DILLON CONSULTING

CITY OF BURLINGTON

Major Transit Station Areas

Transportation Assessment

September 2023 – 21-2562

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1.0 Introduction and Background

1.1 Purpose

This transportation report identifies the existing and planned multimodal transportation conditions within and around the study areas that will influence the development and investment within Burlington's three Major Transit Station Areas (MTSA). MTSA specific infrastructure, services, programs and policies are identified to achieve the endorsed vision.

This report supports the Area-Specific Plans (ASP) for the three MTSAs within Burlington.

1.2 How the MTSA Transportation Study connects to the IMP

1.2.1 Burlington Integrated Mobility Plan

The Integrated Mobility Plan (IMP) guides long-term mobility policy and investment decisions in a manner that supports the overall strategic directions outlined in the City of Burlington Strategic Plan, Official Plan and other key policy documents. The IMP establishes a vision of an integrated and sustainable network of mobility options that will support a City that Grows, a City that Moves, a Healthy and Greener City and an Engaged City (the four Pillars of Burlington's Strategic Plan). The Burlington IMP is focussed on: making a shift towards sustainable modes that is grounded in policy (roads will not be widened to increase auto capacity); addressing the physical and cultural changes that the City is undergoing, including desire for more sustainable modes; addressing the current climate change emergency; and being cognizant of the fact that the City is made up of numerous diverse communities.

The IMP establishes the transportation framework for Burlington. This includes:

- Major transportation networks;
- City-wide transportation services; and
- Transportation programs and policies.

1.2.2 MTSA Transportation Plans

This document establishes the MTSA transportation plans for the finer transportation elements required to support development of the MTSA in a manner consistent with the Official Plan objectives for the MTSA and the transportation framework established by the IMP. The transportation plan for each MTSA includes:

- multimodal transportation networks within the MTSA and connections to boundary networks;
- points of emphasis for the transportation services to/ from/ within the MTSA to support intensification;
- program actions to be taken in the MTSA to adopt/ support/ extend the IMP programs; and

- additional policies required for the MTSA to support the IMP directions.

1.3 Background

The City of Burlington (the City) retained Dillon Consulting Limited (Dillon) to develop ASPs for the three MTSAs within the city; the Appleby GO MTSA, the Aldershot GO MTSA and the Burlington GO Urban Growth Centre/ MTSA that will present a comprehensive plan and set of policies for the areas to guide future development and investment and create complete communities.

The MTSA Area Specific Planning project identified the following objectives to guide the project:

- Leverage infrastructure investment and frequent transit service, including higher order transit and the development of public service facilities to support and accommodate increased densities and transit supportive densities.
- Provide a range and mix of transit-supportive uses, such as residential, retail, office, parks and public uses that supports the area in a pedestrian oriented urban environment.
- Plan and design the areas to be transit-supportive, complete communities and to achieve multi-modal access to stations and connections to nearby major trip generators.
- Plan for a diverse mix of uses, including additional residential units and affordable housing, where appropriate.
- Protect existing significant employment uses within Major Transit Station Areas by ensuring land use compatibility with adjacent new development is achieved.
- Develop a transportation network designed to support and integrate active transportation, local transit services and inter-municipal/ inter-regional higher order transit services.
- Plan for new public service facilities that support future population and job growth.
- Create new parks, trails, public realm and open spaces to serve residents and local workforce including the integration and connection of these spaces with the City's broader parks and trails network.
- Protect life and property from natural hazards.

1.4 Scope

This study provides a transportation plan for each of Burlington's three MTSA - Appleby, Aldershot and Burlington UGC. This study summarizes the IMP directions related to MTSA and, for each MTSA, identifies the:

- development concept and forecasted travel demands;
- IMP transportation network recommendations in the vicinity of the MTSA;
- recommended transportation networks within the MTSA boundaries;
- transportation services needed to support the MTSA;
- actions to be taken in the MTSA to adopt/ support/ extend the IMP programs; and
- additional policies required for the MTSA to support the IMP directions.

