Appendix A.2

Streetscape and Urban Design Strategy
HURONTARIO-MAIN LRT PROJECT
Preliminary Design/TPAP

STREETScape & urban Design Strategy
Mississauga & Brampton,
Ontario, Canada.
May, 2014
The Hurontario Main LRT Plan will provide easy, reliable, frequent, comfortable, and convenient rapid transit service throughout the corridor, while Hurontario / Main Street will be a beautiful street with attractive places featuring expanded mobility, vibrant economic activity, and livable, connected, mixed-use neighbourhoods, integrated with transit.

-HURONTARIO MAIN STREET LRT CORRIDOR MASTER PLAN
CONTENTS

Introduction .......................................................................................... 5
Document Structure .............................................................................. 5
Relationship to Other HMLRT Documents ........................................... 5

PART ONE: THE STREETSCAPE AND URBAN DESIGN STRATEGY

1.1 Purpose ......................................................................................... 7
1.2 Approach ....................................................................................... 8
1.3 Principles ...................................................................................... 8
1.4 The Big Moves ............................................................................. 10

PART TWO: LRT STOPS

2.1 Introduction .................................................................................. 17
2.2 LRT Stop Configurations .............................................................. 18

PART THREE: STREETSCAPES

3.1 Introduction .................................................................................. 25
3.2 Typological Design Assumptions ................................................... 25
3.3 Streetcape Typologies .................................................................... 26
3.4 Streetcape Medians ....................................................................... 30
3.5 Public Art ....................................................................................... 32
3.6 Wayfinding ................................................................................... 33
3.7 Lighting ......................................................................................... 33
3.8 Parking ......................................................................................... 34

PART FOUR: LANDSCAPE DESIGN RECOMMENDATIONS

4.1 Landscape Elements ..................................................................... 36
4.2 Planting Soils and Mediums .......................................................... 42
4.3 Irrigation & Drainage ...................................................................... 42
4.4 Site Furnishings ............................................................................ 42
4.5 Paving Materials .......................................................................... 45

PART FIVE: STREETSCAPE DESIGN MAPPING

5.1 Introduction .................................................................................. 47
5.2 Prioritization ................................................................................ 47
5.3 Port Credit GO ............................................................................ 48
5.4 Mineola ........................................................................................ 52
5.5 Queensway and Dundas ............................................................... 56
5.6 Cooksville and Central Parkway .................................................. 60
5.7 Matthews Gate & Burnhamthorpe .............................................. 64
5.8 Burnhamthorpe & Duke of York .................................................. 68
5.9 Duke of York & Rathburn ............................................................. 70
5.10 Eglinton Avenue ......................................................................... 72
5.11 Bristol Road and Matheson Boulevard ....................................... 76
5.12 Britannia Road and Highway 401 .............................................. 80
5.13 Courtneypark Drive .................................................................... 84
5.14 Derry Road and Highway 407 .................................................... 88
5.15 Ray Lawson Boulevard and Sir Lou Drive .................................. 92
5.16 Shoppers World and Charolais Boulevard ................................. 96
5.17 Nanwood Drive and Main street South ..................................... 100
5.18 Wellington Street and Brampton .............................................. 104

APPENDIX A: EXISTING LANDSCAPE CONDITIONS
INTRODUCTION

This document establishes a streetscape and urban design strategy, including planning principles and recommendations to shape the preliminary design of the streetscape, transit facilities and other urban design components of the project. The goal is to support the creation of a vibrant, sustainable, and pedestrian-oriented environment along the corridor.

DOCUMENT STRUCTURE

This document comprises four parts:

- **Part One** outlines an emerging design strategy that includes an overall approach, principles, and ‘big moves’ to guide the preliminary streetscape and urban design of the corridor.

- **Part Two** outlines recommendations for the design of LRT stops along the corridor.

- **Part Three** outlines recommendations for the design of streetscapes along the corridor.

- **Part Four** documents detailed and location-specific streetscape and urban design recommendations along the corridor. This section is intended to be coordinated with the Design Workbook process, and as such, will be subject to ongoing review and coordination with the evolving preliminary design of the corridor.

RELATIONSHIP TO OTHER HMLRT DOCUMENTS

This document has been structured to be consistent with, and to apply the general design guidelines included in the HMLRT System Design Guidelines document to specific places and conditions along the corridor.

It has also been structured to reflect and build upon key elements of the Hurontario-Main Corridor Master Plan, and aims to provide an ongoing point of reference with the evolving design of the LRT alignment, through the Design Workbook process.

As such, this document should be read in conjunction with both the HMLRT System Design Guidelines, and the HMLRT Design Workbook process.
A safe, interesting, and engaging public realm encourages walking or cycling and makes the transit system more attractive to potential users. Providing visual interest at the pedestrian scale through thoughtful landscaping and building design will encourage people to use the public realm and help contribute to an active street life.

- METROLINX MOBILITY HUB DESIGN GUIDELINES
Through the introduction of new low-floor vehicles, frequent stops, and an urban-style approach, the Cities of Mississauga and Brampton aspire to build a modern, vibrant, and sustainable transit network that is integrated with the communities it serves - a main street for the 21st Century - from the lakeshore in Port Credit to downtown Brampton. The vision aims to achieve a positive interface between transit infrastructure and the built environment to support an improved quality of life and healthy, sustainable, communities across both cities.

1.1 PURPOSE

This document articulates a Streetscape and Urban Design Strategy (the Strategy) to advance the urban design of the corridor, with the aim to support the development of streetscapes, LRT and related transit facilities that reflect a vibrant, sustainable, and pedestrian oriented environment.

The introduction of Rapid Transit and the removal of major traffic movements from the route provide an opportunity to improve the urban realm along the HMLRT transit corridor.

This document illustrates the intended ‘full build-out’ of the urban realm along the corridor, establishing the long-term policy expectations and providing a link between what the Cities of Mississauga and Brampton have already documented in their respective policy frameworks, and the current aspirations for the urban realm of the corridor. As such, the overall objectives of the Strategy include:

1. Improve the environment for local residents and businesses;
2. Provide better conditions within the public right-of-way for pedestrians, cyclists and transit users; and
3. Support opportunities for new or enhanced mixed use development, streetscaping, public art, cultural heritage and public spaces.
4. Recommend how and where to prioritize streetscape and urban realm investments along the corridor, recognizing that some areas will develop or change sooner than others.
1.2 APPROACH

The Strategy should be read in conjunction with the Design Workbooks, and the HMLRT System Design Guidelines to provide a coordinated approach to shape the urban design of the corridor for the project. For instance, together these documents address a number of recommendations, which include, but are not limited to:

1. Shape an improved pedestrian network, addressing a range of considerations, such as strengthened connections, improved safety, wayfinding, and more convenient circulation and road crossings;
2. Enlarge and enhance the streetscape, addressing a range of components, such as wider sidewalks, pedestrian-oriented lighting, street trees, retail and cafe ‘spill-out’ zones;
3. Focus on provisions to support a multi-modal corridor, including bike lanes, where appropriate;
4. Physically integrate transit infrastructure with the existing and planned built environment;
5. Provide hard and soft landscaping, parks and community gardens;
6. Identify potential public spaces and development opportunities;
7. Minimize street clutter;
8. Introduce public art; and
9. Support and celebrate character areas, including gateways and areas of transition between places.

1.3 PRINCIPLES

The following core principles build on the Master Plan Vision for the corridor and provide the foundation for the streetscape and urban design recommendations outlined in the following sections. They serve as a touchstone against which the design of the corridor has developed. The principles translate the vision for the corridor into more focused recommendations, articulating what is important and providing guidance to decisions that shape the design of the corridor:

1. SUPPORT A WELL-DESIGNED PUBLIC REALM THAT CONNECTS AND ENLIVENS COMMUNITIES.

A well designed public realm positively contributes to more vibrant and complete communities, by accommodating a diversity of activities and amenities in support of a comfortable and enjoyable experience for a diverse range of users. The HMLRT Corridor aims to support and connect a range of vibrant, high quality parks, squares, and streetscapes to the communities they serve.
2. PLAN FOR COMPLETE STREETS THAT PROVIDE A RANGE OF AMENITIES TO ENHANCE PEDESTRIAN COMFORT AND SAFETY, AND ACCOMMODATE MULTI-MODAL MOVEMENT SUCH AS BIKE LANES, BUSES, LRT, AND LOCAL TRAFFIC.

Complete streets provide a range of amenities, such as: trees to add shade during hot summer months and contribute to an attractive pedestrian environment; furnishings such as benches, waste and recycling receptacles, and vending; as well as lighting to support safety and comfort. The HMLRT Corridor aims to coordinate, and locate these amenities where they are needed most, particularly surrounding transit facilities, key destinations, and urban areas.

3. STRENGTHEN CONNECTIONS BETWEEN PUBLIC SPACES AND LRT TRANSIT FACILITIES ALONG THE HMLRT CORRIDOR.

Creating a network of public open spaces and streetscapes that connect communities and major destinations with transit facilities can support and increase transit use while improving the experience and convenience for transit users along the HMLRT Corridor.

4. CREATE GREAT PLACES FOCUSED AROUND TRANSIT FACILITIES AND KEY DESTINATIONS.

Great place-making encourages greater use of transit, walking and cycling, by shaping attractive, convenient and desirable destinations that are closely linked with transit facilities, particularly within Mobility Hubs. The HMLRT project aims to use this approach to create great places that: build upon each neighbourhood’s unique character, support context-sensitive architecture, art and culture, a high quality public realm and streetscaping.
1.4 STREETSCAPE AND URBAN DESIGN STRATEGIES: THE BIG MOVES

INTRODUCTION

This section outlines strategies to support the re-design from a high speed, vehicle-oriented arterial roadway to a more pedestrian-supportive multi-modal corridor; one that strengthens the quality and integration of streetscapes with a range of public spaces, transit facilities and key destinations.

These design strategies apply to a range of places along the corridor, in conjunction with a parallel review of other priorities related to traffic operations, cost, technical feasibility, and other criteria.

They inform the detailed streetscape recommendations in part four of this document, and should be read in conjunction with the HMLRT System Design Guidelines document, as well as the Design Workbook process.

1. PEDESTRIAN THROUGH ZONE

Provide a 2.0 metre wide Pedestrian Through Zone, located on both sides of the street, and continuous along the entire length of the corridor.

2. PEDESTRIAN PRIORITY AREAS

Pedestrian Priority Areas: facilitate and prioritize the safe and comfortable movement of pedestrians and cyclists surrounding LRT stops and other major destinations. Pedestrian Priority Areas (PPA’s) apply to streets, crosswalks, and intersections typically within 100 metres of the access to LRT stop platforms, or as otherwise designated through the Detailed Streetscape Design Recommendations in Part Four of this document.
Wherever appropriate, reduce the presence of medians to facilitate reallocation of the space to enlarge and enhance the pedestrian streetscape. Where existing medians are integral to the existing local character, or a function of the street, they should be retained. At these locations, plantings should be introduced to improve their contribution to the overall quality of the streetscape.

