

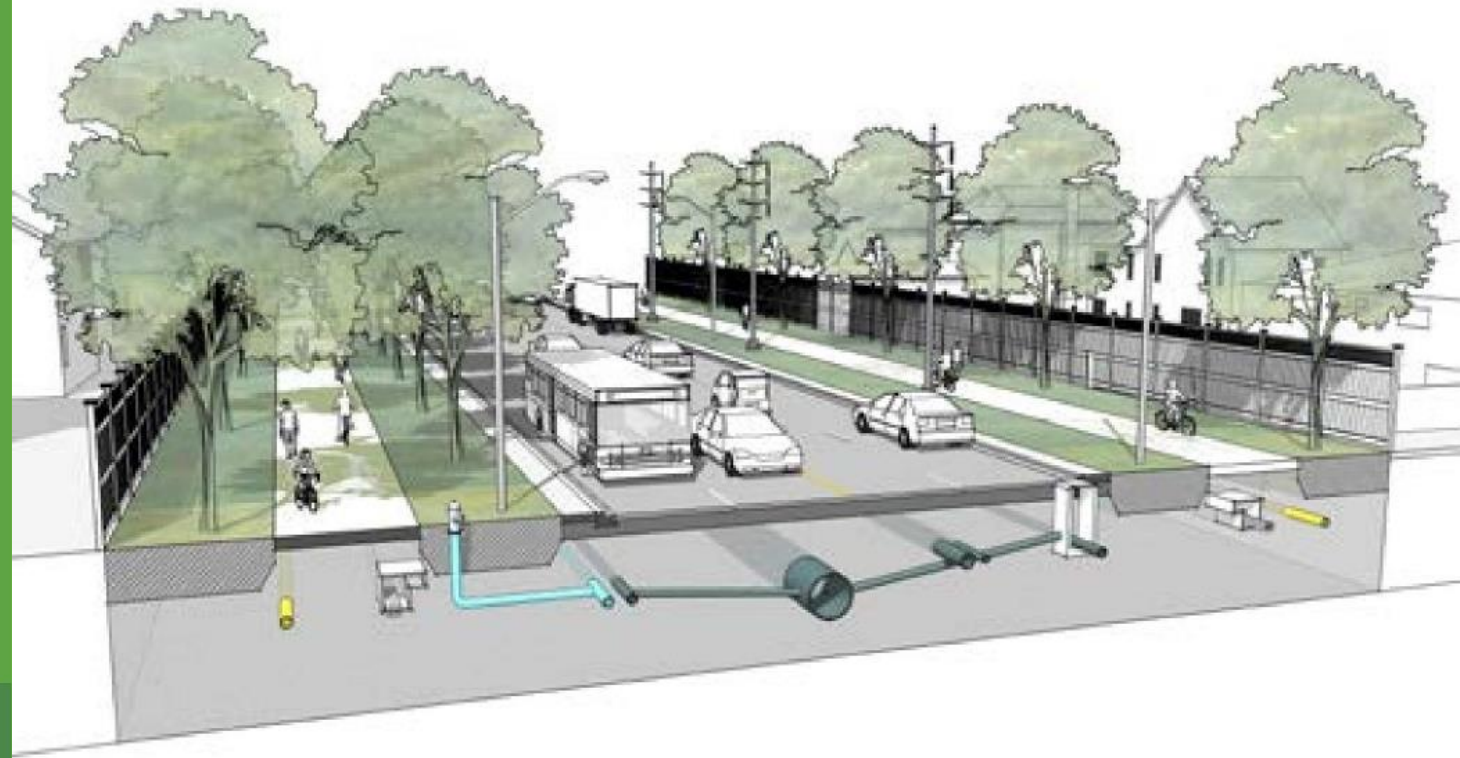
CITY OF BRAMPTON
COMPLETE STREETS
GUIDE



SEPTEMBER 2022



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Complete Streets Guide Presentation

Fernanda Soares / Rowaidah Chaudhry

Active Transportation Advisory Committee
December 12, 2023

A man in a blue shirt and dark hat is riding a bicycle on the left side of the frame. In the center, a woman with long hair, wearing a red top and blue jeans, is walking away from the camera. The background is filled with lush green trees and a wooden bench. The overall scene is bright and sunny, suggesting a park or a pleasant outdoor environment.

What's Inside:

Chapter 1 ~ Introduction

Chapter 2 ~ Street Context


Chapter 3 ~ Planning & Design

Chapter 4 ~ Design Elements

Chapter 5 ~ Implementation



Chapter 1: Introduction



“Complete streets” are streets that are designed to be safe for all users: people who walk, bike, take transit or drive, and for people of varying ages and levels of ability.

Guiding Principles



Safe and
Accessible



Sustainable and
Resilient



Promote Healthy
and Active Living



Improve
Transportation
Choices and
Balance Priorities



Develop Connected
Networks



Respect Existing
and Planned
Context



Create Vibrant and
Beautiful Places



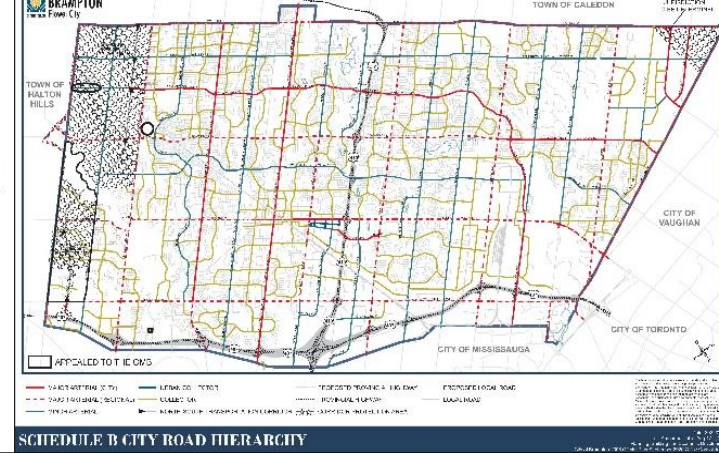
Enhance Economic
Vitality

2006 Official Plan

Approved in Part by the Brampton Municipal Board, by Order dated October 7, 2006, the City of Brampton, Ontario, and the Regional Council of the Region of Peel, Ontario, and the Regional Council of the Region of Peel, Ontario, and the Regional Council of the Region of Peel, Ontario.

Office Consolidation Report October 2006
www.brampton.ca
TTY: 905.874.2130

BRAMPTON
Flower City



A Place to Grow
Growth Plan for the Greater Golden Horseshore
Office Consolidation 2020
Ontario.ca/growthplanning

Ontario

2041 Regional Transportation Plan
For the Greater Toronto and Hamilton Area

RTP REGIONAL TRANSPORTATION PLAN
METROLINX

Sustainable Transportation Strategy
February 2018

Vision Zero
Road Safety Strategic Plan
2018 - 2022

LIVING THE MOSAIC
Brampton 2040 Vision

future ready

Policy Context

Region of Peel
Working for you

CVC CREDIT VALLEY CONSERVATION

Streetscaping Toolbox Update
September 2017

Brampton

Sustainable Community Development Guidelines
Part 8 of the Development Design Guidelines