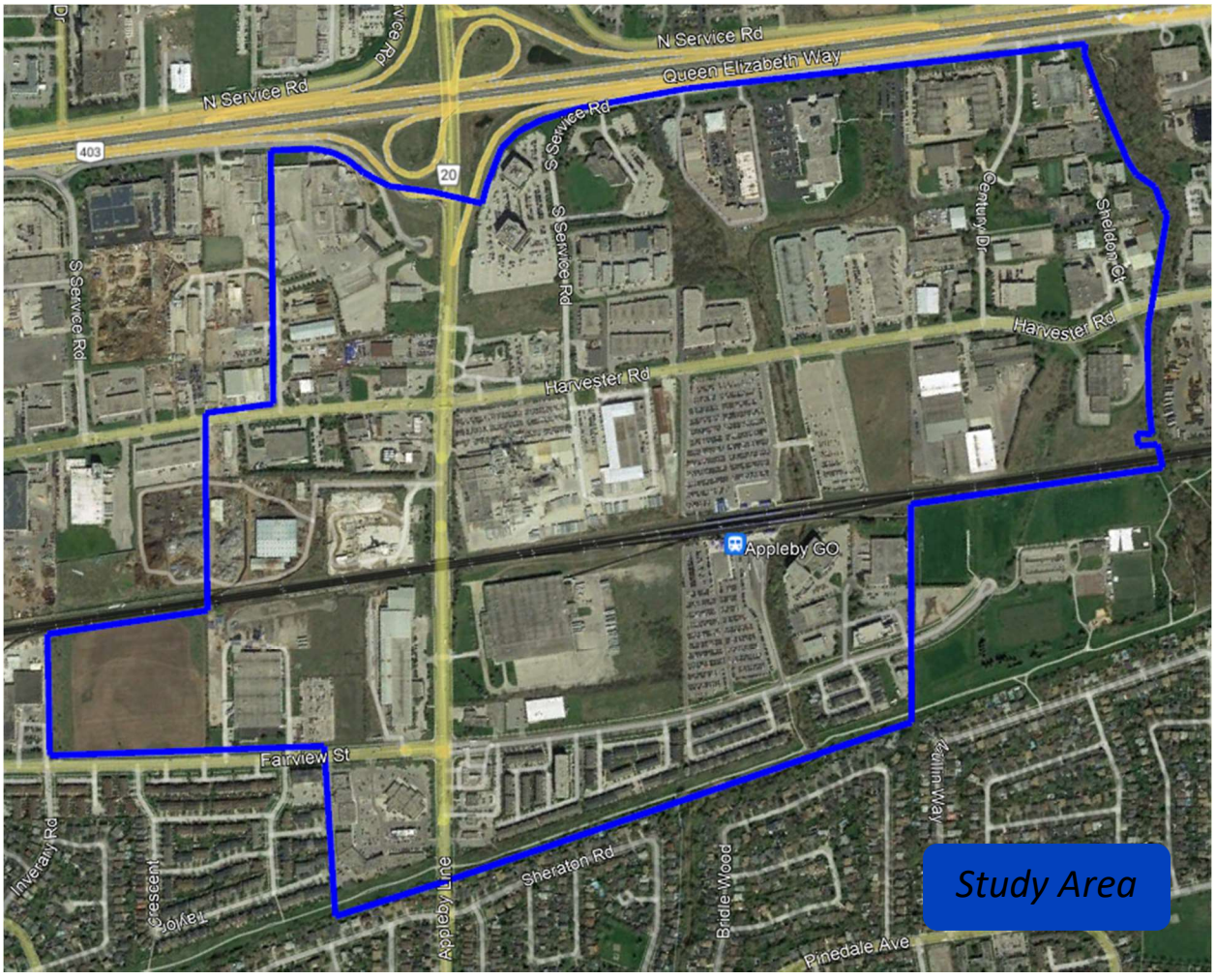
1.5 Study Areas/ Locations

The three MTSA study areas are located directly adjacent to a Highway 403 or Queen Elizabeth Way (QEW) interchange and contain a GO Transit Station. The Aldershot MTSA also contains a VIA Rail station. These are major entry points to the City of Burlington and distinguish the three MTSAs as prime locations to accommodate both population and employment growth.

1.5.1 Appleby GO MTSA

The Appleby GO MTSA is roughly centred on Appleby Line and Harvester Road as shown in **Figure 1** and is planned to accommodate a mix of uses with more intensive office and employment uses, while continuing to support existing major facilities north of the rail line. The area south of the GO rail line will evolve as an urban village with a balanced mix of employment, residential and commercial opportunities while balancing land use compatibility considerations to adjacent major facilities.

Figure 1: Appleby GO MTSA – Study Area



1.5.2 Aldershot GO MTSA

The Aldershot GO MTSA is centred on Waterdown Road largely between Highway 403 and Plains Road as shown in **Figure 2** and will continue to evolve as an urban area with a distinct sense of neighbourhood character, supported by a mix of residential, commercial and employment uses.

Figure 2: Aldershot GO MTSA – Study Area

1.5.3 Burlington GO MTSA

The Burlington GO MTSA is centred on key intersections located east of Brant Street between Highway 403/ Queen Elizabeth Way and Fairview Street as shown in **Figure 3**. The Burlington GO MTSA is also the City's Urban Growth Centre that is planned to be the focal point for growth with the greatest variety and intensity of uses from residential to commercial, cultural recreation, major office and other employment uses.

Figure 3: Burlington GO MTSA – Study Area

2.0 Summary of Burlington IMP

The City of Burlington is currently completing its first ever Transportation Master Plan, the Burlington Integrated Mobility Plan (IMP). The full IMP will be presented to Council for Approval in Fall 2023. Key decisions and recommendations (Vision/ Values/ Goals and Preferred Network) have already been endorsed and are taken as givens for the MTSA Transportation Plans, such as:

- The philosophy of the IMP is to reduce auto demand rather than widen roadways;
- The vision, values and goals of the IMP embrace a sustainable planning approach that is mode-share driven, rather than corridor-capacity driven (endorsed by Burlington Council Dec 2020);
- The IMP developed neighbourhood-specific mode share targets to guide future network and service planning;
- A preferred network concept was established for an integrated, multimodal transportation system that prioritized movement of people over vehicles (endorsed by Burlington Council Jan 2022); and
- Key supporting programs and policies were identified to guide delivery of transportation services in a manner that aligns with the IMP goals and supports the network concept.

IMP Program and Policy recommendations have not been reviewed by Council but, given that they are aligned with the IMP Vision/ Values/ Goals, they were assumed to be the framework for Programs and Policies for the MTSAs.

2.1 IMP Core Philosophy

The Burlington IMP core philosophy is as follows:

Reduce auto demand (via mode shift) rather than increasing auto roadway capacity.

This philosophy is a major paradigm shift from traditional Transportation Master Plans (TMP) that simply identified the roadways that required widening. Burlington needs to accommodate both commuter traffic and local users on its transportation network. The City wants to provide high quality, multimodal streets that serve the range of needs of its residents, but it must also acknowledge the sheer volume of peak period auto demands on its major roads. Cars need to be accommodated, but historically they have been prioritized. This balance of networks and neighborhoods has caused the demands of the surrounding region to compete with Burlington's local objectives. This IMP is balancing the creation of public place and a strong sense of community with the need to avoid the negative impacts of congestion.

2.2 IMP Vision, Values and Goals

The Burlington IMP Vision, which contains its Values, is as follows:

*Mobility in Burlington will be **safe**, **accessible**, **sustainable**, **balanced**, and **livable**.*

Safe – The movement of people and goods in Burlington will be safe for users of all modes. Special attention will be paid to ensuring the safety of vulnerable users – pedestrians and cyclists – as they are most likely to get seriously injured or killed in an incident. We will not accept transportation-related deaths and serious injuries as a normal part of our daily lives; our transportation system will be designed to minimize the risk of transportation-related deaths and serious injuries from occurring on our streets.

Accessible – Getting around Burlington will be accessible to people of all ages and abilities. There will be no infrastructure or service gaps in the networks of any mode, so each traveller can make a comfortable trip from point A to point B in Burlington, when they want, by their travel mode of choice. Our transportation system will allow our community members to travel comfortably within Burlington and to nearby communities to make sure that all residents of Burlington can fully participate in society, by the travel mode of their choice.

Sustainable – The transportation network will prioritize efforts to encourage transit, cycling, walking, and other non-car modes in order to encourage their use. By doing this, we will prioritize our community's health, improve the vibrancy of our city, and reduce pollution. We will also electrify our transportation network to reduce the emissions of all vehicles and to make modes like scooters or bikes more accessible for people with reduced mobility.

Balanced – We will prioritize travel by non-car modes. Our streets will allow comfortable travel for users of every mode.

Liveable – Streets in Burlington will be designed to fit within their surroundings. The design of our streets will support the environment and character we want to create in surrounding neighbourhoods and communities.

