9 RECOMMENDED TRANSPORTATION NETWORK

9 Recommended Transportation Network

9.1 Recommended Transportation Network Overview

The preferred network layers (i.e. active network, transit network, street network, and block plan) combined to create the recommended transportation network (Figure 9.1). The composite network ensures that improvements for each mode are being considered in conjunction with other modes, and that proposed changes not only benefit one type of user, but the transportation network as a whole. The recommended transportation network is shown in Figure 9.2.

Figure 9.1: Overlay of Network Layers and Finalized Recommended Transportation Network

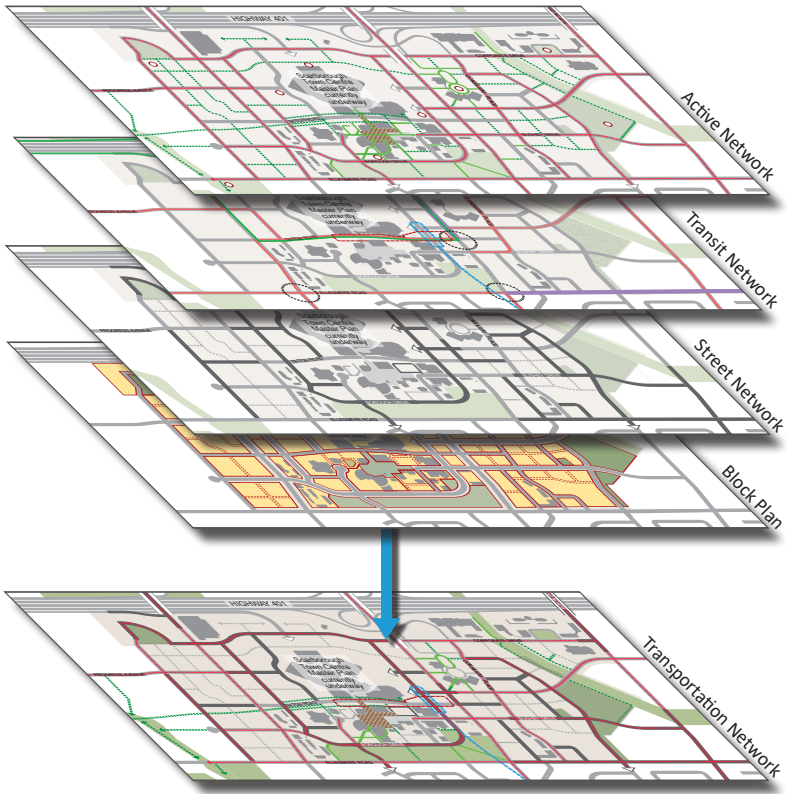
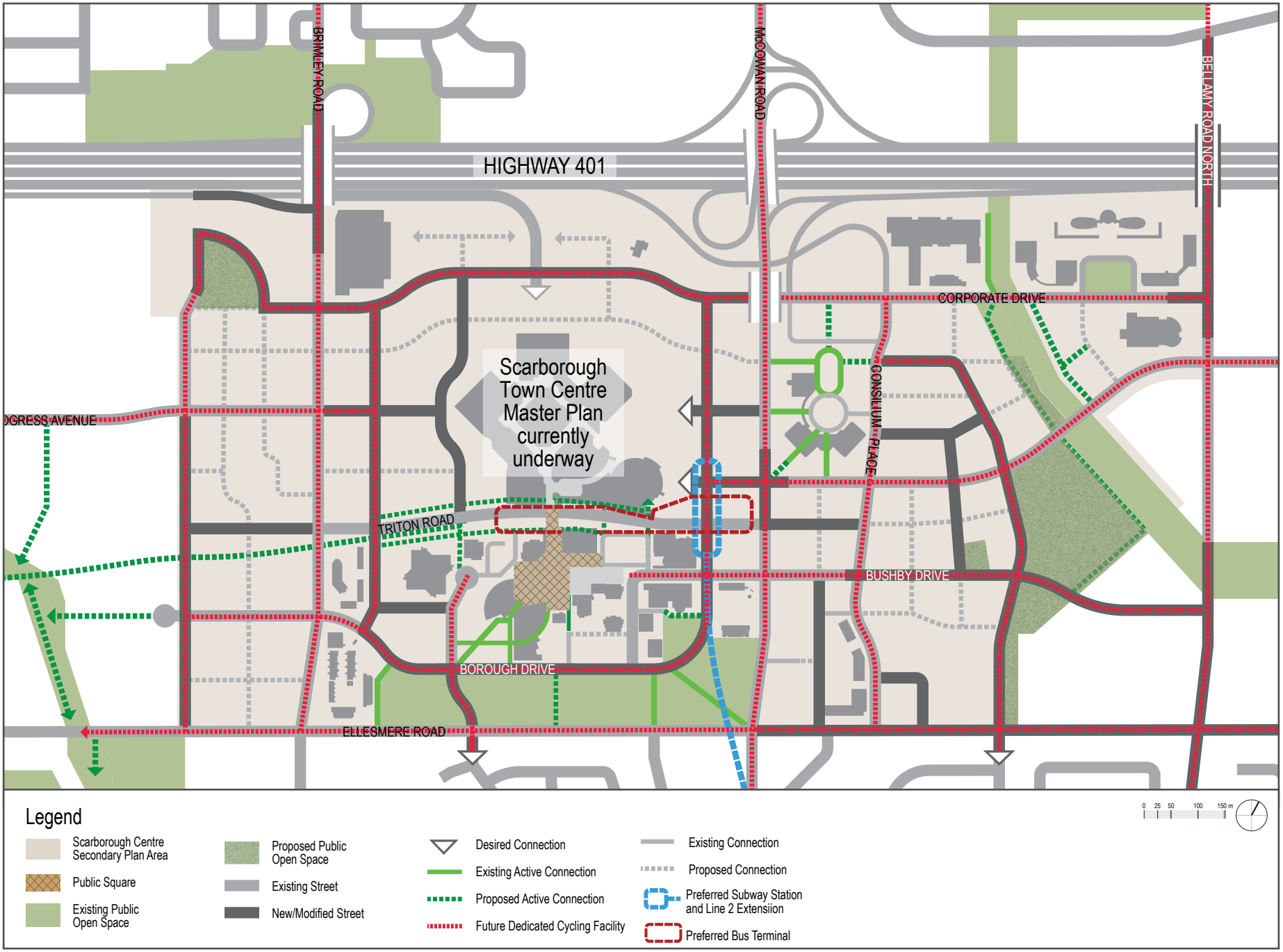


Figure 9.2: Recommended Transportation Network



The recommended transportation network contains the following proposed projects:

1. Area-Wide Policy Updates
2. Interim Project: Borough Drive Lane Reduction
3. Finer Local Streets and Connections
4. Progress Avenue and McCowan Road Intersection Normalization
5. Progress Avenue and Corporate Drive Reconfiguration
6. Elimination of Bushby Drive to McCowan Road Ramp
7. Borough Drive Lane Reduction
8. Borough Approach East and West Reconfiguration/Consolidation
9. Durham-Scarborough Bus Rapid Transit (BRT)
10. Brimley Road and Highway 401 Interchange Reconfiguration
11. Rapid Transit Infrastructure/Corridor Repurposing
12. Satellite Bike Share Expansion
13. Cycling Network
14. Bushby Drive Extension to Bellamy Road
15. McCowan Rapid Transit
16. Bellamy Road Extension to Milner Avenue

9.2 Supporting Strategies

The Scarborough Centre on the Move Transportation Master Plan's recommended transportation network presents a framework that provides a balanced transportation system for all users. The overall transportation network proposed through this plan acts as a TDM measure for creating a vibrant and sustainable multi-modal urban centre. With networks and strategies to support all four pillars, the vision for Scarborough Centre as a multi-modal hub that offers a variety of reliable and connected transportation options can be realized. The four study pillars and strategies to support the vision for Scarborough Centre are shown in Figure 9.3.

Figure 9.3: Strategies to Achieve the Vision for Scarborough Centre

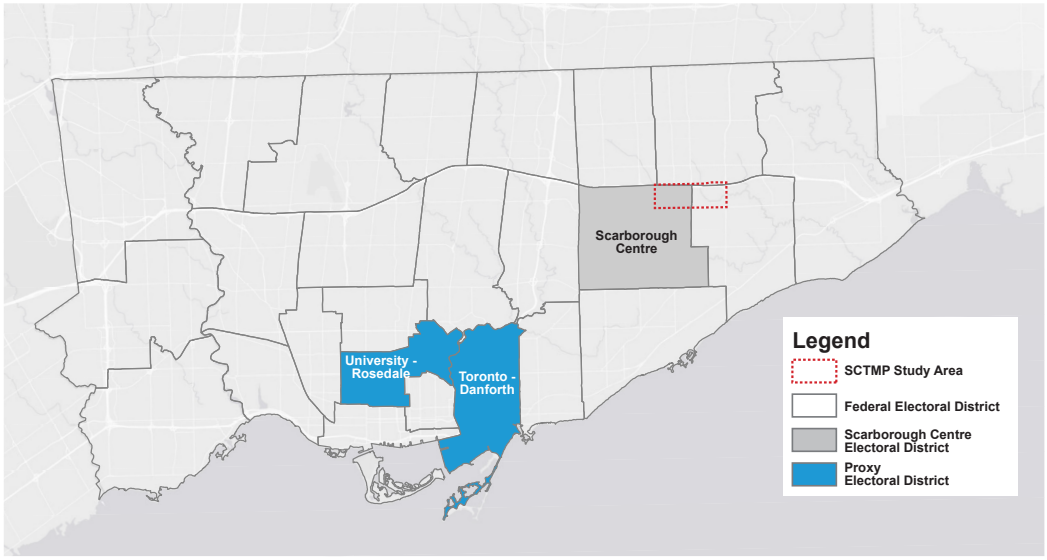
9.3 Transportation Demand

9.3.1 Mode Split

The projected density of 350 people and jobs per hectare in Scarborough Centre is comparable to the existing density of 380 people and jobs per hectare in Downtown Toronto. The proposed grid network and block size of 80 to 120 metres in the recommended transportation network has also been planned to emulate typical downtown blocks that are supportive of mixed-use transit-oriented development. The high-density development and finer block pattern will be paired with transit investments including the future Line 2 – Scarborough Subway Extension, Durham-Scarborough BRT and McCowan Rapid Transit, to facilitate a shift towards public transit away from the existing automobile-oriented Centre. Together, these changes are anticipated to result in a decrease in the automobile mode share and increase in other modes, similar to modal splits that are typical within today's dense urban centres.