Flower City
brampton.ca

BRAMPTON
Flower City

CITY OF BRAMPTON
TRANSPORTATION MASTER PLAN
UPDATE
FINAL REPORT
September 2013

HEWLETT PACKARD

OUR 2040 ENERGY TRANSITION
Community Energy and Emissions Reduction Plan

City of Brampton

LET'S CONNECT ACTIVE TRANSPORTATION MASTER PLAN

City of Brampton
FINAL REPORT
July 2016

Prepared by: IBI

Region of Peel's Road Characterization Study
May 2013

Region of Peel
Working for you

Peel Region GOODS MOVEMENT
Strategic Plan 2017-2021

March 2017
Region of Peel
Working for you

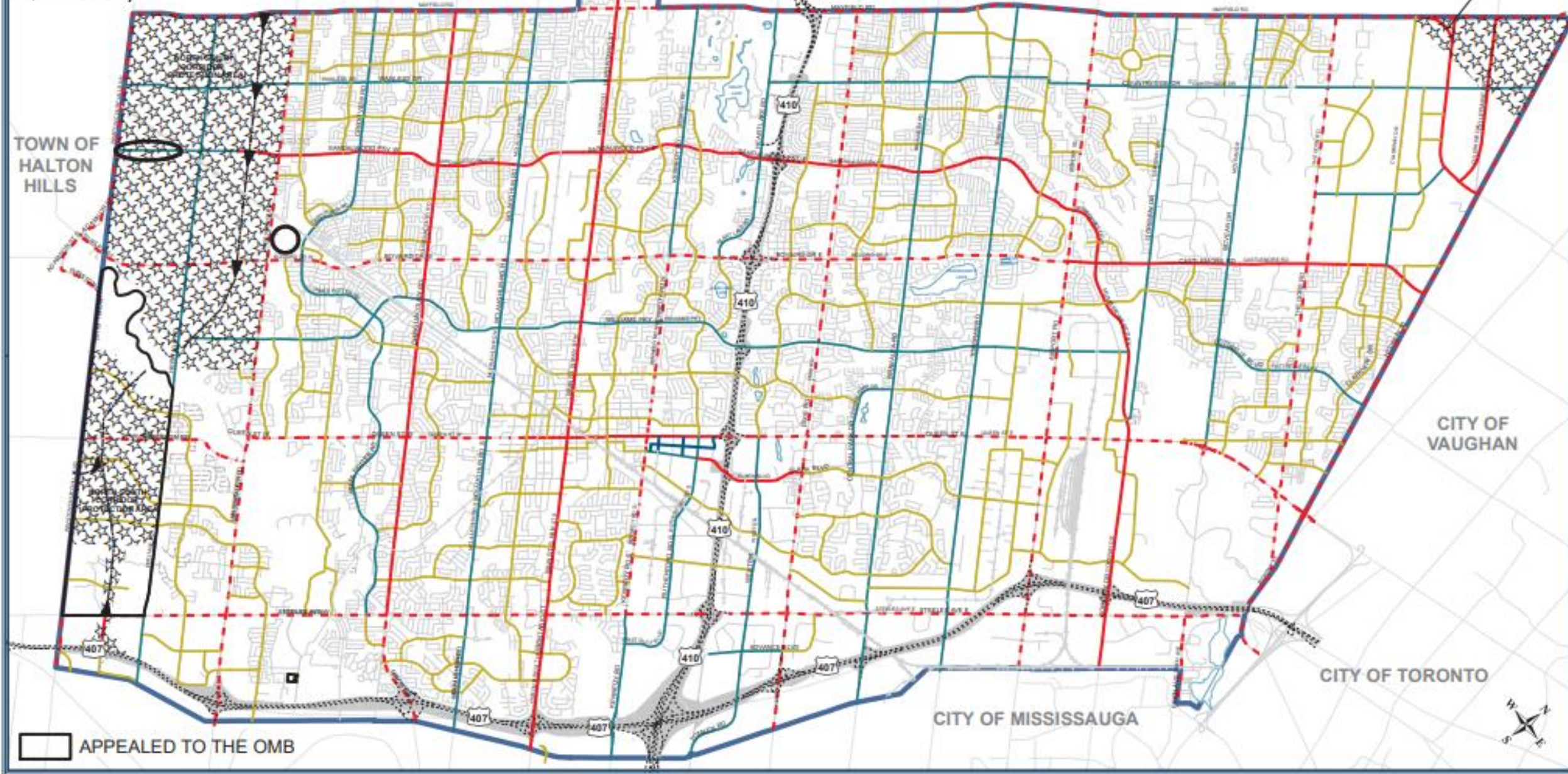


Application of the Guide

- All street projects
- Development projects
- Environmental Assessments
- Redevelopment initiatives
- Planning studies
- Public realm plans
- Secondary plans
- Revitalization projects

An aerial photograph of a city neighborhood. The foreground features a large, mostly empty commercial lot with some construction equipment and a few buildings. To the right, there are several commercial buildings with parking lots. The middle ground is a mix of residential streets with houses and trees. In the background, there are more residential areas and some taller apartment buildings under a cloudy sky.

Chapter 2: Context Specific Design



- MAJOR ARTERIAL (CITY)
 — URBAN COLLECTOR
- - - - - PROPOSED PROVINCIAL HIGHWAY
- - - - - PROPOSED LOCAL ROAD
- - - - - MAJOR ARTERIAL (REGIONAL)
 — COLLECTOR
- - - - - PROVINCIAL HIGHWAY
- - - - - LOCAL ROAD
- MINOR ARTERIAL
 ▶ NORTH-SOUTH TRANSPORTATION CORRIDOR
☆☆☆ CORRIDOR PROTECTION AREA

The boundaries and alignments are approximate and not intended to be used, and are subject to an approval process as appropriate. This map forms part of the Official Plan of the City of Brampton, and shall be read in conjunction with the text, other schedules and secondary plans. All road alignments are conceptual, and subject to future environmental assessments. Major collector or local roads are shown for orientation purposes only and are not Official Plan designations of this Plan. Regional roads are specifically identified for consideration only, are not Official Plan designations of this plan, and may be added or removed from this schedule in order of designations made to the Regional Official Plan, subject to amendments to this Plan. All Regional roads with the exception of Station Road, are required to adhere.

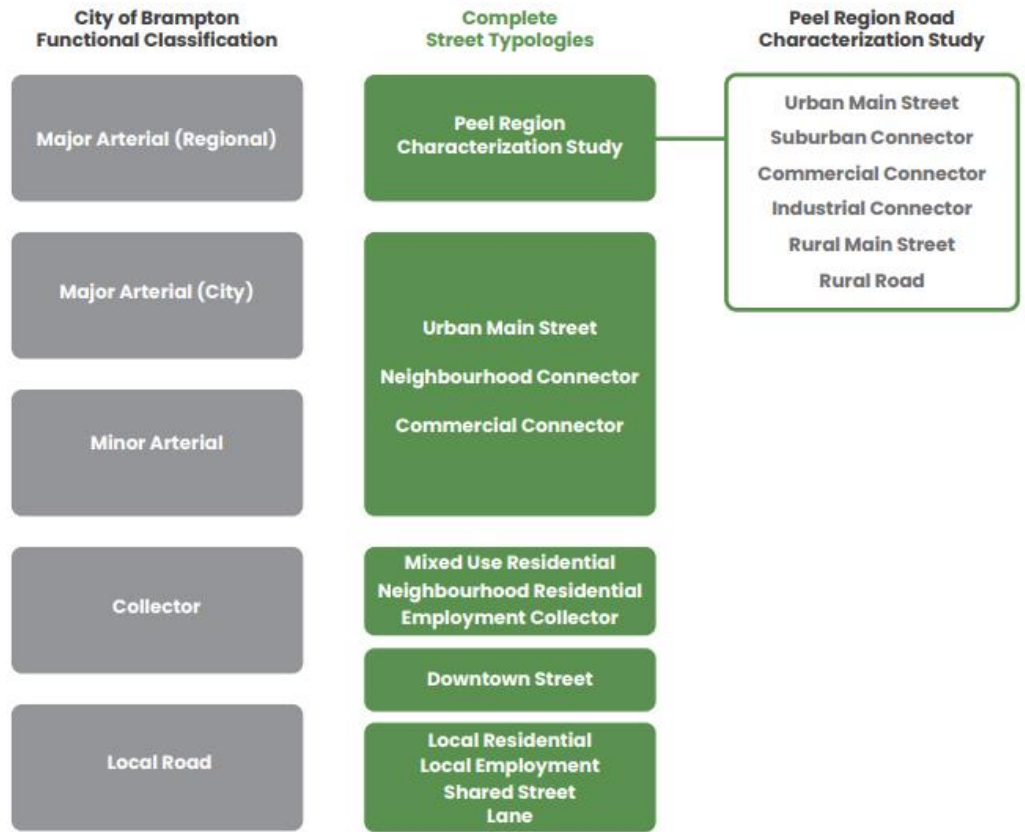
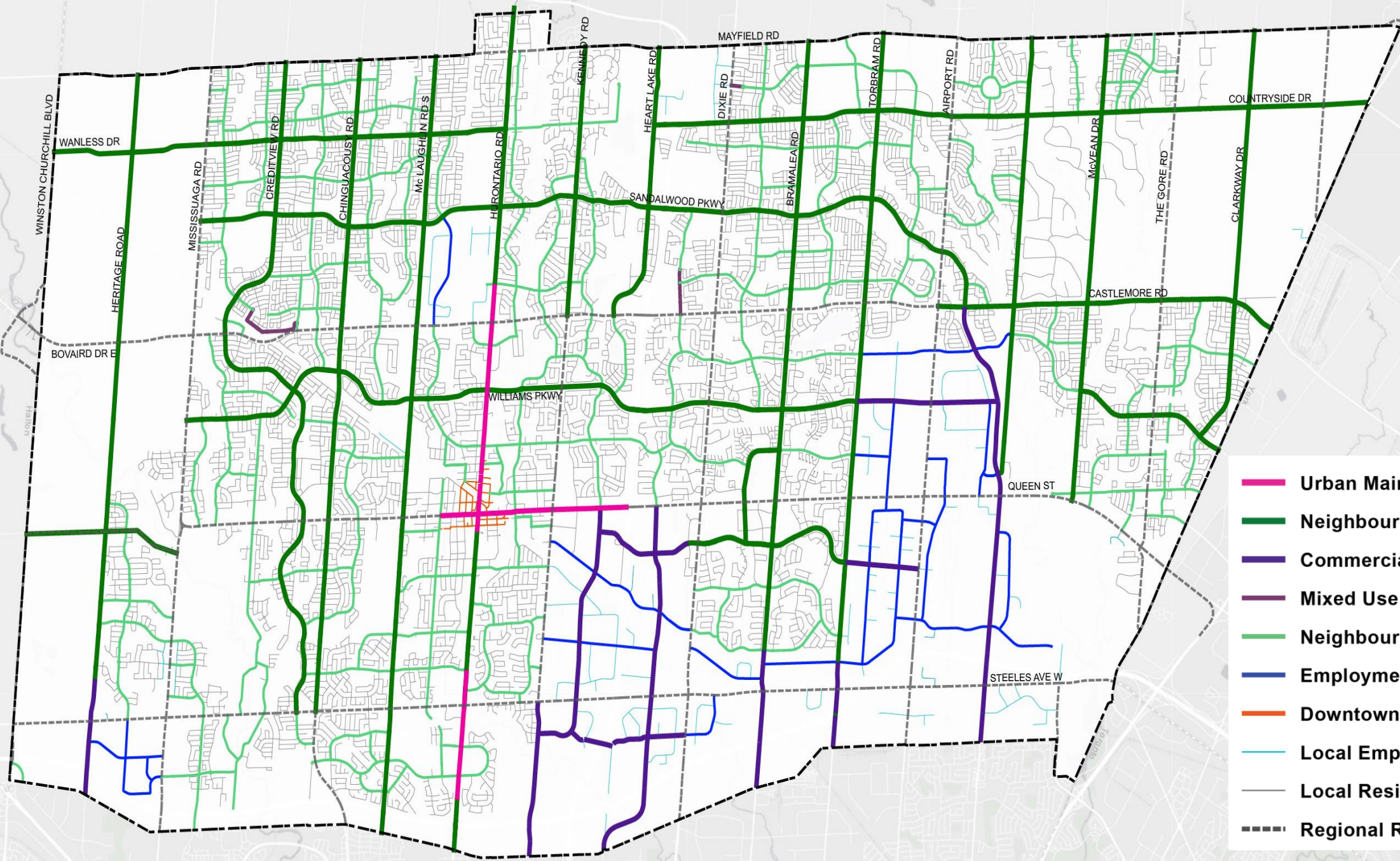


