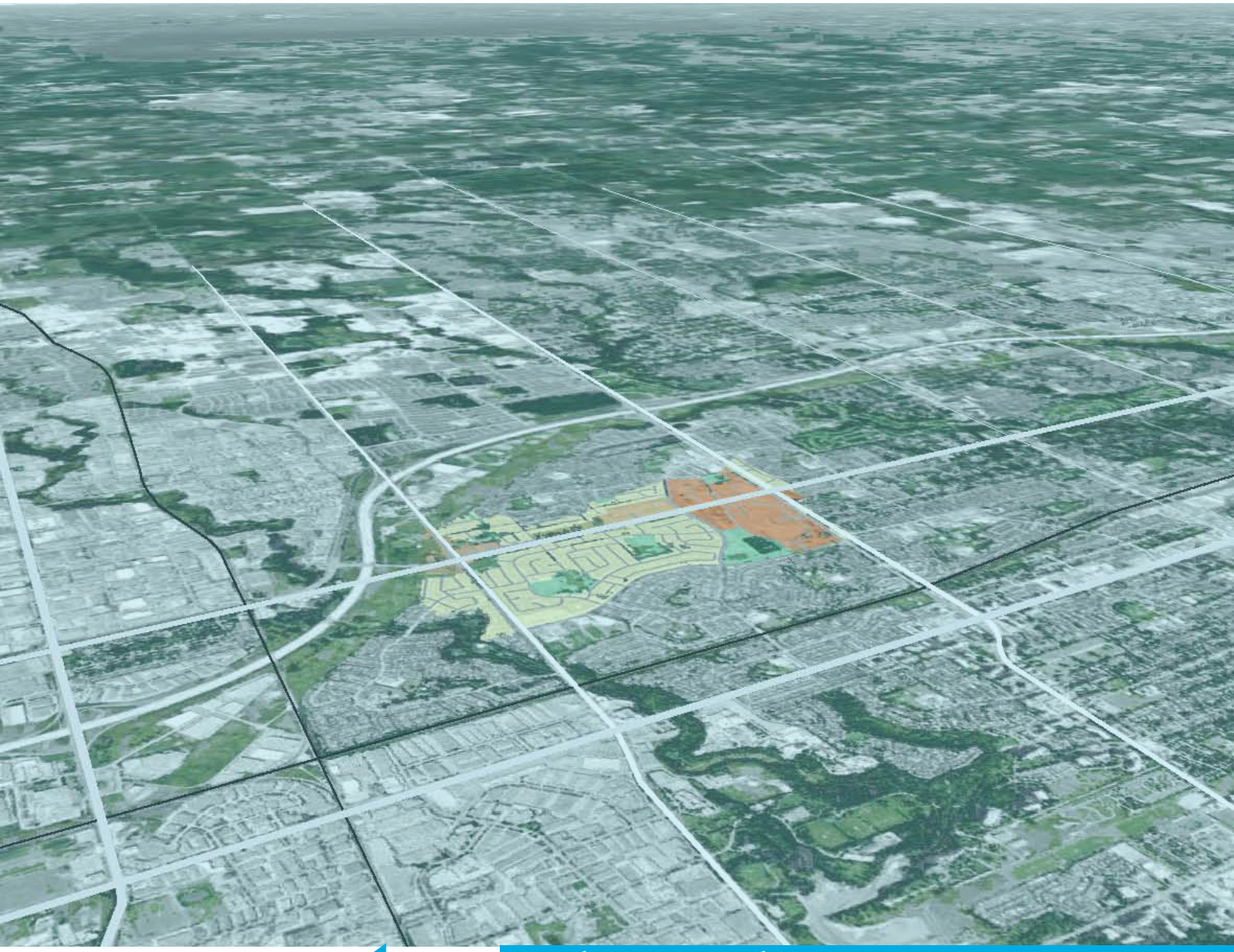


centre street

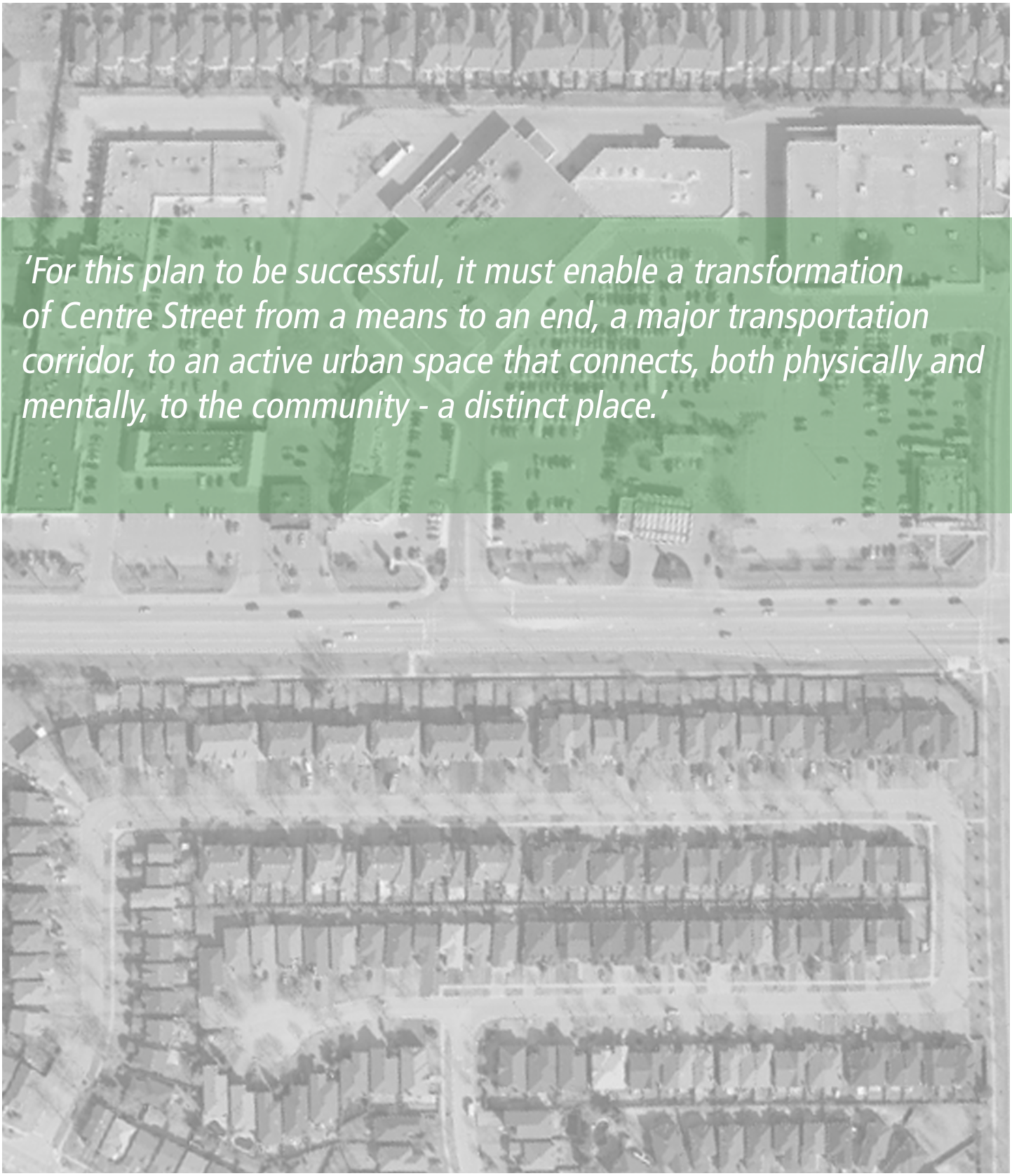
streetscape plan

November 13, 2013

VAUGHAN

The Planning Partnership | Poulos & Chung Limited

Contents



'For this plan to be successful, it must enable a transformation of Centre Street from a means to an end, a major transportation corridor, to an active urban space that connects, both physically and mentally, to the community - a distinct place.'

Introduction

1.1 Purpose of This Plan

The primary focus of this document is to provide a vision and subsequent framework to inspire and guide the streetscape development of Centre Street as a place of activity, sustainability, recreation, and movement. Working with the City of Vaughan, York Region Transit, and the community, this plan provides an opportunity to maximize public realm, city-building, economic, social, and ecological potentials while respecting the community and culture that exists. The challenge lies therein; for this plan to be successful, it must enable a transformation of Centre Street from its status as a means to an end, that of a major transportation corridor, to an active urban space that connects, both physically and symbolically, to the community - a distinct place. This Plan is one of the key tools that will help to place Centre Street at the centre of the community.

1.2 Background

1.2.1 Study Area

The Centre Street Corridor Study Area is approximately three kilometres in length and extends from Bathurst Street in the east to just beyond Dufferin Street in the west (see Figure 1.1 - p. 6). The corridor includes lands fronting Centre Street on the north and south sides of the street. The neighbourhoods as they exist are predominantly suburban in form, including a variety of retail formats, large surface parking lots, and residential neighbourhoods which largely turn their back to the street. There are, however, underutilized lands in the study area, which provide opportunities for thoughtful city-building from the ground up.

1.2.2 Character Areas

This Streetscape Plan was developed in parallel to a set of design reports specific to Centre Street:

- Centre Street Land Use Study; and the
- Centre Street Urban Design Guidelines.

Through the development of these documents, a classification of streetscape typologies within this corridor has been identified that informs the quality and character of the streetscape and will guide the structure of this Plan. These streetscape typologies are as follows:

- The Avenue;
- The Boulevard; and
- The Greenway.

This Plan ensures that though each typology maintains its own character, they are unified through a consistent design vocabulary.

1.2.3 York Region Rapid Transit (YRRT)

Concurrent with the development of this Streetscape Plan, York Region Rapid Transit (YRRT) is developing design details for the inclusion of Bus Rapid Transit (BRT) on Centre Street. This exciting development will transform the character and function of Centre Street; in turn changing the way the community will interact with the street. As these changes occur, different expectations for the built form and public realm on Centre Street will surface, as an emphasis on pedestrian comfort and safety will become a priority.

The Centre Street Streetscape Plan is built upon the understanding of the change that will result from this emphasis on transit. Design details were provided by YRRT for roadway layout, including lane widths, roadway geometry, stop locations, and public realm details. These details provided a starting point for the development of this study.

1.3 The Vision

This Vision for the Streetscape Plan is consistent with, and builds upon Guiding Principles that emerged through consultation with the City of Vaughan, the public, and design professionals. These principles aim to ensure that the Centre Street corridor:

1. **Accommodates the evolution of the corridor for the long term** - design recommendations are developed to accommodate the potential changes in growth and mobility patterns through a flexible streetscape plan.
2. **Better balances all modes of transportation with a decisive shift to ensure an inviting pedestrian, cycling and transit environment** - the creation of a "complete street" providing a safe, exciting and attractive destination for a multi-modal population.

Figure 1.1: Centre Street Corridor Study Area

3. **Uses environmentally sustainable practices** - designing a streetscape that emphasizes state-of-the art alternatives to stormwater management and environmental design.
4. **Reflects and enables urban design and land use potential** - ensuring the appropriate interface with adjacent uses to establish a range of uses and promote a flexible street life.
5. **Celebrates distinct areas while providing uniformity** - ensure the character and complexity of varying streetscape types are reflected in their treatment while establishing a unifying design strategy for the entirety of the Centre Street corridor.

The vision for the Centre Street corridor is to establish a primary destination to live, work and play for the residents of Vaughan and beyond. Through the development of a set of design typologies and standards, the transition from a main transportation corridor to a destination corridor is achievable.

Figure 1.2: Disera Drive, Vaughan

1.4 Document Structure

The Centre Street Streetscape Plan is one component in a series of complementary reports prepared for the Study Area and should be read in conjunction with the Land Use Study and Urban Design Guidelines.

The Streetscape Plan is a response to a detailed analysis of existing conditions and Urban Design Guidelines. It will provide the layout and detailed design of private and public streetscape spaces, pedestrian and bicycle connections, as well as a framework that complements built form strategy for building placement, forms, heights and massing in relation to the public realm within this area.

The Streetscape Plan is organized into the following sections:

Section 2 Streetscape Design Strategy - Outlines character areas, associated streetscape types, and develops a conceptual framework to provide a basis for recommendations.

Section 3 Concept Plan - The overall concept plan including sections will be demonstrated in this section providing a complete view of the recommended streetscape improvements and how they all work holistically.

Section 4 Streetscape Typologies - Categorizes streetscape types and an intersection hierarchy, providing specific treatment recommendations.

Section 5 Streetscape Elements - Provides a detailed overview of recommended elements that comprise the development of Centre Street. Included within this overview are discussions and recommendations on elements such as street furnishings, signage, planting, stormwater management, and paving.

Section 6 Implementation - A detailed cost estimate and implementation strategy, allowing City of Vaughan staff the ability to determine funding strategies that may include development charges, Region of York cost sharing initiatives, and conditions of development approval.

'The Streetscape Design Strategy provides a broad framework for shaping the intended role, function and character of the Centre Street Streetscape Plan. It builds on the Corridor's inherent assets and potential strengths to set the overarching intent and objectives for the area.'

2

Streetscape Design Strategy

2.1 Conceptual Framework

The Conceptual Framework organizes the elements of the Streetscape Plan, including streetscape typologies, intersections, and street elements, and is comprised of the following:

- Building Upon the York Region Rapid Transit plan (YRRT);
- Character Areas and their Streetscape Types;
- Gateways; and,
- The Green Ribbon.

2.2 Building Upon the YRRT Plan

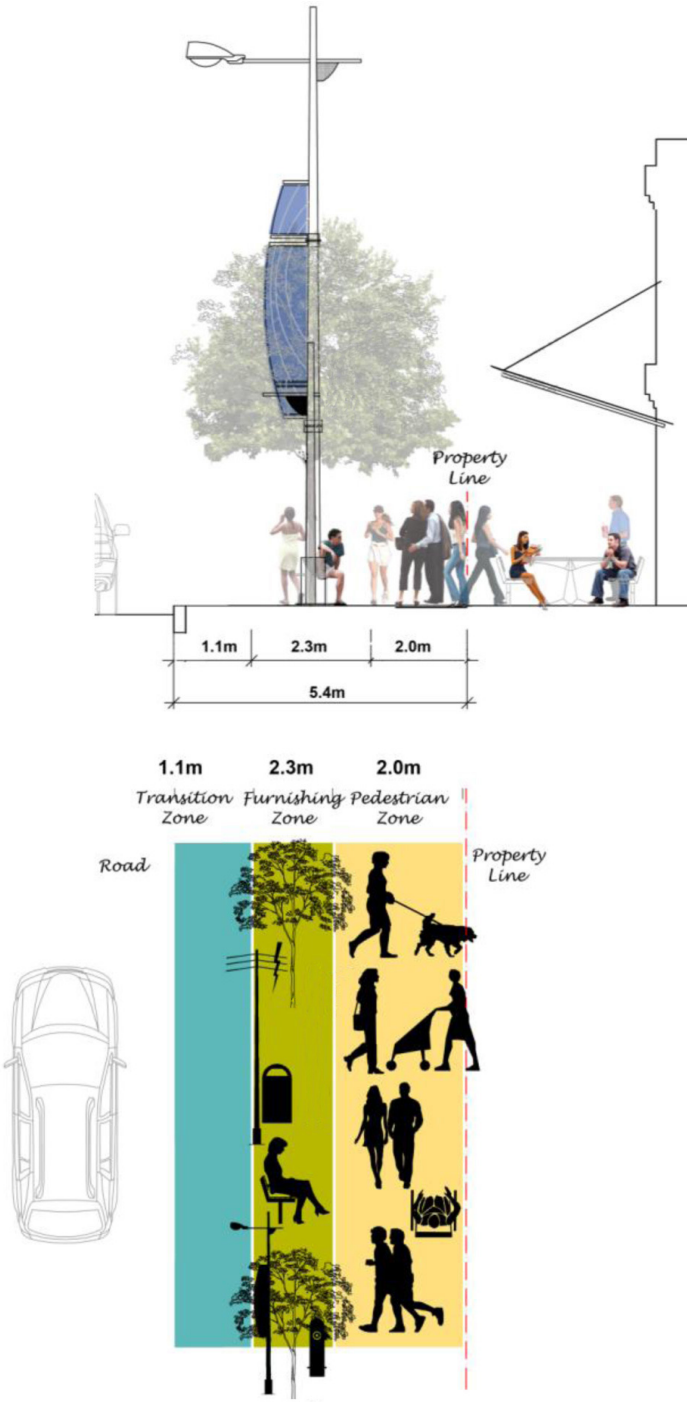


Figure 2.1: YRRT design intentions to incorporate a range of elements and uses

York Region Rapid Transit (YRRT) has completed design details for the Centre Street Corridor in connection with their VivaNext Bus Rapid Transit plans for a consistent transit infrastructure and urban design across all of York Region. The details and design recommendations outlined in the YRRT plans form the basis for the Streetscape Plan strategy.

The YRRT plans make recommendations that include midblock treatments and detailed intersection treatments where bus rapid transit stations or 'Vivastations' exist. Stations themselves incorporate state-of-the art digital displays, fare machines and lighting as well as materials and design queues aimed at providing users with a safe, accessible and comfortable experience.

Midblock treatment includes a consistent paving and planting strategy as well as boulevard planting. Intersection treatments include a palette of street furnishings that are consistent with one another and are tasteful and modern providing a strong sense of place. Boulevard and sidewalk treatments at intersections are recommended to be designed to accommodate a range of different overlapping zones such as the pedestrian zone - which should be wide enough to allow an uninhibited flow of pedestrian users; the furnishing zone - including planting, trash receptacles etc.; and the transition zone where continued street lighting, fire hydrants and 'continuity strips' would be located at close proximity to the higher speed traffic and within a comfortable distance from pedestrian users.

The Streetscape design strategy is to work in harmony with the YRRT design intentions and to build upon them to create an integrated and complete design whereby planned infrastructure upgrades and revised road configuration can be capitalized upon. This strategy will also work to enhance proposed details including pedestrian lighting, plantings and paving.

In essence, Centre Street will incorporate the YRRT design intentions while punctuating certain elements to provide Vaughan with a unique streetscape that is sensitive to place and representative of the area's character.

2.3 Character Areas and Their Streetscape Types

The Centre Street corridor between Bathurst and Dufferin has a variety of character areas, which exhibit various intensities of use, interface types, and building forms. These character areas include:

- Town Centre;
- Village;
- Neighbourhoods;
- Esplanade; and
- The Gateway Centre;

Building on these character areas, this plan provides a complementary set of streetscape design typologies to capitalize on the inherent values of place and emphasizes them through specific design strategies. The Urban Design Framework defined in the Centre Street Urban Design Guidelines identifies corresponding streetscape typologies for the Character Areas. The streetscape typologies are:

- Avenues;
- Boulevards; and
- Greenways.

