

APPENDIX A

BROOKHILL NEIGHBOURHOOD SECONDARY PLAN

SUSTAINABLE URBAN DESIGN GUIDELINES

Clarington

 The Planning
Partnership

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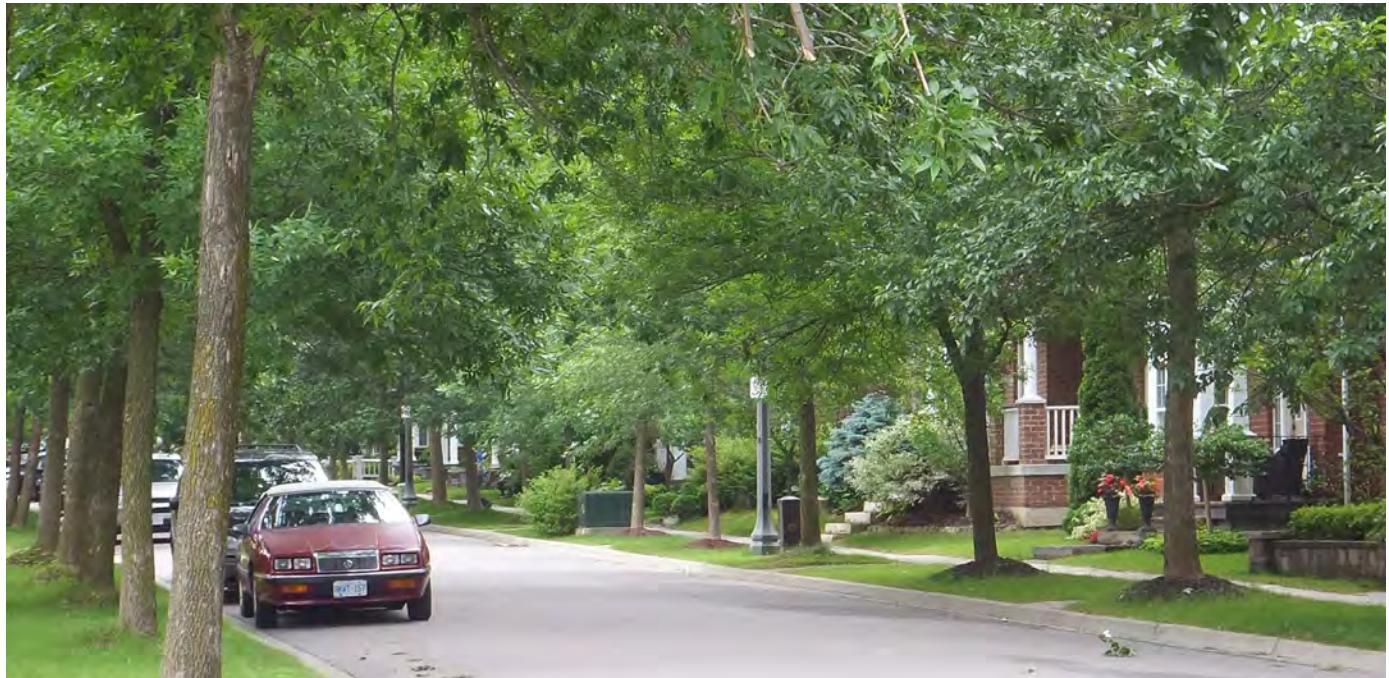
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1. INTRODUCTION



Large canopy street trees provide shade.

The Brookhill Neighbourhood is located north of the Bowmanville West Town Centre, and south of Nash Road. Its easterly boundary is the Bowmanville Creek valley and the historic community of Bowmanville. Its westerly boundary is the limit of the Urban Area for Bowmanville. The area for the Brookhill Neighbourhood is approximately 300 hectares (740 acres) in size. Of that total, one third of the area contains natural features and approximately 100 hectares south of the Longworth Avenue Extension, has been either built or approved for development. The Secondary Plan Area is anticipated to achieve a minimum total planned population of approximately 7,400 residents and 2,700 units.

The Brookhill Neighbourhood Sustainable Urban Design Guidelines (Guidelines) work together with the policies of the Brookhill Neighbourhood Secondary Plan to provide the Municipality with a sound and rational framework for the assessment of development applications.

The Guidelines is a comprehensive document that encourages and guides development at a level of planning and design that focuses on the community

as a whole. The guidelines may be general in nature but will direct the ongoing development of the Brookhill Neighbourhood in a balanced manner and according to the principles of good urbanism and high-quality urban design. In particular, the Guidelines seek to protect and reinforce the community's built characteristics and shape the public and private realms, including streets, public spaces and buildings, reflecting the key themes of sustainability, environmental protection, and healthy, complete community to achieve the vision of the Brookhill Neighbourhood Secondary Plan.

The Guidelines build on the Municipality of Clarington Council's sustainable 'green lens' approach to achieve sustainable development. Sustainable development requires a balance of a healthy environment, economy, and society. Mindful of that, the guidelines provide a design vision and guidance for the Brookhill Neighbourhood by addressing the nature, intensity, quality, and level of sustainability in both the public and private realms – while still ensuring that the key themes of all other goals and objectives of the Secondary Plan are achieved.



- Schools
- Parks
- Place of Worship

- Recreation Complex
- Fire Station and Police Services
- Retail

- BNSP Area

Figure 1. Existing Context

1.1 Purpose

The purpose of the Guidelines is to prepare the Municipality of Clarington for future development within the community of the Brookhill Neighbourhood. The Guidelines are to be used as an evaluation tool for development applications. They are to be used by:

- Municipal Council and Committees when evaluating whether an application meets the Municipality's vision for development in the Brookhill Neighbourhood;
- Municipal staff and external agencies when reviewing development applications and as a reference for design decisions for Municipality proposed studies and projects;
- The development industry including but not limited to developers, consultants and property owners to demonstrate how their proposals align with the Municipal vision for the Brookhill Neighbourhood; and
- The public for use of greater awareness of the benefits of urban design in their community.

1.2 Interpretation & Implementation of the Guidelines

The Guidelines are intended to implement the Secondary Plan direction for the Brookhill Neighbourhood and provide greater clarity on urban design, streetscapes, built form, and sustainability initiatives.

The Guidelines are to be read in conjunction with, and complement the policies of the Brookhill Neighbourhood Secondary Plan, objectives and policies of the Municipality of Clarington Official Plan, the provisions of the Municipality of Clarington Zoning By-law, the Priority Green Development Framework and Implementation Plan, and other guidelines.

The Guidelines, in concert with the Secondary Plan policies, will be used to evaluate development applications in order to ensure that a high level of urban design and the intended level of sustainability is achieved.

Notwithstanding the foregoing, the provisions of the Secondary Plan shall prevail over the provisions of these Guidelines in the event of any conflict. The developers and staff will review other guidelines (e.g. lighting, landscaping) through the review process.

1.3 Vision

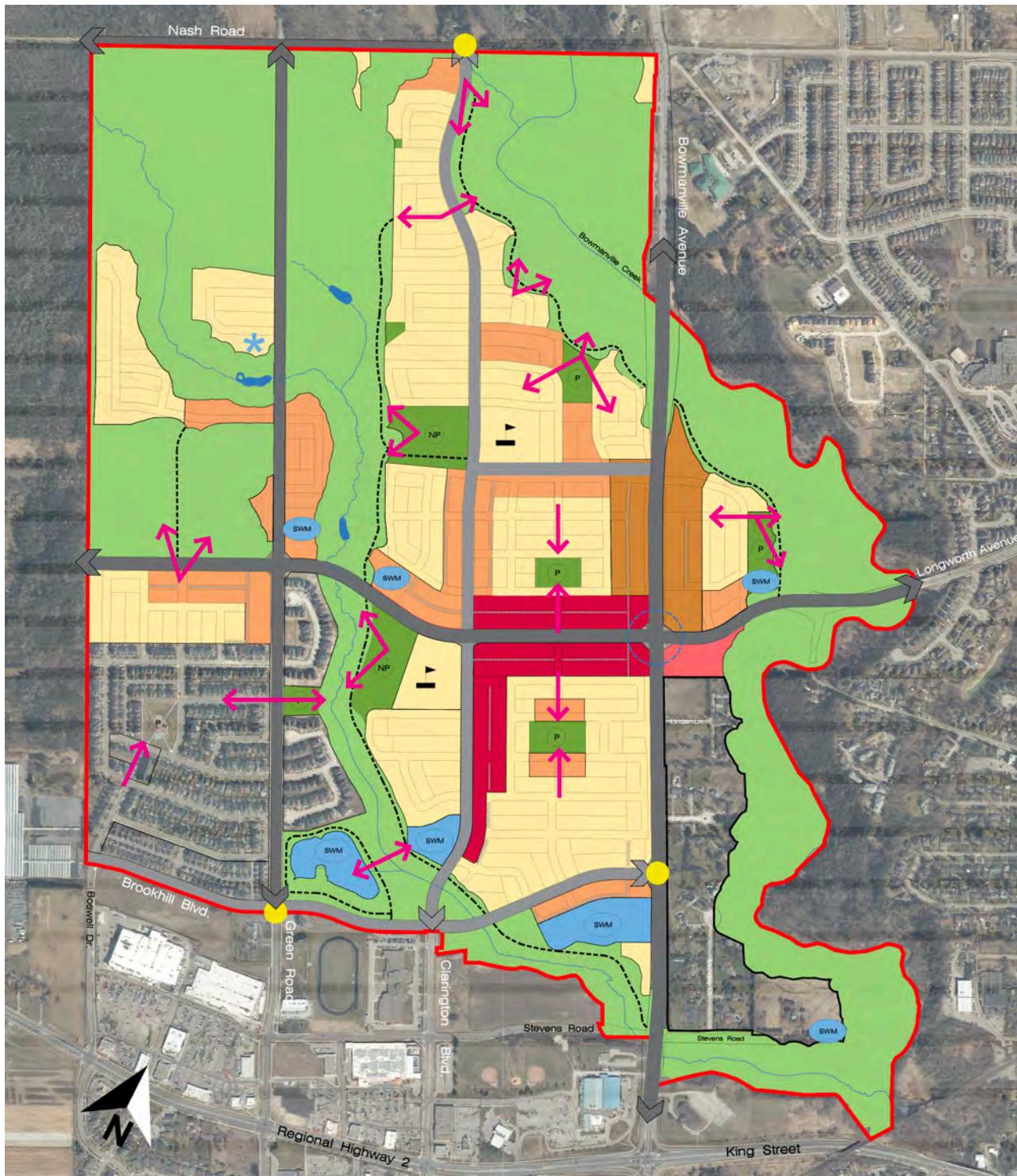
The Brookhill Neighbourhood is envisioned as a vibrant, pedestrian oriented community that promotes high quality design practices centered on energy conservation, efficiency, and environmental sustainability. It is intended that the Secondary Plan Area will develop as a healthy and complete community with distinctive, liveable neighbourhoods, integrated and connected green spaces, and efficient transportation, transit, and trails systems.

Please refer to Figure 2 for the Demonstration Plan that provides the overall vision for the Brookhill Neighbourhood.

1.4 Principles

To realize the vision for the Brookhill Neighbourhood, the Guidelines shall support the Secondary Plan to achieve the following principles which will guide how the community will be physically arranged, and its component elements shaped, these include:

- Foster an adaptive and resilient community through the responsible use of resources to ensure long-term sustainability, reduce greenhouse gas emissions, demands for energy, water, and waste systems, and the impacts of climate change.
- Create a complete, healthy, attractive, safe, inclusive, pedestrian-oriented, and accessible community for the present and future residents of the Brookhill Neighbourhood throughout all stages of their lives.
- Provide a mix of housing opportunities and building types throughout the community to meet the needs of people at different stages of their life and with varying socio-economic circumstances.
- Protect, restore, and enhance local and regional ecosystems to conserve biodiversity, ecological integrity, and function.
- Support a connected and accessible multi-modal transportation network that gives priority to the creation of complete streets and the provision of active transportation and transit infrastructure to ensure all persons have transportation options.
- Provide for an accessible, connected, and integrated system of parks, open spaces, and multi-use trails, that are linked to natural features creating opportunities for daily physical activity and supporting needs of residents of all ages and abilities.
- Promote design excellence through a well-designed and contextually appropriate community that celebrates the scale and form of the existing natural and built character.
- Preserve and enhance existing cultural heritage landscapes and incorporate these features into the evolving future landscape.
- Promote efficient development and land use patterns and coordinated planning for transportation and municipal services to sustain the financial well-being of the municipality over the long term.



LEGEND

	BNSP Boundary
	Medium Density Local Corridor
	Medium Density Residential
	Low Density Residential
	Neighbourhood Centre
	Village Corridor
	Future Block Master Plan
	Elementary School
	Neighbourhood Park
	Parkette
	Traffic
	Environmental Protection Area
	Environmental Constraint
	Stormwater Management Facilities (SWM)
	Urbanized Stormwater Management
	Watercourse
	Arterial Road
	Collector Road
	Local Road
	Rear Lane
	Prominent Intersection
	Gateways
	Views

Figure 2. Demonstration Plan

1.5 Community Structure

The Brookhill Neighbourhood's Community Structure is a collection of high level structuring elements that shape the components of the Brookhill Neighbourhood. The Community Structure elements include the following:

- Open Space System
- Road Network
- Parks System
- Residential Neighbourhoods
- Commercial Areas
- Institutional Places

Open Space System

The Open Space System includes the natural heritage system which is the initial structuring element around which all other elements are built. The natural heritage system includes all core natural heritage features, such as wetlands, woodlands, and tributaries and shall be protected, restored, and enhanced to create continuous green corridors.

The features of the Bowmanville Creek and Brookhill Tributary contribute strongly to Community Structure. The Bowmanville Creek defines the eastern boundary of the Secondary Plan area and the Brookhill Tributary forms the basis for naturalized channels that run through much of the Secondary Plan area.

Road Network

The Road Network includes the major connector roads within the Brookhill Neighbourhood. The road network will follow a modified grid pattern to ensure a permeable and connected system of roads that allow for direct routes into, through, and out of the community. The road network will be developed under the principle of "complete streets" and will accommodate appropriate facilities for the movement of pedestrians, cyclists, transit, and vehicles.

Bowmanville Avenue is identified as a Local Corridor in the Official Plan and will support transit and opportunities for active transportation facilities including a multi-use trail.

Parks System

The parks system should be designed to provide a fair distribution of amenity spaces for a range of users in a linked network. The parks system includes Neighbourhood Parks, parkettes, urban squares, and a trail network. Parks are located throughout the community and are centrally located to ensure that residents are within 400 metres (5 minute walk) of an open space. This encourages daily physical activity and creates a central focus and gathering space for the neighbourhoods.

Where appropriate, stormwater management ponds will include areas for passive recreation, through paths and trails, and as visual extensions of the parks system.

Residential Neighbourhoods

The Residential Neighbourhoods will be planned and designed as accessible, pedestrian-oriented areas that are distinct in character and connected within the larger Brookhill Neighbourhood. The Residential Neighbourhoods will include a mix and diversity of housing types to ensure variety and choice. The Residential Neighbourhoods include low density housing such as single detached, semi-detached, and townhouse dwelling types; medium density housing, such as townhouses, and low-rise apartment buildings; and high density housing with mid-rise apartment buildings. Medium and high density housing will be distributed along collectors and arterials with the highest density housing focused along Bowmanville Avenue.

Commercial Areas

Commercial areas have been included in the Brookhill Neighbourhood to provide opportunities for amenities and services within approximately 800 metres (10 minute walk) of residents. Two community elements include a Village Corridor and a Neighbourhood Centre.

Institutional Places

Elementary schools have been located central to the neighbourhood to support children walking to school. Elementary schools also act as a neighbourhood focal point and in some locations have been located adjacent to a neighbourhood park creating opportunities for the sharing of facilities.



