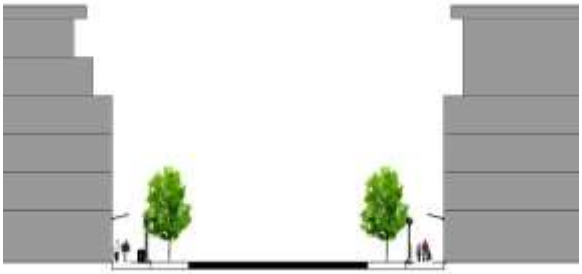
PART 2.
GENERAL CITY DESIGN GUIDELINES

The General City Design Guidelines implement the City's Urban Design Objectives and Policies for city-wide development located in the public and private realm. These guidelines are intended to guide many types of development in the City and may be enhanced by more detailed design guidelines provided in this Manual, other City guidelines and project design guidelines.



A "streetscape" is the combination of the physical elements that give character to the street including the road, street lights, street trees, street furnishings, sidewalks and building façade design.

2.1 HIGH STANDARD OF URBAN DESIGN

- Policy Objective: Promote a high standard of urban design in the City of Waterloo.

2.1.1 Pedestrian-Friendly Design

- *Guideline Objective: To design the streetscape as pedestrian-friendly features and spaces.*

✓	✓	✓	✓	✓
Master Plan	Public Realm	Development Review	Site Planning	Information Purpose

1. Encourage grade-related access from public spaces to amenity areas and building entrance(s). Avoid abrupt or major changes in grade between street and building entrance(s) where possible.
   - ***Guideline Tip:*** *Pedestrian walkways should generally range between 2%-6% change in grade.*
   - ***Reference****: The City of Waterloo Accessibility Standards (2016) as amended*
   - ***Reference:*** *Development Engineering Manual (2013) as amended or the successor manual.*
2. Design sites and buildings to contribute to animated streetscapes. Design buildings with articulated building facades facing public streets and publically oriented spaces. Pedestrian interest is enhanced when windows and doors face the street. Avoid blank, flat walls along street frontages.
3. Encourage opportunities for special paving, landscaping, seating and pedestrian-scale lighting to create pedestrian interest along the street and to promote human-scale dimensions.
4. Design sites to promote and facilitate human activity and social interaction for people of all ages and abilities. Encourage courtyards, forecourts, plazas, patios, and other amenity spaces to enliven the public or semi-public realm and to allow convenient access between public and private spaces.

Pedestrian friendly streets are created through wide sidewalks, street trees and interesting façade designs that add interest along the street (Waterloo).

Pedestrian scale elements, the attention to detail and location of interactive elements such as verandahs and porches, also result in pedestrian friendly streets (Mississauga).

5. Design sites and buildings to improve human comfort (micro-climatic conditions) along streets and amenity areas. Encourage use of awnings, canopies, overhangs, colonnades, arcades and landscaping.

   - ***Guideline Tip: r**eview Zoning By-law for encroachment regulations.*

6. Design sites and buildings to reduce the impact of the automobile and to emphasize pedestrian safety, accessibility and convenience. Locate parking in side and rear yards and screen from public view through landscape buffer treatment.

7. Create an integrated transition between public and private realm through coordinated landscape treatment and site design to facilitate pedestrian movement and interaction resulting in an integrated semi-public space.

8. Provide boulevard planting along all streets to promote pedestrian safety and safer walking environments, increased weather protection, improved air quality and reduced heat island effect. On streets with curb face sidewalks, provide sufficient building setback for soft landscape treatment including street trees, shrub planting and ground cover.

9. Design buildings to minimize shadow and wind impacts along public streets, public park spaces and outdoor amenity spaces.

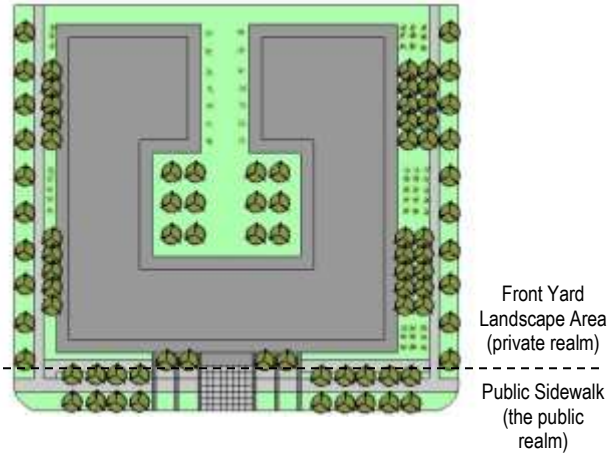
   - ***Reference: r**efer to SPRG for Shadow Study criteria.*

10. Encourage front or side lotted development along street frontage with opportunity for convenient public access from building entrances to public streets. Discourage rear lotted development and barriers along streets. When unavoidable, design rear-lotted development as pedestrian-friendly spaces with opportunity for landscaping, decorative fencing details and convenient pedestrian access to public streets.

    - ***Guideline Tip:** consult early with City and Regional Staff to discuss access on Regional roads and noise attenuation requirements.*

11. Locate above ground hydro utilities and infrastructure away from public view or underground and provide adequate buffer treatment to screen utility areas from public view.

    - ***Reference:** underground Hydro Facilities resolution (PWS2007-02, Council Meeting January 8 2007)*
    - ***Guideline Tip:** refer to SPRG for Hydro standards and contact Waterloo North Hydro early in the design stage to determine hydro requirements and detailed requirements.*



Pedestrian-friendly design involves a high standard of design in the public and private realm.

A shared design element, such as a boardwalk, creates a subtle transition between the public (park space) and private (condo project) realm (Toronto).

Curb faced streets can be softened through articulated building facades and landscaped setbacks (Ontario Growth Secretariat, Ministry of Infrastructure, Toronto)

2.1.2 Human-Scale Development

- *Guideline Objective: To design sites and buildings that relate to human-scale proportions and dimensions.*

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Master Plan	Public Realm	Development Review	Site Planning	Information

1. Locate and design buildings to establish a well-proportioned street enclosure (building height-to-street width ratio) where the height of the building does not overpower the street. Use a variety of massing techniques to achieve a well proportioned street enclosure generally ranging between 1:1 height-to-street width ratio to 1:4 height-to-street width ratio. Additional height may be considered subject to building step-backs, impact analysis and contextual considerations.

   - ***Reference:*** *maximum building heights are regulated by the Zoning By-law.*
   - ***Guideline Tip:*** *prepare Shadow Studies to determine appropriate massing forms that reduce impact to surrounding properties and result in a human scale of development.*

2. Implement strategies to reduce the scale of building height and bulk, such as:

   - modest increase in building setback to accommodate intensive landscape treatment(s) and larger canopy trees;
   - active ground floor uses;
   - vertical articulation along long facades;
   - upper storey building step backs; and,
   - lower storey step-back or pedestrian scale podium structures.

3. Design building entrances to be proportionally in scale with building design and relate to the street.

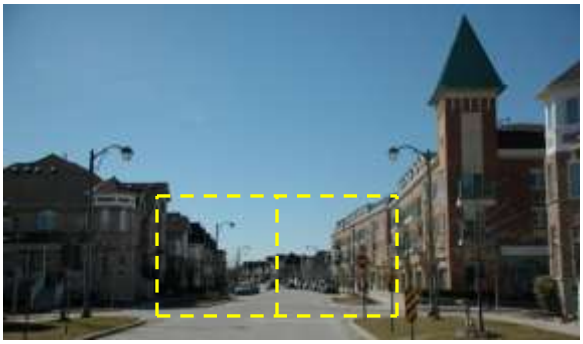
4. Encourage pedestrian-scale lighting in areas with high pedestrian traffic, amenity areas, or as an organizing element in larger parking areas.

5. Incorporate landscape material and elements that relates to human scale dimensions and helps to reduce the scale of building mass and scale adjacent to the street.

Human scale is lost when buildings over power the street (exceed a 1:1 ratio).

Human scale is lost when buildings are no longer able to frame the street (less than a 1:4 ratio).

A 10-storey building can result in a human scale form (Toronto).



A 1:2 height-to-width ratio achieves an effective ratio (Markham).

An upper storey step-back reduces the scale of building against the street (Waterloo).

2.1.3 Compatible Development

- *Guideline Objective: To design sites and buildings that enhances the quality of the surrounding neighbourhood character and does not result in adverse impacts to surrounding properties or loss in quality of life.*

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Master Plan	Public Realm	Development Review	Site Planning	Information

Landscape Buffers

1. Provide landscape treatment to screen and buffer service areas, parking areas and utilities, adjacent to residential properties and from public view.

   - ***Reference:*** *refer to "Landscape Design" Guidelines and SPRG for additional Landscape & Buffer" standards.*

2. Provide enhanced landscaping buffers abutting residential properties with opportunity for combination of deciduous and coniferous trees and decorative fencing. Provide larger and fuller canopy trees in wider buffer areas or more vertical tree forms at tighter interval spacing along narrow buffer areas.

3. Provide enhanced decorative fencing adjacent to surrounding residential properties and other sensitive uses.

   - ***Reference:*** *refer to SPRG for fencing guidelines ("Landscape & Buffer" standards).*
   - ***Reference****: Development Engineering Manual (2013) as amended or the successor manual, Part 5.0 for additional landscape design considerations.*

4. Locate and design amenity areas to be buffered from vehicular traffic such as parking areas.

Noise and Odour Mitigation

5. Design sites and buildings to mitigate noise conflict with priority given to reducing impacts to surrounding residential properties.

   - ***Reference:*** *review Zoning By-law regulations for buffer requirements.*
   - ***Guideline Tip:*** *prepare noise assessment study to evaluate the impact of noise on sensitive uses.*
   - ***Guideline Tip:*** *design roof structures to minimize noise to surrounding sensitive uses.*
   - ***Guideline Tip:*** *encourage acoustical noise fencing to minimize impacts to surrounding sensitive uses.*

6. Locate noise sources away from residential properties, particularly order board devices, hydro equipment, air conditioning units, refrigerator units and roof top equipment.

A low hedge provides an effective screen between a parking area and public view (MMM Group).

An increased side yard provides an effective buffer between different land uses including opportunity for larger trees and coniferous trees (Waterloo).

An enhanced landscape treatment provides an effective buffer between commercial and residential properties (Milton).

Rooftop noise is eliminated by locating rooftop equipment within a pitched roof structure.

7. Locate and design loading and garbage enclosure areas to minimize impact to surrounding residential properties, particularly through:

   - internal garbage enclosures;
   - below grade garbage collection systems (deep well systems);
   - intensive landscape buffers; and,
   - noise attenuation fencing between intensive loading areas and sensitive uses.