Figure 2.2: VivaNext BRT Map

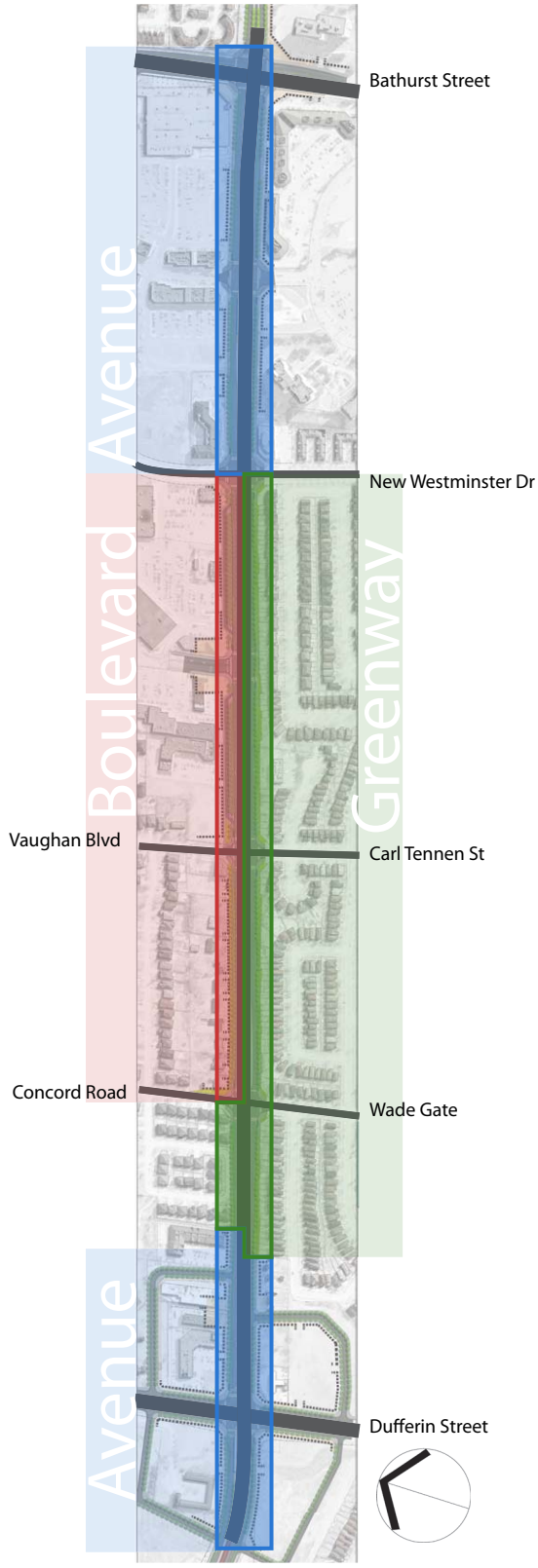


Figure 2.3: Streetscape types along the corridor

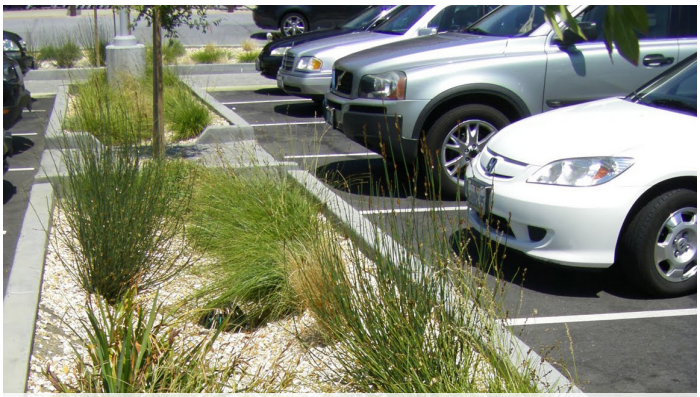


Figure 2.4: Rain Gardens

Figure 2.5: Shared Soil Beds

Figure 2.6: Soil Bridging (Source - CityGreen Urban Landscape Solutions)

2.4 The Green Ribbon

The Green Ribbon is a landscape concept that is composed of a mixture of 'green' elements, including street trees, soil volumes, stormwater management, and recreational amenity space, applied across the Centre Street Corridor in such a way as to maximize sustainability, social, and recreational potentials. This green infrastructure adapts based on context and is the bridge between aesthetic and infrastructure. Centre Street becomes a "green ribbon" through the City of Vaughan.

The elements of the Green Ribbon Include:

- **Rain Gardens:** These planting areas detain storm water through infiltration, reduce the volume of water entering the sewer system, and lessen the discharge of pollutants into natural water bodies during storms.
- **Shared Soil Beds:** Long, continuous shared soil beds are proposed for street trees in all conditions along Centre Street, which will significantly contribute to their growth and longevity potential.
- **Soil Bridging:** In addition to shared soil beds, where appropriate, structural soil systems are proposed to provide tree roots an opportunity to expand into adjacent soil volumes.

The design application of these elements is determined by context. Shared soil planting beds in highly active urban areas are covered with long, continuous tree grates. In less active areas, these planting beds will act as rain gardens, planted with native, urban tolerant plant species that will cleanse stormwater. Along back-lotted properties, these rain gardens will take on a 'natural' form that hints at a wild meadow.

In each situation, the sidewalk and street furnishing will respond in kind. Urban areas could allow for embedded seating in the planting system adjacent to concrete sidewalks. Natural settings will include narrow walkways that meander through a system of natural rain gardens.

The linear greenspace will serve as a green amenity for the community. The Ribbon will link linear green spaces, urban and natural providing a continuous connected green system.

2.5 Gateways

Gateways correspond to key intersections, and are major activity nodes along the streetscape where cross traffic interacts with the street as well as provides major linkages both physical and visual to adjacent neighbourhoods and land uses.

Clearly defining gateways helps to enhance orientation, signal key points of entry into the community as a distinct area, and provide opportunities to coordinate the design of landscapes, signage, and public art. The treatment of a gateway site can take many forms and will hinge on the individual circumstances of the site, such as prominence, adjacent uses as well as pedestrian, bicycle, transit and vehicular traffic.

Gateways will be designed and integrated with new developments, working closely with the City of Vaughan. Gateways will be urban and modern in character.

Figure 2.7: Public art as a visual cue indicating entry to an area of interest

Figure 2.8: Embedded Signage in paving treatment

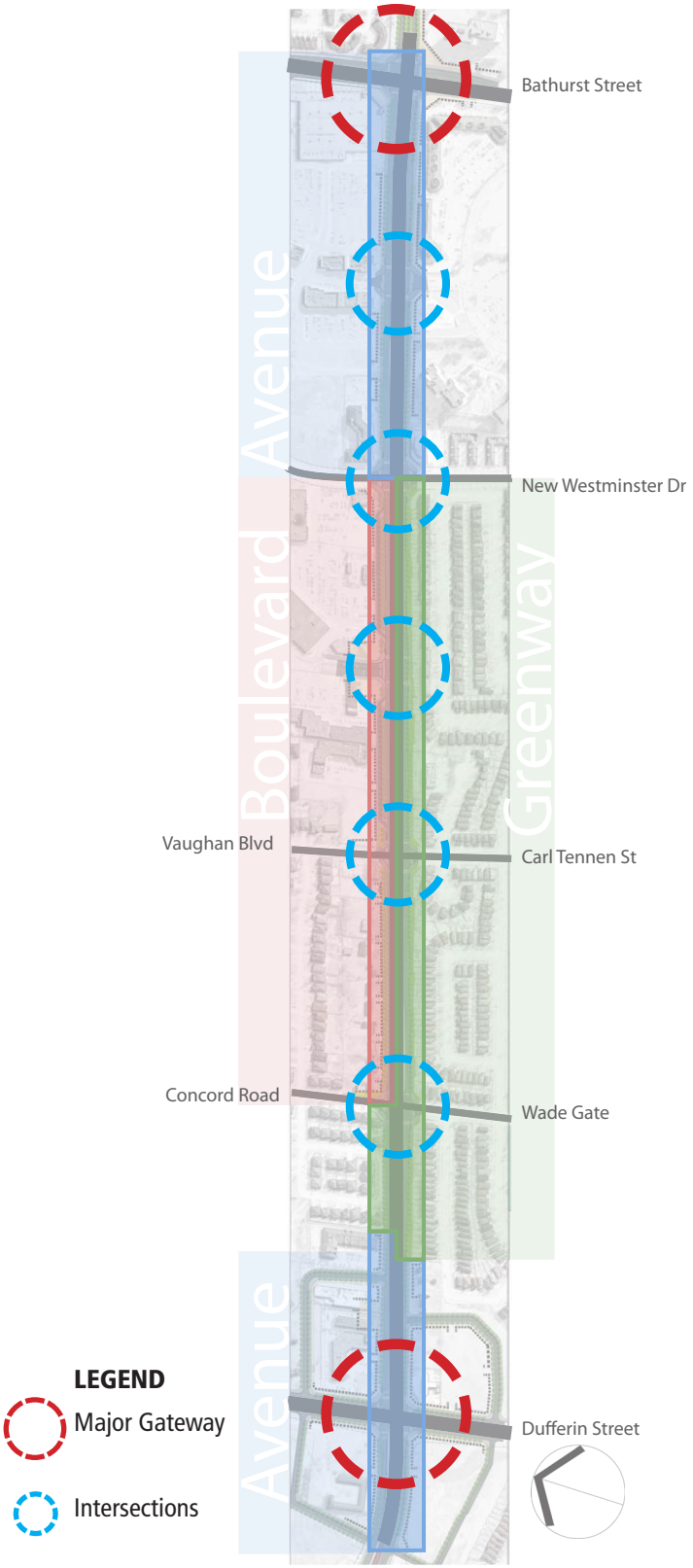
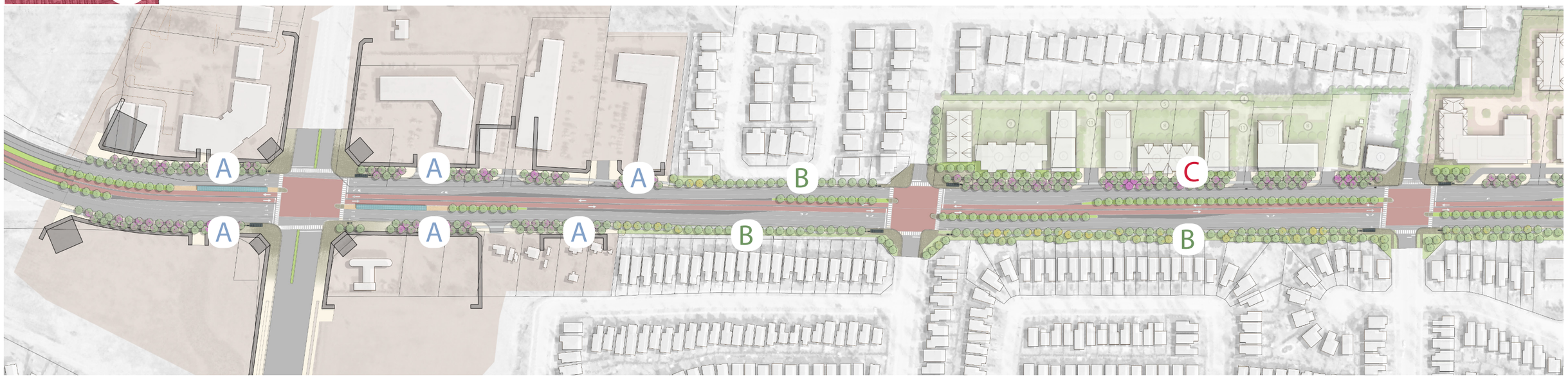
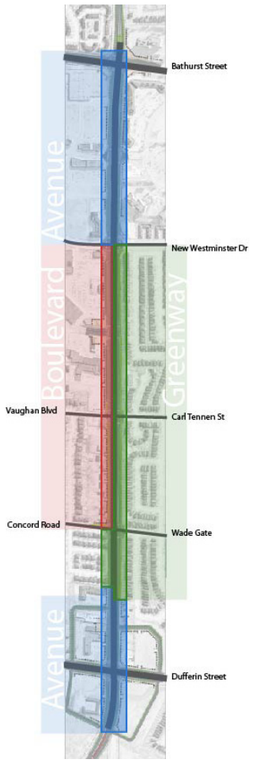


Figure 2.9: Streetscape gateways and intersections

3 Concept Plan

Concept Plan

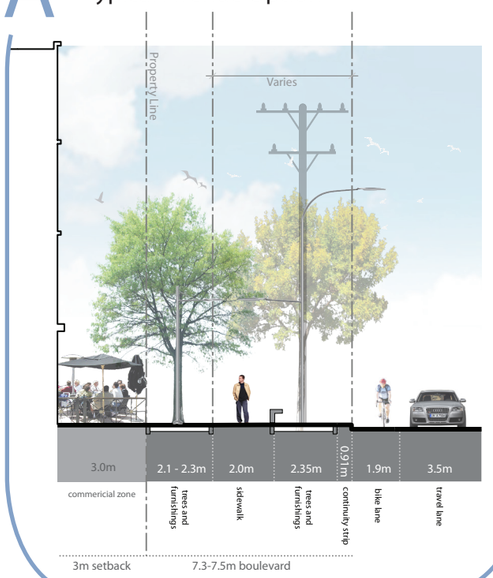




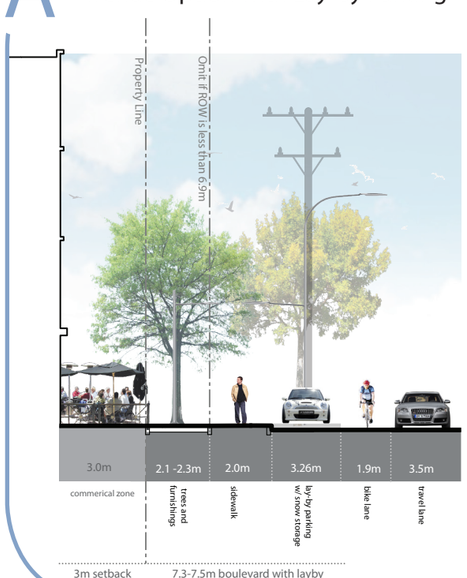
AVENUES

Typical Avenue Option

A Typical Avenue Option

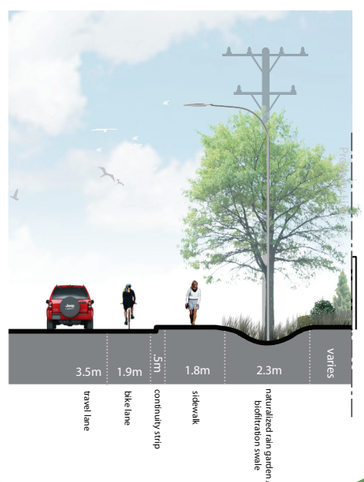


A Avenue Option with Lay-by Parking

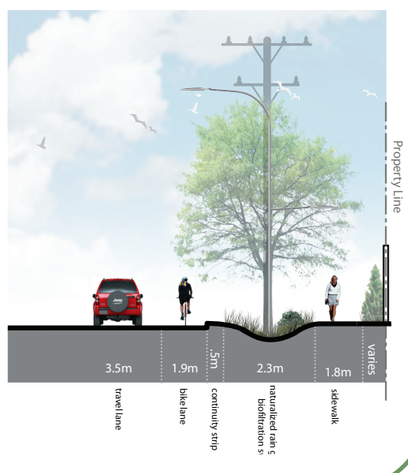


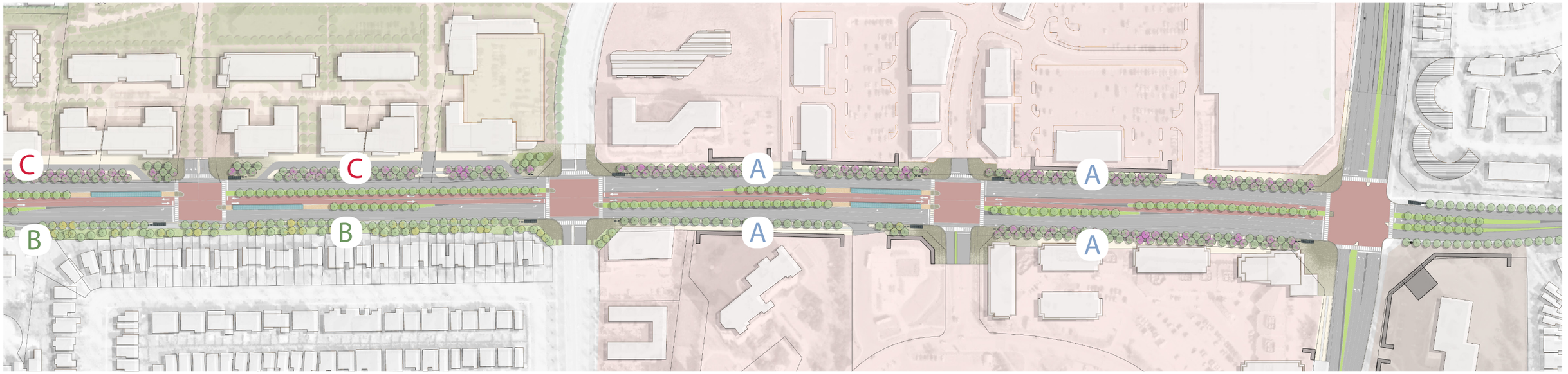
GREENWAYS

B Typical Greenway Type 2



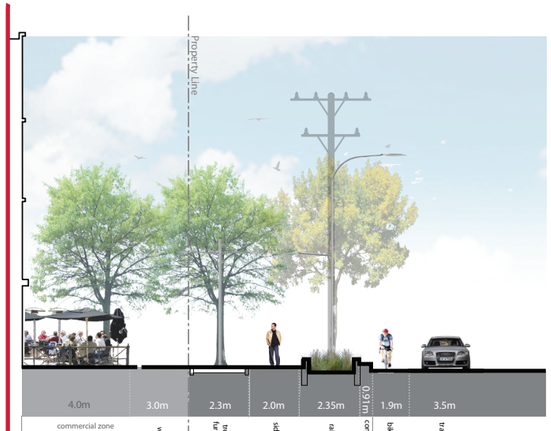
B Typical Greenway Type 2



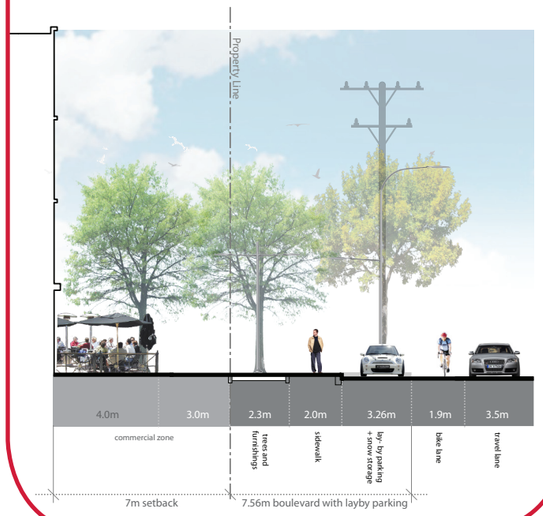


BOULEVARDS

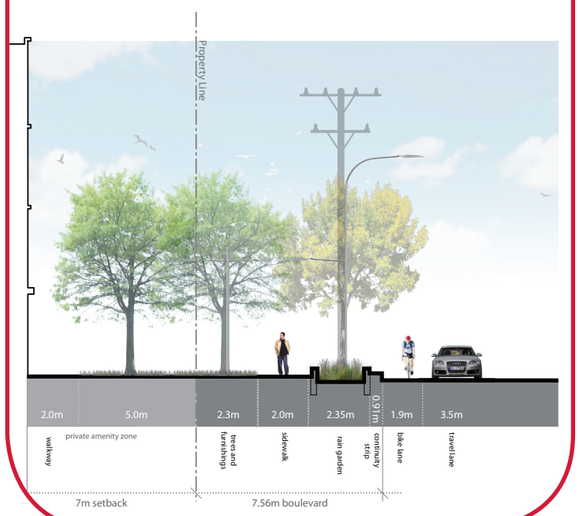
C Typical Boulevard Option



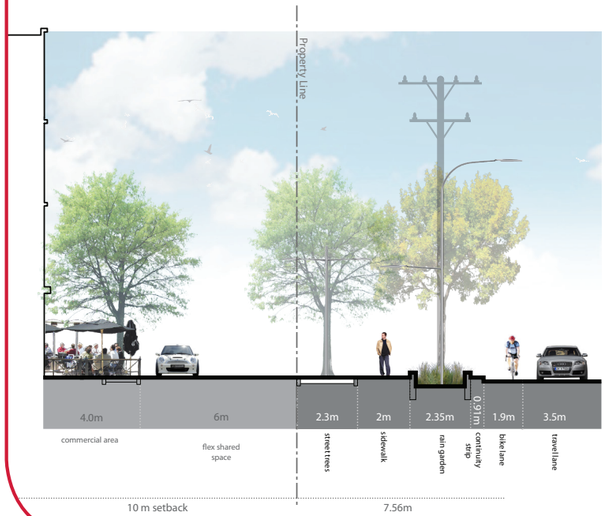
C Boulevard Option with Lay-by Parking



C Boulevard Option with Office Frontage



C Boulevard Option with Flex Space



Streetscape Typologies

The following section illustrates the different streetscape and intersection typologies for the Centre Street corridor, providing descriptions of their features as well as a set of recommendations and guidelines designed to capitalize on the unique character of each area while complementing the overall strategy for the entire streetscape.