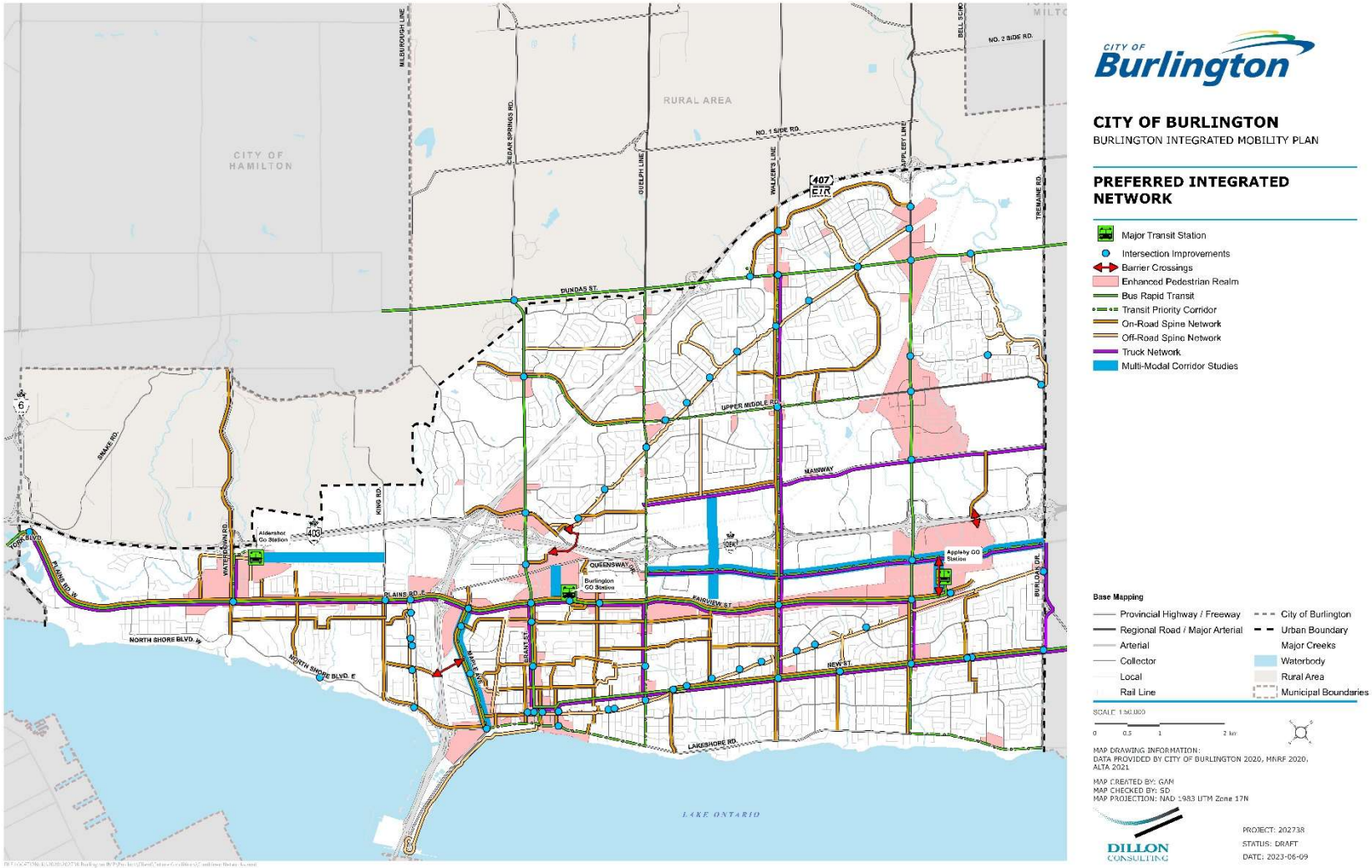
The Burlington IMP developed six Goals to explain how the Values will shape the transportation networks, policies and programs of the City of Burlington. They are as follows:

1. Burlington will eliminate transportation-related deaths and serious injuries.
2. Burlington's transportation system will be accessible and reliable for users regardless of factors like age, ability, income, or familiarity with the city.
3. Burlington will provide high quality transportation options to move people and goods wherever and whenever, while maintaining a high quality of life for residents.
4. Burlington will eliminate transportation-related carbon emissions.
5. Burlington's streets will support the intended roles of the communities they run through and help these communities be vibrant and prosperous.
6. Burlington will actively plan for the transportation changes of tomorrow while continuing to deliver great service today.

2.3 IMP Preferred Network Concept

The Burlington IMP preferred integrated network identifies the planned network elements for all modes of transportation. **Figure 4** shows the Preferred IMP Network

Figure 4: IMP Preferred Integration Network



3.0 Appleby MTSA Transportation Networks

3.1 Precinct Plan

This Transportation Report was prepared based on the land use plan and development concept for the MTSAs that was outlined in the MTSA ASP Planning Project Interim Report (December, 2021) based off a set of growth assumptions that were the best information available at the time for the purposes of analysis. As Dillon and the City continued to refine the land use plan and development concept into 2023, a sensitivity review showed that the refinements did not alter this report's recommendations.

3.1.1 Structure and Land Use

The land use plan for the Appleby GO MTSA contains a number of different precincts. **Figure 5** presents an overview of the study area and the Precinct Plan as shown in the MTSA ASP Planning Project Interim Report (December, 2021).