Using data from the Canadian Census (2016), existing journey-to-work modal splits were extracted from target areas to determine commuter modal split goals for Scarborough Centre. Modal splits from comparable centres (e.g. North York Centre, Vaughan Metropolitan Centre) showed only marginal differences from the existing modal split in Scarborough Centre and were therefore not representative of the long-term vision for Scarborough Centre. Based on the growth and density projections for Scarborough Centre, two target locations (proxy planning districts) in Downtown Toronto were used to represent target modal splits – University-Rosedale and Toronto-Danforth. These represent locations with similar density, block size, and transportation networks as is recommended in the SCTMP.

Figure 9.4: Scarborough Centre and Target Locations (Proxy Planning Districts)



It is important to note that the modal splits extracted from the Canadian Census reflect commuter mode shares, and are therefore not indicative of travel behaviour for all trips at all times of the day. The 2016

Scarborough Centre mode share, effectively the "Do Nothing" future mode share, is shown in Figure 9.5.

Without significant improvements to the transportation network for all modes in Scarborough Centre, it is expected that the future commuter mode share will be similar to the mode share observed today. An automobile mode share exceeding 50% is reflective of auto-oriented development rather than transit-oriented development.

The 2041 medium target for Scarborough Centre is based on Toronto-Danforth. Mode splits for Toronto-Danforth are shown in Figure 9.6.

Toronto-Danforth, which is used to represent the mid-range mode split target for Scarborough Centre, experiences a 36% automobile driver mode share, 43% transit mode share, and 16% active mode share (i.e. walking and cycling) for the commute to work. Reaching this goal would correspond to a 27% reduction in automobile mode share and 15% increase in active modes.

The 2041 high modal split target for Scarborough Centre is based on University-Rosedale, as shown in Figure 9.7.

A greater goal, represented by University-Rosedale, would see a 35% increase in active modes over Scarborough Centre, for a total of 36% of the population walking or cycling to work. A slight decrease in transit mode share is observed in this high target scenario as walking and cycling become more comfortable and convenient.

As the SCTMP is a long-term visionary document, these modal split targets are applicable to 2041 and beyond. An increase in population and employment without a shift to active and sustainable modes will result in a transportation future with greater constraints that what is observed today.

Figure 9.5: 2041 Low Target Commuter Mode Split (Scarborough Centre, 2016)

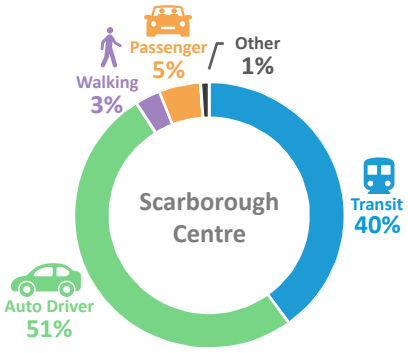


Figure 9.6: 2041 Medium Target Commuter Mode Split (Toronto-Danforth, 2016)

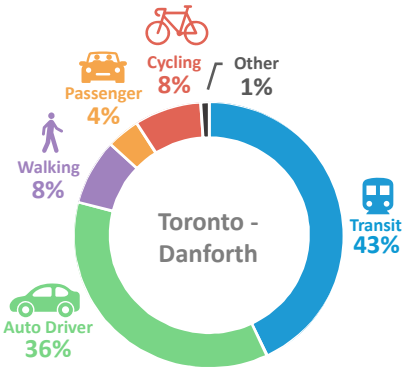
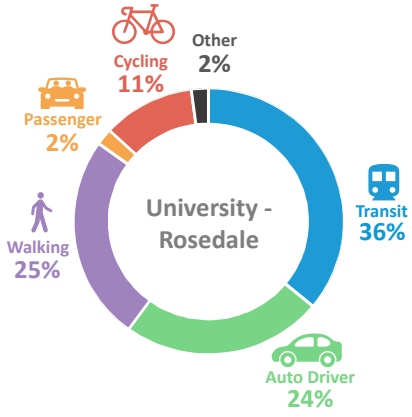


Figure 9.7: 2041 High Target Commuter Mode Split (University-Rosedale, 2016)



9.3.2 Automobile Demand

Travel demand forecasts for the year 2041 from the City of Toronto's EMME model were adjusted to reflect the final recommended transportation network using the low and high commuter mode share targets. This model accounts for the Scarborough Subway Extension and bus terminal, new and modified streets, planned priority transit corridors, and TDM measures that encourage active and sustainable modes and discourage automobile use. The resulting high and low target automobile volume to capacity (V/C) ratios are shown in Table 9.2, where they are compared to the V/C ratios of the "Do Nothing" scenario.

Table 9.2: Screenline volume to capacity ratios for inbound and outbound automobile trips, 2041 low and high targets

Screenline	Low ("Do Nothing")		Medium		High	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
	V/C	V/C	V/C	V/C	V/C	V/C
1. Western	0.61	0.39	0.29	0.18	0.19	0.12
2. Eastern	0.33	0.76	0.15	0.35	0.1	0.24
3. Northern	0.6	1.09	0.29	0.51	0.19	0.34
4. Southern	0.66	0.56	0.37	0.32	0.25	0.21
5. West of McCowan Road	0.3	0.92	0.16	0.42	0.11	0.28

The Recommended transportation network proposed in the SCTMP improves both north-south and east-west traffic conditions, particularly for outbound automobile trips. The planned network increases the capacity of the street network to accommodate vehicular traffic, while also prioritizing active and sustainable modes of transportation to ensure future growth in the Centre supports multi-modal transportation.

It is important to note that automobile V/C ratios were not the only criteria to measure the forecasted improvements to the transportation network. The four project pillars and eight study principles look beyond automobile capacity and evaluate other objectives and goals of the transportation network focusing on all modes of transportation. In particular, the planned transportation changes are expected to result in a significant increase in walking and cycling trips.

9.4 Design Criteria and Draft Preliminary Cross-Sections

The SCTMP applies a Complete Streets approach to the recommended transportation network. A Complete Streets approach is a design framework that aims to facilitate safe and comfortable travel for all users. In addition to providing infrastructure for all modes (pedestrians, cyclists, transit users, and drivers), a Complete Streets approach seeks to integrate the roadway with streetscape elements, adjacent land uses, and the community to provide an attractive environment for street users and change the Centre's modal split. This section presents conceptual cross-sections and design elements that draw from design criteria outlined in the City of Toronto Complete Streets Guidelines (2016), the City of Toronto Road Engineering Design Guidelines (2017), The Toronto Streetscape Manual, Accessibility for Ontarians with Disabilities Act (AODA), Ontario Traffic Manual (OTM) Book 18, and Toronto Green Streets Technical Guidelines (2017).

The SCTMP is a visionary document intended to demonstrate a balanced and attractive transportation network for all users. The cross-sections depicted below therefore do no contain dimensions for individual components. Cross-sections are conceptual and were developed to assist in achieving Complete Street principles and establishing minimum right-of-way widths. The actual widths of street elements (e.g., cycle facilities, etc.) shown in the conceptual cross-sections may need to be revised in Phases 3 and 4 of a future Environmental Assessment process and/or at detailed design. However, all cross-section elements within the public ROW must meet a series of minimum standards or guidelines set out in municipal/provincial guidelines or standards. These guidelines and standards, as they apply to the individual cross-section components, are outlined below.