Working within the framework of the York Region Bus Rapid Transit plans for Centre Street, acknowledging what will change, and respecting what will remain the same, these typologies recommend an appropriate interface with existing and anticipated adjacent land uses seeking to maximize the potentials of each individual character area. Recommendations are provided that improve safety, accessibility and comfort for pedestrians, cyclists and motorists, creating a 'complete street'. The US National Complete Streets Coalition characterizes "Complete Streets" as streets that are designed and operated to provide safe, attractive and comfortable access for all users. Streets built utilizing "Complete Street" principles encourage social interaction, provide a unique sense of place and have a positive influence on adjacent land values.

4.1 Avenues

4.1.1 Description

The Avenue typology applies to areas with potential for continuous at-grade retail/commercial uses on both sides of Centre Street. This corresponds with the Town Centre and the Gateway Centre Urban Character Areas as set out in the Urban Design Guidelines. Accordingly this typology will be utilized in the vicinity of the Dufferin Street intersection and between New Westminster Drive to Bathurst Street. Avenue right-of-way widths vary from 5.2m to 8.0m. In cases where less than 7.3m exists, the proposed second row of trees should be located within the private setback as redevelopment occurs.

4.1.2 Character

Avenues are characterized by a vibrant urban setting complete with animated building faces on both sides of the street, broad sidewalks, and street tree plantings suitable for high pedestrian and vehicular traffic. Double rows of street trees planted within continuous soil trenches and covered with large, walkable tree grates allow for an ideal urban street experience. Street furniture includes pedestrian lighting, cycle parking and embedded seating allowing pedestrians to have an inviting place to linger. The street becomes a place of activity - a destination.

4.1.3 Features

Public Right-of-Way Features include:

- 7.3-7.5m Boulevard within the Public Right-of-Way;
- 0.91m Paver Continuity adjacent to roadways as per YRRT Details;
- 3.26m Parking lay-by with snow storage provided on either end where possible;
- 2.35m Tree and Furnishing Zone Adjacent to Roadway with tree grates, street lighting and hydro poles, unless a parking lay-by is provided;
- All streetscape pedestrian light poles to be located within the public right-of-way. Therefore, poles need to be located in the curbside Tree and Furnishing Zone if the second zone between the sidewalk and property line is not entirely within the public right-of-way.
- 2.0m Concrete Paved Sidewalk / unit pavers 10m - 25m from key intersections
- 2.1m to 2.3m Tree and Furnishing (w/pedestrian lighting) Zone Between Property line and Sidewalk;
- Street Tree plantings planted in long connected trenches covered with walkable grates in zone between setback and sidewalk;
- Pedestrian scale lighting;
- Custom concrete benches built in to planters;

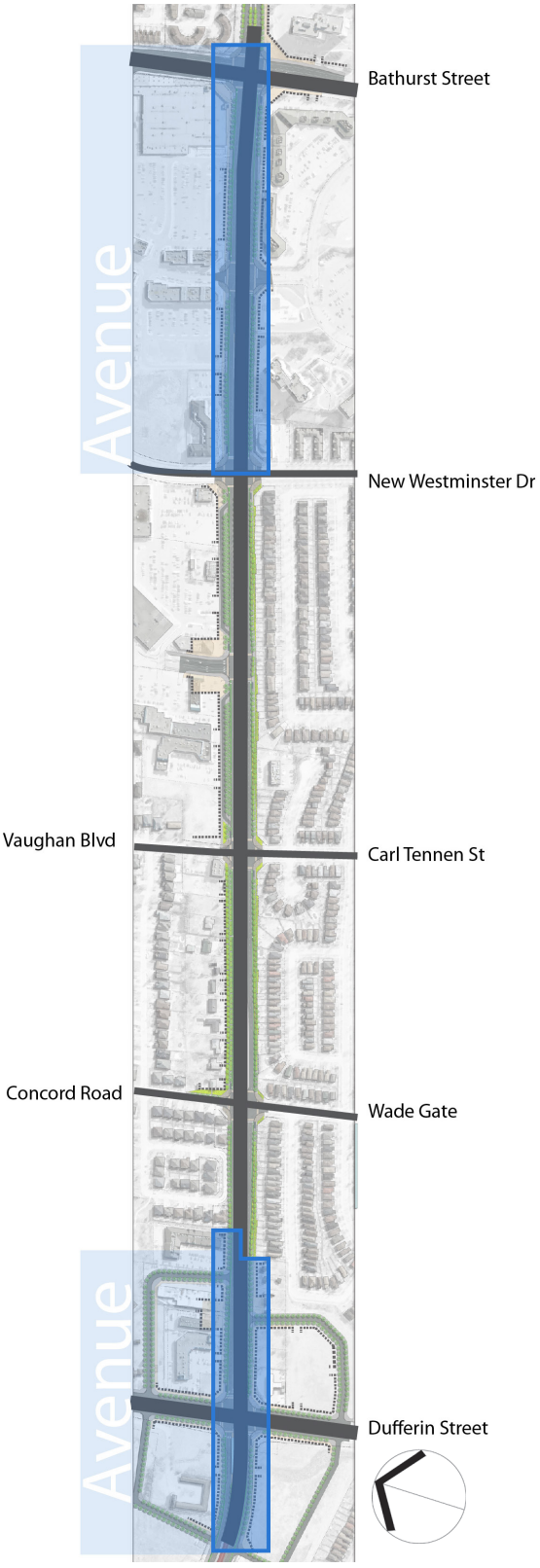


Figure 4.1: Avenue Key Map

Setback Features include:

- 3.0m Setback Width;
- Commercial Zone, allowing for sidewalk cafes and/or other spill out commercial activity;
- Unit paved hardscape surfaces.

4.1.4 Guidelines

- YRRT plans to determine roadway lane, curb, and median layout.
- Decorative and pedestrian lighting to be integrated with street light poles and coordinated with street trees in respect to placement and spacing.
- Placement of above ground utilities should be sensitive to the visual appeal and pedestrian function of the public realm.
- Street trees to be planted using 'best practice' techniques, including provisions of adequate uncompacted soil volumes, and soil bridging where applicable
- Street Trees to be spaced at maximum 8.0m O.C.
- Sidewalks and crossings to be accessible to all users.
- Hydro poles are to be re-located between streetscape planting beds.

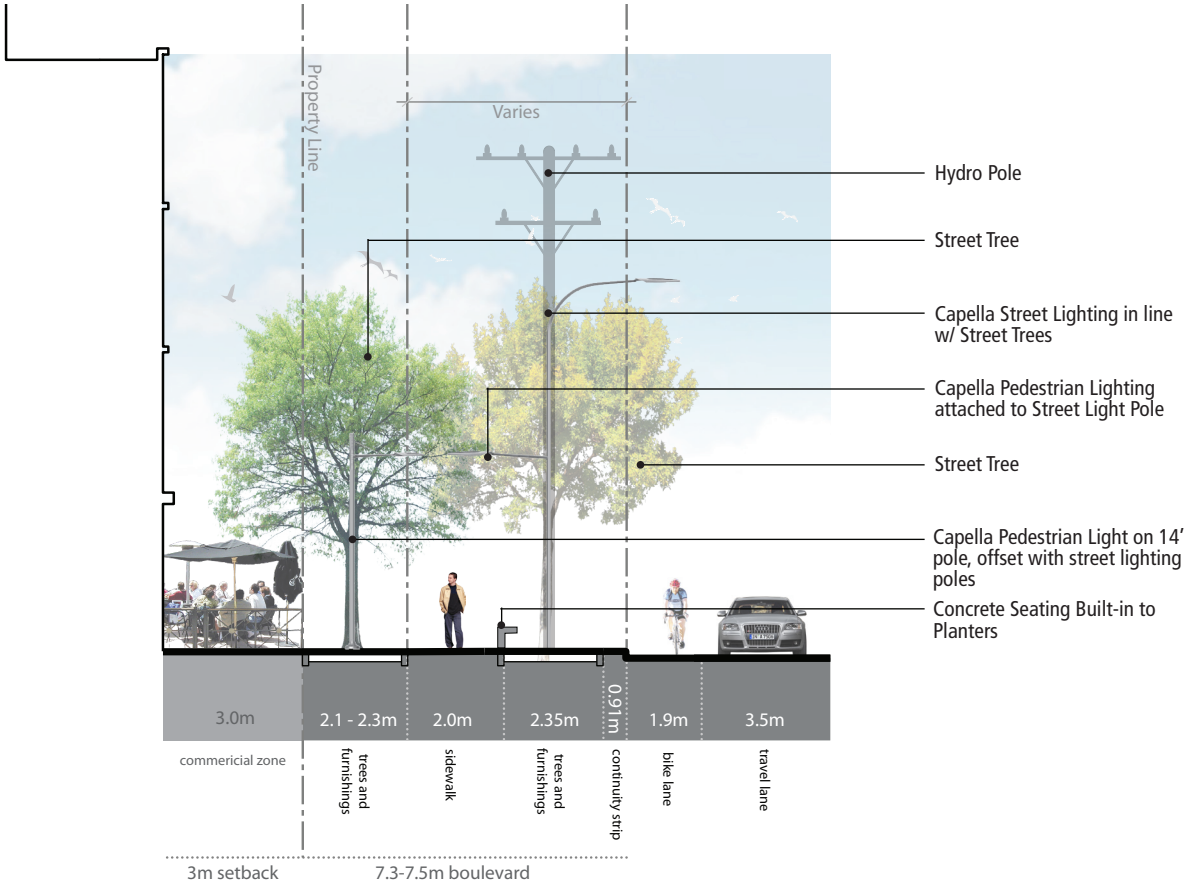
Figure 4.2: Tree grating that can sustain increased surface traffic

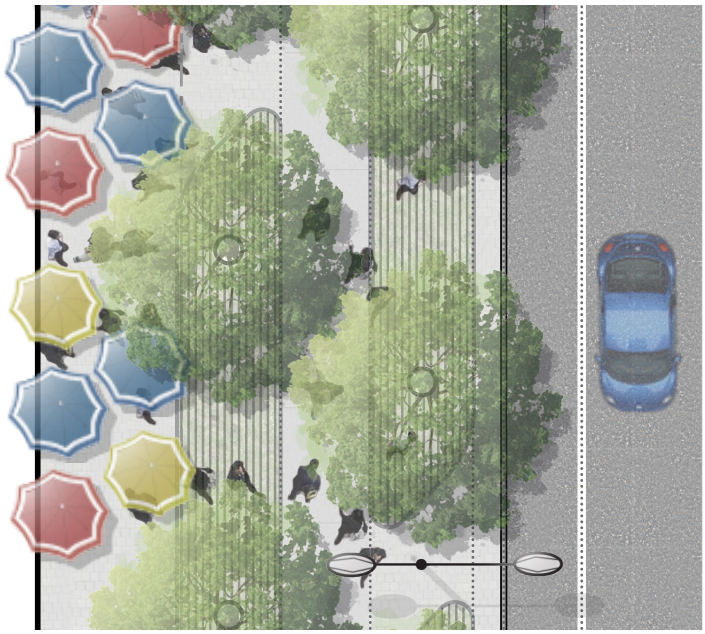
Figure 4.3: Integration of nature into highly urban space

Figure 4.4: A streetscape treatment that balances ecological needs and human needs

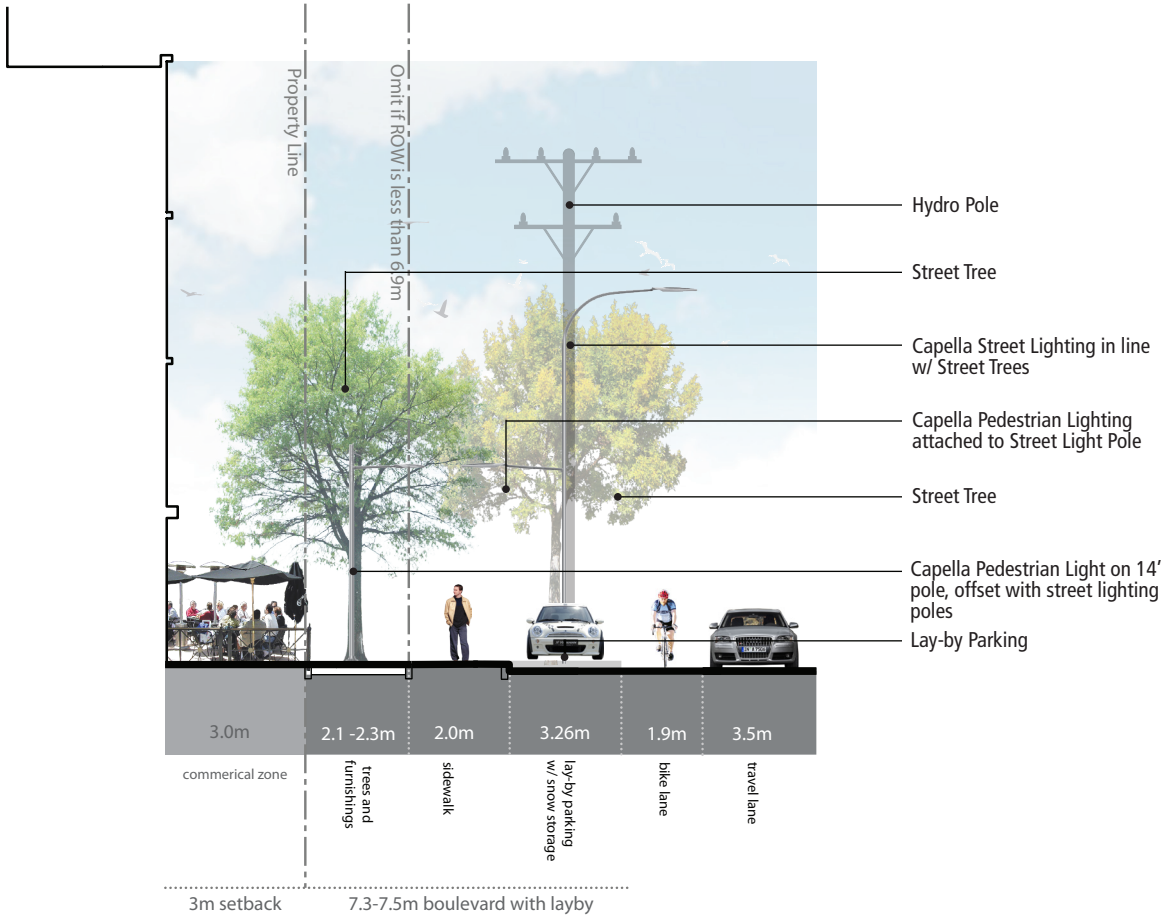
Avenues

Option 1: Typical Avenue Treatment



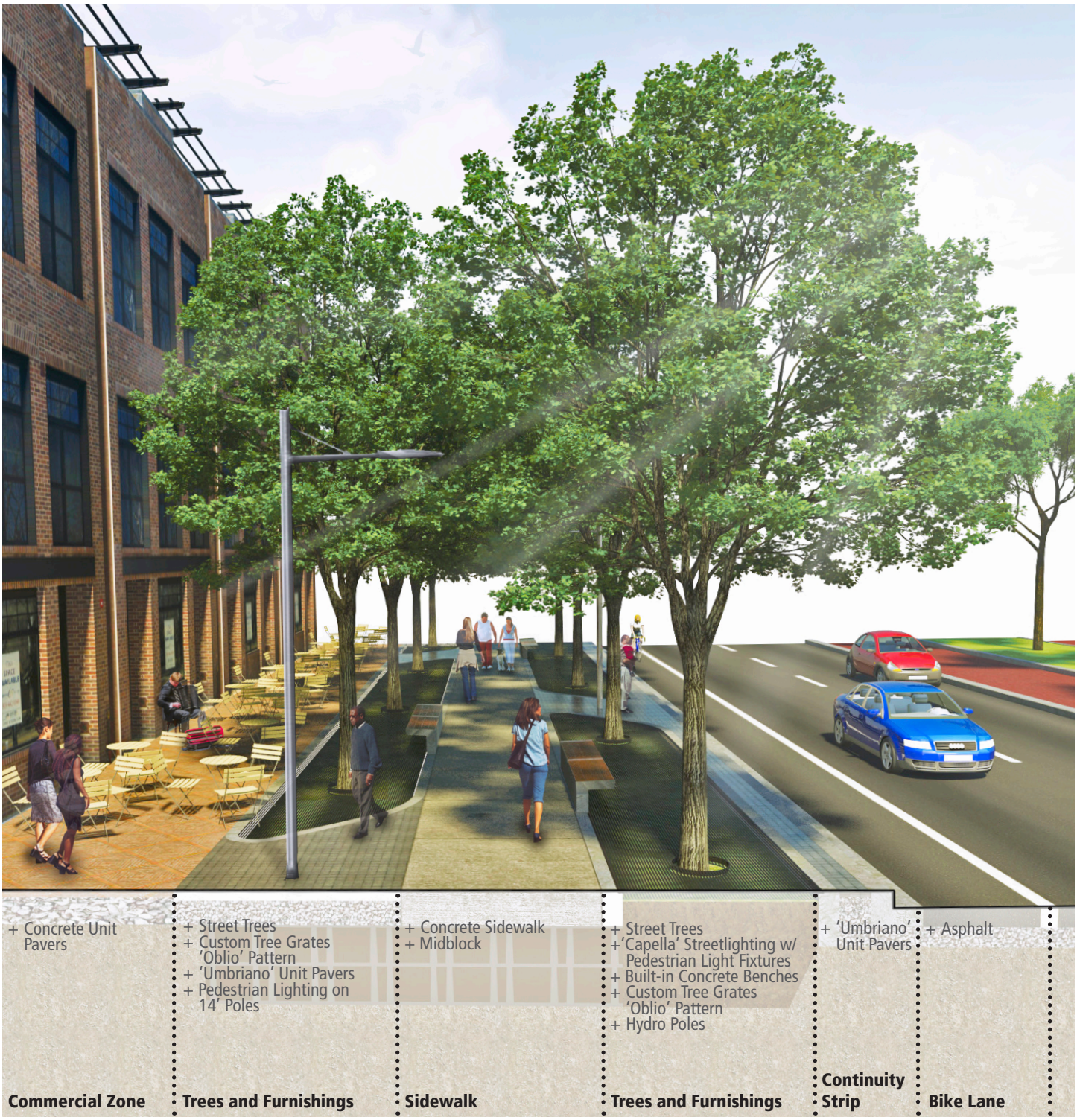


Option 2: Avenue Treatment with Lay-by Parking



Avenues

Option 1 Axonometric: Typical Avenue Treatment



4.2 Boulevards

4.2.1 Description

As urban intensity transitions from the Town Centre coupled with the constraint of back-lotted residential neighbourhoods, the Boulevard typology is tailored to respond to this unique single-sided urban condition. Occurring on the north side of Centre Street between Concord Road and New Westminster Boulevard, the Boulevard typology corresponds to the Esplanade and Village character areas.