Figure 2.5. Brampton Complete Street Typologies.



Figure 2.4. 11 Brampton Street Types, organized by their link and place objectives.



- Urban Main Street**
- Neighbourhood Connector**
- Commercial Connector**
- Mixed Use Residential**
- Neighbourhood Residential**
- Employment Collector**
- Downtown Street**
- Local Employment**
- Local Residential**
- Regional Road**

Typology Guidance

Explainer on Street Context Type

Examples of typical streets and Brampton

City of Brampton Complete Streets Guide

Street Context Defining Brampton's Street Types

2.5

2.5.5 Neighbourhood Residential

Neighbourhood Residential Streets provide access to residential areas of the city and often mark the entrances to Brampton's Neighbourhoods. Predominately residential uses face the street, though stretches of rear facing lots and businesses may sometimes be present. Buildings vary in scale and are generally set back from the property line with well-established front yards and gardens.

Neighbourhood Residential streets are collectors that are planned and designed to provide access to and from residential neighbourhoods. These streets are not intended for the use of non-local traffic and are often found in areas with longer distances between signalized intersection.

APPLICATION

- City Collectors
- Residential Areas
- ROW: 23-30m

SAMPLE STREETS

- Fernforest Drive

DESIGN OBJECTIVES

Pedestrian

- Provide sidewalks and safe controlled crossings to connect destinations, especially to the many trail crossings in the City, transit stops and neighbourhood destinations such as schools, playgrounds or recreation centres.
- Incorporate a planting strip between the curb and pedestrian clearway, where possible, to separate pedestrians from vehicle traffic and provide space for additional greening.

Cycling

- For bicycle routes identified in the Active Transportation Master Plan provide designated cycling facilities. Typically this would include on-road painted bike lanes and/or parking or protected/buffered bike lanes at roadway level.

When congested conditions occur these streets often provide an attractive alternative route, or "cut-through," so additional care is needed to ensure streets and intersections are designed for the most vulnerable people walking and cycling. Safety for people walking and cycling is priority and sidewalks should be designed for low to medium volumes of pedestrians with clear and well marked crossing features.




Figure 2.19. Transit is often located on Neighbourhood Residential Streets.



Figure 2.20. Neighbourhood Residential Streets often include safe dedicated cycling facilities and multiple places for pedestrian to cross the street.

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City of Brampton Complete Streets Guide

Street Context Defining Brampton's Street Types

2.5

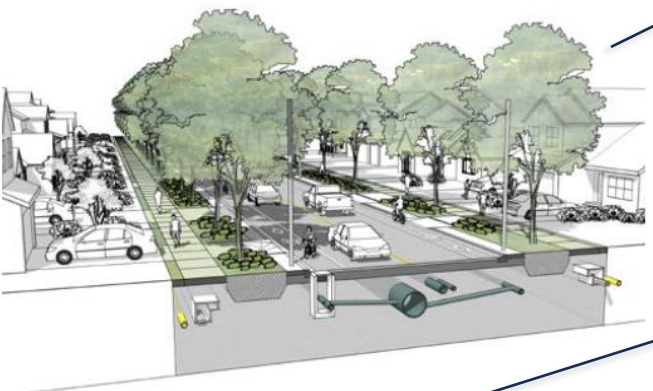


Figure 2.21. Demonstration of a Neighbourhood Residential Street

Transit

- Locate transit stops close to signalized intersections or other safe locations for pedestrians to cross.
- Provide enhanced transit stops, including sheltered seating, landscape elements and waiting areas.
- Ensure clear and accessible paths from sidewalks and stops to vehicles.
- Design stops to consider safe and predictable interface with cycling facilities, if provided.

Motor Vehicles

- When entering neighbourhoods, raised crosswalks, tighter turning radii are encouraged to signal to vehicles that slower speeds are expected.
- Frequent spacing of intersections and traffic calming should be included to reduce the speed of vehicles and reduce the amount of cut-through traffic.
- Individual front driveways, common to many of the established neighbourhoods, should be designed to meet sidewalks at grade.
- In more dense residential neighbourhoods, shared driveways or rear-accessed parking is encouraged to reduce conflicts between pedestrians and turning vehicles and sidewalks should be designed support a higher number of pedestrians.

Sustainable Infrastructure

- Include wide planting zones, especially using the frontage zone, to support a continuous tree canopy, low maintenance native planting and to integrate low impact stormwater control measures.
- Consider curb extensions and other traffic calming or diversion elements as ideal locations for green infrastructure.