9.4.1 Cross-Section Elements

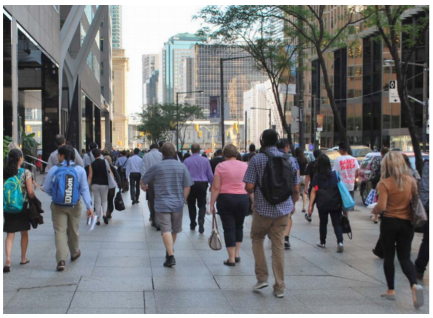
Sidewalks

Sidewalks are essential to any public ROW to ensure pedestrians are permitted a dedicated clearway, free from obstruction of infrastructure for any other mode of transportation. Sidewalks can vary significantly in width and separation from infrastructure for other modes of transportation. The AODA specifies that at a minimum, sidewalks must maintain an unobstructed clearway width of 1.5m. This means that streetscaping furniture, landscaping, lighting, and other infrastructure cannot encroach within this width of 1.5m According to the City of Toronto Streetscape Manual and Complete Streets Guidelines, a minimum sidewalk width of 1.53m can be accepted where the recommended minimum clearway of 2.1m cannot be maintained. The recommended minimum of 2.1m as per the City of Toronto Streetscape Manual and Complete Streets Guidelines is to allow two assistive devices to pass each other simultaneously. Examples of sidewalks are shown in Figure 9.8.

As for separation from other modes of transportation, the AODA does specify minimum buffer widths. However, the City of Toronto Streetscape Manual and Complete Streets Guidelines recognizes an Edge Zone (minimum of 0.46m), and a Furnishing and Planting Zone (minimum of 1.0m). These recommended separation areas are to permit the planting of trees and installation of street furniture, but also to allow for a safe buffer between street activity and pedestrians.

Figure 9.8: Sidewalk Examples

Source: City of Toronto



Source: Toronto Complete Streets Guidelines

Cycling Facilities

Cycling facilities can take a range of forms that respond to the ROW or throughway in which they are being implemented. OTM Book 18 specifies a range of cycling facilities that include:

- Shared Roadways – ROWs with low traffic volumes and speeds;
- Designated Cycling Operating Spaces – ROWs with low-moderate traffic volumes and moderate-high speeds; and,
- Separated Facility or Alternate Route – ROWs with moderate-high traffic volumes and moderate-high speeds.

Shared Roadways often include on-street signed bicycle routes and/or sharrows. OTM Book 18 recommends for these facilities that a minimum pavement width per lane of 4.5m be provided for a wide shared roadway, and 4.0m of pavement width per lane be provided for a narrow shared roadway. These recommendations are informed by the recommended minimum travel width for a cyclist being 1.2m, and the recommended travel width for a cyclist being 1.5m. Figure 9.9 shows examples of shared roadways.

Figure 9.9: Shared Roadway Example

Source: City of Toronto

Designated Cycling Operating Spaces typically assume the form of on-street conventional bike lanes. OTM Book 18 recommends on-street bike lanes be a minimum of 1.5m wide, with a desired width of 1.8m. With the possibility of on-street parking located adjacent to the on-street bike lane, OTM Book 18 recommends a minimum buffer zone of 0.5m, with a recommended 1.0m buffer zone between the parking lane and the bike lane. Marked buffers or rumble strips for the purpose of separating bike lanes from vehicular travel lanes must

also be a minimum of 0.5m wide per OTM Book 12, increasing up to 1.5m in width for increased separation. There is also the option when designing cycling facilities to build cycle tracks, which separate bike lanes from the vehicular travel area via a physical buffer or raise the cycling facilities from the elevation of vehicular travel area. These buffers can take the form of:

- Flexible bollards, or flexi-posts – Buffer width of 0.5m-1.2m, Cycling lane width of 1.5m-2.0m
- Planters – Buffer width of 0.5m-1.2m, Cycling lane width of 1.8m-2.0m
- Concrete medians – Buffer width of 0.5m-1.2m, Cycling lane width of 1.8m-2.0m
- Concrete curbs – Buffer width of 0.5m-1.2m, Cycling lane width of 1.8m-2.0m

Figure 9.10 shows examples of separated cycling facilities

Figure 9.10: Cycle Track Examples

Source: City of Cambridge

Source: City of Toronto

Following the progression of separating cycling facilities from the vehicular travel area, the most separated form of cycling facility would be a completely separated cycling pathway or multi-use pathway that can but does not necessarily follow the alignment of a related roadway. Cycling pathways or multi-use pathways can take the form of one-way in-boulevard facilities, or two-way in-boulevard facilities. For one-way in-boulevard bicycle-only facilities a minimum width of 1.8m and a desired width of 2.0m are recommended by OTM Book 18. For two-way in-boulevard bicycle-only and share facilities, a minimum width of 3.0m and a desired width of 4.0m are recommended. Examples of multi-use trails are shown in Figure 9.11.

Figure 9.11: Multi-Use Trail Examples

Source: Toronto Multi-Use Trail Design Guidelines

Source: Google Street View

Roadway Lanes

A number of different types of travel lanes are part of any cross-section or roadway, each supporting specific characteristics that have differing needs with respect to width. Travel lanes are typically influenced by traffic volumes and traffic speeds. These lane types include:

- Through lane – Primarily for through traffic, not located next to the boulevard or curb
- Curb lane – Primarily for through traffic, but also for right-turn movements, on-street parking, and cycling. On-street parking can be restricted to certain times throughout the day to permit greater road capacity
- Two-Way Left-Turn Lane – Lane located between lanes of opposing operation to facilitate left-turns that do not impede through traffic
- Left-Turn Lane – Lanes solely to conduct left-turn movements
- Right-Turn Lane – Lanes to conduct right-turn movements, but also can be used for bus boarding/alighting
- Parking Lane – Lane located between curb lane and the curb solely for parking on-street

As per the City of Toronto Road Engineering Design Guidelines, the minimum and desired widths for each lane type are outlined in Table 9.3.

Table 9.3: Minimum, Maximum, and Desired Road Widths

Lane Type	Minimum Width	Target Width	Maximum Width
Through Lane	3.0m (40km/h to 60+km/h)	3.0m (40km/h to 60+km/h)	3.0m (40km/h) 3.3m (50km/h) 3.5m (60+km/h)
Curb Lane	3.0m (40km/h to 60+km/h)	3.3m (40km/h) 3.3m (50km/h) 3.5m (60+km/h)	3.5m (40km/h) 3.5m (50km/h) 3.5m (60+km/h)
Two-Way Left-Turn Lane	3.0m	3.0m	3.3m
Left-Turn Lane	3.0m	3.0m	3.3m
Right-Turn Lane	3.0m	3.0m	3.3m
Parking Lane	2.0m	2.4m	2.8m

Landscape Buffer

Green infrastructure within a cross-section can drastically improve the appearance and pleasantness of experiencing the street. Green infrastructure can also serve a functional purpose of providing a canopy to pedestrians, improving air quality, as well as store, filter, and treat stormwater. The type of green infrastructure varies by the purpose of the street, as well as the available ROW and priority assigned to other uses, such as active transportation infrastructure.

The most common form of green infrastructure is that of street trees. Street trees can be planted with softscapes or hardscapes. The City of Toronto Streetscape Manual specifies that the Furnishing and Landscape

Zone must be a minimum of 1.0m wide, increasing up to 2.2m in width. However, to accommodate street trees, the Streetscape Manual, and the Toronto Green Streets Technical Guidelines suggest a width of 1.8m, and a width of no less than 1.2m. These widths are to permit an adequate tree trench for typical street tree species. These widths must also not impede the pedestrian clearway. Examples of street trees are shown in Figure 9.12.

Figure 9.12: Street Tree Examples

Source: Toronto Complete Streets Guidelines

Source: Google Street View

While street trees are the most common form of green infrastructure within a given cross-section, they are not the only option. According to the Toronto Streetscape Manual, if the Furnishing and Landscape Zone is less than 1.0m in length, plantings or furnishings should be contemplated in alternate location where an appropriate amount of space is available. Since the public ROW must often accommodate many users, there may sometimes not be enough space to accommodate all users and achieve green infrastructure within the public ROW. A priority for space may be granted to wider sidewalks, or cycling facilities, for example. In these instances, green infrastructure can be contemplated within private property, such as within building setbacks.

Another option available when presented with limited space is the use of soil cells. Soil cells are rigid modular systems that increase soil volume underneath the pavement surface, and can support structural loads at the pavement surface. Soil cells are often deployed in highly urban environments where cross-section space is limited.

Another alternate green infrastructure option is the use of bioswales. This type of green infrastructure could be used where Furnishing and Landscape Zones are present. Bioswales are linear channels of vegetation that control the rate of runoff, while also treating water contaminants. They require relatively larger space of a cross-section, and can be finished with grasses, low-lying vegetation, or other combinations of plant and aggregate materials. An example of a bioswale is shown in Figure 9.13.

Figure 9.13: Bioswale Example

Source: National Association of City Transportation Officials (NACTO)

Furniture Zone

Within the public ROW there is the opportunity to provide street furniture to not only serve a function of providing a dwelling space or resting space for pedestrians, but also creating an attractive and pleasant space for all users to travel within. As per the City of Toronto Complete Street Guidelines, the Furnishing and Planting Zone is to be a minimum of 1.0m in width, but can increase up to 2.2m. This Furnishing and Planting Zone is not to impede the pedestrian clearway, and should be separated from the curb. An example of street furniture (i.e. lighting, seating) is shown in Figure 9.14.