Figure 3. Community Structure

2. THE PUBLIC REALM



A pedestrian-oriented environment encourages walking.



An enhanced public realm with plantings and paving materials.

As the population of the Brookhill Neighbourhood continues to grow, it will require a public realm that continues to support and enhance the needs of its existing residents, new residents, and visitors. This includes a variety and hierarchy of spaces for community gathering and every day activities such as walking, sitting, socializing, and engaging in street life, actively and passively.

A comprehensive understanding of how the components of the Public Realm Network work together and complement each other and their adjacent uses, will lead to a more connected, accessible, and logical network of pedestrian friendly spaces throughout the Brookhill Neighbourhood. Moving people into, out of, and through the community easily and safely, and providing a variety of public spaces for socializing and recreation, is a priority.

2.1 General

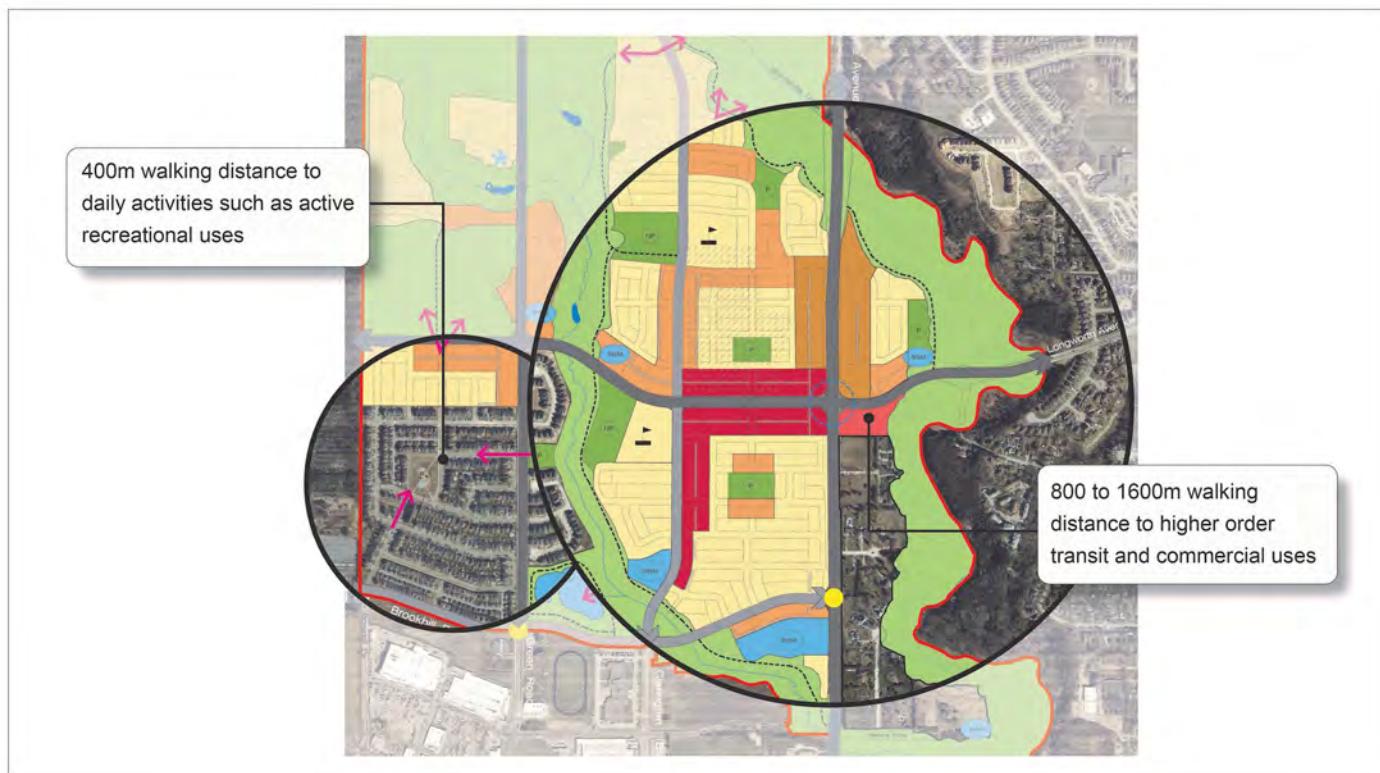
1. Encourage opportunities for vibrant, diverse and pedestrian-oriented urban environments that provide for public safety, changing experiences, social engagement, and meaningful destinations.
2. Provide for mixed-use neighbourhoods that are walkable with connected public gathering places, where opportunities for social interaction are increased and services can be provided within easy walking or cycling distance or by use of public transit.
3. Promote internal connectivity and multiple connections to the community at large, taking into account the existing and proposed urban structure of adjacent and adjoining areas.
4. Ensure a typical walking distance of 400 metres (5 minute walk) to daily activities, such as transit (local bus routes), elementary schools, active parks, and modest services, or 800 to 1,600 metres (10 to 20 minute walk) to higher order transit or the Neighbourhood Centre or Village Corridor.

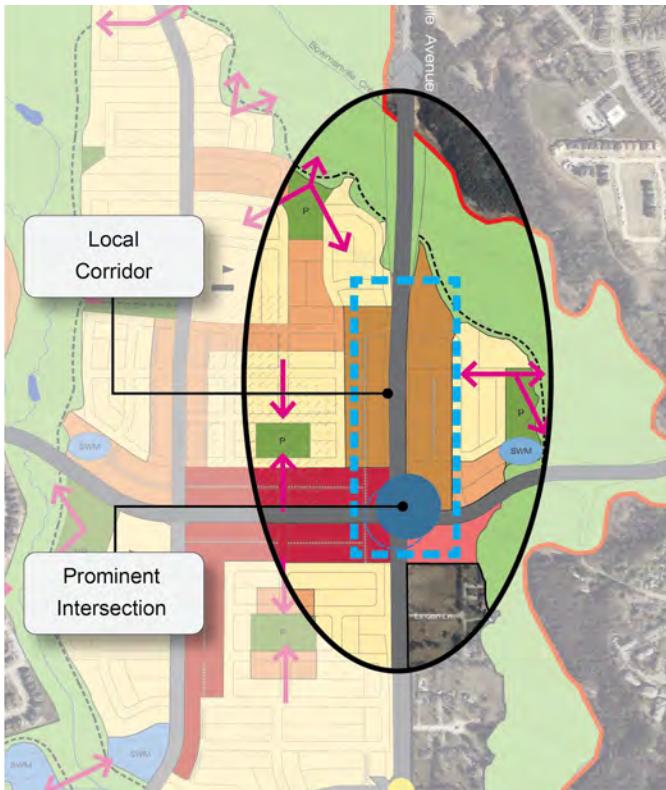
5. Provide for an interconnected network of sidewalks, bicycle routes, transit, and multi-use trails ensuring proper integration with surrounding neighbourhoods and a variety of destinations, allowing for continuous movement throughout the community.
6. Utilize wider sidewalks to support social distancing and ensure access to green space through a variety of park spaces above and beyond requirements.
7. Design the street layout to ensure efficient walking routes to schools, centres, transit, and other key destinations. Provide continuous sidewalks, or equivalent provisions for walking, on both sides of the road.
8. Implement traffic calming measures such as on-street parking, reduced lane widths, public laneways, raised intersections, curb bulb-outs, and/or traffic circles to reduce vehicular traffic speeds and to ensure safe walking and cycling environments.
9. Provide neighbourhood permeability by designing blocks to be generally no more than 200 metres to promote active transportation, discourage excessive driver speed, and disperse traffic movements.

2.2 Local Corridor

Bowmanville Avenue is a Local Corridor north of Longworth Avenue. The Local Corridor is the route for future transit services and the location of the highest densities in the Brookhill neighbourhood.

1. Local Corridors are the primary corridors for all transportation modes and shall be designed to support future transit with high densities and a mix of uses.
2. Within the Local Corridor the greatest heights and highest density buildings shall be located on the Local Corridor frontage, with height and density decreasing as a transition to lower density designations.





Local Corridor and Prominent Intersection.



Corner building as a gateway feature.

3. Compact urban form and development patterns are encouraged in Local Corridors to support higher density built form and transit services, while fostering vibrant, attractive public and private realms.
4. Development within the Local Corridor shall incorporate a high-quality built form through appropriate architectural and landscape treatment to provide a complementary interface between the public and private realms.

2.3 Prominent Intersection

A Prominent Intersection is located at Bowmanville Avenue and Longworth Avenue. Prominent Intersections apply to all four corners of the intersection and will form the primary gateway into the community. These areas shall also have the greatest concentration of commercial uses.

1. Prominent Intersections shall be designed to be community focal points. The significance of the Prominent Intersection will be emphasized through building massing, architectural treatment and materials, street furniture, landscaping, and public art.
2. The intersection will be the primary gateway into the Brookhill Neighbourhood and will feature a variety of uses that highlight its importance. The commercial use buildings in the Neighbourhood Centre shall provide special architectural elements such as corner design, massing and height, awnings, and entrance door features.
3. Privately owned publicly-accessible plazas shall be located at the Prominent Intersection to contribute to its visual prominence, reinforce its role as a gateway, improve the relationship of built form to the public right-of-way, and contribute to the area's identity.

2.4 Roads

Throughout the Brookhill Neighbourhood roads shall be designed as complete streets to facilitate the movement of all users in a safe and accessible environment.

The road network includes a hierarchy of street types, as follows:

- Arterial Roads
- Collector Roads
- Local Roads
- Rear Lanes

The specific technical details of the road cross-sections (i.e. plant material, engineering standards) will be determined through the appropriate design review process.

2.4.1 General

1. All Roads will be safe, accessible, secure and shall implement the relevant policies of the Accessibility for Ontarians with Disabilities Act.
2. Design the road and block pattern to emphasize connections and walkability both internally and with surrounding neighbourhoods, through a grid or modified grid pattern discouraging cul-de-sacs, p-loops, and crescents, except where necessary due to grading and topography.
3. Back-lotting or reverse lot frontages shall be avoided where feasible and not considered unless demonstrated to be the only option. Back-lotting or reverse lot frontage will not be permitted on Arterial Roads.
4. For blocks with grade-related residential units, encourage street and block alignments within 25-degrees of geographic east-west to maximize passive solar orientation of buildings.
5. The design of all roads shall include defined and, wherever possible, continuous zones for plantings, street furnishings, utilities, pedestrian sidewalks, bicycle lanes or cycle tracks, and vehicular pavements.

6. Sidewalks shall be constructed to municipal standards and accommodated on all street types, generally on both sides of the street, to facilitate pedestrian and bicycle circulation.
7. Cycling infrastructure shall be accommodated on all street types, except for Local Roads and Rear Lanes.
8. Plant street trees to expand and enhance the urban tree canopy while providing shade over sidewalks.
9. Introduce green infrastructure, such as bioswales, within the public right-of-way to enhance ground water infiltration and improve water quality as part of a comprehensive water management plan, subject to Municipal approval.
10. Roads should terminate at public facilities or landmark buildings, where possible.
11. Provide a comprehensive and consistent approach to the design of the elements that make up the street environment to enhance the character of Brookhill and contribute to creating a sense of place. These elements include street furnishings, street lighting, and plantings.



An strong street presence created through on street parking, wide sidewalks, special paving, street trees, landscaping, and street furniture.

2.4.2 Arterial Roads

Refer to Table C-2 in Appendix C of the Official Plan for criteria for road classification types in the Municipality.

Type A Arterial – Bowmanville Avenue

Bowmanville Avenue is an Arterial Road that bisects the Brookhill Neighbourhood, its surrounding neighbourhoods, and the broader Municipality of Clarington. Bowmanville Avenue will accommodate a range of travel modes, including passenger vehicles, transit, cyclists, and pedestrians. Please refer to **Figure 4** for a cross-section and plan of Type A Arterials and the components that comprise the right-of-way.

1. Bowmanville Avenue shall have a minimum right-of-way width of 36.0 metres. Where the ultimate cross-section includes four through lanes with left and right turn lanes at intersections, Bowmanville Avenue shall have a 40.0 metre right-of-way. Additional ROW may also be required to accommodate transit facilities.
2. Bowmanville Avenue will include boulevards on both sides of the pavement area, 2.0 metre sidewalk on the west side and a minimum 3.0 metre separated multi-use path on the east side.
3. A raised centre median shall be a minimum of 5.0 metres and may include trees, shrubs, and ground covers. Enhanced streetscape elements within the Regional ROW, including a landscaped median, would be subject to Regional approval through Municipal consent, with the Municipality of Clarington securing the additional construction costs and future maintenance.
4. Transit facilities will be provided on Bowmanville Avenue.
5. Individual, direct access for any individual development proposal or residential land use to Bowmanville Avenue is generally not permitted. Signalized intersections will be installed, where approved by the Region of Durham, to provide access to existing development and the primary road network. Where feasible, right-in/right-out access is permitted.

6. Buildings that abut Bowmanville Avenue shall present a facade with architectural detailing and landscape features that address the Bowmanville Avenue frontage.
7. Additional tree plantings and vegetated berms shall be incorporated into the road allowance or in adjacent areas.

Type B Arterial – Green Road, Nash Road, and Longworth Avenue (west of Green Road)

Type B Arterial Roads provide important connections between residential neighbourhoods and other community functions. They accommodate a range of travel modes, including passenger vehicles, transit, cyclists, and pedestrians. Please refer to **Figure 5** for a cross-section and plan of Type B Arterials and the components that comprise the right-of-way.

1. Type B Arterial Roads will have a maximum right-of-way of 30.0 to 36.0 metres.
2. Green Road and Nash Road shall have a right-of-way width of 30.0 metres with two through lanes and a centre median/centre left-turn lane to accommodate right-turn lanes and/or bus stop bays/lanes.
3. Longworth Avenue, west of Green Road, shall have a maximum right-of-way width of 36.0 metres with four through lanes.
4. Type B Arterials will include boulevards on both sides of the pavement area, sidewalks on both sides, and a 3.0 metre cycle track on one side.
5. Transit facilities may be accommodated on any Type B Arterial Roads.
6. Individual direct access to any development site abutting a Type B Arterial Roads shall be limited to minimize disruptions to traffic flow and to maximize safety and the attractiveness of the road.
7. Buildings that abut Type B Arterial Roads shall present a facade with architectural detailing and landscape features that address the road frontage.

