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York Region

Newmarket

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PHASE

YONGE STREET & DAVIS DRIVE STREETSCAPE MASTER PLAN

4 REPORT: DETAILED DESIGN GUIDELINES AND STANDARDS

UPDATED 2022.05.30

FINAL

Contents

1.0 INTRODUCTION

1.1 EXECUTIVE SUMMARY

The Yonge Street & Davis Drive Streetscape Master Plan proposes a green and active streetscape that will establish these major corridors within the Town of Newmarket as culturally vibrant and environmentally resilient. The Streetscape Master Plan provides comfortable transportation for pedestrians, cyclists, transit users and motorists while developing a strong, animated sense of place throughout the corridors. The Streetscape Master Plan is contextually driven and serves the specific needs of each corridor, while retaining unifying factors that reinforce the unique nature of the Town of Newmarket.

The Streetscape Master Plan organizes the corridors into three context-specific typologies:

- Yonge Urban Streetscape Typology
- Davis Urban Streetscape Typology
- Green Streetscape Typology

The Phase 4: Detailed Design Guidelines and Standards Report progresses the design of the streetscape typologies developed in Phase 3: Streetscape Master Plan Report. The purpose of this report is to provide the necessary details and standards to design consultants, developers, York Region and the Town of Newmarket, in order to ensure that the Streetscape Vision is upheld at the detailed design stage. The report:

- Provides a detailed framework to inform the detailed design/construction document phase;
- Outlines the codes, standards and guidelines that should be followed in order to create a safe, accessible and sustainable streetscape;
- Provides a framework for important streetscape elements such as transit infrastructure and utilities.

1.2 HOW TO USE THIS REPORT

The report is organized into seven sections and informs how to transition from the Master Plan into detailed design. Designers should reference their respective Streetscape Corridor in section 4.0, as well as the remaining report chapters, in order to move forward with detailed design. Each streetscape corridor is intended to function as a stand alone document, and consequently there is some repetition when all corridors are combined within the report. The report is organized in the following categories:

2.0 Codes, Standards and Guidelines

This section lists the codes, standards and guidelines that inform the streetscape elements, and should be referenced in detailed design. Ultimately at the detailed design stage, it is the Landscape Architect's responsibility to revisit the local codes, standards and guidelines in addition to the framework presented in this report.

3.0 General Streetscape Guidelines

This document forms a set of streetscape design guidelines endorsed by the Project Core Team which build on approved policies of the Official Plan, local Secondary Plans and Regional urban design initiatives. Guidelines are outlined for the following streetscape elements:

- Pedestrian Zone
- Furnishing/ Planting Zone
- Cycling Zone
- Multi-Use Path (MUP)
- Medians
- Lighting
- Utilities
- Retaining Walls
- Public Art

Guidelines are set out for each streetscape element in order to ensure that the detailed design of the corridors uphold the vision and Master Plan for the streetscape. The following aspects of each streetscape element are outlined:

- General Guidelines
- Accessibility
- Sustainability/ Low Impact Development (LID)
- Crime Prevention Through Environmental Design (CPTED)/ Safety
- Utilities
- Materiality

4.0 Streetscape Corridors

The Streetscape Master Plan Phase 3 Report provides a general framework and layout of the four corridors of this study. The purpose of this section is to provide designers with the detailed information that they need to develop their designs from the conceptual Master Plan stage to the detailed design stage. Midblock and intersection conditions are illustrated through technical plans and details. The section is broken down into the following corridors:

- Yonge Street North
- Yonge Street South
- Davis Drive West
  - Davis Urban Streetscape Typology
  - Green Streetscape Typology
- Davis Drive East
  - Davis Urban Streetscape Typology
  - Green Streetscape Typology

The Streetscape Corridor information should be used in conjunction with the other sections of the report in order to move forward with detailed design.

5.0 Streetscape Materiality

High-quality urban materials will bring the Streetscape Master Plan vision to reality. This section outlines material elements of the streetscape including plant species selection, furnishings, lighting, paving palette and pattern, and retaining wall options.

6.0 Urban Design Checklist

The Urban Design Checklist is a tool to be used by staff at the Town of Newmarket and the York Region when reviewing private development applications within the corridor limits to ensure principles of the Master Plan vision is upheld and realized.

7.0 Next Steps

The final section introduces the Phase 5 report.

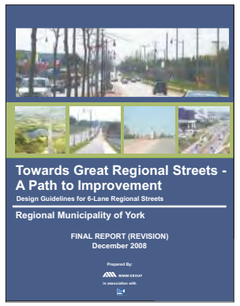
2.0 CODES, STANDARDS AND GUIDELINES

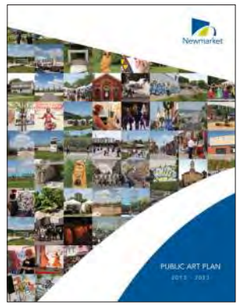
2.1 APPLICABLE CODES, STANDARDS AND GUIDELINES

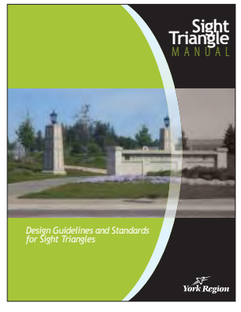
Along with the guidelines prepared in this report, the following codes and standards should (and in some cases must) be incorporated into the detailed design stage of the Yonge Street and Davis Drive corridors to ensure compliance:

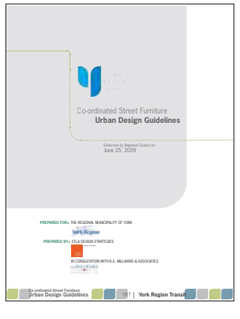
1. AODA and AODA Final Proposed Accessible Built Environment Standard (BES)
2. AODA Ontario Regulation 191/11 as amended by Ontario Regulation 413/12 Design of Public Spaces
3. Canadian Standards for Nursery Stock
4. Crime Prevention Through Environmental Design Ontario (CPTED)
5. Designing Great Streets
6. ESA: Planting Under or Around Powerlines and Electrical Equipment*
7. Going Places – Access Needs of the Blind and Visually Impaired – CNIB
8. LEED for Neighbourhood Development
9. Ministry of Transportation Ontario (MTO) Roadside Safety Manual
10. NACTO Urban Bikeway Design Guide
11. Ontario Transportation Manual (OTM) Book 18 – Cycling
12. Public Art Plan (Newmarket)
13. Regional Municipality of York – Acceptable Tree Species for Regional Roads (Feb 2013)
14. Regional Municipality of York – Typical Detail for Bike Box and Side Road Pedestrian Curb Ramp Interface D-10.02
15. Regional Municipality of York – Typical Zebra Pavement Markings Detail at Signalized Intersections using 'TrafficPatternsXD' SS-112
16. Regional Municipality of York - Street Tree Preservation and Planting Design Guidelines
17. Regional Municipality of York Transit Oriented Development Guidelines
18. TAC 2006 Edition of the Guide for the Design of Roadway Lighting
19. Tree Planting Solutions in Hard Boulevard Spaces: Best Practices Manual (City of Toronto)*
20. Towards Great Regional Streets
21. Uniform Traffic Manual (UTM)
22. York Region Transit - Coordinated Street Furniture Urban Design Guidelines
23. York Region Transit – Drawings and Specifications (July 2009)
24. York Region Road Design Guidelines

Any additional or forthcoming documents regarding streetscape design that is applicable for the Town of Newmarket should be referenced throughout the detailed design process.









** All criteria identified in the Regional Municipality of York Street Tree and Preservation Planting Design Guidelines and Natural Heritage and Forestry requirements supersede the ESA: Planting Under and Around Powerline and Electrical Equipment and the Tree Planting Solutions in Hard Boulevard Spaces: Best Practices Manual (City of Toronto).*

3.0 GENERAL STREETSCAPE GUIDELINES

3.1 INTRODUCTION

The following section outlines universal elements throughout the corridors and sets out guidelines for these elements. The section begins by describing the predominant principles that drive the streetscape design before going into more detail regarding the specific streetscape elements. The following elements are covered throughout the section:

3.3 Pedestrian Zone

3.4 Site Furniture

3.5 Streetscape Planting

3.6 Cycling Zone: Cycle Track

3.7 Multi-Use Path

3.8 Medians

3.9 Lighting

3.10 Utilities

3.11 Retaining Walls

3.12 Public Art

3.13 Smart Technology Initiatives

Guidelines are provided for each streetscape element in the form of:

- General Guidelines
- Accessibility
- Sustainability/ Low Impact Development (LID)
- Crime Prevention Through Environmental Design (CPTED)/ Safety
- Utilities
- Materiality

3.2 PREDOMINANT PRINCIPLES

The detailed design guidelines and standards work to achieve the Yonge Street & Davis Drive Streetscape Master Plan Vision for a Vibrant, Green and Active Streetscape.

In order to uphold the Streetscape Vision, the following principles are asserted throughout the detailed design guidelines and standards:

Accessibility

In order to create a complete street that caters to all users, a number of tactics are employed such as:

- Creating clear pathways for pedestrians with grading that provides ease of transit and minimization of slip hazards along the pathways;
- Providing visual and tactile warning for pedestrians in locations of potential conflict with motorists and cyclists; and
- Using appropriate visual contrast and tactile warnings where applicable to serve the visually impaired.

Sustainability/ Low Impact Development (LID)

The streetscape provides a significant opportunity for implementing sustainable and LID strategies to aid with stormwater management, recharge groundwater, reduce the Urban Heat Island effect, and add to the urban canopy, including:

- Using permeable surfaces (i.e. permeable unit pavers, porous concrete and poly bound porous pavement);
- Implementing rain gardens;
- Using recycled materials (i.e. poly bound porous pavement and using recycled concrete for the roadway subbase); and
- Using materials with a low albedo.

Crime Prevention Through Environmental Design (CPTED)/ Safety

Safety and crime prevention tactics are employed throughout the streetscape design in order to promote the security of all users. Safety and crime prevention is encouraged through:

- Minimizing opportunities for one to conceal themselves;
- Maintaining clear sight-lines;
- Encouraging ‘eyes on the street’; and
- Providing sufficient lighting for all users.

These principles are applied throughout the streetscape wherever possible in order achieve the Streetscape Vision of a Vibrant, Green and Active Streetscape.

Utilities

Above ground utilities such as hydro poles, overhead wires, surface mounted utility boxes, handwells etc. are a current reality for the streetscape corridors. Initiatives are taken throughout the streetscape to encourage the harmonious interaction between utilities and all other streetscape elements including:

- Utilizing screening techniques;
- Ensuring sufficient offset from utilities;
- Minimizing utility clutter through combination of elements; and
- Utilizing utilities as a mean for developing place-making (i.e. utility box decorative wrapping).

Materiality

The streetscape materiality uphold Sustainability/ LID initiatives through the use of porous materials and context appropriate planting. The materials create a cohesive palette that aids in developing a strong sense of place and is complementary yet distinctive of the adjacent vivaNext streetscape.

3.3 PEDESTRIAN ZONE

The Pedestrian Zone provides space for pedestrians in the form of sidewalks, as well as Multi-Use Paths (MUP). Sidewalks are employed in urbanized areas that are expected to have an significant volume of pedestrians. MUPs provide shared space for all forms of active transportation (i.e. walking, cycling, roller blading etc.). MUPs are used in areas with fewer pedestrians, such as residential areas. For MUP guidelines refer to section 3.8.

GENERAL GUIDELINES

- A contemporary aesthetic style should be utilized.
- The finish of the sidewalk should be light in colour and contemporary in style.
- Contemporary plank unit pavers are to be used within 18-55 linear metres of major intersections.
- All unit paving within the pedestrian zone should be supported by a permeable concrete base to mitigate differential settlement while allowing for drainage.

ACCESSIBILITY

- Surface shall be firm, stable and slip resistant.
- The running slope shall not exceed 5%.
- A minimum clearway width of 1500 millimetres that is free of obstructions shall be provided.
- A visual and tactile warning strip adjacent to the cycle track shall be provided with a minimum depth of 300 millimetres.
- Tactile attention indicators shall be provided to identify any pedestrian entry into a vehicular zone or area where no curbs or any other elements separate the vehicular route from the pedestrian route (such as driveways).
- The pedestrian route shall not have any openings that allow passage of an object that has a diameter greater than 20 millimetres.
- Sufficient catch basins or bioswales shall be provided to ensure rapid removal of water from melting snow or ice from pedestrian routes.
- Dedicated snow storage areas should be provided to ensure that no accessible pedestrian routes are obstructed by snow during winter months.

SUSTAINABILITY/ LID

- Grading should direct surface runoff to the Furnishing/ Planting Zone.
- Permeable unit pavers and permeable concrete paving should be used for stormwater runoff infiltration.
- Low albedo paving materials should be used to mitigate the Urban Heat Island effect.

CPTED/ SAFETY

- Pedestrian walkways should be designed to provide clear lines of sight to promote personal safety wherever possible.
- Natural surveillance should be provided from the roadway to the pedestrian zone.
- Sufficient lighting should be provided to improve visibility.

UTILITIES

- Guy wires and other braces of support for hydro poles should be located outside of the pedestrian clearway and include warning markers such that they do not constitute a hazard for persons with low visibility.
- Recessed paver trays should be used for areas where utility access lids or grates interface with unit pavers to ensure a continuous uniform aesthetic surface.

MATERIALITY

- Refer to section 5.1 for more information about the Pedestrian Zone materiality.

3.4 SITE FURNITURE

The Furnishing/ Planting Zone is a streetscape element located within the urban areas throughout the corridors (Yonge Urban Streetscape Typology and Davis Urban Streetscape Typology). With a minimum width of 2.35 metres, the Furnishing/ Planting Zone consists of permeable unit pavers and contains planting in the form of street trees in grates, rain gardens, as well as streetscape furniture.

This section outlines the furnishing guidelines, and the following section outlines the planting guidelines.

GENERAL GUIDELINES

- Street furniture should be located in the Furnishing/ Planting Zone.
- A 'family' of co-ordinated street furniture should be utilized that creates a sense of unity through form, materials, colour, finishes and application.
- The design vision identified in the Co-ordinated Street Furniture Urban Design Guidelines should be upheld.
- A co-ordinated street furniture approach should be consistently applied throughout the corridors for continuity. Special feature furniture can be implemented in future Business Improvement Areas (BIA) for place-making.
- Visual clutter should be minimized through streamlined furnishings and signage.
- Benches and trash receptacles should be provided in areas of high pedestrian activity particularly at intersections and bus stops.
- Locate trash receptacles at intersecting local streets and/or midblock at large commercial developments spaced approximately 250 metres apart.
- Trash receptacles should be placed in visible areas (such signalized and non-signalized intersections) so they are easily located and accessed by maintenance staff.
- Site furniture materials and finish should be vandal resistant.
- Locks and tamper proof hardware should be used on all applicable site furnishing (i.e. waste receptacles, newspaper corals).

ACCESSIBILITY

- Benches and seating areas must be located so that they are convenient to the barrier free accessible path/sidewalk.
- The location of benches and seating areas within the furnishing zone may be emphasized through the use of distinct visual contrast in the ground plane environment.
- A 850 millimetres x 1200 millimetres clearance area shall be provided around benches and seating areas for wheelchair or scooter access.
- All furniture shall be securely fastened to the ground.
- If utility covers are located in the furnishing zone, ensure that grate openings are not more than 13 millimetres wide.

SUSTAINABILITY/ LID

- Recycled materials could be used in furniture production.
- If wood products are preferred, consider using an indigenous species of hardwood.
- Durable, long lasting materials should be used.

CPTED/ SAFETY

- Locate furniture to provide clear lines of sight to ensure personal safety and visibility wherever possible.
- Provide natural surveillance from the roadway to the furnishing zone.

UTILITIES

- Furniture should be located so that it does not impede access to utility cabinets or access panels.

MATERIALITY

- Refer to section 5.1 for more information about the Furnishing/ Planting Zone hardscape materiality.
- Refer to section 5.3 for more information about the streetscape furniture.

3.5 STREETSCAPE PLANTING

GENERAL GUIDELINES

- Planting should conform to York Region's Streetscape Policy and Towards Great Regional Streets Design Guidelines and the Regional Municipality of York Street Tree Preservation and Planting Design Guidelines.
- The planting zone within the boulevard should ideally be at least 2.5 metres wide wherever there is room in the ROW.
- Individually planted trees require 30 cubic metres of soil.
- Trees require direct access to 16m^3 of soil volume with access to an additional 14m^3 of shared soil volume as per York Region standards.
- Specify trees that are hardy, salt tolerant and drought tolerant.
- Visual uniformity is preferred in the streetscape however limit the specification of one species of tree to a maximum of 10-15 consecutive trees in a row to avoid a mono-culture and to mitigate the spread of disease.
- Planting soil should meet York Region Designed Planting Soil Specifications.
- In areas of high pedestrian traffic, place trees in tree grates to facilitate pedestrian circulation.
- Soil cell technology or boulevard planters shall be used in hardscape boulevard spaces to provide adequate soil volume.
- York Region specified boulevard soil trenches shall be used in softscape boulevards.
- Full form and hydro form street trees are to be placed at 8 metres on centre in hardscape surfaces to create mirrored planter locations.
- Full form trees are to be placed 8 metres on centre in softscape boulevards.
- Hydro form trees are to be placed at 6 metres on centre in softscape boulevards.
- Automated drip line irrigation systems to provide surface watering to tree grate, boulevard planters and medians in urbanized locations.
- A deep watering and aeration system to be installed in soil pits to provide water and aeration to root zones below the pavement surface.
- Room should be provided around the base of the tree for root collar development.
- Tree grates should have knock out rings.

GENERAL GUIDELINES CONTINUED

- When using soil cells, bridge systems or access hatches ensure that it meets the project loading requirements to accommodate service vehicles with the boulevard.
- Coniferous plant material should be introduced where visual screening is appropriate.
- Trees should be offset from the roadway a minimum of 2.5 metres whenever possible to mitigate the impacts of salt spray.
- When the minimum 2.5 metres cannot be met, a 350mm wall shall be placed on the street side of the planter.
- Trees should be planted minimum 1.0 metre from the property line.

ACCESSIBILITY

- Ensure planting beds have a cane detectable edge to prevent pedestrians with low vision from stepping into the planter.

SUSTAINABILITY/ LID

- Species should be specified that are hardy to the region, salt and drought tolerant.
- Species should be selected from York Region's Top Performing Street Trees.
- An effort should be made to preserve and incorporate existing significant trees into the design.

CPTED/ SAFETY

- There should be clear sight line from the roadway, particularly within site triangles.
- Trees should not be planted with 9.0 metres of an intersection or 3.0 metres of an entranceway or driveway. For more information, refer to York Region's Sight Triangle Manual.
- Canopy trees should be pruned 2000 millimetres from finished grade to improve visibility.
- Low level understorey planting (less than 1000 millimetres) should be utilized in planters within the planting zone to ensure clear sight lines to/from the roadway, Cycle Track and Pedestrian Zone.