As the south side of Centre Street is dominated by back-lotted residential use, that is not expected to change. These character areas present a challenge in that the activity and animation of the street occurs entirely on the north side of the street. In order to achieve a complete street with a viable and vibrant urban interface, generous setbacks are recommended to enable a splendid and inviting public realm and address for new street-oriented retail.

4.2.2 Character

The treatment of the Boulevards will be dependant on the adjacent land uses. Two options are proposed:

1. Typical Boulevard: With intermittent lay-by parking;
2. Flexible Boulevard: Accommodates an access roadway shared by pedestrians.

Treatments of these conditions shall share common themes, including heavy to moderate pedestrian activity, patio spill-out space, and an increased emphasis on landscape treatments. Multiple rows of trees will be planted, in some cases residing amongst patios; in others as part of open pit rain gardens which collect and absorb stormwater.

4.2.3 Features

Both public right-of-way options share the following features:

- 7.56m Boulevard within the Public Right-of-Way;
- 0.91m Paver Continuity strip adjacent to roadways per YRRT Details;
- 3.26m Parking lay-by with snow storage provided on either end where possible;
- 2.35m Tree and Furnishing Zone including opportunities for long rain garden planters, except when prevented by lay-by parking;
- 2.0m Concrete Paved Sidewalk at midblock / concrete unit pavers at key intersections
- Pedestrian scale lighting;
- Custom concrete benches built-in to planters.
- Rain garden

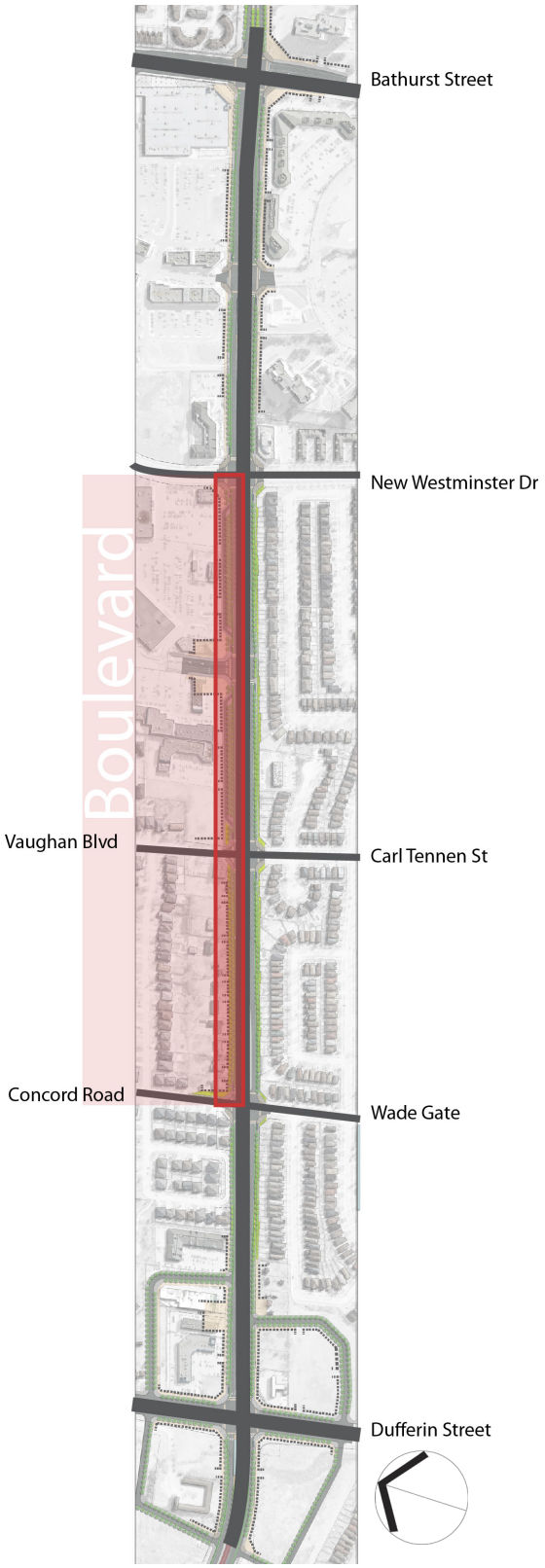


Figure 4.5: Boulevard Key Map

Figure 4.6: Business amenity space

Figure 4.7: Creation of green streets that incorporate open rain gardens

Figure 4.8: Rain gardens as buffers between different transportation modes

Setback Features vary depending on land-use type. Below are the features based on each option:

Commercial Frontage (Option 1 - Typical Boulevard Treatment)

- 7.0m Setback Width;
- 4.0m Business amenity space, allowing for integrated sidewalk cafes and/or commercial activity. Amenity space to be primarily hardscape and to include trees planted in tree grates.
- Second row of trees to be planted.

Non Retail Frontage (Option 1 - Typical Boulevard Treatment):

- 7.0m Setback Width;
- Minimum 2.0m hardscape building access walkway adjacent to building face.
- 5.0m Green amenity space for landscaping, private patios, and/or privacy buffers.
- Second row of trees to be planted.

Flexible Boulevard (Option 2 - Flexible Boulevard Space)

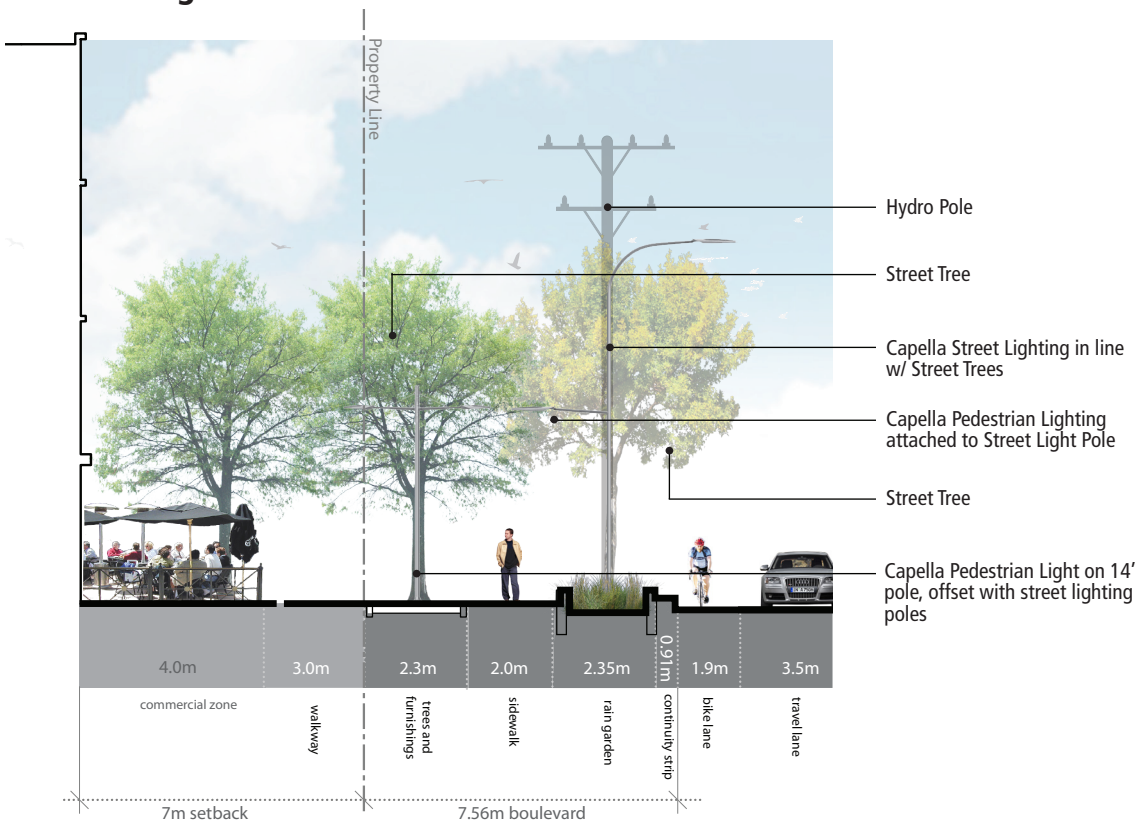
- 10.0m set back width;
- 4.0m Commercial Zone, allowing for integrated sidewalk cafes and/or spill out commercial activity. Amenity space to be primarily unit-paved hardscape and may include trees planted in tree grates.
- 6.0m Flex Shared Space to accommodate one travel lane and on-street parking, which can be closed to vehicular traffic seasonally or for events. To be concrete or granite unit pavers and include flush curbs on both sides.
- Detailed design should address accessibility requirements and drainage.

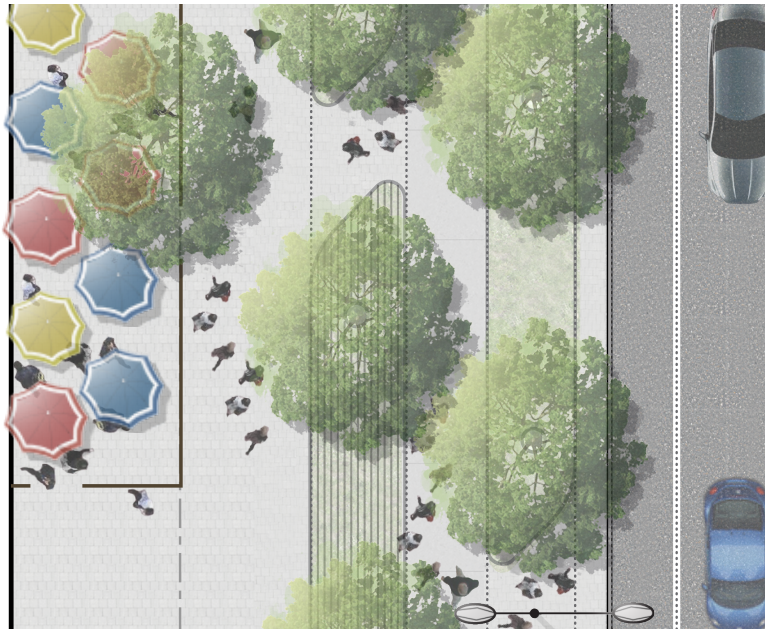
4.2.4 Guidelines

- YRRT plans to determine roadway lane, curb, and median layout.
- Decorative and pedestrian lighting to be integrated with street light poles and coordinated with street trees in respect to placement and spacing.
- Placement of above ground utilities should be sensitive to the visual appeal and pedestrian function of the public realm.
- Street trees to be planted using 'best practice' techniques, including provisions of adequate uncompacted soil volumes, and soil bridging where applicable.
- Street Trees to be spaced at maximum 8.0m O.C.
- Sidewalks and crossings to be accessible to all users.
- Rain Gardens to be planted with grass and tree species suitable to endure both wet and dry conditions.
- Flexible boulevard to be built of concrete or granite unit pavers and to be contained with flush or rolling curbs in order that the space be designed as to appear and function as a linear plaza when closed to vehicular traffic.
- Rain gardens should have frequent breaks/bridges to ensure ease of pedestrian access and a permeable pedestrian network.