   ▪ ***Reference:*** *refer to Supplemental Guidelines for additional "Site Services" guidelines.*

8. Design buildings to architecturally integrate rooftop equipment into roof structure enclosed from public views and surrounding residential properties. Alternatives may be considered subject to adequate screening and buffering measures.

9. Design buildings with an internal heating and ventilation system and architecturally integrate venting into wall elevation. Discourage wall-mounted air-conditioning units.

Lighting

10. Design all site lighting to locate lamps and glare away from public view and sensitive uses. Design lighting to avoid glare through full cut-off light fixtures and ensure lighting does not spill over on adjacent properties. Review impacts from different grades and slopes.

    ▪ ***Guideline Tip:*** *prepare photometric plan to evaluate lighting impacts.*
    ▪ ***Reference:*** *refer to "Lighting" guidelines and to SPRC for lighting standards/criteria.*

11. Consider opportunity for directional lighting provided that there is no glare to surrounding properties or views.

Massing

12. Design and mass buildings to minimize adverse impacts on adjacent properties, outdoor amenity spaces and public spaces with respect to sunlight access, wind tunneling effect, noise attenuation and snow disposition.

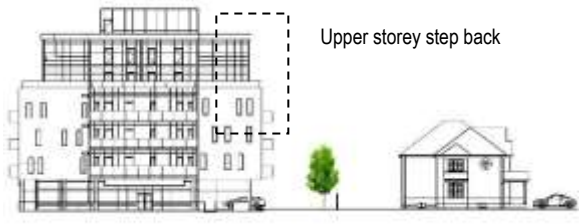
    ▪ ***Guideline Tip:*** *prepare impact studies to evaluate intensity of shadow impacts, wind and snow disposition.*
    ▪ ***Guideline Tip:*** *prepare different site plan and massing forms to evaluate wind and show impacts.*

13. Provide a transition in mass, such as facade step-backs, stepped building forms and increased building setbacks for additional landscape treatment, to create a more compatible relationship with surrounding low rise buildings.

Below grade garbage collection systems, also known as deep well garbage system, provide a compatible alternative to indoor storage location (Kitchener).

Full cut off lighting eliminates glare and light pollution to surrounding properties (Waterloo).

A stepped building form results in less wind and shadow impacts to surrounding properties (Toronto).



An upper storey step-back provides a more compatible form of development adjacent to low rise housing.

14. Design buildings, including their massing and rooflines, to respect the surrounding built form and contribute to a coordinated and pedestrian-friendly streetscape.

15. Design buildings and massing to reduce adverse impacts related to shadowing, wind and snow disposition. Discourage large, bulky building forms that result in greater shadow, wind and visual impacts. Design buildings with articulated massing including elements such as façade step-backs, terracing and tower forms to reduce adverse impacts.

    - ***Reference:*** *refer to SPRG for shadow study criteria.*
    - ***Reference:*** *refer to Supplemental Guidelines for Tall Building design.*

Building Design

16. Design buildings to minimize views into surrounding residential properties. Encourage upper storey step-backs and coordinate window locations to minimize views into surrounding properties where possible.

17. Integrate balconies into façade design through recessed or partially recessed balconies to reduce exposure and privacy impacts to surrounding residential properties and to create a more elegant building design.

18. Design buildings to architecturally complement and enhance the surrounding character.

19. Design building elevations with a consistent level of design, with particular attention to elevations facing residential and heritage properties and buildings located in prominent public view.

20. Design additions to complement the existing building form, architecture and heritage. Avoid massing, architectural elements and signage that overpower existing buildings or architecturally detract from the existing character.
21. Compatible development may include contrasting elements and features while still respecting the existing architecture and character of surrounding (and existing) buildings and streetscape.

Privacy is improved when new development incorporates recessed or partially recessed balconies (Toronto).

Complementary building designs contribute to neighbourhood compatibility (Kitchener)

A compatible development may include contrasting elements which distinguishes new additions from the existing structure (Toronto).

2.1.4 Safety and Security

- *Guideline Objective: To design sites and buildings for safe and secure use for all users and to reduce the incidence of feature and crime.*

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Master Plan	Public Realm	Development Review	Site Planning	Information

1. Apply the basic concepts of Crime Prevention Through Environmental Design (*CPTED*) in all projects including:

    - promoting natural surveillance and activities;
    - incorporate natural access control;
    - define territory; and,
    - effective maintenance.

2. Design sites, buildings and landscaping to avoid entrapment areas with emphasis on:

    - locating and designing buildings, structures and the site with clear sightlines into building entrances, parking areas, amenity spaces and site servicing areas;
    - flanking open spaces with public roads to improve the safety of park use through casual surveillance;
    - providing low growing plant material in areas along pedestrian walkways and in areas of potential entrapment;
    - providing adequate lighting in areas of pedestrian activity and use; and,
    - avoiding recessed or narrow spaces which are not supported with natural surveillance and security lighting.

3. Provide visible sight lines and direct pedestrian access to:

    - parking and site service areas;
    - publicly accessible spaces including lobby and elevator vestibule areas; and,
    - daylight visibility corners including street intersections and driveway intersections

    - ***Guideline Tip:*** *Review Zoning By-law, Ontario Building Code*
    - ***Reference:*** *refer to SPRG for daylight corner criteria.*
    - ***Reference:*** *The City of Waterloo Accessibility Standards (2016) as amended.*

4. Encourage other measures such as directional signage, video surveillance, phones and mirrors to broaden sight lines and increase security.

Natural surveillance is improved when public spaces have direct access and view from street and surrounding building windows (Mississauga).

Low growing planting schemes eliminate site obstructions and potential entrapment areas along pedestrian routes (Toronto).

An undulating berm provides adequate sight lines between the private and public realm (Waterloo).

Daylight corners improve pedestrian and vehicular safety at street intersections and site entrances (Waterloo).

5. Provide uniform lighting levels for improved visibility and provide lighting in areas which may be dangerous such as stairs, ramps or changes in grade. Avoid abrupt changes in lighting levels.

   - ***Reference:*** *refer to "Lighting" Guidelines and to SPRG for Lighting standards and criteria for more information.*

6. Design sites with priority given to pedestrian access including:

   - clearly sign vehicular, pedestrian and fire access routes;
   - locate buildings close to the street to provide direct pedestrian access from street to building entrance(s);
   - clearly identify pedestrian routes across sites and minimize conflicts with other site functions and potential blind spots;
   - consolidate vehicular entrances to reduce pedestrian-vehicular conflicts along property frontages;
   - provide dedicated pedestrian routes across large parking areas;
   - locate direction signs, light fixtures and other elements adjacent to travel path;
   - ensure curb cuts do not encroach into pedestrian or barrier free routes and walkways;
   - locate barrier free parking spaces close to building entrances and minimize conflicts with vehicular circulation; and,
   - design sites with gentle changes in grade for easy movement. Avoid steep or abrupt changes in grade.

   - ***Reference:*** *Refer to "Site Circulation" Guidelines for more information.*

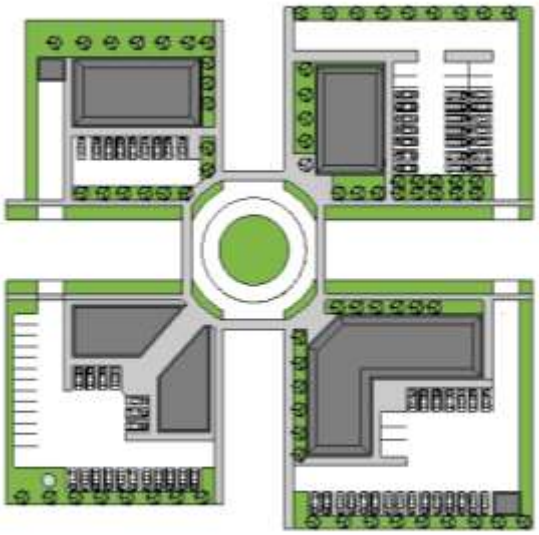
7. Provide unobstructed routes for fire trucks and emergency access. Design truck turning movements to City standards and functional turning movements.

8. Consider traffic calming features early in the design process with opportunities for curb extensions, raised surface treatments, chicanes, ribbed concrete, traffic circles and other traffic calming solutions.

   - ***Guideline Tip:*** *design traffic calming measures to avoid conflicts with emergency response vehicles. Review features early with City staff including Chief Fire Prevention Officer.*
   - ***Reference:*** *City of Waterloo Transportation Master Plan for Traffic Calming Guidelines.*

9. Provide construction-protection measures and traffic management plans during site construction phase.

   - ***Reference:*** *refer to Ontario Building Code for Fire Access requirements.*
   - ***Reference:*** *refer to SPRG for Staging and Construction Plan details and contact City for more information.*



Pedestrian safety is improved when direct pedestrian access is provided from public street to building entrances without vehicular conflict(s).

Pedestrian safely is improved with effective signage and by locating buildings close to the street (Kitchener).

For select locations, a raised platform provides an effective traffic calming feature (Waterloo).

2.1.5 Transit-Oriented Design

- *Guideline Objective: To design sites and buildings that relate to, and are integrated with, planned and future transit route(s) and promote transportation demand management strategies and transit use.*

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Master Plan	Public Realm	Development Review	Site Planning	Information

1. Design site(s) to locate higher density residential development and active uses in close proximity to transit routes and major transit stops with active uses at grade.

- ***Reference:*** *the City of Waterloo Station Area Planning – 5 Station Area Plans (2017) for general and site specific design direction for each major transit station area.*
- ***Guideline Tip:*** *refer to Zoning By-law for land use permissions.*

2. Design sites and buildings to provide direct and convenient pedestrian access to transit routes and stops with priority given to the primary transit route.

3. Locate buildings and building entrances close to the transit route to minimize walking distances to transit stops. Reciprocally, locate transit shelters close to major building entrances.

4. Design sites, buildings and transit areas for pedestrian comfort.

   - ***Guideline Tip****: review Zoning by-law regulations for canopy projections and encroachments.*

5. Encourage amenities, such as bike racks, benches, seatwalls, and other landscaping near transit stops and building entrances.

6. Locate transit shelters within public boulevards and in locations to facilitate snow clearing and avoid locations that block or obstruct intersections and sight lines. Consider alternative locations, such as front or side yard setbacks, when there is insufficient room within the boulevard.

   - ***Guideline Tip****: consult Region of Waterloo Transportation Planning Division to identify transit stop locations.*
   - ***Guideline Tip:*** *an easement may be required to secure transit stop locations and maintenance on private property.*

7. Promote transit shelter designs that enhance streetscape quality and character.

8. Encourage Transportation Demand Management options to promote alternative modes of transportation and reduced needs for parking.