UTILITIES

- Hydro-form tree species (under 5 metres in height at maturity) should be specified under hydro lines.
- Utilities can exist within the tree root zones through the implementation of vertical zoning.
- If there are conflicts with exiting utilities within the planting zone, consider an irregular tree spacing in order to avoid growth-limiting conflicts or expensive utility relocation.
- Trees should not be planted within 3.0 metres of utility poles or light standards.
- Trees should not be planted within 1.0 metres of utilities with non-specified offset distances.

MATERIALITY

- Refer to section 5.2 for more information about plant species.

3.5.1 IRRIGATION STRATEGY

The success and health of plant material along the Yonge Street and Davis Drive corridors is an important component to fulfill the Streetscape Vision of a Green streetscape. There are various methods to irrigate plant material including automated irrigation, manual watering, and utilization of recycled water.

The Project Core Team- York Region Natural Heritage and Forestry's preferred watering method for this Streetscape Master Plan is an automated drip irrigation system for the urbanized planters and medians.

While developing the planter details for the Yonge Street & Davis Drive Streetscape Master Plan corridors, IBI Group considered this request along with the following high level concerns:

- Water conservation
- Vegetation health
- Sustainability
- Maintenance staff safety and access

Generally, there are four types of planter treatments prevalent within the Yonge Street and Davis Drive corridors as part of this study. The following matrix presents the technical requirements of the plant material, planter location and maintenance considerations.

Section 4.0 Streetscape Corridors shows in plan and cross section detail where the various watering methods are deployed along the four corridors Yonge Street North, Yonge Street South, Davis Drive East, and Davis Drive West.

WHAT IS AUTOMATED IRRIGATION?

An automated irrigation system is a series of in-ground piping that utilizes "drip technology" to minimize water consumption through a central control system that allows for watering volume adjustments based on local rainfall levels. The centralized control system transmits signals to the irrigation network via antennae which will save on water costs during wet seasons. The irrigation system typically operates between April and October.

WATER EFFICIENCY RATINGS

From a water conservation perspective, "drip technology" systems are designed to minimize water loss due to evaporation. As a general rule of thumb compared to manual watering methods, automated irrigation systems have a watering efficiency rating of between 80% and 90%. Therefore, for every inch of water that is used, between 0.85 and 0.90 inches of the water reaches the plant's root structure.

MANUAL IRRIGATION VS AUTOMATED IRRIGATION

Based on an Irrigation Cost Benefit Analysis prepared by IBI Group in December 2014 for York Region, an automated irrigation system reduces water consumption by approximately 30% (i.e. water efficiency rating difference) compared to a manual watering program. If watering occurred from early April to early October this would translate into a water savings of almost 11,800 cubic metres of water per kilometre of streetscape over a 25 year time-frame.

ANNUAL WATERING STANDARDS

The age of vegetation influences the amount and frequency of water required to maintain healthy plants. For the first 3 years after planting, known as the establishment period, a greater quantity and frequency of water is required to ensure that the vegetation's root structure takes to the soil. After the first 3 years, known as the post-establishment period, the root structure is well established and the frequency and quantity of water used can be reduced.

Planting Type	Location	Proposed Watering Method	Benefits	Notes
Trees in Grates	Boulevard Intersection	Automated irrigation drip technology	• Drip irrigation improves plant health. • Deep root watering minimizes evaporation and improves water conservation.	Tree grates are a closed system that do not benefit from natural rainfall. Automated drip irrigation mitigates this issue.
Rain Gardens	Boulevard Midblock (Yonge Street North)	Urban bioswale using roadway surface runoff	• Watering method is sustainable. • Watering method reduces infrastructure costs	Roadway runoff is captured in a linear trench drain during the summer months when there is no risk of salt infiltration in order to facilitate passive irrigation of trees and plant material midblock. Before de-icing operations have begun, slough gates are installed at the rain garden inlet/outlet to prevent roadway surface runoff and salts from entering the rain garden. In case of drought during warmer months, manual irrigation can be used to sustain planting.
Boulevard Planter	Boulevard Midblock (Davis Drive)	Automated irrigation drip technology	• Drip irrigation improves plant health • Deep root watering minimizes evaporation and improves water conservation	Automated irrigation results in deep root watering with minimal evaporation.
Median Planters	Centre Median	Automated irrigation drip technology	• Drip irrigation improves plant health. • Deep root watering minimizes evaporation and improves water conservation.	The central medians are difficult to access on a regular basis by watering trucks and raise safety and traffic concerns. Automated irrigation mitigates these issues and results in deep root watering with minimal evaporation.
Trees in Softscape	Varies- Boulevard Midblock	Gator Bags	• Gator bags are moderately efficient for both plant health and maintenance staff.	Gator bags provide passive irrigation but must be filled on a regular basis during the plant establishment period.

3.6 CYCLING ZONE: CYCLE TRACK

A cycle track is a cycling facility that provides the convenience of a linear bike path but is physically separated from motor traffic and distinct from the sidewalk. The cycle track is intended to be used exclusively by bicycles and is designed to minimize conflict between pedestrians and motorists. Because cycle tracks are separated from the roadway, they tend to be used by a wider spectrum of the population.

In the Streetscape Master Plan, cycle tracks are provided on the Yonge Street North, Davis Drive West and Davis Drive East corridors in emerging urbanized areas.

GENERAL GUIDELINES

- Cycling infrastructure should connect into existing local and regional bike paths.
- Cycle tracks should provide a smooth seamless transition into the roadway when necessary.
- A buffer between the cycle track and the sidewalk should discourage pedestrians from walking in the separated bike lane and discourage cyclists from using the sidewalk.
- Cross slopes of 2% should be used to ensure rapid removal of water from melting snow or ice from cycling routes.
- Provide priority to cyclists through driveways by maintaining a level grade. Adjust curb apron slopes for motorists entering driveways (Refer to NACTO reference below)
- Dedicated snow storage areas should be provided to ensure that cycling routes are not obstructed by snow during winter months.
- Separate bicycle signal heads mounted to multi-purpose poles are recommended at intersections.

Separate bicycle and pedestrian signal heads in Caledon.

ACCESSIBILITY

- Surface shall be continuous, firm, stable and slip resistant.
- A visual and tactile warning strip adjacent to the cycle track with a minimum horizontal dimension of 300 millimetres shall be used to separate cycle track.
- Cycle track shall be clearly marked when coming into contact with other forms of transit. (i.e. through driveways, at bus stops and intersections). Refer to NACTO Guidelines.
- Vertical obstructions such as light poles should be placed a minimum of 500 millimetres from cycle tracks.

SUSTAINABILITY/ LID

- Grading should direct surface runoff to the Furnishing/ Planting Zone.
- Poly bound porous pavement should be used for stormwater runoff infiltration.
- Cycle track material should have a low albedo to minimize the Urban Heat Island effect.

CPTED/ SAFETY

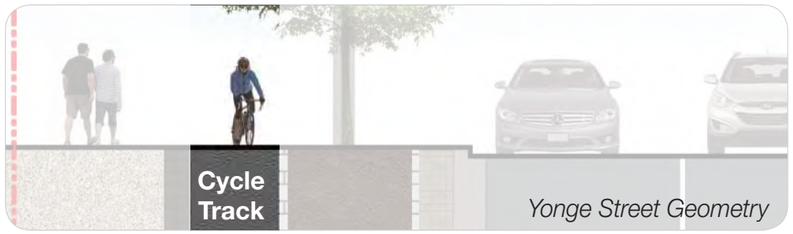
- York Region Standard bike boxes should be implemented at the far-side of signalized intersections to facilitate safer left hand turning movements for cyclists;
- Clear lines of sight should be provided to ensure personal safety and visibility wherever possible.
- Natural surveillance from the roadway to the cycling zone should be provided.
- Lighting should be used to improve visibility (refer to TAC standards).
- Conflict areas between motorists and cyclists should be minimized and consolidated particularly at intersections.
- All vertical obstructions should be set back a minimum of 500mm away from the edge of the cycle track.
- A consistent and uniform cycling treatment should be provided (i.e. cycle track, MUP, on-road bike lane) to promote predictable behavior for all users of the public right-of-way including cyclists, motorists, pedestrians and transit users.

UTILITIES

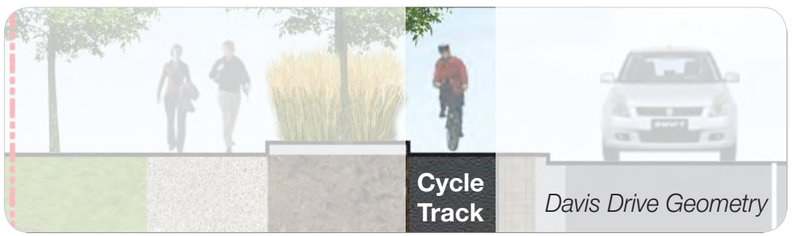
- Utility covers should be located out of the cycling zone and in the street or pedestrian zone where feasible. Where unavoidable, utility covers in the cycling zone should be smooth and flush with the bike lane surface and placed in a location that mitigates the need to swerve into potential hazards such as traffic or vertical obstructions.

MATERIALITY

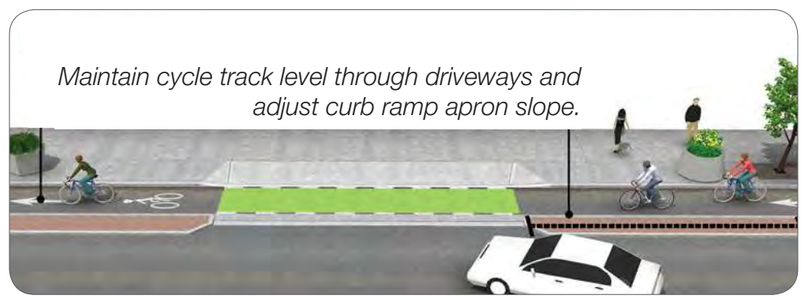
- Refer to section 5.1 for more information on cycle track materiality.



Yonge Street Geometry



Davis Drive Geometry



NACTO rendering displays Cycle Track priority at driveway. This condition applies to the Davis Urban Streetscape Typology.

3.7 MULTI-USE PATH

Multi-use paths (MUPs) are physically separated from motor vehicle traffic and located within the public ROW. The MUPs in this study are designed to accommodate both pedestrians and bicycle traffic. They are typically located in more suburban locations where there is lower pedestrian volumes such as Yonge Street South and Davis Drive West corridors.

GENERAL GUIDELINES

- MUP should connect into existing local and regional bike paths;
- MUP should provide a smooth seamless transition into the roadway when necessary;
- Cross slopes of 2% should be used to ensure rapid removal of water from melting snow or ice from cycling routes;
- Dedicated snow storage areas should be provided to ensure that cycling routes are not obstructed by snow during winter months.

ACCESSIBILITY

- Surface shall be continuous, firm, stable and slip resistant.
- MUP shall be clearly marked when coming into contact with other forms of transit. (i.e. through driveways, at bus stops and intersections).
- Vertical obstructions such as light poles should be placed a minimum of 500 millimetres from MUP.

SUSTAINABILITY/ LID

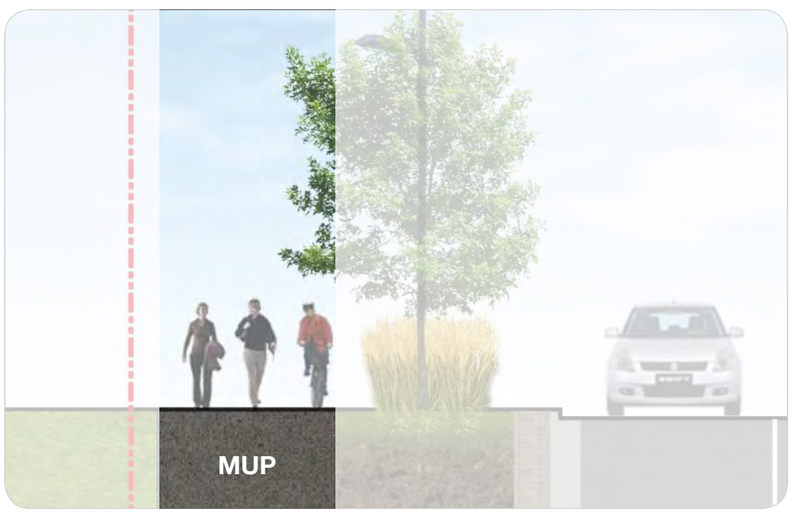
- Grading should direct surface runoff to the Landscape Zone.
- Poly bound porous pavement should be used for stormwater runoff infiltration.
- Cycle track material should have a low albedo.

UTILITIES

- Utility covers should be located out of the MUP and in the street or planting zone where feasible. Where unavoidable, utility covers in the MUP should be smooth and flush with the MUP surface and placed in a location that mitigates the need for cyclists to swerve into potential hazards such as traffic or vertical obstructions.

MATERIALITY

- Refer to section 5.1 for more information on MUP materiality.



CPTED/ SAFETY

- Clear lines of sight should be provided to ensure personal safety and visibility wherever possible.
- Natural surveillance from the roadway to the MUP should be provided.
- Lighting should be used to improve visibility (refer to TAC standards).
- Conflict areas between motorists, pedestrians and cyclists should be minimize and consolidate particularly at intersections.
- All vertical obstructions should be set back a minimum of 500mm away from the edge of the MUP.
- A consistent and uniform surface treatment should be provided to promote predictable behavior for all users of the public right-of-way including cyclists, motorists, pedestrians and transit users.

3.8 MEDIANS

Medians are located within the centre of roadway and vary in width depending on location. Medians provide a physical separation between traffic and depending on their width, can be planted with trees and shrubs. A landscaped median contributes to the greening and beautification of York Region and the Town of Newmarket. Planted medians provide the opportunity for tree canopies to connect and provide partial enclosure for the wide streetscapes, resulting in a shaded, cooler environment.

VivaNext may be implemented on Yonge Street North in the future. The Yonge Street North streetscape plan demonstrated in this report is the interim condition which protects the center of the ROW for the future vivaNext BRT planned for in the next 25 years. The future BRT will be implemented pending approval and funding by the Province and Metrolinx. The streetscape Master Plan shows a planted centre median with trees spaced 8 m on centre with an understorey of hardy shrub planting. Once the BRT arrives, the centre median will be removed and replaced by the rapidway with a running width of 3.5m in each direction. The curb line will remain fixed as well as the boulevard treatment behind the curb including cycle track, tree planting, hydro, utilities, traffic signals, lighting and pedestrian infrastructure. However, the road geometry may change including the elimination of through lanes or right/left-hand turn lanes during the future detailed design stage. This follows the rationale that the future BRT will replace some of the volume of private vehicles.

GENERAL GUIDELINES

- Medians that are less than 2000 millimetres from the edge of pavement to the edge of pavement may be paved with permeable decorative unit pavers that match the design aesthetic of the streetscape.
- A 365 millimetres decorative splash strip measured from the back of curb should be provided.
- Medians that are 2000 to 4499 millimetres wide from edge of pavement may be planted with hardy ornamental grasses and shrubs to provide greenery where tree growth cannot be supported.
- Medians planted with ornamental grasses and shrubs should have a minimum inside planter width of 1500 millimetres.
- Medians that are greater than 4500 millimetres wide from edge of pavement to edge of pavement can support deciduous canopy trees with an under storey of ornamental grasses and shrubs. Ensure soil volume requirements are met.
- Medians planted with trees should have a minimum inside planter width of 2500 millimetres.
- Median planters should be at least 350 millimetres high from the top of the splash strip in order to mitigate the impacts of salt spray on plant material.
- Planter walls should be made from a durable material with a clean contemporary aesthetic.
- Median tree species shall be made up of *Gleditsia triacanthos inermis 'Skycole'* and *Gymnocladus dioicus.*

ACCESSIBILITY

- Two stage crossing is to be used where there are more than three lanes of vehicular traffic in either direction. Two stage crossing provides a refuge area for pedestrians within the centre median for those that cannot cross the full intersection within the allotted time. Tactile plates are located at either end of the pedestrian refuge to warn pedestrians as they transition from the median to the roadway.

SUSTAINABILITY/ LID

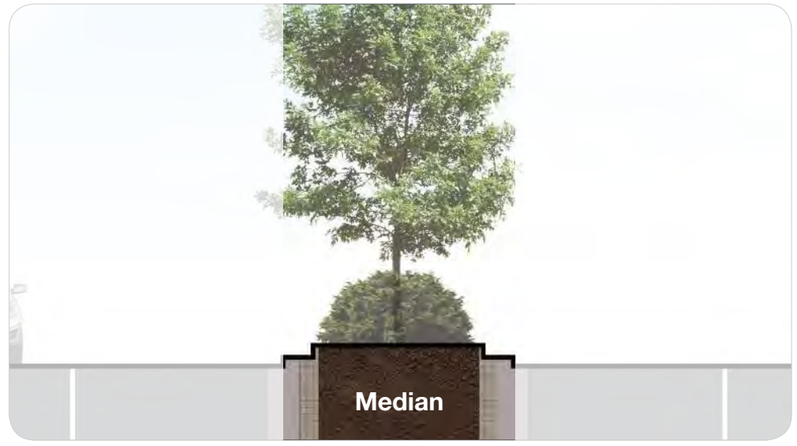
- Planting should be incorporated wherever there is sufficient ROW.
- Plant species should be salt-tolerant and drought-tolerant.
- Plant species must be on The Regional Municipality of York Acceptable Street Tree Species for Regional Roads.

CPTED/ SAFETY

- Planter should be set back a minimum of 600 millimetres from edge of curb.
- Median planting should not interfere with intersection sight-triangles.
- Planted medians are to be irrigated automatically to avoid the hazard and traffic issues that would result from water trucks and staff accessing the centre for manual irrigation.

MATERIALITY

- Refer to sections 5.1 and 5.2 for more information on Median materiality.



3.9 LIGHTING

Streetscape lighting creates safer traveling conditions for pedestrians, cyclists and motorists. Lighting also has the potential to establish a strong sense of place and highlight certain areas or elements throughout the corridors. Lighting is located predominantly in the Furnishing/ Planting Zone.

GENERAL GUIDELINES

- Continuous street lighting should be provided in an opposite symmetrical arrangement where possible.
- Permanent street lighting should be designed in accordance with the requirements of the TAC 2006 Edition of the Guide for the Design of Roadway Lighting.
- Lighting poles should be placed within the furnishing zone to suit the overall streetscape design while maintaining minimum clear zone requirements per the MTO Roadside Safety Manual.
- Illumination poles should be offset from adjacent elements (i.e. crosswalk ramp, boulevard cycle track, etc.) a minimum of 250 millimetres as per TAC standards.
- The placement of poles should be coordinated with underground and overhead utilities as well as street trees to ensure that proper clearances are maintained.
- The streetlight pole, luminaire and bracket arm should be a high quality architectural finish.
- The height of pole and length of luminaire bracket arm should be selected to meet the specified lighting criteria.
- If poles are steel, they should be hot dipped galvanized and powder coated to ensure longevity and low maintenance. A slight texture in the paint finish will reduce adhesiveness of unwarranted advertisements.
- The colour of the poles and luminaries should be selected to complement the street furniture and surrounding environment.
- At the detailed design stage, poles should be supplied with a pole cap and manufacturers' nameplate permanently affixed to the pole and base plate to facilitate maintenance queries from maintenance and operations crews.
- All hardware and attachment bands for signs, connectors for mast arms, brackets, nuts and bolts should colour-match the pole and luminaire.