4. CONTEXT SENSITIVE

Create well designed thresholds to celebrate and support the future vision of character areas and key destinations along the corridor. Express the transition through elements of landscape architecture, public art, lighting, signage, and/or the architecture of LRT facilities and infrastructure.

5. DEDICATED TURN LANES

Remove dedicated right turn lanes, where feasible, to reduce pedestrian crossing distances, and support greater safety associated with reduced vehicle speeds. Special consideration should be given to intersections that include a LRT stop.

Consider removal of dedicated left turn lanes where feasible, such as at intersections with local roads, remove left turn lanes to reduce pedestrian crossing distances, and support greater safety associated with reduced vehicle speeds.
6. INTERSECTIONS AND CROSSINGS:

The following recommendations are intended to support the design of effective intersections and crossings that prioritize pedestrian safety and comfort by demarcating clear areas and operational rules designed to alert drivers and other users of the roadway to the presence of pedestrians, and the need for caution and reduced speeds. For more information on the design of intersections and crossings, please refer to the HMLRT System Design Guidelines, section 4.6.8.

**Intersection Curbs**

- **shorter crossing distance preferred**
- **tight curb radius**
- **longer crossing distance**
- **wide curb radius**

**On-Street Parking**

- **On street parking** should only be considered at a select number of strategic locations to support retail and small business areas, as defined in collaboration with the Cities of Brampton and Mississauga.

**Midblock Connections**

- **Provide direct pedestrian midblock connections** to the LRT platform from the adjacent streetscape, particularly where significant distance separates the LRT platform from adjacent intersections, or where it is desirable to reduce illegal and/or unsafe pedestrian crossings. This objective also applies to conditions where a pedestrian midblock crossing currently connects to a pedestrian island associated with a road interchange. At these locations, the crossing should be relocated to provide a direct connection to the sidewalk, for instance through an extension of the LRT stop platform.
7. BIKE FACILITIES:

The following recommendations are intended to support the provision of a safe, convenient, and continuous cycling route along, and/or connecting to the HMLRT Corridor. The objective is to promote transportation choice and offer a full, multi-modal urban environment, while clearly defining the operating zone of cyclists within, and adjacent to the roadway, to support safety and mitigate cyclist-vehicular conflict. For more information on the design of cycling facilities, please refer to the HMLRT System Design Guidelines, section 4.6.9 Cycling Facilities.

Physically Separated Bicycle Lanes

Where bike lanes are to be accommodated, preference ought to be given to physically separated lanes, which provide a greater degree of separation from adjacent vehicle and/or LRT lanes, in support of greater safety, and comfort for cyclists.

On-Street

A sharrow should only be accommodated at urban areas when there is not sufficient space within the ROW to provide a physically separated bike lane.

Multi-Use Trail

Locate a multi-use trail away from busy urban areas, and/or where there is insufficient space within the ROW to accommodate an on-road bike lane.

Bike Box

Locate a bike box at intersections where there is an LRT stop, and/or a desire to connect to an intersecting east-west bicycle route.
8. **BICYCLE PARKING:**

Bicycle parking should be provided in close proximity to LRT Stops, Intermodal Stops, and major transit interchanges, in accordance with the Metrolinx Mobility Hub hierarchy of types; (B1) individual bicycle posts at standard LRT stops and throughout the alignment; (B2) multiple bike rack at intermodal stops; (B3) larger sheltered racks; or (B4) bicycle lockers at major interchanges (GO stations, CCTT, etc).

At most standard LRT stops, bicycle parking should be provided in the form of bike posts or bike racks located in the planting/furnishing zone, adjacent to the access to the LRT stop. At higher volume intermodal LRT stops, particularly within intermodal stops, sheltered bike racks should be provided and located in close proximity to major pedestrian routes accessing the LRT platform.
9. PUBLIC ART:
The inclusion of public art on major infrastructure projects, especially public transit projects, is an important component of creating valuable and meaningful public spaces. The public art programme for the HMLRT project is being developed as an integral part of the total project vision, engaging a variety of potential opportunities that anticipate a range of artist procurement methods. Examples of both types are included below.

10. Crime Prevention Through Environmental Design
Thoughtful design of the public realm can contribute to a safer urban environment. This project is being designed to support the objectives of Crime Prevention through Environmental Design (CPTED), which includes: optimizing opportunities for surveillance; clearly defining boundaries; and creating and maintaining a positive “image”. By increasing natural surveillance, sometimes called ‘eyes on the street’, and by creating a sense of care and ownership, CPTED minimizes opportunities for crime through diminishing the motivation of the criminal to commit a crime due to fear of apprehension.
PART TWO: LRT STOPS

The design of stops plays a major role in creating a modern image for the corridor. They are one of the most important elements of any system, as they are a passenger’s first point of contact with the network.

2.1 INTRODUCTION:

As key places where passengers interact with the system, LRT stops must support a user-friendly, comfortable, clean, and safe environment to encourage ridership and system use.

This section outlines recommendations associated with the design of LRT stops along the corridor. These recommendations relate to the configuration of the stop, (e.g. centre-running, centre-loading) as well as specific components (e.g. shelter) of the stop, and are consistent with the HMLRT System Design Guidelines. The intent is to achieve a consistent level of best practice design performance for all LRT stops, while also providing a flexible approach that recognizes that some components of the design can be tailored to suit the setting or character of the area, the level of activity, or LRT typology, including Standard Stops, Intermodal Stops and City Centre Stops. For more information on LRT Stop Typologies, please refer to the HMLRT System Design Guidelines document, Section 4.5 Transit Facilities.
2.2 LRT STOP CONFIGURATIONS:

This section outlines four LRT stop configurations, including specific design recommendations that should be read in conjunction with Section 4.5 Transit Facilities, of the HMLRT System Design Guidelines. The aim is to support best practice functional performance for all LRT stops along the corridor.

CENTRE RUNNING, CENTRE LOADING

Design the platform to reduce the physical presence of LRT shelter walls and guard rails within the ROW.
Maximum Ramp Slope (1:15)

Minimum Platform Width
5m

*The placement of ITS platform elements, such as ticket vending machines, to be coordinated with the ITS Strategy and Concept Design, by LEA Consulting.
Design the platform to minimize the visual presence of vertical surfaces, such as splash guards, while ensuring a safe separation between the platform and adjacent vehicle lanes.

**CENTRE RUNNING, SIDE LOADING**

**INTERSECTION CROSSING**
- 1.5m & 0.9m

**MIDBLOCK CROSSING**
- 90m
- 30m
- 6m
- 2m

**FURNISHING ZONE**
- 3m

**CURB ZONE**
- 1.5m & 2m

**THROUGH ZONE**
- 3m

**SafETY STRIP**
- Min.

**Platform Access**
- Ground Lighting
- Wayfinding Totem, Seating
- Shelter
- TVM
- Customer Service Intercom

**Waste Receptacle**
- 600mm Safety Strip

**Emergency Call Station**
- Seating
- Roof (above)

**Bollard with Lighting**
- 800mm Safety Strip

**Wayfinding Totem, Presto PFTP, Seating**

**Platform Ramp Access**
- Crash Barrier

**Crosswalk**

**Wayside Passenger Info Displays**

**FIGURE 4: LRT STOP CONFIGURATIONS - CENTRE RUNNING, SIDE LOADING**
CENTRE RUNNING, SIDE LOADING INTERSECTION DETAIL

INTERSECTION INTEGRATION: PERSPECTIVES

*For more information on the placement of ITS platform elements, such as ticket vending machines, please refer to the ITS Strategy and Concept Design, by LEA Consulting.
Design the platform to facilitate convenient intermodal transfers directly from the streetscape, particularly at intermodal connections (e.g. where pedestrian bridge connections access GO rail). Where possible, the back of the platform should be blended into the adjacent sidewalk, without step changes of level, or rigid designations of “platform space” and “sidewalk space”, and also the same palette of surface materials can be used.
Shelter Design

1. Canopy with under lighting
2. Modular Structural Supports
3. Lighting
4. Digital Display
5. Platform
6. Ticket Vending Machine

Platform elements should be integrated within the shelter design wherever possible.

The modular structural supports of the shelter should be used to integrate both shelter lighting and any digital information display systems.

Seating in the side loading platform shelters can be integrated and supported by the curb and splash guard structures. In centre loading platform shelters they can integrated into the modular structural supports.
Shelter Design

1. Canopy with under lighting
2. Modular Structural Supports
3. Lighting
4. Digital Display
5. Platform
6. Ticket Vending Machine

Platform elements should be integrated within the shelter design wherever possible.

The modular structural supports of the shelter should be used to integrate both shelter lighting and any digital information display systems.

Seating in the side loading platform shelters can be integrated and supported by the curb and splash guard structures. In centre loading platform shelters they can integrated into the modular structural supports.
PART THREE: STREETSCAPES

3.1 INTRODUCTION

This section of the document outlines four streetscape typologies that are designed to respond to the unique conditions along the corridor, while targeting an appropriate level of investment, and providing a consistent approach to the creation or enhancement of well designed and pedestrian supportive environments. In Part Five of the document, these typologies are applied along the corridor.

The aim is threefold:
(1) To design streetscapes that create a safe, attractive, and comfortable environment for walking which connects to key destinations;

(2) Differentiate the design of the street from area to area, to reflect and support the unique needs of a variety of settings, such as busy urban centres, quiet residential neighbourhoods, and other unique places along the corridor;

(3) Establish appropriate levels of investment that prioritize the design of the streetscape surrounding areas with anticipated high volumes of pedestrian use, and/or transit oriented development, and/or other important destinations.

“A safe, interesting, and engaging public realm encourages walking or cycling and makes the transit system more attractive to potential users. Providing visual interest at the pedestrian scale through thoughtful landscaping and building design will encourage people to use the public realm and help contribute to an active street life.”

Metrolinx Mobility Hub Design Guidelines

3.2 TYPOLOGICAL DESIGN ASSUMPTIONS

The following typological design assumptions have been applied to the design of the corridor, and are reflected in the detailed streetscape and urban design mapping that is included in Part Five of this document. These assumptions are generally reflective of the desired values for each component within the right of way, but may in some circumstances be superceded by the necessity to accommodate a unique limiting constraint, associated with the physical condition of an area, or functional requirements of the roadway.