   - ***Guideline Tip****: contact Region of Waterloo Transportation Planning Division for Transportation Demand Management Programs and for transit stop requirements.*

Transit oriented design occurs when higher density, front-lotted development is oriented towards the transit route (Markham).

Accessibility and convenience is improved when building entrances are located close to the transit stop (Toronto).

Accessibility is improved when sidewalks are coordinated between transit stops and building entrances (Brampton).

Building overhangs and arcades creates pedestrian-friendly streetscapes for transit users (Waterloo).

2.1.6 Building Design

- *Guideline Objective: To design buildings with well proportioned and articulated facades that relates to, and enhances, the surrounding neighbourhood character and context.*

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Master Plan	Public Realm	Development Review	Site Planning	Information

Articulated Facades and Massing

1. Design building facades for visual interest, particularly along the street level, the roofline, larger buildings and for master planned development. Create visual interest through a variety of techniques including:

   - horizontal and vertical articulation;
   - canopies, cantilevers and architectural screens;
   - prominent entrance features;
   - architecturally integrated signage;
   - integrated window openings and treatment;
   - coordinated building materials and colours;
   - coordinated architectural elements; and,
   - articulated rooflines.

   - ***Reference***: *Refer to Supplemental Guidelines for Tall Building guidelines*
   - ***Reference:*** *Refer to Section 2.5 Building Design and Construction for additional standards and built form criteria.*

2. Design buildings with articulated massing to create interesting building forms, complementary streetscape rhythm, as well as, to establish human-scale dimensions, compatible development and interesting skyline. As a general principle, avoid large, flat walls and boxy building forms. Articulated massing may include:

   - building stepping/façade step-backs;
   - layered massing (horizontal or vertical) and modulation;
   - fenestration and inter-fenestration coordination and detailing;
   - architectural projections and relief such as bay windows;
   - articulated rooflines;
   - change in materials and colour; and,
   - encourage vertical elements such as towers and window bays.

3. Provide relief to long building facades (vertical or horizontal) through vertical and horizontal elements. Design larger buildings to give the appearance of a collection of smaller structures.

4. Design facades with variation in building envelope to allow for elements such as entrances, window openings, courtyards, or other specific building articulations. These elements should provide interest and detail when viewed from the public street.

5. Design corner buildings with expressive massing and architectural features that relate to and reinforce the street corner. Encourage vertical elements such as towers, turrets and other features that accentuate the street corner. Design corner facades to address both street frontages with equal importance.

Coordination of vertical and horizontal elements result in a well balanced and composed elevation (Mississauga).

Vertical elements, layered massing and variation in material and colour help reduce the scale of large buildings (Waterloo).

Long commercial façades are softened through window treatment, cornices and vertical bays (Kitchener).

Corner sites are reinforced and accentuated through vertical massing elements and architectural features (Toronto).

6. Design articulated buildings with a richness of detail that includes variation in architectural elements, changes in wall change projection, colour, texture and materials such as:

Balconies	Gables	Porticos
Bays	Glazing	Reveal lines
Belt Courses	Interfenestration	Sash windows
Brackets	Lintels/sills	Soldier coursing
Columns	Parapets	Spandrels
Cornice	Pavilions	Transoms
Dormers	Pediments	Quoins
Friezes	Pilasters	Wall dormers

- ***Reference****: refer to Appendix (Glossary of Terms and Illustrated Architecturally Glossary) for reference.*
- ***Guideline Tip****: review Zoning By-law regulations for "architectural projections" to promote articulated building facades beyond the required building setback line.*

7. Encourage use of contrasting elements, colour and asymmetry particularly for landmark buildings, gateway locations and the building top section (upper storeys). Elements should be architecturally coordinated and not overpower the main building elevation.

8. Design the building entrance as an integral feature of the building façade. Design building entrances to:

- add interest along the street;
- be a focal point;
- be proportionate to the building scale;
- provide overhead protection from natural elements such as canopies or other overhang elements;
- emphasize the primary street frontage or major transit route;
- accentuate the street corner.

- ***Reference:*** *refer to Appendix Building Entrance Features.*

9. Architecturally integrate signage into the façade. Design signage in scale to the building and site with emphasis on human scale proportions and ensure signage does not block architectural features or overpower the façade.

- ***Reference:*** *refer to Supplemental Guidelines for additional signage guidelines.*
- ***Guideline Tip:*** *review Sign By-law for sign requirements.*

10. Encourage architectural elements that pronounce the interaction of light and shadow on the façade such as punched/recessed windows, bay windows and screens.

A subtle transition in design elements creates a well coordinated and composed building façade (Waterloo).

Simple building designs can be enhanced through contrasting colours, horizontal elements and projecting entrance features (Waterloo).

A prominent front entrance can be created through an architectural structure (Waterloo).

Shadows and increased expression can be achieved through architectural design details such as screens, spandrel panels and box bay windows (Waterloo).

11. Identify and incorporate heritage and architectural features, materials and colours that complement and improve the quality of the surrounding streetscape character and contribute to a sense of place.

Complete Buildings

12. Design buildings with a unified building mass that contributes to a common and coordinated architectural language across the length of the façade (or elevation) and entire building.
13. Organize building elements and spaces between them in a logical manner.
14. Design all buildings and architectural features to achieve a balance in elevation with emphasis on composition of scale, proportion, symmetry, light, pattern, texture and colours.
15. Design all buildings with a sense of order based on hierarchy of elements and features.
16. Design buildings with a consistent level of architectural expression and detailing. Design side and rear facades to architecturally complement the primary façade.
17. Architecturally integrate decorative light fixtures into façade. Illuminate building entrances, address signage and architectural features. Encourage directional light fixtures including soffit lighting, pot lights. Design light fixtures and lamps to avoid glare from public view and to residential properties.
    - ***Guideline Tip:*** *ensure lighting does not result in glare or spill over to surrounding properties or public spaces.*
18. Incorporate well proportioned windows that provide relief, detail and visual rhythm on the façade with emphasis on:
    - window patterns, proportions and orientation consistent with neighbouring buildings (where buildings are similar in scale) and scale of building;
    - provide larger sized window to break up and lighten the façade;
    - encourage multiple-pane windows for residential development;
    - encourage windows that are designed to create shadows such as shadow box windows; and,
    - encourage decorative elements such as lintels, casings, sills and trim.
19. Architecturally integrate mechanical systems and elements such as vents, within wall plan and building design.
20. Strongly encourage the incorporation of Green Building and High Efficiency Building Standards into building construction and design, including designing buildings to accommodate the future installation of green technology such as solar.

Well-composed building with integrated vertical and horizontal elements (BarrelYards elevation).

A consistent level of architecture is create when the design of side and rear elevations complement the primary façade (Mississauga).

An interesting roofline is created through a pitched roof with gable dormers (Waterloo).

Prominent entrance features require larger decorative columns (Waterloo).

Rooflines

21. Design buildings with an articulated rooflines including but not limited to:

    - gable and cross gable (pitched);
    - roof dormers;
    - vertical tower elements;
    - hip, pyramid hipped and cross hipped (pitched); and,
    - mansard (sloped).

    - ***Reference:*** *refer to Appendix for basic roof types.*
    - ***Reference:*** *refer to Appendix for interesting roofline examples.*
    - ***Reference:*** *refer to Supplemental Guidelines (Tall Buildings) for more information.*

22. Select roof styles that complement and enhance the surrounding character (neighbourhood and streetscape) with emphasis on buildings located on or near heritage buildings, residential neighbourhoods and for master planned development. As a general principle, encourage pitched or modulated roof forms particularly for residential buildings, commercial buildings and corner sites.

    - ***Reference:*** *review View and Vista Guidelines for more information.*

23. Consider flat roofs for a range of non-residential buildings including office, institutional and industrial buildings. Enhance or articulate flat rooflines through architectural elements such as cornices, coping, cantilevers and parapets. Encourage upper storey step-backs and terracing for mixed use and residential buildings.

24. Design rooflines to screen rooftop mechanical equipment from public views and surrounding residential properties through the following strategies:

    - locate rooftop equipment in central locations on the roof away from public view;
    - located rooftop equipment within roofline;
    - raised parapets; and
    - architectural screens.

    - ***Guideline Tip:*** *prepare cross section showing sight lines from public view.*
    - ***Guideline Tip:*** *review structural design and load bearing to accommodate rooftop screening and wind impacts.*
    - ***Guideline Tip:*** *review SPRG for additional information.*

25. Provide decorative rooftop screening. Design screening with durable materials architecturally compatible with the building design. Encourage louvered screens. Avoid wood screens which are susceptible to damage.

Articulated facades create interest along the street and can be used to create a focal point (Waterloo).

Layered massing and a cantilevered roof structure create interest to relatively simple building shape (Brampton).

Louvered screens effectively hides roof top mechanical equipment from public view (Waterloo).

Roof top screening is evaluated through simple cross section drawings.

Sympathetic Design

26. Design the shape of the building (it's massing) to respect the surrounding built form and context with emphasis on buildings located in the Uptown, adjacent to heritage buildings and abutting stable neighbourhoods. Primary techniques include upper storey step-backs, stepped building forms and podium structures.

27. For mid-rise buildings, encourage upper storey *step-backs* to provide relief in massing adjacent to stable neighbourhoods to reduce shadow impacts.

28. Design building facades that achieve a consistent rhythm along a street. Incorporate vertical elements and articulation at similar interval patterns.

29. Provide complementary building materials that result in coordinated elevations that enhance the surrounding character. Encourage brick facades, and other complementary materials, adjacent to low-rise neighbourhoods.

    - ***Reference:*** *refer to Character guidelines for more direction.*

30. Select architectural styles and elements that complement and enhance the surrounding character and context particularly near heritage properties and low-rise neighbourhoods. Specific elements may include:

Balconies	Fenestration	Pilasters
Bays	Friezes	Porticos
Belt Courses	Gables	Public Art
Belvederes	Inter-fenestration	Sash windows
Brackets	Lintels/sills	Soldier coursing
Columns	Parapets	Spandrels
Cornices	Pavilions	Transoms
Dormers	Pediments	Wall dormers

31. Select building colours and tones that complement and enhance the surrounding character and context. Create warm, vibrant streets through use of complementary warm colours and tones.

32. Use bold or contrasting colours for accent purposes and to create interesting building elevations.

    - ***Guideline Tip:*** *the greatest use of colour and contrast is intended for landmark buildings and master planned development.*

33. Encourage creative and innovative design solutions that fit the immediate context and function.

An upper storey step-back provides a sensitive transition in massing towards lower density housing (Toronto).

Streetscape rhythm is reinforced through vertical repetition of bay features and coordinated fenestration patterns (Toronto).