GENERAL GUIDELINES (CONTINUED)

- The poles should include architecturally designed base covers to cover concrete footings and anchorage assembly bolts for a cohesive aesthetic appearance.
- In order to plan for future addition of appurtenances, poles should include provision for mounting banner arms, flag holders and hanging baskets at the detailed design stage.
- Decorative banners may be added to light poles and hung at a height of approximately 2700 millimetres above finish grade. Material should be UV stable and durable. Banners should have a vertical clearance of at least 500 millimetres for the back of the edge of the roadway pavement in order to mitigate catching on passing large vehicles.
- Lighting fixtures should be of a contemporary style in-line with the overall theme of the streetscape design.
- Preferred colour temperature should be no greater than 5000K with a minimum colour rendering index (CRI) of 70.
- Pedestrian scale luminaires should be of the same product family as the street lighting system.
- Lighting at intersections should be coordinated with traffic signals via joint-use poles, to reduce pole clutter and produce an efficient design.
- In order to minimize clutter and increase opportunities for tree planting, consider joint use poles for lighting and hydro wherever possible.
- For visual continuity, traffic signal poles should have the same architectural finish as roadway lighting poles.

ACCESSIBILITY

- Lighting poles shall not impede pedestrian clearway on the sidewalk, cycle track or MUP and should be placed a minimum of 500 millimetres away.
- Lighting levels shall meet TAC standards in order ensure clear delineation of boulevard features.
- The lighting shall be evenly distributed to provide a reasonable colour spectrum and minimize the cast of shadows for pedestrians with low vision.
- When mounting light fixtures, particularly pedestrian light fixtures, ensure a clear headroom of at least 2030 millimetres below fixtures or support arms to mitigate conflict with pedestrians with visual limitations.
- Any special accent lighting of special site features such as gateway signage should be designed to minimize direct glare to pedestrians.

LIGHTING (CONTINUED)

SUSTAINABILITY/ LID

- Luminaires should be Dark Sky compliant (i.e. full-cutoff) to minimize light pollution.
- Luminaires should be energy efficient and utilize LED technology.

CPTED/ SAFETY

- The lighting design criteria for Yonge Street and Davis Drive corridors should meet the requirements of Table 9-2 for arterial roadways with medium pedestrian activity levels. (Source TAC Guide for the Design of Roadway Lighting-Volume 2 Design)
- Typically sidewalk illumination should meet the requirements of Table 9-3 for medium pedestrian activity levels. (Source TAC Guide for the Design of Roadway Lighting-Volume 2 Design
- The intersections have higher pedestrian activity levels than midblock areas and should therefore meet the requirements of Table 10-1. (Source TAC Guide for the Design of Roadway Lighting-Volume 2 Design)
- Where sidewalk lighting levels cannot be achieved exclusively with street lighting luminaires, dedicated pedestrian-scale lighting fixtures may be installed on street light poles and/or dedicated pedestrian scale lighting poles between street light poles.
- Tree placement should not impede lighting illumination levels.

UTILITIES

- Intersection lighting should be connected to the traffic signal power supply and should be owned by York Region.
- Power for seasonal lighting should be provided on designated street and pedestrian lighting poles. The GFCI duplex receptacles should be visually integrated into the pole with weatherproof while-in-use covers.
- Provide power for items such as gateway features, information kiosks, bus shelters and illumination for public art. Specific locations for these will be determined during detailed design.
- Both street and pedestrian lighting should utilize the same power supply, wiring and underground conduit system for efficient maintenance and operations procedures.
- For joint use poles, street light luminaire should have and minimum 150 millimetres vertical clearance below the neutral line. When a secondary conductor is present, all communication plant must maintain 1000 millimetres clearance from the lowest point of the secondary or street light conductor. All clearance requirements must be in compliance with the local authority's requirements at the detailed design stage.

TAC GUIDE FOR THE DESIGN OF ROADWAY LIGHTING- VOLUME 2 DESIGN JANUARY EDITION *MATRIX EXCERPTS*

Road Area and Pedestrian Activity		Average Luminance cd/m^2	Average-to-Minimum Uniformity Ratio	Maximum-to-Minimum Uniformity Ratio	Maximum-to-Average Veiling Luminance Ratio
Road Type	**Pedestrian Activity**				
Freeway	--	≧ 0.6	≦ 3.5	≦ 6.0	≦ 0.3
Partial Lighting of Interchange On-Ramps/ Off-Ramps	--	≧ 0.6	≦ 3.5	≦ 6.0	≦ 0.3
Expressway-Highway	High	≧ 1.0	≦ 3.0	≦ 5.0	≦ 0.3
	Medium	≧ 0.8	≦ 3.0	≦ 5.0	≦ 0.3
	Low	≧ 0.6	≦ 3.5	≦ 6.0	≦ 0.3
Arterial	High	≧ 1.2	≦ 3.0	≦ 5.0	≦ 0.3
	Medium	≧ 0.9	≦ 3.0	≦ 5.0	≦ 0.3
	Low	≧ 0.6	≦ 3.5	≦ 6.0	≦ 0.3
Collector	High	≧ 0.8	≦ 3.0	≦ 5.0	≦ 0.4
	Medium	≧ 0.6	≦ 3.5	≦ 6.0	≦ 0.4
	Low	≧ 0.4	≦ 4.0	≦ 8.0	≦ 0.4
Local/Alleyway	High	≧ 0.6	≦ 6.0	≦ 10.0	≦ 0.4
	Medium	≧ 0.5	≦ 6.0	≦ 10.0	≦ 0.4
	Low	≧ 0.3	≦ 6.0	≦ 10.0	≦ 0.4

Table 9-2 – Luminance Criteria for Roadways and Interchanges

Roadway Classification	Average Maintained Illuminance at Pavement by Pedestrian Conflict (lux)			Average-to-Minimum Uniformity Ratio
	High	Medium	Low	
Arterial/Arterial	34.0	26.0	18.0	3.0
Arterial/Collector	29.0	22.0	15.0	3.0
Arterial/Local	26.0	20.0	13.0	3.0
Expressway-Highway/Arterial	31.0	25.0	18.0	3.0
Expressway-Highway/ Expressway-Highway/	28.0	24.0	18.0	3.0
Expressway-Highway/Collector	26.0	21.0	15.0	3.0
Expressway-Highway/Local	23.0	19.0	13.0	3.0
Collector/Collector	24.0	18.0	12.0	4.0
Collector/Local	21.0	16.0	10.0	4.0
Local/Local	18.0	14.0	8.0	6.0

Table 10-1 – Recommended Illuminance Levels for Full Intersection Lighting

MATERIALITY

- Refer to section 5.4 for more information on Lighting materiality.

3.10 UTILITIES

Utilities are a necessary and ever-present component of the streetscape public ROW and can include hydro poles, overhead wires, surface mounted utility boxes, handwells etc. Sometimes utilities constrain the ability to locate streetscape elements such as trees which require a vertical depth of approximately 1.2 metres.

Utility installation along the Yonge Street and Davis Drive corridors can include new installation, realignment, retrofit or up grade to the existing system. Well organized utility design and placement can minimize streetscape clutter and maximize space for plantings which will ultimately improve the visual aesthetics of the public realm.

Image of an artistically painted transformer box next to the high profile Cumberland Park in the Village of Yorkville, Toronto, Ontario. The mural on the transformer ties into the overall theme of the park.

GENERAL GUIDELINES

- Bury utilities wherever possible.
- Hydro poles should be located in the Furnishing/ Planting Zone in line with light poles, or as mixed-use poles where possible.
- When utility boxes cannot be buried, they should be utilized for opportunities for public art such as creative utility wrap. This may also deter graffiti tagging.
- At the planning stage, consider placing utility vaults or conduits in the asphalt roadway to facilitate easy access and road surface repair while minimizing disruption to pedestrians and cyclists. Keeping utility vaults out of the boulevard zone in urbanized areas also minimizes the disruption of expensive streetscape infrastructure such as trees, soil cells, furnishings, and decorative paving.
- Consider incorporating conduits to provide future upscaling of broadband and communication infrastructure and new entrants into the broadband and communication market in line with Regional efforts.
- Hydro poles and light standards should be located at the centre line of planters and trees wherever possible.
- All utility covers, handwells and manholes should be located outside of cycling infrastructure and the pedestrian clearway wherever possible.
- Smaller utility boxes that are located parallel to the curb may be located in the unit paved continuity strip for easy access.
- Locate utility vaults and boxes outside of the furnishing zone whenever possible to maximize the number, size and depth of tree pits. This also minimizes the impact to continuous soil trenches.
- Consider consolidating dry utilities into a shared vault where permitted by local authorities, Locate the shared vault in an easily accessed location such as the unit paved continuity strip,
- Surface-mounted utilities should share boxes whenever possible to minimize streetscape clutter.
- Lighting at intersections should be coordinated with traffic signals via joint-use poles, to reduce pole clutter and produce an efficient design.
- At intersections where bus pads are located, maintain a 13 metre clear zone from the traffic stop bar wherever possible. The clear zone should not contain hydro poles, light standards, utilities, handwells or other such infrastructure.
- Do not place hydro poles in continuity strip.
- In order to minimize clutter and increase opportunities for tree planting, consider joint use poles for lighting and hydro wherever possible.

GENERAL GUIDELINES (CONTINUED)

- Consider placing traffic control cabinets within the furnishing zone rather than the site triangle. This will facilitate opportunities for future high density development and eliminate the relocation of expensive traffic control equipment later.
- When unsightly utilities are located within unit paved boulevard intersection limits, consider the use of recessed paver trays for visual continuity.
- Primary (high voltage) lines should be a minimum of 3 metres from fixtures.
- Neutral lines should be within 0.15 metres of lighting fixture on joint use poles.
- Provide a lateral clearance of not less than 2.5 metres from regulated critical gas lines to the root ball or open bottom container of trees or large shrubs. For all other pipelines, a minimum clearance of 1.2 metres horizontally should be maintained between the edge of the root ball or open bottom container. Where a 1.2 metres clearance cannot be maintained, a minimum clearance of 0.6 metres may be permitted provided a root deflector is installed on the sides of the root ball adjacent to the gas pipeline. All clearance requirements must be in compliance with the local authority's requirements at the detailed design stage.

ACCESSIBILITY

- Lighting, traffic and hydro poles shall not impede pedestrian clearways on the sidewalk, cycle track or MUP and should be placed a minimum of 500 millimetres away.
- Locate surface mounted utilities such as fire hydrants away from intersection crossings to facilitate accessibility and pedestrian circulation.
- If existing vaults or catch basin lids conflict with curb ramps, consider relocating them. On new street construction, catch basins shall be located upstream of the pedestrian crosswalks to minimize conflicts and tripping hazards.
- Guy wires and other braces of support for hydro poles shall be located outside of the pedestrian clearway and include warning markers such that they do not constitute a hazard for persons with low visibility.

UTILITIES (CONTINUED)

Traffic control cabinets are expensive to relocate and consequently it is important to place them in an ideal location early on so that when the street and adjacent properties urbanize, they do not have to be moved. This is particularly important at major intersections that are zoned for high density mixed used developments or in locations where an urban parkette is planned as shown below. A logical location for the traffic control cabinet is within the furnishing zone next to the traffic pole as shown below. This location still allows for complete visibility of the intersection by maintenance crews performing traffic signal adjustments.

The image below shows a traffic control cabinet interrupting the flow of a new urban plaza. This traffic control cabinet was most likely originally located within the site triangle and did not get moved when the adjacent property was urbanized and the plaza was developed. The transformer box also negatively impacts the overall design of the new plaza.

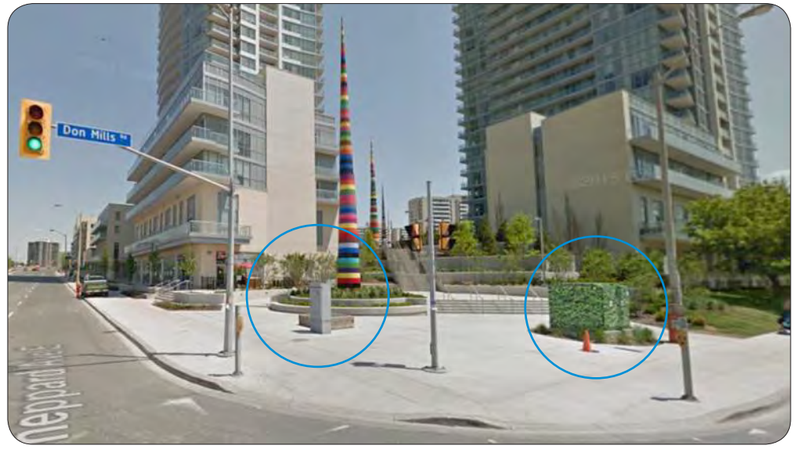
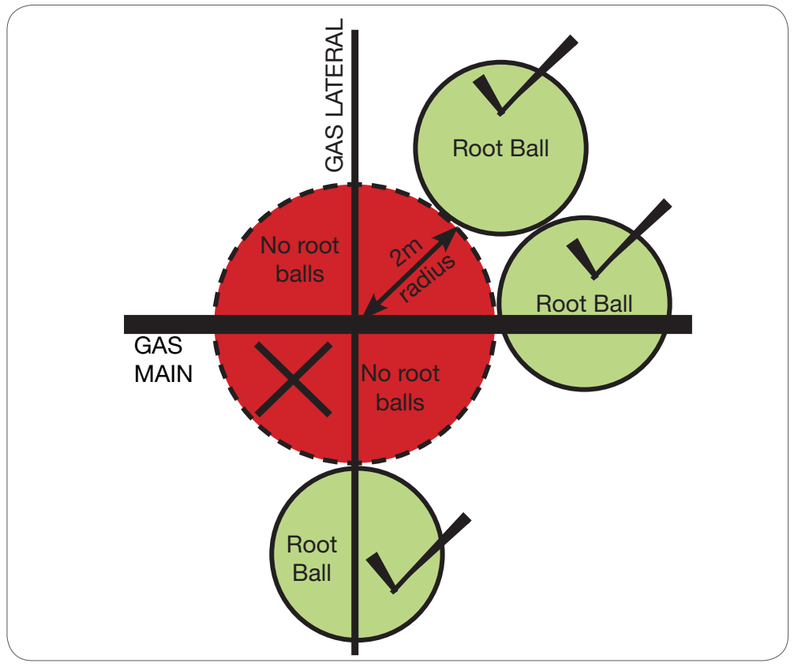


Image of recessed paver tray along the vivaNext corridor conceals utilities below in a paved area



Tree Planting Solutions in Hard Boulevard Surfaces: Best Practices Manual excerpt depicting utility and planting clearances

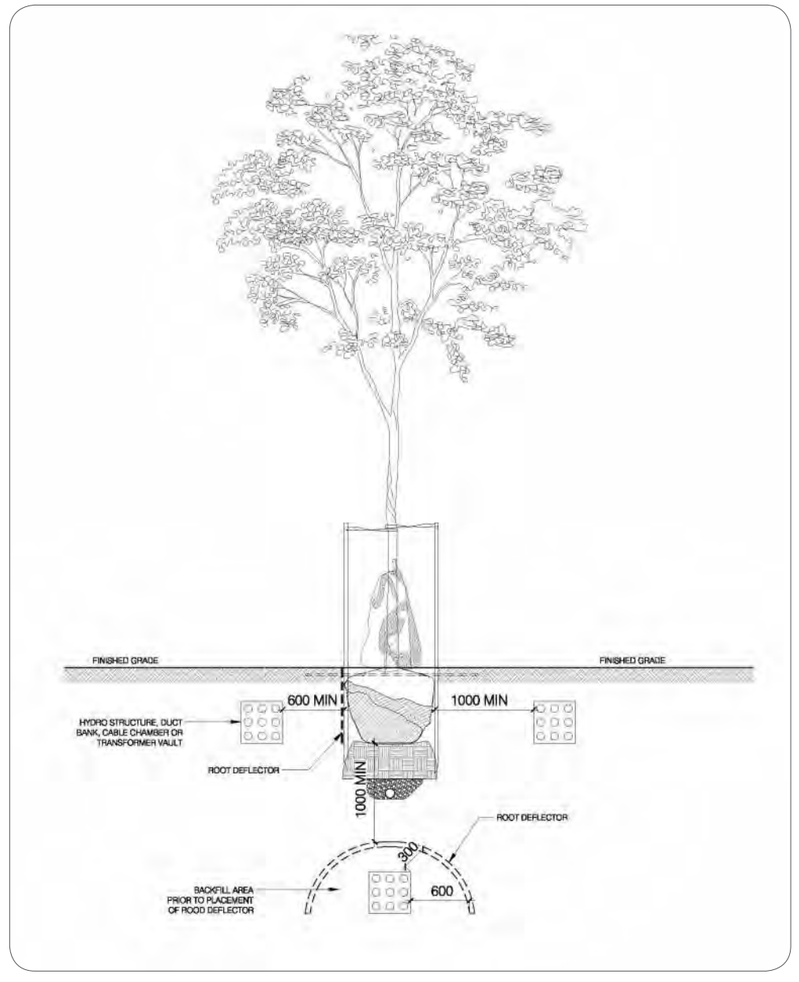


Diagram of general underground clearances of below grade utilities in the vicinity of trees

3.12 RETAINING WALLS

Retaining walls may need to be added to the streetscape to rationalize grading differences along the corridor. Heights of retaining walls can be reduced through creative grading techniques and landscape screening.

GENERAL GUIDELINES

- Retaining walls material and aesthetic should match the contemporary streetscape style including pattern, colour and texture.
- Visually reduce the vertical scale of a retaining wall through landscape screening.

ACCESSIBILITY

- Retaining walls exceeding 650 millimetres in height require an AODA compliant railing.

SUSTAINABILITY/ LID

- Green walls should be implemented where feasible.

CPTED/ SAFETY

- Retaining walls should be designed to retain sight lines.

MATERIALITY

- Refer to section 5.1.3 for more information on Retaining Wall materiality.

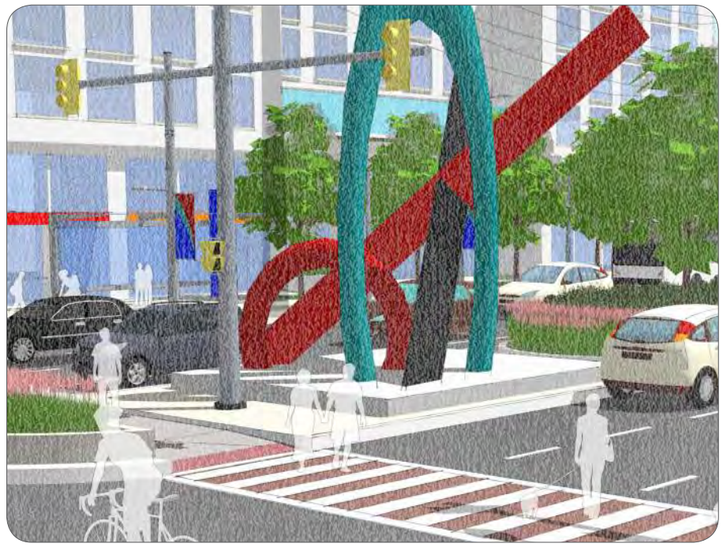
3.11 PUBLIC ART

Public art is an integral component of vital, livable communities as it aids in creating a strong sense of place. It can be an expression of our cultural diversity and heritage, It provides social benefits by attracting creative businesses and workers to a community.