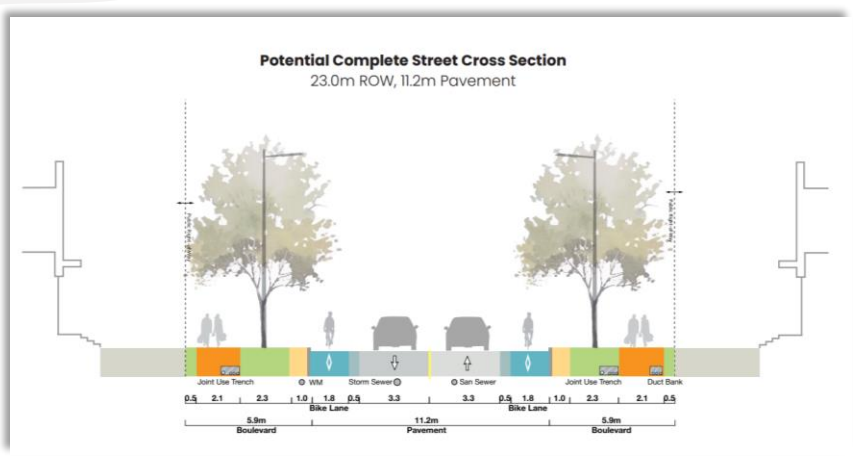
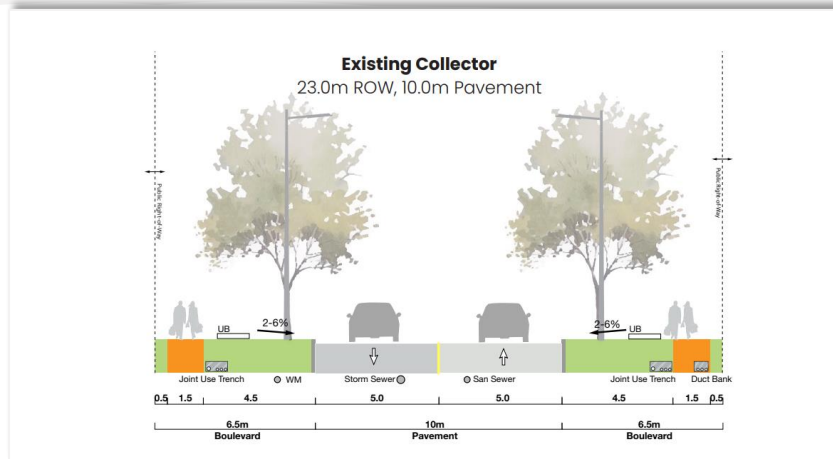
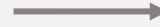
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Sample cross-section

Guidance on different modes

Tips for sustainable design

Redesigning a Street



Chapter 3: Steps to Street Planning



Assembling a Street

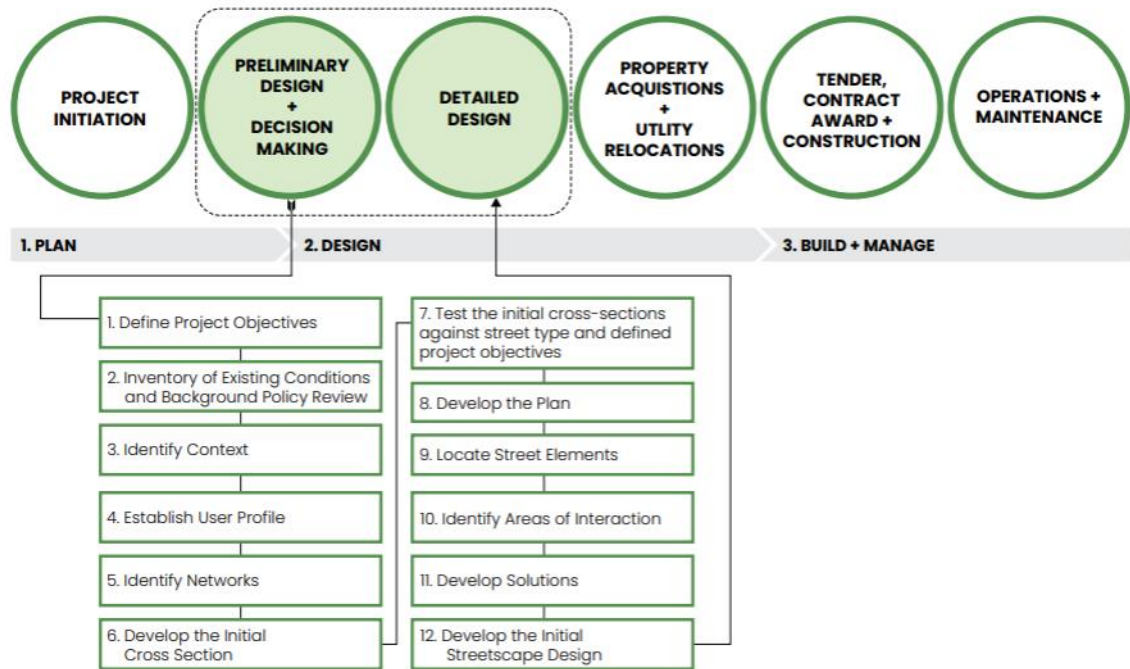


Figure 3.33. Steps to Assembling the Street as part of the Project Delivery Process

Table 3.3 Common Street Trade-offs in Brampton

Faster transit vs. more stops
Vehicle delay vs. longer crossing time
Vehicle delay vs active transportation needs
High speed roadways vs context sensitive urban streets
Centre median vs. driveway access
Curb extension and full-time parking lane vs. pedestrian refuge median at intersections
Right turn on red and impacts on bike queues
Left-turn lane vs. bike lane through intersection
All-purpose motor vehicle capacity vs. bus lanes or diamond lanes vs. pedestrian realm
Street trees vs. cycling infrastructure
Street trees vs below grade utilities
Bicycle lanes vs. wider sidewalks
Rural clear zones vs urban lateral offsets
Near-side vs. far-side bus stop and attendant bike facilities
Lead vs. lag turns, and impacts on pedestrian/bike movements
Curb-side bus queue jump lane vs. shorter crossing distance for pedestrians
Mid-block bus bays vs. bus stopping in curb lane, and the bus operations implications
Parking on both sides of the road vs. parking on one side and bike lanes in each direction

Key Directives

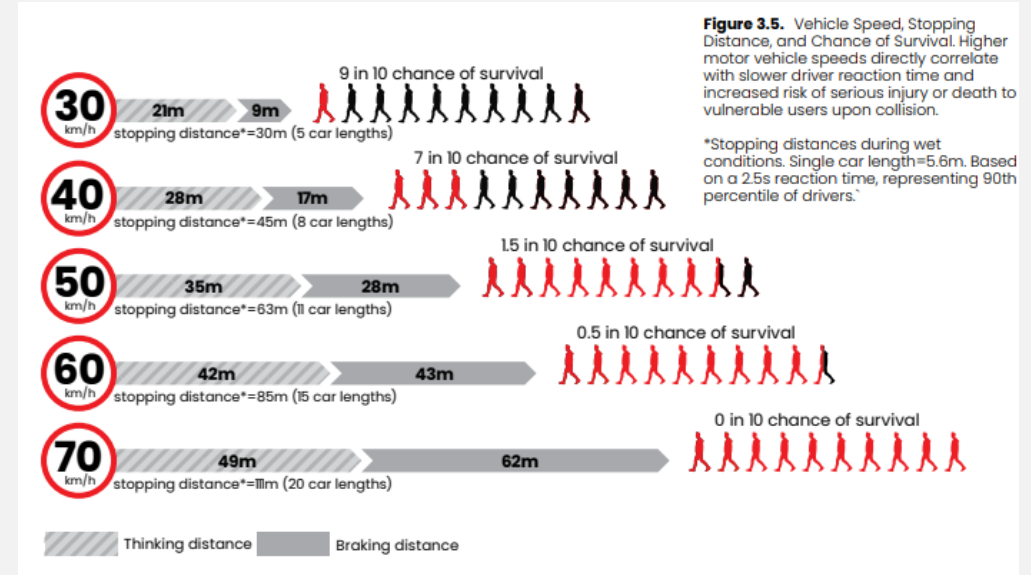


Table 3.1 Key Directives for Decision Making

Safety	Link	Place	Greening	Life-Cycle and Maintenance
Prioritize Vulnerable Users	Understand and Accommodate Desire Lines	Respect Context	Street Trees	Understand the Total Cost
Reduce and Manage Vehicle Speed	Design for Person Throughput and Mobility	Ensure Pedestrian Comfort	Stormwater Management	Support Four-Season Use of Streets
Accommodate the Smallest Possible Design Vehicle	Design Complete Streets to Support a Complete Network		Preserve Existing Vegetation	Select Robust Materials
Minimize Exposure Risk	Enhance Network Connectivity			
Maximize Predictable and Self-Regulating Design				

Safety

- Street design will need to prioritize vulnerable users
- Reduce and manage vehicle speed through design
- Accommodate the smallest possible design vehicle
- Minimize exposure risk
- Maximize predictable design



Safety

- Accommodate the smallest possible design vehicle
- Minimize exposure risk
- Maximize predictable design

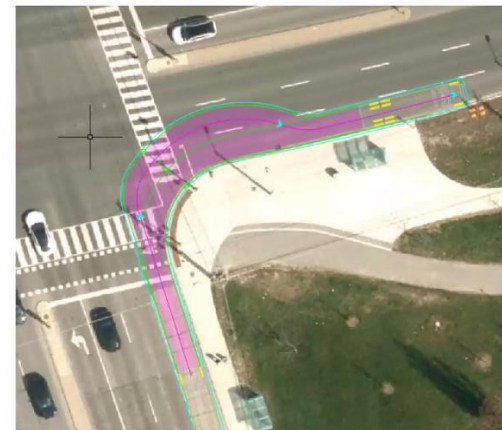


Figure 3.9. Design vehicles are the most common large vehicles that use city streets, similar to a Canada Post or other courier trucks.