Streetscape rhythm is maintained when larger buildings incorporate vertical bays and wall dormers that complement surrounding architecture and scale of development (Kitchener).

Architectural innovation (Montreal).

High Quality Materials

34. Design buildings with materials that can result in articulated building massing with changes in projection or layering without restricting landmark buildings.

35. Design buildings with architecturally interesting and durable building materials. Encourage traditional and contemporary materials that relate to and enhance the surrounding character and context such as:

Traditional Materials:	Contemporary Materials:
Brick	Brick
Concrete	Architectural Concrete
Stone	Glass
	Metal/Steel

- ***Guideline Tip:*** *refer to Ontario Building Code regulations to determine if non-combustible material is required.*

36. Encourage architecturally innovative materials that result in interesting and expressive building designs such as brick cladding, curtain wall systems, architectural concrete and panel systems. Relief from other design guidelines may be provided to facilitate architecturally innovative building designs.

37. Avoid materials that will quickly deteriorate, stain or fade and discourage materials with lower quality attributes or conflicting aesthetics in public view or facing residential properties such as concrete blocks, vinyl siding, plastic and mirrored glass.

38. Reserve stucco for architectural features, accent(s) and additions rather than primary wall material. Consider a range of strategies to reduce the scale of larger wall facades, including larger window openings, curtain wall systems, spandrel panels and alternative materials.

High quality materials include brick, concrete, cornices, spandrel glazing and curtain wall systems (Toronto).

The quality of building is enhanced through brick walls, strong over-door canopies and large windows (Toronto).

Architecturally expressive buildings may include contrast in colour, patterns and materials (Columbia Place, Waterloo).

Stucco can provide an effective accent feature (Waterloo).

39. Architecturally integrate and incorporate mechanical elements, including vents, within wall plane or other façade features. Discourage wall mounted air conditioner units.

40. Architecturally integrate steps, access ramps and railings into the site and building design through the use of complementary materials, details and landscaping. Avoid wooden ramps and rails for development. Encourage poured-in-place steps rather than precast steps.

41. Design buildings and foundations (low or stepped foundation walls) to minimize the exposure of concrete foundation.

42. Design accessory structures (such as garbage enclosures, utility buildings) to architecturally complement the primary building design.

An integrated vent system results in a more attractive and clean building elevation (Waterloo).

Concrete poured-in-place steps are favoured over pre-cast steps (Waterloo).

2.1.7 Amenity Areas

- *Guideline Objective: To encourage site and building design that enhances the quality of life for its users and provides opportunity to relate and improve the quality of the public realm and semi-public realm.*

✓	✓	✓	✓	
Master Plan	Public Realm	Development Review	Site Planning	Information

1. Encourage outdoor amenity areas that relate to the street, and are in public view, such as landscaped entrance areas, outdoor patio areas, forecourts, courtyards, squares, plazas and play structures.

   - ***Reference:*** *refer to Appendix for Amenity Space examples.*
   - ***Reference:*** *The City of Waterloo Accessibility Standards (2016) as amended.*
   - ***Guideline Tip:*** *all park equipment to be designed and constructed to CSA standards when installed.*

2. Design outdoor amenity spaces for maximum human comfort and enjoyment for users of all ages and abilities. Locate in areas with maximum solar gain, provide outdoor seating areas and encourage overhead landscape structures, such a trellises, pergolas, pavilions and porticos that provide shade, urban seating areas and landscape elements.

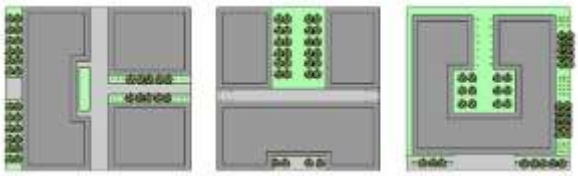
3. Encourage outdoor amenity spaces for commercial, institutional and industrial development such as:

   - landscaped courtyards;
   - landscaped plazas or forecourts; and
   - outdoor patio space.

4. Encourage outdoor amenity space for residential development including, but not limited to:

   - landscaped entrance area;
   - landscaped courtyard or urban garden;
   - outdoor patio area;
   - roof garden above podium structures;
   - terrace balconies; and,
   - play structure equipment.

   - ***Guideline Tip:*** *Ensure play structures are to be designed, installed and maintained to current CSA standards.*



New site development can provide opportunity for a broad range of amenity spaces.

A landscape courtyard space provides an urban amenity space (Mississauga).

An architecturally designed shelter creates an interesting and comfortable outdoor amenity space (Niagara-on-the-lake).

A centralized amenity space provides opportunity for social interaction (Waterloo).

5. Design amenity spaces as focal points in a site development. Encourage central locations or other prominent locations such as street corners, forecourts or major building entrance areas. Encourage interactive elements or public art as focal points.

   - ***Guideline Tip**: consider information boards in amenity areas to provide background information on historical or artistic features found on the site or surrounding area.*

6. Provide quality pedestrian-friendly amenities along walkways. Consider opportunities for special paving, street trees, pedestrian scaled lighting, weather protection, and lighting of the building, public art, clocks, information signage and well-designed street furniture such as benches and bike racks.

7. Provide outdoor bike parking spaces for all development projects. Locate in visible areas near building entrances and amenity spaces. Encourage bike shelters and indoor secure bike parking for larger scale projects.

   - ***Reference**: refer to SPRG for bike parking standards and criteria.*
   - ***Reference:** refer to the Transportation Master Plan (2020), which specifically references existing and proposed multi-use trails and bicycle routes.*

A well designed and placed arbor creates an effective focal point (Waterloo).

Bike shelters are a valued amenity (Waterloo).

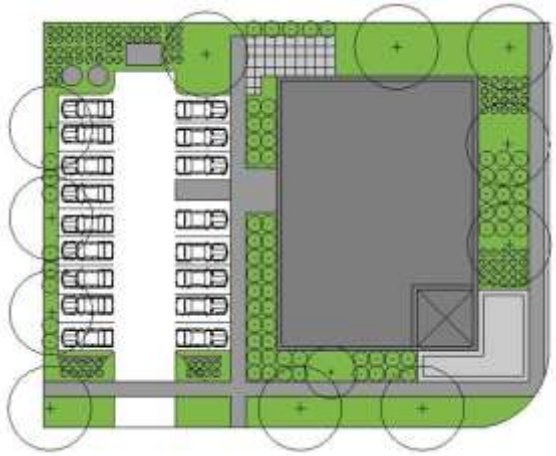
2.1.8 Landscape Design

- *Guideline Objective: To design sites with a balanced level of sustainable landscape treatment that complements the surrounding character, adds interest to the site and provides effective buffers and screening.*

✓	✓	✓	✓	
Master Plan	Public Realm	Development Review	Site Planning	Information

Basic Design Principles:

1. Design sites to incorporate existing natural vegetation as focal points or for tree preservation opportunities.
   - ***Guideline Tip:*** *prepare tree preservation plan to preserve prominent vegetation on site. Review Ministry of Natural Resources Species at Risk Act to ensure plant species are not subject to Ministry regulations.*
   - ***Reference****: refer to SPRC for Landscape and Buffer standards.*
   - ***Reference****: Development Engineering Manual (2013) as amended or the successor manual, Part 5.0 for additional landscape design considerations.*
2. Provide sustainable and drought resistant planting with variation to improve disease tolerance and reduce urban heat island effect. Encourage indigenous plant species and prohibit invasive plant species.
   - ***Reference****: refer to SPRG for preferred plant species list.*
3. Provide planting schemes that define edges to strengthen the streetscape and improve streetscape quality.
4. Design planting schemes that provide coherence and unity achieved through the coordination and repetition of landscape elements and patterns, and further, contributes to the surrounding neighbourhood character and sense of place.
5. Design planting schemes that establish a sense of hierarchy and proportion. Maximize opportunities for large tree canopy growth.
6. Design planting schemes that add visual interest (variation in height, colour and size) and accentuate building design.
7. Design planting schemes that provide effective buffers to different land use(s), changes in intensity and other impacts.
8. Select plant species to address maximum size and growing medium. Provide appropriate growing medium based on site condition including structural soils and insulated planter boxes for hard surfaces or raised planting areas.



The quality of site development is largely affected by landscape design, including front yard and side yard landscape treatment, buffers and amenity spaces.

Large canopy trees provide an appropriate transition between high-rise development and the public realm (Toronto).

Visual interest is increased through variation in height, form and material (Waterloo).

Decorative pavement contributes to an attractive entrance (Waterloo).

General Guidelines

9. Group trees and shrubs to frame building elevations and provide vertical plant forms to accentuate architectural features.

10. Provide hard and soft landscaping treatments to enhance building entrance. Encourage public art and other landscape elements that add interest and promote social interaction.

11. Provide decorative furnishings, particularly at building entrance locations and amenity areas that relate to a development theme or complement the streetscape character.

12. Provide shrub and ground cover to provide definition of walkways, building entrances, amenities areas and open spaces. Encourage bollard lighting to luminate pathway.

13. Provide foundation material to soften building elevation and to provide definition of walk ways and open spaces.

14. Encourage architectural structures, such as arbors, trellises, porticos and other elements that accentuate building design, pedestrian entrances and contribute to a sense of place.

15. Integrate site landscaping with site signage. Avoid plant species that may grow to block signage and pedestrian sightlines. Encourage low shrubs, grasses and stones appropriate to sign height.

    - ***Guideline Tip**: refer to Zoning By-law regarding height restrictions within daylight corners.*

16. Encourage decorative fence details, particularly as an entrance feature, architectural fencing and screening purposes.

17. Provide decorative retaining walls. Avoid wood, large concrete or intricate stacking wall systems in public view. Ensure retaining walls do not compromise landscape buffer requirements.

18. Incorporate landscape islands to reduce heat island effect in parking lots and to provide opportunity for infiltration and other storm water management functions.

19. Reduce the scale of parking areas through site landscaping including landscaped islands, enhanced streetscape planting and integrated amenity spaces. Consider opportunities to incorporate creative design solutions that add interest in parking areas and contribute to a development theme.

    - ***Reference**: refer to" Site Circulation" Guidelines (Parking Areas) for additional strategies.*

Foundation planting softens the building elevation and provides a transition between the building and parking area (Waterloo).

Pedestrian walkways are enhanced through decorative structures (Waterloo).

Urban heat island effect and the scale of large parking areas is reduced through landscaped islands and walkways (Waterloo).

Creative details, such as an industrial curb stop, can add interest in a development and contribute to a development theme (Montréal)

Landscaped Buffers and Screening

20. Provide landscape buffers to screen parking and utility areas from public view. Landscape buffers shall include tree and shrub planting and will be measured as an average setback from the common property line. Decorative fencing is encouraged.