GENERAL GUIDELINES

- Public art is proposed within medians over 3 metres in width.
- Public art locations to be established based on physical and cultural context.
- Public art can aid in creating a strong sense of place and animating the streetscape.
- Place art in highly visible locations to contribute to neighbourhood placemaking
- Public art should complement the contemporary streetscape character.
- Public art should not disrupt passage of pedestrians, cyclists or motorists.
- Public art should not inhibit sight lines at intersections, driveways, or other points for potential conflict.
- Public art should follow CPTED and safety principles.
- The process of deciding on an installation provides the potential for community engagement.
- Public art committee can be formed to drive public art initiatives and get the community involved.
- Possibility for public art to educate public on environmental sustainability and resilience, referencing back to the LID/ Sustainability initiatives in the streetscape.
- Yonge Street North provides an ideal location for public art due to its median width, as well as the possibility to transplant the installations to the boulevard if the median is removed in order to accommodate a BRT.

Double Vision by Shayne Dark, Jarvis Street, Toronto



Rendering of Potential Public Art Location in the Yonge Street Gateway Median

3.13 SMART TECHNOLOGY INITIATIVES

The Yonge Street and Davis Drive corridors provide opportunities for the introduction of specialized amenities that can elevate the streetscape conditions. Smart technologies that benefit streetscape activities can be implemented, such as the following:

SAFETY AMENITIES

- Safety buttons or telephones can be situated in proximity to transit stops and in key locations to aid with user safety.
- Crowd-sourced data about safety throughout the corridors can be collected in order to aid in developing a safer street.

ACTIVE TRANSPORTATION TECHNOLOGIES

- Cycle Tracks and MUPs can be monitored in order to gain an understanding of their usage and the most popular routes. Pedestrian and Bicycle Surveys can also be used to obtain qualitative data regarding active transportation usage. This information can be used to advance future cycling infrastructure.
- An application can be created that provides users with ideal active transportation routes, complete with the safest route to take, the mileage of active transportation loops and user activity trackers. This data and the comments collected can be used to further develop active transportation within the Region. Further, the application has the potential to connect active transportation users (with the possibility of developing running or cycling groups).
- Cycling amenities including parking, pumping stations, and bike repair stations can be implemented at key locations.
- Public education programs regarding cycling and other active transportation methods can provide awareness and encourage safer cycling within the area.
- Public water fountains can be located in close proximity to local trail systems and parks.

TRAFFIC AND TRAVELER INFORMATION SYSTEMS

- Integrated traffic and traveler information systems (including traffic signals, video systems, travel time, and traveler information) can streamline travel.

LID/ SUSTAINABILITY

- Radio Frequency Identification (RFID) Tags (or alternate technology) can be uses to monitor trees health, irrigation and maintenance in order to learn more about maintaining healthy street trees.
- Air pollution can be monitored to understand the impacts of different modes of transportation as well as landscape elements.
- Rain gardens' impact on the storm sewer system can be monitored in order to understand their benefits and potential short-comings.
- Alternate sustainable forms of energy such as solar power could be used for streetscape elements such as accent lighting. If the streetscape elements are integral to the safety or accessibility of the area, only reliable forms of energy should be used.

SMART AMENITIES

- Smart phone charging stations can be placed at key locations, including transit stops. Solar energy or other sustainable energy sources can be explored for powering the charging stations and other streetscape elements.
- Wifi can be implemented within the public realm.
- Engaging the community through social media (with hashtags or a specific application) can provide an opportunity to gather data regarding the streetscape usage and public perception.

4.0 STREETSCAPE CORRIDORS

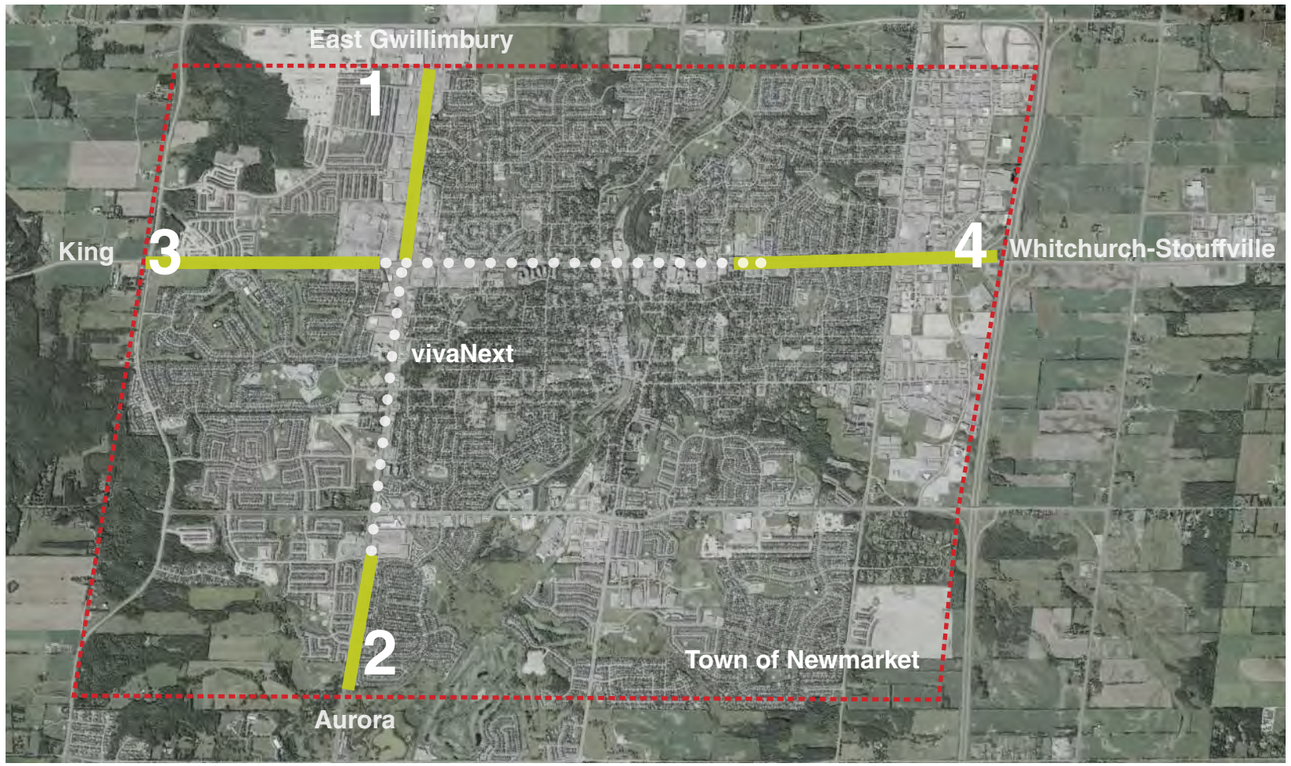
4.1 Introduction

4.1.1 INTRODUCTION

The Streetscape Master Plan Phase 3 Report provides a general framework and layout of the four corridors of this study. The purpose of this section 4.0 Streetscape Corridors is to provide designers with the detailed information that they need to develop their designs from the conceptual Master Plan stage to the detailed design stage. The section contains technical plans and details for midblock and intersection conditions, as well as additional streetscape elements. The section is categorized into four corridors for ease of use:

- 4.2 Yonge Street North
- 4.3 Yonge Street South
- 4.4 Davis Drive West
- 4.5 Davis Drive East

The corridor specific information from this section should be used in conjunction with the remainder of the report which contains information on the streetscape elements that are common to all corridors within the Streetscape Master Plan. Additional information is also available throughout the other Streetscape Master Plan Phases, particularly relevant to detailed design is Phase 3: Yonge Street & Davis Drive Streetscape Master Plan. The Phase 3 report contains information regarding Right Size streetscape elements including curb radii, lane widths, cycling infrastructure and pedestrian clearways.



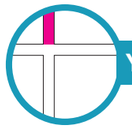
1 Yonge Street North
Town Boundary to Davis Drive

2 Yonge Street South
Sawmill Valley Drive to Town Boundary

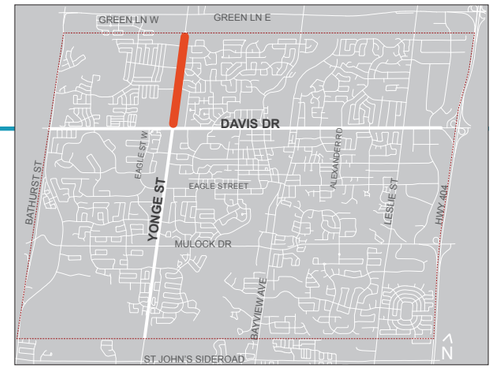
3 Davis Drive West
Bathurst Street to 200m West of Yonge Street

4 Davis Drive East
Highway 404 to Patterson Street

Town Boundary



4.2 Yonge Street North Corridor



4.2.1 INTRODUCTION

The Yonge Street North Corridor consists of the Yonge Urban Streetscape Typology. Marked by a relatively large ROW (in comparison to the other corridors) as well as a projected urban condition, this corridor focuses on providing a vibrant complete street. Also unique to this corridor is the potential for the addition of BRT lanes in the centre of the roadway. The interim streetscape design employs a centre planted median which may be transformed into BRT lanes in the future.

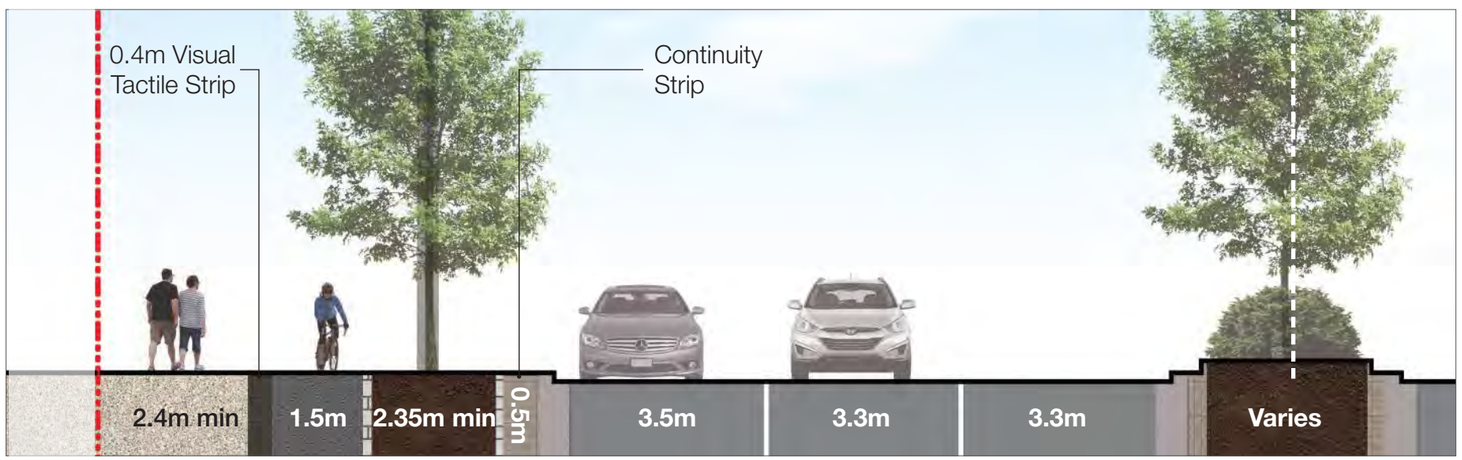
4.2.2 OVERVIEW MATRIX

Yonge Street North Corridor Overview

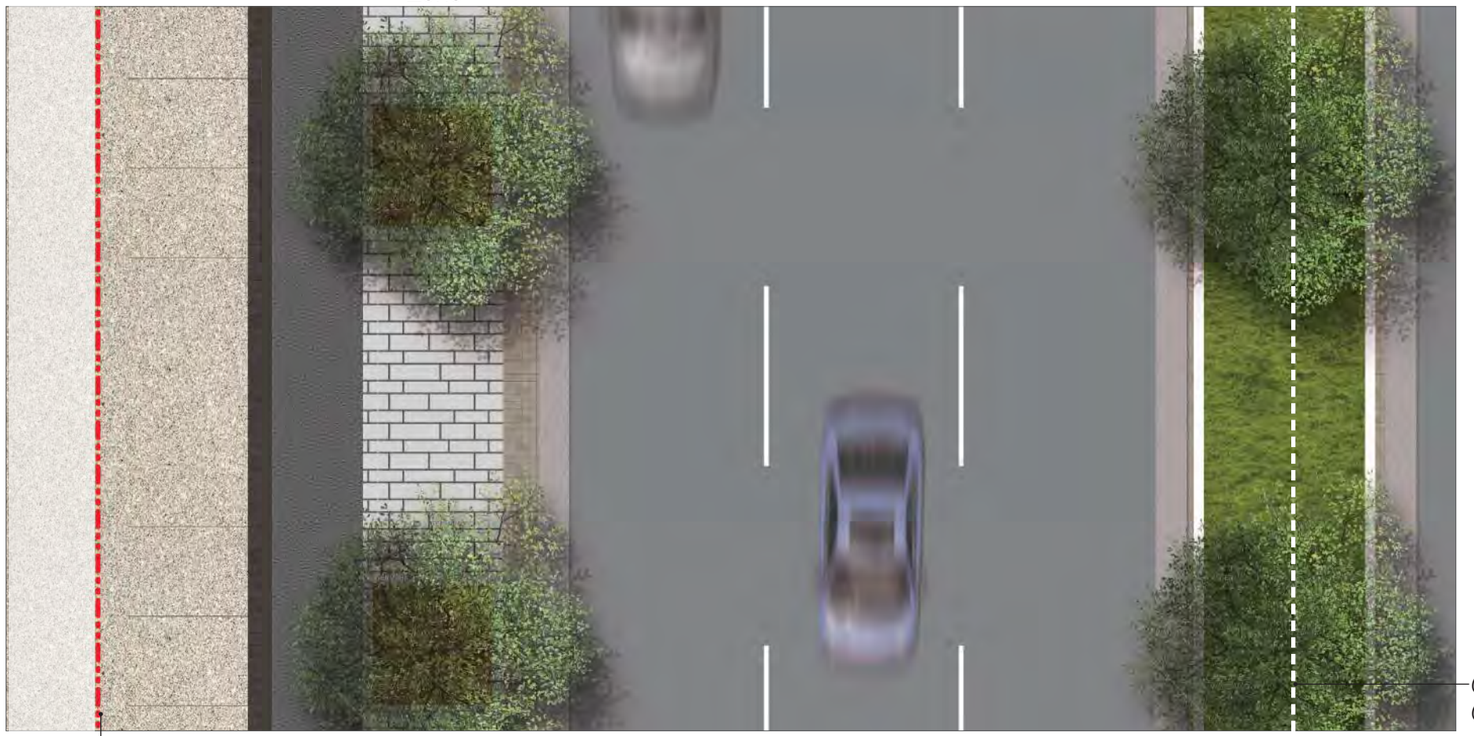
Streetscape Element	Width (minimum)	Typical Boulevard Material	Intersection Condition	Additional Notes	Further Information
Pedestrian Zone-Intersection	2.4 metres	Permeable Unit Pavers on Permeable Concrete Base	• Unit Pavers to extend 55 linear metres from key intersections to establish a strong sense of place; • AODA compliant tactile plates, curbs and crosswalks to be utilized.	• Boulevard paving to visually tie into the private realm paving for a visually cohesive look.	Sections 3.4, 4.2.6-7 and 5
Pedestrian Zone-Midblock	2.4 metres	Pervious Concrete	• N/A	• 0.4 metre tactile and visual warning strip next to cycle track to minimize conflict between pedestrians and cyclists.	Sections 3.4, 4.2.3-5 and 5
Cycle Track	1.5 metres	Porous Pavement	• Cycle Track transitions to roadway at intersections; • Crossride is marked with green paving, elephant feet and pavements markings (as per OTM Book 18).	• Cycle track must have a minimum 0.25 metre buffer from fixed objects (i.e. planters, benches, etc.). • 1 metre by 2 metre pavement markings spaced 1.5 metres apart (as per OTM Book 18)	Sections 3.7, 4.2.5-7 and 5
Furnishing/ Planting Zone	2.35 metres	Permeable Unit Pavers on Permeable Concrete Base	• Street trees and other visual obstacles set back from the intersection in order to maintain a clear sight triangle.	• Street trees in grates at signalized intersections. • Rain gardens beyond intersections and midblock.	Sections 3.5-6, 3.10-1, and 4.2.4-5
Continuity Strip	0.6 metres	Permeable Unit Pavers on Granular Base	• Materiality of the continuity strip to be complimentary to the boulevard pavement treatment.		Sections 4.2.4-5 and 5
Median	Varies	Permeable Unit Pavers and Concrete Planter with Planting	• Median can serve as the basis for two-stage crossing at major intersections.	• Plant species selection is dependent on median width and available soil volumes	Sections 3.9, 4.2.8 and 5