Type A Arterial - Bowmanville Avenue

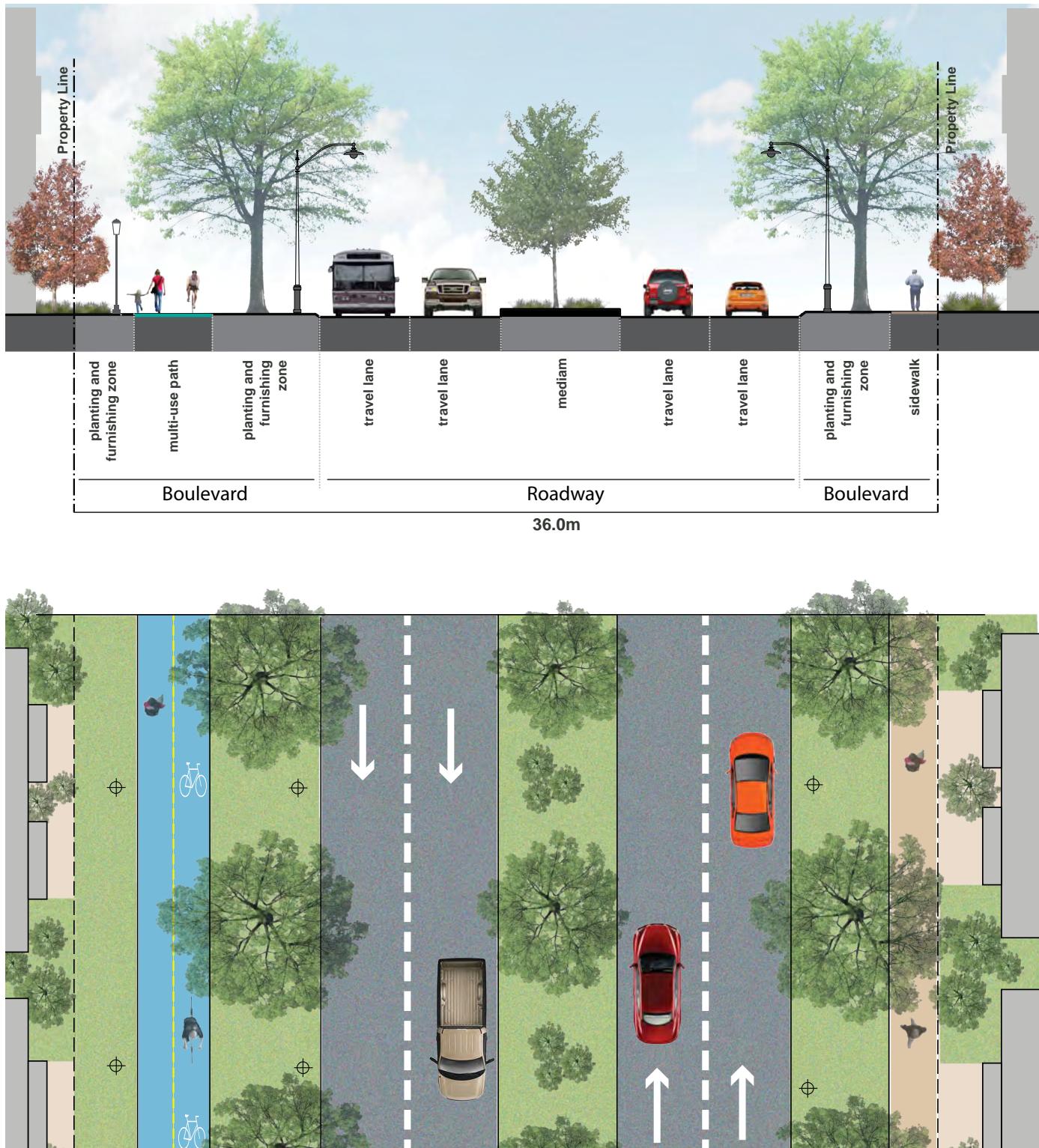


Figure 4. Type A Arterial cross-section and plan

Type B Arterial - Green Road/Nash Road

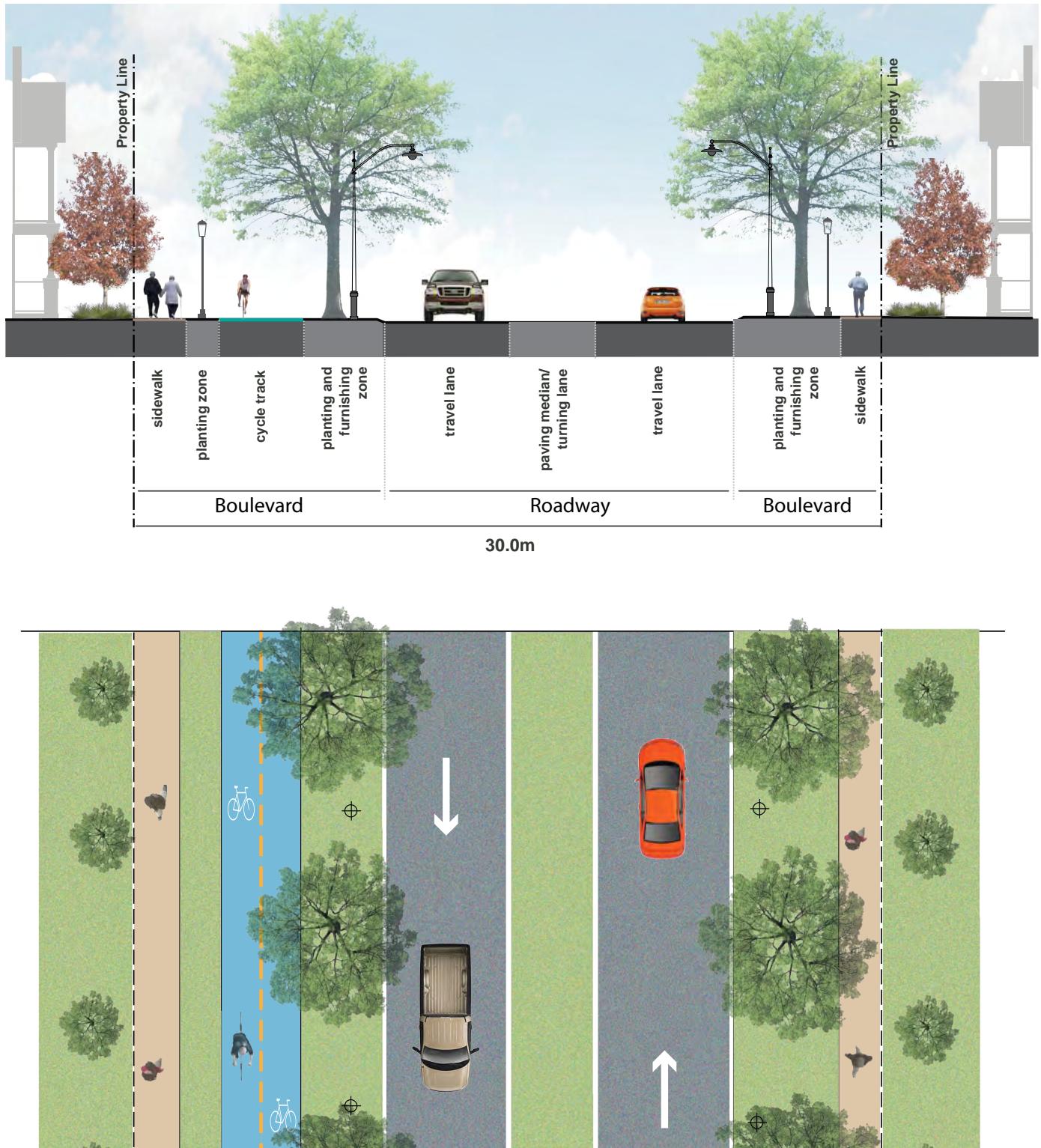


Figure 5. Type B Arterial cross-section and plan

Type C Arterial – Longworth Avenue

Type C Arterial Roads provide important connections between residential neighbourhoods and other community functions. Longworth Avenue, east of Green Road, will provide an east-west connection for the Brookhill Neighbourhood. Please refer to **Figure 6** for a cross-section and plan of Type C Arterials and the components that comprise the right-of-way.

1. Type C Arterial Roads will have a maximum right-of-way width of 30.0 metres.
2. Type C Arterials will include boulevards on both sides of the pavement area, and sidewalks and cycle tracks on both sides of the right-of-way.
3. The streetscape along Longworth Avenue should include wider sidewalks to accommodate public spaces, café patios, street trees/planters, street furniture, and future transit shelters. Opportunities for green infrastructure should be considered.
4. Transit facilities may be accommodated on any Type C Arterial Roads.

5. A raised centre median shall be a minimum of 4.0 metres and will include trees, shrubs, and ground covers.
6. Parking lanes or lay-by parking must be provided within the Village Corridor designation to support the permitted ground floor retail of mixed-use buildings.
7. Individual direct access to any development site abutting a Type C Arterial Road shall be limited to minimize disruptions to traffic flow and to maximize safety and the attractiveness of the road. Within any area designated as a Village Corridor individual direct access from a Type C Arterial Road to any development site shall be limited and subject to approval.
8. Buildings that abut Type C Arterial Roads shall present a facade with architectural detailing that address the road frontage.



Rear Lanes and lay-by parking in mixed-use areas removes the vehicle from active traffic movement and supports access to commercial uses.



Type C Arterial - Longworth Avenue (east of Green Road)

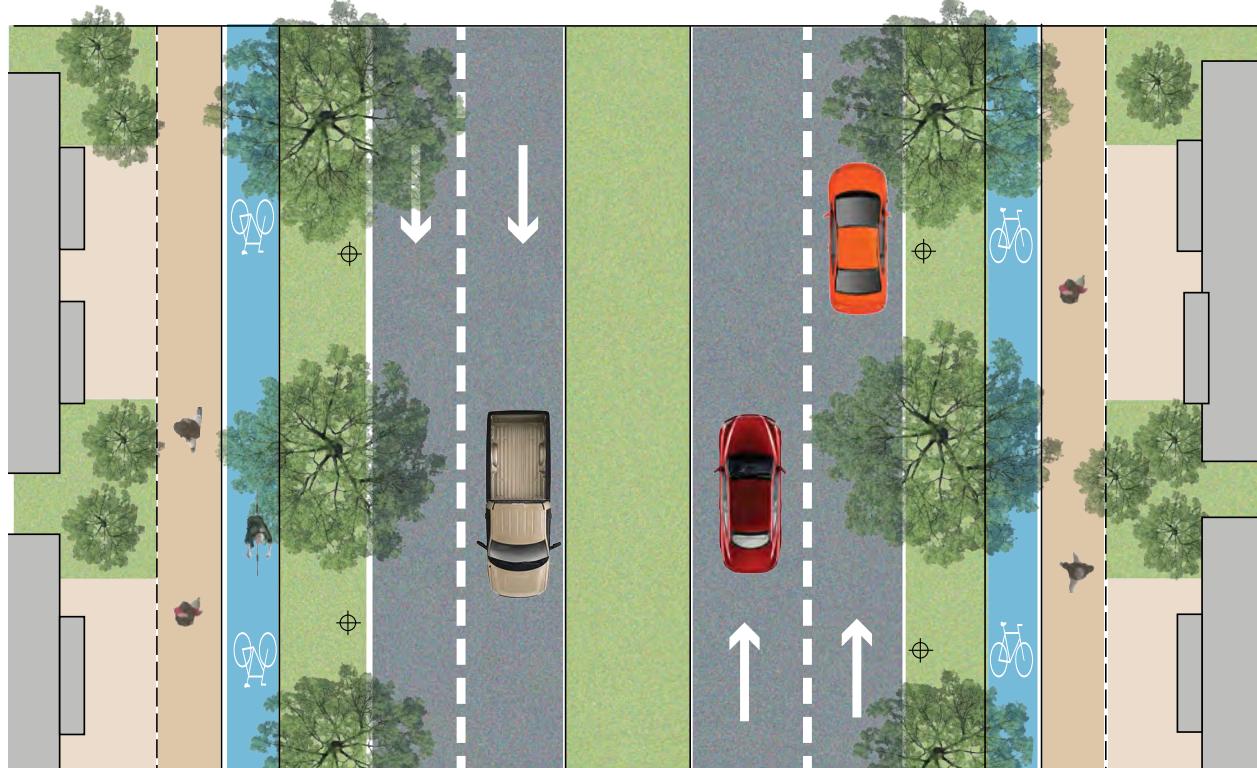
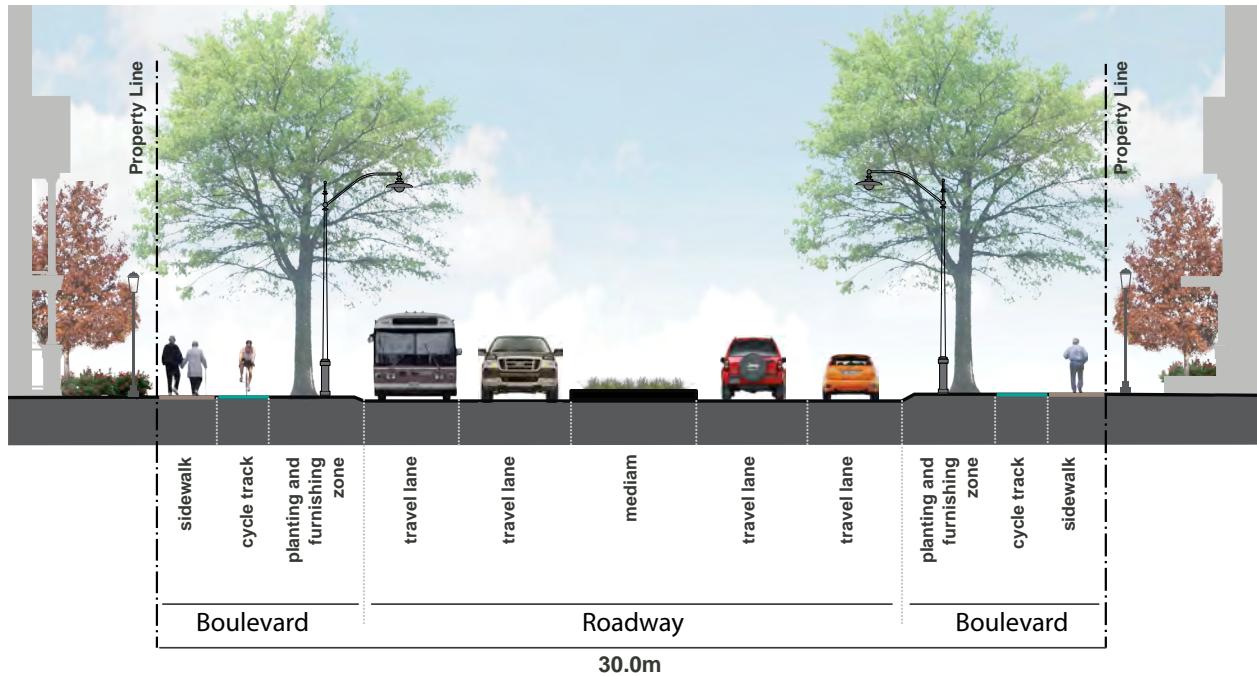


Figure 6. Type C Arterial cross-section and plan

Collector Roads

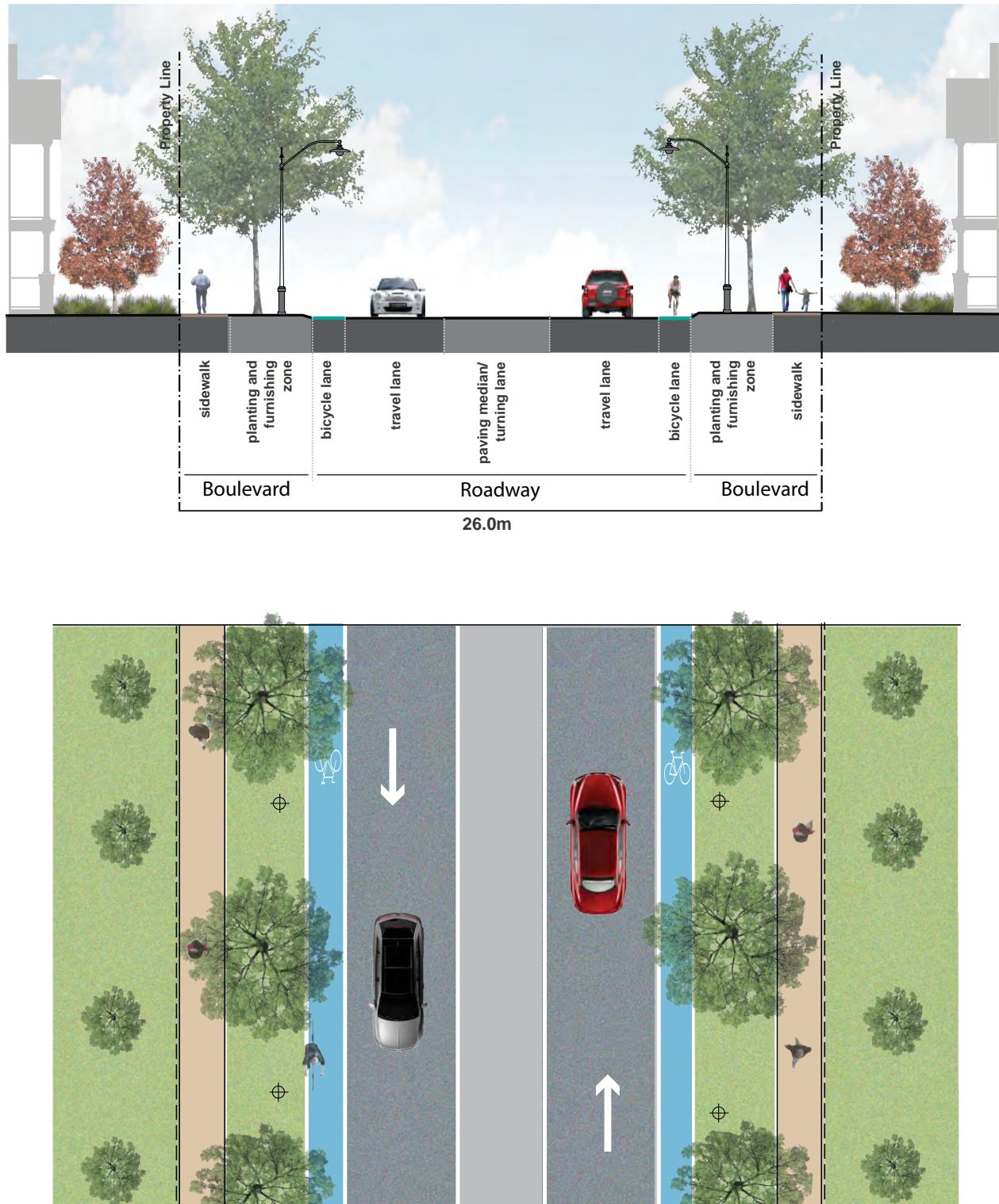


Figure 7. Collector Road cross-section and plan

2.4.3 Collector Roads

Collector Roads connect to Arterial Roads and provide primary connections to Local Roads. Please refer to **Figure 7** for a cross-section and plan of Collector Roads and the components that comprise the right-of-way.