    - ***Guideline Tip****: review Zoning By-law and SPRG for buffer requirement which typically range between 1.5m to 5m and up to 10 metres.*
    - ***Guideline Tip****: consult with City to confirm if there are any special zoning provisions for landscape buffers.*

21. Provide a substantial and effective landscape buffer to separate different or more intensive land use(s) adjacent to residential properties. Landscape buffers are to include a combination of deciduous/coniferous trees, shrub planting and decorative fencing.

    - ***Guideline Tip:*** *refer to Compatible Development guidelines.*
    - ***Guideline Tip****: refer to SPRG for specific buffer requirements.*

22. Provide adequate buffers to accommodate on-site snow storage. Increase buffers or internal landscape areas to provide sufficient area for snow storage and locate away from storm management ponds.

23. Design site to minimize conflicts between different functions with emphasis on maintaining minimum buffer standards. Encourage wider buffers to accommodate site drainage, utility equipment, retaining walls and access routes. Consider alternative designs, such as landscape swales, to accommodate shared site functions subject to City approval.

- ***Guideline Tip****: ensure all site plan drawings are fully coordinated to avoid conflicts between site functions such as site grading or storm water management requirements and landscaping standards.*

24. Provide low level landscaping to avoid (sight) obstructions in daylight corners and to signage.

Parking areas can be effectively screened through intensive landscape treatment with shrub planting (Burlington).

Coniferous trees and shrub planting provides an appropriate screen adjacent to utility areas (MMM Group).

Landscape berms provides an effective buffer from cars and noise along busy roads (Kitchener).

Ground signs are enhanced through low-level plant materials (Waterloo).

2.1.9 Lighting

- *Guideline Objective: To design sites and buildings with attractive light fixtures that provides safe lighting levels on site and avoids impacts to surrounding properties and public view.*

✓		✓	✓	
Master Plan	Public Realm	Development Review	Site Planning	Information

1. Design all site lighting to reduce and minimize light pollution and glare.

   - ***Reference:*** *International Dark Sky Association.*

2. Design all lighting to avoid glare to residential properties and in public view including streets, sidewalks and walkways through full cut-off light fixtures. Avoid semi cut-off light fixtures including wall pack fixtures and globe fixtures which cast significant glare.

- ***Reference:*** *refer to Compatible Development Guidelines to facilitate compatible development.*

3. Ensure pedestrian areas are adequately lit including building entrance areas, walkways, amenity areas, service areas, changes in grade and illumination to articulate steps.

4. Provide uniform lighting without sudden light-to-dark transitions. Coordinate spacing and height of luminaries with landscaping to ensure lighting coverage is not interrupted by tree canopies. Provide for some overlap of light distribution and ensure lighting does not spill over onto adjacent properties.

- ***Guideline Tip:*** *provide minimum illumination in accordance with Municipal and Regional illumination requirements.*
- ***Guideline Tip:*** *prepare photometric plan to evaluate lighting levels on site and to adjacent properties.*
- ***Reference:*** *refer to Site Plan Review Guidelines for illumination criteria.*

5. Encourage white lights to improve visibility and discourage lights which distort colour.

6. Encourage pedestrian scale lighting, primarily along primary pedestrian routes and activity areas, to promote pedestrian friendly streets and human-scale dimensions.

7. Encourage decorative light fixtures for all site development. Consider opportunities for directional upward and downward lighting to accent building design provided there is no glare to surrounding properties or public spaces and avoid over illumination.

Pedestrian scale lighting contributes to human scale environment (Waterloo-Kitchener).

Major site entrances can be enhanced through architectural light fixtures (Waterloo).

Pedestrian scale, full cut off fixtures provide safe lighting along pedestrian walkways (Waterloo).

Full-cut lighting or directional lighting avoids glare to surrounding properties and streets.

2.2 CONTEXT AND SENSE OF PLACE

- Policy Objective: To respect context and achieve sense of place.

2.2.1 Respect Existing Features + Conditions

- *Guideline Objective: To design sites and buildings to respect, and to minimize impacts, to existing conditions and to incorporate prominent features where possible.*

✓	✓	✓	✓	✓
Master Plan	Public Realm	Development Review	Site Planning	Information

1. Design sites to incorporate existing natural features as focal features, buffers, grades, berms or other site amenities.
   - ***Guideline Tip:*** *identify prominent site features during the pre-consultation process and identity on existing conditions plans.*
2. Design roads and streets to avoid negative impacts to large trees and prominent vegetated areas.
3. Retain prominent existing features through a variety of strategies including open space planning, tree saving measures, street alignment, building location and design (custom floor plans).
4. Design buildings to minimize impact on existing site grades through creative design solutions such as stepped building foundations (floors), alternative building footprint(s), and terracing solutions.
5. Where possible, match grades to surrounding properties and to street grade. Use natural grades across site, and where required, provide an integrated retaining wall system that creates a natural transition in grade across the site and contributes to an attractive streetscape.
6. Design sites to avoid or minimize impacts to existing site features and vegetation. Provide adequate buffers and protection measures through the approvals and construction processes.
   - ***Reference:*** *refer to SPRG for Tree Preservation standards.*
   - ***Guideline Tip:*** *consult City landscape architect and forestry operations to review tree management strategies.*
7. Design sites to contain stormwater on site and minimize overland flow to surrounding properties.

- ***Guideline tip:*** *refer to Development Engineering Manual (2013) as amended or the successor manual for grading standards.*
- ***Guideline tip:*** *show location of infiltration galleries on site plan and avoid conflicts with site landscaping.*

Existing vegetation can be conserved through minor changes in street design and alignment (Toronto).

Existing features, such as large trees, can be integrated as a focal point in new development (Oakville).

Locate and mass buildings to avoid impacts to existing trees (Waterloo).

A generous setback with armour stone terrace provides a sensitive transition between grades (Waterloo).

2.2.2 Views and Vistas

- *Guideline Objective: To design sites and buildings that contributes to interesting views and vistas from various perspectives.*

✓	✓	✓	✓	
Master Plan	Public Realm	Development Review	Site Planning	Information

1. Recognize and protect major views in the City with particular attention to those of open space, civic buildings, landmarks, heritage or cultural resources, cultural landscapes, urban landscapes and the skyline.

   - ***Guideline Tip:*** *during site visit, investigate opportunities for interesting site views and vistas.*

2. Design sites, including the alignment of public and private streets to maintain, create or enhance prominent site views.

3. Locate and design buildings with prominent architectural features at the end of terminating views and street corners. Emphasize through vertical articulation, interesting architectural features, glass features, alternative building materials, colour or other design strategies.

4. Locate amenity spaces, focal points or landmarks, to create interesting views from public areas, and from within the site.

5. Design buildings to provide interesting views to surrounding features and spaces. Encourage angled balconies, terraced balconies, curtain wall systems, projecting windows, roof top gardens and other strategies to promote external views.

6. Design buildings that contribute to an interesting and distinctive skyline through articulated rooflines and upper storey massing, as well as, through slender building designs rather than bulky designs. Promote a harmonious and shaped skyline rather than a shapeless and disorganized skyline.

   - ***Reference:*** *refer to Supplemental Guidelines for Tall Buildings.*

7. Design streetscapes to reduce clutter with emphasis on screening rooftop mechanical equipment and integrate signage into building and site design.

8. Consider view impacts from taller buildings to surrounding roofs. Design roof structures to minimize visual impact of rooftop equipment. Encourage landscape treatment (green roofs) on lower building rooftops.

Locate and design tall buildings to create a distinctive skyline.

Building design elements play an important role in creating interesting terminating vistas (Waterloo).

Vertical elements provide an interesting view at major intersections (Milton).

A curtain wall system creates a transparent façade from the surrounding park, and also, maximizes views into the park (Montréal).

2.2.3 Character

- *Guideline Objective: To design sites and buildings that respect and enhance the surrounding neighbourhood character and contribute to a sense of place.*

✓	✓	✓	✓	
Master Plan	Public Realm	Development Review	Site Planning	Information

1. Design streetscapes, and planned development, with coordinated and unifying elements with emphasis on boulevard landscaping, façade articulation, complementary rooflines and architectural detailing (material selection, colour and style). Where possible, encourage planned development to respect and enhance the character of surrounding buildings.

   - ***Guideline Tip:*** *all street design standards shall be to the satisfaction of the designated municipal authority. Consult staff to review opportunity for streetscape improvements.*
   - ***Reference:*** *refer to Supplemental Design Guidelines for Streetscape Guidelines.*

2. Respect the traditional street line and neighbourhood character. Locate buildings to maintain a similar or respectful setback with adjacent buildings.

3. Design buildings to promote a human-scale rhythm that complements the surrounding context. Attempt to match or respect existing floor heights, fenestration details and proportions.

4. Preserve and enhance the residential character of local residential streets, particularly within or near heritage districts. Design facades to be sympathetic to the surrounding context.

5. Select building colours that complement and enhance the existing neighbourhood character.

   - ***Guideline Tip:*** *encourage Applicants to survey the surrounding neighbourhood character and prepare a colour palette to review with City for discussion and recommendation (Context Plan).*
   - ***Guideline Tip:*** *alternative colours will be considered for landmark buildings, gateways and for architectural expression and interest.*

6. Encourage distinctive elements that add interest along the streetscape and building design. Promote innovative designs for landmark projects and focal points.

7. Design fencing as a unifying streetscape element with attention to detail. Encourage use of wrought iron fencing, decorative piers and high quality material(s). Avoid irregular fence styles along the street or in public view.

   - ***Reference:*** *refer to SPRG for Fence details.*

Alternative, coordinated landscape elements, provides opportunity for local identity and sense of place on a block or neighbourhood scale (Montréal).

Through coordinated design elements, infill development can strengthen neighbourhood character (Waterloo).

Modern housing designs can add interest along the street and complement the surrounding character (Kitchener).

With coordinated design elements, commercial development can strengthen neighbourhood character (Guelph).

2.2.4 Heritage

- *Guideline Objective: To design sites and buildings to conserve prominent heritage resource(s) to enhance the quality and character of the surrounding character and to respectfully strengthen the cultural context and identity of the City.*

✓	✓	✓	✓	
Master Plan	Public Realm	Development Review	Site Planning	Information

1. Consider a variety of strategies to sympathetically integrate new development with existing or surrounding heritage resource(s), as well as, historic neighbourhoods and cultural landscapes, such as:

Process	Preferred Strategies	Alternative Strategies
Assessing	Preservation	Relocation
Evaluation	Rehabilitation	Replication
Consultation	Restoration	Interpretation
Recommendations	Conversion	Reconstruction
Approval(s)	Conservation	Modernization

- ***Guideline Tip**: consult major legislation, such as Ontario Heritage Act, and policies, such as the Provincial Policy Statement and City Official Plan policies, to determine if special heritage considerations apply to site development or redevelopment.*
- ***Guideline Tip:** consult the Program Manager, Heritage Resources at the City to review list of current heritage resources in the City of Waterloo.*
- ***Guideline Tip**: consult Program Manager, Heritage Resources at the City to schedule presentation to the Municipal Heritage Committee to review development proposal(s) for information purposes or to receive statutory recommendations (if applicable).*
- ***Guideline Tip**: demolition permits are circulated to Municipal Heritage Committee for review and comment.*

2. Design buildings to respect and complement surrounding heritage character with careful attention to selecting complementary architectural features, materials and colours that match or complement the surrounding features and character.