Yonge Street North

4.2.3 STREETSCAPE GEOMETRY TYPICAL MIDBLOCK CONDITION



Precedent Images

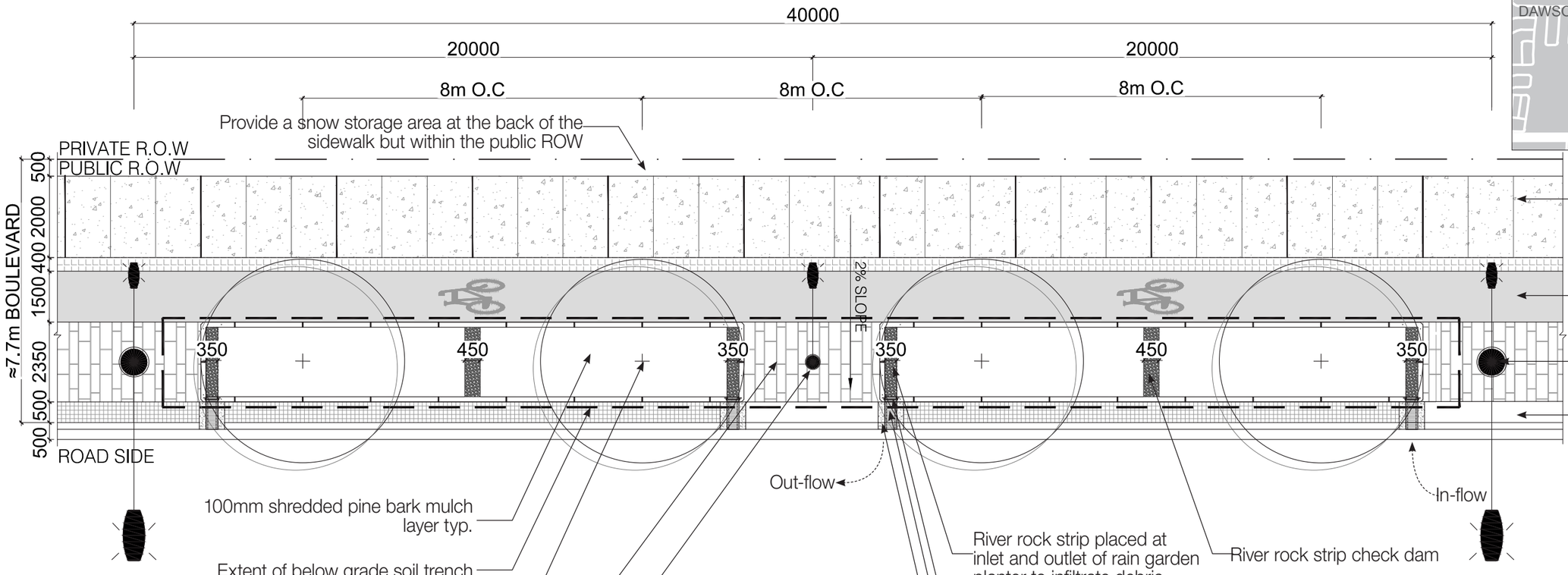


Renderings display typical boulevard condition

Key Map

Yonge Street North

4.2.4 MIDBLOCK TECHNICAL PLAN- RAIN GARDEN



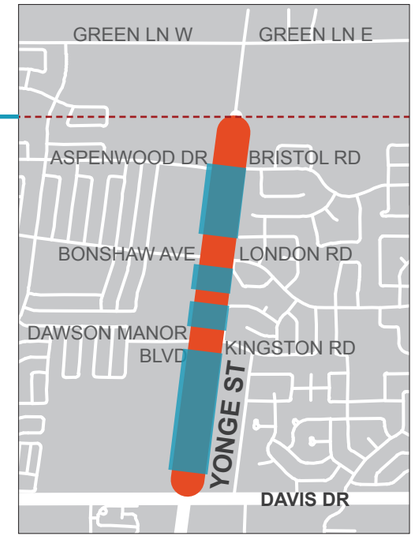
Yonge Street North

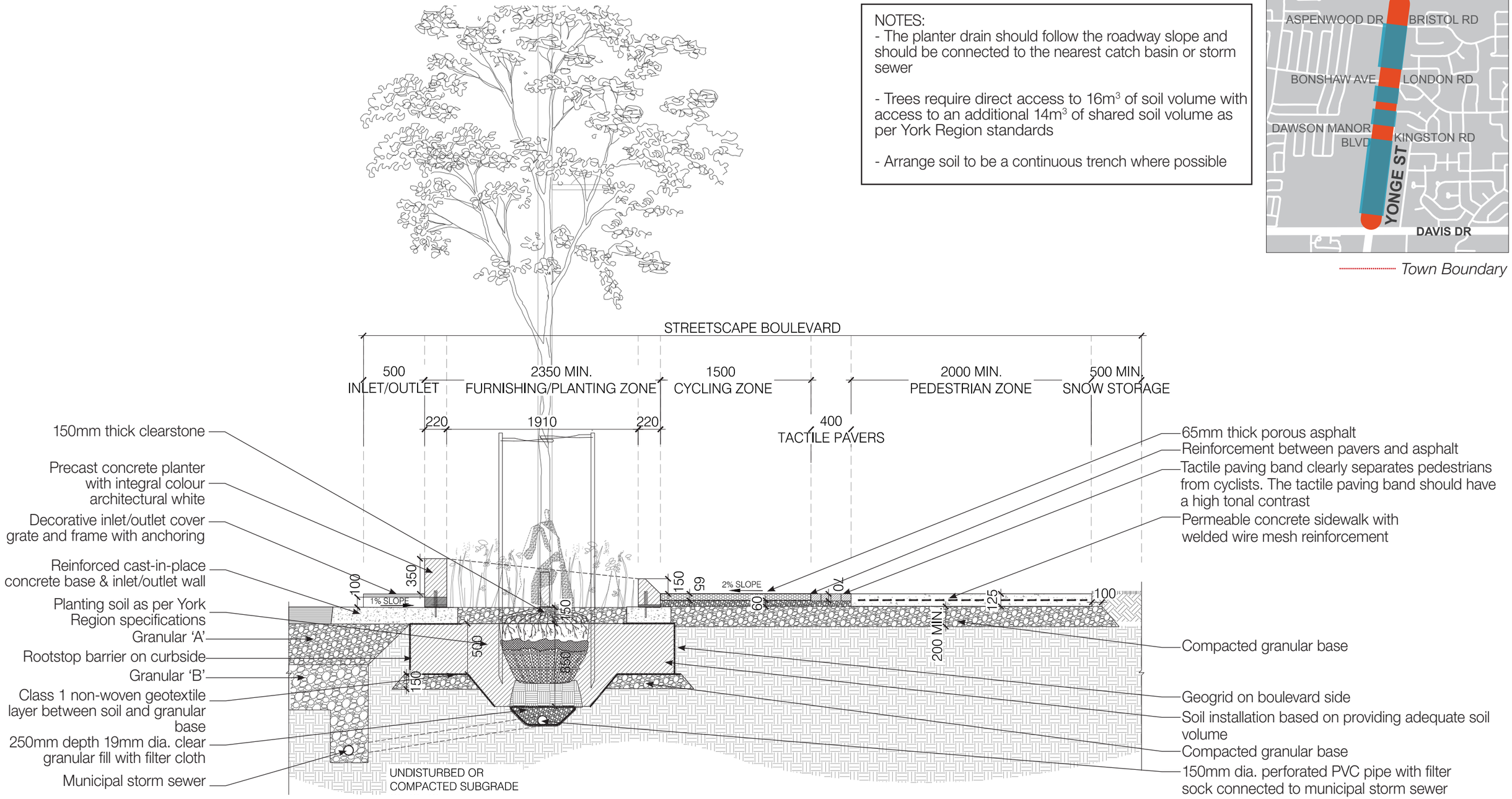
4.2.5 MIDBLOCK TECHNICAL DETAIL- RAIN GARDEN (CROSS SECTION)

NOTES:
- The planter drain should follow the roadway slope and should be connected to the nearest catch basin or storm sewer

- Trees require direct access to 16m^3 of soil volume with access to an additional 14m^3 of shared soil volume as per York Region standards

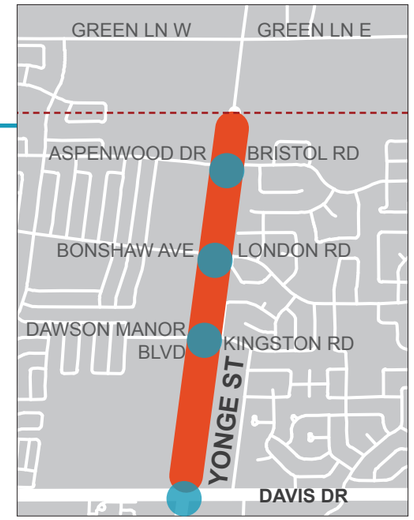
- Arrange soil to be a continuous trench where possible

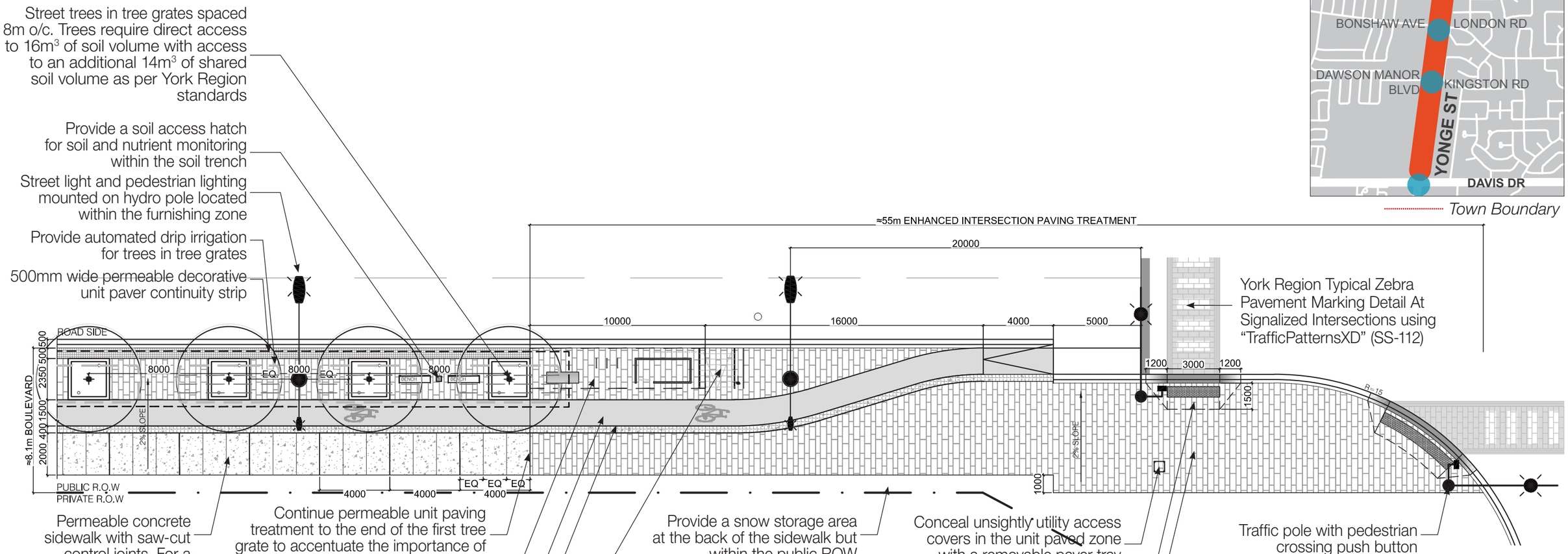




Yonge Street North

4.2.6 TYPICAL INTERSECTION TECHNICAL PLAN





Street trees in tree grates spaced 8m o/c. Trees require direct access to 16m³ of soil volume with access to an additional 14m³ of shared soil volume as per York Region standards

Provide a soil access hatch for soil and nutrient monitoring within the soil trench

Street light and pedestrian lighting mounted on hydro pole located within the furnishing zone

Provide automated drip irrigation for trees in tree grates

500mm wide permeable decorative unit paver continuity strip

York Region Typical Zebra Pavement Marking Detail At Signalized Intersections using "TrafficPatternsXD" (SS-112)

Permeable concrete sidewalk with saw-cut control joints. For a contemporary aesthetic, do not trowel edges

Continue permeable unit paving treatment to the end of the first tree grate to accentuate the importance of the intersection

York Region transit shelter, seating, trash receptacle and bike rings on reinforced porous concrete pad. Unit paving to visually conceal the concrete pad

Porous asphalt cycle track

Textured unit paver buffer between sidewalk and raised cycle track

2.0m wide bus ramp deployment area must be kept clear

Provide a snow storage area at the back of the sidewalk but within the public ROW

Conceal unsightly utility access covers in the unit paved zone with a removable paver tray

York Region standard AODA curb ramp with tactile warning strip

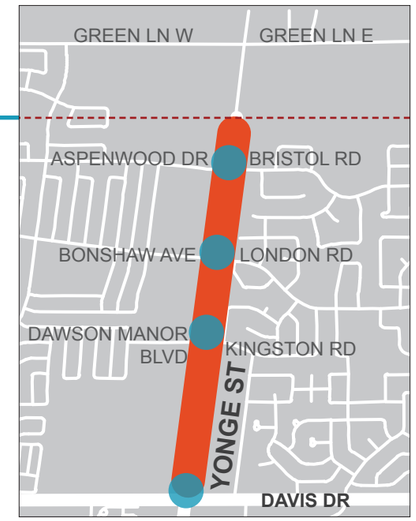
Permeable unit pavers should be installed over a porous concrete base creates an urban plaza at intersection while accommodating LID principles

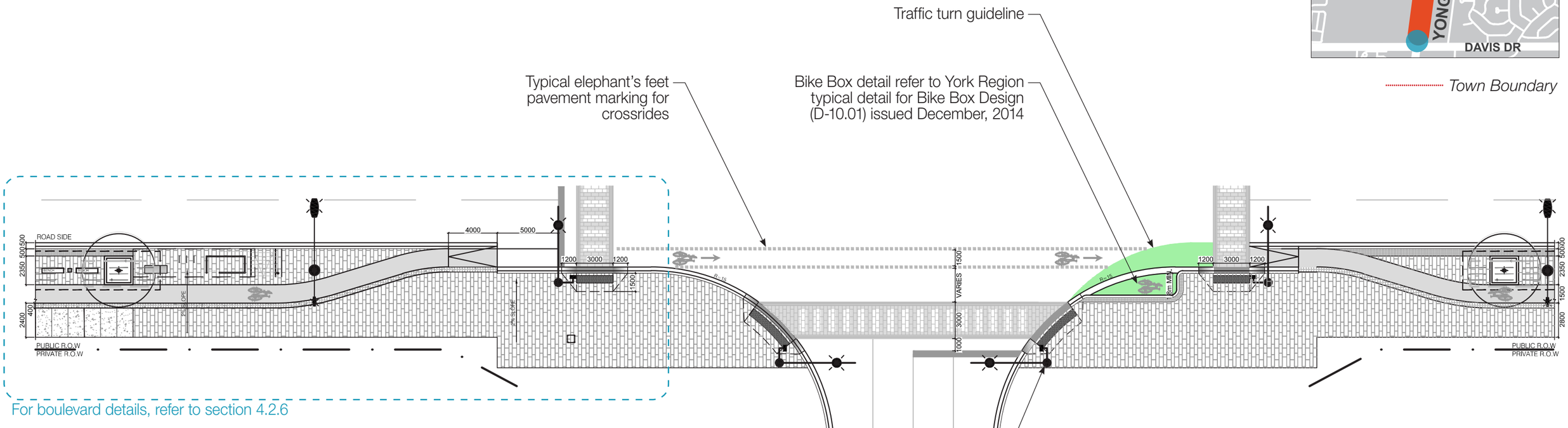
Traffic pole with pedestrian crossing push button

Yonge Street North

4.2.6.1. TYPICAL INTERSECTION TECHNICAL PLAN- CYCLING INFRASTRUCTURE & PAVEMENT MARKINGS

NOTES:
- Separate bicycle signal heads should be provided at signalized intersections that will operate on the same loop and timing plan as the pedestrian signals





For boulevard details, refer to section 4.2.6

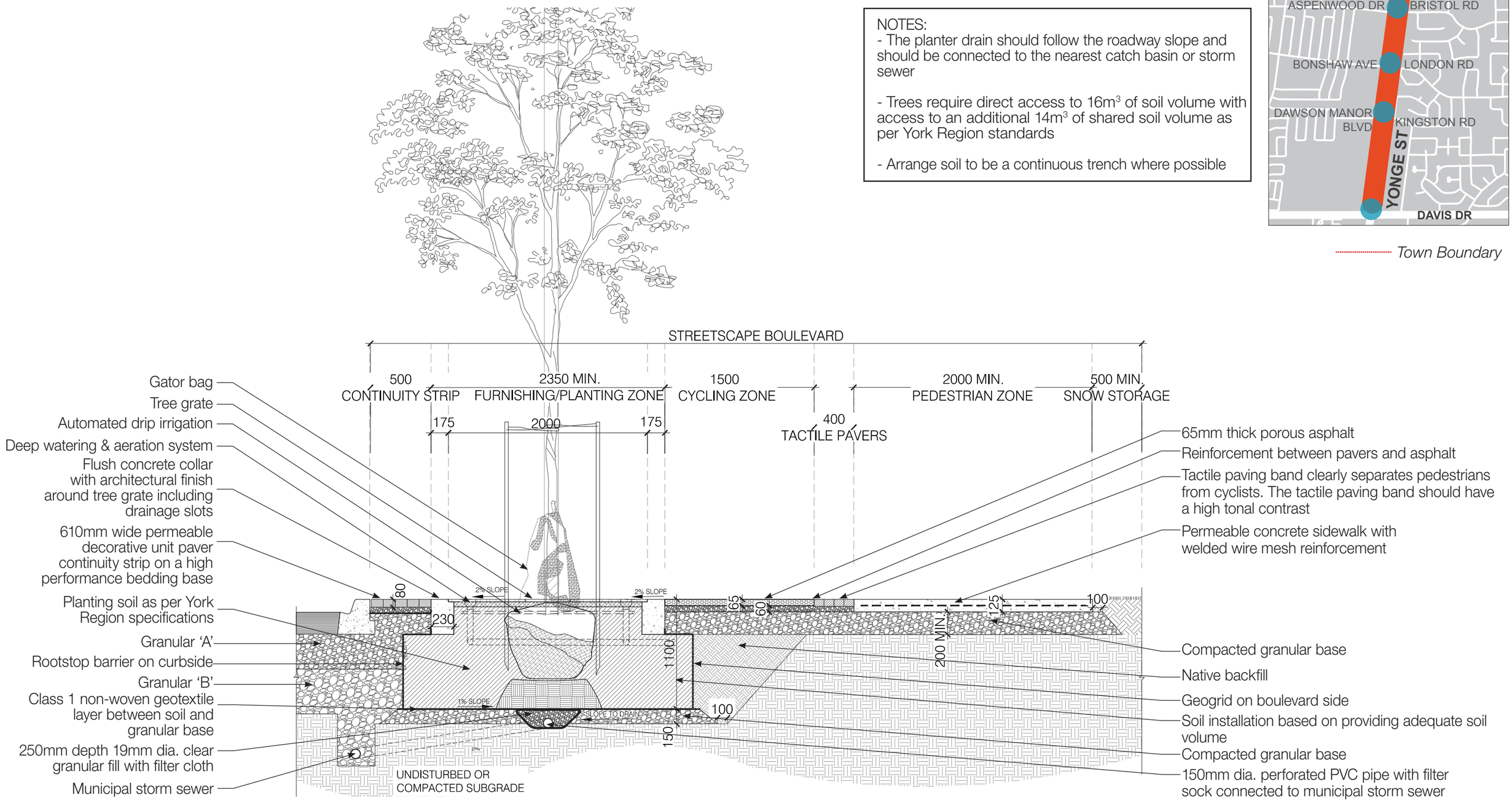
Yonge Street North

4.2.7 TYPICAL INTERSECTION TECHNICAL DETAIL (CROSS SECTION)

NOTES:
- The planter drain should follow the roadway slope and should be connected to the nearest catch basin or storm sewer

- Trees require direct access to 16m^3 of soil volume with access to an additional 14m^3 of shared soil volume as per York Region standards

- Arrange soil to be a continuous trench where possible



Yonge Street North

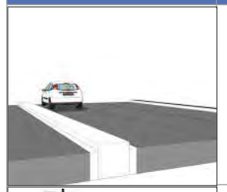
4.2.8 MEDIAN CONDITIONS

BACKGROUND

The Streetscape Master Plan presents a centre median within the Yonge Street North corridor. The median may serve as an interim condition as vivaNext may be implemented on Yonge Street North in the future. The Yonge Street North streetscape plan demonstrated in this report is the interim condition which protects the center of the ROW for the future vivaNext BRT planned for in the next 25 years.