1. Collector Roads shall have a maximum right-of-way of 23 to 26.0 metres.
2. Collector Roads may include optional 3.0 metre on-street parking on both sides of the road.
3. Collector Roads will have boulevards on both sides of the pavement and will accommodate a grass verge with street trees and sidewalks on both sides. Separated cycle tracks or shared space for cyclists should be provided with or without separation from traffic lanes.
4. Transit facilities may be located on any Collector Road.
5. Individual direct access to any development site shall be limited to minimize disruptions to traffic flow and to maximize safety and the attractiveness of the road.
6. Buildings that abut Collector Roads shall present a facade with architectural detailing and landscape features that address the road frontage.

2.4.4 Local Roads

Local Roads connect to Collector Roads and link with public spaces. Please refer to **Figure 8** for a cross-section and plan of Local Roads and the components that comprise the right-of-way.

1. Local Roads should be designed with a maximum right-of-way width of 17.0 to 20.0 metres.
2. The road surface, including a parking lane on one side of the road (that could alternate to both sides of the road) shall be a maximum of 8.5 metres.

3. Boulevards on both sides of the pavement will accommodate a grass verge with street trees and sidewalks on both sides is encouraged.
4. Individual direct access onto Local Roads is permitted.
5. Buildings that abut Local Roads shall present a facade with architectural detailing and landscape features that address the road frontage.
6. Local Roads that are intended for use over shorter distances may be designed with a reduced maximum right-of-way width of 17.0 metres, with reduced boulevard widths on each side to accommodate utilities.

Single-Loaded Roads

Single-loaded Roads can be Collector or Local Roads that typically run adjacent to natural features or significant natural areas. As such, they provide the opportunity to enhance the character of the community.

1. Single-loaded Collector or Local Roads adjacent to natural features will provide unobstructed views to the natural areas and, where appropriate, accommodate a trail along the edge of the street for active uses, such as walking and cycling.
2. Include opportunities for pedestrian amenities such as benches and interpretive signage.
3. Single-loaded Local Roads along Bowmanville Avenue will have a reduced right-of-way of 15.0 to 18.0 metres and sidewalks on both sides. Bowmanville Avenue will accommodate a multi-use path along the west side of the road for active uses, such as walking and cycling.
4. Include robust landscaping in the public right-of-way, including distinct deciduous canopy trees and shrubs.

Local Roads

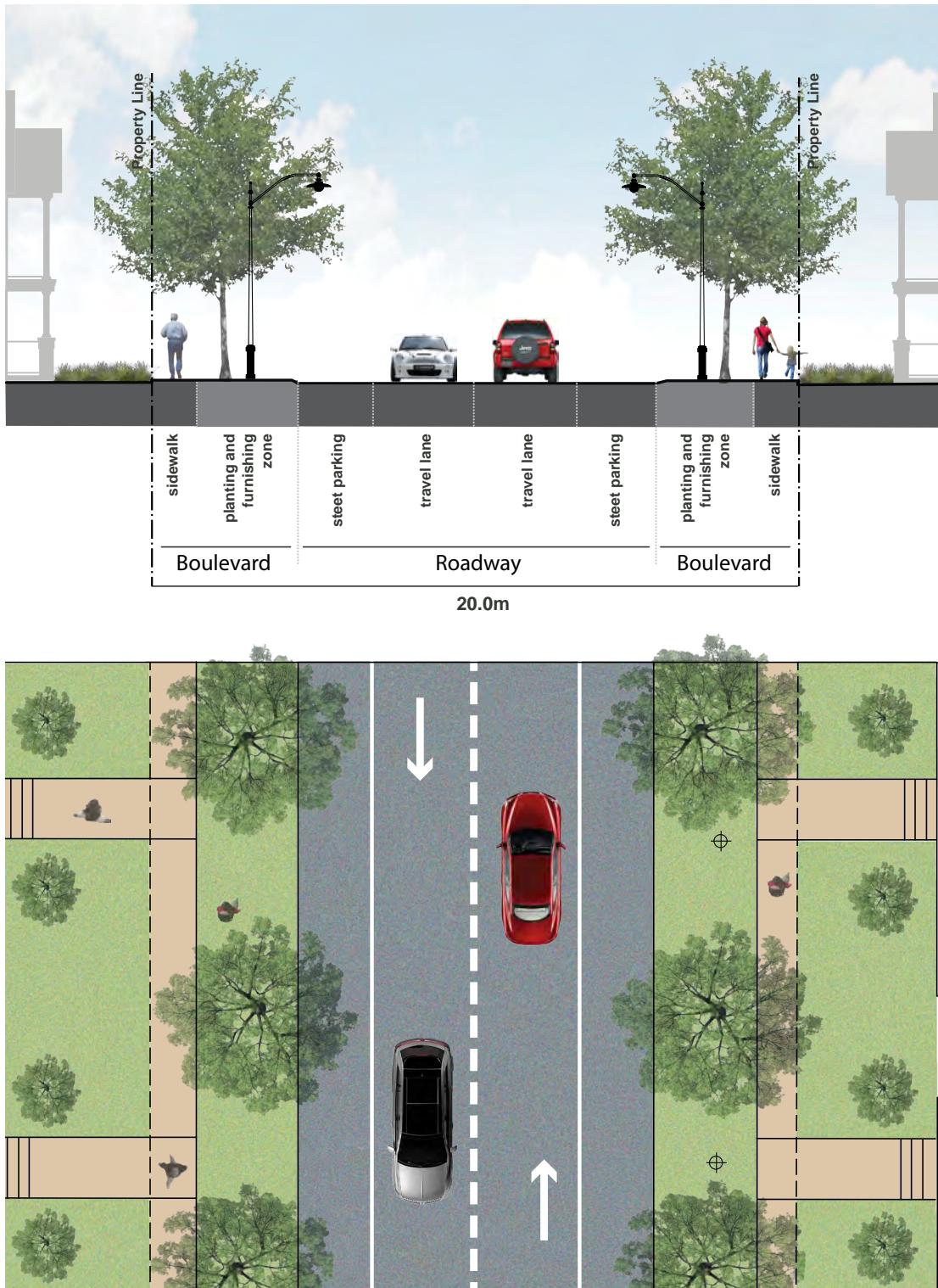


Figure 8. Local Road cross-section and plan

2.4.5 Rear Lanes

The use of Rear Lanes provides significant benefits such as enabling continuous street tree planting and creating safer pedestrian environments through the removal of driveways from the street edge. Rear Lanes may be used in key locations where private access along prominent streets should be minimized. Please refer to **Figure 9** for a cross-section and plan of Rear Lanes.

1. Rear Lanes are prioritized for higher density and/or mixed-use developments that front onto Arterial Roads and Collector Roads. Parking, servicing, and loading areas from these developments should be accessed from Rear Lanes.
2. Where low- and medium-density residential developments are dominant, Rear Lanes are encouraged to eliminate the need for front-yard garages and front-yard driveways.
3. Rear Lanes must abut a public road and shall not immediately connect to another Rear Lane.
4. Garages fronting onto Rear Lanes should be carefully arranged in groupings to encourage an attractive visual environment.
5. The architectural design, massing, detailing, materials, and colours of garages should compliment and reflect the principal dwelling. A variety of garage heights and roof slopes is encouraged.
6. In locations of high public exposure, such as flankage lots, lots adjacent to walkways, and end lots, the exposed flankage face of the rear garage should be given the same design consideration as the principal dwelling with compatible architectural elements, details, and materials.
7. The use of permeable paving materials shall be encouraged in lane construction in areas where sufficient drainage exists.

Rear Lanes

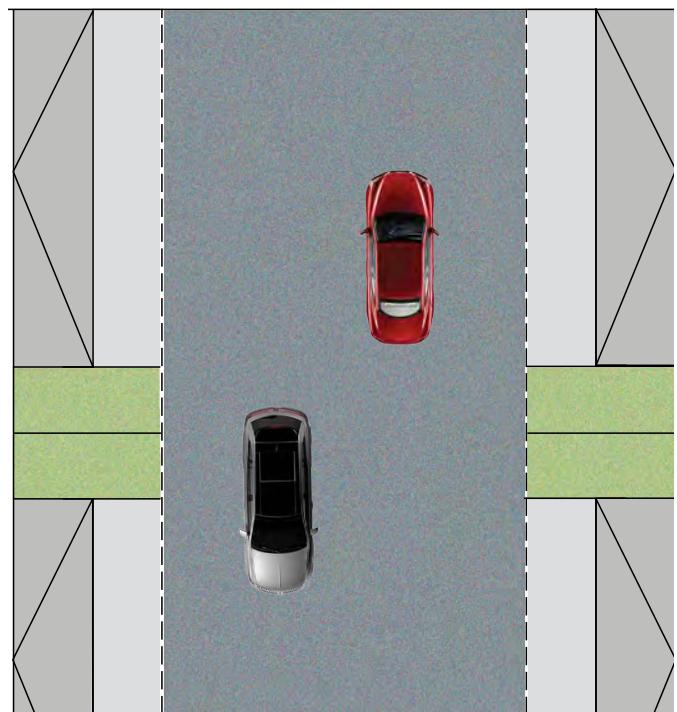
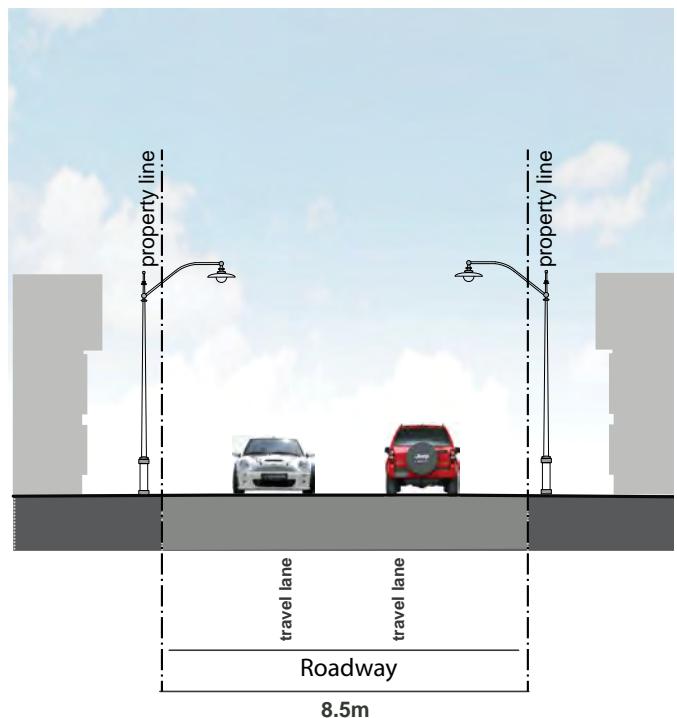


Figure 9. Rear Lane cross-section and plan

2.4.6 Streetscape Elements

Sidewalks

1. Sidewalks should be continuous throughout the community and constitute an integral part of the pedestrian system to promote active transportation and should be designed as follows, where appropriate:
 - 1.5 metres on local roads;
 - 1.5 to 2.0 metres on collector and arterial roads;
 - 2.0 to 3.0 metres in high pedestrian areas in the Village Corridor and Neighbourhood Centre, particularly where retail is provided along the street; and
 - 3.0 to 4.0 metre wide boulevard multi-use path (e.g. on Bowmanville Avenue) provided in lieu of a sidewalk.

In all cases, sufficient space shall be provided for street furnishings, public utilities, tree plantings, and transit shelters.

2. In order to accommodate the needs of persons with disabilities and the elderly, sidewalks should be designed to applicable Municipal standards.

Street Trees and Planting

3. Plant street trees to contribute to the urban tree canopy, to incorporate a buffer to separate the pedestrian from moving vehicles, and to create a canopy and shade over sidewalks in order to reduce heat island effect and enhance pedestrian comfort and safety.
4. Where appropriate, plant drought resistant and salt tolerant landscaping within medians to visually soften the pedestrian environment.
5. Ensure a comprehensive planting and soils strategy based upon species diversity, resiliency, and urban tolerance.
6. A diversity of plant material, avoiding invasive species, should be delivered along each street.
7. Incorporate enhanced landscape strips into the streetscape to provide a buffer between pedestrians and moving vehicles.



Sidewalks with street trees to provide shade.



Planters and benches concentrated at key intersections.



Decorative paving and wider sidewalks.

Street Furniture

8. Concentrate street furniture in areas with the highest pedestrian traffic, such as the Village Corridor, the Neighbourhood Centre, and parks.
9. Provide for a coordinated family of street furnishings that include street lights, seating, waste and recycling receptacles, community information boards, bollards, bicycle lock-ups, paving, and planters.

Signage

10. Develop a comprehensive wayfinding strategy, including directional signage and mapping at key locations and intersections.

Pedestrian Crossings

11. In order to promote walkability and a pedestrian-focused environment, provide a formal pedestrian crossing at every four-way intersection in high pedestrian areas.
12. Provide signalized pedestrian crosswalks at locations where important destinations and/or significant walking traffic is anticipated, such as near retail shops, schools, and places of worship, provided traffic warrants and minimum spacing requirements are met.

13. Pedestrian crossings will have a minimum width of 3.0 metres, be continuous, and connected to adjacent sidewalks.

14. To enhance pedestrian crossings visibility and quality, utilize distinctive feature paving through the use of alternative pavement markings or materials to minimize the conflict between vehicles and pedestrians.

15. Minimize the height of curb cuts to facilitate wheel-chair and stroller usage in high pedestrian areas.

On-Street Parking

On-street parking functions as a traffic calming device to slow traffic and acts as a safety buffer separating the pedestrian realm from vehicles.