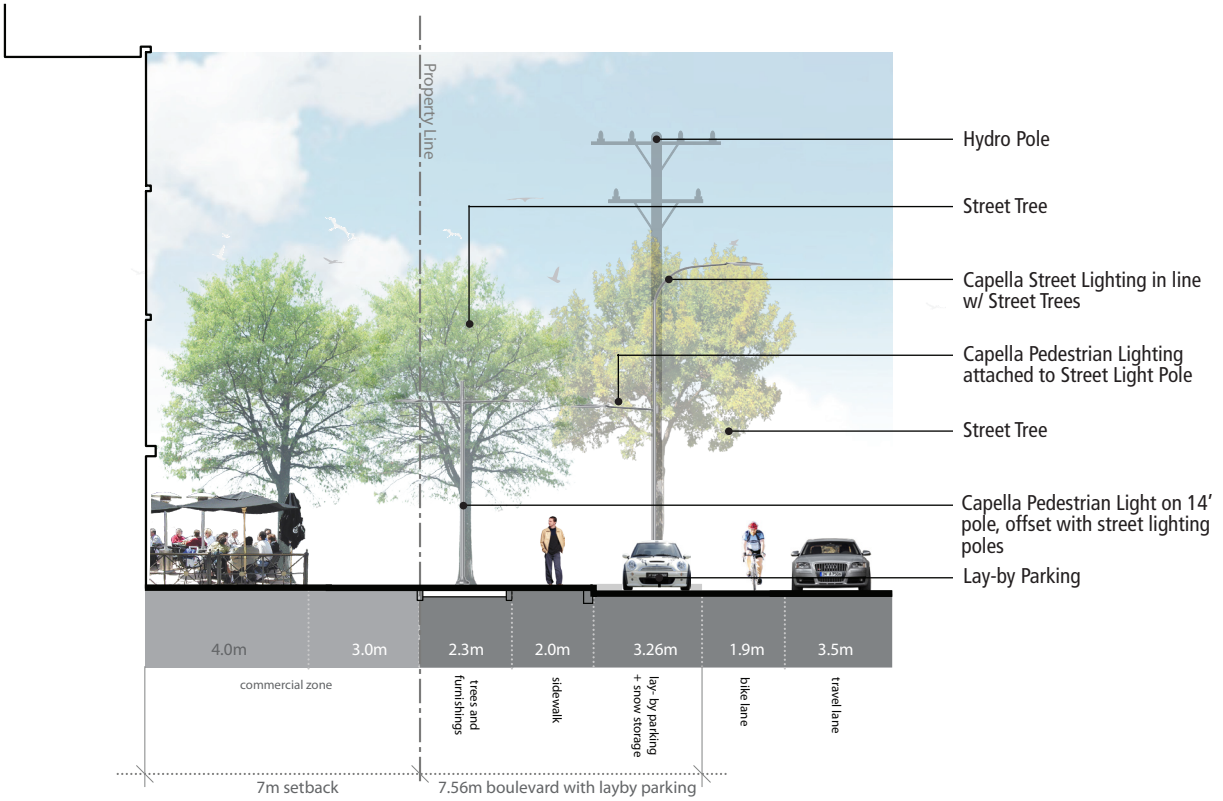
Boulevards

Option 1: Typical Boulevard Treatment with Commercial Frontage



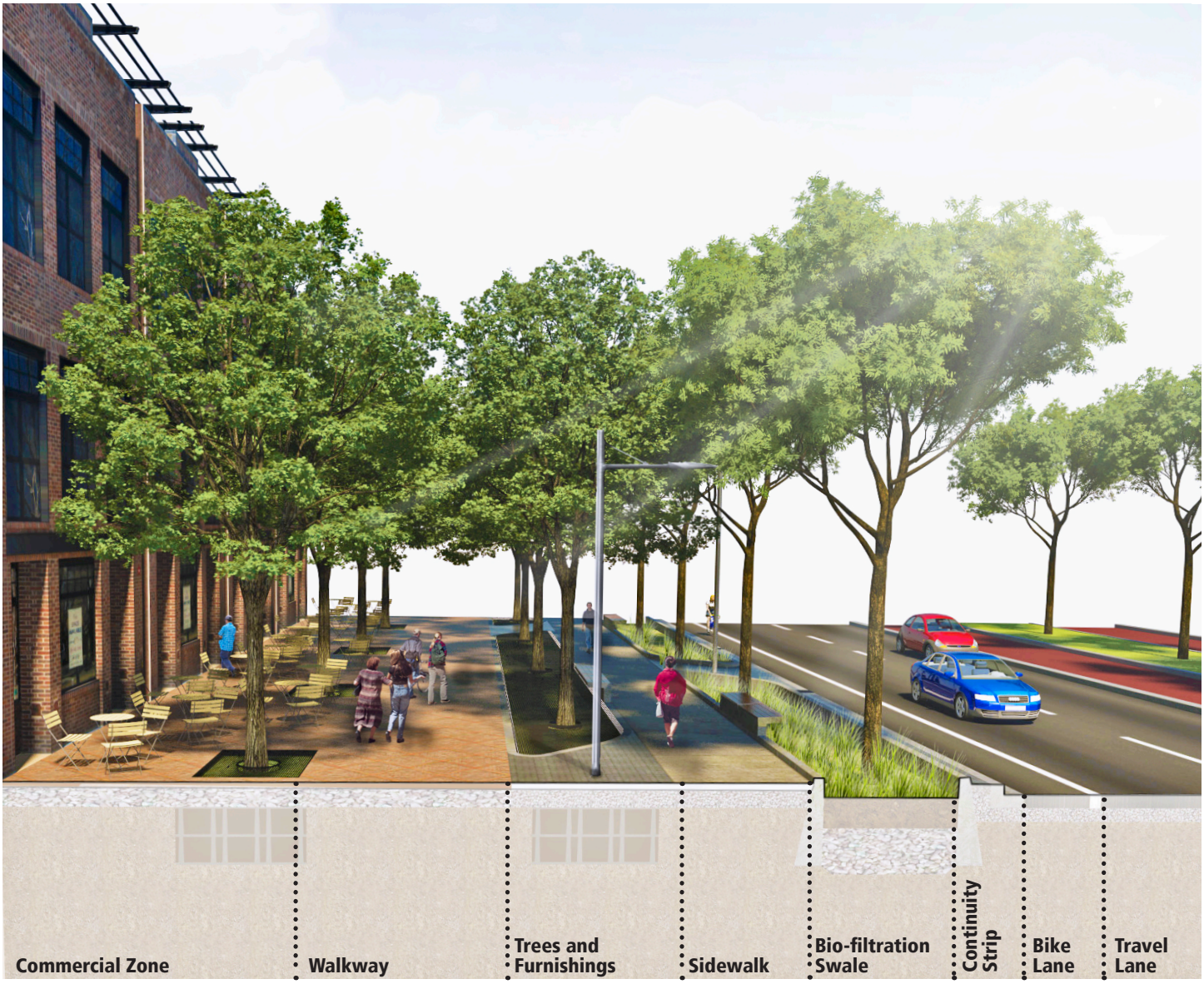


Option 2: Typical Boulevard Treatment with Lay-by Parking



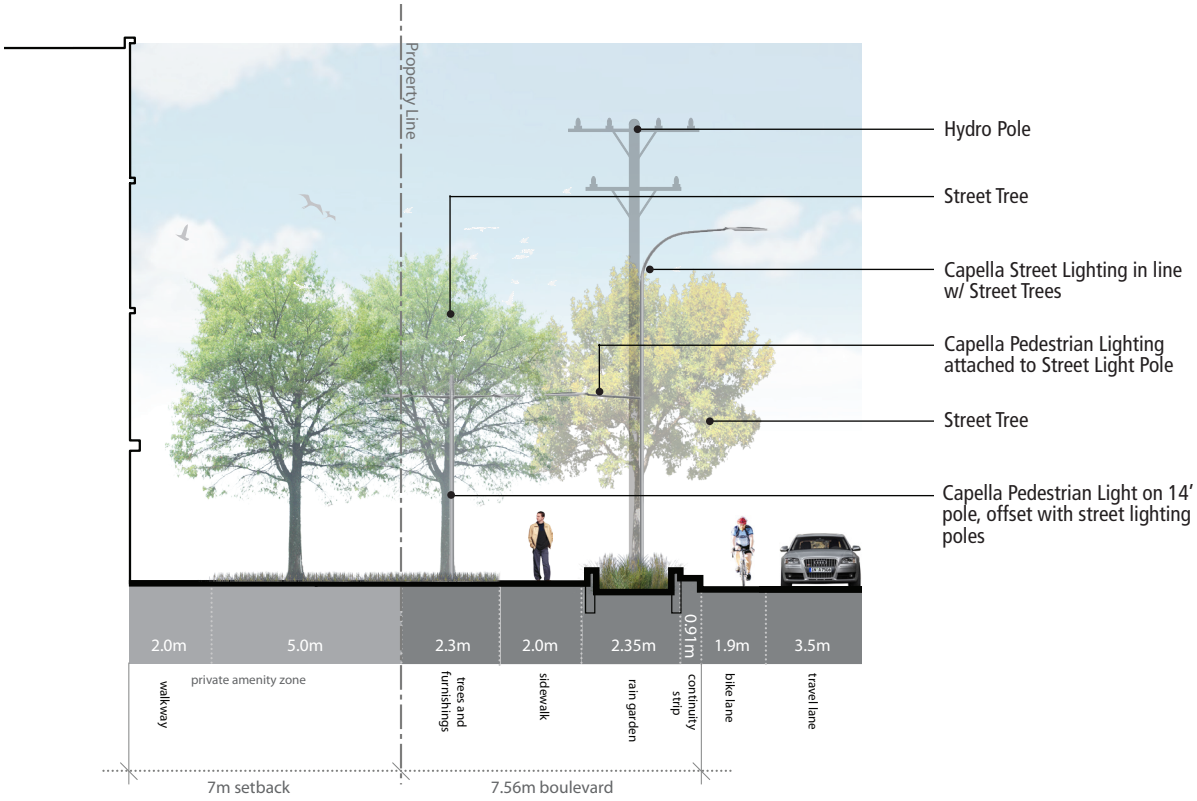
Boulevards

Option 1 Axonometric: Typical Boulevard Treatment with Commercial Frontage



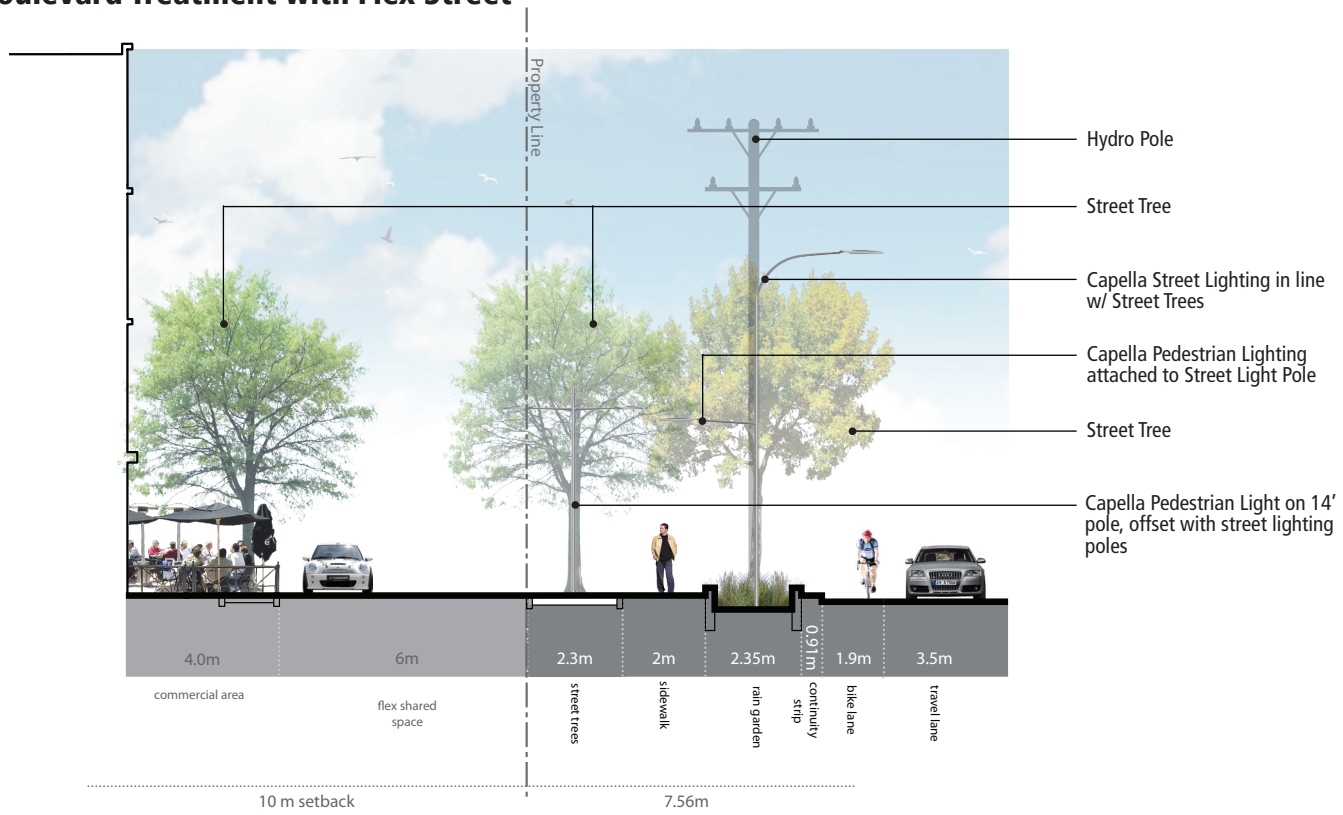
Commercial Zone	Walkway	Trees and Furnishings	Sidewalk	Bio-filtration Swale	Continuity Strip	Bike Lane	Travel Lane
+ Concrete Unit Pavers + Continuous Soil Trenches + Tree Plantings	+ Concrete Unit Pavers	+ Street Trees + Custom Tree Grates - 'Oblio' Pattern + Continuous Soil Trench + Pedestrian Lighting + Bicycle Racks + Pedestrian Lighting on 14' Poles	+ Concrete Sidewalk + Midblock	+ Rain Garden + Street Trees + 'Umbriano' Concrete Paving + Built-in Concrete Benches + 'Capella' Street Lighting w/ Pedestrian Fixtures	+ 'Umbriano' Concrete Unit Pavers		

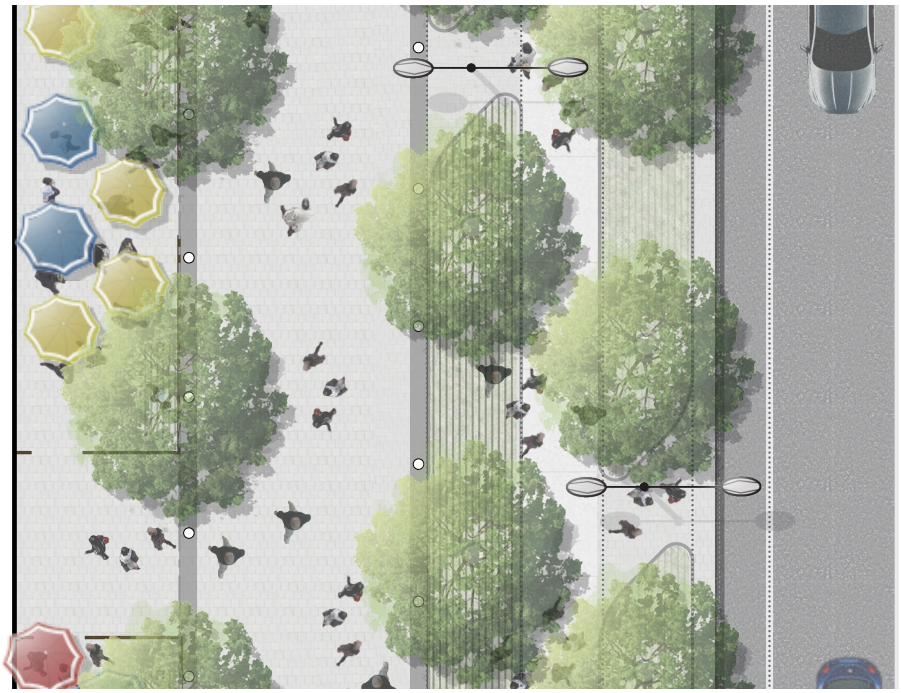
Option 1: Typical Boulevard Treatment with Non Retail Frontage



Boulevards

Option 2: Boulevard Treatment with Flex Street





Flex Street Examples

Figure 4.9: Rue Ste Catherine, Montreal, PQ

Figure 4.10: Exhibition Road, London, UK

Figure 4.11: Rue de Rivoli, Paris, France

Figure 4.12: New Road, Brighton, UK

4.3 Greenways

4.3.1 Description

Greenways interface with neighbourhood character areas that are mostly focused along the south side of Centre Street. These residential neighbourhoods largely turn their backs to the street and fences make up the bulk of the interface with Centre Street. Though there are opportunities to increase pedestrian mobility and connectivity through these segments, significant changes to the urban form are not expected. As a result, pedestrian demand is expected to remain low. Because of the low urban demands of this interface, these areas present a unique opportunity for the implementation of recreational use and water infiltration within a naturalized setting.

4.3.2 Character

In the absence of active urban adjacent uses, Greenways are to be characterized by a natural or rural-like setting. Passive building interfaces provides little opportunity for an increase in pedestrian demand; therefore it is suggested that these lands be utilized for storm water infiltration in naturalized rain gardens planted with hardy, resilient wet-meadow species. A narrower meandering trail is to weave its way through these gardens. The boulevard adjacent Centre Street along the greenways becomes a linear green landscaped space.

4.3.3 Features

Public Right-of-Way Features include:

- Varied Public Right-of-Way Width
- 0.5m Paver Continuity Strip
- 1.8m meandering permeable Concrete Sidewalk
- 2.3m Minimum width naturalized biofiltration swale alternating from being adjacent to curb to being adjacent to property line
- Remaining boulevard areas to be planted with naturalized grasses and meadow species
- Existing Trees to be retained where possible
- Buffer Plantings including shrubs and trees in order to impact of street on residential properties
- No pedestrian lighting

4.3.4 Guidelines

- YRRT plans to determine roadway lane, curb, and median layout.
- Placement of above ground utilities should be sensitive to the visual appeal and pedestrian function of the public realm
- Street trees to be planted using 'best practice' techniques, including provisions of adequate uncompacted soil volumes, and soil bridging where applicable
- Street Trees to be spaced at maximum 8.0m O.C.
- Sidewalks and crossings to be accessible to all users
- Buffer plantings (mixed deciduous and coniferous) to screen residences from street
- Use of rain gardens determined based on soil type and condition.

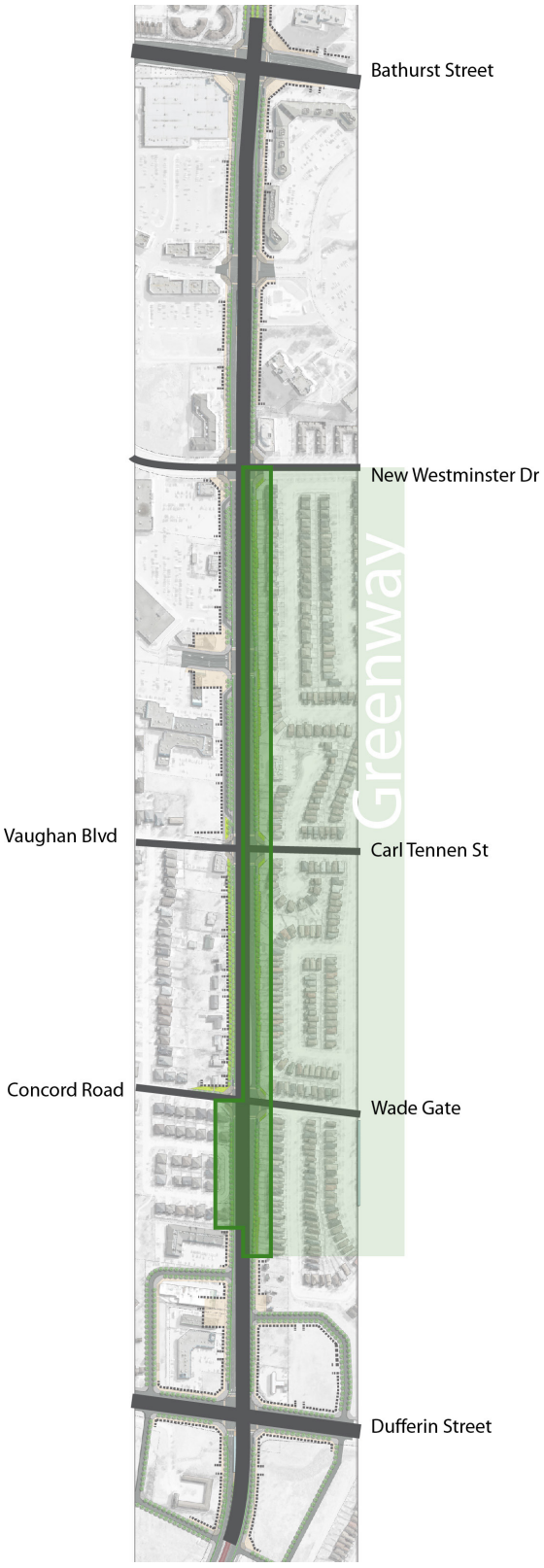
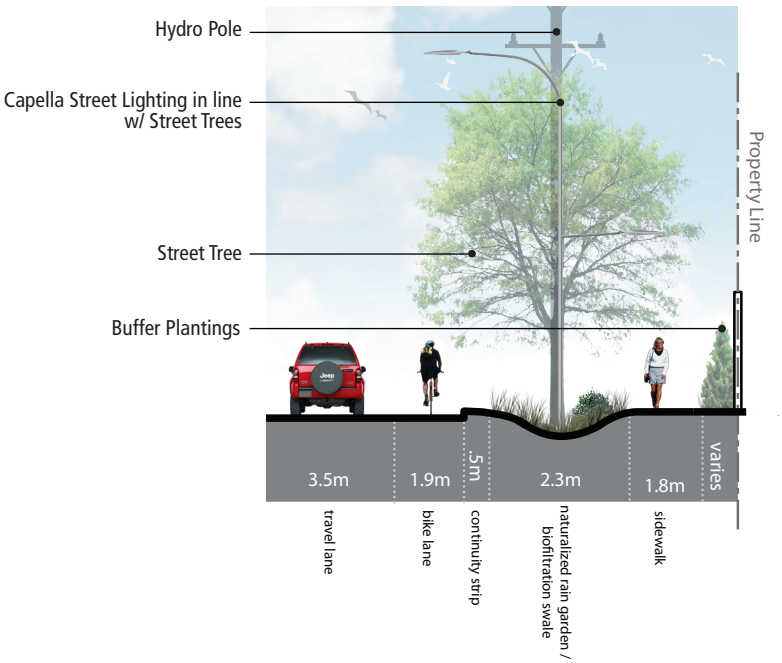


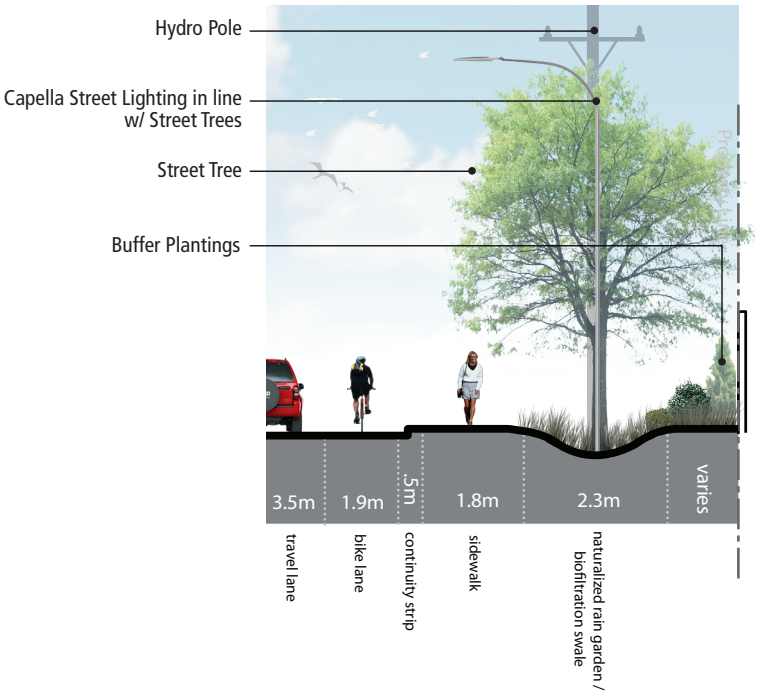
Figure 4.13: Greenways Key Map

Illustrative Rendering of Greenway

Greenways

Typical Greenway Treatment



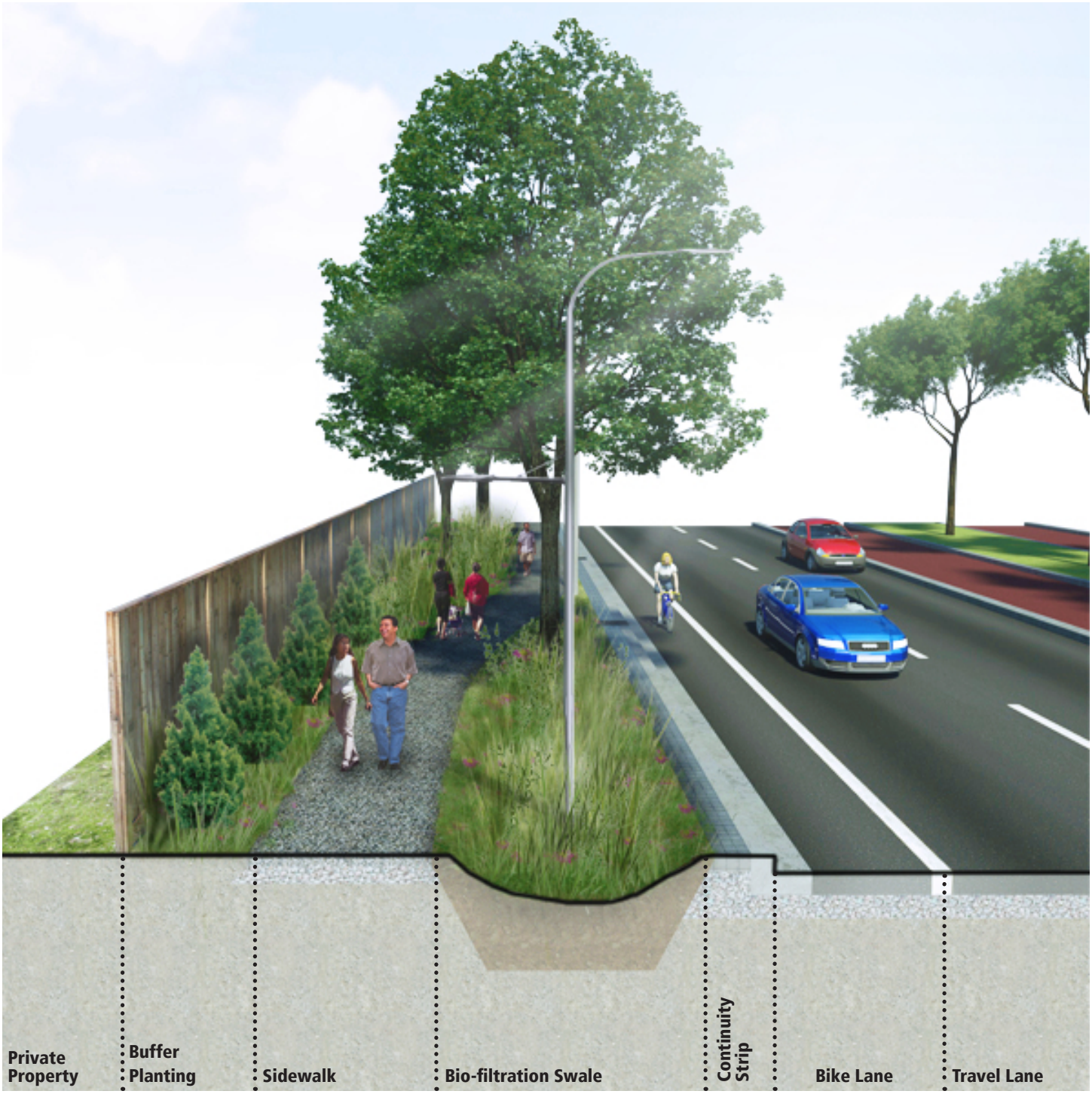


All existing trees to be retained (where possible).