Figure 9.14: Street Furniture Example

Source: Toronto Complete Streets Guidelines

Within the Furnishing and Planting Zone, a range of elements can be installed for both functional and aesthetic purposes, including:

- Benches
- Bicycle racks
- Lampposts
- Trees
- Planters
- Garbage/recycle bins

The presence of street furniture can depend on the type and purpose of street in question. For streets that provide access to buildings and have frontages from such buildings, providing street furniture is appropriate and can foster activity within the ROW. For quiet local streets where users are not expected to dwell for extended periods of time and significant use of the boulevard is not anticipated, street furniture may be limited to lampposts, trees, or planters. Likewise, for higher-capacity ROWs intended to move large volumes of vehicular traffic and pedestrians/cyclists, some street furniture may not be wholly appropriate.

Utility Zone

The Utility Zone or the Edge Zone is typically located between the vehicular travel area or the travel lanes, and the Furnishing and Planting Zone or areas of pedestrian travel. The Utility Zone as per the City of Toronto Complete Streets Guideline and the Toronto Streetscape Manual should be a minimum of 0.46m in width. At greater widths, the Utility Zone can accommodate a number of elements critical to the cross-section, including:

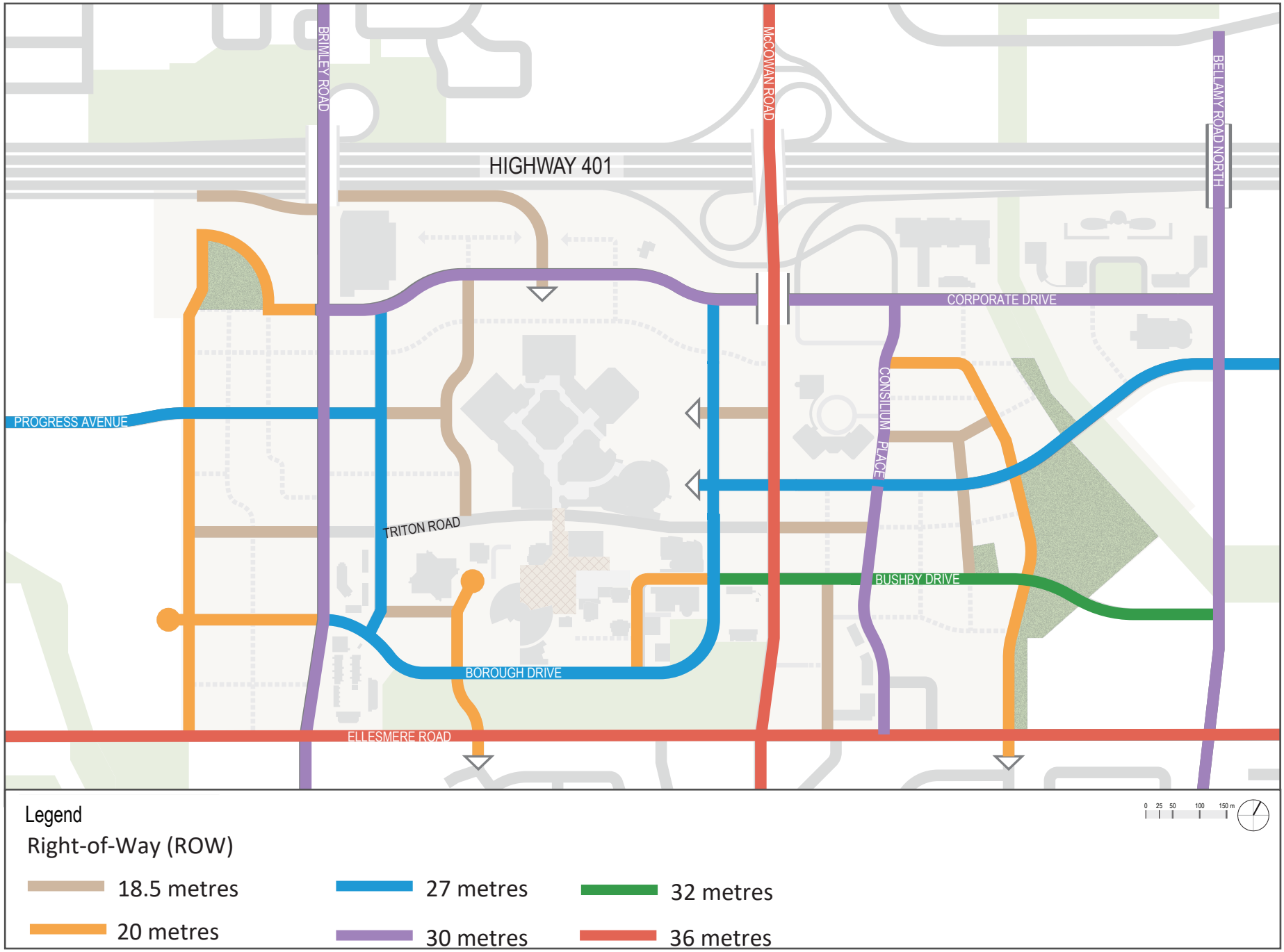
- Signage and sign posts
- Parking machines
- Decorative pavers
- Snow storage

The Utility Zone also presents an opportunity to provide a functional buffer between the vehicular travel area or travel lanes and cycling facilities, such as a separated bicycle lane, or an in-boulevard bicycle facility. With the Utility Zone serving its own function while also acting as a buffer for cyclists, the Utility Zone can improve efficiency in the physical space required to balance various elements of the cross-section.

Although the cross-sections are conceptual in nature and do not provide specific dimensions for each element, minimum requirements for each element are achieved within the specified right-of-way (ROW) width. The recommended ROW widths for the SCTMP transportation network is shown in Figure 9.8.

The SCTMP recommended cross-sections follow, which focus on accommodating all transportation users (i.e. pedestrians, cyclists, automobiles, and transit vehicles) within the ROW. Streetscape and boulevard design is to be further developed through future urban design study. It should also be noted that all cross-sections presented in this section represent a true mid-block section, and that cross-sections may change at intersections to accommodate additional turning lanes.

Figure 9.8: SCTMP Recommended Transportation Network and Right-Of-Way Widths

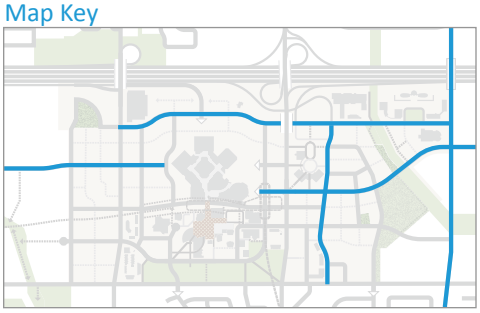


9.4.2 Progress Avenue/Grangeway Avenue/Bellamy Road/Corporate Drive

Figure 9.9 shows the recommended typical cross-section for Progress Avenue, Grangeway Avenue, Bellamy Road, and Corporate Drive. In general, these streets will include:

- bicycle facilities with physical separation from vehicles;
- comfortable pedestrian and cyclist crossings at intersections and driveways;
- building setbacks to accommodate entry plazas and landscaping;
- green infrastructure/bioswales to improve community resiliency; and
- two travel lanes in each direction.

Map Key



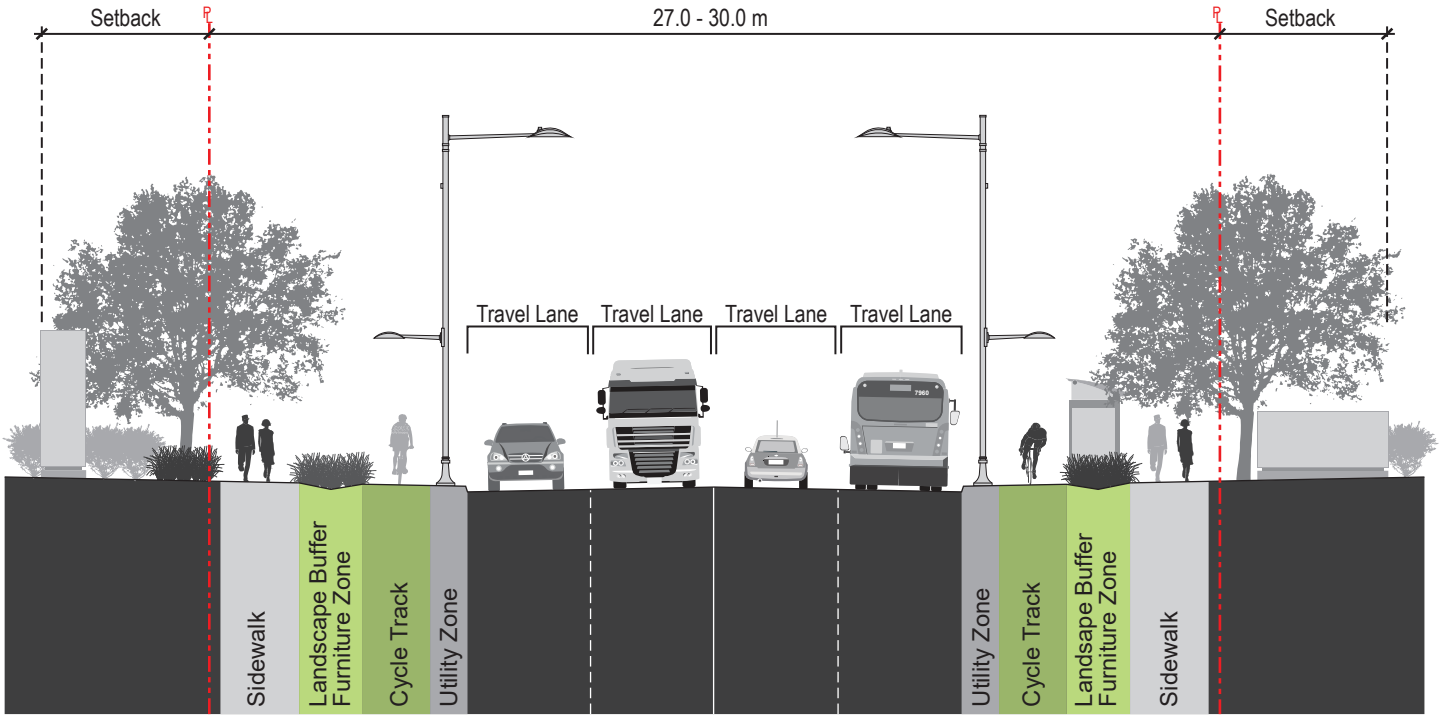
A range of ROW widths is shown in order to account for varying widths of different streets and street segments:

Progress Avenue: The ROW width for Progress Avenue is 27 metres, which limits the feasibility of providing street trees within the public ROW in addition to cycle tracks. Instead, it will be beneficial to provide bioswales in the landscape buffer between the sidewalk and cycling facility. Further detailed design may identify a need to widen the ROW to accommodate street trees and/or other urban design elements.