16. Parking should be provided on at least one side of the street for local and collector roads.

17. Provide lay-by parking or on-street parking bays on both sides of the road in the Village Corridor.



Lay-by parking to support commercial development in the Village Corridor.

2.5 Transit Supportive Guidelines

A complete community must ensure that a compact, mixed use development with a variety of residential forms, makes transit feasible, efficient, and accessible to all sectors of the public.

Transit supportive systems require densities and development patterns that connect people of all ages to homes, jobs, and other places linked to their lifestyles. Transit supportive developments support the efficient use of transit facilitates, help to reduce greenhouse gases, and improve public health.

1. Promote transit-oriented development as a priority tool to achieve sustainable and complete communities.
2. Provide local transit within walking distance of residential development to support active transportation such as walking and cycling, and to reduce automobile dependence.
3. Transit stops should be located as close to intersections as possible, and their location coordinated with trail connections and building entrances.
4. Ensure the coordination of the transit network with the multi-use trails and paths system to enhance accessibility to transit.
5. Provide a range of transit facility amenities including but not limited to: weather protection, seating, garbage and recycling receptacles, lighting, route information, and automated fare machines at all major transit stations.
6. Surface texture changes should be provided at transit stops to assist the visually challenged in locating the stop and/or shelter location.
7. Support bike use through the provision of bike racks, bike storage, and lockers at transit stops and stations.
8. Where four-sided transit shelters are not possible, provide overhead open-air canopies to protect transit users from sun, rain, and snow.



Transit stop along a mixed use corridor that provides a canopied bus shelter, benches, bicycle parking, plantings, and garbage facilities.



Integrate the natural heritage system with the community.



Incorporate recreational opportunities such as cycling trails abutting the natural heritage system to encourage physical activity.

2.6 The Open Space System

The Open Space System is a major functional, structural, and aesthetic component of the Brookhill Neighbourhood and should be designed to provide a fair distribution of amenity spaces for a range of users.

The natural environment, urban forest, parks, open space, and trail systems are essential components of a healthy, sustainable community ensuring residents have convenient access to a connected and diverse range of recreational opportunities.

2.6.1 Natural Heritage Features

The Natural Heritage System (NHS) contributes to the community's character and is a key structural element of the Brookhill Neighbourhood.

The following guidelines aim to protect, restore and enhance the natural heritage system, while mitigating any existing or potential negative impacts due to urbanization and development. They ensure existing natural and environmental lands are woven into the fabric of the community as key features providing richness in the parks and open space system.

1. Significant natural heritage features and functions, linkages between NHS features, and tableland vegetation shall be protected, restored, and enhanced, where appropriate.
2. Integrate the NHS as a key structural element by providing appropriate views, vistas, and connections to the NHS by utilizing terminal views at the ends of prominent streets and by providing for a range of development interfaces to ensure opportunities for public visual and physical access, while also limiting access where necessary.
3. Ensure connectivity between natural heritage features, maintaining, and where possible improving or restoring corridor function.

4. Consider local east-west connections, provided through such elements as parks and/or trails, to provide linkages between the primarily north-south NHS.
5. Connect and integrate the NHS with the open space network and the local and regional trail systems to buffer and expand ecological features and functions, as opportunities arise.
6. Natural heritage features should be physically and visually accessible from the abutting roads, where appropriate.
7. The preservation of existing vegetation is encouraged.

Valleylands

8. Where appropriate, provide opportunities for passive recreation along the Bowmanville Creek valleylands.
9. Provide naturalization planting and restoration to enhance urban ecology and function of valleyland features.

Wetlands

10. Provincially Significant Wetlands are located in the Environmental Protection Area of the Secondary Plan. These areas shall be protected and access discouraged.
11. Where limited pedestrian access is permitted provide trails only where there is no long term impact to the existing vegetation and wildlife communities.



Opportunities for walking trails along the natural heritage system.



Where appropriate, trails to woodlots should be connected to the public sidewalk.



Bowmanville Creek Valley.

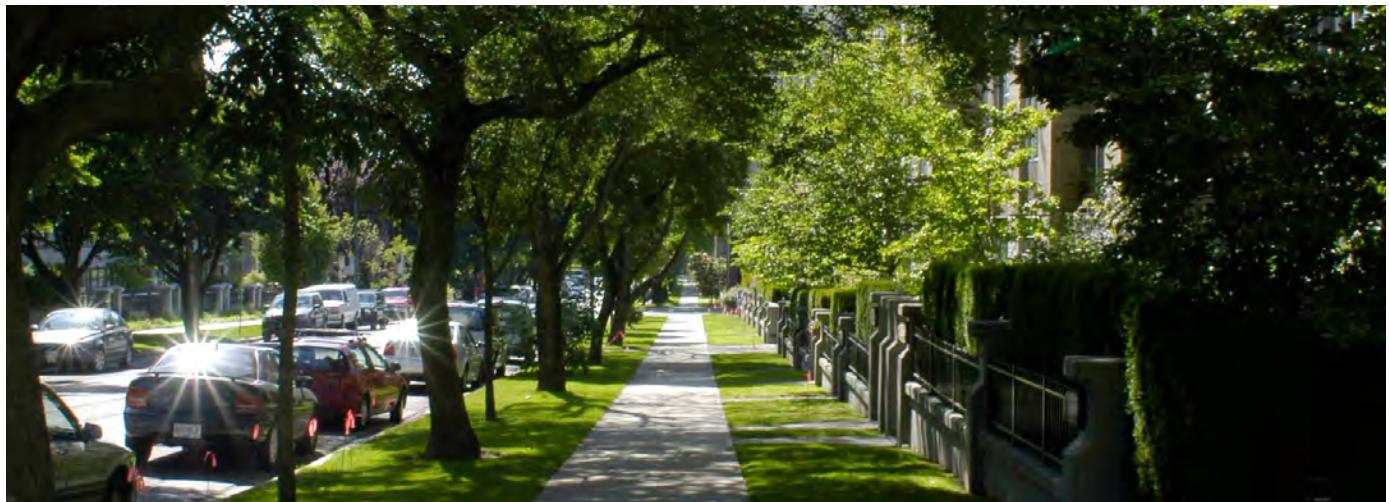
Woodlands

12. Preserve and expand existing tree cover to connect and buffer protected woodlands and other natural areas and to mitigate heat island impacts.
13. Provide opportunities for naturalized plantings and landscape restoration to enhance and help to establish local ecological features.
14. Protect the water table and drainage patterns to ensure the long term sustainability of existing woodlots within development areas.
15. Discourage direct access from private properties backing onto woodlands.
16. Limit pedestrian access through trails and provide only where there is no long term impact to the existing vegetation and wildlife communities.
17. Discourage lighting to protect ecological features and functions of the woodland natural setting.

Urban Forest

Trees provide ecological services that benefit human and environmental health, such as reducing the heat island effect, sequestering greenhouse gases, providing shade in the summer, separating pedestrians from vehicular traffic, and contributing to more appealing sidewalks and streets.

18. Provide robust species selection to anticipate climate change conditions and operational constraints.
19. Provide street trees on both sides of the road in the public right-of-way.
20. Encourage a diversity of tree species along each road that are non-invasive, drought and salt tolerant, and low maintenance.
21. A double rows of trees may be used in key areas, such as adjacent to parks and where a wider boulevard exists.
22. Encourage the delivery of alternative planting strategies along high-pedestrian areas such as Silva-cells, sufficient soil medium, continuous planting trenches, etc., to sustain long-term growth and healthier tree life.



Street tree canopy contributes to the urban forest.

2.6.2 Parks and Open Spaces

An open space network that is connected to the natural environment, and throughout the community, and provides for a variety of open spaces, parks, and recreation facilities creates opportunities for improved public health. Convenient access to these amenities encourages residents to walk and cycle, in addition to providing places for gathering, socializing, and active and passive recreation.

2.6.2.1 General

1. Incorporate Crime Prevention through Environmental Design (CPTED) principles into the design of parks to ensure clear views into and out of surrounding areas, including:
 - adequate lighting;
 - front buildings overlooking public spaces, especially playgrounds which should be highly visible to public streets and/or houses for informal surveillance;
 - clear signage that delineates permitted use
 - design for ease of access and egress; and,
 - mix of activity for constant use of the space.
2. New trees and landscaping within parks should be of a diverse, robust species selection, drought tolerant, contribute to the tree canopy objectives of the Municipality and Region, and where possible, salvaged from the site or the local area
3. Provide lighting to be Dark Sky/Nighttime Friendly compliant.
4. Incorporate LED lighting or solar powered lighting for natural trails, park pathways and other public spaces to reduce electric energy supply in the public realm.
5. Consider public art as focal points in open spaces to reflect the cultural heritage of the location. Public art can include memorials, sculpture, water features, or individual installations at visually prominent sites.



Pathways encourage safe and efficient pedestrian circulation.



Houses overlooking a playground provide a sense of security.



Public Art serves as a defining feature for a public park.

2.6.2.2 Neighbourhood Parks

The Neighbourhood Parks are located on the major road network and adjacent to the Natural Heritage System to support active transportation and connections to a community trail system.

1. Neighbourhood parks shall be centrally located and within 400 to 800 metre radius (5 to 10 minute walking distance) of all residential uses within the neighbourhood it is serving. This encourages daily physical activity and creates a central focus and gathering space for the neighbourhoods.
2. Neighbourhood Parks should be sufficient in size (1.5 to 3.0 hectares) and configuration to accommodate a variety of active and passive recreational activities.
3. Neighbourhood Parks should have significant frontage on a Local and/or Collector Road, with a minimum 60 metres of continuous frontage.
4. Pedestrian access to parks should be clearly defined with landscape or architectural elements to ensure an appealing park presence.
5. Locate Neighbourhood Parks adjacent to school sites, where appropriate, to allow for shared amenities, such as parking lots and recreational play fields. Construct playfields using innovative and appropriate durable turf treatments to minimize maintenance and extend the life of the playfield.
6. Provide on-street parking adjacent to the park as it creates a barrier edge. Parking can be either lay-by parking or on-street, depending on the scale of the park and the nature of the streetscape, local versus collector road.
7. Bicycle parking should be provided. Bike racks should be accessible and conveniently located adjacent to play areas and park entrances, with hard surfaces under the bike rack.



Residential fronting onto the neighbourhood park, with areas for seating and shade.

2.6.2.3 Parkettes

A Parkette is a smaller component of the public open space system that is typically soft surfaced and serves the immediate adjacent population.

1. Parkettes are smaller parks that vary in size from 0.5 to 1.0 hectare and are accessible within a 400 metre radius (5 minute walking distance). These parks occupy smaller park blocks in residential areas and provide space for gathering and passive recreation.
2. Locate parkettes to achieve significant public exposure and access. Urban design options include surrounding the park with streets or fronting dwellings directly onto the parkette to create visually attractive edges to these spaces and eyes-on the park.
3. Parkettes should be designed with 50 percent public frontage but may be less where other design alternatives achieve public view and access. Public frontage can be a public road, a school, or natural heritage features.
4. Pathways should be provided which encourage safe and efficient pedestrian circulation.
5. Parkettes should provide areas of seating and shade.



Parkettes provide areas of shade and seating.

2.6.2.4 Privately Owned Publicly-Accessible Spaces

Privately Owned Publicly-accessible Spaces are intended to enhance the public realm by providing defined spaces for social interaction. They can include public squares, plazas, courtyards, walkways, passages, atriums, arcades, and park-like spaces.

1. Privately Owned Publicly-accessible Spaces shall have highly visible entries and be located within Local Corridors, particularly at Prominent Intersections and gateways.
2. They should be sited adjacent to key pedestrian connections and destinations to reinforce their role as community focal points, complementing the public realm of the Local Corridor.
3. They shall ensure a visually pleasing streetscape and contribute to the public realm through high-quality architectural and landscape design that creates a good quality integration with adjacent built form.



Privately owned publicly-accessible spaces provide opportunities for cultural events, farmers' markets, and smaller-scale outdoor events.

2.6.2.5 Urban Agriculture

Urban agriculture provides the opportunity for an alternative use of green space and as a transition in land uses such as community gardens and traditional farm areas at community peripheries.

1. Promote initiatives such as sustainable food production practices as a component of a new development. Development plans and building designs shall incorporate opportunities for local food production through:
 - Community gardens;
 - Edible landscapes;
 - Small scale food processing (i.e., community kitchens, food co-ops, community food centres);
 - Food-related home occupations/industries;
 - Small and medium scaled food retailers; and
 - Local market space (i.e., a farmer's market).
2. Support urban agriculture as part of the neighbourhood's character and open space system, while also providing a transitional use between the natural and built environments. Measures to protect natural features must be considered.



Urban agriculture supports sustainable local food production.

2.6.2.6 Gateways

1. Gateways should be designed to identify the intersection as an entry point into the community.
2. Gateway features, such as community signage, low walls, fencing or enhanced landscape treatment, shall be incorporated in the design of entry road intersections and shall be coordinated in design and materials with adjacent structures.
3. Primary roads into the community should include a planted centre median and other design features to signify their importance.
4. Intersections should have distinctive surface treatment for pedestrian crossings, including wider sidewalks and connections to bus shelters.



Streetscape features to enhance a gateway entrance.

2.6.2.7 Views and Vistas

Enhancing the views of important community elements for residents can assist in the creation of a sense of place. The best way to achieve those views is through the orientation of streets and buildings. Streets shall be oriented to maximize views to the NHS and the Bowmanville Creek Valley. These views are an opportunity to reinforce these elements as landmark features.

1. Existing natural features should form the basis for directing views.
2. Streets should be oriented to reinforce vistas and views to natural features and open spaces.
3. Significant views are to be protected through the location and configuration of open space opportunities and made available to the public.
4. Where possible, community buildings such as schools, churches, and community facilities should be sited as view terminations.
5. Buildings that terminate views should be designed as special landmark buildings.



Natural heritage features should be located at the terminus of view corridors.

2.6.2.8 Stormwater Management Facilities

Stormwater management facilities should be developed in a manner that will yield the greatest environmental and amenity benefit to the neighbourhood, which can be achieved through first reducing stormwater run-off and flow to the ponds, and secondly, through the design and landscaping of the pond.

Stormwater management facilities will be provided in accordance with Chapter 20 of the Official Plan and the Municipality's Engineering Design Guidelines and Standards Drawings Section 500, Stormwater Management Planting Guidelines.

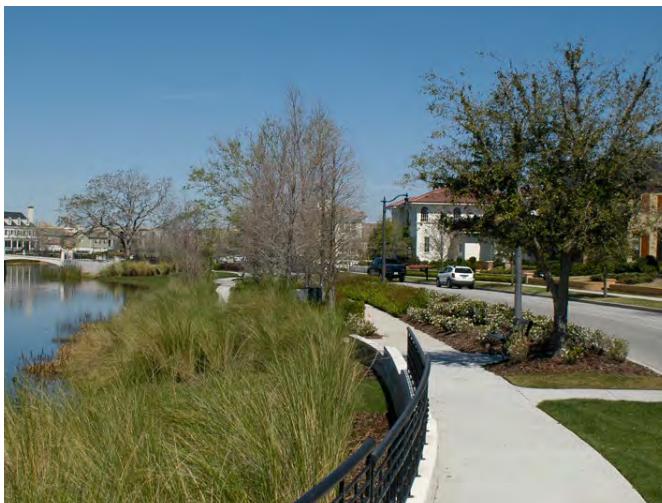
1. Encourage innovative stormwater management design by incorporating stormwater management ponds as part of the open space system, integrated as a community amenity.
2. Enhance views and access to ponds by designing a portion of the pond to be bounded by either streets and/or open space.
3. Pond Design and Landscaping:
 - a. Ponds are located offline and may contribute to buffering environmental features;
 - b. Ponds are landscaped to contribute to the urban tree canopy, add to the natural features of the community, and support wildlife habitat.
 - c. Ponds are designed as key focal/visual features within the community in addition to functional objectives related to flow moderation and water quality; and
 - d. Ponds are designed as part of the overall pedestrian and trail system with view points and interpretive signage. Public walking/cycling trails encircle ponds and extend along stormwater channels.