Rain gardens to be connected below concrete sidewalk

Greenways

Axonometric: Typical Greenway Treatment



+ Permeable Concrete Sidewalk

+ Rain Garden
+ Street Trees
+ 'Capella' Street Lights

+ 'Umbriano' Concrete Unit Pavers

4.4 Intersection and Gateway Details

The Centre Street corridor consists of two major gateways, and five other important intersections. Special attention to all of these entry points is necessary in establishing a sense of arrival and an enhanced sense of place along the length of this upgraded streetscape, raising the overall safety and experience for pedestrians.

The primary intention of intersection and gateway improvements is to function as a visual anchor and provide a sense of arrival, reaffirm direction, and reinforce the identity of Centre Street.

4.4.1 Gateways

The Corridor consists of two major gateways:

- Dufferin Street and Centre Street
- Bathurst Street and Centre Street

Gateway sites should have consideration of the following:

- Gateway sites signify arrival.
- Gateway sites are high quality spaces. The public realm context of the gateway should be held to high design standards.
- Gateways should be celebrated with streetscaping features at corners such as:
  - public gathering spaces;
  - public art;
  - consistency of materials, colours and textures in the landscape (for example paving materials);
  - special streetscape elements or furnishing such as signs, arches, columns, or fountains;
  - consideration for visibility at night and winter months through lighting and vertical expressions; and,
  - ensuring that parking, loading, servicing, mechanical equipment are located out of public view, where feasible.
  - ensuring that utilities are located out of public view.

Intersections at gateway sites should have a distinctive surface treatment for pedestrian crossings, including wider sidewalks and connections to bus shelters.

4.4.2 Intersections

Intersections vary in scale, however, accommodate all modes of transportation including pedestrians, bicycles, personal vehicles and the York Region Rapid Transit bus corridor. Streetscaping treatments at all intersections will be the same, except for where transit stations are located. Recommendations will be a modification of the evolving YRRT details.

Treatment at all intersections to include:

- 200mm x 200mm 'Umbriano' concrete unit pavers;
- mosaic pattern, pattern intensity fluctuates with intensity of use;
- high quality materials susceptible to high traffic

Treatment at intersections that include a YRRT station to also include:

- Crosswalk patterning that highlights YRRT station access while following the same pavement colouring theme
- Pavement colouring across the extent of the intersections to be coordinated with YRRT bus lane colouring

Figure 4.14: Street furnishings and varying colour and pattern in unit paving clearly define pedestrian realm

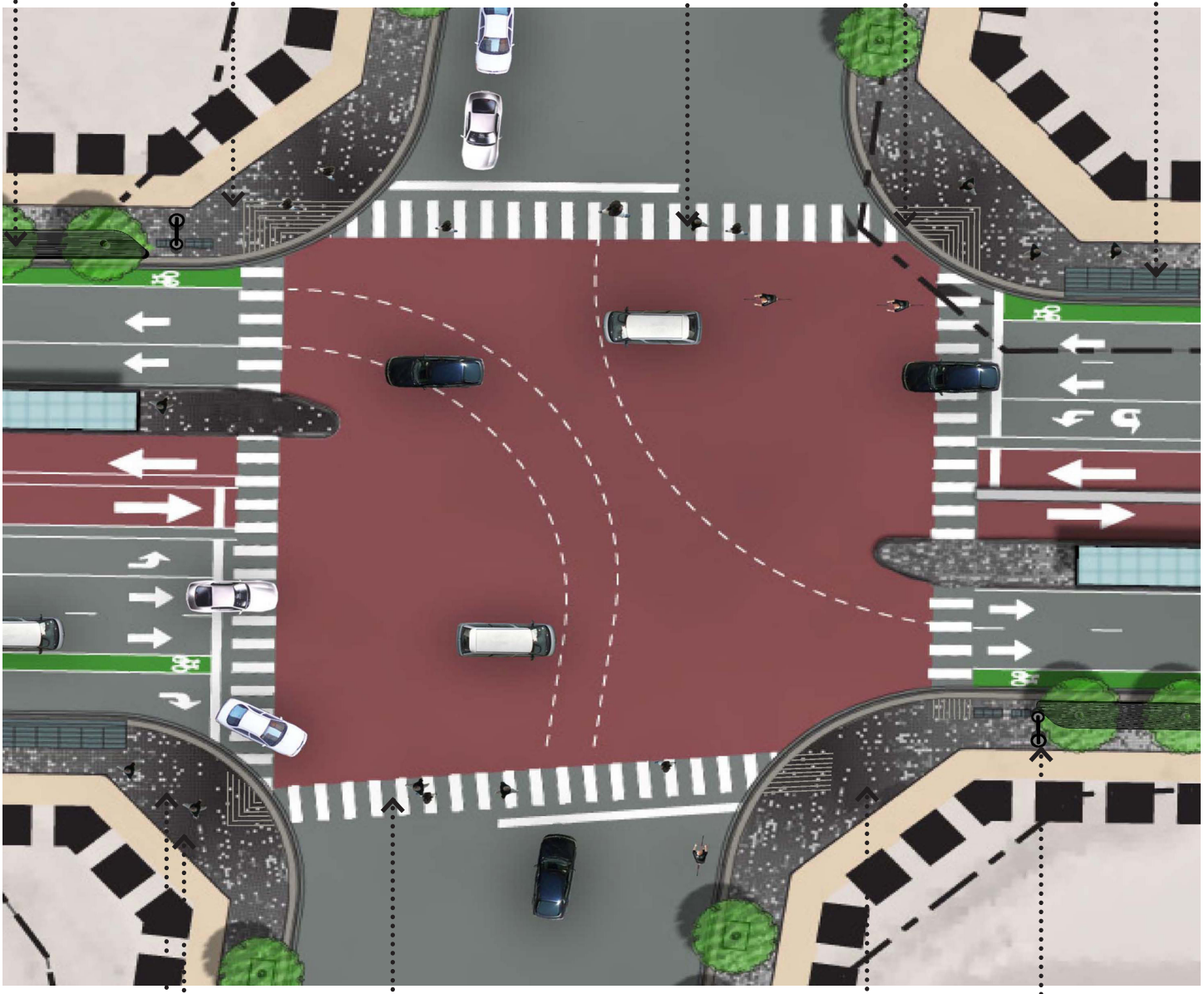
Custom walkable linear tree grates with 'Oblio' pattern by Iron Age Designs over plantings in connected pits.

Corners to function as public gathering spaces, providing enough space for potential wayfinding, signage or public art

Intersection pavement to be coloured to highlight it as an area of greater pedestrian traffic

Placement of tactile groved paver (ADA paver) denoting use changes.

YRRT furnishings such as waste receptacles, signage, bike racks and seating to be located in close proximity to high traffic areas and transit stations



Paving mosaic to extend 10m from the crosswalk at residential intersections and 25m at gateways

Paving mosaic to carry into private property ensuring cohesive and continuous public realm

Pedestrian crossings have distinctive surface treatment.

200mm x 200mm 'Umbriano' concrete unit pavers. Mosaic changes in pattern intensity with proximity to intersections/nodes. Pattern extends for 60m beyond intersections

Pedestrian lighting to be spaced to ensure effectiveness and safety

Streetscape Elements

5

Streetscape Elements

This section provides a description of the design elements and theme for the corridor, including recommendations for stormwater management, street furnishing, and trees.

5.1 Establish the Green Ribbon

The underlying theme of the Centre Street Corridor Streetscape Plan is "The Green Ribbon"; an intertwined linear green ribbon of planting/rain gardens and structural soil running the extent of the study area. This design strategy is being proposed as a regional pilot project within the City of Vaughan.

This system differs in its application across the corridor as described in the Streetscape Typologies section. The differences stemming primarily from the interface with adjacent urban characters.

The major differences across the different character areas are:

1. An **unstructured** edge treatment for a Greenway typology including a bioswale system and naturalized grasses and meadow species, and;
2. A **structured** edge treatment for the Avenue and Boulevard typologies consisting of an open and/or grated planting system including rain gardens and structural soil bridging between planting beds.

Beyond the provision of a green amenity space, this streetscape design strategy is integrated into the civil infrastructure. This green system would serve as an amenity for community while entrenching environmental principles into the streetscape framework. The provision of a new community amenity and open space network would add value to the neighbourhood. Furthermore, the construction of a naturalized system reduces stormwater, drainage and detention infrastructure, having significant potential cost savings.

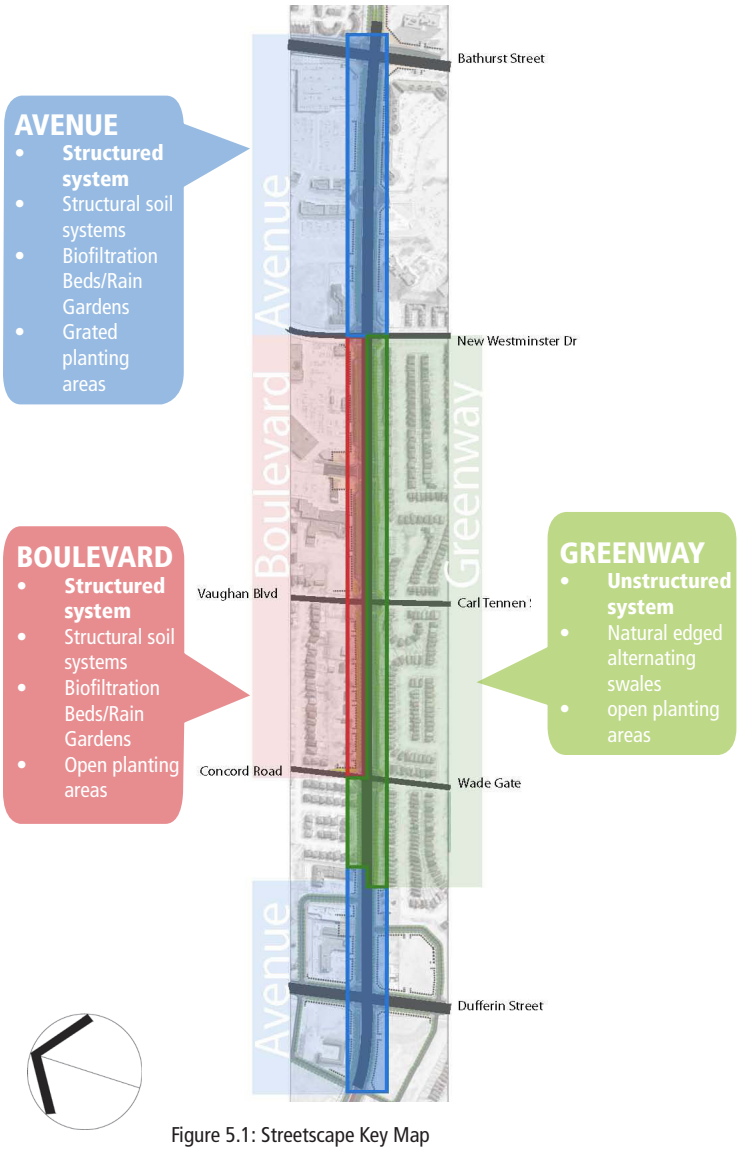


Figure 5.1: Streetscape Key Map

5.1.1 Stormwater Integration

The stormwater management process is integrated into the landscape through the creation of a linking green ribbon along the streetscape – like an expanding coil or twine. The stormwater corridors serve natural hydrologic needs, become linkages to community and regional parks, enhance property values, improve habitat, provide aesthetic amenities, and an improved quality of life. The existing developments or Centre Street were designed with the release rate of 1.0 cfs/acre for drainage control. The increase in stormwater runoff results from new developments shall be effective controlled by combining the techniques of Low Impact Development with standard stormwater practises. As part of the urbanization review, the feasibility study shall justify the flow system based on the topography in the area.

5.1.2 Soil Systems

- The north side of the street would include a structural soil cell system on each block at intersections.
- Structural soil bridging will be used to increase soil volume to allow for adequate root development under sidewalk areas.
- Large soil areas – 16m³ per tree min. 30m³ preferred in continuous soil pits.
- As soil volume increases, the ability to filter/flush contaminants and maintain tree health increases.

Figure 5.2: Structural soil cells below public realm

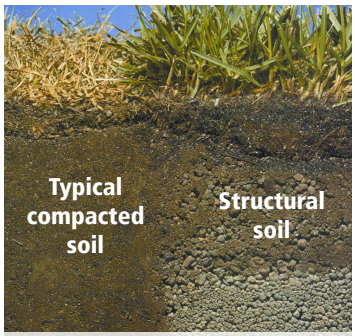


Figure 5.3: Structural soil allowing uninhibited tree root growth

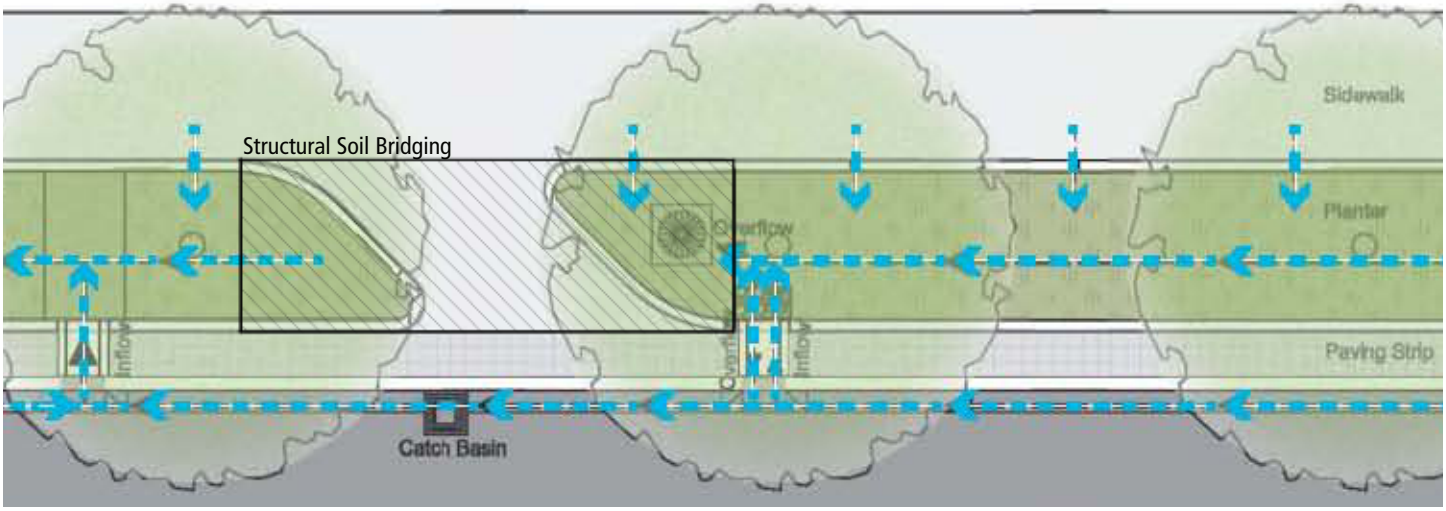


Figure 5.4: Typical rain garden directional flow - plan

5.1.3 Rain Gardens - North Side (Boulevards)

- Rain gardens with integrated grit separators at designated curb openings.
- Sidewalk/ public realm surface water would be directed into planting beds.
- First flush water storage is appended as an additional layer to existing storm system.
- Storm overflow from rain gardens directed into existing storm system.
- Rain gardens will be by-passed in winter/spring crossover flows to allow for continuous water management.
- Rain gardens will be installed with an overflow riser and be designed to slope towards roads and storm water facilities protecting local residents and businesses from potential water damage.
- Grated or open planting areas - dependent on street usage.
- Wet meadow type planting – to thrive in both extremes of wet and dry soils (soil saturation and extended periods with no water input).
- Rain garden introduced as a regional pilot project.
- Tree planting within rain garden swale to include urban hardy tree species – alternate species should be native species and selection could be increased to include the 'Urban Zone'. Urban zone trees to consider: Black Locust, Cottonwood or other.
- Given the relatively flat condition of Centre Street, topography does not restrict the placement of rain garden swale along this segment of the rapidway.
- Use of rain gardens determined based on soil type and condition.

