends. This equipment is often left running in the belief that shut them off shortens their life or that little energy is used in idle mode. Most office equipment becomes obsolete long before their useful life is exceeded. Screen savers do not reduce monitor energy use; only when a monitor is off is energy saved. In fact, screen savers should be avoided as they often prevent CPUs and monitors from going into power-save mode. Copiers consume almost as much energy in standby mode in order to keep the fusers warm. If a photocopier has an “auto-off” feature, it should be enabled.
- d) Buy energy efficient equipment. When buying or replacing computers, copiers, and other office equipment, compare energy requirements of various models. Energuide labels are available on many appliances and quantify estimated annual energy use for equipment. EnergyStar™ qualified products have significantly better performance than the average item in that category. Look for the EnergyStar™ sticker.
- e) Utilize on-site recycling and waste management within buildings.
 - i) As noted above, recycling centres in each building and within each site help to promote mainstream recycling of glass, plastic, cardboard, paper and metal. However, an additional step could be taken to help deal with the disposal of organic waste. Organic waste
- ii) Recommission and/or review the performance of building systems following the first year of operation to ensure proper operation.
- iii) Review equipment performance seasonally, if possible, or at least annually, to provide insight into potential operating issues.

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can be converted into compost and used as part of a landscaping maintenance program.

- ii) Implement an education and collection program to encourage building users to separate their organic materials from general waste and recyclables. If the amount of organic waste resulting is too large to be handled on-site, seek out community partners or a local composting organization that can make use of this waste stream.
- f) Use sustainable landscape and site maintenance practices.
 - i) Native and adaptive plants in landscape designs require little, if any, irrigation, once established. Beyond the establishment point, these plants should also require very little maintenance from the perspective of chemical fertilizers and pest control.
 - ii) To complement this additional care in landscape design, consider a green site maintenance program. This program uses low-impact landscape maintenance practices, no harmful chemicals, fertilizers or pesticides that may impact water quality, the environment or cause harm to site users.
 - iii) During cold weather periods, snow and ice control should be completed using strategies that will minimize the impact on the surrounding environment. Consider the use of resources such as "*Snow and Ice Control: Guidelines for Materials and Methods*", published by the National Cooperative Highway Research Program, which outlines best practices for snow and ice control.