<table>
<thead>
<tr>
<th>GENERAL ROW ELEMENTS:</th>
<th>Preferred</th>
<th>Min. (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPA Sidewalk</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Vehicular Travel Lane</td>
<td>3.5</td>
<td>3.25</td>
</tr>
<tr>
<td>Curb Lane</td>
<td>3.3</td>
<td>3.25</td>
</tr>
<tr>
<td>Turning Lane</td>
<td>3.3</td>
<td>3</td>
</tr>
<tr>
<td>On-street Parking</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>LRV Travel Lane</td>
<td>3</td>
<td>2.6</td>
</tr>
<tr>
<td>Single Loading LRT Stop Platform Width</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Double Loading LRT Stop Platform Width</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Mixed Use Trail</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Sharrowed Bicycle Lane</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>On-street Bicycle Lane</td>
<td>1.8</td>
<td>1.5</td>
</tr>
<tr>
<td>Segregated Bicycle Lane</td>
<td>1.8</td>
<td>1.5</td>
</tr>
<tr>
<td>Curb</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Gutter</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>LRV Median / Curb</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Centre OCS Poles</td>
<td>0.22</td>
<td>0.22</td>
</tr>
</tbody>
</table>
3.3 STREETSCAPE TYPOLOGIES:

This section identifies four streetscape typologies that are designed to support the future vision for existing and emerging urban areas, as well as areas of less urban intensity along the corridor.

The typologies respond to the intended character of the area, as well as the level of targeted investment.

THE GREENWAY ZONES

THE TYPICAL GREENWAY

Furnishings/Planting Zone:
- Street trees: Type D-T3 Large trees planted 8-10m OC, Type M-T3 Medium trees, planted 8m OC and Type C-T3 Coniferous trees planted in continuous tree pits. (Refer to section 4.3.1. Plant material).
- Benches and waste receptacles: minimum 1 per block. (Refer to section 4.3.6. Site furniture).
- Street lights or side-running multi-jurisdictional poles.
- Other amenities, as required.

Pedestrian Through Zone:
- Sidewalks: cast in place concrete, minimum 2m wide, 3m width where integrated with Multi Use Trail (MUT). Intersections and paved areas (other than sidewalk) are paving type C (refer to section 4.3.7. Paving material).

Planting Zone (allow for):
- 1 row of street trees - refer to ‘furnishings/planting zone’, and/or;
- Soft groundcover such as low-maintenance grasses, wood chips, or vines.

Setback Zone (where applicable):
- 1 row of street trees - refer to ‘furnishings/planting zone’, where feasible, and/or;
- Soft groundcover such as wood chips, stone, mulch, seed, or sod.

The greenway typologies support the creation of idyllic, naturalized pedestrian-oriented areas, through the provision of a spacious pedestrian through zone, buffered from the roadway by street trees, vegetation, and related soft palette of materials that support the surrounding context.

Apply the typical greenway to existing or planned residential neighbourhoods, special institutional, natural or heritage areas, and where a landscaped frontage is desired. Physical conditions for the typical greenway may include:

- Setback zone: Streetscape Enhancement
- Planting Zone
- Walking Zone 2.0m
- Furnishing/Planting Zone
- Bike Lane
- Roadway
- Gutter 0.2m
- Curb 0.3m

Credit: City of St. Paul / Minnesota.

TYPICAL GREENWAY ZONE

TYPICAL GREENWAY LAYOUT.
THE ENHANCED GREENWAY

Furnishings/Planting Zone:
- Street trees are type D-T4 Large trees, planted 7-8m OC, Type M-T4 Medium size trees, planted 6m OC and Type C-T4 Coniferous trees planted in continuous tree pits. (Refer to section 4.3.1. Plant material).
- Benches and waste receptacles: minimum 2 per block. (Refer to section 4.3.6. for site furniture).
- Street lights or side-running multi-jurisdictional poles.
- Other amenities, as required.

Pedestrian Through Zone:
- Sidewalks are cast in place, recommended minimum 2.5m wide, 3m width where integrated with MUT and Pedestrian Priority Areas (PPAs). Intersections and paved areas (other than sidewalk) are paving type C (refer to section 4.3.7. Paving material)

Planting Zone (where applicable):
- 1 row of street trees - refer to ‘furnishings/planting zone’, and/or;
- Soft groundcover such as vines, low-maintenance grasses, perennials, and woody shrubs.

Setback Zone (where applicable):
- Street trees - refer to ‘furnishings/planting zone’, where feasible, and/or;
- Soft groundcover such as vines, low-maintenance grasses, perennials, and woody shrubs.

Apply the enhanced greenway to select residential neighbourhoods or heritage areas, where prioritized investment is desired. For instance, at the intersection of Queensway and Hurontario Street. Physical conditions for the enhanced greenway may include:
The urban streetscape typologies will support pedestrian-oriented retail and mixed use urban areas, through the provision of a spacious pedestrian through zone, buffered from the roadway by a hardscaped planting and furnishing zone, where accommodation is provided for tree plantings, lighting, furnishings, and utility areas (other than sidewalk) are decorative or permeable paving type B (refer to section 4.3.7. Paving material).

The urban streetscape will support pedestrian-oriented retail and mixed use urban areas, through the provision of a spacious pedestrian through zone, buffered from the roadway by a hardscaped planting and furnishing zone, where accommodation is provided for tree plantings, lighting, furnishings, and utilities. Apply the typical urban streetscape to urban areas along the corridor where a pedestrian supportive streetscape is envisioned, in conjunction with existing or new commercial, retail or mixed use development. Physical conditions may include:

**Furnishings/Planting Zone:**
- 1 row of street trees, type D-T1 Large deciduous trees planted 8-10m OC, C-T1 Coniferous trees or M-T1 Medium size trees, planted 7m OC in continuous tree pits or single tree pits with grates. (Refer to section 4.3.1. Plant material).
- Benches and waste receptacles: minimum 1 per block. (Refer to section 4.3.6. for site furniture).
- Street lights or side-running multi-jurisdictional poles.

**Pedestrian Through Zone:**
- Sidewalks are cast in place concrete, minimum 2m wide. Intersections and paved areas (other than sidewalk) are decorative or permeable paving type B (refer to section 4.3.7. Paving material).

**Spill-Out Zone (allow for):**
- Cast-in-place concrete and concrete paving type B (refer to section 4.3.7. Paving material).
- Street furniture related to land use of adjacent lots.

**Setback Zone (where applicable):**
- Street trees, where feasible - refer to furnishings/planting zone, and/or;
- Cast-in-place concrete and concrete paving type B, or soft groundcover such as wood chips, stone, mulch, seed, or sod.

**THE URBAN STREETSCAPE ZONES**

**TYPICAL URBAN STREETSCAPE**

![Typical Urban Streetscape Diagram](image-url)
ENHANCED URBAN STREETSCAPE

Furnishings/Planting Zone:
- 1 row of street trees, type D-T2, Large deciduous trees planted 7.8m OC and Type M-T2 Medium size trees planted 6m OC, mostly in single tree pits with grates. (Refer to section 4.3.1. Plant material).
- Special treatments for tree planting such as sylva/strata cells. (Refer to section 4.3.3. Special tree planting treatments).
- Benches and waste receptacles: minimum 2 per block. (Refer to section 4.3.6. for site furniture).
- Street lights or side-running multi-jurisdictional poles.

Pedestrian Through Zone:
- Sidewalks are minimum 2.5m wide. At other paved areas, such as intersections, decorative or permeable paving type A (refer to section 4.3.7. Paving material) is proposed.
- 2.5 m width (minimum), 3m at PPAs.

Spill-Out Zone (where applicable):
- Single row of street trees, spaced between 7.8m.
- Street furniture related to land use of adjacent lots.
- Cast-in-place concrete and concrete decorative or permeable paving type A (refer to section 4.3.7. Paving material).

Setback Zone (where applicable):
- Street trees - refer to ‘furnishings/planting zone’, where feasible, and/or; open or covered planting bed, where feasible.
- Soft groundcover such as vines, low-maintenance grasses, perennials, and woody shrubs.
- Cast-in-place concrete and decorative or permeable paving type A (refer to section 4.3.7. Paving material), or soft groundcover such as wood chips, stone, mulch, seed, or sod.

Apply the enhanced urban streetscape to targeted urban areas of high activity, such as mixed use urban nodes, and LRT stops, and in conjunction with appropriate setbacks to adjacent development sites. Physical conditions for the enhanced urban streetscape may include:

- sidewalks are minimum 2.5m wide.
- 2.5 m width (minimum), 3m at PPAs.

FIGURE 11: ENHANCED URBAN STREETSCAPE ZONE - PLAN, SECTION.
3.4 STREETSCAPE MEDIANS:

The HMLRT project includes opportunities to create attractive planted medians at select locations along the corridor, particularly where it’s important to identify a gateway or prominent entry to a neighbourhood or place. A range of median plantings are possible, characterized by low maintenance, and high durability. These include: low grasses, perennials, and a variety of shrubs.

**WIDE MEDIANS (>3.5m)**

**LANDSCAPE TREATMENT**

- Street trees type D-T5, Pyramidal deciduous trees planted 10 m OC and Type M-T5 Medium size pyramidal trees planted 6m OC and ornamental grasses and shrubs Type ST-T5, SS-T5 AND OG-T5 (optional) planted in continuous tree pit. Refer to section 4.3.1. Plant material. All trees should be planted min 5m from intersection to provide clear view.
- Paving. All Medians have 600mm wide maintenance edge, paving type E (refer to section 4.3.7. Paving material) Typical location is North of Bristol Rd.

For complete identification of Typical Greenway Zone locations refer to Part five “Detailed streetscape and urban design strategies”.

There are 4 options proposed for Median planting:
- Landscape treatment on Median wider than 3.5m
- Landscape treatment on Median 2-3.5m wide
- Landscape treatment on Median less than 2m wide
- Landscape treatment on median adjacent to LRT stop
**LANDSCAPE TREATMENT**

**STANDARD MEDIANS**  
(2-3.5m wide)

Landscape treatment on Medians 2-3.5m wide consists of:
- Proposed ornamental grasses and shrubs Type ST-T5, SS-T5 and OG-T5 planted in continuous planting bed. Refer to section 4.3.1. Plant material.
- Paving. All Medians have 600mm wide maintenance edge, paving type E (refer to section 4.3.7. Paving material).

For typical Layout refer to Figure 4-8

**NARROW MEDIANS**  
(<2m wide, and/or Adjacent to an LRT Stop)

LANDSCAPE TREATMENT

Landscape treatment on Medians 2m wide consists of sodded area min 800mm wide and 600mm wide maintenance edge, paving type E (refer to section 4.3.7. Paving material).

If Median is less than 2m wide no planting required.