Figure 5.5: Rain Garden/Biofiltration bed - Kitchener, ON

Figure 5.6: Rain Gardens/Biofiltration beds with curb openings - Kitchener, ON

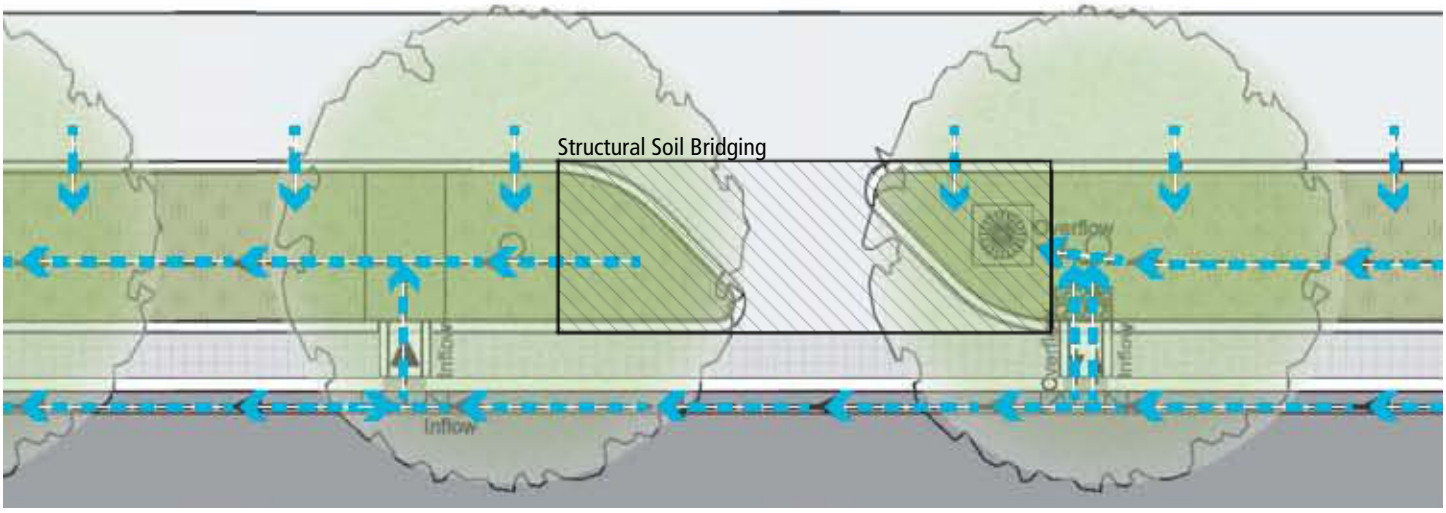


Figure 5.7: Bio-filtration swale - Madison WI, USA

Figure 5.8: Bio-filtration with wet meadow type planting - Mt. Vernon WA, USA

Figure 5.9: Bio-filtration swale - High Point, Seattle WA, USA

5.1.4 Bio-filtration Swales (South Side Passive Green Linkage)

- Natural edged alternating swales
- Wet meadow type planting - to thrive in both extremes of wet and dry soils (soil saturation and extend periods with no water inputs).
- Bio-filtration swale linked together by underground culverts allowing for greater water storage volumes.
- Storm system designed to integrate with regional stormwater requirements
- A 1.8m accessible path undulates through swale system
- Path system would read as a recreational park/trail system
- Planting would enhance privacy of rear-lotting residents
- Path system is designed to have look and feel of a recreational trail system. A hybrid of urban and rural.
- Clean out points to be considered and located in coordination with maintenance standards

5.2 General Guidelines

A coordinated system of streetscape elements is important in establishing a uniform identity for the length of the streetscape. Despite the differing character areas along Centre Street, the general guidelines for the corridor have been established to reinforce Centre Street as an important corridor, and the following recommendations should help to inform detailed design phases.

The general intent of the streetscape element strategy is to provide a uniform, consistent and complementary palette of tree furnishings, gateway treatments, lighting, trees and paving that enhance and reinforce a unique sense of place for the Centre Street corridor.

Figure 5.10: Coordinated streetscape palette - Boise, USA

Figure 5.11: The establishment of a special place - Disera Drive, Vaughan, Canada

Figure 5.12: Wayfinding strategies easing movement and orientation.
Illustration by The Planning Partnership

4.2.1 Wayfinding Guidelines

Establish a pedestrian way-finding system to provide direction and civic information.

- Signage design to be consistent with the streetscape palette.
- Strategically locate signage to identify points of interest and direction.
- Use high quality, vandal proof materials

5.2.2 Street Signage Guidelines

- Markers and streetscape treatments will help to identify neighborhoods and provide separation between commercial areas and adjoining residential areas
- Install neighbourhood markers approximately one half block east or west of Centre Street on side streets that enter residential neighborhoods
- Scale neighborhood markers to the pedestrian, but also ensure markers are recognizable to vehicular traffic
- Develop markers that are unique to each area but with some commonality to tie them together throughout the corridor
- Include neighborhood associations in the design and placement of the markers
- Optional future use of place-making banners on streetlight post

Figure 5.13: Modern lighting design 'Capella Lighting'

5.2.3 Accessibility

- All streetscape elements to comply with Ontario Accessible Built Environment Standards
- Depressed curbs and grooved directional pavers at intersections as per VivaNext standards

5.2.4 Crosswalks

- Clearly delineated
- As per VivaNext design
- Coloured to coordinate with intersections and highlight locations of YRRT stations

5.2.5 Tree Grates

Custom walkable linear tree grates to be used in high traffic areas. These grates would allow for a balance of the human and ecological needs, protecting the trees from pedestrian traffic while maximizing pedestrian movement and stormwater inflow (Figure 4.14).

Figure 5.14: Uniquely patterned tree grates (Illustration by The Planning Partnership)

- Pattern to be 'Oblio' by Iron Age Design per VivaNext Standards (See Figure 4.15)
- Colour to match VivaNext standards
- Grating will be heel friendly with small openings so garbage and cigarette butts do not stick in openings
- Easily removable for cleaning and maintenance purposes

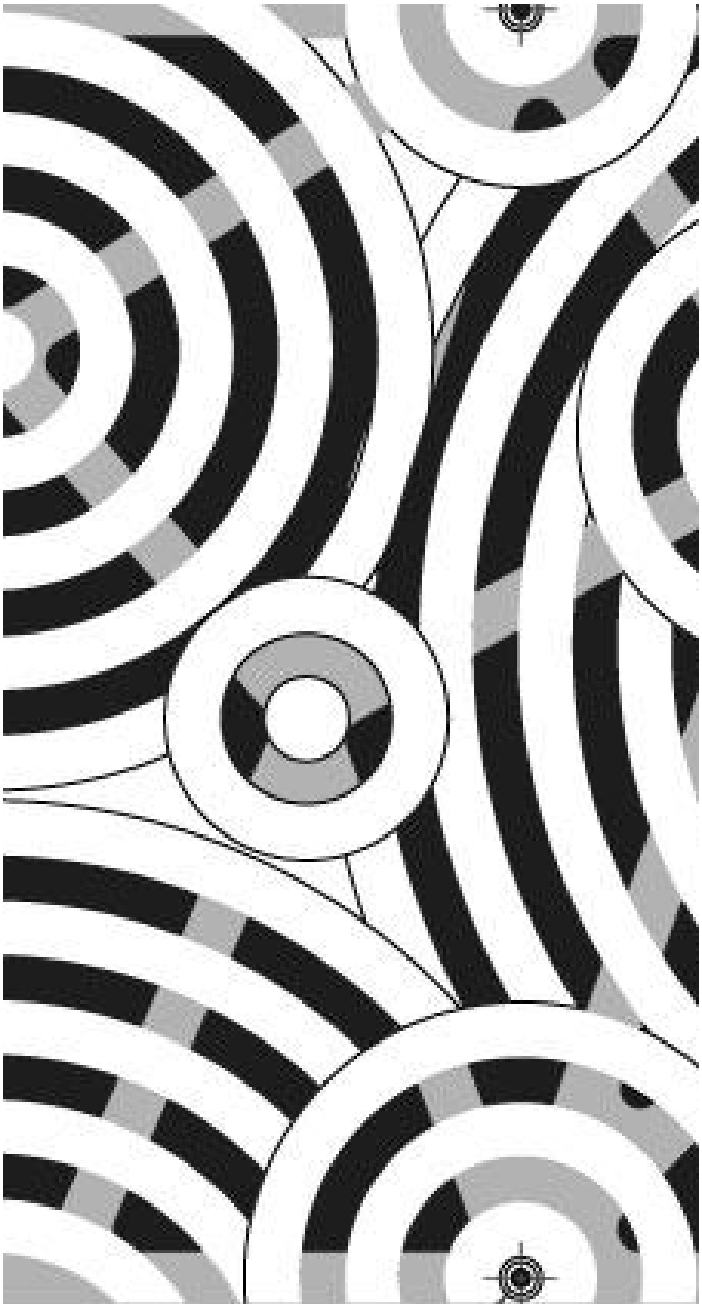


Figure 5.15: Iron Age Designs 'Oblio' tree grate pattern

5.2.6 Paving

- Organized into a mosaic that changes in pattern intensity with proximity to intersections/nodes
- The patterning of pavers will animate the pedestrian realm while making it clear to motorists that there is increased pedestrian activity in this area, thus providing a safer and more comfortable environment for all users.
- Continuity Strip: 200mm x 300mm 'Umbriano' Concrete Unit Pavers by Unilock in running bond pattern. Colours: Midnight Sky and Winter Marvel
- 60m from Intersections: 200mm x 200mm 'Umbriano' Concrete Unit Pavers in a mosaic made up of Midnight Sky and Winter Marvels colours
- Tree and Furnishing Zone: 200mm x 200mm 'Umbriano' Concrete Unit Pavers by Unilock in Running Bond Pattern. Colours: Midnight Sky and Winter's Marvel
- Midblock Sidewalks: Concrete per VivaNext Standards
- Mosaic Pattern: Utilizing a blend of 'Umbriano' Concrete Unit Pavers in a stacked bond pattern and 'Midnight Sky' and 'Winters Marvel' colours, the mosaic pattern is to visually shift in intensity by transitioning from a field of predominantly lighter colours gradually to a field of darker pavers (see Figure 4.17).

Figure 5.16: Example of a paving mosaic

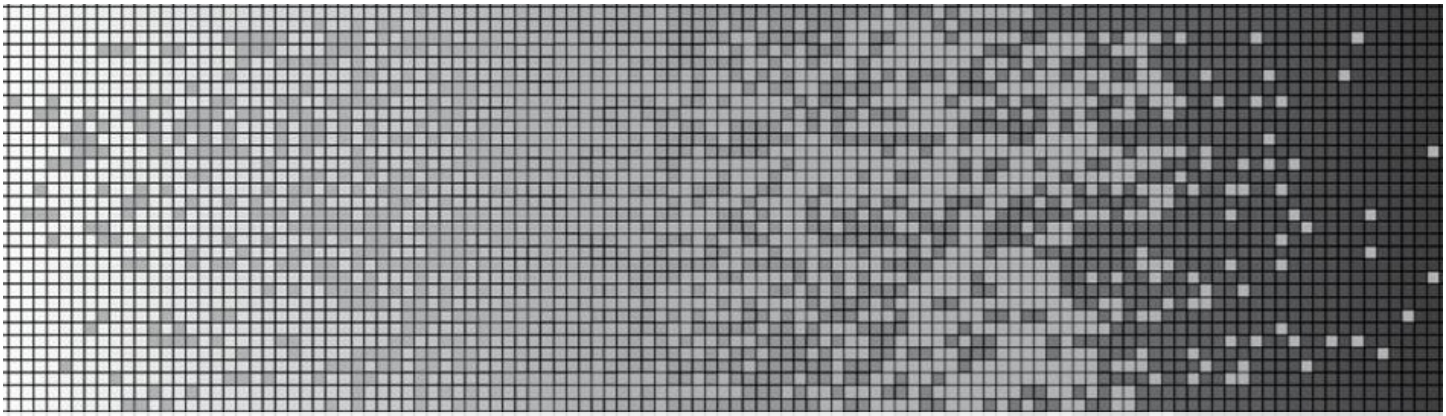


Figure 5.17: Illustrative example of a paving mosaic

Figure 5.20: Unilock 'Umbriano' Midnight Sky colour

Figure 5.18: Unilock 'Umbriano' Winter Marvel

Figure 5.19: Tactile grooved pavers for use at pedestrian ramps

Figure 5.20: Shops at Don Mills (Toronto, ON) ``Flex street example`

5.2.7a Custom Benches

- Seating is to be built-in to planting beds within the Avenue and Boulevards at approximately 40m spacing (see Figure 4.26)
- Built-in seating to be similar in nature to VivaNext Standard benches (see Figure 4.25)
- Benches have raised edges where precast seating can be built into the edge walls

5.2.7b VivaNext Benches

- Installed as per VivaNext standard 'Swerve'

Figure 5.21: YRRT/VivaNext furnishing strategy - backless benches

Figure 5.22: YRRT/VivaNext furnishing strategy - backed bench

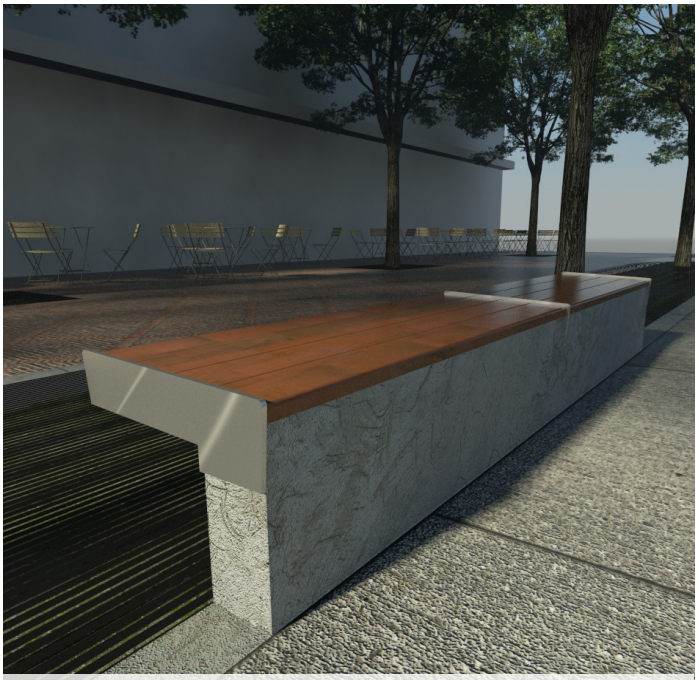


Figure 5.23: Illustration of concrete bench integrated into planting beds and tree grates

5.2.8 Street and Pedestrian Lighting

Lighting contributes to a greater urban environment by extending the life of a street beyond work hours. All too often, however, city streets are lit for the benefit of motorists, while ignoring the sidewalk. Appropriate design and application of lighting can help to privilege the scale and experience of pedestrians. For Centre Street, pedestrian lighting is suggested at key intersections and through urban cross-sections to complement street lighting. All lighting design to be coordinated with implemented VivaNext project.

- 'Capella' Fixture by Philips Lumec to be used for street lighting per VivaNext Standards
- Pedestrian lighting is to be 'Capella' fixture by Philips Lumec per VivaNext Standards
- Pedestrian lighting fixtures and arms are to be installed on street lighting poles within Boulevards and Avenues
- Pedestrian lighting on 14' (4.27m) poles is to be installed along second row of trees within boulevards and avenues. Poles should be offset from street lights in order to provide even lighting.
- Pedestrian lighting to supplement street lighting fixtures.
- Pedestrian lighting to provide for consistent pedestrian lighting levels in event of on street parking.

Figure 5.24: 'Capella' fixture for street and pedestrian lighting

Figure 5.25: 'Capella' fixture with pole

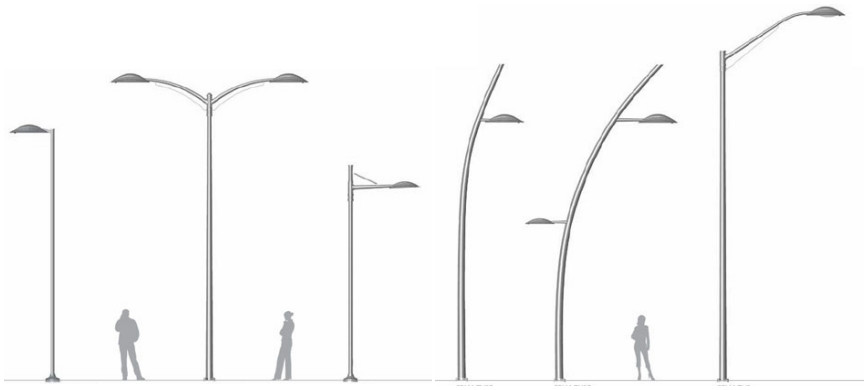


Figure 5.26: Range of Philips Lumec 'Capella' series

Figure 5.27: Differentiated paving pattern for lay-by lanes

5.2.9 Parking Lay-Bys

Lay-by parking is an important streetscape design feature that can contribute significantly to the appearance of a safe and attractive streetscape and a more urban street environment. Lay-by parking that has been placed strategically can increase economic activity by improving ease of access to local services as well as making areas more vibrant and attractive to consumers.

Lay-by parking is also effective in communicating to drivers that they are entering an environment where the emphasis is on the street being a shared space, reducing speeds and providing a safer and more appropriate pedestrian realm.

- Parking lay-by to be delineated with different paving pattern or colour from travel lanes.
- Curb extensions / bulb-outs to be provided at all driveway accesses and intersections.
- Any section of lay-by lane must commence and end with a taper not less than six metres in length.

5.2.10 Utility Boxes

Utility boxes should be located in areas that do not impede user flow along any portion of the streetscape. They should be located in areas that are not high volume or high visibility, where feasible.

Where utility boxes need to be located in areas of high traffic or visibility, they should be sufficiently screened by use of 'unique' utility box designs or planting.

5.2.11 Centre Median

Centre median treatment will conform to YRRT details with the addition of new tree plantings where feasible.

- Medians will not be designed to include stormwater retention facilities.
- Lower power walls (350mm) to be incorporated into drawing package.
- Maximize soil volume per tree as per York Region standard.

5.2.12 Street Trees

In order to achieve a healthy urban forest condition that is resilient to biotic (ie. pests and pathogens) and abiotic (ie. salt and temperature extremes) influences, there needs to be a diversity in species. Tree selection for Centre Street has been done to address biodiversity and hardiness requirements for the creation of a healthy urban forest.

One of the primary objectives of the Plan is to design and create the condition for large street trees to thrive and mature. In the GTA and throughout North America, the average downtown street tree survives for only 7 years. One of the primary reasons for this is the low volumes of and highly compacted nature of soil inherent to development. To overcome problems associated with low soil volumes, compacted soils, and limited root growth capacity, long, continuous shared soil beds are proposed for the trees on both sides of Centre Street, which will significantly contribute to their growth and longevity.

In order to further increase the survivability of the street trees on Centre Street, a series of soil "bridges" are proposed beneath hardscape areas adjacent to trees, which provide roots an opportunity to connect with soil volumes beyond the isolated planting beds.

In addition to visual and air quality benefits from street trees, these expanded planting areas detain storm water through infiltration, reduce the volume of water entering the stormwater system, and lessen the discharge of pollutants into local water bodies during storms.

Street tree spacing should reflect the role of the street and reinforce it as a pedestrian space, while enforcing the roles of the bioswales and stormwater infrastructure that exists below the surface treatment. To this end, street tree recommendations are in tune with the need for species that are moisture and salt tolerant.

Figure 5.28: Consideration of scale of the tree when matured is important

Figure 5.29: Proper spacing of trees can reflect the role of the street

Choosing the Right Tree

- When selecting a tree consider the mature height and spread of a tree to ensure that the surrounding or proposed structures will not impede on the growth of the tree. (For example medium or large trees should not be planted under overhead wires.)
- Street trees should have a considerable tolerance to salt and be a City of Vaughan and Region of York approved Street Tree.