Figure 5: Appleby GO MTSA – Precinct Plan

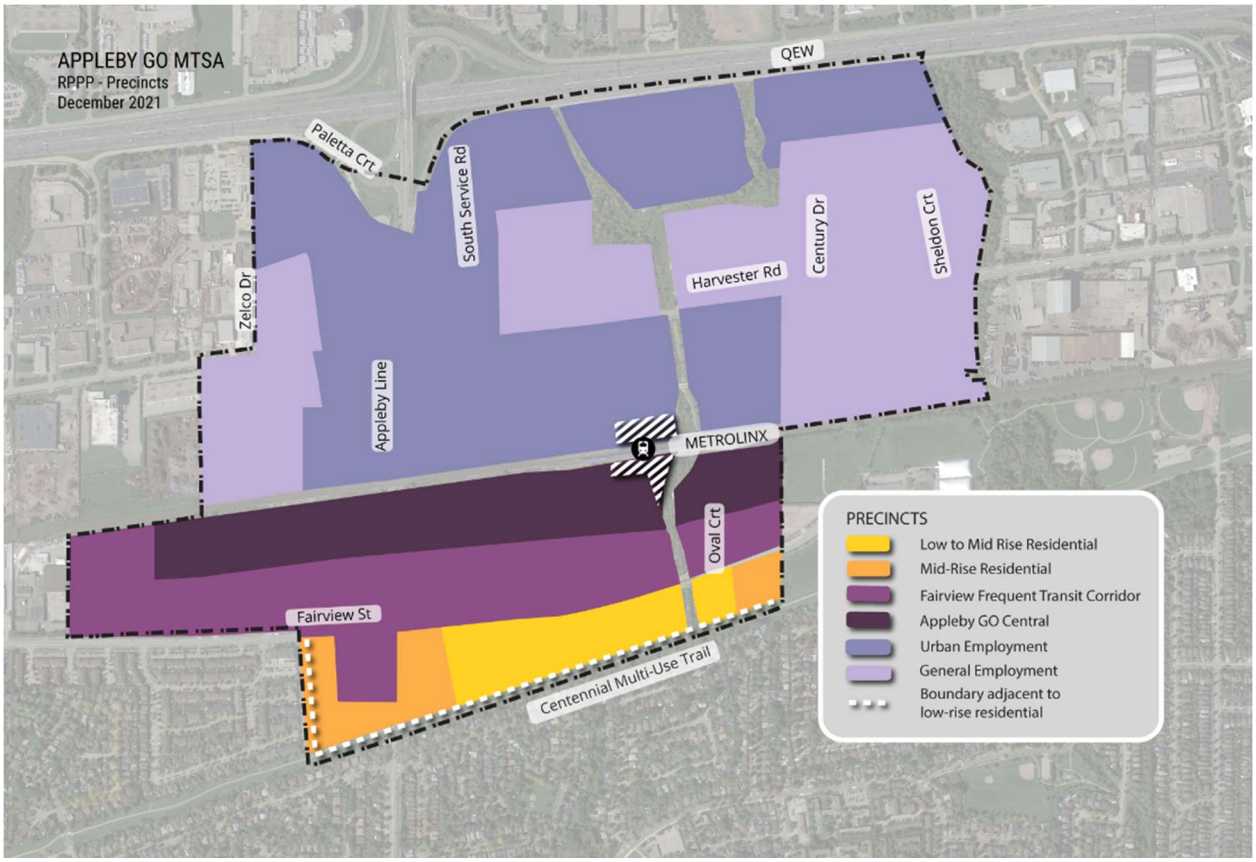


Table 1 presents a summary of the Precinct land use data, broken down by development data (Gross Floor Area (GFA), residents, and jobs per site).

Table 1: Appleby GO MTSA – Precinct Plan Development Data

Precinct	GFA (000 ft²)					Res. Units	# of Res.	# of Jobs			
	Res.	Office	Retail	Ind.	Total			Office	Retail	Ind.	Total
Appleby GO Central	1,767	1,325	1,325	0	4,417	1,728	2,074	5,324	1,331	0	6,655
Mid-Rise Residential*	525.5	11	16.5	0	553	513	615	50	19	0	69
Fairview Frequent Transit Corridor	4,927	616	616	0	6,159	4,818	5,782	2,474	619	0	3,093
Urban Employment	0	2,169	361.5	1,084.5	3,615	0	0	3,514	146	878	4,538
General Employment	0	609	0	2,434.5	3,043.5	0	0	1,274	0	2,547	3,821
Total	**7,219.5**	**4,730**	**2,319**	**3,519**	**17,787.5**	**7,059**	**8,471**	**12,636**	**2,115**	**3,425**	**18,176**

Source: MTSA ASP Planning Project Interim Report (December, 2021). The data used is based on the best information available at the time for the purposes of the transportation analysis and may not align with the overall growth assumptions that were refined in 2023.

Notes: Res. = Residential or Residents
Ind. = Industrial
*The 'Mid-Rise Residential' precinct is a consolidation of 'Low to Mid-Rise Residential' precinct and 'Mid-Rise Residential' precinct.

3.1.2 Mode Share Targets

The future mode shares targets for Appleby GO MTSA are based on existing conditions, policy directions, and case studies of similar developments. **Table 2** summarizes the existing and future neighbourhood mode shares for Pinedale and future recommended MTSA mode shares.

Table 2: Appleby GO MTSA – Existing and Future Daily Mode Shares

Travel Mode	Existing (2016) Mode Shares (TTS)	Future (2051) Mode Share Targets	
	Neighbourhood – Pinedale	Neighbourhood – Pinedale	MTSA – Appleby GO
Walking	3%	5%	13%
Cycling	1%	5%	9%
Transit	2%	17%	23%
Auto	95%	73%	55%

3.1.3 Trip Generation

For ease of analysis, the Appleby GO MTSA study area was subdivided into seven traffic zones based on the existing transportation network, access points, physical barriers and the proposed development concept. The traffic zones and assumed access points are displayed in **Figure 6.**