Bellamy Road: The Bellamy Road extension is recommended to have a public ROW of 30 metres to be consistent with the existing Bellamy Road segment. Along this segment, it will be possible to provide street trees in soft-scape within the landscape buffer. Provision of cycle tracks on Bellamy Road is important for increasing safety for cyclists travelling north-south on an arterial road across Highway 401.

Corporate Drive/Grangeway Avenue/Consilium Place: The recommended right-of-way along Corporate Drive, Grangeway Avenue, and Consilium Place is 30 metres. Along these segments, it will be possible to provide street trees in soft-scape within the landscape buffer, as well as cycling facilities and wide sidewalks.

Figure 9.9: Cross-Section for Progress Avenue, Grangeway Avenue, Bellamy Road, Consilium Place, and Corporate Drive



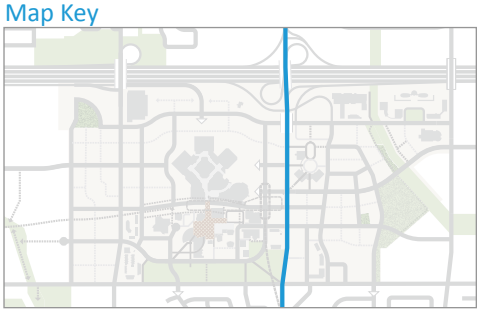
*Cycle tracks are used to illustrate space provided for cycling facilities; detailed design may determine bike lanes are more appropriate on some streets

9.4.3 McCowan Road

Figure 9.10 shows the typical mid-block cross-section for McCowan Road, which is recommended to include:

- wide, tree-lined boulevards;
- bicycle facilities with physical separation from vehicles;
- street furniture around transit stops (including transit shelters); and
- three travel lanes in each direction

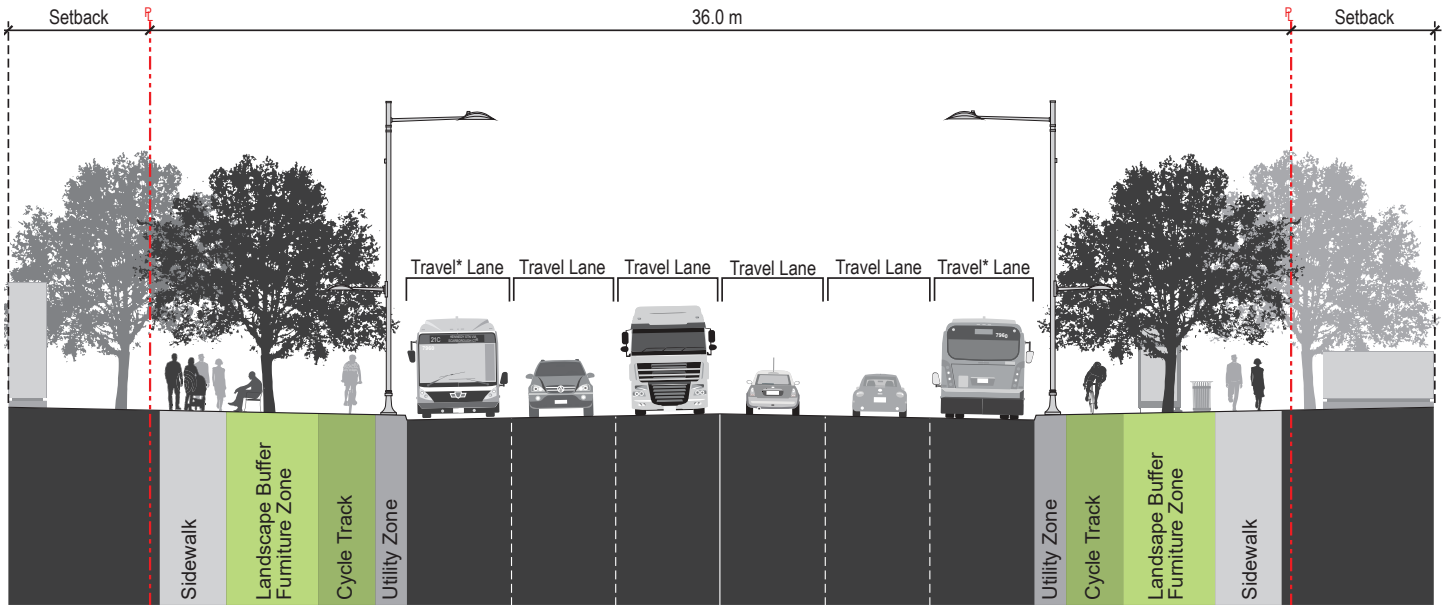
Map Key



A range of ROW widths is shown in order to account for varying widths of different streets and street segments:

A rapid transit (RT) line has been proposed along McCowan Road, which will be designed through further study. The SCTMP recommends a cross-section for McCowan Road that supports the future RT line; however, it does not establish the type of RT vehicle, location of transit lanes, or specific RT design elements/dimensions.

Figure 9.10: Cross-Section for McCowan Road



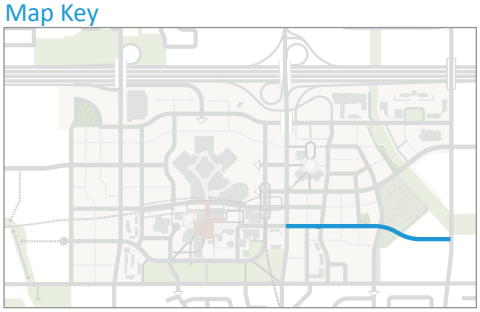
*Transit vehicles are used to illustrate space provided for future Rapid Transit (RT) vehicles. The McCowan RT line will be accommodated within the right-of-way; detailed design will determine the type and location of RT

9.4.4 Bushby Drive

Figure 9.11 shows the typical mid-block cross-section for Bushby Drive, which is recommended to include:

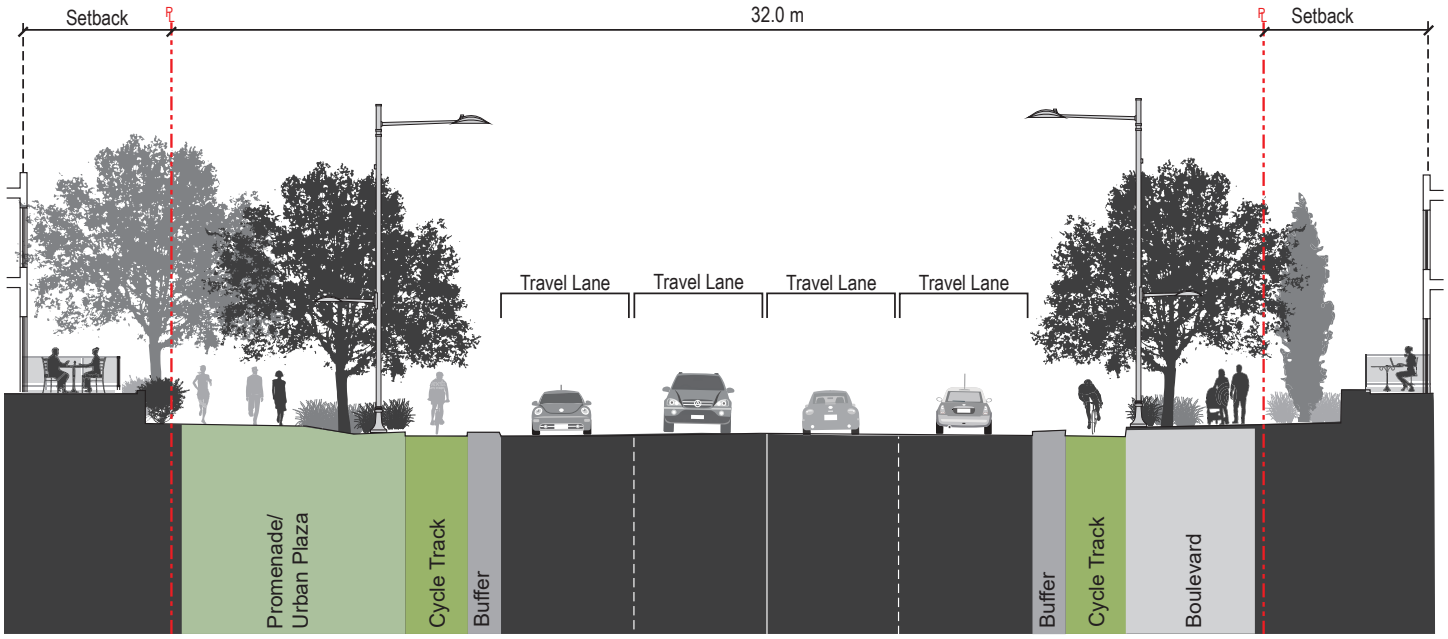
- wide, tree-lined boulevards;
- a promenade/urban plaza;
- on-street parking during off-peak hours; and
- two travel lanes in each direction.