- ***Reference**: MacGregor Albert Heritage Conservation District*
- ***Guideline Tip**: Special permission will be required for any alteration to a heritage resources designated under the Ontario Heritage Act.*
- ***Guideline Tip**: Prepare a Heritage Impact Assessment to evaluate the impact of a new development on or near a significant heritage resource.*
- ***Guideline Tip**: prepare architectural and massing plans that demonstrate how new development relates and complements the surrounding character.*
- ***Reference**: refer to Recreation and Leisure Services Master Plan.*

***Reference**: Provincial Policy Statement:*

2.6 Cultural Heritage and Archaeology (PPS)

- *2.6.1: Significant built heritage and significant cultural heritage landscapes shall be conserved.*
- *2.6.3: Development and site alteration may be permitted on adjacent lands to protected heritage property where the proposed development and site alteration has been evaluated and it has been demonstrated that the heritage attributes of the protected heritage property will be conserved. Mitigative measures and/or alternative development approaches may be required in order to conserve the heritage attributes of the protected heritage property affected by the adjacent development or site alteration.*

Adaptive re-use provides an effective strategy to conserve heritage resources (Seagram's Lofts, Waterloo).

Replication provides a strategy for new development to complement surrounding heritage buildings (Waterloo).

3. Design new buildings or additions to architecturally complement the existing heritage resource with emphasis on the quality and character of new building materials, colours and elements.

   - ***Guideline Tip**: consult Municipal Heritage Committee for design suggestions and opportunities.*

4. Consider opportunities for contrasting materials and expressions provided the proposed development is sympathetic to the existing heritage resource and does not overpower or conflict the existing heritage resource.

5. Ensure new elements are sensitively integrated into the existing heritage resource. Design signs, lighting, architectural elements and landscape features, to complement the existing building design and landscape theme. Avoid elements that overpower or conflict with existing heritage resource.

6. Design sites and buildings to interpret local history of the site or surrounding area. Encourage interpretative elements, public art, heritage artifacts and heritage architectural features to reflect site's past and heritage. Locate in visible locations and incorporate into landscape design with information signage.

   - ***Guideline Tip**: investigate weather protection techniques.*

7. Promote heritage recognition and interpretation through coordinated signage and wayfinding strategies.

   - ***Guideline Tip**: update Loop System to identify prominent heritage resources.*

A variety of strategies may be needed to integrate infill development with historic properties (MMM Group).

In some situations, contrast provides an effective strategy for intensification (Toronto).

Industrial artifacts provide an opportunity to reflect a site's (and often City's) former history (Mississauga).

2.2.5 Gateways

- *Guideline Objective: To design gateways with a coordinated level of site and building design in the public and private realm that distinguishes important entrances in and across the City.*

✓	✓	✓	✓	
Master Plan	Public Realm	Development Review	Site Planning	Information

1. Provide an enhanced level of coordinated site design at major and minor gateway locations in the City.
   - ***Reference**: primary gateway locations are established on a City Gateway Map provided in the Appendices. Uptown gateways are identified in Supplemental Design Guidelines section.*
   - ***Guideline Tip**: consider opportunities to establish gateways through the Master Planning and development review process.*
   - ***Reference:** gateway features proposed in subdivision development are subject to Council policy.*

2. Provide coordinated or complementary design elements in the public and private realm that contribute to a unified theme or character. Unifying elements may include but not limited to:

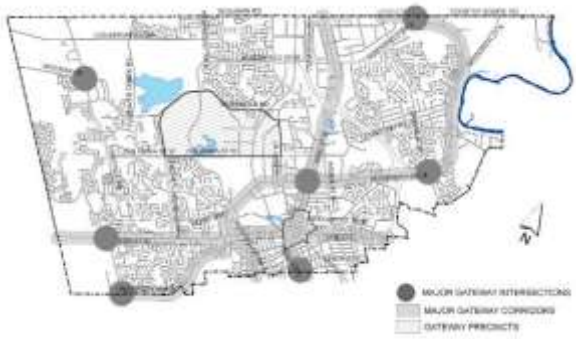
Public Realm	Private Realm
Tree and plant species	Tree and plant species
Decorative street furniture	Decorative street furniture
Decorative planters	Decorative planters
Paving details	Decorative walls/fencing
Banners	Public Art
Public Art	Architectural elements
	Building materials
	Signage and lighting

   - ***Guideline Tip**: consult City or Region to discuss maintenance requirements for public realm improvements.*
   - ***Guideline Tip**: review daylight corner requirements.*

3. A higher level of design coordination and features are expected at major gateway areas than minor gateway areas. A higher level of design coordination, and incremental improvement, is also expected along the City's gateway corridors.

4. Consider opportunities for distinctive elements in the public realm subject to City/Regional approval and budget considerations.

5. Encourage vertical massing elements, such as clock towers, decorative masts, decorative lighting. Elements should frame and signal the importance of corner locations. Some variation in massing and architectural expression is encouraged.



In Waterloo, the major gateways are located on the major transit corridors, major intersections and several precinct areas (See Appendix for larger plan)

Major entrances into the City can be defined through strong vertical elements (Montréal)

District boundaries can also be defined through prominent gateway features (MMM Group).

Minor gateways can be defined through vertical massing elements and signage in the private realm (Toronto).

2.3 CONNECTIVITY AND INTERACTION

Policy Objective: To enhance connectivity and interaction.

2.3.1 Networks

- *Guideline Objective: To create an inter-connected open space network.*

✓	✓	✓	✓	
Master Plan	Public Realm	Development Review	Site Planning	Information

1. Design park spaces and all open space linkages including trails to be part of the larger network of Open Space linked by trails, connecting new and old neighbourhoods.

2. The design of parks should provide safe environments, framed by active public land uses and street frontages.

3. Design sites and buildings to connect to the surrounding open space system including parks, trails, public streets and transit routes. Consider opportunities to provide multiple pedestrian or open space linkages to connect to the public realm, including mid-block linkages, trail linkages and open space connections. Ensure linkages are fully visible from public property and have clear sight lines across private development with opportunity for landscaping treatment.

4. Design sites to connect to, or re-establish the street network system.

5. Encourage mid-block pedestrian connections through large block development. Distinguish space from public realm through alternative paving materials, landscape treatment or architectural cues. Ensure space incorporates principles of CPTED.

   Guideline Tip: *consider opportunities to establish connections through public access and private maintenance easement agreements.*

6. Maintain and expand trail network system. Consider special streetscape details and markings for new trails and heritage in urban locations. Develop consistent standards for specific types of trails to give users a sense of place and orientation.

7. Create a coordinated sign program to identify parks, open spaces, heritage, public art and emergency access as part of a wayfinding system.

- ***Guideline Tip:*** *consult City's Trails and Advisory Committee to review network connections*
- ***Guideline Tip:*** *investigate opportunities to expand The Loop in the Uptown Area.*
- ***Reference****: Recreation and Leisure Services Master Plan.*

Reference: *Provincial Policy Statement:*

1.5 Public Spaces, Parks and Open Space (PPS)

- *1.5.1: healthy, active communities should be promoted by:*

a. planning public streets, spaces and facilities to be safe, meet the needs of pedestrians, foster social interaction, and facilitate active transportation and community connectivity;

b. planning and providing for a full range of, and equitable distribution of, publicly accessible built and natural settings for recreation, including facilities, parkland, public spaces, open space areas, trails and linkages, and, where practical, water-based resources

The open space system can be connected through new park spaces in development (Google Earth, Oakvile)

The quality of the public realm is improved with streetscape enhancements and integrated signage (Waterloo).

Multi-use trails provide transportation alternatives (Cambridge, MA).

2.3.2 Site Circulation

- *Guideline Objective: To design sites and buildings with an efficient and safe circulation system with high priority given to pedestrian accessibility and neighbourhood connectivity.*

✓	✓	✓	✓	
Master Plan	Public Realm	Development Review	Site Planning	Information

Circulation Principles:

1. Design sites to accommodate a variety of users and site functions with emphasis given to pedestrian circulation, convenient pedestrian access, universal design and safe access.
   - ***Reference:*** *The City of Waterloo Accessibility Standards (2016) as amended*
   - ***Guideline Tip:*** *refer to city site plan standards and zoning by-law for visibility triangle requirements.*
2. Establish a hierarchy of routes to create an integrated, balanced and direct circulation system. Incorporate features that distinguish primary routes from secondary routes.
3. Design sites to provide or improve access to city streets, public spaces and transit routes.
4. Design sites, including building location, parking areas, amenity spaces, service areas and walkways, to minimize conflicts with pedestrian routes and accessibility.
5. Provide direct pedestrian access to building entrances and public spaces. Follow natural desire lines where possible.

Pedestrian Circulation

6. Locate and design buildings to provide direct pedestrian access from the street to building entrance(s). For larger sites, provide multiple pedestrian routes (walkways) to surrounding open space system and traversing larger parking areas for convenient and direct pedestrian access.
7. Design sites with continuous routes, providing access from site to surrounding streets, open spaces and amenity areas. Encourage mid-block connections on through lots.
8. Extend sidewalks across all driveway entrances and major pedestrian crossings internal to the site.
9. Emphasize the primary pedestrian routes through wider sidewalks, enhanced landscape treatment, decorative street furniture and pedestrian scale elements.

An integrated circulation system provides direct connections to surrounding streets, trails and park spaces (conceptual pedestrian circulation plan for BarrelYards project).

Accessibility is improved when pedestrian connections are linked to city trails (Waterloo).

A mid-block linkage provides connection and improves access on the site and in the City as well (Portland, OR).

Dedicated pedestrian routes provides safe access through parking areas (Waterloo).

10. On corner sites, provide for direct pedestrian access from intersection to primary building entrance(s). Encourage access from building to both street frontages where possible.

11. Design buildings to provide primary entrance in close proximity to the street corner, particularly along the primary transit route.