The future BRT will be implemented pending approval and funding by the Province and Metrolinx. Once the BRT arrives, the centre median will be removed and replaced by the rapidway with a running width of 3.5m in each direction. The outside curb line will remain fixed as well as the boulevard treatment behind the curb including cycle track, tree planting, hydro, utilities, traffic signals, lighting and pedestrian infrastructure.

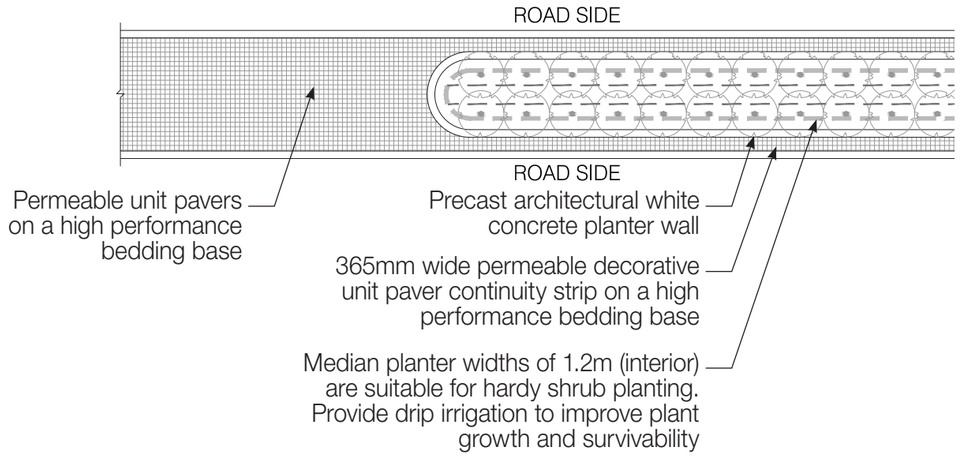
Centre Median Sizing Matrix

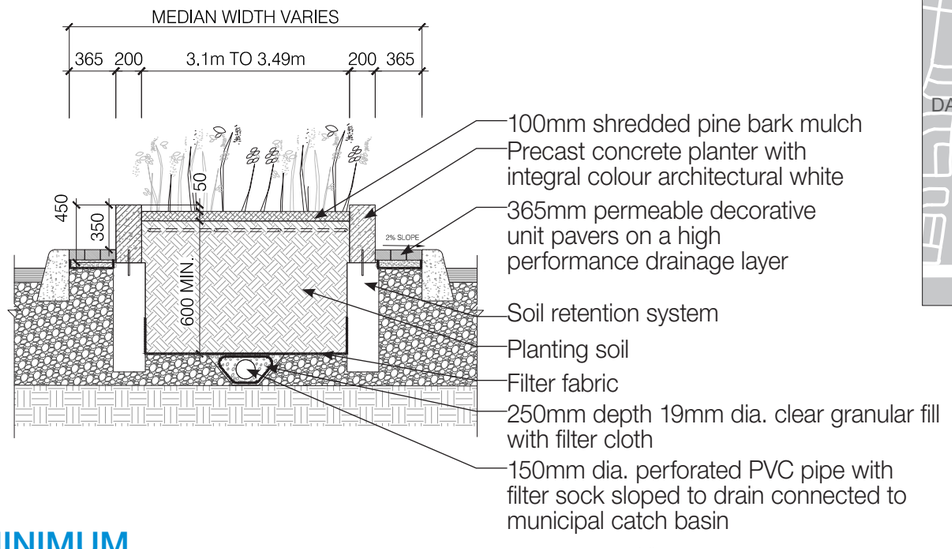
Visualization	Width (From Edge of Pavement)	Median Type	Additional Notes	Further Information
	1.0 m minimum	Concrete	• CIP concrete median with a light broom finish.	Sections 3.5 and 3.8
	1.0 m - 1.9m	Permeable Pavers on a Granular Base	• Contemporary pavers that match the streetscape aesthetic should be used; • Median provides space for place-making banners.	Sections 3.5 and 3.8
	2.0 m - 4.4 m	Concrete Planter with Shrubs and Small Ornamental Trees	• Planted with hardy shrubs species (see plant palette); • Inside planter width should be a minimum of 1500 mm; • 350 mm high precast concrete planter (measured from splash strip); • Planters offset 500 mm from median edges for safety and to mitigate the impacts of salt spray on plant material; • Median provides space for place-making banners.	Sections 3.5 and 3.8
	4.5 m+	Concrete Planter with Trees	• Planted with deciduous canopy trees spaced 8 m on centre; • Inside planter width should be a minimum of 2500 mm; • Trees require direct access to 16m^3 of soil volume with access to an additional 14m^3 of shared soil volume as per York Region standards; • 350 mm high precast concrete planter (measured from splash strip); • Planters offset minimum 500 mm from face of curb for safety and to mitigate the impacts of salt spray on plant material; • Median provides space for place-making banners and public art where space permits.	Sections 3.5 and 3.8

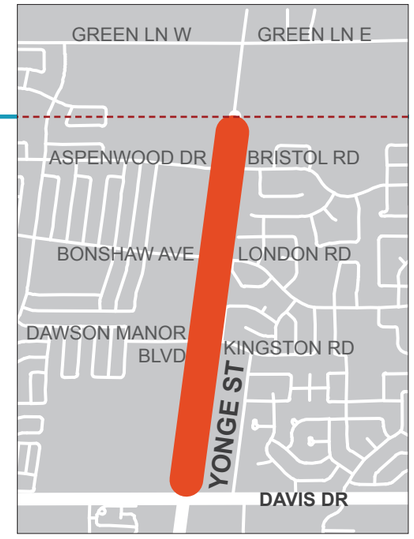
Yonge Street North

MEDIAN TECHNICAL PLAN AND DETAIL

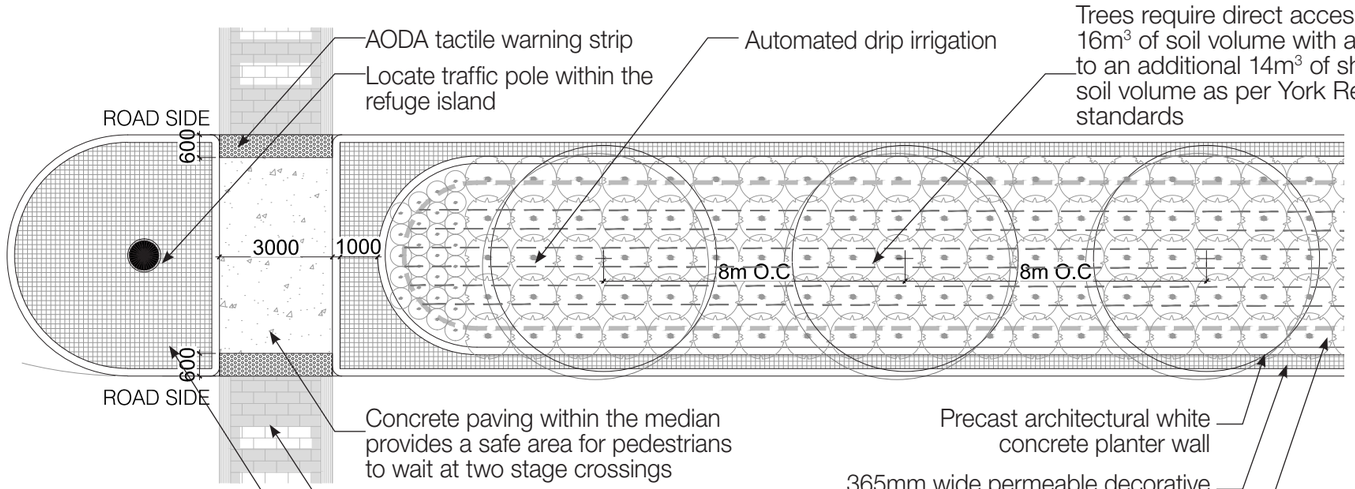
MEDIAN TECHNICAL PLAN AND DETAIL: WIDTH 2.0 METRES- 4.4 METRES

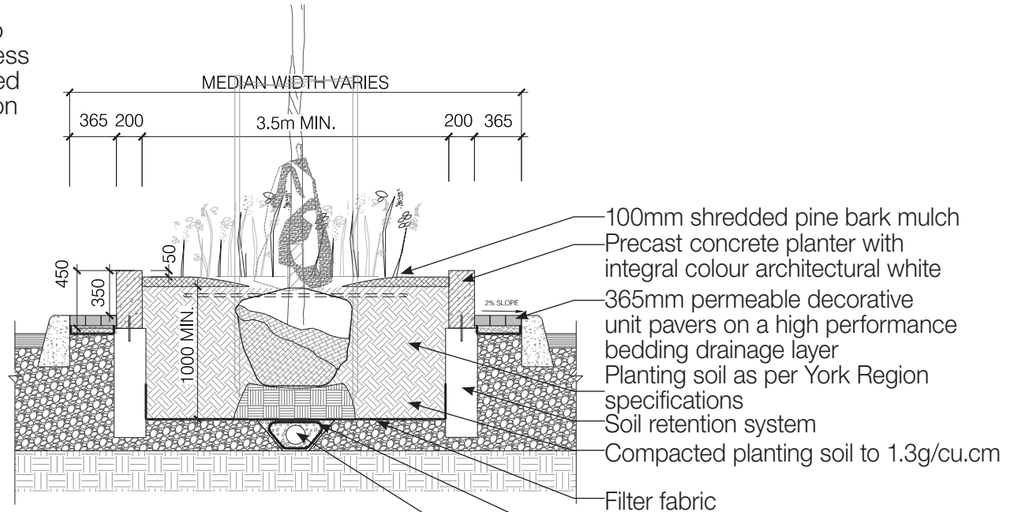






MEDIAN TECHNICAL PLAN AND DETAIL: WIDTH 4.5 METRES MINIMUM

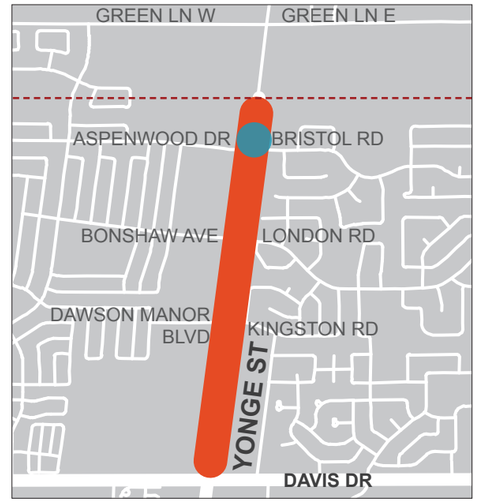




Yonge Street North

4.2.9 GATEWAY CONDITION

Town Boundary



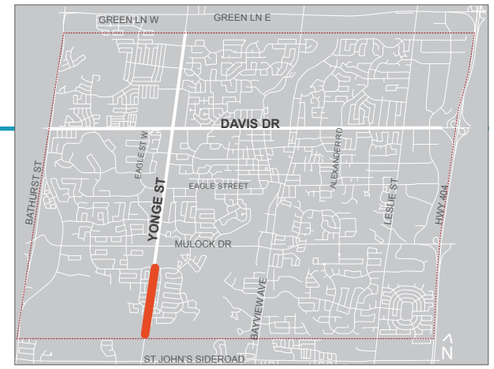
Aspenwood Drive marks the closest signalized intersection to the northern boundary to the Town of Newmarket and consequently provides a logical placement for the Town gateway. The streetscape gateway design reflects the Town border and establishes a strong sense of place.

KEY FEATURES LEGEND

1. Unit paver gateway banding 8 metres on centre ties into street tree spacing
2. Bike Box: refer to Regional Municipality of York – Typical Detail for Bike Box and Side Road Pedestrian Curb Ramp Interface D-10.02
3. Decorative crosswalk: refer to Regional Municipality of York – Typical Zebra Pavement Markings Detail at Signalized Intersections using 'TrafficPatternsXD' SS-112
4. Planted median: refer to section 4.2.8
5. Intersection conditions: refer to section 4.2.6 & 4.2.7
6. Pedestrian refuge island.
7. Refer to section 5.0 for materiality

Yonge Street South

4.3 Yonge Street South Corridor



4.3.1 INTRODUCTION

The Yonge Street South corridor consists of naturalized and low-density residential adjacent land uses and consequently is comprised exclusively of the Green Streetscape Typology. A MUP provides pedestrian and cyclist transportation throughout the corridor, feeding into local and Regional trail networks. A landscape buffer separates the MUP from the roadway.

4.3.2 OVERVIEW MATRIX

Yonge Street South Corridor Overview

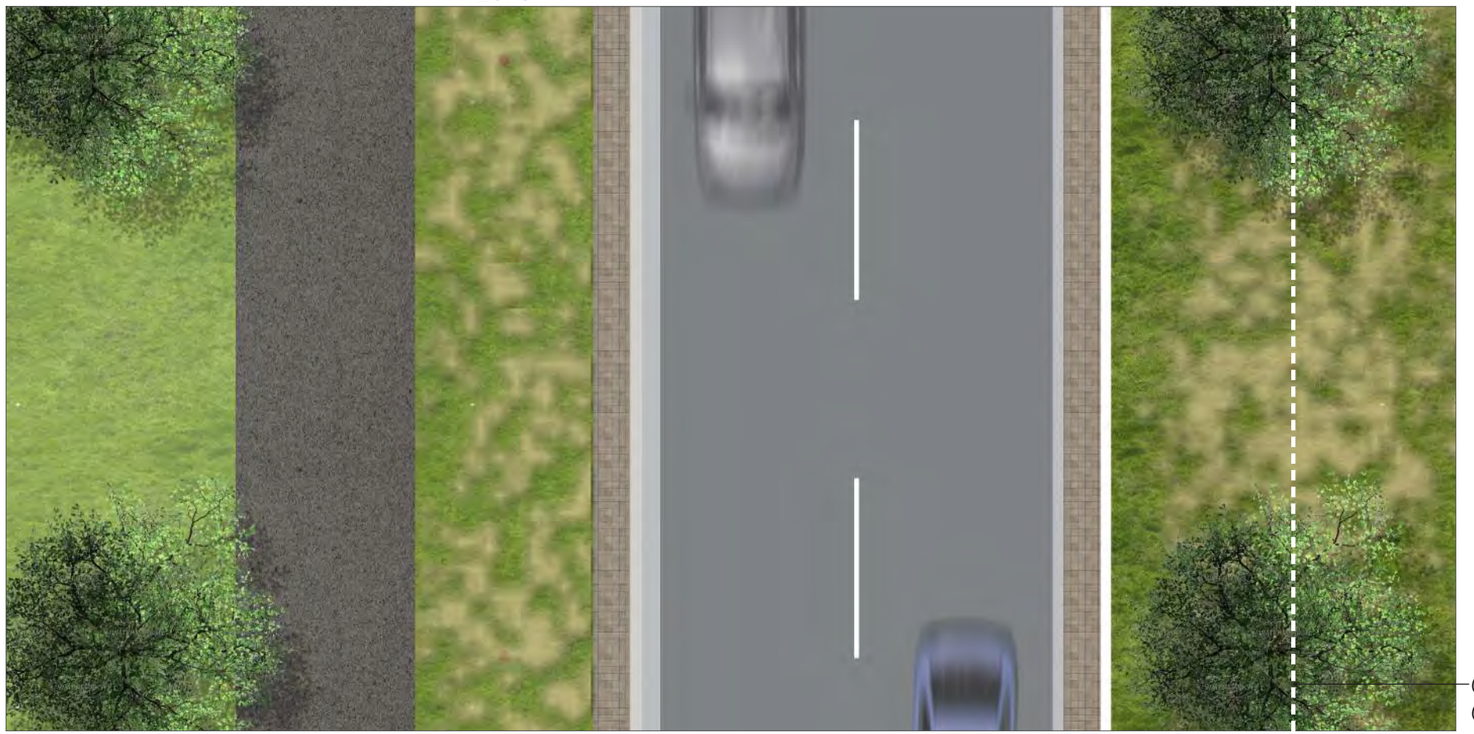
Streetscape Element	Width (minimum)	Typical Boulevard Material	Intersection Condition	Additional Notes	Further Information
Multi-Use Path- Intersection	3 metres	Permeable Unit Pavers on Permeable Concrete Base	• Unit Pavers to extend 50 linear metres from key intersections to establish a strong sense of place; • AODA compliant tactile plates, curbs and crosswalks to be utilized.	• Crossride and Crosswalk separates cyclists and pedestrians at intersections.	Sections 3.8, 4.3.6-7 and 5
Multi-Use Path- Midblock	3 metres	Poly Bound Porous Pavement	• N/A.		Section 3.8, 4.3.3-5 and 5
Landscape Zone	2.35 metres	Landscaping	• Street trees and other visual obstacles set back from the intersection in order to maintain a clear sight triangle.	• Plant species must be hardy, salt and drought tolerant; • Use native species	Section 3.8, 4.3.3-5 and 5
Continuity Strip	0.6 metres	Permeable Unit Pavers on a Granular Base	• Materiality of the continuity strip to be complimentary to the boulevard pavement treatment.		Sections 4.3.3 and 5
Median	Varies	Permeable Unit Pavers and Concrete Planter with Planting	• Median can serve as the basis for two-stage crossing at major intersections.	• Plant species selection is dependent on median width and available soil volumes.	Section 3.9, 4.3.8 and 5

Yonge Street South

4.3.3 STREETSCAPE GEOMETRY TYPICAL MIDBLOCK CONDITION

Landscape Zone | MUP | Planting/ Furnishing Zone | Through Lane | Through Lane | Median