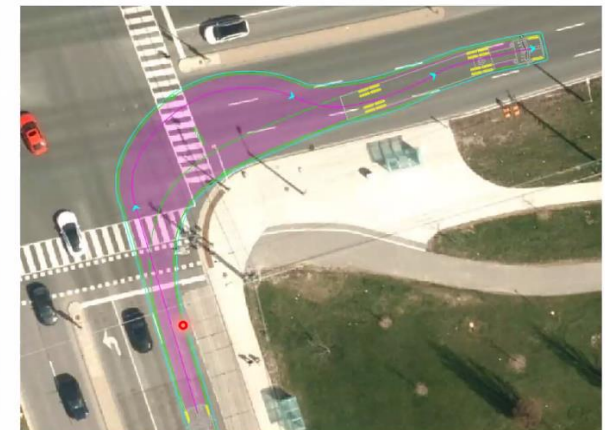


Figure 3.10. Control vehicles, like fire trucks, are the largest vehicles that use city streets. They are permitted to use more of the street to maneuver.

» Design vehicle



» Control vehicle



Link

- Design for person throughput
- Complete networks and fill gaps
- Accommodating desire lines
- Enhance network connectivity

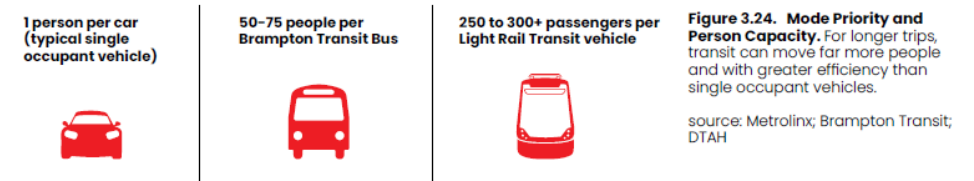


Figure 3.27. Block Pattern and Network Connectivity. Six examples from different parts of Brampton. Note the higher amount of possible routes in some parts of the city than others. The greater the number of intersections in a given area, the more connected and complete the network.

source: DTAH

Place

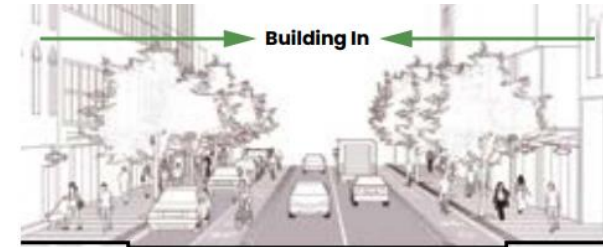


FOCUS OF TRADITIONAL APPROACH

Auto-Mobility
Automobile Safety



Highway 7



COMPLETE STREETS APPROACH

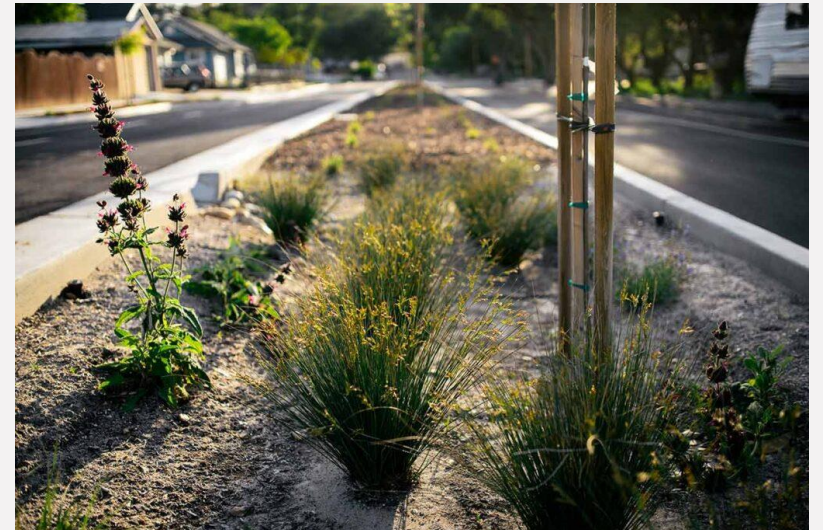
Multi-modal Mobility + Access
Public Health/Safety
Economic Development
Environmental Quality
Livability/Quality of Life
Equity



Danforth Road

Greening

- Help Brampton mitigate and adapt to climate change
- Expand the urban forest by installing street trees
- Manage stormwater through street elements



Life Cycle and Maintenance

- Understand the total cost of the project and the cost of incomplete streets
- Support four-season use of streets
- Select robust materials to increase lifespan



Figure 3.30. Designing streets that consider four season use means ensuring clear and accessible facilities for all users, and providing enough space for snow storage while maintaining suitable pedestrian clearway.