Map Key



Bushby Drive is envisioned as a promenade that extends the "park" experience along the streetscape, connecting the future park site at 705 Progress Avenue to green and open spaces in the Civic Precinct (e.g. Albert Campbell Square, Civic Green Park, 'Hand of God Park,' etc.). Bushby Drive will establish a relationship to adjacent park spaces through an urban plaza with landscaping on one side of the street and a wide boulevard on the other. This cross-section is also consistent with the proposed cross-section for Bushby Drive in the McCowan Precinct Plan.

Figure 9.11: Cross-Section for Bushby Drive

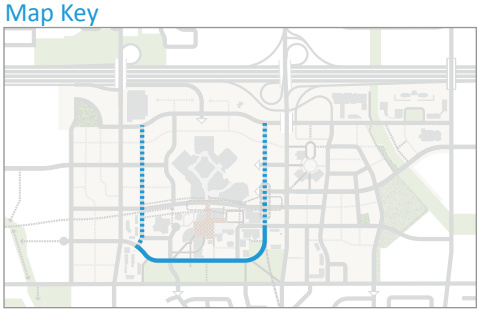


9.4.5 Borough Drive

Figure 9.12 shows the typical mid-block cross-section for Borough Drive, which is recommended to include:

- wide sidewalks and pedestrian amenities (benches, wayfinding);
- attractive streetscape with landscape planters, street trees, and pedestrian-scale lighting;
- bicycle facilities with separation from vehicles
- a focus on civic institutions through public open spaces; and
- opportunities for public art.

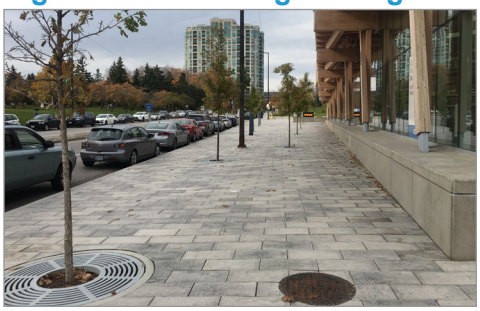
Map Key



Borough Drive, East-West Segment: The east-west segment of Borough Drive (from Omni Drive to the northeast intersection of Town Centre Court and Borough Drive) is located within the Civic Precinct and is recommended to include one travel lane in each direction plus on-street parking. It is adjacent to park space on the south side, including 'Hand of God' Park and Civic Green Park, and civic institutions on the north side, including Scarborough Civic Centre and Scarborough Civic Centre Library.

The north side of this segment currently provides a wide sidewalk with flush landscaping in soil cells (Figure 9.13). It is recommended that Borough Drive continues to provide trees in soil cells, while meeting minimum pedestrian clearway widths (2.1 metres) on both sides of the street trees.

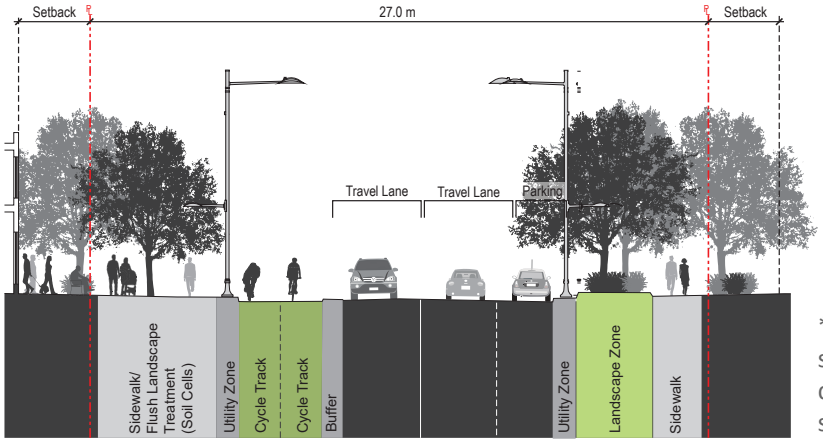
Figure 9.13: Existing Borough Drive



The south side of Borough Drive is recommended to provide a wide landscape zone adjacent to the sidewalk, to extend the park environment into the pedestrian realm. The attention on landscaping, pedestrian, and cyclist improvements along Borough Drive will create a focus on public space and enhance community and civic features.

Borough Drive, North-South Segments: The north-south segments of Borough Drive are mainly located in the Commercial Precinct, and may be designed as a variation of the cross-section shown below. The Scarborough Town Centre Master Plan is currently underway to determine the function of Borough Drive for accessing commercial developments, and may result in a four-lane recommended cross-section. The possibility of further extending the recommended two-lane cross-section from Omni Drive north to Triton Road will be determined through further study.

Figure 9.14: Cross-Section for Borough Drive



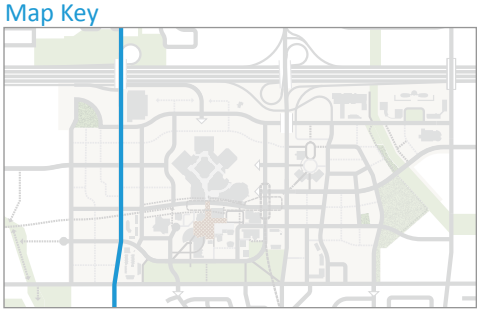
*Represents preliminary cross-section for east-west segment of Borough Drive; further work is required to determine the number of travel lanes on the north-south segments

9.4.6 Brimley Road

Figure 9.15 illustrates the recommended typical cross-section for Brimley Road. The preliminary cross-section for Brimley Road includes:

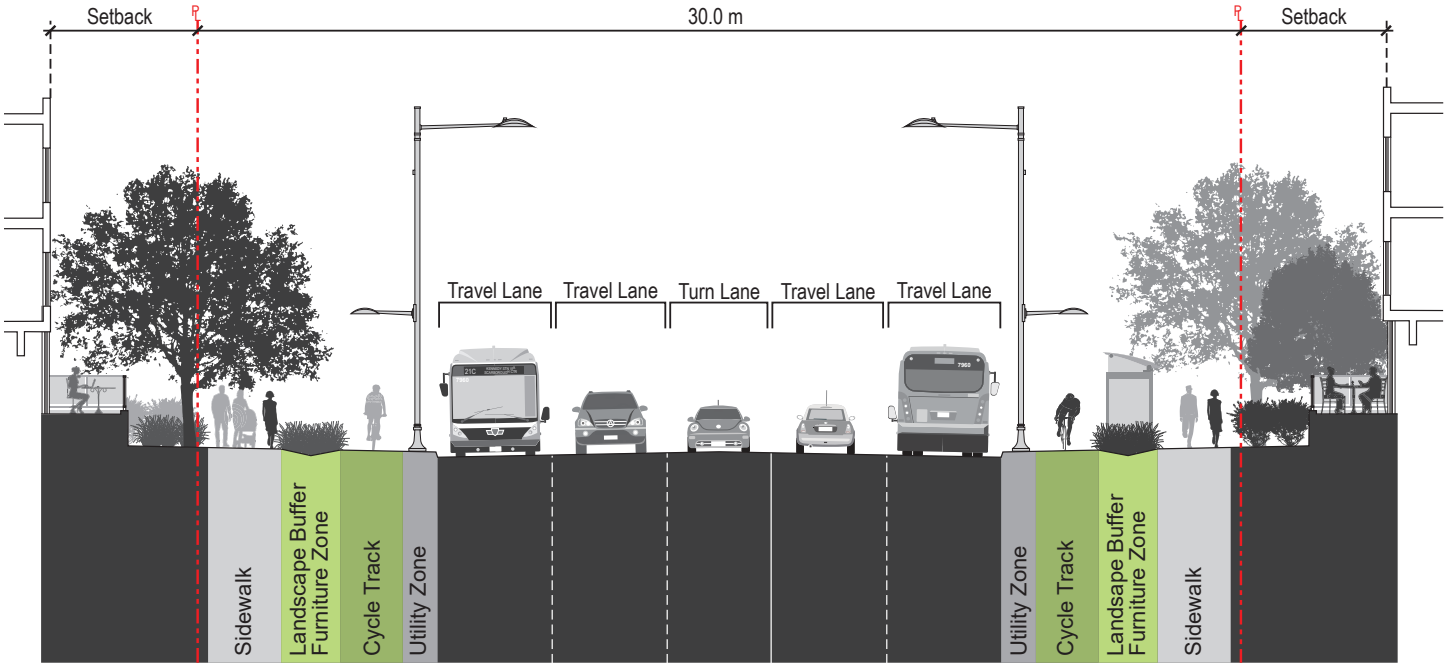
- wide, tree-lined boulevard;
- bicycle facilities with physical separation from vehicles;
- street furniture around transit stops (including transit shelters); and
- green infrastructure/bioswales to improve community resiliency

Map Key



The 30-metre ROW is recommended to consist of two travel lanes in each direction, with a turn lane in the centre. While this does not represent a change in the number of travel lanes on the existing Brimley Road, it involves a reallocation of space to provide for pedestrian and cycling facilities.