    - ***Reference:*** *refer to Appendix for Building Entrance examples.*

12. On transit routes, locate the primary building entrance along the primary transit route or at the street corner.

13. Design all pedestrian routes for universal (barrier free) access.

    - ***Reference:*** *The City of Waterloo Accessibility Standards (2016) as amended.*

Emergency Access

14. Design sites and buildings to meet emergency access standards and fire protection measures. Ensure that redevelopment proposals and proposed additions do not block existing fire routes.

    - ***Reference:*** *refer to Ontario Building Code for minimum Provincial requirements for Fire Projection Measures.*
    - ***Reference:*** *refer to SPRG for Fire Protection and Turning Movement Standards.*
    - ***Guideline Tip:*** *consult Municipal Building Official from Building Standards Division and Chief Fire Prevention Officer from Waterloo Fire Rescue to review City Emergency Access requirements and traffic calming elements.*

15. Design sites to accommodate emergency access vehicles with adequate turning movements based on City design standards and vehicular turning movements. Provide convenient turning movements and avoid long reverse movements.

16. Locate fire route signage along fire routes at regular intervals. Avoid obstructions along fire routes.

17. Locate fire hydrants and siamese connections in visible locations and away from snow storage areas. Ensure landscape treatment does not obstruct fire access equipment.

18. Provide building and site signage that clearly identifies the building address for multi-unit and multi-building sites to improve emergency response. Encourage multi-unit signs for sites with multiple buildings.

    - ***Reference:*** *refer to Supplemental Design Guidelines for additional Signage guidelines and to SPRG for Street Addressing standards.*

Direct and safe pedestrian access is provided when buildings are located adjacent to the street (Kitchener).

Direct access is provided when pedestrian routes are provided from the street corner to entrance (Waterloo).

Traffic islands provide ideal locations for fire route signage and fire hydrant locations (Waterloo).

Vehicular Circulation and Parking

19. Design sites with a hierarchy of private streets that provide efficient circulation and connectivity internal to the site and access to public street(s).

20. Consolidate and minimize the width of driveway entrances (and turning radius) across public sidewalks to facilitate safe(r) pedestrian access and encourage shared drive way-entrances to reduce vehicular-pedestrian conflicts.

    - ***Guideline Tip:*** *consult Region of Waterloo regarding driveway width and boulevard curbing standards along Regional Roads. Regional standards may vary from City standards.*

21. Provide pedestrian crossings at major internal intersections. Extend sidewalks across driveways or alternative materials. Avoid painted lines which fade over time.

22. On larger sites, design internal streets for a range of uses and functions including opportunities for on-street parking, bike lanes and pedestrian crossings.

23. Design site to reduce vehicular car-to-car conflicts at site entrances, along primary internal streets and transit routes. Encourage landscaped boulevards, islands and other strategies to reduce conflicts and to clearly distinguish travel routes.

24. Provide for direct, convenient and safe turning movements particularly for site service areas. Design sites to avoid difficult turning movements and lengthy reverse movements.

    - ***Reference:*** *refer to SPRG for vehicular turning standards.*
    - ***Guideline Tip:*** *show centre-line turning radius on site plan drawings.*

25. Design sites to minimize the impact and scale of parking areas. Locate buildings to frame the street with parking located in the side and rear yards. Encourage the integration of smaller scale parking areas with coordinated landscape treatment rather than large parking fields. Incorporate large landscaped islands and pedestrian walkways to further reduce expansive asphalt areas.

26. Do not locate parking areas on or next to ramps or sloped grades.

27. Design parking areas for adequate snow storage and to minimize the effects of salt collection and infiltration. Avoid locating storage areas near storm water management ponds.

    - ***Guideline Tip****: Prepare salt management plans to identify the best locations for snow storage on site and minimize impact to surrounding properties and the environment.*

A high quality development provides an effective circulation system achieving a balance with parking needs and accessibility (CIGI Master Plan).

The impact of parking areas is reduced when parking is located in side and rear yards (Waterloo).

Efficient access is provided when the parking garage entrance is located close to the street (Toronto).

28. Locate barrier free parking near primary building entrances with flush curbing detail.

    - ***Guideline Tip****: Review Ontario Building Code requirements.*
    - ***Reference****: The City of Waterloo Accessibility Standards (2016) as amended.*

29. Locate visitor or temporary parking spaces close to building entrance and in visible locations. For infill development, consider opportunities for shared temporary visitor parking spaces with unregulated loading zones.

30. Provide adequate sight triangles for vehicular turning movements, particularly at street intersections, driveway intersections and turning movements.

    - ***Reference:*** *refer to City and Regional requirements for corner visibility standards.*
    - ***Guideline Tip****: Refer to City Development Manual Development Engineering Manual (2013) as amended or the successor manual.*

31. Incorporate landscaping in parking areas to achieve the following design objectives and principles:

    - provide shade and reduce urban heat island effect;
    - reduce the scale of large asphalt areas;
    - screen parking from public view;
    - emphasize the primary pedestrian and vehicular routes; and,
    - provide opportunity for retention basins and bio-retention systems.

32. Soften parking areas through intensive perimeter landscaping, internal landscaped areas and landscaped islands with emphasis on:

    - provide landscape islands adjacent to drive aisles;
    - provide larger landscape islands to reduce urban heat island effect in larger parking areas;
    - provide landscape islands at vehicular entrances (where possible);
    - encourage central landscaped walkways and along perimeter walkways; and,
    - screen shopping coral areas.

33. Encourage traffic calming measures to reduce speed and improve pedestrian safety. Consider a number of strategies including roundabouts (traffic circles), curb extensions (bump outs), chicanes, gentle speed humps, on-street parking and boulevard planting to reduce speed.

    - ***Guideline Tip:*** *ensure traffic calming does not have impact to emergency response vehicles.*
    - ***Guideline Tip:*** *review traffic calming features with City Transportation Division and Waterloo Fire Rescue.*

Visitor parking should be visible and accessible from public street (Toronto).

Sightlines and pedestrian safety is improved when parking garage is setback from sidewalk (Toronto).

The scale of large surface parking areas is reduced through perimeter landscaping and landscaped walkways (Google Earth, Waterloo-Kitchener).

Wider islands soften parking areas, but also, help reduce urban heat island effect and provide snow storage areas (Waterloo).

2.3.3 Universal Design

- *Guideline Objective: Design all sites, buildings and public spaces for universal design and barrier free accessibility.*

  - ***Reference:*** *all barrier free and universal standards must conform to Ontario Building Code and other applicable legislation.*
  - ***Reference:*** *refer to The City of Waterloo Accessibility Standards (2016) as amended.*
  - ***Guideline Tip:*** *consult City Inclusion Coordinator, GRAAC or Safety Healthy Community Advisory Committee for additional information.*

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Master Plan	Public Realm	Development Review	Site Planning	Information

1. Design sites for barrier-free access including:

   - Design barrier free access, ramps, slopes and signage to comply with Ontario Building Code requirements and other legislative standards.
   - Locate barrier-free parking spaces close to building entrances. Encourage the grouping of barrier free spaces and distribute across large sites.
   - Provide sufficient dimensions and height clearances for barrier free parking spaces;
   - Provide barrier free access from parking space to building entrance. Encourage barrier free access from public street to building entrance.
   - Design all pedestrian routes/walkways with curb cuts and include texture changes to identify change in slope and crossings.
   - Provide strategies, such as planter design, sign posts, bollards or wider sidewalks, to restrict vehicular encroachment into primary travel paths.
   - On narrow routes (1.2-1.5m), vestibule areas, provide larger platform area to accommodate turns and provide resting areas along longer distances.
   - Provide wider sidewalks at building entrance areas, adjacent to curb cuts and parallel barrier free parking space(s).

   - ***Reference:*** *refer to The City of Waterloo Accessibility Standards (2016) as amended for more information.*
   - ***Guideline Tip:*** *provide adequate number of barrier free entrances in proportion to total number of building entrances provided.*

2. As a general principle, the City of Waterloo Barrier Free Guidelines shall apply to all private development excluding standards and guidelines provided in the UDM and other applicable legislation.

3. Minimize grade changes to building entrances, ramp grades, driveways, walkways and intersections. Slope the boulevard to allow water to drain away from the sidewalk, avoiding the formation of puddles and hazardous ice. The sidewalk should slope toward the curb.

Notable Barrier Free References:

- Canadian Mortgage and Housing Corporation: Housing for Persons with Disabilities.
- Canadian Standards Association: CAN/CSA – B651-M-90 "Barrier Free Design – A National Standard of Canada" 1990
- National Capital Commission: "Barrier Free Site Design Manual" 1994.
- Ontario Ministry of Community and Social Services: "Designing for Disabled, Guidelines: 1987.
- Ontario Ministry of Housing "Ontario Building Code 1997 Section 3.8, Barrier Free Design: 1997.

- Legislative Reforms: The Province of Ontario is preparing draft legislation which will affect many aspects of site design to accommodate persons with disabilities. All stakeholders are encouraged to review the Initial Proposed "Accessible Built Environment Standard" for reference and consideration. The Urban Design Manual will be updated to reflect relevant legislation.

Effective accessibility is established when barrier free parking are located close to building entrances (Kitchener).

4. Ensure that slope transitions on the sidewalk are gradual and unobstructed, in accordance with municipal standards (where a sidewalk crosses an intersection).
    - ***Guideline Tip:*** *show all slope (changes in grade) on site plan, landscape plan and engineering plan drawings.*
5. Encourage integrated ramp access as an alternative to stair access with surfaces that are age-friendly, and usable by mobility assistance devices including wheelchairs. Architecturally integrate steps and ramps with the building and site design.
    - ***Guideline Tip:*** *review standards maximum slope gradients.*
6. Encourage decorative ramp designs and materials to create a unified and attractive entrance and to complement the building design.
7. Provide raised or flush curb access from barrier free parking space to building entrance/sidewalk and at major building entrance locations.
    - ***Guideline Tip****: review The City of Waterloo Accessibility Standards (2016) as amended for technical standards and criteria.*
8. Locate street furniture, light poles, signage and other elements so as to not impede barrier free accessibility. Ensure driveway access does not conflict with barrier free routes.
    - ***Guideline Tip:*** *show all site features and elements, including directional signage, outdoor lighting, on site plan and landscape drawings.*
9. Encourage the grouping or concentration of street furnishings such as the grouping of benches, planters, waste receptacles, and newspaper boxes. Locate in conjunction with street trees and lights and ensure adequate pedestrian space is provided.
10. Encourage locating benches and other seating opportunities as rest points where longer pedestrian travel distances are anticipated.
11. Encourage seating that includes arms for age-friendly use.
12. For persons with visual deficiencies, design sites with a change in colour/tonal contrast and texture (preferably broom finish) at crossings and changes in grade.
13. Emphasize and distinguish building entrances through use of colour and architectural details from other façade elements.
14. Encourage automated doors at building entrance. Locate push button in clearly visible location near door.