Ponds should blend with the natural landscape.



Permeable pavers to support on-site stormwater infiltration.



Ponds incorporated as an amenity with trails and lookouts.

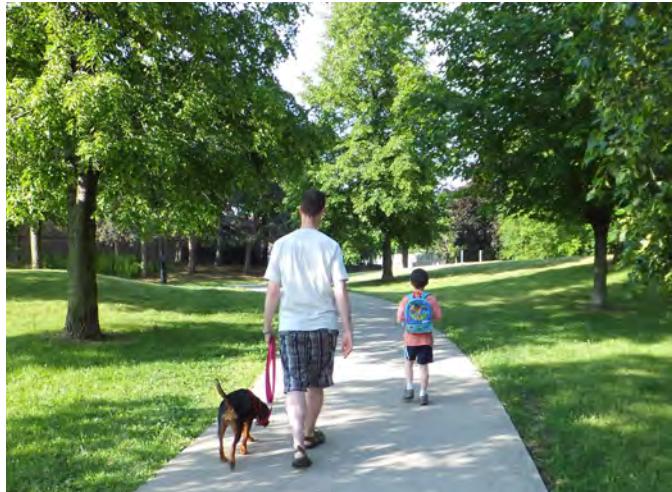
4. Design stormwater management facilities to blend with the natural landscape. Where feasible, conceal inlet and outlet structures using a combination of planting, grading, and natural stone.
5. Consider on-site treatment of stormwater through the use of green infrastructure such as bioswales, at source infiltration, and permeable pavement.
6. Fencing of ponds is discouraged, except where necessary along rear or flankage residential property lines.
7. Landscape components such as look-outs, seating areas, fountains, and gazebos should be coordinated to complement the overall character of the pond.

2.7 Active Transportation

2.7.1 Pedestrian and Cycling System

Encourage active transportation as alternative modes of transportation, while supporting physical activity through the provision of a linked system of walking and cycling trails that ensure residents have increased access and mobility options to local destinations for work and play.

1. Implement a network of continuous and varied active transportation facilities - inter-connected pedestrian and cycling routes and trails, walkways, sidewalks, bicycle lanes - that link the community with surrounding neighbourhoods, are integrated with existing and future public transit infrastructure and connected to regional/local sidewalk and open space systems.
2. Encourage safe routes to schools by providing a network of connected local streets with inherent traffic calming measures (such as reduced lane widths, raised intersections, slower vehicle speeds, on-street parking, crosswalks) to ensure safe use by young pedestrians and cyclists.
3. Accommodate a cycling network that includes cycle tracks, bike lanes and off-road cycling or multi-use trails. Connect the cycling network to existing bike lanes and trails and follow the standards of the Transportation Master Plan.
4. The multi-use trail along Bowmanville Avenue and the cycle track on Type B Arterials, should be 3.0 to 4.0 metres in width to accommodate two directional travel.
5. Design shared off-street pedestrian and bicycle paths for the requirements of the route. Provide for a continuous, linked, legible, and clearly marked system of trails throughout the community, as part of the open space network with the separation of cyclists and pedestrians.



Pedestrian walkways through parks.



Bicycle parking should be provided at transit stops.



Clearly marked cycling lanes.



Trails designed to accommodate a range of users.



Wayfinding signage at trail heads.



Trails designed using permeable materials.

6. Shared cycling infrastructure with vehicular traffic shall provide clear signage and markings. On Collector Roads, the bicycle lane may be painted a different colour to distinguish it from vehicular use.
7. Wherever possible, pedestrian and cycling routes should travel to or from transit stops and GO Transit.
8. Design trails to accommodate a range of users and abilities and be barrier-free, where appropriate. Curb-cuts must be provided to improve access at road crossings. The design and construction of trails shall comply with AODA standards.
9. Trails should be a minimum width of 2.0 metres to provide barrier-free access. Where trails are for multiple users, trails should be sized appropriately.
10. Trails for multiple users shall provide clear signage to indicate shared or dedicated uses.
11. Provide wayfinding signage and/or trail markers throughout the trail network.
12. Design trails to minimize and mitigate impacts on natural heritage features and locate within the edge of the vegetation protection zone (VPZ), where they are permitted. Consider the use of permeable materials for trail construction in areas where sufficient drainage exists.
13. Specifically focus lighting on primary trails at neighbourhood connections. Lighting is not acceptable in natural heritage features.
14. Use native, non-invasive species that can contribute to the urban tree canopy along trails abutting natural features and coordinate planting design to shade trails.

3. THE PRIVATE REALM



Single detached dwelling unit.



Four storey apartment building with an articulated facade.



Townhouse units fronting onto a pedestrian walkway.

The private realm within the Brookhill Neighbourhood is comprised of the built form development blocks and their relationship to open spaces and roads with respect to their location. The residential, institutional, and commercial/mixed-use buildings within a community contribute to its character and can assist in further defining and complementing the public realm. Development of the private realm and built form shall be based upon principles of compact form, place-making, and design excellence.

Place-making

Place-making involves a multi-faceted approach to the planning, design, and management of private development including streetscapes. Place-making is the recognition and enhancement of a community's unique aspects/assets. Recognizing the unique aspects of a neighbourhood requires an understanding of its existing attributes and how they contribute to creating a recognizable and defined character. They assist in understanding the physical make-up of an area and help to identify what sets an area apart from its surrounding context. These attributes are collectively experienced from the viewpoint of the public street.

Design Excellence

Good urban design practices and sustainability guidelines will promote excellence in the design of the private realm. While the specifics of each development proposal may vary, the overall objectives will remain the same throughout the Brookhill Neighbourhood. The objectives will include:

- creating distinctive and appealing streetscapes through attention to building design and detailing;
- ensuring appropriate massing, materials, and building siting;
- design compatibility;
- identifying design requirements for specific priority lots having highly visible elevations; and
- supporting a pedestrian friendly streetscape.

This section of the document provides general guidance for the design of built form and how it should address the streetscape and open space in the private realm.

3.1 Low-Rise Buildings

Low-rise buildings will comprise the majority of new development in the Brookhill Neighbourhood. Low-rise building typologies include single- and semi-detached dwellings, townhouses, live-work units, stacked townhouses, back-to-back townhouses, and low-rise apartment buildings. Generally, with some exception noted in the Guidelines, low-rise buildings are not to exceed 4 storeys.

3.1.1 General Guidelines

1. New residential blocks shall contain a mix of unit types with a variety of elevations to ensure a diversity of housing types and to avoid a homogeneous streetscape.
2. Lots should be generally simple and rectilinear however, variations are permitted if deemed necessary based on environmental features, topography, property boundaries, or other limiting features.
3. All low-rise buildings shall demonstrate design excellence and compatibility with the surrounding context. Architectural detailing, landscape treatments, colour, and building materials shall be representative of the highest quality possible.
4. The height difference between adjacent low-rise buildings on the same block should not vary by more than 1 storey to maintain a consistent street wall.
5. Appropriate transitions in terms of height and massing should occur between buildings of different densities, particularly if they belong in the same block.
6. Garages and driveways should be located on the local road, off arterial or collector roads.
7. Air conditioning units, utility metres, and similar features should not be visible from the public realm and/or well integrated, recessed, and screened.



Single detached dwelling with front porch and side garage.



Example of a semi-detached dwelling.



Front drive townhouses with paired driveways.

3.1.2 Low-Rise Building Typologies

3.1.2.1 Single Detached and Semi Detached Dwellings

Single- and semi-detached dwellings are permitted throughout the community on lands designated Low Density Residential.

1. Dwellings should be designed to frame the street edge with a consistent setback, and have front doors, windows, and entry features facing the road to create a consistent street wall.
2. The front elevation of the dwelling should be designed so that its front entrance design and architectural elements reduce the visual dominance of the garage and the front drive.
3. Porches, stairs, canopies, and other entrance features are encouraged to give prominence to the front entrance.
4. Garages shall not protrude beyond the main front wall of the dwelling unit. Garages shall be set behind or flush with the main building face or accessed from a rear lane.
5. In addition to the above, the following apply to semi-detached dwellings:
 - a. Both halves of the building should be compatible in terms of design expression. Symmetrical building elevations are encouraged. Asymmetrical elevations may be permitted providing it is complementary and harmonious to the overall dwelling; and
 - b. The two units should be fully attached above grade.
6. Semi-detached dwellings with front facing garages and driveways should have the garages paired to maximize the extent of continuous green planting area.
7. Accessory apartments are permitted within single-detached dwellings, semi-detached dwellings, and townhouses subject to the following:
 - a. They are located within the dwelling;

b. The architectural design is consistent or complementary to the principal dwelling, including architectural treatment, materials and proportions of architectural details;

c. There is only one door per façade facing the street; and

d. They shall comply with the policies and standards of the Official Plan and Zoning By-law.

8. One additional accessory apartment may be permitted in a detached accessory building with access to a Rear Lane, subject to the following:

a. They are encouraged to be on the second storey of a detached garage;

b. The architectural design is consistent or complementary to the principal dwelling, including architectural treatment, materials and proportions of architectural details; and

c. They shall comply with the policies and standards of the Official Plan and Zoning By-law.

3.1.2.2 Townhouses

Townhouses are permitted on lands designated as Low Density Residential, Medium Density Residential, Medium Density Local Corridor, Village Corridor, and Neighbourhood Centre.

1. The siting, massing, and façade design of townhouse units shall be coordinated on a block-by-block basis.
2. The elevation of the townhouse block shall be articulated in a manner that provides variation between units and reinforces common characteristics that visually unites the block.
3. Variety in the design of roofs through the use of traditional gables and dormers, or more contemporary designs that include cantilevers and parapet details, is required to break up the massing of units within a block. However, the main roof should appear as one roof where possible and reflect the architectural style of the unit block.

4. Blocks of attached townhouse units shall be oriented to the street with integrated front garages accessed from the street. For rear lane townhouses an attached or detached garage will be located at the rear of the block and accessed from a lane.
5. The main front entry should be oriented to the front lot line for interior units, while the entry of the corner unit is encouraged to be oriented to the exterior lot line.
6. The massing and built form of townhouse units adjacent to single and semi-detached dwellings shall be broken down with architectural elements to promote visual integration.
7. Front garages shall not exceed 50% of the width of the unit and should be paired to allow for more substantial front yard green space. Garages shall not protrude beyond the main front wall of the dwelling unit.
8. Rows of street townhouses should be limited to a maximum of 6 units. The length of the townhouse blocks should not exceed 50.0 metres, unless it is essential to the architectural style of the townhouse block.
9. Rear lane townhouses are ideally suited along Arterial and Collector Roads where driveway access is prohibited and a continuous enhanced streetscape is a priority.
10. Rear lane accessed garages shall be complementary in design and building material with the principal dwelling.
11. Mid-block pedestrian connections should be provided at regular intervals between townhouse blocks in the interior of neighbourhoods.
12. Utility meters shall be screened from public view and integrated into the design of the units through the use of wall recesses, enclosures, or insetting within the building walls. Rear lane units shall locate utility meters at the rear lot line.



Rear lane townhouse dwelling units with articulated frontages.



Corner unit with an upgraded elevation.



Live-work unit with mid-block pedestrian connection.



Stacked townhouses.

Live-Work Units

Live-work units introduce a flexible built form use that allows for the unit to be used fully as a residence or a residence above with retail, commercial, or office uses at grade. Live-work units are ideally suited for the mixed-use context in the Village Corridor.

1. Live-work building designs should support pedestrian activity through minimal front yard setbacks, pedestrian weather protection, such as canopies and enlarged clear glazed windows, and pedestrian-scaled detailing for commercial space.
2. On-street parking shall be provided as lay-by parking with resident parking provided at the rear of the building and accessed from a lane or a private road.
3. Live-work units shall have continuous and consistent architectural details and materials for the entirety of the block.
4. Mechanical equipment including air conditioning units and utility meters shall be screened and/or located away from public view.

3.1.2.3 Stacked Townhouses, Back-to-back Townhouses and Low-Rise Apartment Buildings

Stacked townhouses, back-to-back townhouses, and low-rise apartment buildings are permitted on lands designated as Medium Density, Medium Density Local Corridor, and Village Corridor. The heights shall be a minimum of 3 storeys to a maximum of 4 storeys.

1. Stacked townhouses, back-to-back townhouses, and low-rise apartments should be sited close to the street edge to establish a strong relationship to the street and provide a consistent street wall.
2. The siting and massing of the buildings should be compatible and harmonious with that of adjacent developments. Buildings shall be compatible and sensitively integrated with the surrounding residential uses in terms of building mass, height, setbacks, orientation, privacy, landscaping, and visual impact.

3. Primary building entrances should be located and oriented to public roads and designed to be visible and accessible to the public.
4. All units should be provided with private amenity space in the form of a balcony for the upper-level units, or an at-grade or sunken courtyard for the lower-level units.
5. Pedestrian walkways, including mid-block pedestrian connections, should provide safe, direct access between dwelling entrances, the public street, parking areas and amenity areas.
6. Parking shall be located below grade, where possible. Visitor parking, loading, and service areas shall be located in areas of low public visibility at the side or rear of buildings.
7. Where it is only possible to provide parking at grade, it shall be accessed from a rear lane and screened from street view through the use of landscaping and features such as wrought-iron/metal fencing with masonry pillars or a similar combination that is consistent with the building's architectural style.
8. Rooftop mechanical equipment shall be screened from public view and integrated into the design of the building with materials and/or colours that are consistent or complementary to the building.
9. Garbage and recycling storage shall be located within the building envelope and screened from public view and located away from the public realm.



Low-rise apartment that addresses the street.



Low-rise building with balconies and entrances along the street.



Low-rise apartment with articulated facade and variety of materials.



Garages should not dominate the facade.



Front garages flush with the front facade.



Attached garage setback from the main building face.

3.1.3 Garages and Driveways

The design of garages can have a major impact on the visual character of the individual dwelling and the collective streetscape. A cohesive streetscape where attached garages compliment instead of dominate the streetscape is intended.

3.1.3.1 Front Garages

In order to minimize the presence of the garage, the following guidelines shall be applied for attached and detached garage buildings accessed from the front:

1. Garages must be a natural extension of the design, massing, and materials of the main dwelling.
2. Garages should be set behind or flush with the main building face and shall not project beyond the main wall of the dwelling. Garage doors facing a public road, should be setback a distance of 6.0 metres from the road right-of-way.
3. For an attached garage accessed from the front and located at the back of the lot, the garage should be setback a minimum of 6.0 metres from the main wall of the dwelling.
4. Detached garages are permitted in the rear yard and interior side yard only.
5. A variety of garage door configurations and styles should be provided.
6. Tandem garage designs are encouraged to help minimize the impact of garage width on the elevation and the streetscape.
7. Garages for townhouses are encouraged to be located at the rear and accessed from Rear Lanes. Where front-yard garages are used they shall be recessed at least 1 metre from the front wall of the main building face or the front of the porch.

3.1.3.2 Lane-Accessed Garages

Garages that are accessed from a laneway can either be detached or attached to the main dwelling at the rear. Attached garages can either be set into the house with access at the rear, or they can be attached to the main dwelling through a breezeway which forms a side courtyard for amenity space.