Figure 9.15: Cross-Section for Brimley Road

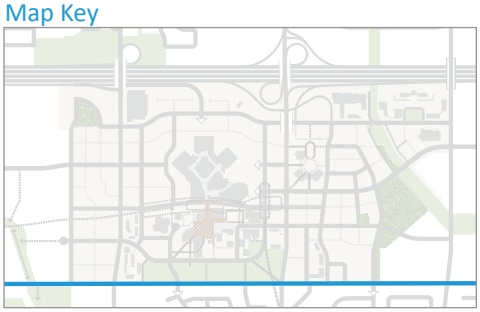


9.4.7 Ellesmere Road

The proposed cross-section for Ellesmere Road is shown in Figure 9.16. The following elements are included within the public ROW of 36 metres:

- wide, tree-lined boulevards;
- multi-use path to accommodate active transportation users;
- street furniture around transit stops (including transit shelters);
- setbacks for residential and retail/commercial uses to provide separation from public realm; and
- three travel lanes in each direction.

Map Key

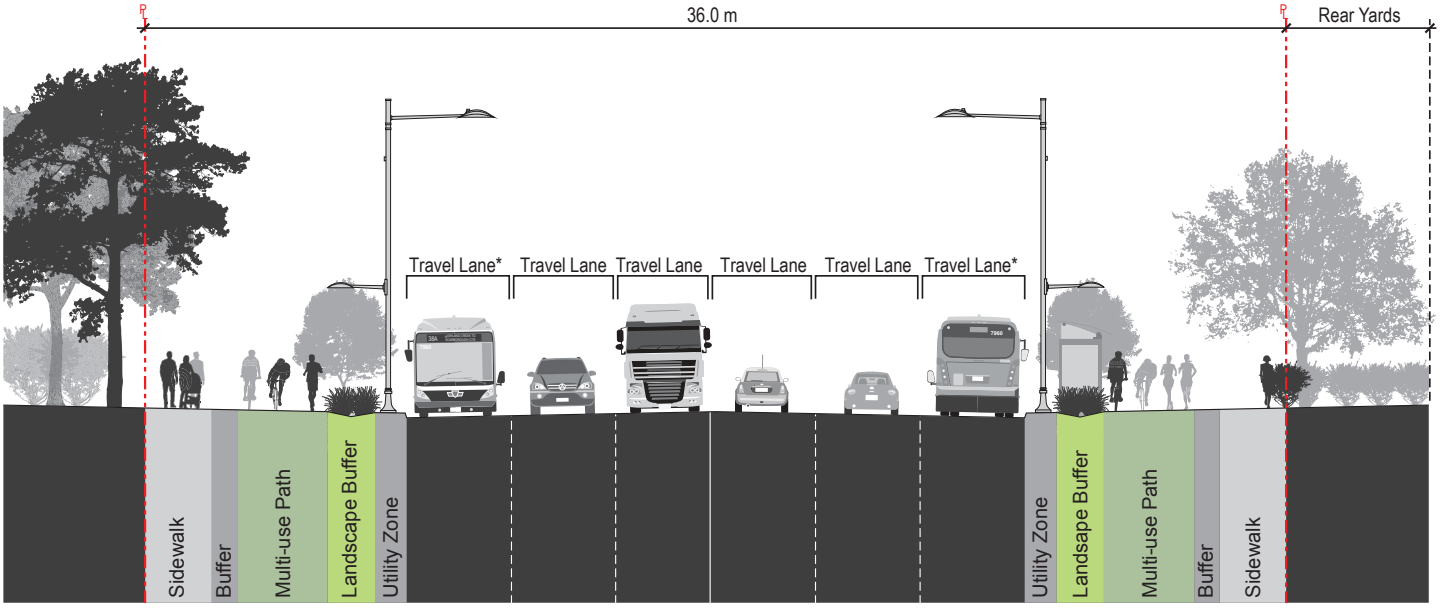


The Durham-Scarborough Bus Rapid Transit (BRT) line is planned along Ellesmere Road; however, the design is not yet complete. This cross section supports the Durham-Scarborough BRT within the public right-of-way, but does not identify the location of transit lanes.

This cross-section also includes boulevard trails/multi-use paths on both sides of the street, which is consistent with the Cycling Network Ten-Year Plan. In order to achieve multi-use paths, particularly on the south side of Ellesmere Road, a complete reconstruction of Ellesmere Road will be required. Sidewalks are also recommended alongside multi-use paths to meet accessible pedestrian clearway requirements.

It is recommended that the implementation of multi-use paths is completed in coordination with BRT construction, as it provides an opportunity to reallocate space in the ROW.

Figure 9.16: Cross-Section for Ellesmere Road



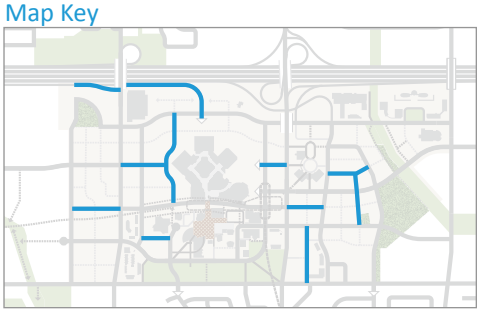
*Transit vehicles are for illustration purposes only; the design of the Durham-Scarborough BRT may determine that centre transit lanes are preferred

9.4.8 Typical Local Connection

Figure 9.17 shows the conceptual cross-section for a typical 18.5-metre connection. A typical local connection is recommended to include:

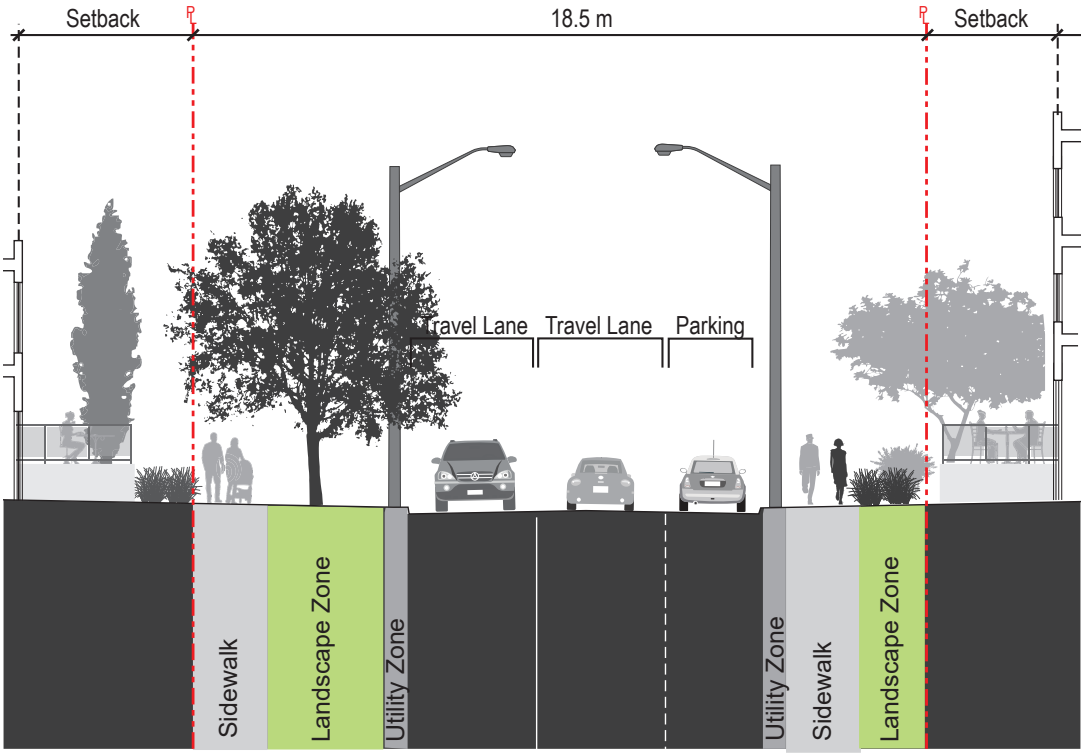
- one travel lane in each direction;
- on-street parking;
- street trees on one side of the street; and
- sidewalks on both sides of the street.

Map Key



As the 18.5-metre ROW does not permit street trees on both sides of the local connection, street trees are recommended on one side of the street and bioswales are recommended on the other side of the street. Sidewalks are, however, recommended on both sides of the street to facilitate comfortable pedestrian travel and a vibrant public realm. Despite the absense of a dedicated cycling facility, cyclists are encouraged to share the street with vehicular traffic.