For Medians adjacent to LRT stops, ornamental grasses (type OG-T5), perennials or ground covers (type PG-T5) planted in gravel is best solution. For Plant material refer to Section 4.3.1

For typical Layout refer to Figure 4-9
3.5 PUBLIC ART

The inclusion of public art on major infrastructure projects, especially public transit projects, is an important component of creating valuable and meaningful public spaces. The public art programme for the HMLRT project is being developed as an integral part of the total project vision, engaging a variety of potential opportunities that anticipate a range of artist procurement methods. A combination of temporary and permanent public art opportunities could be pursued as part of the HMLRT project. Two typical formats for public art are identified:

**Public Art on the Street**

- Curb bulb-outs
- Medians
- Public spaces

**Integrated Public Art:** Artworks which are designed as an integral element of the architectural and/or landscape programme.

**Non-integrated Public Art:** Artworks which are developed independently from the construction of the transit stops and related spaces but are installed as a component of the LRT project.

Examples of both types are included below.

**Public Art at LRT Stops**

- Proposal for an artwork, as part of an LRT programme that engages movement to create a simple optical effect. Credit: Paul Raff.

**Public Art at Key Destinations**

- Collaboration between an artist and landscape architect in the creation of a neighborhood park adjacent to a busy intersection. Artist: Jeannie Thib & Scott Torrance. Credit: Jeannie Thib
3.6 WAYFINDING

Effective wayfinding strategies can improve the overall passenger experience by helping people to find their way more quickly and comfortably. Without an intuitive and consistent wayfinding system, passengers may get lost, experience delays, or miss connections, negatively impacting passenger satisfaction and/or ridership.

The HMLRT project supports a range of wayfinding strategies, including but not limited to: effective signage; mapping; and signals; as well as intuitive design strategies applied through public art, urban design, and landscaping elements that give an area a sense of place, identity, and direction. All strategies should comply with applicable municipal design standards and regulations.

3.7 LIGHTING

Lighting plays a number of important roles along the corridor, including: providing visual continuity along the length of the corridor; highlighting the character and identity of LRT stop areas, streets, and neighbourhoods; contributing to a safe environment; and providing a distinctive design feature to enhance the pedestrian experience.

For instance, the HMLRT project supports the best practice design of pedestrian-oriented light standards and fixtures to achieve a safe and well-illuminated environment for pedestrians, transit passengers, and other users within the right of way. Lighting should also minimize electricity consumption and carbon emissions.
3.8 ON-STREET PARKING

The use of on-street parking along the Hurontario LRT Corridor should be limited to strategic areas identified by the Cities of Mississauga and Brampton. Adding on-street parking to streetscapes will require the modification of curbs and the physically separated bicycle lane, and will break the sightlines of sidewalks. Adding on-street parking where the ROW is constrained will require cooperation of property owners, or must be phased-in when properties come up for site plan approval. Large blocks of on-street parking should be broken up by planting to soften impacts on the streetscape.

Typology A is the preferred strategy for on-street parking along the Hurontario LRT Corridor to maintain consistent street character, as well as sightlines along the corridor. This improves safety, and supports points of interest on adjacent properties.

Typology B should be used only where space in the ROW is constrained.

Permutation may exist in the order of the design of primary zones and bicycle path due to utility location constraints.
S1. PARKING WITH ON-STREET CYCLING FACILITIES

S2. RAISED PARKING WITH DEDICATED CYCLING FACILITIES

* Movable bollards preferred where pedestrian movement is identified as a priority.

S3. PLANTING OPTION 1 - PHYSICALLY SEPARATED CYCLING FACILITIES

S4. PLANTING OPTION 2 - ON-STREET CYCLING FACILITIES

FIGURE 19: ON-STREET PARKING - SECTION DIAGRAMS
PART FOUR: LANDSCAPE DESIGN RECOMMENDATIONS

4.1 LANDSCAPE ELEMENTS

4.1.1 PLANT MATERIALS

The selection of suitable plant material that addresses the requirements of the individual location parameters is based on:

- Environment quality improvements - decreasing noise levels, air-pollution, etc.
- Plant survivability to extreme conditions, typical to urban zone - poor soil, salt, etc.
- Aesthetics quality and suitability for human population - poisonous, high allergy risks, etc.
- Maintenance requirements - low maintenance plant material
- Cost effectiveness

Selection of Plant species is based on:

1. Plant characteristics such as:
   - Habitat - the natural distribution or range of a particular plant species. Native species are recommended,
   - Size - Estimated standard height and spread under standard landscape conditions
   - Growth rate - The vertical increase in growth under standard landscape conditions. It is recommended that plants used should be moderate, 30-60cm per year to fast, growing over 60cm per year.
   - Foliage and Color of the leaves. Recommended plants are those that have interesting color from spring to fall.
   - Decorative values such as shape, flower color, fragrance etc. are also to be taken into consideration

2. Hardiness zone (Appendix 1)

3. Environmental impact characteristics - Invasive plants can migrate into adjacent habitats and reproduce so aggressively that they can replace some of the original components of the existing vegetative community. Invasive species should not be planted.

4. Urban tolerance - Plants tolerant to high level of salt, strong wind and air pollutants.

5. Soil characteristics.

6. Diversity - Different species promote ecosystem diversity during different years. Diverse ecosystems are more resilient to environmental changes on a year to year basis. Mono culture planting have the potential for mass failure in the event of disease or pest infestation. Planting one plant species in a wide area should be avoided.

7. Low maintenance - plants that are low maintenance are preferable.

4.1.1.1 PLANT CLASSIFICATION

Once plant species have been selected they may be divided into several groups:

- GROUP1 (T1) - Plants recommended for Typical Urban Zone
- GROUP 2(T2) - Plants recommended for Enhanced Urban Zone
- GROUP 3 (T3) - Plants recommended for Typical Greenway Zone
- GROUP 4 (T4) - Plants recommended for Enhanced Greenway Zone
- GROUP 5 (T5) - Plants recommended for planting on Medians

Refer to Figure 4-10 for Proposed planting material
GROUP 1 - LARGE TREES
Large trees are defined as trees with an ultimate height greater than 13m.
Large tree planting is recommended in all zones.
Requirements and Rules:
• Large trees should be avoided in zones with overhanging wires and close to existing buildings. Minimum distance between commercial buildings, intersections and parking exits to tree plantings shall be minimum 8m to provide clear views and avoid any potential conflicts.
• Narrow crown trees (under 5m diameter ultimate crown) should be planted in Medians, close to the buildings and in limited space where spreading trees can cause damage to the buildings.
• Oval, spreading and vase crown shaped trees should be planted in the zones where shade should be provided.
• Trees with persistent foliage through the winter are recommended for Medians and spaces where leaf drop could cause problems.
• Native trees species should be used in zones close to the creeks and watercourses. Invasive species are to be avoided.
• Planting pattern should be interesting. Do not plant more than 5 trees of the same species in row.
• Large trees shall be located no closer than 10M to street intersections.

GROUP 2 - SMALL TO MEDIUM SIZE TREES
Small to medium sized trees are defined as trees with an ultimate height less than 13m.
Medium size trees are recommended in all zones.
Requirements and Rules:
• Narrow canopy and pyramidal trees with foliage persistence through the winter should be planted in Medians
• Oval, spreading and vase crown shaped trees should be planted in spaces and zones where shade should be provided.
• Small to medium trees shall be located no closer than 10M to street intersections.

GROUP 3 - CONIFEROUS TREES
Requirements and Rules:
• Coniferous planting is proposed for Greenway Zones, close to parks and woodlots and in combination with deciduous trees as a screen to residential developments
• Coniferous trees should be avoided on Medians
• Trees to be planted min. 7M from street line.
• Planting to be maximum 5-6m OC
• Coniferous tress shall be used to create wind breaks and to reduce snow drifting.
• Coniferous trees shall be used to create year round green and provide visual screening to industrial and rear of building conditions.
• Coniferous trees shall be located no closer than 10M to street intersections.
GROUP 4 - SHRUBS, ORNAMENTAL GRASSES AND PERENNIALS
Requirements and Rules:
- Shrubs are to be planted in Medians, Seatback zones and planters. Shrubs shall be selected and planted so that a one metre maintenance area is clear of branches when the shrubs reach their ultimate natural growth. The one metre maintenance zone shall include a 600mm kill strip, a 200mm wide curb and 200 mm of planting bed.
- Perennials should be selected in smaller areas as an accent plants. Perennials are to be selected that are self seeded and hardy to withstand road salt and harsh road conditions.
- Ornamental Grasses shall be used to fill median spaces. Grass species are to be selected for their rigid form and heights, persistence into winter and their ability to withstand harsh roadside conditions.
- Shrubs and ornamental grasses shall be planted no closer than 5m from a street intersection
- Perennials shall be planted no closer than 3M of a street intersection.

GROUP 5 - GROUNDCOVERS AND SOD
- Groundcovers should be planted in zones where planting bed are less than 800mm wide and on islands adjacent to LRT stops. Ground covers should be planted with a min.100mm gravel mulch over the planting soil and with a weed mat between stone mulch and soil to reduce maintenance.
- Medians or Areas with soil where shrubs or groundcovers can not be used are to be sodded.
  - Medians sod mixture to meet:
    - OSC seed mix “Low Mow Bluegrass Tee Mixture”:
      - 25% Award Kentucky Bluegrass
      - 25% Nu Destiny Kentucky Bluegrass
      - 25% Liberator Kentucky Bluegrass
      - 25% Evolution Perennial Ryegrass mixture
    - OSC  seed mix “Victoria Park Mix”:
      - Kentucky Bluegrass
      - Creeping Red fescue
      - Perennial Ryegrass
- For other requirements refer to section 4.3.2.

Figure 4-10 illustrate proposed planting material

The following chart provides a summary of the five types of vegetation described in this section, as well as the corresponding recommendations for placement of specific species within the planting zones for each of the streetscape typologies described in Part three of this document.