Figure 6: Appleby GO MTSA – Traffic Zones

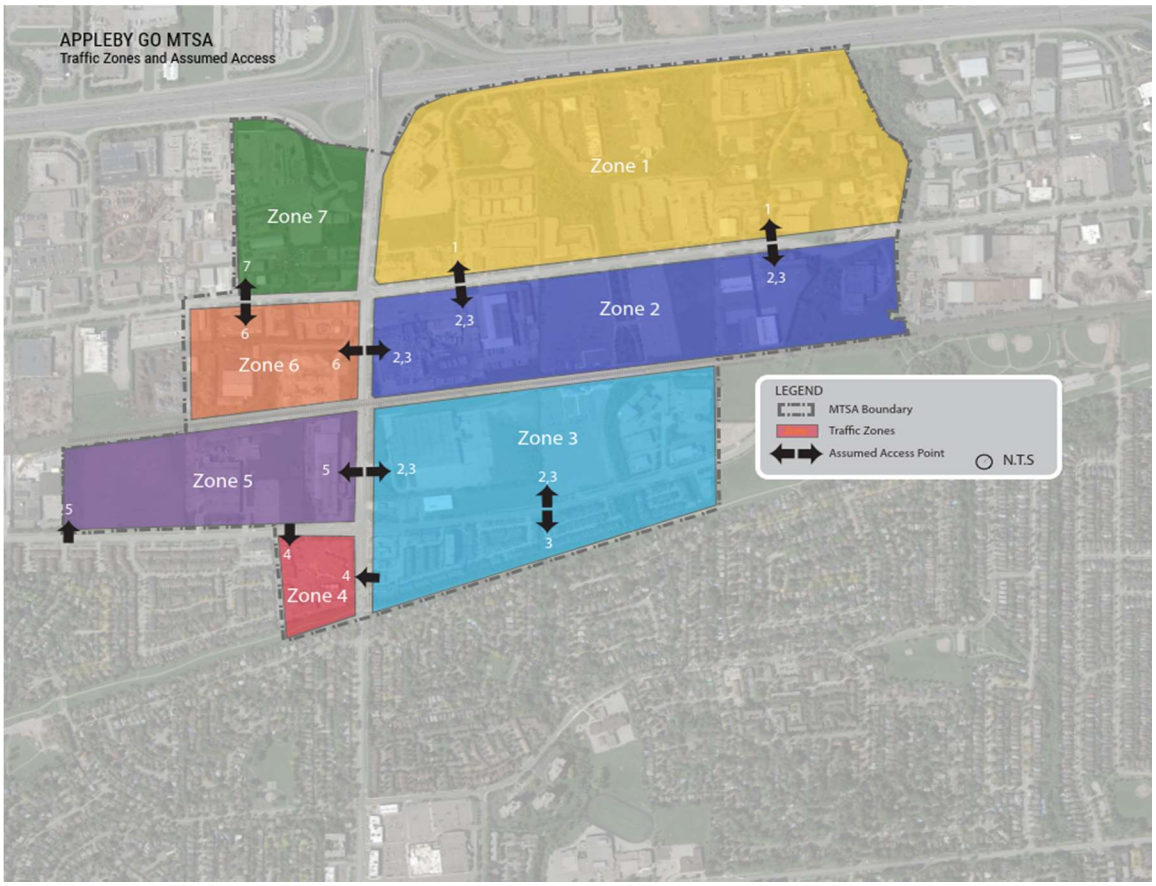


Table 3 summarizes the proposed precinct development data by traffic zone. The final AM and PM peak hour generated person trips by land use for each of the traffic zones are shown in **Table 4** and **Table 5**, respectively.

Table 3: Appleby GO MTSA – Proposed Precincts – Development Data by Traffic Zone

Traffic Zone	Precinct	Office (GFA - ft²)	Retail (GFA - ft²)	Industrial (GFA - ft²)	Residential (units)
1	Urban Employment	867,596	144,599	433,798	0
	General Employment	273,891	0	1,095,566	0
2	Urban Employment	759,146	126,524	379,573	0
	General Employment	152,162	0	608,648	0
3	Appleby GO Central	927,676	927,676	0	1,210
	Mid-Rise Residential	7,728	11,592	0	359
	Fairview Frequent Transit Corridor	369,524	369,524	0	2,891
4	Mid-Rise Residential	1,656	2,484	0	77
	Fairview Frequent Transit Corridor	61,587	61,587	0	482
5	Appleby GO Central	397,575	397,575	0	518
	Mid-Rise Residential	1,656	2,484	0	77
	Fairview Frequent Transit Corridor	184,762	184,762	0	1,445
6	Urban Employment	325,348	54,225	162,674	0
	General Employment	91,297	0	365,189	0
7	Urban Employment	216,899	36,150	108,449	0
	General Employment	91,297	0	365,189	0
Total		**4,729,802**	**2,319,183**	**3,519,086**	**7,059**

Table 4: Appleby GO MTSA – Person Trips by Traffic Zone and Land Use – AM Peak Hour

Traffic Zone	Office		Retail		Industrial		Residential		Total	
	In	Out	In	Out	In	Out	In	Out	In	Out
1	1,980	270	97	60	1,292	176	0	0	3,369	506
2	1,581	215	86	52	834	114	0	0	2,500	381
3	2,264	310	883	542	0	0	493	1,647	3,640	2,499
4	110	16	43	27	0	0	62	206	215	249
5	1,013	139	394	242	0	0	226	753	1,633	1,135
6	722	99	38	22	446	61	0	0	1,206	182
7	534	73	25	14	399	54	0	0	958	141
Total	8,204	1,120	1,565	960	2,971	406	781	2,606	**13,521**	**5,092**

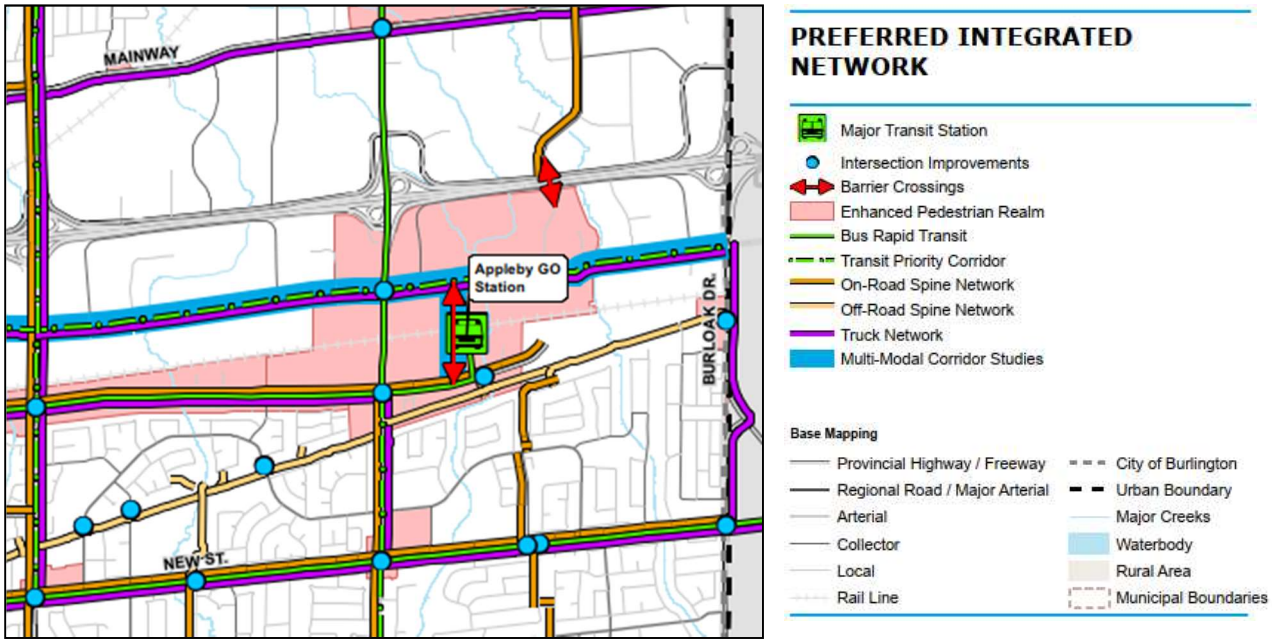
Table 5: Appleby GO MTSA – Person Trips by Traffic Zone and Land Use – PM Peak Hour

Traffic Zone	Office		Retail		Industrial		Residential		Total	
	In	Out	In	Out	In	Out	In	Out	In	Out
1	362	1,770	306	332	180	1,109	0	0	848	3,211
2	289	1,412	267	290	117	716	0	0	673	2,418
3	420	2,024	2,770	3,001	0	0	1,376	879	4,566	5,904
4	21	100	136	147	0	0	172	110	329	357
5	187	906	1,237	1,341	0	0	630	402	2,054	2,649
6	132	646	114	124	62	383	0	0	309	1,153
7	97	478	77	83	56	344	0	0	230	905
Total	1,508	7,337	4,907	5,318	415	2,551	2,178	1,391	**9,008**	**16,597**

3.2 IMP Network – Appleby

The IMP preferred integrated network (**Figure 7**) identifies a number of planned network elements in the vicinity of the Appleby GO MTSA. Planned network elements of particular importance include: the bus rapid transit and on-road cycling spine network on Fairview Street, the transit priority corridor and the on-road cycling spine network on Appleby Line (south of Fairview Street); the Bus Rapid Transit on Appleby Line (north of Fairview Street); the Transit Priority Corridor on Harvester Road; and the local off-road cycling spine network that is just south of the Appleby GO MTSA.