Figure 9.17: Cross-Section for Typical Local Connection

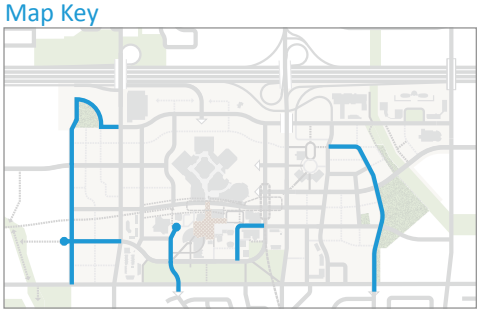


9.4.9 Typical Local Street

Figure 9.18 illustrates a typical local street cross-section, which is recommended to include:

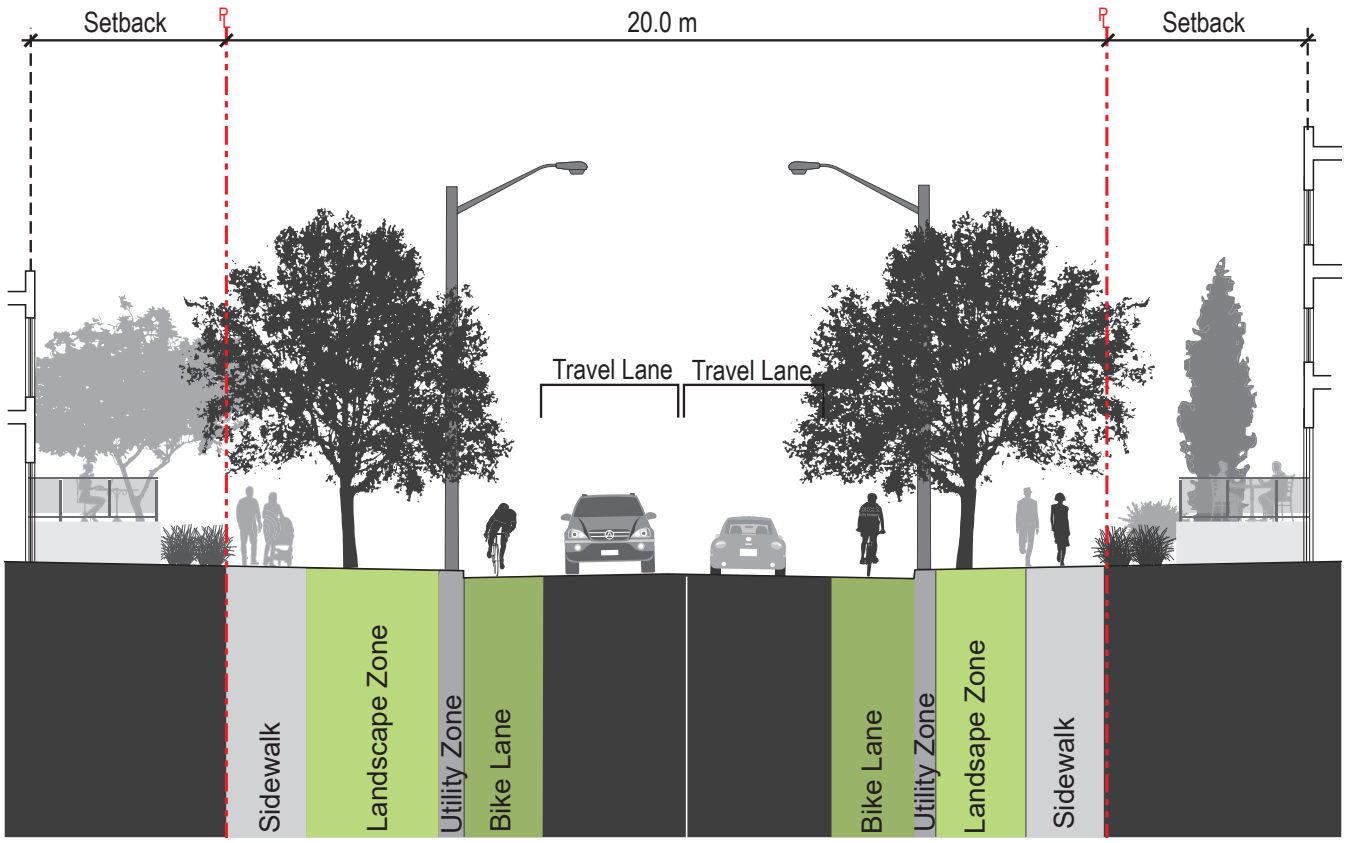
- one travel lane in each direction;
- bike lanes and sidewalks on both sides; and
- landscape zones on both sides.

Map Key

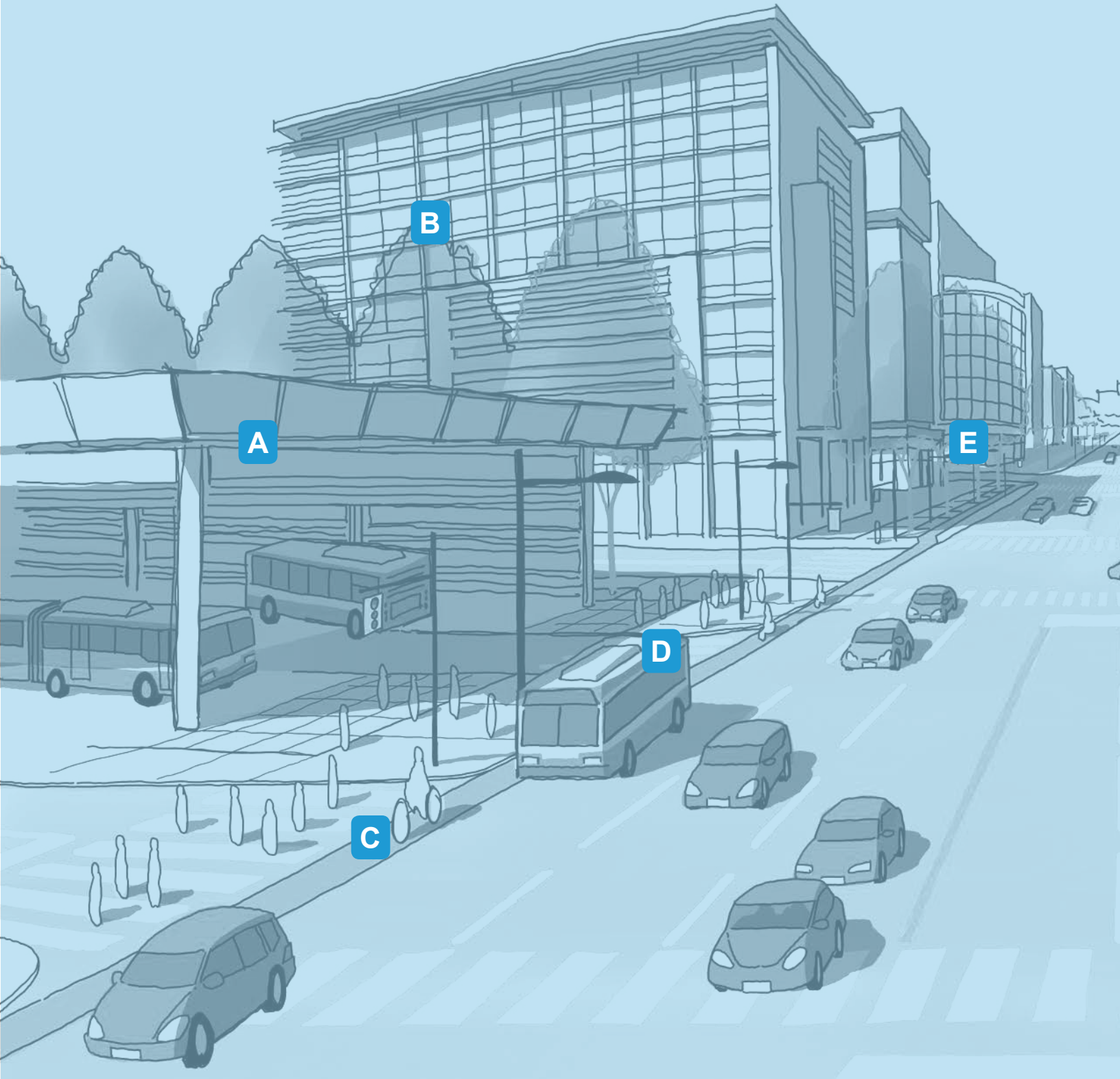


This local street cross-section prioritizes space for active transportation users through provision of bike lanes and sidewalks. In doing so, softscape landscaping will be provided on one side of the street to accommodate street trees within the public right-of-way. On the other side, the landscape zone can include hardscape landscaping with street trees in soil cells.

Figure 9.18: Cross-Section for Typical Local Street



- **A** Scarborough Centre Bus Terminal
- **B** Mixed-Use Development
- **C** Cycling Facilities
- **D** Local Buses & Rapid Transit
- **E** Small Development Blocks
- **F** Shared Mobility
- **G** Transit Signal Priority
- **H** Bike Share
- **I** Public Realm Improvements
- **J** Pedestrian Crossings
- **K** Enhanced Landscaping
- **L** Reduced Vehicle Speeds




K
G
F
I
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38B HIGHLAND CREEK
1248