The placement recommendations are informed by the characteristics of each species, which are indicated at the far right side of the chart.
<table>
<thead>
<tr>
<th>No</th>
<th>BOTANIC NAME</th>
<th>COMMON NAME</th>
<th>T1 Typical urban streetscape zone</th>
<th>T2 Enhanced urban streetscape zone</th>
<th>T3 Greenway / Open space zone</th>
<th>T4 Enhanced greenway zone</th>
<th>T5 Median planting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>PROPOSED PLANTING ZONES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HABITAT</td>
<td>CROWN SHAPE</td>
<td>FOLIAGE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NATIVE</td>
<td>Fastigate Pyramidal Upright</td>
<td>Oval</td>
<td>Spreading</td>
<td>Dense</td>
</tr>
<tr>
<td>1</td>
<td>Acer rubrum</td>
<td>Red maple</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Acer rubrum 'Embers'</td>
<td>Embers red maple</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Acer rubrum 'Franksred'</td>
<td>Franksred red maple</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Acer rubrum 'Karpick'</td>
<td>Karpick red maple</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Acer rubrum 'New world'</td>
<td>New world red maple</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Acer platanoides 'Crimson King'</td>
<td>Crimson king maple</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Nyssa sylvatica</td>
<td>Black gum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Quercus alba</td>
<td>White oak</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Quercus palustris</td>
<td>Pin oak</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Quercus rubra</td>
<td>Red oak</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Acer platanoides 'Norway'</td>
<td>Norway maple</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Acer pseudoplatanus</td>
<td>European maple</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Acer saccharinum</td>
<td>Sugar maple</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Carpinus betulus</td>
<td>European hornbeam</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Gleditsia triacanthos 'inermis sunburst'</td>
<td>Sunburst honeylocust</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Ulmus americana</td>
<td>American elm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Tilia cordata 'Halka'</td>
<td>Summer sprite little leaf linden</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Tilia cordata 'greenspire'</td>
<td>Greenspire linden</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Tilia tomentosa</td>
<td>Silver linden</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Tilia cordata</td>
<td>Little leaf linden</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Acer ginala 'Flame'</td>
<td>Flame maple</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Cornus florida</td>
<td>White dogwood</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Elaeagnus angustifolia</td>
<td>Russian olive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Koelreuteria paniculata</td>
<td>Golden rain tree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Malus sp. 'red Barron'</td>
<td>Crab apple 'red Barron'</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Prunus serulata</td>
<td>Japanese flowering cherry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Pyrus calleryana</td>
<td>Ornamental pear</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Syringa reticulata 'golden eclipse'</td>
<td>Golden eclipse Japanese lilac tree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Syringa reticulata 'ivory silk'</td>
<td>Ivory silk lilac tree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Zelkova serrata 'Musashino'</td>
<td>Zelkova</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Pinus nigra</td>
<td>Austrian pine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Picea pungens &amp; varieties</td>
<td>Colorado spruce</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Juniperus chinensis 'Ontario Green'</td>
<td>Ontario green juniper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Lonicera tatarica 'Arnold red'</td>
<td>Arnold red honeysuckle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Mahonia aquifolium</td>
<td>Oregon grape</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Pinus parviflora 'Kinpo'</td>
<td>Kinpo pine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Rhus aromatica 'grow low'</td>
<td>Grow low sumac</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Ribes sp.</td>
<td>Currant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>Rosa rugosa</td>
<td>Japanese rose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Andropogon gerardii</td>
<td>Big blue stem grass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Calamagrostis 'Karl Foerster stricta'</td>
<td>Karl Foerster grass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Miscanthus sinensis</td>
<td>Maiden grass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Elymus arenarius</td>
<td>Rye grass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>Sedum sp.</td>
<td>Sedum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WALL TO ROAD SIDE TREES (LESS THAN 13m HT.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SHUBBS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CONIFEROUS TREES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ORNAMENTAL GRASSES, PERENNIALS &amp; GROUNDCOVERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FIGURE 20: TABLE OF RECOMMENDED PLANTINGS
4.1.2 PLANTING REQUIREMENTS

4.1.2.1 REQUIREMENTS FOR TREE PLANTING IN CONTINUOUS PIT OR PLANTING BED

- Tree pits should be minimum 1m wide.
- Large Street Trees should be planted 6-10m OC and Small to Medium size trees 6-7m OC, depends on tree type and streetscape typology (refer to Section 4.2 Identification of Landscape Treatments).
- Planting zone to be minimum 10 cu.m per single tree if multiple trees share tree pit.
- Tree trunk diameter to be a minimum 100mm for large trees and 60-70mm for small-medium size trees.
- Street Tree branching shall start at a minimum of 1.8m.
4.1.2.2 REQUIREMENTS FOR TREE PLANTING IN SINGLE TREE PIT

- Single tree pit should be minimum 1.5m wide.
- Street Trees should be planted 6-10m OC, depends on tree type and streetscape typology (refer to Section 4.2 Identification of Landscape Treatments).
- Planting zone to be minimum 15 cu.m. per single tree.
- Tree trunk diameter to be a minimum 100mm for large trees and 60-70mm for small-medium size trees.
- Street Tree branching shall start at a minimum of 1.8m.
- It is recommended that paving around tree pits is permeable paving to provide adequate air and moisture supply for healthy plant growth.

For tree grates refer to Part 4.3.6 Site furniture.

Figure 4-12 illustrates typical tree planting in single tree pit w/grate.

Figure 23: Typical Tree Planting in a Single Tree Pit with Grate
4.1.2.3 SPECIAL REQUIREMENTS - TREE PLANTING USING SILVA/STRATA CELLS

Urban space is a difficult environment for tree growth. Hard paved surroundings limit access to rainwater irrigation and the engineering requirements for hard landscapes are completely the opposite of what the tree needs to grow into.

Modular Silva/Strata cell systems with healthy soil help provide optimal conditions for trees root systems while still protecting the built environment.

Cells are filled with high-quality, uncompacted soil to grow trees and manage the rate, quality and volume of stormwater. The modular system can be easily sized to accommodate the needs of any site without compromising effectiveness or site design.

Silva/Strata cells integrate the tree and soil with stormwater management, utilizing the proven capacity of soils to act as an underground bioretention system. Through soil filtration, bioremediation and evapotranspiration, Cell system treats stormwater directly on-site, restoring ecosystem services and saving money while protecting one of our most valuable resources.

Figures 4-13 and 4-14 illustrate typical tree planting in continuous pit using Silva or Strata cell system.
FILTER GRID HEAVY GRADE NON-WOVEN FILTER FABRIC WITH REINFORCING GRID TO TOP SURFACE OF STRATA CELL MATRIX AND FOLDED TO DEPTH OF 300mm.

100 mm DRAINAGE LAYER

SC250 STRATA CELL STRUCTURAL SOIL MODULES LOADED WITH SCREENED SANDY LOAM SOIL MIX, ORGANIC 4-8% BY VOLUME.

FIGURE 24: TYPICAL TREE PLANTING USING SILVA CELL SYSTEM

FIGURE 25: TYPICAL TREE PLANTING USING STRATA CELL SYSTEM
4.2 PLANTING SOILS AND MEDIUMS

Urban plant pits typically do not contain soil volumes and quality to support healthy plant growth. Soil volume, quality compaction and depth must be considered when planting trees along the corridor.

Requirements:

- Soil must be a mix of native soil and organic material and sandy loam. Native soil material is to be measured to determine its type and amended to produce a well-drained sandy soil.
- All tree planting areas are to be sub-soiled to 900mm deep and shrub planting areas to be sub-soiled to 500mm deep, to reduce compactions.
- Soil compaction to be less than 85 SPD.
- If areas require greater compaction for hard surfacing materials, they are to be supported with engineered ‘cell system’ (refer to 4.3.2.3 Special requirements).
- Planting areas are to be well drained to remove excess water from soil.

Proposed soil mixture: ...............
Benches - Preferred options

Waste and Recycling Receptacle - Preferred options

Tree grates - Preferred options

Bike racks - Preferred options
4.5 PAVING MATERIALS

Surface paving treatments along the corridor contribute to system identity and act as an important component of design.

All the paving materials could be classified in 5 major groups:

- **Group A** - Paving with upgraded finishes such as exposed aggregate, sand blast finish, vasqueen finish, patterned and colored concrete
- **Group B** - Pedestrian unit pavers
- **Group C** - Paving for tree pits such as permeable paving and filterpave
- **Group D** - Paving for concrete sidewalk (C.I.P concrete)
- **Group E** - Paving on Medians only

For paving images and proposed planting zones refer to Figure 4-15.
PART FIVE:
DETAILED STREETSCAPE
AND URBAN DESIGN RECOMMENDATIONS

5.1 INTRODUCTION:
This section of the document provides detailed and location-specific design guidance along the corridor to support the principles and general recommendations identified elsewhere in this document.

Corridor mapping in this section has been scaled and formatted to be generally consistent with, and read in conjunction with the design workbooks. Each area includes written and graphically illustrated design recommendations, as well as typical and location-specific street cross sections and dimensional criteria noted for each block.

5.2 PRIORITIZATION:
This section also addresses the prioritization of streetscape investment, through the application of typical and enhanced streetscape typologies along the corridor, as well as the identification of Pedestrian Priority Areas. As such, it may be the case that some streetscape investments emerge sooner than others along the corridor. The illustrations, sections and diagrams shown in this document represent the ultimate aspiration, rather than an interim condition.
5.3 PORT CREDIT GO

STREETSCAPE DESIGN RECOMMENDATIONS LEGEND:

1. Park Street and Hurontario Street intersection will connect bicycle lanes to/from Port Credit GO to the waterfront Multi-use Trail via Helene Street.
2. Accessible ramp to GO station.
3. Utilize the GO Bridge as a gateway between Port Credit and Mineola. Potential opportunity for public art.
4. For safety, ensure that general access to the ravine is prevented by appropriate fencing, railings, or retaining walls.
5. Intersection to be a bicycle interchange point between multi-use trails on the east and west side of Hurontario.

5.3.1 PORT CREDIT GO

FIGURE 27: VIEW AT PORT CREDIT GO LRT TERMINUS.