1. The architectural design, massing, detailing, materials, and colours of garages should compliment and reflect the principal dwelling. A variety of garage heights and roof slopes is encouraged.
2. Garages should be sited to allow for access and drainage from the rear yard of the unit to the rear lane plus opportunities for landscaping along rear lanes.
3. Both parking pads and garages shall be set back from the lot line separating the rear yard from the rear lane.
4. Parking pads should be screened from the rear by a fence and/or landscaping.
5. Where possible, garages should be paired to allow for an increased rear yard or an outdoor parking pad to accommodate resident parking.
6. Garages fronting onto rear lanes should be carefully arranged in groupings to encourage an attractive visual environment. The maximum number of attached garages should be four.
7. A house number is to be identified on both, the garage elevation facing a lane or the main entrance elevation facing a public street or park.
8. Landscaping and fencing along or adjacent to rear lanes should be coordinated and finished with materials, colours and vegetation compatible with the principal dwelling.

3.1.3.3 Driveways

1. Driveway widths should generally be no larger than the interior width of the garage.
2. Driveways are encouraged to be paved with light-coloured or permeable material to reduce stormwater run-off and reduce heat island effect.
3. Driveways should be located as far as possible from parks, open space features, public walkways, schools, and intersections.
4. Driveways should be designed to reduce the amount of asphalt on front yards and enhance the visibility of the street.



Lane based garages in groups of three.



Light coloured materials reduce heat island effect.

3.1.4 Priority Lots

Priority Lots are those that have high public exposure, such as corner lots, or lots located adjacent to public open space. Priority Lots occur where two streets intersect or where lots are sited next to community amenity spaces and are open to views.

Priority lots are those which are situated in prominent locations and are highly visible from the public realm. Priority lots include:

- Gateway lots;
- Corner lots;
- Lots which terminate at “T” intersections; and
- Lots facing, adjacent to, or backing onto parks, open spaces, and pedestrian links.

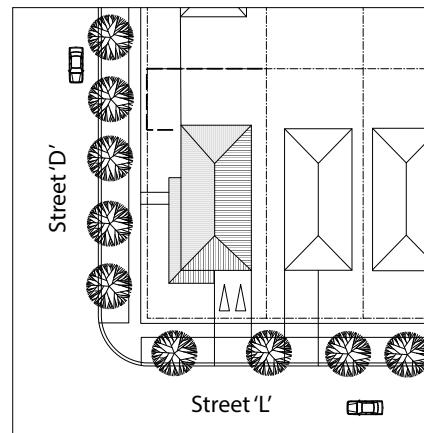
3.1.4.1 Gateway Lots

Gateway corner lots are typically located at the entry to the community from adjacent areas. Dwellings on these lots should be designed with the following principles in mind:

1. Gateway dwellings should be given special consideration in architectural design, massing, orientation, siting, and materials and shall be of high architectural quality.
2. Entry elements and porches are encouraged to produce interest in the façade, as well as to help define the entrance to the neighbourhood.
3. Pairing of similar model units on lots directly opposite each other to establish and enhance a gateway condition is encouraged.
4. Provide landscape and landscape features to accentuate gateways and coordinate throughout the community.

3.1.4.2 Corner Lots

1. Side and rear elevations visible from the street should have windows, materials, and other architectural treatments equal in quality to the front elevation of the house.
2. Corner windows and wrap-around porches should be included to emphasize a corner location. Where possible, the entry door should be located on the exterior side elevation of the house with direct access to the sidewalk.
3. Locate main entry features on the flankage elevation where possible.



Dwellings located at the intersection of two streets shall address both streets.

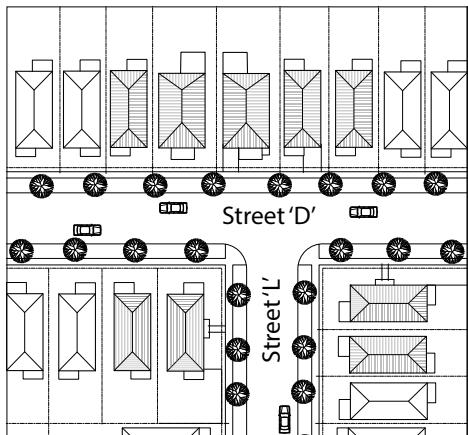


Example of corner lot condition.

3.1.4.3 T-Intersections

T-intersections occur when one road terminates at right angles to another. Consideration should be given to homes at the top of the T-intersection and the last two lots on either side of the road that terminates at the intersection.

1. Architecture on lots at the end of T-intersections should have façade designs that utilize elements such as coordinated fenestration, masonry detailing, and entry elements.
2. Pairing of side yards is encouraged to form a landscaped area at the terminus of the T-Intersection.



Dwellings located at the T-intersection shall be considered a group.



Unit at the end of a T- intersection.

3. Buildings sited at the end of the view corridor should be designed with architectural elements that address these views.

3.1.4.4 Lots Adjacent to Parks and Open Spaces

1. Front, side, and rear elevations exposed to public spaces such as neighbourhood parks and parkettes, should be highly articulated. A combination of fenestration, bay windows, material changes, and dormers may be used.
2. Side and rear elevations should adopt a similar design and use materials that are consistent with those used on front elevations. Architectural detailing, such as corbelling should continue from front to side elevations, where visible to the public.
3. For units flanking onto parks and open spaces, a highly articulated side façade is encouraged. Side main entrances are an alternate means to achieve this.
4. The location of porches, windows, and entry doors for units surrounding parks and parkettes should maximize opportunities for overview and safety.



A porch flanking a park creates “eyes on the park”.



Example of mixed-use buildings.



Mixed-use buildings with frontage along the street.



Example of a 6 storey apartment.

3.2 Mid-Rise Buildings

Mid-rise buildings are primarily located along Bowmanville Avenue and Longworth Avenue, east of Green Road. They will provide a high degree of architectural character that is suitable for their location along a Local Corridor and at a Prominent Intersection. Mid-rise building typologies include mixed-use and apartment buildings.

As noted in the Secondary Plan, mid-rise buildings have heights between 4 to 6 storeys. Mid-rise buildings are permitted on lands designated as Village Corridor, Neighbourhood Centre, and Medium Density Local Corridor.

3.2.1 General Guidelines

1. The greatest heights and massing should be concentrated along the frontage of the Local Corridor.
2. The scale of mid-rise buildings shall be compatible and sensitively integrated with surrounding residential uses in terms of building mass, height, setbacks, orientation, privacy, landscaping, shadow casting, accessibility, and visual impact.
3. To demonstrate mitigation of potential shadow or wind impacts on existing or proposed pedestrian routes, public spaces, and adjacent development technical studies may be required including a wind study and/or sun/shadow study. Analysis may also be required to address applicable angular plane guidance.
4. Development transition requirements may be met using a combination of the following:
 - a. Separate buildings from lower density buildings with a Local Road;
 - b. Locate less dense and lower scale buildings in locations adjacent to lower density designations;
 - c. Require a minimum 7.5 metre rear yard setback where mid-rise development abuts low density residential properties;

- d. Mitigate the actual and perceived massing impacts of a mid-rise building by breaking up the mass horizontally and vertically, through the creative incorporation of changes in materials, balcony and floor plate design, architectural features, and unit/amenity locations;
- e. Provide rear and side stepbacks for upper storeys to provide contextually appropriate transitions from the mid-rise buildings to the surrounding low density neighbourhoods; and
- f. Provide of high quality landscape treatment such as decorative fencing, trees, shrubs, grassed areas and berthing.

5. Angular planes can be used as a tool to evaluate the massing and height transitions of proposed developments to ensure appropriate transition to adjacent low-rise residential areas. Apply a minimum 45 degree rear yard angular plane measured from the abutting property line where a building transitions to adjacent low-rise residential areas.

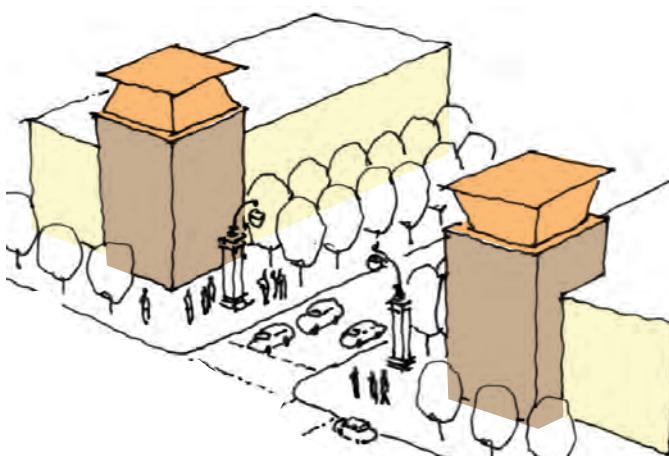
6. New development will be compatible with adjacent and neighbouring development by ensuring that the siting and massing of new buildings does not result in undue adverse impacts on adjacent properties particularly in regard to adequate privacy conditions for residential buildings and their outdoor amenity areas.

- 7. Use prominent built form to address gateway locations within the community. At the Prominent Intersection, create 'paired' corner buildings on either side of a street to emphasize a sense of entry.
- 8. Primary building entrances should be located and oriented to public roads, and designed to be visible and accessible to the public.

3.2.2 Mid-Rise Building Typologies

3.2.2.1 Mixed-Use Buildings and Apartments

- 1. Mixed-use buildings may include commercial and office uses at grade and multi-unit residential above or behind. Ground floors shall be designed to be appealing to pedestrians and include uses that are more active in terms of pedestrian traffic, such as commercial/retail, personal service, and restaurant type uses on the ground floor.
- 2. Grade level retail frontages shall be broken down in scale to provide a finer grained frontage onto Longworth Avenue. Reflective mirror glass shall not be used for windows at grade.
- 3. Retail and service commercial uses should be provided on the ground floors of buildings to bring animation to the street and encourage pedestrian activity. Such uses should have a minimum 4.5 metre floor-to-ceiling height.

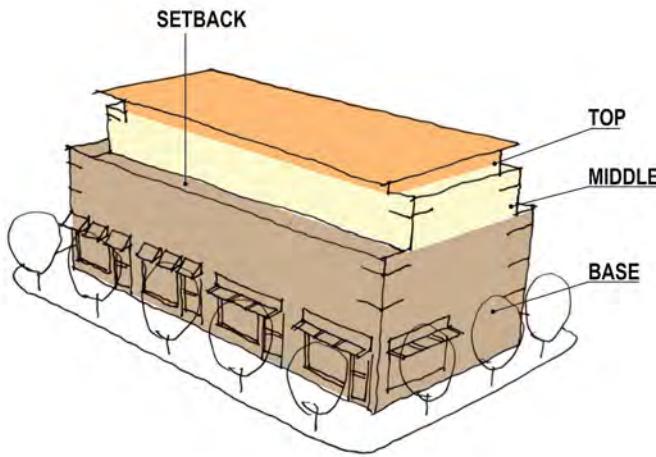


Paired corner buildings as a gateway feature.



4 and 6 storey apartment buildings.

4. Residential entrances shall be clearly distinguished from the commercial entrances through building design and can be located at the front or side of the building.
5. Apartments should have a clearly articulated base, middle, and top, through the use of horizontal or vertical extrusions, projections, or changes in material.
6. Ensure the height of the base (podium) matches existing adjacent structures and is a minimum of 2 storeys to reinforce the pedestrian scale of the streetscape.
7. Where a podium form is not established, the building should achieve a minimum base or podium height of 3 storeys and maximum building height of 6 storeys to maintain a human scale.
8. Where buildings are taller than 4 storeys the upper floors shall be setback a minimum of 1.0 metre from the front wall of the base building. Taller buildings, such as 6 storeys, may have more than 1.0 metre setback to maintain a consistent street wall height.
9. Balconies on all storeys above grade are encouraged.
10. All major rooftop mechanical structures or fixtures including satellite dishes and communications antenna shall be suitably screened and integrated with the building, where feasible. Parapets may be utilized to accommodate such screening.
11. Air conditioning units, utility metres, and similar features should not be visible from the public realm and/or well integrated, recessed, and screened.
12. Servicing, loading, and parking access shall be from a rear lane or private road.
13. Parking is encouraged to be underground, particularly for developments within the Local Corridor. Where deemed not practical, structured parking is next preferred, followed by surface parking.
14. Where it is only possible to provide parking at grade, it shall be screened from street view through the use of landscaping, including features such as wrought-iron/metal fencing with masonry pillars and landscaping or a similar combination that is consistent with the building's architectural style.
15. Bicycle parking and storage should be provided for apartment buildings.



Mid-rise building elements.



Highly articulated design through use of materials and balconies.

16. Locate garbage and recycling, and loading and service areas away and fully screened from public view. These facilities should be located in the rear or side yards and away from residential uses, major roads and open space areas. Where possible, integrate these functions within buildings.

3.3 Commercial Buildings

In the Brookhill Neighbourhood stand alone commercial buildings are directed to the Neighbourhood Centre. The Neighbourhood Centre is located at the intersection of Bowmanville Avenue and Longworth Avenue.

Section 10.5 of the Official Plan sets out the criteria for development within the Neighbourhood Centre. In addition to the design criteria, development should follow the design guidelines of this section.

3.3.1 General Guidelines

1. The siting and massing of buildings should provide a consistent relationship, continuity, and enclosure to adjacent public roads.
2. Where located at a corner, buildings shall be designed to address both street frontages and be massed towards the corner location for visual interest and to anchor the building.
3. Primary entrances to buildings should be clearly visible and located on a public road or onto public open spaces in order to support public transit and for reasons of public safety and convenience. Secondary doors, such as those that face the parking area, emergency exits, or service doors should be designed to blend in with the building façade.
4. Access from sidewalks and public open space areas to primary building entrances should be convenient and direct, with minimum changes in grade.

3.3.2 Commercial Buildings

1. Commercial buildings located in the Neighbourhood Centre will serve an important role of defining the entry to and initial impression of the community. Buildings at the Prominent Intersection will:
 - a. Include distinctive building designs which include articulated built form, massing features and added building height at corners that address the gateway;
 - b. Incorporate decorative planting and/or hardscape features that complement the building design and materials; and
 - c. Include decorative paving at the corners and to define direct connections to building main entrances.
2. Signage should provide a high level of clarity, visibility and visual interest, and shall complement the architecture of the building(s) in its scale, materials, consistency, and design.
3. Entrances to buildings should be emphasized through any combination of material changes, maximized height, canopies, or wall articulation.
4. Clear glazing should be maximized on all building elevations, in particular on building elevations facing the street. Street frontages and elevations facing parking areas shall include clear glazing and/or landscaped walls with coniferous landscaping material to provide a comfortable and safe pedestrian experience.
5. Non-street facing building façades exposed to public view or facing parking areas shall provide visual interest through the provision of windows, wall articulation, architectural detailing, and/or landscaped walls with coniferous landscaping material, similar to the main building façade.
6. Rooftop mechanical equipment shall be integrated into the roof design and screened from public view.



Example of a commercial building.



Parking lot with smaller courts, plantings, and decorative paving.



Landscaped island with a bioswale to filter run-off.

7. Servicing and loading areas shall be discreetly located and be screened from public view through architectural design, low walls, and landscaping features.
8. Waste facilities within an external structure shall be consistent in design, colour, and materials to that of the main dwelling and shall not be located in a prominent location.
9. Design outdoor waste storage containers to be consistent with the architectural design of the building.

3.3.3 Surface Parking Lots

1. Entrances to parking areas shall be from internal Collector or Local Roads and not from Bowmanville Avenue, unless approved by the Region, Ministry of Transportation of Ontario, and the Municipality.
2. Parking in structures is preferred, where possible. Where at-grade parking is provided it shall be to the side or rear of the building and should not occupy more than 50% of any street frontage.
3. Surface parking lots should be screened from view from roads, open spaces, and adjacent residential areas with low fencing, architectural features, landscaping and/or other mitigating design measures, such as lowered parking surfaces with landscaped buffers.
4. Where parking lots abut a road right-of-way, a landscaped area of at least 2.5 metres wide should be provided and include trees planted at intervals of 6.0 to 12.0 metres depending on the canopy size of the trees.
5. Large parking areas should be broken down into smaller courts of parking and include pedestrian routes defined through planted raised islands, decorative unit paving, and traffic bollards.