Figure 7: Appleby GO MTSA – IMP Preferred Integrated Network



3.2.1 Street Network

The IMP proposes a new north/south street connection across the rail corridor between Fairview Street and Harvester Road, east of Appleby Line to replace the extension of Fairview Street through Sherwood Forest Park. Although the connection is subject to future study to confirm the need, ultimate location, and cross-section requirements, this new north-south connection will provide many benefits to the transportation system and will improve access for all modes.

Appleby Line and Fairview Street are proposed as future Bus Rapid Transit (BRT) corridors with dedicated lanes, and Harvester Road is proposed as a future Transit Priority Corridor (as illustrated in **Figure 7**). The proposed BRT with dedicated lanes on Fairview Street will convert existing vehicle lanes (one lane per direction) to transit lanes, while the proposed BRT with dedicated lanes on Appleby Line will widen Appleby Line from 4 to 6 lanes to accommodate the additional transit lanes. Ultimately, the future BRT corridors with dedicated lanes will only happen if and when bus volumes dictate their need. BRT typically operate a more reliable and higher-frequency service when compared to a conventional bus route. The future Transit Priority Corridor may include various improvements including (but not limited to) transit signal priority.

3.2.1.1 Boundary Street Network Operations

The City, like all GTA municipalities, is going to continue to grow and develop through intensification. The Province of Ontario has made a number of legislative changes to the planning framework with the goal of delivering more homes faster. The City of Burlington, guided by the planning framework and vision of the City's Official Plan is planning to accommodate that growth in compact, sustainable and transit supportive complete communities in close proximity to existing and future infrastructure, including provincial investment in transportation infrastructure at the GO Stations.

Several of the movements at major intersections in the study area (i.e. Appleby Line at North Service Road, Appleby Line at Harvester Road and Appleby Line at Fairview Street) that show poor performance under total future conditions are either at, or nearing, capacity today. This means that any growth in vehicular demands in the study area (background or development-related) will cause heavily congested conditions in the near future. It is anticipated that the automobile road network within the Appleby GO MTSA will continue to perform poorly under total future conditions. With background traffic growth and the addition of thousands of site trips, the study area road network is expected to be very congested during the peak periods.

Mitigation will be required to address the significant congestion in the study area network. However, the selection of mitigation strategies must also consider that there are no plans, or desire, to widen City-owned roadways for the sole purpose of increasing auto capacity.

Given this limitation, the following is a discussion of recommended future actions and mitigation strategies to improve mobility under future total conditions.

Reduce Vehicular Travel Demands

Since the network is already nearing capacity today, reducing auto demands must be a key part of the strategy to minimize future congestion. When roughly comparing the existing condition volumes to the 2051 total future volumes at two key intersections – Appleby Line at Harvester Road and Appleby Line at Fairview Street – the total reduction in critical movement volumes required to bring all critical movements back to "just below capacity conditions" (i.e. v/c ratios less than 1.2) is a 30% critical movement volume reduction in the AM peak and a 20-40% critical movement volume reduction in the PM peak.

The 2051 Pinedale neighbourhood mode share profile targets an auto reduction of 17% over existing conditions. If achieved or slightly exceeded, this reduction in existing demands could provide a substantial portion of the auto capacity required to support additional development.

However, achieving such significant reductions in vehicle demands will require an aggressive, robust, and effective transportation demand management (TDM) program. Therefore, both the City and the Region should work to develop TDM programs to reduce vehicle demands on both City and Regional roads within the study area. Additionally, the City should require site-specific TDM strategies for the proposed concept.

Manage Peak Hour Congestion

Despite efforts, key arterial corridors are and will remain congested. A traffic management plan (formed in partnership with Region) will need to be enacted on Appleby Line, Harvester Road and Fairview Street. Establishing automated and responsive traffic signal control, digital data collection, Digital banners for real-time communication will ensure flow of passengers and goods is maintained.

3.2.2 Active Transportation

Fairview Street and Appleby Line (between Fairview Street and New Street) are proposed to be part of the on-road cycling spine network (as illustrated in **Figure 7**), while Harvester Road is proposed to be an on-road connector route. Both Fairview Street and Appleby Line (between Fairview Street and New Street) are proposed to have protected bikeways, while Harvester Road is proposed to have painted buffered bike lanes. Appleby Line north of Fairview Street (Regional Road 20) is proposed to have buffered bike lanes.

The intersections of Appleby Line and Fairview Street, and Appleby Line and Harvester Road are proposed to become protected intersections for cyclists (as illustrated in **Figure 7**), while intersection improvements for pedestrians and cyclists are proposed for mid-block crossings of Fairview Street (at

the Appleby GO Station driveway/ Centennial Bikeway) and Harvester Road (at the GO Station driveway).

The new north/south street connection across the rail corridor between Fairview Street and Harvester Road would also provide an AT crossing over the rail, as well as accommodate transit vehicles.

3.3 Appleby MTSA Transportation Network

The transportation networks in MTSA will change significantly with redevelopment and intensification of lands. The City requires a street and pathway network that provides access, and accommodates mobility safely for all modes of transportation.

3.3.1 Street Network

A street network was developed for the Appleby MTSA considering:

- Physical and operational constraints/ barriers;
- The general structure and land use concept for the MTSA;
- Efficient network layout principles, such as providing even spacing between collector roads to maximize future flexibility and connectivity; and
- The opportunity to maximize new access opportunities to boundary system because of significant increase in number of trips generated within the MTSA

Physical barriers included such things as rail lines, existing bridges/ underpasses, watercourses – things that cannot be connected to and can only be crossed under specific conditions. Operational constraints include such things as existing traffic signals and freeway ramp locations and design. For example, current thinking on roadway operations indicates that minimum preferred spacing between traffic signals in intensification areas is 200m; whereas MTO prefers a minimum 400m from ramp terminals.

Constraints/ barriers influencing the development of the Appleby MTSA network include:

- GO Rail line;
- Grade-separation on Appleby Line at GO Rail crossing;
- The watercourse/ creek east of Appleby Line; and
- The existing traffic signals.

3.3.1.1 Recommended Street Network

Figure 8 shows the recommended street network for the Appleby MTSA. The rationale for the recommended network is presented in **Table 6**.