Barrier free access should be provided at primary building entrances and architecturally integrated with the building and site design (Toronto).

The City standard for barrier free parking is the "flush curb" design which provides a smooth transition in grade between the abutting sidewalk and barrier-free parking space (Waterloo).

2.3.4 Engaging Spaces

- *Guideline Objective: Design sites and buildings that contribute to engaging spaces with emphasis on animated streetscapes, social gathering and interest.*

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Master Plan	Public Realm	Development Review	Site Planning	Information

1. Design outdoor spaces to be accessible by users of all ages and abilities and to provide opportunities for rest, shade, socializing and weather protection.

2. Design and locate outdoor spaces/amenity areas to be highly accessible and visible from public streets. Encourage central locations within master planned development or areas with high pedestrian activity.

3. Design activity areas or publicly accessible spaces for direct and convenient access. Minimize or reduce changes in grade to promote easy access and visibility into activity areas.

4. Encourage activity through *triangulation* strategies. Locate elements and uses in relation to one another to promote intersection and synergy.

5. Design amenity areas for planned functions and activities, and design space to evolve over time for different users and functions over time.

6. Encourage interactive and educational elements that engage users highlighting a site's history, surrounding heritage, award winning projects, surrounding environmental features, storey boards and other types of information and elements.

   - ***Reference**: Recreation and Leisure Services Master Plan.*

7. Encourage interactive and educational elements along planned trails and routes.

8. Locate windows and doors to face publicly accessible spaces with emphasis on the primary street frontage, park spaces and courtyards.

   - ***Reference**: refer to pedestrian friendly design guidelines and amenity space guidelines.*

9. Locate or extend active uses such as patios, outdoor display areas, exhibit areas, towards publicly accessible spaces and main entries.

Public spaces can be enlivened through interactive elements such as water fountains, smoking mist, lighting and public art (Montréal).

Commercial squares can be designed as interactive spaces for a wide range of users and functions (Montréal).

An outdoor patio creates eyes on the street and provides opportunity for social interaction (Waterloo).

2.4 CREATIVITY and INNOVATION

- Policy Objective: To encourage creativity and innovation.

2.4.1 Landmarks

- *Guideline Objective: Design landmark sites and buildings as interesting and memorable places in the City.*

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Master Plan	Public Realm	Development Review	Site Planning	Information

1. Provide an enhanced level of site design to landmark sites, including:

    - historically significant sites or buildings;
    - civic buildings;
    - prominent view or vista locations;
    - gateways and major street intersections;
    - unique landscape areas/environments; and,
    - unique building design or architecture.

2. Distinguish landmark building through creative architectural expression that contributes to sense of place. Encourage bold and expressive building designs with use of colour, glass and memorable architectural features.

3. Encourage landmark features or elements that add interest to the streetscape and function as a wayfinding element in the City.

The Sunlife building is a prominent landmark in the City and designated as a heritage building (Waterloo).

Civic buildings often function as a landmark in the City (YMCA building, Waterloo).

The Perimeter Institute is a landmark building defined by innovative architecture (Perimeter Institute, Waterloo).

2.4.2 Public Art and Culture

- *Guideline Objective: To promote creative expressions and artistic design elements that relates to the site and surrounding context and contributes to a sense of place.*

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Master Plan	Public Realm	Development Review	Site Planning	Information

1. Encourage opportunities to integrate public art and design in all development with emphasis on Nodes and Corridor Areas, master planned projects and major public spaces.

   - ***Guideline Tip:*** *consult Manager of Cultural Development and City of Waterloo Public Art and Culture Advisory Committee to receive additional information and suggestions.*
   - ***Reference****: Recreation and Leisure Services Master Plan.*
   - ***Reference:*** *City of Waterloo Public Art Policy.*

2. Encourage public art or design elements that relates to, or reinforces, a defined theme within the surrounding area with emphasis on the site history, cultural landscape or distinctive theme. Investigate opportunities to link public art with coordinated design elements.

3. Locate public art in visible locations or amenity spaces visible to the public or intended users. For sensitive features, consider internal locations in public view, such as foyers or display areas.

4. Encourage opportunities to incorporate public art into building design as an architectural element, feature or design elements. Design elements may include artistic signage, sculptures, light fixtures and wall features.

5. Encourage opportunities to incorporate public art, including artistic street furniture and sculptures, into amenity spaces such as outdoor plazas, courtyards and entrance areas.

6. Encourage opportunities to coordinate public art and design elements located in the public and private realm.

Public art adds a new dimension to site development and can be referenced to specific uses (Clay and Art Glass Museum, Waterloo).

Outdoor amenity spaces and building entrances provides ideal locations for public art (Tech Town, Waterloo)

Glass etching provides opportunity to integrate public art into building facades (National Ballet School, Toronto).

Public art in the public realm can promote social interaction (London).

2.5 SUSTAINABLE DESIGN

- Policy Objective: To encourage sustainable design in the public and private realm.

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Master Plan	Public Realm	Development Review	Site Planning	Information

- *Guideline Objective: To incorporate sustainable design features that result in more sustainable forms of development and practices.*

Principles and Opportunities

1. Encourage sustainable design visioning and goal setting early in the concept stage.
2. Promote the conservation and creative adaptive re-use of existing heritage resources and buildings.
3. Encourage land uses and intensification that promote transit and alternative transportation choices. Encourage transit-oriented uses along transit routes and encourage long term and short term bike parking on site and in the public realm.
   - ***Reference:*** *City of Waterloo Transportation Master Plan.*
   - ***Reference:*** *Region of Waterloo Transportation Master Plan.*
   - ***Reference:*** *Region of Waterloo Commuter Option Programs.*
   - ***Reference****: The City of Waterloo Station Area Planning – 5 Station Area Plans (2017) for general and site specific design direction for each major transit station area.*
   - ***Guideline Tip:*** *Design sites to not exceed minimum parking requirements.*
4. Study the geology, hydrogeology, and ecology of the site to identify zones best suited for development.
5. Identify resources available on-site to contribute to renewable energy strategies, including available solar radiation, wind, thermal gradients and water efficiency and conservation. Carefully integrate sustainable design features and equipment with building and site design.
   - ***Reference:*** *City of Waterloo Wind Energy Feasibility Study.*
   - ***Reference****: Development Engineering Manual (2013) as amended or the successor manual, Part 5.0 for additional landscape design considerations.*
   - ***Reference****: City of Waterloo Stormwater Plan (2019)*
6. Provide sediment, erosion and retention controls to reduce negative impacts on water and air quality and to promote on-site infiltration.
7. Plan and design sites to reduce salt impact (ice control products) to natural environment and water system.
   - ***Guideline Tip:*** *prepare Salt Management Plan.*
8. Provide storage and collection of recyclables with the inclusion of accessible recycling areas.

Sustainable design includes transit oriented design with on-street bike parking and pedestrian-friendly streets (DNA, Toronto).

Wind turbines provides renewable energy and can be architecturally integrated into site and building design (Waterloo).

Low areas with subtle grading provides opportunity for storrmwater retention (Waterloo).

9. Reduce light pollution to improve night sky access.

   - ***Reference:*** *refer to Lighting Guidelines and SPRG for Lighting standards and criteria.*

Landscape Design

10. Minimize site disturbance and protection of greenspace. Maintain or relocate existing plant material where feasible.

11. Plant native and non-invasive species on private sites and public realm.

12. Encourage low maintenance, salt tolerant and draught tolerant plant species. Discourage irrigation water systems.

13. Design sites to reduce urban heat island (UHI) effects through integrated site landscaping.

14. Encourage naturalized green spaces on site for storm water quantity and quality control. Encourage bio swales and other natural landscape solutions to retain water on-site. Where available, direct site drainage to vegetated swales.

15. Design sites and growing medium for long term plant growth. Techniques may include trench planting, structural soils and other techniques. Discourage irrigation systems.

16. Encourage cisterns (non-wells) to reuse water for site landscaping and cleaning. Ensure proper fixtures and adaptors are provided.

Streetscape Design

17. Encourage designs that allow for increased soil volumes for root growth and canopy space for future growth of large shade trees to promote an urban forest.

18. Design streets to promote sustainable design through the integration of bike racks, street trees, transit facilities and garbage/recycling containers.

19. Integrate bike parking into the streetscape design, particularly near building entrances, adjacent to transit stops and along the right-of-way. Design bike parking as a unified streetscape element in the public and private realm.

20. Encourage multi-use trails in the City to promote recreational activities.

21. Encourage innovative drainage systems that improve stormwater quality and quantity.

On-site water quantity and quality is improved through integrated storwmater management pond (Kitchener).

A bio swale provides opportunity to introduce sustainable design into site development (Waterloo).

Bike parking can be integrated into the streetscape as a functional and aesthetic amenity (Toronto).

Integrate multi-use trails promote walking, biking and recreational activities along streets (Cambridge, MA).

Building Design and Construction

22. Seek out opportunities to reuse buildings, systems and materials. Promote the use of reused, recycled, renewable or regional materials.

23. Encourage green building design (such as LEED accreditation or alternative).

    - ***Reference:*** *refer to Appendix for sustainable design information.*
    - ***Reference:*** Canada Green Building Council.
    - ***Reference:*** *Refer to The Community Energy Investment Strategy (2018), and the Net Zero Energy Feasibility Study (2019) for best management practices and recommendations*

24. Orient and design buildings for passive solar gain. Design living areas, including outdoor balcony space, facing solar noon and sleeping quarters on opposite side.

25. Design balconies to be constructed as a separate structure, which allows the main building to be wrapped in its own thermal blanket eliminating radiant heat loss through floors.

26. Design buildings for extensive use of natural light to reduce the need for artificial illumination. Use energy efficient light fixtures.

27. Encourage green roof technology for new development projects or retrofitting existing buildings and other environmentally friendly strategies such as photovoltaic panels and white roofs.

28. Investigate opportunities for indoor landscape features and spaces.

29. Provide effective ventilation systems to improve indoor air quality. Consider opportunities for natural ventilation.

30. Reduce water/energy use within building through efficient equipment selection (energy saving fixtures).

31. Select building colour for heat reflection or absorption properties.

32. Encourage construction waste diversion from land fill through salvage and recycling opportunities during construction and/or demolition stage(s).

Maximum solar gain is achieved through east-west orientation (Toronto).

Green roof technology helps reduce urban heat island effect (Waterloo).

Creative green roof technology can add light into buildings and contribute to a creative work place environment (Chicago).

Living (or green) walls or plant wall provide natural landscaping indoors and absorb carbon dioxide (Cambridge,CA).