6. Raised medians that are generally 4.5 metres wide, consisting of a 1.5 metre wide paved walkway with a 3.0 metre tree planted landscaped area on one side, shall define the walkway to a building's entrance from the parking areas.
7. Light standards in parking lots should relate to the pedestrian and be limited to a height of 6.0 metres to meet minimum safety standards.
8. Permeable paving material should be used to reduce run-off volume and minimize on-site infiltration pollutants.
9. Landscaped islands should be designed with bioswales and/or trees. The islands should be designed to provide for tree growth and retention.

3.4 Public / Institutional Buildings

Public/Institutional uses form an important aspect of community identity. Buildings serving these uses act as important built landmarks in the community, including schools, recreation centres, places of worship, and fire stations. Careful attention must be paid to the design of these structures to ensure that they reflect the built quality and integrate with the scale of the surrounding neighbourhood.

3.4.1 General Guidelines

1. Public/Institutional buildings should be sited prominently and where possible, should terminate views. Buildings should be sited to specifically differ from the surrounding urban fabric in order to emphasize their importance as landmarks.
2. Public/Institutional buildings should be located close to the road to reinforce the street wall and define intersections.
3. Public/Institutional buildings should be designed as special landmark buildings with high quality architectural design, materials, and finishes.

4. The site should be well landscaped and visible at the pedestrian level, in recognition of the prominent location.
5. The front door of all Public/Institutional buildings should be connected with a walkway to the sidewalk and should have direct access to transit stops.
6. Vehicular parking should be located at the side or rear of the building. Parking for cyclists should be located near building entrances and where visual surveillance can be maximized.
7. Drop-off areas should be provided for buses and cars in the public right-of-way where possible, but where located on site they should be at the side of the building, and not in front of the building.
8. Rooftop mechanical equipment should be screened with materials that are complementary to the building or through parapet height where applicable.
9. All Public/Institutional buildings should contribute to the creation of compact neighbourhoods through multi-storey buildings. Multi-storey buildings maximize the site and services, minimize floor area, as well as contribute to an urban street condition through a building façade proportion that contributes to a sense of enclosure at the street. Multi-storey buildings can accommodate accessory and, if applicable, complementary uses.

3.4.2 School Sites

In addition to the General Guidelines, the following guidelines for elementary schools apply:

1. The land area required for school sites should be minimized in order to promote compact development and conserve land. School Boards are encouraged to build more compact facilities including three storey school buildings and locate the building close to the street.



Bicycle parking is provided in close proximity to the front entrance of the building.



The front entrance of the school is accentuated with architectural features and detailing, and is connected with a walkway.

2. Where possible, Elementary School sites should be located adjacent to a neighbourhood park so that playfields can be shared to promote compact development and minimize land area requirements. Appropriate and innovative engineered turf material should be explored to increase the durability of the playfields and minimize maintenance requirements. See also guidelines under 2.6.2.2.Neighbourhood Parks.
3. Shared parking lots for Elementary School sites with neighbourhood parks should be considered in order to reduce the number of parking requirements. The shared parking lot should be located and sited to facilitate easy and safe access, and to minimize the need for crossing required by students.
4. Schools sites that are located adjacent to the NHS should maximize the opportunity for using the NHS for passive open space uses such as trails and trail heads.
5. Schools should be designed to ensure safe pedestrian crossing and cycling practices. Whenever possible, students should be able to easily reach building entrances without crossing bus zones, parking entrances, and student drop-off areas.
6. School sites should be designed to provide for visitor parking and bus pickup and drop-off in bays in the adjacent Collector Road right of way.



Parking is located to the rear of the building off the main road and the front entrance to the building is directly connected to the public sidewalk.

3.4.3 Community Facilities

To complement the General Guidelines the following additional guidelines apply to the development of Community Facilities:

1. Community Facilities should be located on Arterial or Collector roads in highly accessible areas to maximize accessibility by pedestrians, cyclists, and vehicles.
2. The joint use of parking areas with adjacent uses is encouraged in order to reduce land requirements and promote compact development.
3. The massing and scale of the building should be compatible with the character of adjacent development, especially within Low and Medium Density Areas through the use of similar setbacks, material selection, and the use of architectural elements.
4. Parking areas should be located within the rear yards or interior side yards. Landscape buffers along any property line shall be of sufficient depth and intensity to provide appropriate screening of the parking lot.

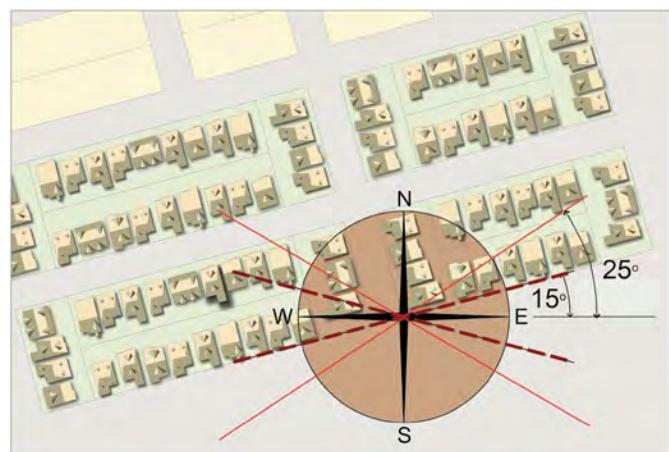
4. GREEN INFRASTRUCTURE AND BUILDING



Wind turbines on the roof of an office building.



Solar canopies in surface parking lots.



To maximize passive solar orientation the street and block alignment should be designed within 25-degrees of geographic east-west.

While sustainability is an overarching objective throughout the Guideline, this section provides guidance on green infrastructure and building practices and helps achieve the broad sustainability principles of the Official Plan and the specific policies as set out in Secondary Plan.

As part of the strategy to achieve a high level of sustainability in regards to the reduction of energy, water, and waste within the Brookhill Neighbourhood, the Green Infrastructure and Building Guidelines apply to both the private and public realm.

4.1 Energy Conservation

Energy conservation in the Brookhill Neighbourhood will support the reduction of energy use and consider the inclusion of alternative and renewable energy sources.

1. Where feasible, provide alternative community energy systems such as district energy, geo-exchange, sewer heat recovery, and/or inter-seasonal thermal energy.
2. Consider reducing demand for energy from the grid and encourage renewable energy production. Renewable energy sources that could be employed may include the use of solar thermal and photovoltaic equipment, and/or wind power. Proposed alternative energy source(s) could be used in combination with energy from the grid.
3. Encourage passive solar orientation to permit enhanced energy efficiencies by creating optimum conditions for the use of passive and active solar strategies. The integration of passive building systems is enhanced with buildings oriented to maximize the potential for sunlight and natural ventilation.
4. Where feasible, implement street and block alignment within 25 degrees of geographic east-west to maximize passive solar orientation of buildings front and rear windows.

5. Consider constructing all low and medium density residential buildings to be Solar Ready. *(built with all the necessary piping and equipment that would be needed to install a rooftop solar power system).*
6. Consider the purchase of energy from renewable resources available from local utility/energy providers.
7. Reduce heat absorption through the use of cool roofs that are designed to reflect more sunlight and absorb less heat than a standard roof. Cool roofs can be made of a highly reflective type of paint, a sheet covering, or highly reflective tiles or shingles. Consider cool roofing material with a minimum initial solar reflectance of 0.65 and minimum thermal emittance of 0.90.
8. For a low sloped roof, typical of commercial and institutional buildings, the cool roof Solar Reflectance Index (SRI) value should be 0.64 and for steep sloped roofs, typical of residential, the SRI value should be 15.
9. Mitigate heat island impacts through the use of paving material with high solar reflectance, strategic use of deciduous trees or preserve existing trees as part of a free cooling strategy to help with evapotranspiration and shading of sidewalks and hard surface areas in summer and solar access in winter.
10. Charging stations that would supply electricity for electric vehicles are encouraged in Draft Plans/ Site Plans. Charging stations could be provided in parking areas of mixed-uses, institutional uses, or within underground garages for multi-storey residential buildings.
11. Grade related residential unit driveways are encouraged to be paved with light-coloured material to reduce the heat island effect.



Solar panels on the roof of low-rise development.



Light coloured pavers assist with the reduction of heat island effect.



Charging stations for electric vehicles in mixed use areas.



Bioswales in the public right of way to improve infiltration.



Innovative stormwater management facility.



Example of permeable paving material used on a road.

4.2 Water Use and Management

The benefits of high performance, compact, mixed use projects include reduction in household water consumption and water utility costs, as well as the protection of the natural water supply. Compact development reduces impervious surfaces and makes it easier to protect natural areas which are the most important steps a community can take to maintain water quality.

1. Encourage the implementation of Low Impact Design Standards that emphasize the use of bio-swales, innovative stormwater practices, constructed wetlands, at-source infiltration, greywater re-use system, and alternative filtration systems such as treatment trains.
2. Implement a comprehensive rainwater and water recharge strategy in conjunction with required stormwater management facilities.
3. Implement strategies for stormwater retention and run-off such as:
 - a. Retain stormwater on-site through rainwater harvesting, on-site infiltration, and evapotranspiration;
 - b. Consider the inclusion of third pipe greywater systems and rain water harvesting for watering lawns, gardening, to reduce demand on potable water use;
 - c. Direct flow to landscaped areas and minimize the use of hard surfaces in order to reduce the volume of run-off into the storm drainage system;
 - d. Store snow piles away from drainage courses, storm drain inlets, and planted areas; and
 - e. Use infiltration trenches, dry swales and naturalized bioswales adjacent to parking areas to improve on-site infiltration.

4. Introduce green infrastructure, such as bioswales, within the public right-of-way to enhance ground water infiltration and improve water quality as part of a comprehensive water management plan.
5. Encourage the use of porous or permeable pavement instead of standard asphalt and concrete for surfacing sidewalks, driveways, parking areas, and many types of road surfaces as a stormwater run-off management strategy for promoting groundwater infiltration and water quality treatment.
6. Implement a rainwater harvesting program to provide the passive irrigation of public and/or private greenspace, including absorbent landscaping, cisterns, rain barrels, underground storage tanks, infiltration trenches, etc.
7. Implement xeriscaping using native, drought-tolerant plants as a cost-effective landscape method to conserve water and other resources on a residential and community-wide level.
8. Where feasible, implement curb cuts along sidewalks and driveways to allow water to flow onto planted zones or infiltration basins.
9. Consider the installation of subsurface basins below parking lots to enable stormwater to be stored and absorbed slowly into surrounding soils.

4.3 Material Resources and Solid Waste

Assist in the reduction and diversion of waste from landfills and increase measures for recycling and reuse.

1. Consider the use of recycled/reclaimed materials for new infrastructure including roadways, parking lots, sidewalks, unit pavings, curbs, water retention tanks and vaults, stormwater management facilities, sanitary sewers, and/or water pipes.
2. Incorporate strategies that emphasize targets for a higher diversion rate in recycling for the plan area.
3. Reduce waste volumes through the provision of recycling/reuse stations, drop-off points for potentially hazardous waste, and centralized composting stations.
4. Consider incorporating existing heritage buildings in situ through retention, restoration, and adaptive reuse to avoid further construction waste.
5. In large buildings, such as multi-unit residential buildings and institutional or public buildings, provide on-site recycling facilities for handling, storing, and separation of recyclables.
6. Recycle and/or salvage at least 50% of nonhazardous construction and demolition debris and locate a designated area on site during construction for recyclable materials.

4.4 Air Quality

In order to minimize the air quality and climate change impacts associated with new growth, the following shall be supported:

1. The reduction of air pollution through the development of complete communities.



Outdoor bicycle storage racks should be highly visible and provided in high pedestrian areas, such as parks and public buildings.



Dedicated parking spaces for car share programs should be designed with clear signage.



Solar powered lighting for trials and parks.

2. The reduction of vehicle kilometres traveled across the Brookhill Neighbourhood through increased mobility choices and the promotion of walking, cycling, and transit.
3. Ensure the separation of sensitive land uses from air pollutant sources through land use planning and zoning. Refer to the Ministry of the Environment guidelines.
4. To promote transit ridership, programs such as developer-sponsored transit passes at reduced costs for each residential unit or employee are encouraged.
5. Provide the minimum number of parking spaces to minimize the impact of car parking.
 - a. Mixed use developments should include shared use of parking among uses that have different peaking characteristics;
 - b. Design parking areas so they are not the primary visual component of a neighbourhood;
 - c. Reduce the parking ratio required in areas that are served by transit; and
 - d. Dedicate priority parking spaces for carpool, ride sharing, and ultra low emission vehicles at 5% of total parking spaces.

4.5 Lighting

1. Promote Dark Sky/Nighttime Friendly compliant practices to minimize light pollution and the intrusion of unwanted lighting on natural areas.
2. Consider high efficiency street lighting to reduce energy use.
3. Consider opportunities for renewable energy use to reduce electric energy supply in the public realm, such as solar powered lighting for natural trails and park pathways.

4.6 Green Buildings/Green Sites

Promote innovative programs to encourage the design and construction of energy efficient green buildings and sites.

1. Consider third-party certification and rating programs, such as LEED® for New Development (ND).
2. Consider innovative residential development designs which contribute to affordability and energy and natural resource conservation.
3. Consider building(s) that are LEED® Certified or recognized or accredited by a third-party certification program i.e. Energy Star, LEED H, LEED NC, LEED for Schools, BREAM, etc.,
4. Green roofs are encouraged for high-density residential, office buildings, as well as, public, institutional buildings to minimize surface runoff, reduce urban heat island effect, provide noise insulation, and improve local air quality.
5. Encourage synergies between buildings and site management practices that conserve water, reduce waste, and are energy efficient.
6. Provide green roofs for 80% of all higher density development. For apartment buildings, design roofs as amenity areas.
7. Develop a heat island reduction strategy for community and public buildings to install green roofs with 50% coverage, remainder covered with light coloured material. Light coloured roofs have a high solar reflectance, which reduces energy costs and reduces urban heat island effect.
8. Promote energy efficiency through development plans and building designs that provide opportunities for south facing windows and building orientation to maximize the potential for passive and active solar energy.



Green roofs reduce surface run-off on mid-and high-rise buildings.



Collect, store and distribute rainwater in underground storage tanks.



Light coloured roofs have a high solar reflectance, which reduces energy cost and reduces urban heat island effect.

9. Promote Water Efficiency:

- a. All buildings comply with Ontario's Building Code required water fixtures efficiency;
- b. Building site uses Low Impact Development strategies to deal with on-site run-off and heat island effects;
- c. Building site's landscaping is water efficient and drought resistant; and
- d. Pre-design buildings for grey-water pipe infrastructure.

10 Promote Green Materials:

- a. Incorporate waste reduction work plans and construction best practices that reduce construction waste;
- b. Incorporate green building material standards to reduce impact on the environment and ensure materials are purchased/obtained from a responsible ethical sources; and
- c. Where possible, materials should be sourced from certified local businesses.

4.7 Stewardship and Education

- 1. Create a well-documented master plan including illustrations that promote sustainable aspects of the development.
- 2. Include environmental builder specifications in all subcontracts.
- 3. Produce detailed sales and promotion materials that feature conservation aspects of the development.
- 4. Develop subdivision covenants that establish ground rules for the maintenance of shared open lands and individual lots.
- 5. Create a Homebuyer's Environmental Instruction Guide that explains the unique environmental aspects of the subdivision/site and special maintenance considerations.
- 6. Include an owner/tenant education package at the time of purchase or rental regarding household activities to improve energy and water efficiency, access to transit, location of recycling station, etc. Coordinate with existing municipal and regional information.