FIGURE 28: PORT CREDIT GO - SECTION AT STOP.
Mixed Use Trail
Sharrowed Bicycle Lane
On Street Bicycle Lane
Segregated Bicycle Lane

Stop/Station Location
Stop/Station Name
Planted Median

Crosswalk
On-Street Parking
Bridge

Mixed Use Trail
Sharrowed Bicycle Lane
On Street Bicycle Lane
Segregated Bicycle Lane

Typical Urban Streetscape
Enhanced Urban Streetscape
Typical Greenway
Enhanced Greenway

Special Features:
Gateway
Public Art Opportunity
Path/Trail Connection

Land Use / Frontage:
- Open Space
- Convertible
- Retail
- Commercial/Institutional
- Residential/Special

FIGURE 29: DW-01
STUDY AREA
0 25 50 75 100 125 150m
FIGURE 30: TYPICAL STREET SECTION: PORT CREDIT/MINEOLA

Setback | Sidewalk Furn | LRT | Travel | Travel | Travel | Travel | Furn | Sidewalk | Setback
---------|---------------|-----|--------|--------|--------|--------|------|----------|--------
Varies   | 1.5m          | 1.0m| 0.5m   | 6.2m   | 0.3m   | 3.5m   | 3.5m | 0.5m     | 1.5m   | 2.0m   | Varies
FIGURE 31: PORT CREDIT STUDY AREA PLAN
5.4 MINEOLA

STREETSCAPE DESIGN RECOMMENDATIONS LEGEND:

1. Centre-loading platform minimizes impacts to existing roadway condition and capacity.
2. Identified as a placemaking opportunity in the Master Plan, there is opportunity on the south east corner of Hurontario Street and Mineola Road to showcase the unique character of the area.
3. Sidewalk must end for bridge, diverting pedestrian traffic to the east side of Hurontario Street.
4. Multi Use Trail on the east side of Hurontario Street to continue pedestrian movement under the bridge.
5.4.1 MINEOLA - STOP CONDITION

**FIGURE 35: SECTION AT MINEOLA STOP**

5.4.2 MINEOLA - THROUGH CONDITION

**FIGURE 36: SECTION AT MINEOLA - THROUGH CONDITION**
5.4.3 QUEEN ELIZABETH WAY

FIGURE 37: SECTION AT QEWT
5.5 QUEENSWAY AND DUNDAS

STREETScape DESIGN RECOMMENDATIONS LEGEND:

1. Bicycle interchange point. Mixed Use Trail access on the south-east side of Hurontario Street breaks into two segregated bicycle lanes north of the Queensway.
2. Extended transit access at midblock crossing to ensure proper alignment for landing on sidewalk.
3. Queensway identified as a placemaking opportunity in the Master Plan. Public art opportunities can designate trail/open space connections at Queensway.
4. Firehall access maintained by creating a centre-loading platform on the south side of Queensway.
5. Create a gateway condition at King Street into Downtown Cooksville core.
6. Dundas designated as a placemaking opportunity in the Master Plan. This will be achieved through the Enhanced Urban Streetscape and PPA design. The open space adjacent to the LRT Stop also offers a public art opportunity.
7. Centre-loading platform on south side of Dundas Street used to ensure sufficient pedestrian boulevard widths on the west side of Hurontario north of Dundas Street.

![Figure 38: View at Hurontario, South of Dundas, Looking North](image)

![Figure 39: Typical Street Section: Downtown Hospital](image)
5.5.1 QUEENSWAY - STOP CONDITION

*Section 1:200 @ 11x17

5.5.2 DUNDAS - STOP CONDITION

*Section 1:200 @ 11x17
FIGURE 43: DUNDAS STUDY AREA - PLAN
5.6 COKSVILLE AND CENTRAL PARKWAY

STREETScape DESIGN RECOMMENDATIONS LEGEND:
1. Enhanced Urban Streetscape in Downtown Cooksville area.
2. PPA surrounding the Cooksville GO Station
3. Segregated bicycle lane must merge with sidewalk for bridge underpass.
4. Placemaking opportunity at Cooksville GO Station, as identified in the Master Plan. This should be achieved through intelligent connections from the LRT Stop to GO property, enhanced streetscaping and PPA design, as well as the integration of Public Art at the adjacent bridge.
5. Opportunity to integrate Public Art with Cooksville GO bridge, to create a strong gateway condition.
6. PPA at Central Parkway Stop.
8. Enhanced Greenway on east side of Hurontario to maintain and expand on the existing mature vegetation.

FIGURE 44: AERIAL OF COOKSVILLE GO STATION

FIGURE 45: TYPICAL STREET SECTION: DOWNTOWN COOKSVILLE
Mixed Use Trail
Sharrowed Bicycle Lane
On Street Bicycle Lane
Segregated Bicycle Lane

Stop/Station Location
Stop/Station Name
Planted Median

Legend:
- Roadway
- Pedestrian Priority Zone
- Gateway
- Public Art Opportunity
- Path/Trail Connection
- Open Space
- Convertible
- Retail
- Commercial/Institutional
- Residential/Special

Study Area:
1. Cooksville GO Station
2. Central Parkway

Figure 46: DW-04

Studying the area from GO Transit Corridor to Study Area 6.1
5.6.1 DOWNTOWN FAIRVIEW

FIGURE 47: TYPICAL STREET SECTION: DOWNTOWN FAIRVIEW - 1:200

5.6.2 COOKSVILLE GO STATION

FIGURE 48: STREET SECTION: COOKSVILLE GO STATION - 1:200
Figure 49: Cooksville GO Study Area - Plan
5.7 MATTHEWS GATE & BURNHAMTHORPE

STREETSCAPE DESIGN RECOMMENDATIONS LEGEND:
1. Enhanced crosswalks at Matthews Gate.
2. PPA surrounding the Matthews Gate Stop.
3. Opportunity to integrate Public Art with the park.
4. Bicycle route interchange, connecting to north and south sides of Burnhamthorpe.
5. Opportunity to integrate Public Art.

5.7.1 ROBERT SPECK

FIGURE 50: VIEW OF BURNHAMTHORPE, LOOKING EAST

FIGURE 51: ROBERT SPECK SECTION - STOP CONDITION
5.7.2 MATTHEWS GATE

FIGURE 53: MATTHEWS GATE SECTION - STOP CONDITION
FIGURE 54: MATTHEWS GATE STUDY AREA - PLAN
**5.8 BURNHAMTHORPE & DUKE OF YORK**

**STREETSCAPE DESIGN RECOMMENDATIONS LEGEND:**
1. Enhanced crosswalks adjoining LRT Stop.
2. PPA surrounding the Duke of York LRT Stop.
3. Opportunity to integrate Public Art.

![Diagram of BURNHAMTHORPE](image1)

![Diagram of DUKE OF YORK](image2)
Mixed Use Trail
Sharrowed Bicycle Lane
On Street Bicycle Lane
Segregated Bicycle Lane

Stop/Station Location
Stop/Station Name
Planted Median

LEGEND:
Crosswalk
On-Street Parking
Bridge

Typical Urban Streetscape
Enhanced Urban Streetscape

Typical Greenway
Enhanced Greenway

Pedestrian Priority Zone
Gateway
Public Art Opportunity
Path/Trail Connection

Roadway
Public Realm
Special Features
Land Use / Frontage

FIGURE 57: DW-06

Duke of York
5.9 DUKE OF YORK & RATHBURN

STREETSCAPE DESIGN RECOMMENDATIONS LEGEND:
1. Enhanced crosswalks at CC Transit Terminal intersection.
2. PPA surrounding the Rathburn LRT Stop.
3. Opportunity to integrate Public Art with the CC Transit Terminal platform waiting areas.

5.9.1 RATHBURN

FIGURE 58: VIEW OF RATHBURN AND CITY CENTRE TRANSIT TERMINAL

FIGURE 59: SECTION AT RATHBURN - STOP CONDITION
5.10: EGLINTON AVENUE

STREETScape DESIGN RECOMMENDATIONS LEGEND:

1. Identified as a placemaking opportunity in the Master Plan, with a vision as a TOD node; Eglinton offers a public art opportunity in the parkette on the south west corner of Eglinton and will be designed with an Enhanced Urban Streetscape and PPA specifications.

2. Opportunity for a short, planted median north of the Eglinton intersection to create a strong node at the intersection.

3. Typical Greenway in residential block between Ceremonial Drive and Trailwood Drive.

**FIGURE 61: VIEW AT HURONTARIO AND EGLINTON, LOOKING NORTH**

**FIGURE 62: TYPICAL STREET SECTION: EGLINTON-BRISTOL 1:150 (FOR INSTANCE, APPLIES NORTH OF ELIA AVENUE)**
LEGEND:

- Roadway
- Stop/Station Location
- Stop/Station Name
- Crosswalk
- On-Street Parking
- Planted Median
- Bridge
- Mixed Use Trail
- Sharrowed Bicycle Lane
- On Street Bicycle Lane
- Segregated Bicycle Lane
- Typical Urban Streetscape
- Enhanced Urban Streetscape
- Typical Greenway
- Enhanced Greenway
- Pedestrian Priority Zone
- Gateway
- Public Art Opportunity
- Path/Trail Connection
- Special Features
- Open Space
- Convertible
- Retail
- Commercial/Institutional
- Residential/Special

FIGURE 63: DW-11

STUDY AREA

Eglinton Avenue
5.10.1: EGLINTON AVENUE - STOP

FIGURE 64: SECTION AT EGLINTON - STOP CONDITION
FIGURE 65: EGLINTON - BRISTON STUDY AREA - PLAN

EGLINTON-BRISTOL STUDY AREA
5.11 BRISTOL ROAD AND MATHESON BOULEVARD

STREETSCAPE DESIGN RECOMMENDATIONS LEGEND:

1. PPA at Bristol Road Stop. Indicated as a Gateway in the Master Plan Phase.
2. Public art opportunities on the corner of Hurontario LRT and Bristol Road.
3. PPA at Matheson Boulevard.
4. Change in streetscape typology as the character area begins to change from the urban Eglinton-Bristol area to the Mississauga Employment area.

FIGURE 66: TYPICAL STREET SECTION: MISSISSAUGA EMPLOYMENT 1:200 (FOR INSTANCE, APPLIES NORTH OF BARONDALE AVE)
FIGURE 67: DW-12

Stop/Station Location
Stop/Station Name
Planted Median
Bridge
Crosswalk
On-Street Parking
Mixed Use Trail
Sharrowed Bicycle Lane
On Street Bicycle Lane
Segregated Bicycle Lane

Public Realm
Typical Urban Streetscape
Enhanced Urban Streetscape
Typical Greenway
Enhanced Greenway

Special Features
Pedestrian Priority Zone
Gateway
Public Art Opportunity
Path/Trail Connection

Land Use / Frontage
Open Space
Convertible
Retail
Commercial/Institutional
Residential/Special

Bristol Road
Matheson Boulevard
5.11.1  BRISTOL ROAD - STOP CONDITION

Public R.O.W 42.3m

<table>
<thead>
<tr>
<th>Section</th>
<th>Furn.</th>
<th>Sidewalk</th>
<th>Bike</th>
<th>Travel</th>
<th>Travel</th>
<th>Travel</th>
<th>Travel</th>
<th>Bike</th>
<th>Furnishing</th>
<th>Sidewalk</th>
<th>Setback</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5m</td>
<td>1.6m</td>
<td>0.5m</td>
<td>2.5m</td>
<td>4m</td>
<td>3.7m</td>
<td>0.3m</td>
<td>3.1m</td>
<td>6.5m</td>
<td>2.9m</td>
<td>0.3m</td>
<td>2.5m</td>
</tr>
<tr>
<td>5-10m</td>
<td>0.5m</td>
<td>2.5m</td>
<td>0.5m</td>
<td>4m</td>
<td>3.7m</td>
<td>0.3m</td>
<td>3.1m</td>
<td>6.5m</td>
<td>2.9m</td>
<td>0.3m</td>
<td>2.5m</td>
</tr>
</tbody>
</table>