Specific tree, shrub and grass recommendations the two planting zones along the corridor are as follows:


Switch Grass


Sedge

Zone 1 Roadside planters and bioswales - Extreme resiliency

Tree	Shrub	Grass
Black Locust *Robinia pseudoacacia*	Fragrant Sumac	Indian Grass
Black Gum *Nyssa sylvatica*	Cotoneaster	Northern Sea Oats
Maidenhair Tree *Ginkgo biloba*	Dwarf Bush Honeysuckle	Switch Grass


Lily Turf


Little Bluestem

Zone 2 Secondary/parallel planters and bioswales - High resiliency

Tree	Shrub	Grass
Swamp White Oak *Quercus bicolor*	Chokecherry	Little Bluestem
Chinese Scholar Tree *Styphnolobium japonicum*	Potentilla	Sedge
Japanese Zelkova *Zelkova serrata*	Serviceberry	Lily Turf


Northern Sea Oats


Indian Grass


Bush Honeysuckle


Cotoneaster


Chokecherry

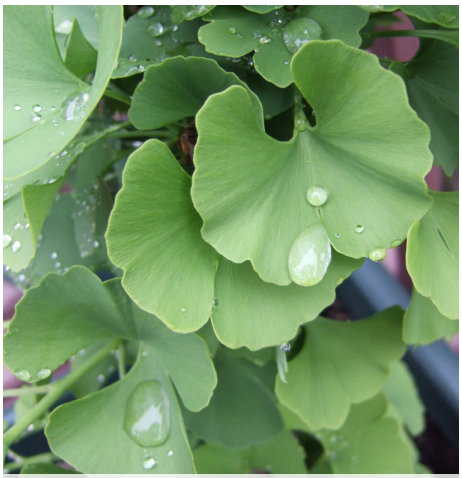
Japanese Zelkova - *Zelkova serrata*

Swamp White Oak - *Quercus bicolor*

Black Gum - *Nyssa sylvatica*

Chinese Scholar Tree - *Styphnolobium japonicum*

Black Locust - *Robinia pseudoacacia*



Maidenhair Tree - *Gingko biloba*

Black Locust

Black Locust

Black Locust

Figure 5.30: Appropriate soil replacement or equivalent is recommended

Figure 5.31: Proper spacing of trees can reflect the role of the street

Figure 5.32: To ensure properly irrigated new trees, gator bags are recommended

Tree distribution should be nearly completely random to add variety in scale, colour, form and textures and visual interest. Varied distribution also ensures that if disease should affect some trees, the problem would not become widespread, and replacement would be straight forward.

Spacing of Street Trees

- Minimum distance between streets trees is 8m.
- Do not plant trees in front of entrances of buildings.
- Trees require a minimum of 16m³ meters of soil to allow for ample growing space for the roots. The ideal minimum tree pit size is 1.5m x 9m x 1m.
- Growing Soil and Top Soil quality should meet the requirements specified by York Region and City of Vaughan
- Planting trees must by planted while dormant – spring planting (March 15 - May 15) and fall planting (October 15 – December 1).

Parks and Forestry

- Irrigation and proper drainage is required for all planters.
- No annuals or hanging baskets.

Watering

- All newly planted trees require a minimum of 20 gallons of water to thoroughly saturate the soil. This quantity may fluctuate depending on weather conditions.
- Water should not cause uprooting or expose the roots.
- This quantity may fluctuate depending on weather conditions.
- The initial 2 years of development should specify the use of gator bags for the continual drip irrigation needed by newly establishing plants.

Tree Care

- Street trees require maintenance (weeding, cultivating, pruning, soil replacement, and repair).
- All dead, broken, bruised or crossing branches should be pruned with a clean cut. The crowns of young trees must not be cut back.
- The base of the tree should have adequate opening between pavers or tree grate surface (a minimum of .4m opening). Pavers may be removed to increase the tree opening as the diameter of the trunk increases. Tree grates must be adjusted if the opening becomes too small for the tree.

Tree Protection

- All trees should be protected from being damaged from bicycles being locked to the trees and from car/truck doors opening on the tree.
- Ideally the trees should be protected by using a tree guard. Alternatively a mesh wrap and signage can be used to prevent and educate bicycles locks from being wrapped around the tree. If a mesh is being used as a protection strategy the diameter of the mesh must be increased as the tree grows to prevent it from choking the tree.

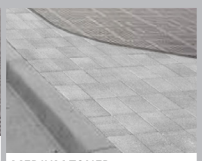
Figure 5.33: Appropriate pruning measures should be taken

Figure 5.34: Gator bags provide continual drip irrigation

5.3 Streetscape Element Matrix

Centre Street Typical and Enhanced Streetscape Elements

PAVING

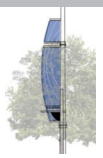
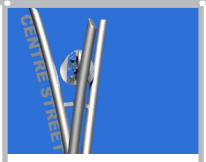
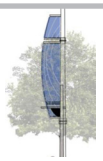
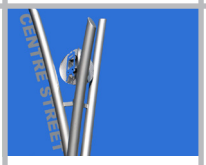
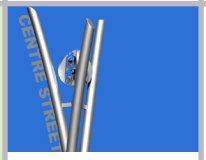
	Typical midblock sidewalk	Continuity Strip	Tree / Furnishing zone paving	Corner Treatment	Greenway Trail
AVENUE	 CAST-IN-PLACE CONCRETE SIDEWALK	 MIDNIGHT SKY + WINTER MARVEL INTERLOCK PAVER BANDING	 MEDIUM TONED INTERLOCK PAVER	 INTERLOCK PAVER MOSAIC WITH INCREASED INTENSITY FROM LIGHT TO DARK	
BOULEVARD	 CAST-IN-PLACE CONCRETE SIDEWALK	 MIDNIGHT SKY + WINTER MARVEL INTERLOCK PAVER BANDING	 MEDIUM SITES INTERLOCK PAVER	 PAVER MOSAIC WITH INCREASED INTENSITY FROM LIGHT TO DARK	
GREENWAY		 MIDNIGHT SKY + WINTER MARVEL INTERLOCK PAVER BANDING		 PAVER MOSAIC WITH INCREASED INTENSITY FROM LIGHT TO DARK	 PERMEABLE CONCRETE

FURNISHINGS

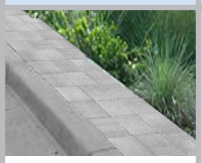
	Tree grates	Benches	Integrated benches	Transit shelters
AVENUE	 CUSTOM LINEAR TREE GRATES	 YRRT VIVANEXT STANDARD BENCH	 INTEGRATED DESIGNER BENCH	 YRRT VIVANEXT STANDARD SHELTER DESIGN
BOULEVARD	 CUSTOM LINEAR TREE GRATES	 YRRT VIVANEXT STANDARD BENCH	 INTEGRATED DESIGNER BENCH	 YRRT VIVANEXT STANDARD SHELTER DESIGN
GREENWAY		 YRRT VIVANEXT STANDARD BENCH		 YRRT VIVANEXT STANDARD SHELTER DESIGN

LIGHTING

SIGNAGE

	Street Lighting	Pedestrian Light Fixture	Pedestrian Lighting	Banners (Future Option)	Gateway Signage (Future Option)	Wayfinding / Directional (Future Option)
AVENUE	 STATE-OF-THE ART STREET LIGHTING	 COMBINED PEDESTRIAN AND STREET LIGHT	 SINGLE LIGHTING ALONG TRAILS AND SIDEWALKS	 INTERCHANGEABLE SEASONAL BANNERS	 PROMINENT PLACE SENSITIVE GATEWAY FEATURES	 CENTRE STREET SPECIFIC WAYFINDING & SIGNAGE
BOULEVARD	 STATE-OF-THE ART STREET LIGHTING	 COMBINED PEDESTRIAN AND STREET LIGHT	 DOUBLE LIGHTING AT HIGH USE AREAS	 INTERCHANGEABLE SEASONAL BANNERS	 PROMINENT PLACE SENSITIVE GATEWAY FEATURES	 CENTRE STREET SPECIFIC WAYFINDING & SIGNAGE
GREENWAY	 STATE-OF-THE ART STREET LIGHTING				 PROMINENT PLACE SENSITIVE GATEWAY FEATURES	 CENTRE STREET SPECIFIC WAYFINDING & SIGNAGE

LANDSCAPING

	Street Trees in Tree Grates	Curbed Bioswales	Naturalized Bioswales
AVENUE	 CONTINUOUS PLANTER WITH GRATE		
BOULEVARD	 CONTINUOUS PLANTER WITH GRATE	 CONTINUOUS PLANTER WITH GRATES	
GREENWAY			 NATURALIZED NATIVE WET MEADOW BIOSWALE

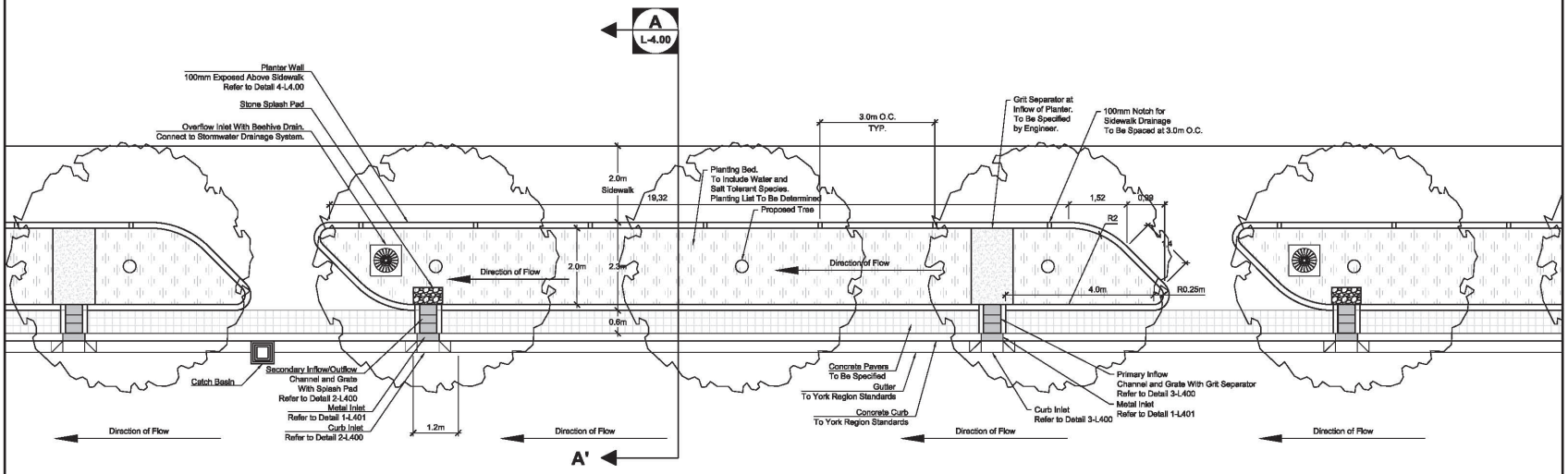
Appendix

6

Appendix

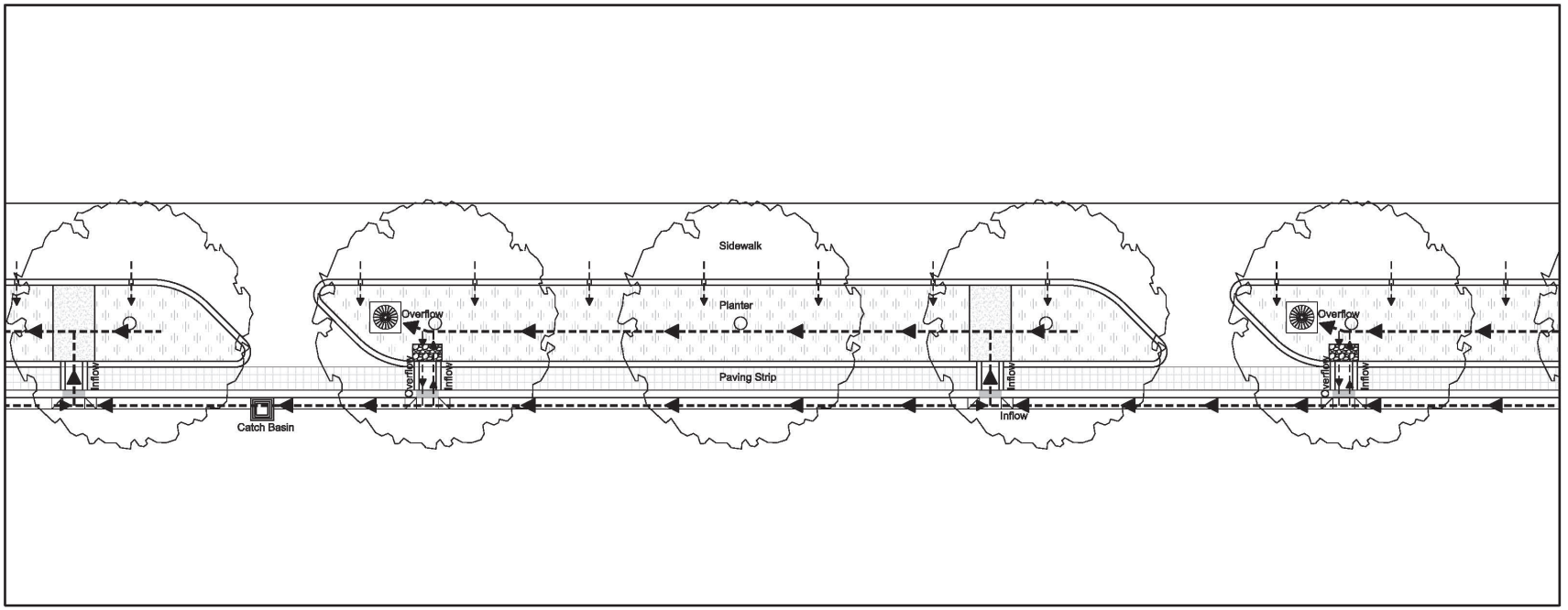
Notes:

1. Design subject to review by Engineer.
2. Slope of Rain Garden to match longitudinal slope of roadway.
3. Refer to Drawing L-300 for Drainage Directional Flow Diagram.



1 TYPICAL RAIN GARDEN LAYOUT - PLAN
1.00 SCALE: 1:100

project title: Centre Street - Rain Garden	sheet title: Layout
project no.: 1128	
The Planning Partnership 1255 Bay Street, Suite 201 Toronto ON M5R 2A9 t 416-975-1556 f 416-975-1580 www.planpart.ca	scale: 1:100 date: 2011-07-08 drawn: KA checked: BH sheet no.: L-1.00



1 TYPICAL RAIN GARDEN DIRECTIONAL FLOW - PLAN
3.00 SCALE: 1:100

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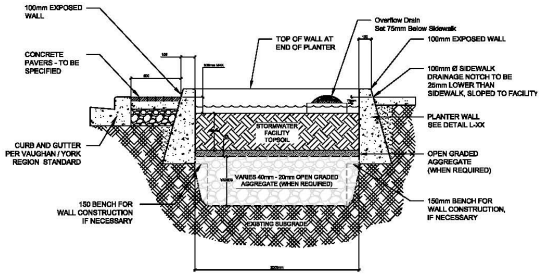
The Planning Partnership 1255 Bay Street, Suite 201 Toronto ON M5R 2A9 t 416-975-1556 f 416-975-1580 www.planpart.ca	scale: 1:100 date: 2011-07-08 drawn: KA checked: BH sheet no.: L-3.00



1 PROPOSED RAIN GARDEN - CENTRE STREET SECTION A-A'
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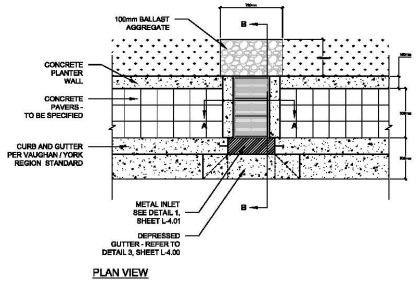
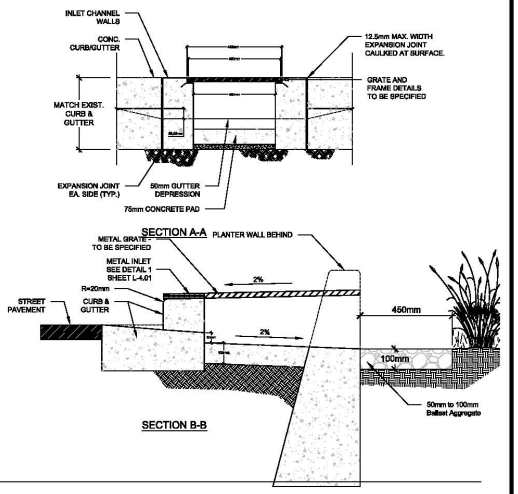
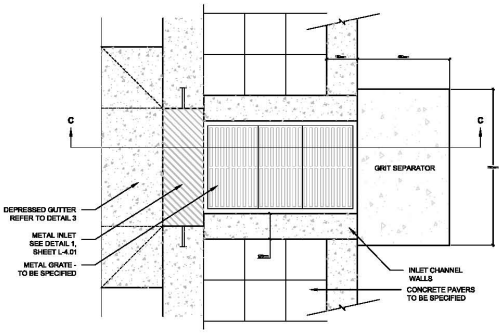


PLAN VIEW

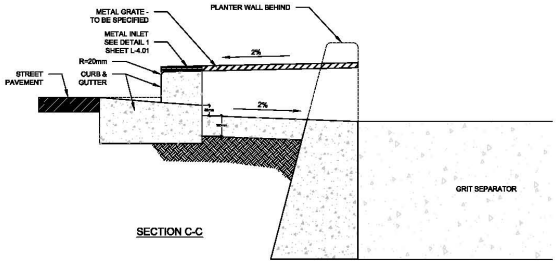


SECTION B-B

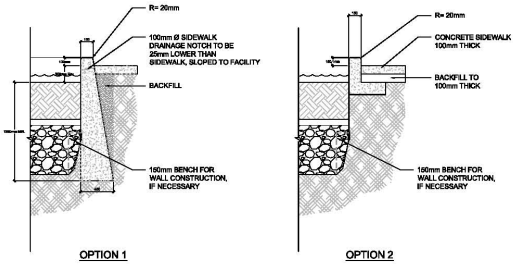
2 CHANNEL & GRATE WITH ROCK SPLASH PAD
4.00 SCALE: 1:20



3 CHANNEL AND GRATE WITH GRIT SEPARATOR
4.00 SCALE: 1:20

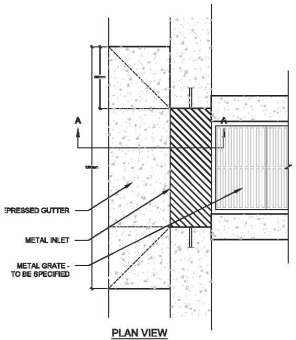


SECTION C-C



4 PLANTER WALL
4.00 SCALE: 1:20

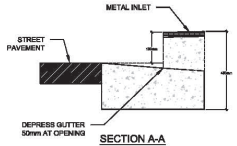
project title: Centre Street - Rain Garden Typical	sheet title: Details
project no. 1128	
The Planning Partnership 1255 Bay Street, Suite 201 Toronto ON M5R 2A9 t 416-975-1556 f 416-975-1580 www.planpart.ca	scale: AS-NOTED date: 2011-07-08 drawn: KA checked: BH
	sheet no. L-4.00



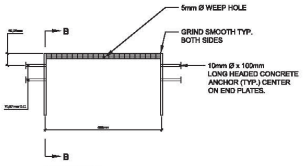
PLAN VIEW

NOTES:

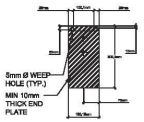
1. SPLASH PAD REQUIRED AT ALL DOWNSTREAM INLETS. SEE DETAIL 4, SHEET L-4.00
2. REFER TO VAUGHAN / YORK REGION STANDARDS FOR CURB AND GUTTER.
3. HEADED CONCRETE ANCHORS SHALL MEET THE REQUIREMENTS OF ASTM A-108.
4. END PLATES SHALL MEET THE REQUIREMENTS OF ASTM A-36.
5. ENTIRE ASSEMBLY SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A-123.



SECTION A-A



ELEVATION



SECTION B-B
END PLATE DETAIL

1 / 4.01 METAL INLET
SCALE: 1:20

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project no: 1128	
The Planning Partnership 1255 Bay Street, Suite 201 Toronto ON M5R 2A9 t 416-975-1556 f 416-975-1580 www.planpart.ca	scale: AS-NOTED date: 2011-07-08 drawn: KA checked: BH
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