Figure 8: Appleby GO MTSA – Street Network

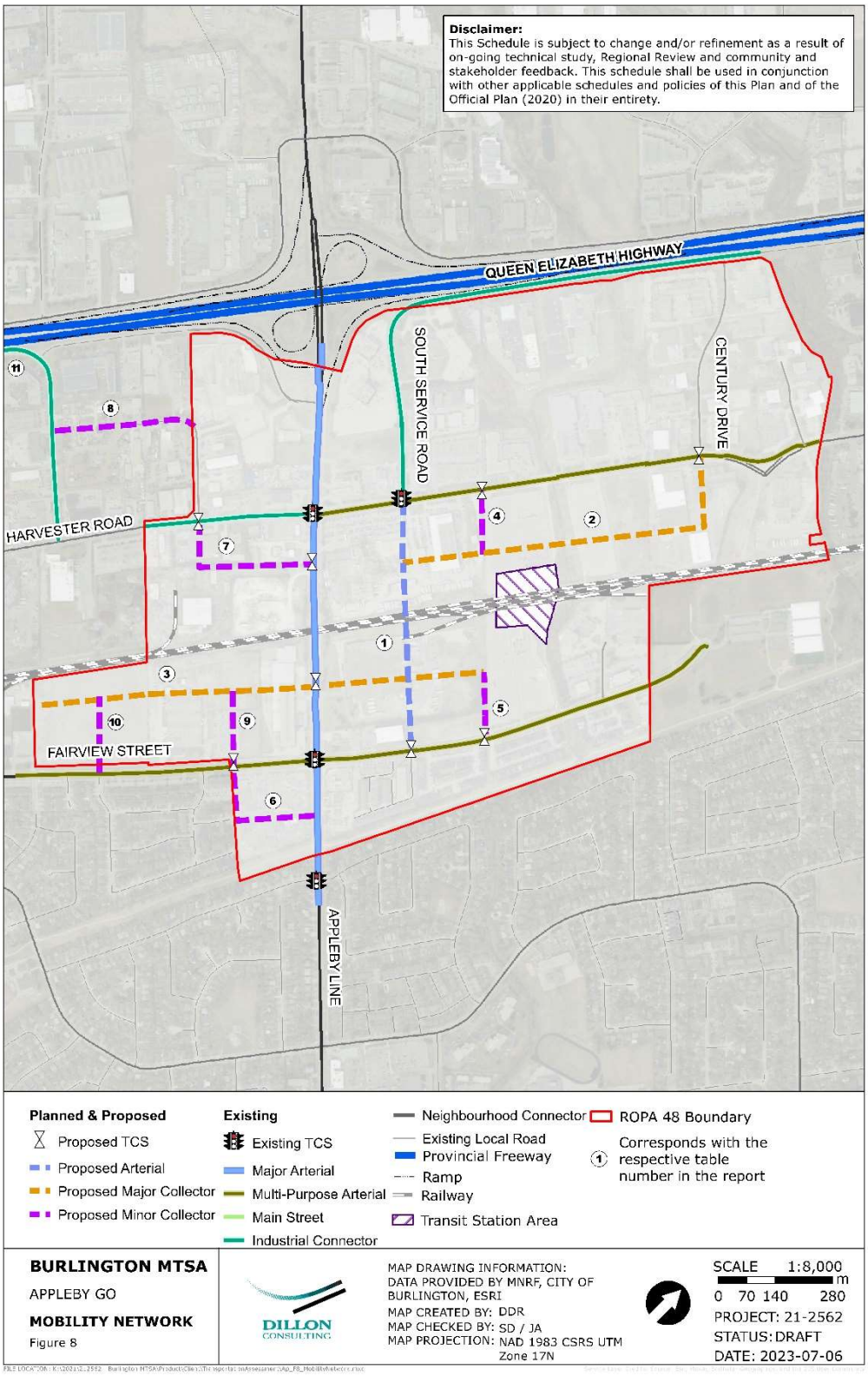


Table 6: Appleby GO MTSA – Planned/ Proposed Street Network Rationale

Street	Classification	ROW Width	Rationale
Street 1	Arterial	35m	• South Service Road Extension • Part of the IMP Network - replaces Fairview Street extension • Includes a new crossing of GO Rail line • Distributes travelers north-south between Appleby Line and creek and east-west south of the QEW • Creates a multimodal corridor to connect sustainable modes to development • Requires an EA study to confirm need, location and design
South Service Road	Major Collector	30m	• South Service Road Urbanization • May align with/ connect to new crossing of GO Rail line • Distributes travelers north-south east of Appleby Line and east-west south of the QEW • Creates a multimodal corridor to connect sustainable modes to development
Century Drive	Major Collector	30m	• Distributes travelers north-south east of Appleby Line • Creates a multimodal corridor to connect sustainable modes to development
Street 2	Major Collector	30m	• Distributes travelers east-west between Go Rail line and Harvester Road • Creates a multimodal corridor to connect sustainable modes to development
Street 3	Major Collector	30m	• Distributes travelers east-west between Go Rail line and Fairview Street • Creates a multimodal corridor to connect sustainable modes to development
Streets 4-7, 9 & 10	Minor Collector	26m	• Provides access to development parcels • Creates multimodal corridors to connect sustainable modes to development
Zelco Drive	Minor Collector	26m	• Provides access to development parcels • Creates multimodal corridors to connect sustainable modes to development
Zelco Drive extension (Street 8)	Minor Collector	26m	• Provides access to development parcels • Creates multimodal corridors to connect sustainable modes to development
South Service Road (Street 11)	Major Collector	30m	• South Service Road Modification • Distributes travelers north-south west of Appleby Line and east-west south of the QEW • Creates a multimodal corridor to connect sustainable modes to development and to the DeGroote School of Business

The IMP Preferred Solutions paper provides the following rationale for Street 1:

North-South Link east of Appleby Line (Fairview Street to Harvester Road)
The proposed new North-South link from Fairview Street and Harvester Road, east of Appleby Line, replaces the previous extension of Fairview Street through Sherwood Forest Park. It provides many benefits to the overall transportation system by providing an additional crossing of the GO rail corridor. The additional multimodal crossing of the GO rail corridor will provide additional automobile route choice flexibility for people accessing the area, which will spread auto demands to the greatest extent possible, ultimately reducing peak period auto demands through the Appleby Line/ Harvester Road and Appleby Line/ Fairview Street intersections. It will also provide an additional active transportation and transit link across the GO rail corridor thus providing additional transit route flexibility and providing cyclists with a safe option to cross the GO rail corridor without having to travel on Appleby Line. Given the possibility of a number of property constraints associated with this connection, the proposed North-South Link east of Appleby Line would be subject to a future Environmental Assessment study.