*Section 1:150 @ 11x17

FIGURE 68: BRISTOL ROAD - STOP CONDITION
5.11.2 MATHESON BOULEVARD - STOP CONDITION

*Section 1:200 @ 11x17

FIGURE 69: MATHESON BLVD - STOP CONDITION
5.12 BRITANNIA ROAD

STREETSCEP DESIGN RECOMMENDATIONS LEGEND:

1. PPA at Brittania Road Stop. Urban streetscaping around anticipated employment nodes, and Enhanced Urban streetscaping around the stop.
2. Special consideration will have to be given to the existing church and its access.
3. Ensure pedestrian and cyclist safety and highway ramp crossing.
4. Pedestrian connectivity on both east and west side of the Highway 401 bridge.
MISSISSAUGA EMPLOYMENT

FIGURE 71: DW-12.B

Stop/Station Location
Stop/Station Name
Crosswalk
On-Street Parking
Planted Median
Bridge
Mixed Use Trail
Sharrowed Bicycle Lane
On Street Bicycle Lane
Segregated Bicycle Lane
Typical Urban Streetscape
Enhanced Urban Streetscape
Typical Greenway
Enhanced Greenway
Pedestrian Priority Zone
Gateway
Public Art Opportunity
Path/Trail Connection
Open Space
Convertible
Retail
Commercial/Institutional
Residential/Special

Land Use / Frontage
Public Realm
Special Features

Britannia Road

Legend:
FIGURE 72: TYPICAL STREET SECTION: MISSISSAUGA EMPLOYMENT 1:200
5.13: COURTNEY PARK DRIVE

STREETSCAPE DESIGN RECOMMENDATIONS LEGEND:

1. Urban streetscapes at nodes in the Mississauga Employment area.
2. PPA at Courtney Park, with Enhanced Urban streetscaping around the stop.
3. Typical Greenway streetscape along convertible frontages, framing the employment nodes.

FIGURE 74: COURTNEY PARK DRIVE - STOP CONDITION

*Section 1:150 @ 11x17
FIGURE 76: TYPICAL STREET SECTION: MISSISSAUGA EMPLOYMENT 1:200
5.14: DERRY ROAD AND HIGHWAY 407

**STREETSCAPE DESIGN RECOMMENDATIONS LEGEND:**

1. Urban streetscapes at nodes in the Mississauga Employment area.
2. PPA at Derry Road, with Enhanced Urban streetscaping around the stop.
3. Typical Greenway streetscape along convertible frontages, framing the employment nodes.
4. Stop at Highway 407 will receive minimal streetscaping.
5. Ensure appropriate signage and streetscaping for pedestrians crossing the tracks at the MSF location.
6. Ensure pedestrian and cyclist safety and highway ramp crossing.
7. Pedestrian connectivity on both east and west side of the Highway 407 bridge.
5.14.1 DERRY ROAD - STOP CONDITION

*Section 1:200 @ 11x17

FIGURE 80: DERRY ROAD - STOP CONDITION
5.14.2  HIGHWAY 407 - STOP CONDITION

Figure 81: HWY 407 - STOP CONDITION

*Section 1:150 @ 11x17
5.15: RAY LAWSON BOULEVARD AND SIR LOU DRIVE

STREETScape Design Recommendations Legend:

1. Ensure pedestrian and cyclist safety and highway ramp crossing
2. Change from Typical Greenway to Typical Urban streetscape to address the commercial node at Ray Lawson Boulevard.
3. PPA and Enhanced Urban streetscape at Ray Lawson LRT stop.
4. PPA and Enhanced Urban streetscape at Sir Lou Drive LRT stop.

FIGURE 82: TYPICAL STREET SECTION: BRAMPTON GATEWAY 1:150
5.15.1: RAY LAWSON BOULEVARD

*Section 1:200 @ 11x17

FIGURE 84: RAY LAWSON BLVD - STOP CONDITION
5.15.2: SIR LOU DRIVE

FIGURE 85: SIR LOU DRIVE - STOP CONDITION

*Section 1:200 @ 11x17

*HMLRT / STREETSCAPE AND URBAN DESIGN STRATEGY / 95*
5.16: SHOPPERS WORLD AND CHAROLAIS BLVD

STREETSCAPE DESIGN RECOMMENDATIONS LEGEND:

1. Enhanced treatment of intersection to facilitate the change in bike facility typology.
2. Widened platform at stop to accommodate large user flows.
3. Open space and public art opportunity.
4. Public art opportunity.
5. Ensure space for both pedestrian throughway and bus drop-off.
6. Regularized crosswalk condition at Shoppers World entrance.
7. Public Art opportunity to mark access points to the trail system.

FIGURE 86: VIEW AT HURONTARIO AND STEELES, LOOKING NORTH

FIGURE 87: TYPICAL STREET SECTION: BRAMPTON GATEWAY 1:150
5.16.1 : BRAMPTON GATEWAY

FIGURE 89: BRAMPTON GATEWAY - STOP CONDITION

*Section 1:200 @ 11x17
FIGURE 90: GATEWAY TERMINAL STUDY AREA - PLAN
5.17: NANWOOD DRIVE

STREETSCAPE DESIGN RECOMMENDATIONS LEGEND:

1. Public Art opportunity to mark access point to the trail system.
2. PPA and Enhanced streetscaping around the Nanwood Drive stop to promote the development of an urban node.
3. Rolling curbs / Shared lanes?
5.17.1: NANWOOD DRIVE

*Section 1:150 @ 11x17

**FIGURE 94: NANWOOD DRIVE SECTION - STOP CONDITION**

*Note: DIALOG has relocated the furnishing zone on the north east streetscape to the curbside.*
FIGURE 95: NANWOOD DRIVE STUDY AREA - PLAN
5.18: WELLINGTON, QUEEN AND BRAMPTON GO

STREETSCAPE DESIGN RECOMMENDATIONS LEGEND:

1. Public art opportunity in adjacent open spaces at the Wellington Street Gateway.
2. Enhanced Urban Streetscaping from north of Wellington Street to GO bridge.
3. Gateway to GO property. Public art opportunity at GO tunnel entrance.
4. Gateway into Downtown Brampton. Public art opportunity at GO bridge.
5. Gateway into GO property. Open Space / Plaza with opportunities for public art.

FIGURE 96: VIEW OF DOWNTOWN BRAMPTON ON HURONTARIO, LOOKING NORTH

FIGURE 97: TYPICAL STREET SECTION: DOWNTOWN BRAMPTON
5.18.1: WELLINGTON STREET - STOP CONDITION

5.18.2: QUEEN STREET - STOP CONDITION

*Sections 1:150 @ 11x17
FIGURE 101: QUEEN STREET STUDY AREA - PLAN
5.18.3: BRAMPTON GO - STOP CONDITION

FIGURE 102: BRAMPTON GO -SECTION AT STOP CONDITION

FIGURE 103: VIEW OF BRAMPTON GO TERMINUS
FIGURE 104: VIEW OF BRAMPTON GO STUDY AREA - PLAN
1.1 NATURAL ENVIRONMENT

The study area is located in the City of Mississauga and City of Brampton, including:
1. Street tree planting on Port Street East, Hurontario Street, Main Street and Mississauga Downtown (Square One zone)
2. Open space and Parkland (Mary Fix Park) adjacent to Hurontario/Main Street,
3. Valley land and woodland along Hurontario Street at Credit River tributary (North of Lakeshore Blvd.) and Mary Fix Creek in Mary Fix Park (south -west of QEW)
4. Forest community in Cooksville Creek (south of Matheson Blvd.) and Etobicoke Creek (South of Peel Village Pkwy) area.

1.1.1 HARDINESS ZONE

Hardiness describes the ability of a plant to be grown successfully in the temperature and general climate of an area. The plant hardiness zone indicates the minimum temperature that a plant can tolerate.

The section of Hurontario Street, South of Steeles Ave. (Mississauga area), is in hardiness zone 6a, that is, plants rated from zones 2 - 6a will survive.

The section in City of Brampton, (Hurontario Street, North of Steeles Ave and Main Street) belong to hardiness zone 5b. Minimum temperature range is from -30 to -20 Celsius.

Refer to Hardiness Zone Map, Ministry of Natural Resources, Canada.

1.1.2 EXISTING VEGETATION

Tree inventory was done in July 2012. The goal of assessment was to provide a physical inventory of the trees on, or adjacent to the study area, determine the species present on the site and also to rank the trees in terms of their health, approximate trunk diameter and general condition.

There are 2933 individual single trees found in study area and several woodlots, parklands and forest communities.
1.1.2.1 City of Mississauga

Street Tree Planting

The tree inventory revealed that there are total 2244 street trees, 82% deciduous trees and 18% Coniferous trees.

Figure xx represents frequency of tree species found in study area. The majority of deciduous trees are Maple, followed by Gleditsia, Ash, Oak and Linden, which together compose 67%. Majority of Coniferous trees are Spruce and Pine, which together compose 13%.

Most of the trees are in Fair to Good condition (90%) about 8-9% are in Poor condition and only 1% of deciduous trees are dead.

![Diagram of tree species in study area]

**FIGURE 1 - TREE SPECIES IN STUDY AREA**

**FIGURE 2 - CITY OF MISSISSUGA TREE INVENTORY CHART**

---

**STREET TREE INVENTORY - CITY OF MISSISSAUGA**

<table>
<thead>
<tr>
<th>CONDITION (TOTAL No.)</th>
<th>SPECIES</th>
<th>TOTAL No.</th>
<th>TOTAL %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fair-Good</td>
<td>Acer sp.</td>
<td>574</td>
<td>34.0%</td>
</tr>
<tr>
<td></td>
<td>A. platanoïdes, negundo, rubrum, saccharinum, saccharum</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>Gleditsia triacanthos</td>
<td>398</td>
<td>25.0%</td>
</tr>
<tr>
<td>Dead</td>
<td>Fraxinus sp.</td>
<td>250</td>
<td>15.0%</td>
</tr>
<tr>
<td></td>
<td>F. pennsylvanica, americana</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quercus sp.</td>
<td>154</td>
<td>9.0%</td>
</tr>
<tr>
<td></td>
<td>C. alba, macrocarpa, palustris, robur fastigiata, rubra</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tilia sp.</td>
<td>72</td>
<td>4.0%</td>
</tr>
<tr>
<td></td>
<td>T. americana, cordata, tomentosa</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Syringa reticulata 'Ivory silk'</td>
<td>38</td>
<td>2.3%</td>
</tr>
<tr>
<td></td>
<td>Pyrus sp.</td>
<td>29</td>
<td>1.9%</td>
</tr>
<tr>
<td></td>
<td>Malus sp.</td>
<td>23</td>
<td>1.5%</td>
</tr>
<tr>
<td></td>
<td>Sorbus sp.</td>
<td>22</td>
<td>1.4%</td>
</tr>
<tr>
<td></td>
<td>Carpinus sp.</td>
<td>14</td>
<td>0.6%</td>
</tr>
<tr>
<td></td>
<td>Aesculus hippocastanum</td>
<td>11</td>
<td>0.4%</td>
</tr>
<tr>
<td></td>
<td>Betula sp.</td>
<td>7</td>
<td>0.3%</td>
</tr>
<tr>
<td></td>
<td>Juniperus sp.</td>
<td>3</td>
<td>0.2%</td>
</tr>
<tr>
<td></td>
<td>Taxus sp.</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td></td>
<td>Less than 10 trees/species (Species: Ostrya, Salix, Morus, Platanus, Carya, Betula, Ulmus, Juglans, Sorbus)</td>
<td>42</td>
<td>2.3%</td>
</tr>
</tbody>
</table>