Chapter 4: Design Elements



Components



Boulevard Design



Cycle Infrastructure Design



Roadway Design

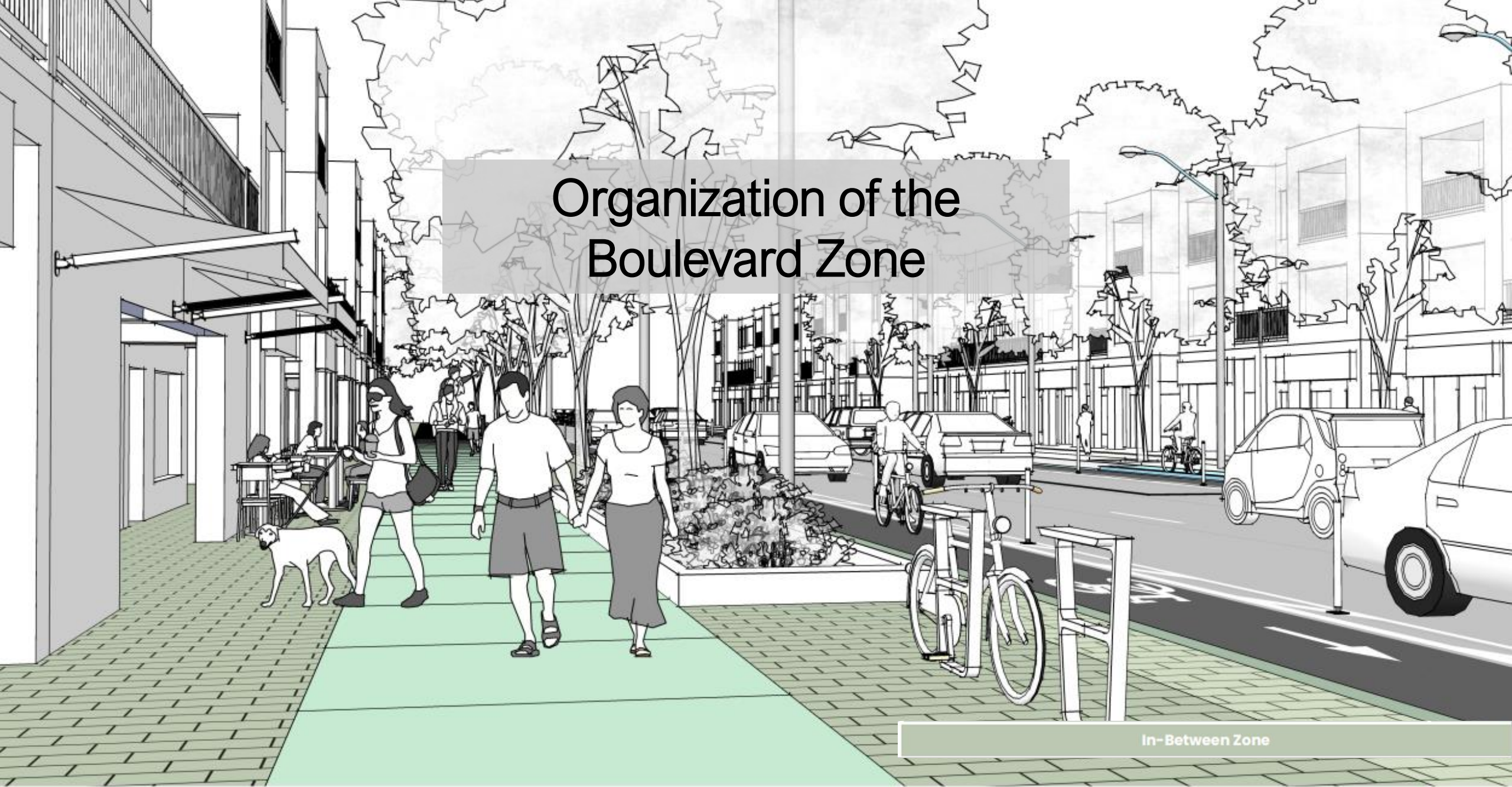


Green Infrastructure Design



Intersection Design

Organization of the Boulevard Zone



Frontage and Marketing Zone

Pedestrian Clearway Zone

In-Between Zone

Furnishing and Planting Zone

Edge Zone

Pedestrian Clearway Zone

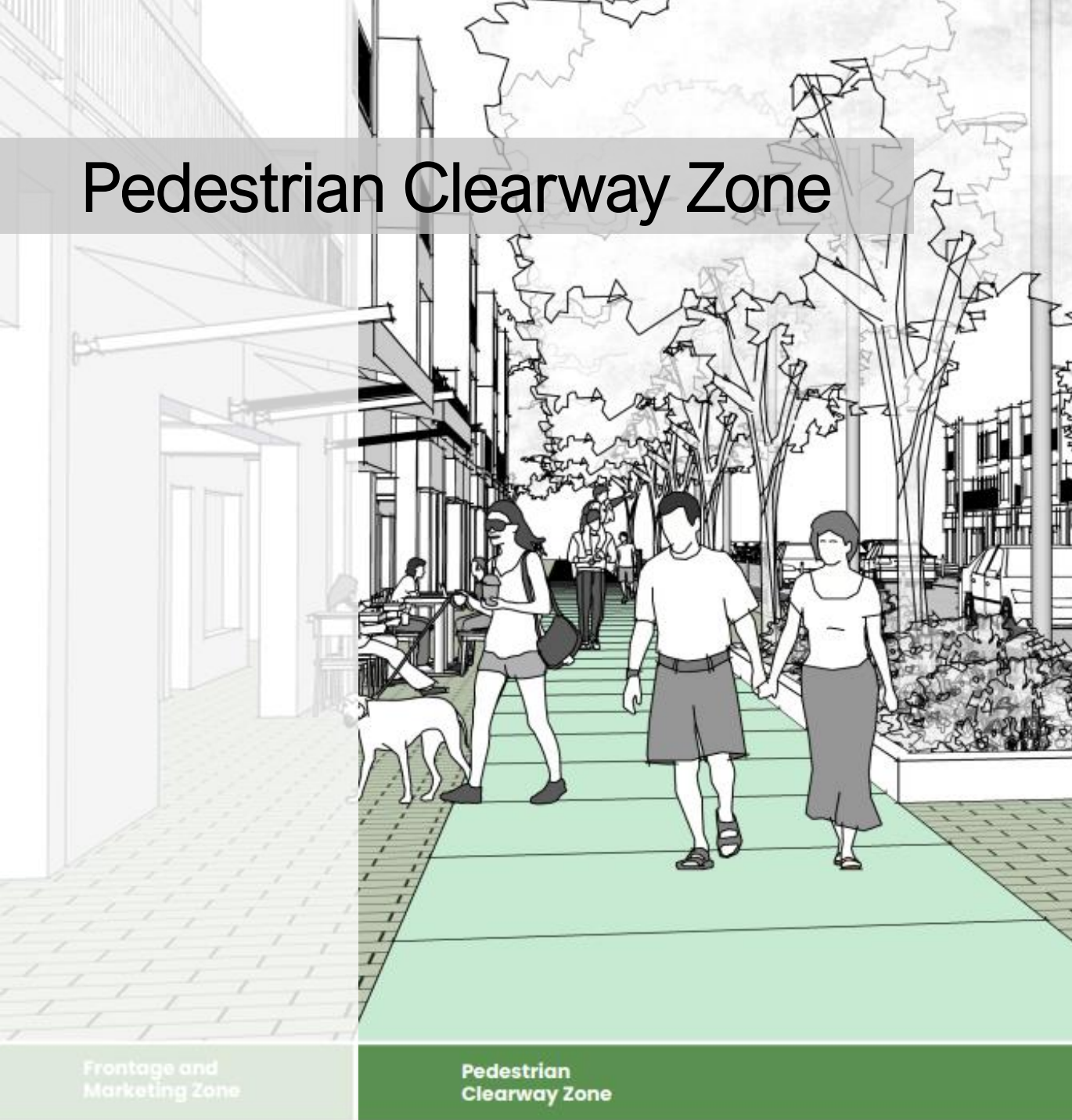


Figure 4.4. Wider pedestrian clearways are required on streets with greater pedestrian activities

Table 4.1 Pedestrian Clearway Width by Street Type

Street Type	Recommended Minimum Target Width
Urban Main Street	3.0m
Neighbourhood Connector	2.1m
Commercial Connector	2.1m
Mixed Use Residential	3.0m
Neighbourhood Residential	2.1m
Employment Collector	2.1m
Downtown Streets	3.0m
Local Residential	2.1m
Local Employment	2.1m
Shared	Entire Street
Lane	Entire Street

Frontage and Marketing Zone

Pedestrian Clearway Zone

Planting Zone

Edge Zone

Furnishing & Planting Zone

- Typically between the edge zone and pedestrian clearway
- Preferred location for street furniture
- Can contribute significantly to placemaking



Figure 4.6. Provide street trees and landscaping in a dedicated Furnishing and Planting Zone to maintain a continuous, unobstructed pedestrian clearway.

Frontage and
Marketing Zone

Pedestrian
Clearway Zone

Furnishing and
Planting Zone

Edge
Zone



Edge/Curb Zone



Figure 4.8. The Edge/Curb Zone may have some vertical elements, such as street lights, utility poles, parking meters and parking signs. It's also used for snow storage in the winter months.

- Should be distinct from the Furnishing/Planting Zone
- Promotes placemaking in urban areas
- Can be used for street maintenance (snow storage)
- May include sign posts, parking meters, car door swing paths
- Should not overlap with cycling facilities

Frontage and
Marketing Zone

Pedestrian
Clearway Zone

Furnishing and
Planting Zone

Edge
Zone

Clear Zones/Lateral Offsets

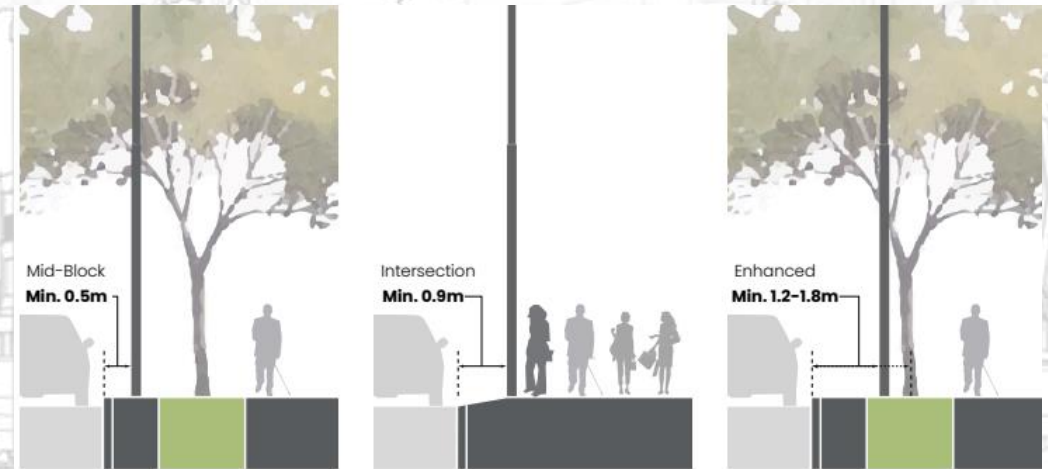
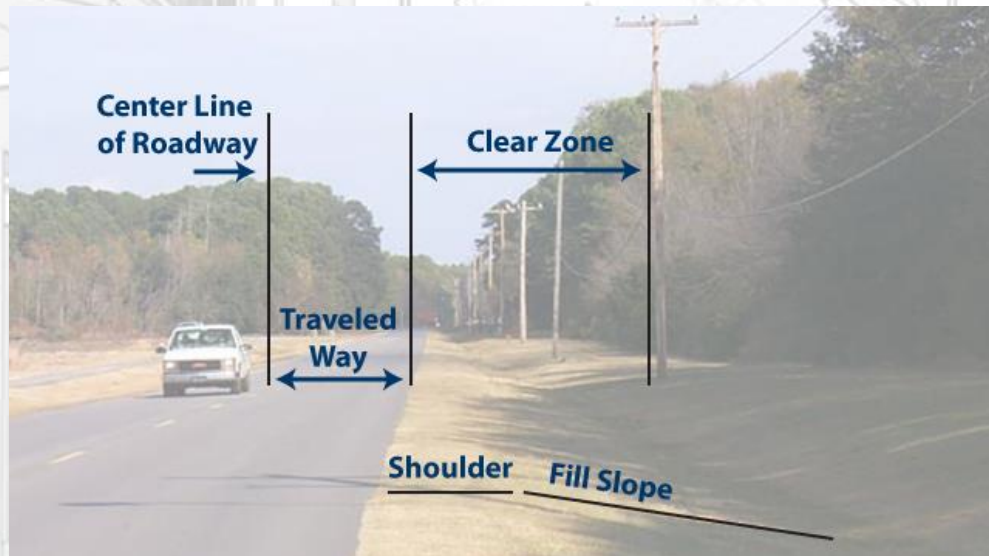