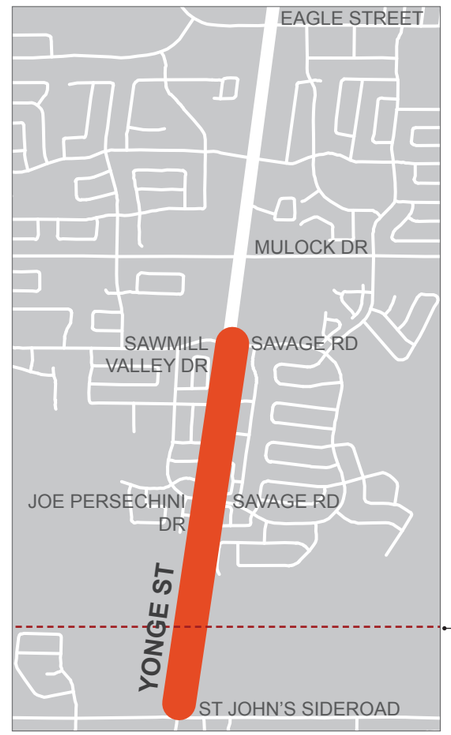
Precedent Images



Cross Section Centre Line

**Property line extends out of drawing scope , refer to Technical Plan 4.3.4.*

Renderings display typical boulevard condition

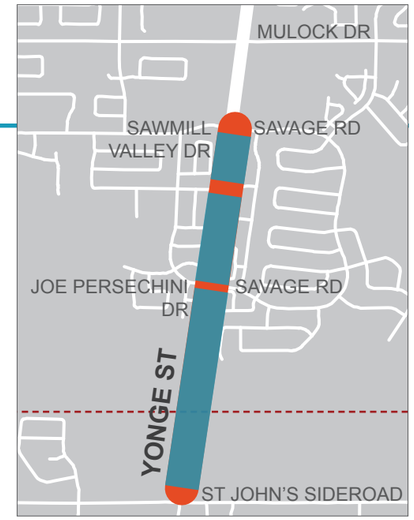


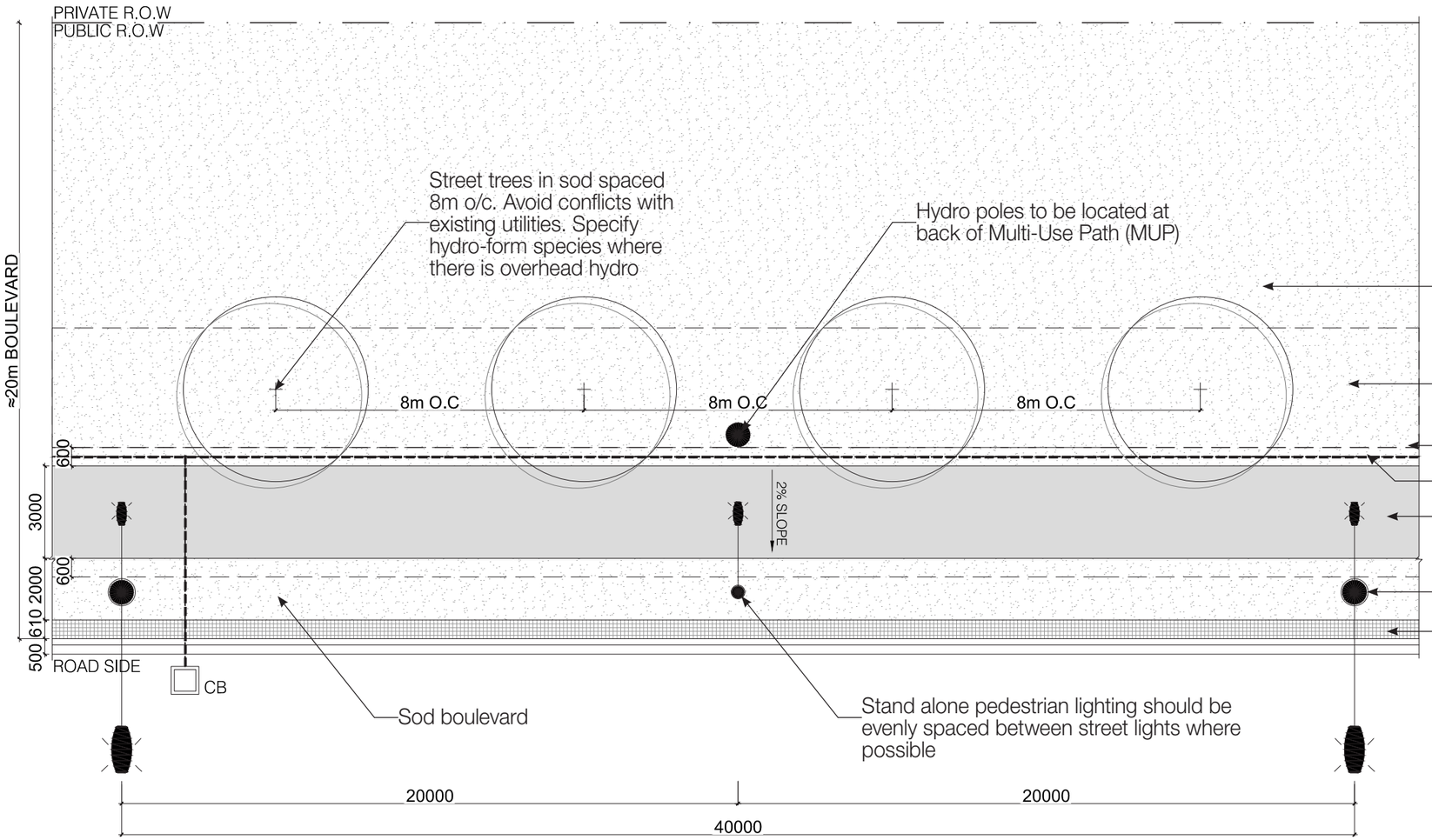
Town Boundary

Key Map

Yonge Street South

4.3.4 MIDBLOCK TECHNICAL PLAN





Where there are grade changes adjacent to the MUP, provide a 600mm wide flat transition zone before rounding. Slope should not exceed 3:1

Continuous soil trench as per York Region standard (NHFS-13): Boulevard Tree Planting Soil Trench For Softscape Boulevards. Minimum width is 2m, Minimum depth is 500mm and the minimum distance from hardscape element to start of trench edge is 150mm.

Provide a snow storage area at the back of the MUP

150mm subdrain to 'T' outlet into existing catch basin

Porous asphalt Multi-Use Path (MUP)

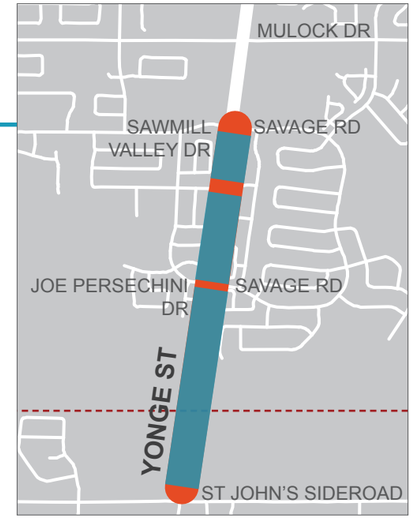
Street light and pedestrian lighting on a shared pole

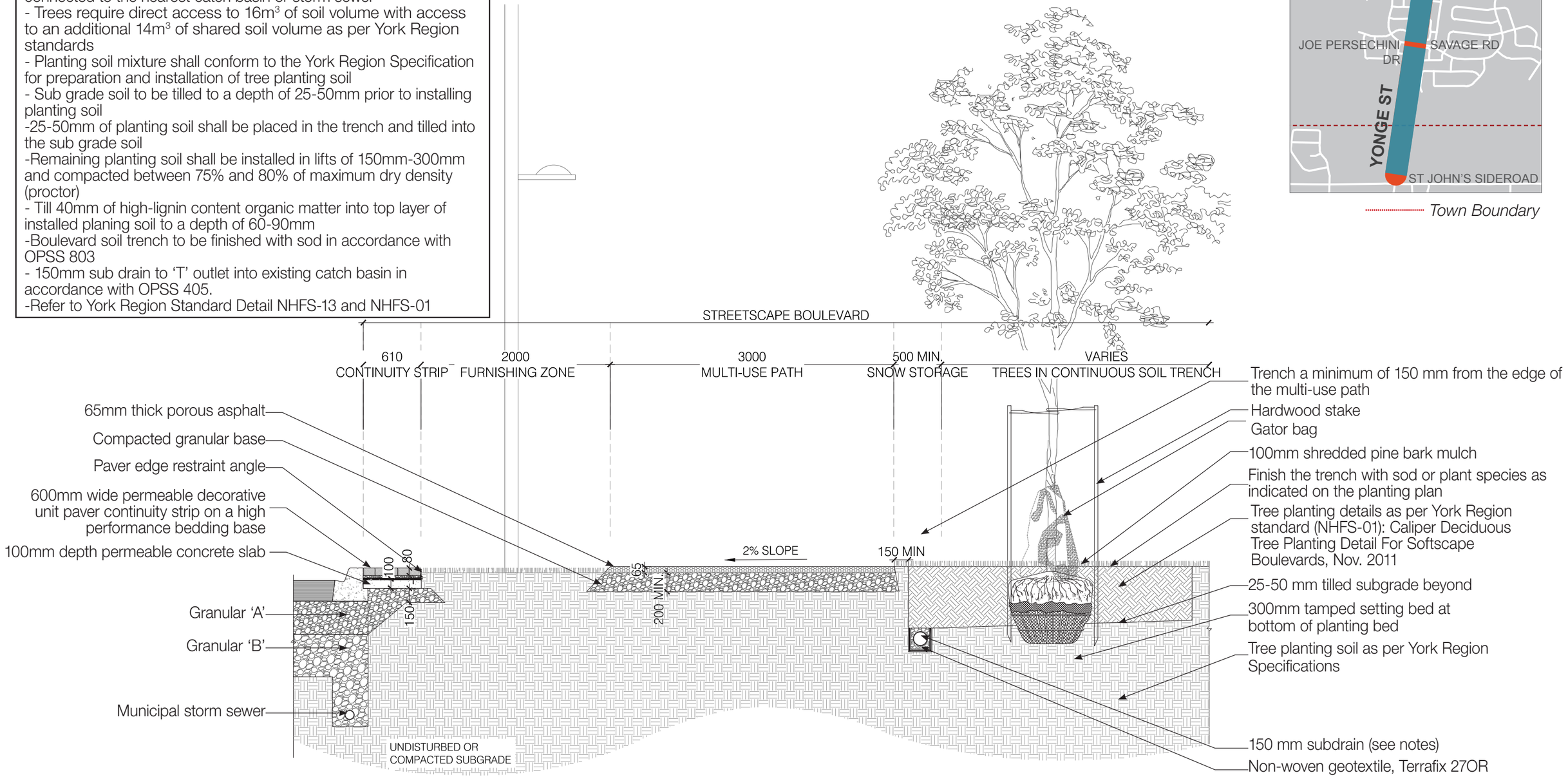
610mm wide permeable decorative unit paver continuity strip

Yonge Street South

4.3.5 MIDBLOCK TECHNICAL DETAIL (CROSS SECTION)

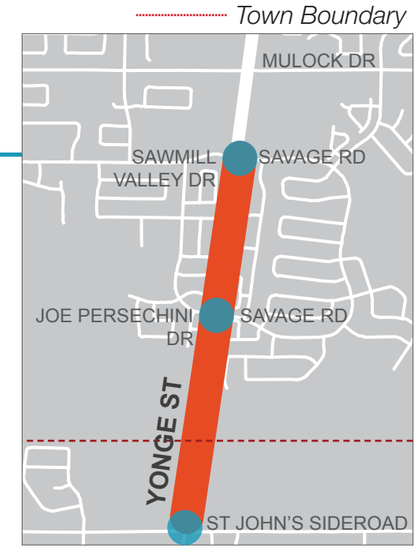
NOTES:
- The planter drain should follow the roadway slope and should be connected to the nearest catch basin or storm sewer
- Trees require direct access to 16m^3 of soil volume with access to an additional 14m^3 of shared soil volume as per York Region standards
- Planting soil mixture shall conform to the York Region Specification for preparation and installation of tree planting soil
- Sub grade soil to be tilled to a depth of 25-50mm prior to installing planting soil
-25-50mm of planting soil shall be placed in the trench and tilled into the sub grade soil
-Remaining planting soil shall be installed in lifts of 150mm-300mm and compacted between 75% and 80% of maximum dry density (proctor)
- Till 40mm of high-lignin content organic matter into top layer of installed planing soil to a depth of 60-90mm
-Boulevard soil trench to be finished with sod in accordance with OPSS 803
- 150mm sub drain to 'T' outlet into existing catch basin in accordance with OPSS 405.
-Refer to York Region Standard Detail NHFS-13 and NHFS-01

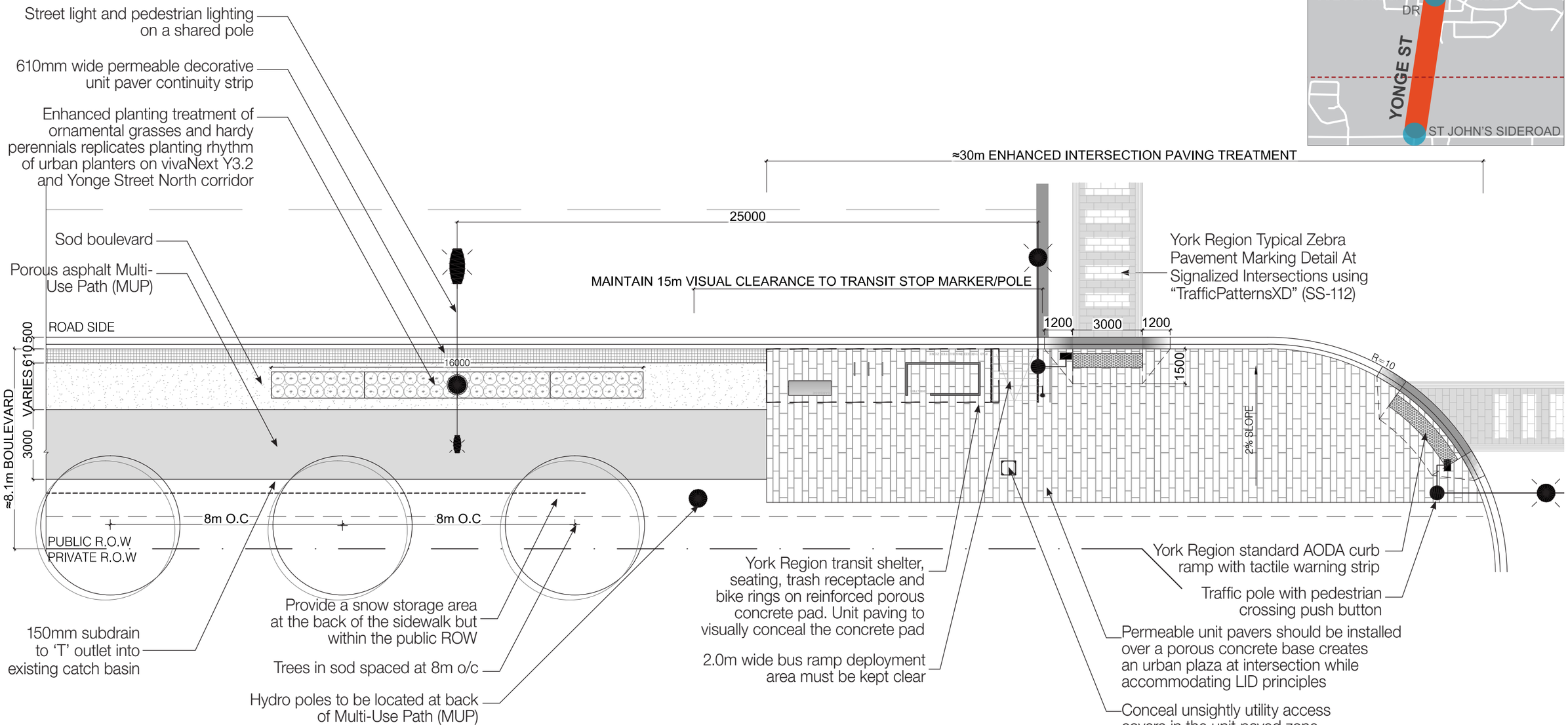




Yonge Street South

4.3.6 TYPICAL INTERSECTION TECHNICAL PLAN

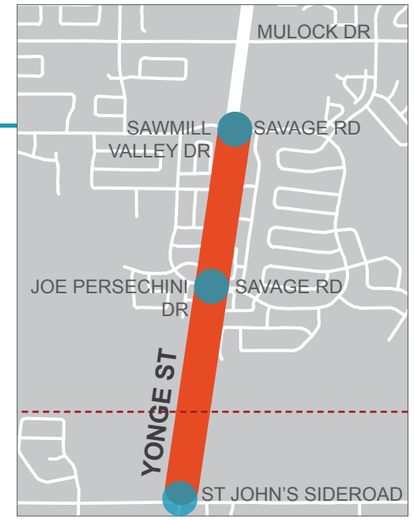


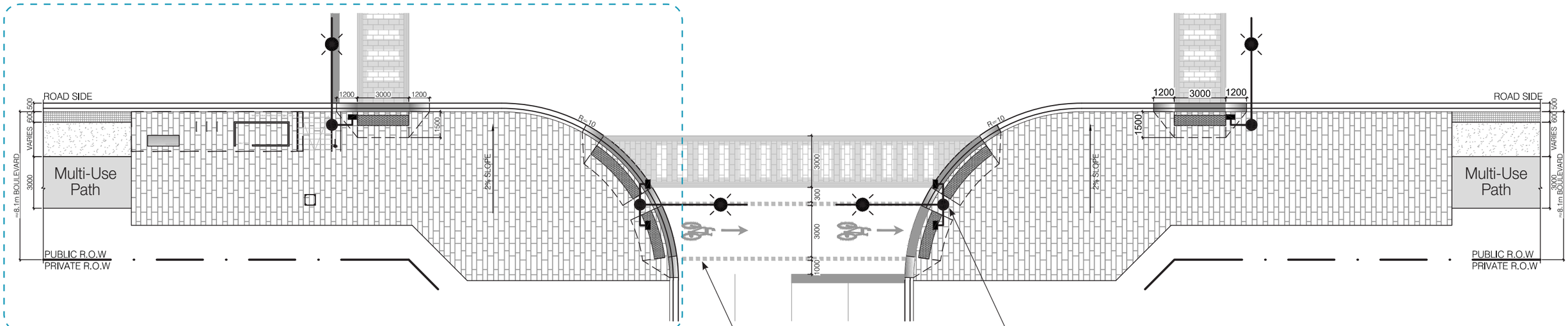


Yonge Street South

4.3.6.1. TYPICAL INTERSECTION TECHNICAL PLAN- CYCLING INFRASTRUCTURE & PAVEMENT MARKINGS

NOTES:
- Separate bicycle signal heads should be provided at signalized intersections that will operate on the same loop and timing plan as the pedestrian signals





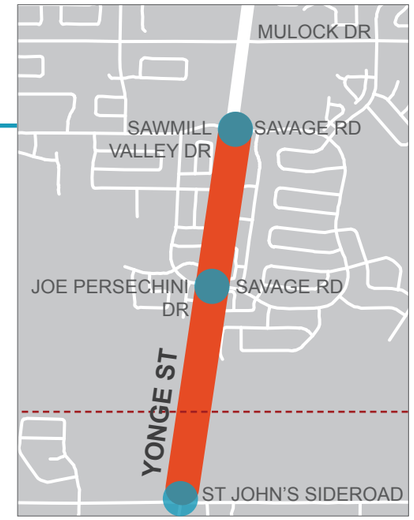
For boulevard details, refer to section 4.3.6