**TOTAL DECIDUOUS TREES:**

<table>
<thead>
<tr>
<th>TOTAL %</th>
<th>TOTAL No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>27%</td>
<td>621</td>
</tr>
<tr>
<td>21%</td>
<td>398</td>
</tr>
<tr>
<td>12%</td>
<td>250</td>
</tr>
<tr>
<td>10%</td>
<td>216</td>
</tr>
<tr>
<td>7%</td>
<td>159</td>
</tr>
<tr>
<td>7%</td>
<td>234</td>
</tr>
<tr>
<td>3%</td>
<td>166</td>
</tr>
<tr>
<td>13%</td>
<td>42</td>
</tr>
</tbody>
</table>

**TOTAL CONIFEROUS TREES:**

<table>
<thead>
<tr>
<th>TOTAL %</th>
<th>TOTAL No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>58%</td>
<td>234</td>
</tr>
<tr>
<td>39.5%</td>
<td>166</td>
</tr>
<tr>
<td>1.3%</td>
<td>5</td>
</tr>
<tr>
<td>0.8%</td>
<td>3</td>
</tr>
<tr>
<td>0.4%</td>
<td>1</td>
</tr>
</tbody>
</table>

| 92%     | 409       |
| 8%      | 363       |
| 0%      | 32        |
| 0%      | 0         |

---

<table>
<thead>
<tr>
<th>CONDITION (TOTAL No.)</th>
<th>SPECIES</th>
<th>TOTAL No.</th>
<th>TOTAL %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fair-Good</td>
<td>Picea sp.</td>
<td>216</td>
<td>58.0%</td>
</tr>
<tr>
<td></td>
<td>P. glauca, pungens, alba</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>Pinus sp.</td>
<td>159</td>
<td>39.5%</td>
</tr>
<tr>
<td>Dead</td>
<td>Larix sp.</td>
<td>0</td>
<td>1.3%</td>
</tr>
<tr>
<td></td>
<td>Juniperus sp.</td>
<td>1</td>
<td>0.8%</td>
</tr>
<tr>
<td></td>
<td>Taxus sp.</td>
<td>1</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

**TOTAL CONIFEROUS TREES:**

<table>
<thead>
<tr>
<th>TOTAL %</th>
<th>TOTAL No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>90%</td>
<td>409</td>
</tr>
<tr>
<td>6%</td>
<td>363</td>
</tr>
<tr>
<td>8%</td>
<td>32</td>
</tr>
<tr>
<td>0%</td>
<td>0</td>
</tr>
</tbody>
</table>
OPEN SPACE AND PARKLAND adjacent to Hurontario street

Mary Fix Park hosts an upland forest community dominated by Pine, Maple, Oak followed by Spruce, Ash, Sumac and apple trees.

Valley land and woodland along Hurontario Street at Credit River tributary (North of Lakeshore Blvd.)

Credit River tributary is surrounded by naturally grown forest including mostly Maple, Pine, Ash, Basswood, Elm Beech and Sumac trees.

Forest community in Cooksville Creek (south of Matheson Blvd.) area generally dominated by Maple, Pine, Willow and Spruce trees.

Refer to Figure XX for species, woodlot/creek locations and general condition.
1.1.2.2. City of Brampton

Street tree planting

The tree inventory revealed that there are total 689 street trees, 75% Deciduous trees and 25% Coniferous trees. Figure xx represents frequency of tree species found in study area. The majority of deciduous trees are Gleditsia triacanthos, followed by Maple and Ash, which together compose 61%. Majority of Coniferous trees is Spruce 20%.

Most of the trees are in Fair to Good condition (81%) about 18% are in Poor condition and only 5 deciduous trees are dead.

Some of the Ash trees in Fair or Good condition are infected with Emerald Ash Borer disease.

Refer to City of Brampton Street tree inventory chart below for species list and general condition.

<table>
<thead>
<tr>
<th>TREE INVENTORY - CITY OF BRAMPTON</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL %</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>DECIDUOUS TREES</td>
</tr>
<tr>
<td>37.8%</td>
</tr>
<tr>
<td>30.0%</td>
</tr>
<tr>
<td>14.5%</td>
</tr>
<tr>
<td>4.0%</td>
</tr>
<tr>
<td>2.8%</td>
</tr>
<tr>
<td>2.3%</td>
</tr>
<tr>
<td>8.6%</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

| CONIFEROUS TREES |         |         |           |      |      |
| 80.0% | 140 | Picea sp. | 140 | 0 | 0 |
| 10.4% | 33 | Pinus sp. | 32 | 1 | 0 |
| 0.6% | 1 | Juniperus sp. | 0 | 1 | 0 |
|         |      |         | 174 | 172 | 2 | 1.5 | 0 |

FIGURE 4 - TREE SPECIES IN STUDY AREA

FIGURE 5 - CITY OF BRAMPTON TREE INVENTORY CHART
OPEN SPACE AND PARKLAND adjacent to Hurontario/Main street

ETOBICOKE CREEK
Etobicoke Creek area generally dominated by Maple, Poplar, Pine, Ash and Willow followed by Oak, Sumac, Spruce and other trees.

WOODLOT / PARKLAND
There are several Woodlots along the Hurontario/Main street. Refer to Figure XX below for location and species.

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>GROUP</th>
<th>SPECIES</th>
<th>CALIBER cm</th>
<th>CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOUTH OF LANCASTER LANE</td>
<td>A</td>
<td>Acer platanoides</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acer negundo</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pinus nigra</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOUTH OF STEELES AVENUE WEST</td>
<td>A</td>
<td>Acer platanoides</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acer negundo</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pinus nigra</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOUTH OF PEEL VILLAGE PKWY</td>
<td>A</td>
<td>Pinus sp.</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Open space/Parkland</td>
<td></td>
<td>Malus sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rhus sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fraxinus sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acer sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salix sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Picea sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Elaeagnus sp.</td>
<td>15-25</td>
<td></td>
</tr>
<tr>
<td>NORTH OF PEEL VILLAGE PKWY</td>
<td>A</td>
<td>Pinus sp.</td>
<td>15-50</td>
<td></td>
</tr>
<tr>
<td>Open space/Parkland</td>
<td></td>
<td>Malus sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rhus sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fraxinus sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acer sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Elaeagnus sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salix sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Picea sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NORTH OF PEEL VILLAGE PKWY</td>
<td>A</td>
<td>Pinus sp.</td>
<td>15-50</td>
<td></td>
</tr>
<tr>
<td>Open space/Parkland</td>
<td></td>
<td>Malus sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rhus sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fraxinus sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acer sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Elaeagnus sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salix sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Picea sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ETOBICOKE CREEK</td>
<td></td>
<td>Acer platanoides</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>SOUTH OF PEEL VILLAGE PKWY</td>
<td></td>
<td>Populus sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pinus sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fraxinus sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ulmus americana</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acer rubra</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acer saccharum</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Malus sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salix sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Picea sp.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FIGURE 6 - CITY OF BRAMPTON TREE INVENTORY CHART
1.1.3 EXISTING NATURAL WATER COURSES
There are few water courses adjacent to Hurontario/Main street:
1. Etobicoke creek located in City of Brampton, South of Peele Village Pkwy
2. Mary Fix Creek, located in City of Mississauga, South-West of Hurontario Street/QEW
3. Credit river tributary located in City of Mississauga North of Port Credit GO station.

Refer to City of Mississauga and City of Brampton Woodlot/Open space/Parkland/Creek/ Tributory Tree inventory charts above.

Drainage is not subject of this report.

1.1.4 EXISTING LAND USES
The identification of existing land uses is critical for landscape design development as it directly impacts on the landscape area boundaries, selection of plant material and proper landscape treatment.

Land use involves the management and modification of natural environment into built environment such as fields, pastures, parks, residential, commercial or industrial developments.

Existing land uses contain a variety of landscape elements, identified on Existing Conditions and Landscape Design concept such as:

- Urban landscape elements as a disturbance factor in the environment include: Hurontario/Main Street; Street intersections, Mayor HWY crossing (403, 427, QEW, 401); residential, commercial and industrial buildings; bridges, roads, walls, fences and structures. Most of them are fixed elements, not subject to change.
- Natural landscape elements such as parks, agricultural areas, existing forests, river tributary, creeks or elements that are subject to modification should be maintained and enhanced where possible.

Land adjacent to the Hurontario /Main Street Study Corridor can be divided into categories:

- Low-density residential areas
- Medium density commercial areas
- High density commercial and residential areas
- Parkland adjacent to Etobicoke creek
- Remnant farmland

Dividing study area on 5 categories will define Streetscape typologies and landscape treatment priorities.

Refer to section 2 Landscape Design Concept - Landscape elements

1.2 PROTECTION/REMOVAL OF EXISTING VEGETATION

Protection of existing vegetation is very important for environment and ecosystem sustainability.

During the future construction it is important to protect the existing vegetation. Protection of existing vegetation includes protection of street trees along the corridor, existing parks, planted and naturalized areas, especially adjacent to existing creeks and watercourses.

To protect existing vegetation it will be necessary to build 1200 mm high tree protective fencing, around individual trees and groups of trees. For individual trees, the distance for tree protection fencing will be identified in the respective City of Mississauga and City of Brampton tree protection zone guidelines.

Additional considerations may be required such as:

- Page wire or silt fence may be required if grading is proposed near a wooded area, wetland or watercourse.
- Protective measures such as pruning, root feeding and watering during the dry season should be undertaken during construction.
- After construction, protection fence should be removed and all preserved vegetation should be inspected for its state of health by a certified Arborist.

Some of the existing trees will be removed as a part of LRT installation and road widening. The trees to be removed will includes trees of poor condition and trees susceptible to Emerald Ash Borer. Through the corridor redevelopment many new trees will be planted. New trees represent replacement at approximately 4:1 or better ratio of those removed.