Figure 4.27. Lateral Offsets for Brampton Streets, based on TAC 2017 Guidance. All measurements from face of curb. Mid-block: minimum 0.5m; Intersections: minimum 0.9m; Enhanced offset for Urban Streets where space permits: 1.2m to 1.8m.

Clear Zones

- Traditionally clear zones are provided on highways and higher speed rural roads
- Clear zones are **not** applicable in urban contexts and **not** desirable for Brampton streets

Lateral Offsets

- Vertical elements can help create a sense of traffic calming and physically separate vulnerable users

Marketing & Frontage Zone



Figure 4.7. Frontage and marketing display elements should be provided to maximize a clear and straight Pedestrian Clearway Zone

- Accommodates outdoor seating and marketing elements for local businesses
- Outdoor patios/marketing displays should not infringe on the pedestrian clearway

Frontage and
Marketing Zone

Pedestrian
Clearway Zone

Furnishing and
Planting Zone

Edge
Zone



Cycle Infrastructure

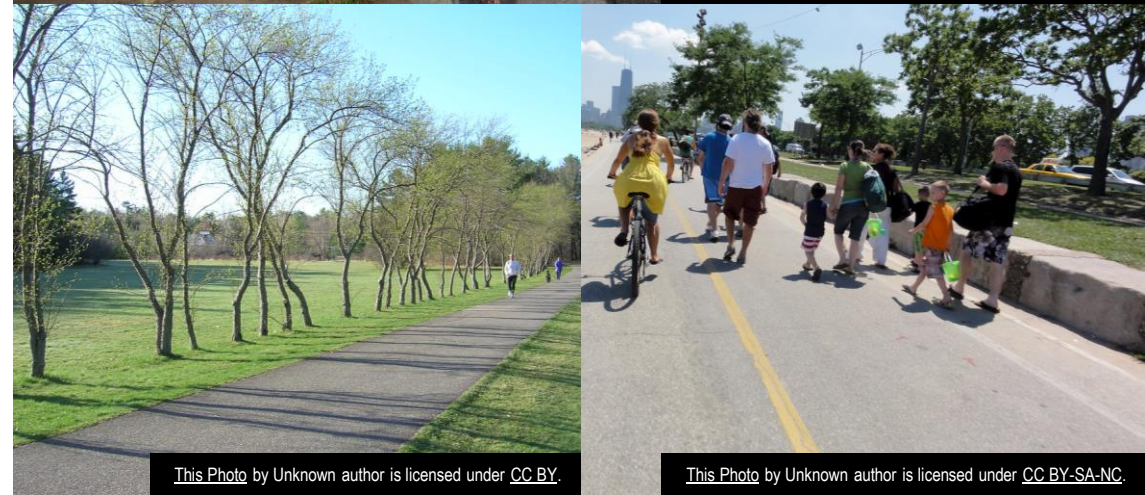
Cycle Infrastructure

- Multi-Use Path
- Cycle Tracks
- Bike Lanes
- Bicycle Wayfinding

<p>Shared Space</p>	<p>Bicycle Boulevards Sharrows Super Sharrows Signed Routes</p>	<p>Volumes of < 3,000 AADT Operating speeds <40km/hr Local Roads</p>
<p>Designated Space</p>	<p>Bike Lanes Buffered Bike Lanes Paved Shoulders Buffered Paved Shoulders</p>	<p>Volumes of 3,000 to 15,000 AADT Operating speeds of 40 to 50km/hr Collector Roads/Minor Arterial Roads</p>
<p>Separated Space</p>	<p>Boulevard Multi-use Paths Separated Bike Lanes or Cycle Tracks</p>	<p>Volumes of >10,000 to >15,000 AADT Operating speeds of equal to or > 50km/h Minor Arterial Roads/Major Arterial Roads</p>



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Roadway

Design Elements

- Design Speed
- Lane widths
- Lateral Offsets for Vertical Elements
- Access for Emergency Vehicles
- Curbside Space
- Mid-block Pedestrian Crossings
- Traffic Calming
- Driveways



The Guide recommends that the City conduct a speed reduction study and undertake a review to update existing City Standards

Design Speed

- Default speed in Brampton is 50 km/h
- Arterials are designed to facilitate the greatest vehicle operating speed
- The best practice in urban areas is to design streets so the operating speeds are the same as the posted speeds

Table 4.5 Recommended Maximum Target Speed Ranges by Brampton Street Type (km/hr)*

Road Classification	Street Type	Design Speed	Posted Speed
Arterials	Urban Main Street	40-60	40-50
	Neighbourhood Connector	60-70	50-60
	Commercial Connector	60-70	50-60
Collectors	Mixed Use Residential	40-50	40-50
	Neighbourhood Residential	40-50	40-50
	Employment Collector	40	40
	Downtown Streets	40	40
Locals	Local Residential	30-40	30-40
	Local Employment	30-40	30-40
	Shared	20	20
	Lane	20	20

Note: * subject to recommended speed reduction study

Table 4.10 Design Vehicle, Control Vehicle, and Curb Radii by Receiving Street

Receiving Street	BCSG Design Vehicle	BCSG Control Vehicle	Curb Radii* (m)
Minor Local	P: Passenger	LSU: Light Single Unit	4.0
Local	P: Passenger	LSU: Light Single Unit	4.0
Collector	LSU: Light Single Unit	B-12: Brampton Bus	6.0
Collector (Industrial)	MSU: Medium Single Unit	WB-20: Tractor	
Arterial	B-12: Brampton Bus	WB-20: Tractor	
Arterial (Industrial)	HSU: Heavy Single Unit	WB-20: Tractor	

Table 4.9 Brampton Roadway Lane Width Guidelines (metres)

Lane Type	Minimum	Maximum	Target
Streets with Design Speed 50km/h or less			
Curb	3.0	3.5	3.3
Through	3.0	3.5	3.0
Transit or Trucking Route			
Curb	3.5	3.7	3.5
Through	3.3	3.5	3.3
Streets with Design Speed greater than 50km/h			
Curb	3.5	3.9	3.5
Through	3.3	3.7	3.3
All Streets			
Turning	3.0	3.5	3.0
Dedicated Parking	2.4	3.0	2.5

Potential Complete Street Cross Section

23.0m ROW, 11.2m Pavement

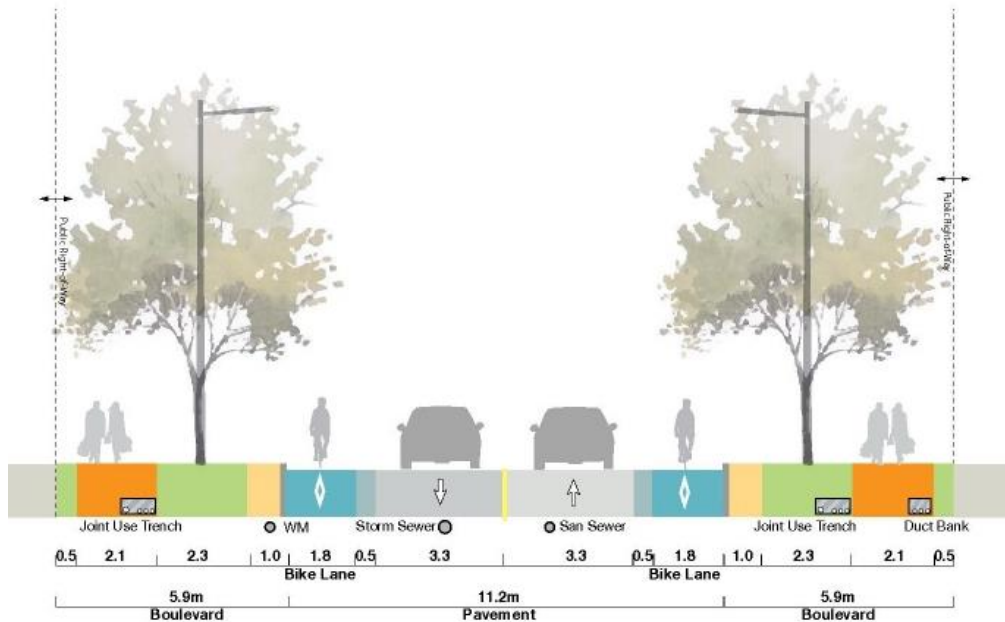


Table 4.6 Recommended Brampton Design and Posted Speeds, Related to Road Classification