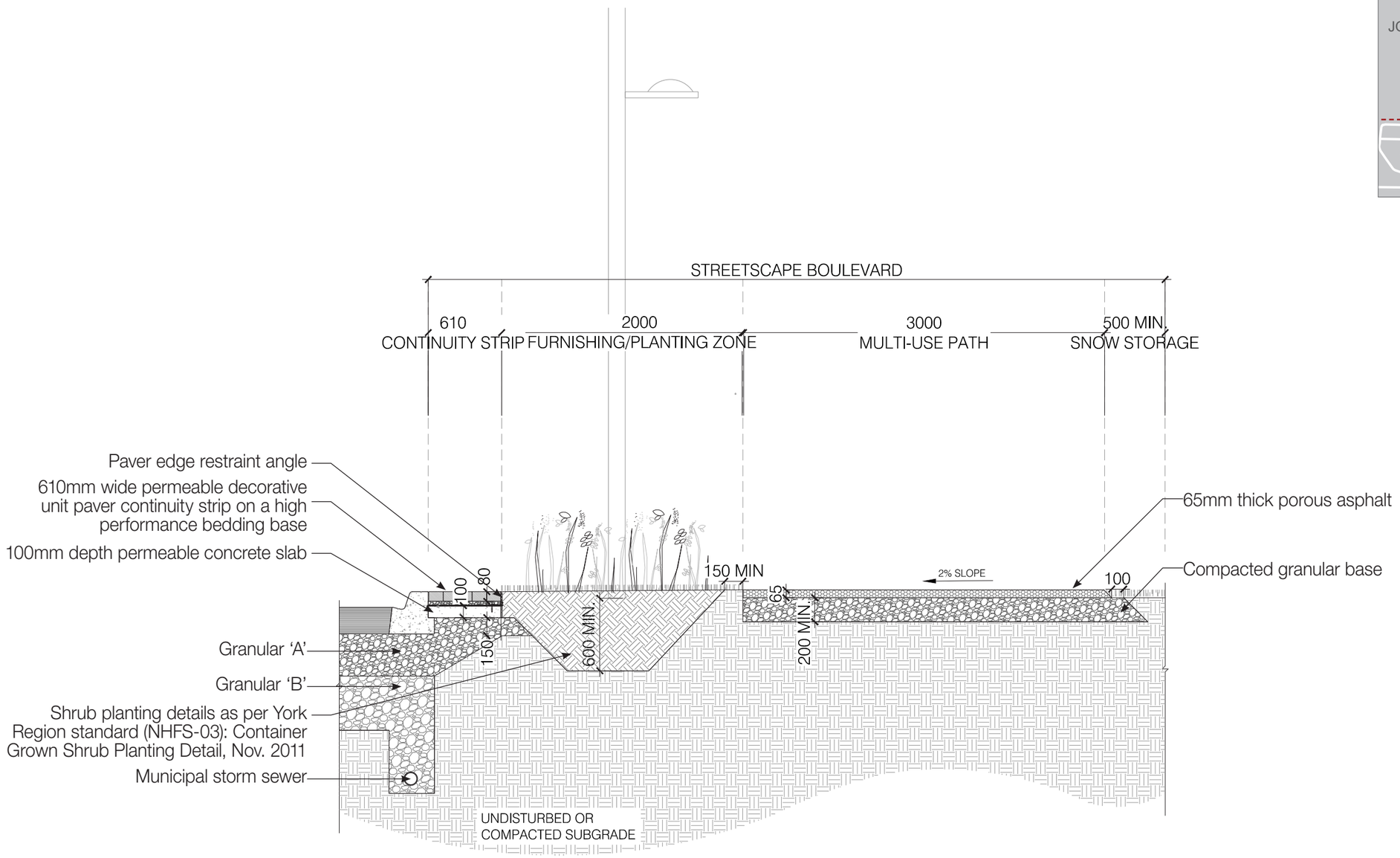
Typical elephant's feet pavement marking for crossrides

Separate signal heads for both pedestrians and cyclists mounted on traffic signal pole

Yonge Street South

4.3.7 TYPICAL INTERSECTION TECHNICAL DETAIL (CROSS SECTION)





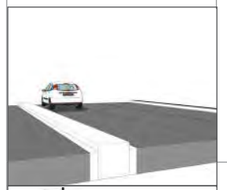
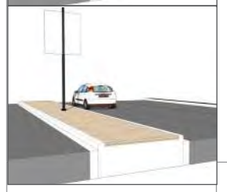
Yonge Street South

4.3.8 MEDIAN CONDITIONS

BACKGROUND

The Streetscape Master Plan presents a centre median within the Yonge Street South corridor where there is room in the ROW. The median is wide enough to accommodate deciduous canopy trees with an understory planting of hardy ornamental grasses and shrubs. This will contribute to the greening and beautification of the corridor.

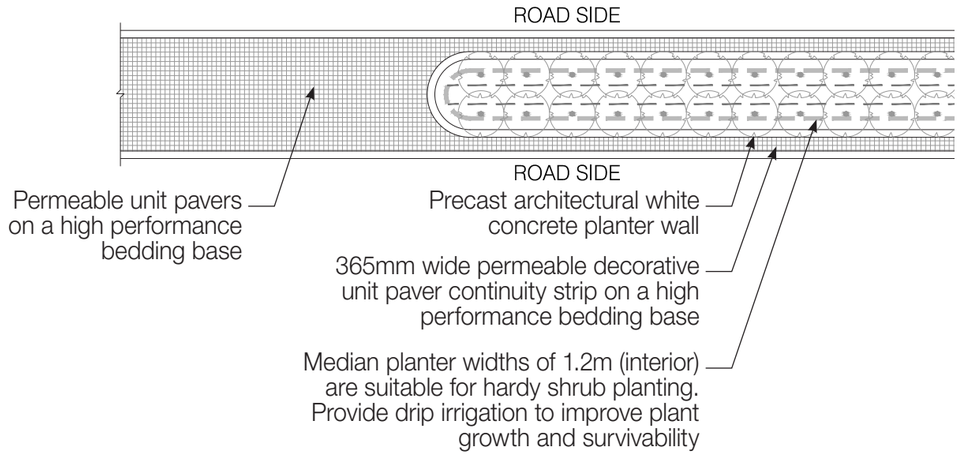
Centre Median Sizing Matrix

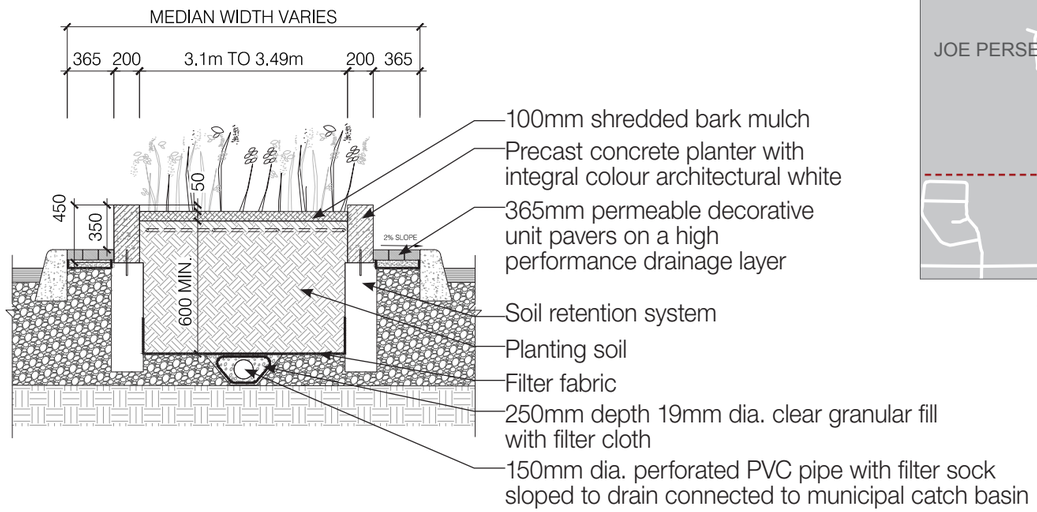
Visualization	Width (From Edge of Pavement)	Median Type	Additional Notes	Further Information
	1.0 m minimum	Concrete	• CIP concrete median with a light broom finish.	Sections 3.5 and 3.8
	1.0 m - 1.9 m	Unit Pavers on a Granular Base	• Contemporary pavers that match the streetscape aesthetic should be used ; • Median provides space for place-making banners.	Sections 3.5 and 3.8
	2.0 m - 4.4 m	Concrete Planter with Shrubs and Small Ornamental Trees	• Planted with hardy shrubs species (see plant palette); • Inside planter width should be a minimum of 1500 mm; • 350 mm high precast concrete planter; • Planters offset 500 mm from median edges for safety and to mitigate the impacts of salt spray on plant material; • Median provides space for place-making banners.	Sections 3.5 and 3.8
	4.5 m +	Concrete Planter with Trees	• Planted with deciduous canopy trees spaced 8 m on centre; • Inside planter width should be a minimum of 2500 mm; • Planted with deciduous street trees 8 metres on centre in midblock conditions; • Trees require direct access to 16m^3 of soil volume with access to an additional 14m^3 of shared soil volume as per York Region standards; • 350 mm high precast concrete planter; • Planters offset 500 mm from median edges for safety and to mitigate the impacts of salt spray on plant material; • Median provides space for place-making banners and public art where space permits.	Sections 3.5 and 3.8

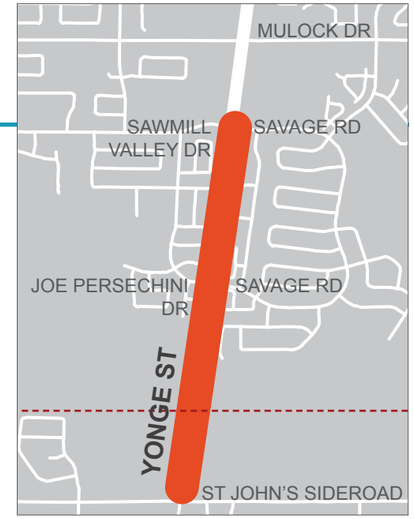
Yonge Street South

MEDIAN TECHNICAL PLAN AND DETAIL

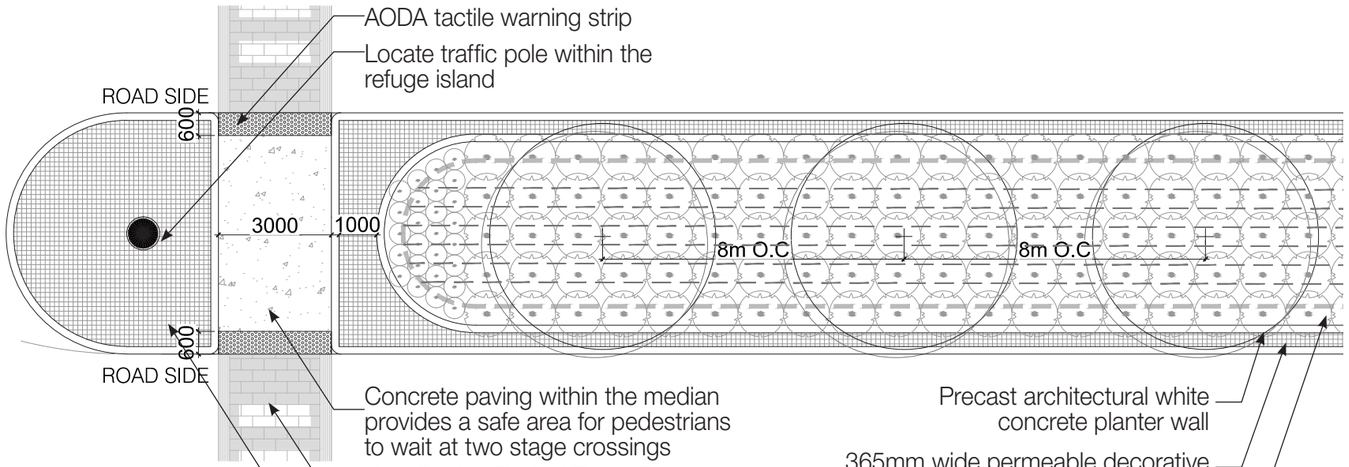
MEDIAN TECHNICAL PLAN AND DETAIL: WIDTH 2.0 METRES- 4.4 METRES

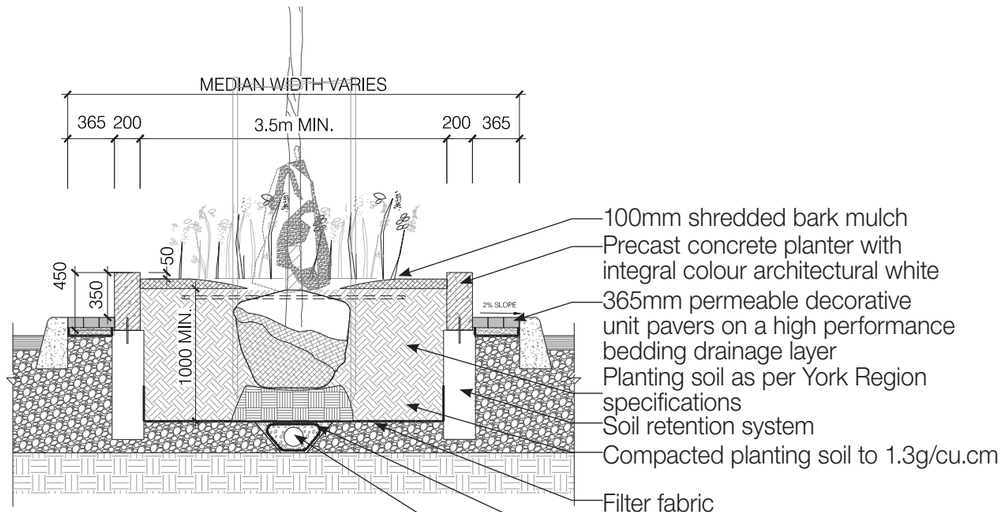






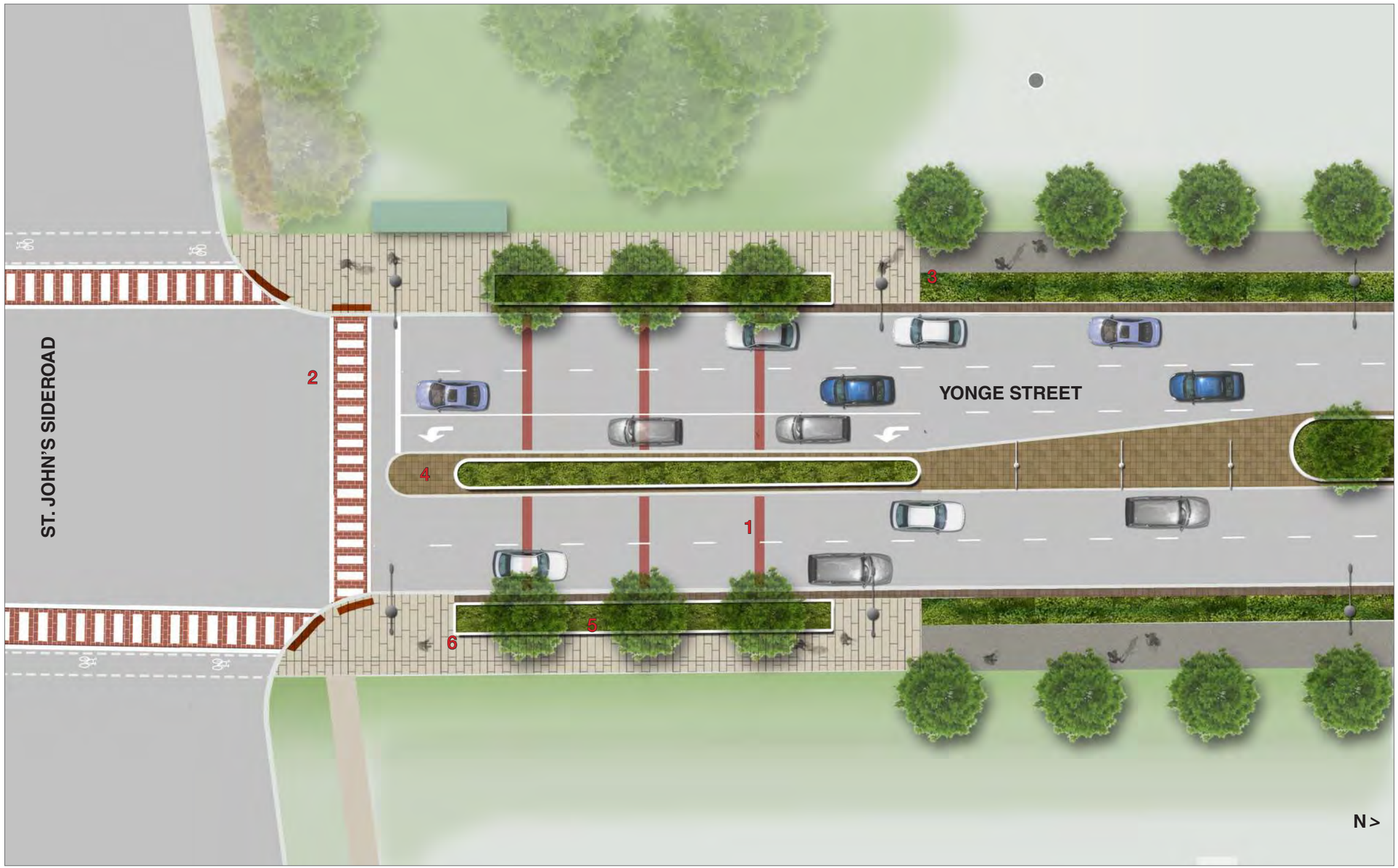
MEDIAN TECHNICAL PLAN AND DETAIL: WIDTH 4.5 METRES MINIMUM

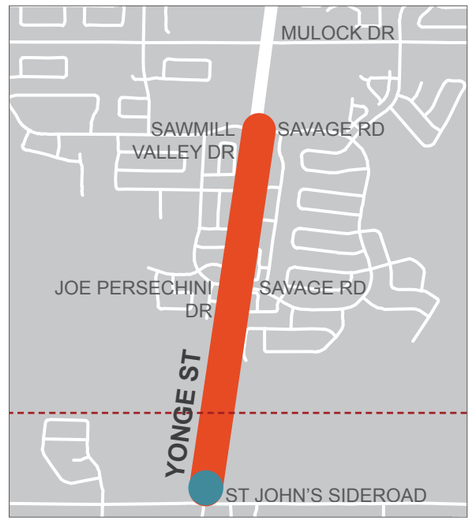




Yonge Street South

4.3.9 GATEWAY CONDITION





The Town of Newmarket streetscape gateway is a gradual transition from the Town of Aurora that originates at the signalized intersection at St. John's Sideroad, approximately 500 metres south of the Town boundary.

KEY FEATURES LEGEND

1. Unit paver gateway banding 8 metres on centre ties into tree planting
2. Decorative crosswalk: refer to Regional Municipality of York – Typical Zebra Pavement Markings Detail at Signalized Intersections using 'TrafficPatternsXD' SS-112
3. MUP and landscape zone: refer to sections 4.3.4-5
4. Planted median: refer to section 4.3.8
5. Feature planter with street trees placed 8 metres on centre with an ornamental grass understorey: refer to sections 4.3.6-7
6. Refer to section 5.0 for information on materiality