Road Classification	Arterial	Collector	Local
Posted speed more than or equal to 50km/hr	Design speed = posted speed + 10km/hr	Design speed = posted speed	Design speed = posted speed
Posted Speed less than 50km/hr	Design speed = posted speed for the following elements: lane widths, tapers, and horizontal offsets	Design speed=posted speed for all elements	Design speed=posted speed for all elements
	Design speed = posted speed + 10km/hr for the following elements: horizontal alignment, vertical alignment, and intersection sightlines.		

Intersection

Design Elements

- Context Sensitive Intersection Design
- Corner Design/Curb Radii
- Bicycle Infrastructure
- Transit Infrastructure
- Crosswalks
- Urban Smart Channels
- Intersection Control



Green Infrastructure

Design Elements

- Street trees and landscaping
- Low impact developments

Recommendations

- Landscape Development Guidelines Update
- Stormwater Master Plan Update
- Low Impact Development (LID) Terms of Reference
- Stormwater Management Criteria



Chapter 5: Implementation

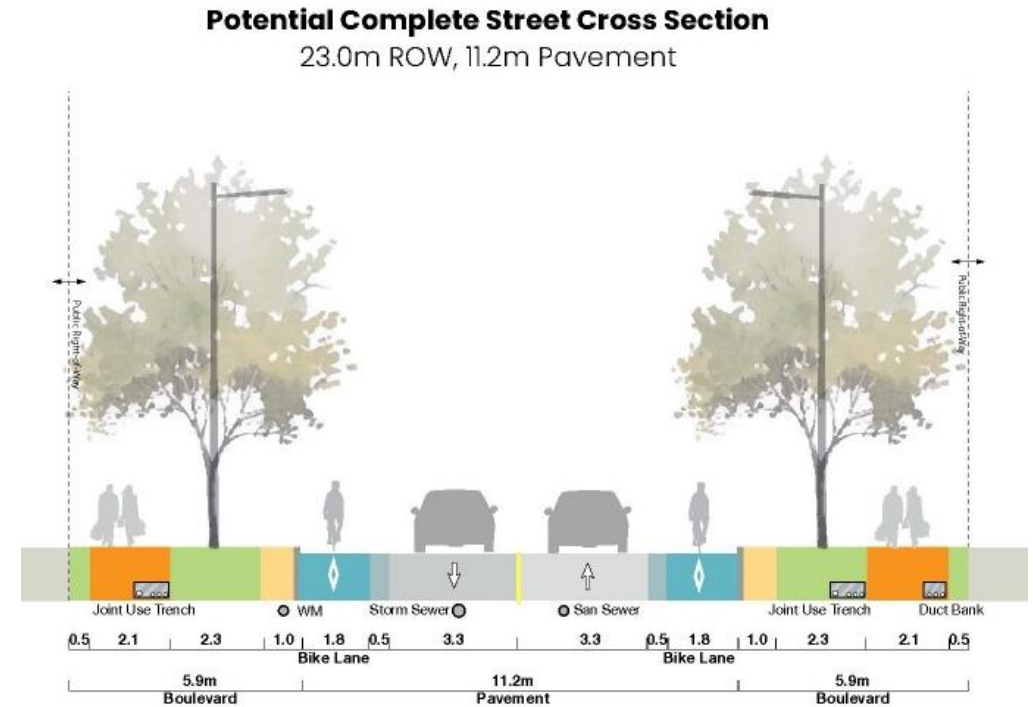




- Policy
- Standards & Guidelines
- Process
- Plans and Studies
- Projects
- Evaluation & Monitoring
- Communication & Engagement

Current Projects

- Ongoing environmental assessments and capital works projects
- Brampton Mobility Plan
- Speed Reduction Study
 - Policy and best practices review
- Standards Update
 - Update existing Brampton Standards
 - Add any new standards as required
- Complete Streets Website



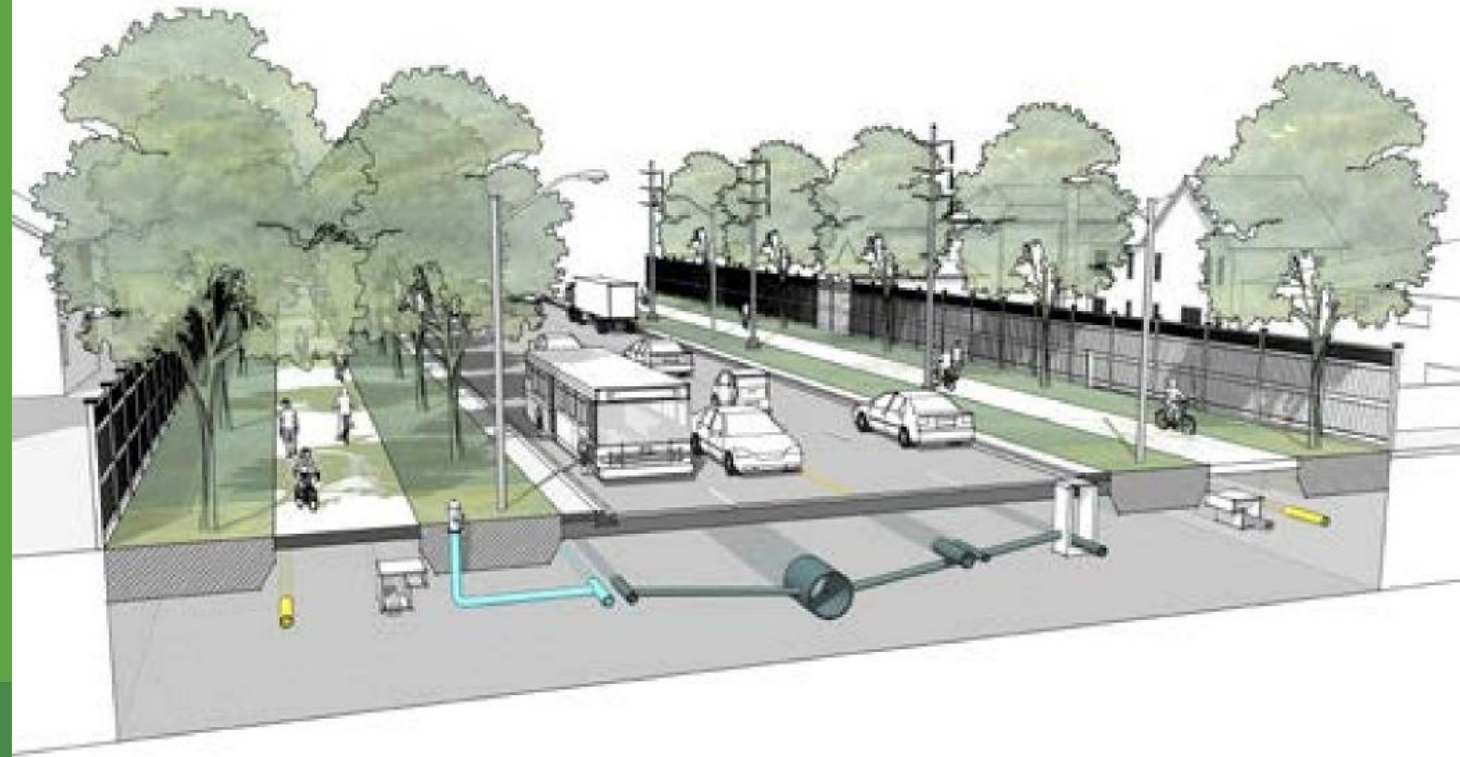
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BRAMPTON



Thank You