3.3.2 Active Transportation (AT) Network

An MTSA AT network must strongly support and promote sustainable transportation to accommodate the planned development levels. Right-of-way on the boundary streets is not available to increase auto capacity further; planning for sustainable transportation (including AT) infrastructure is the only way to move people in the quantities that are forecasted for peak commuter hours. Maximum capacity and service for AT trips will be created in the MTSA by implementing a network or complete streets with robust AT infrastructure complemented by major capital projects and pathways where necessary. A robust AT network is also critical to maximize the use of local and GO transit for people traveling longer distances to connect to the MTSA. A network that maximizes capacity and access to transport is critical to create sustainable transit options for the people of Burlington now, and in future growth.

Figure 9 shows the planned AT network for the Appleby GO MTSA. It features a network of complete streets that connects to Appleby Line, Harvester Road and Fairview Street and a number of off-road links in dedicated rights-of-way;

The rationale for the recommended off-street AT connections is presented in **Table 7**.

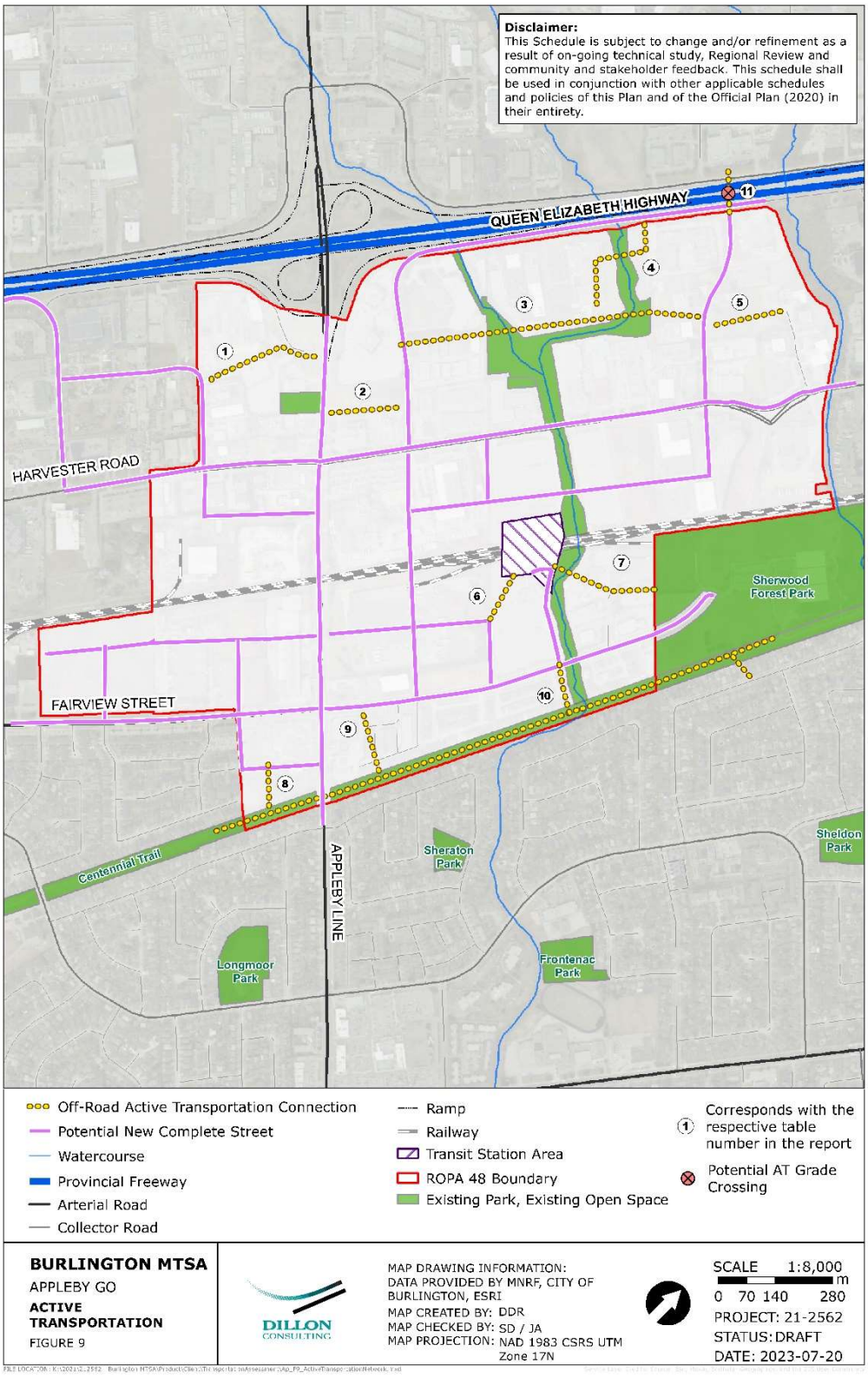
Table 7: Appleby GO MTSA – Active Transportation Network Rationale

Active Transportation Connection	Rationale
AT Connections 1 & 2	• Creates an off-road AT corridor that provides a shorter / more direct route to development parcels • Distributes AT travelers to/from Appleby Line east-west between the QEW and Harvester Road
AT Connection 3	• Creates an off-road AT corridor that provides a shorter / more direct route to development parcels • Distributes AT travelers east-west between the QEW and Harvester Road • Creates a linear connection for the purpose of recreational AT
AT Connections 4 & 5	• Creates an off-road AT corridor that provides a shorter / more direct route to development parcels
AT Connections 6 & 7	• Creates an off-road AT corridor that provides a shorter / more direct route to development parcels • Provides AT connections to/from Appleby GO Station
AT Connections 8 - 10	• Creates an off-road AT corridor that provides a shorter / more direct route to development parcels • Provides AT connections to/from the Centennial Bikeway
AT Connections 11	• Provides an AT connection to/from Appleby GO Station to the employment area north of the QEW

The off-road Active Transportation connections are conceptual in nature; the Transportation Study recommends these connections to improve sustainable transportation within the MTSA area, to support the City's efforts to increase sustainable mode shares and to provide direct high-quality connections to the GO Station areas. Location and design of each facility will be established through future conversations with Metrolinx and local landowners.

The MTSA Active Transportation network relies on the City's commitment to Complete Streets. A complete street is a street designed, built and operated to enable safe access for all users, in that pedestrians, cyclists, transit-users, and motorists of all ages and abilities are able to safely move along and across the right of way. Complete streets foster livability while enhancing the public realm and encouraging sustainable growth patterns.

Figure 9: Appleby GO MTSA – Active Transportation Network



4.0 Aldershot MTSA Transportation Network

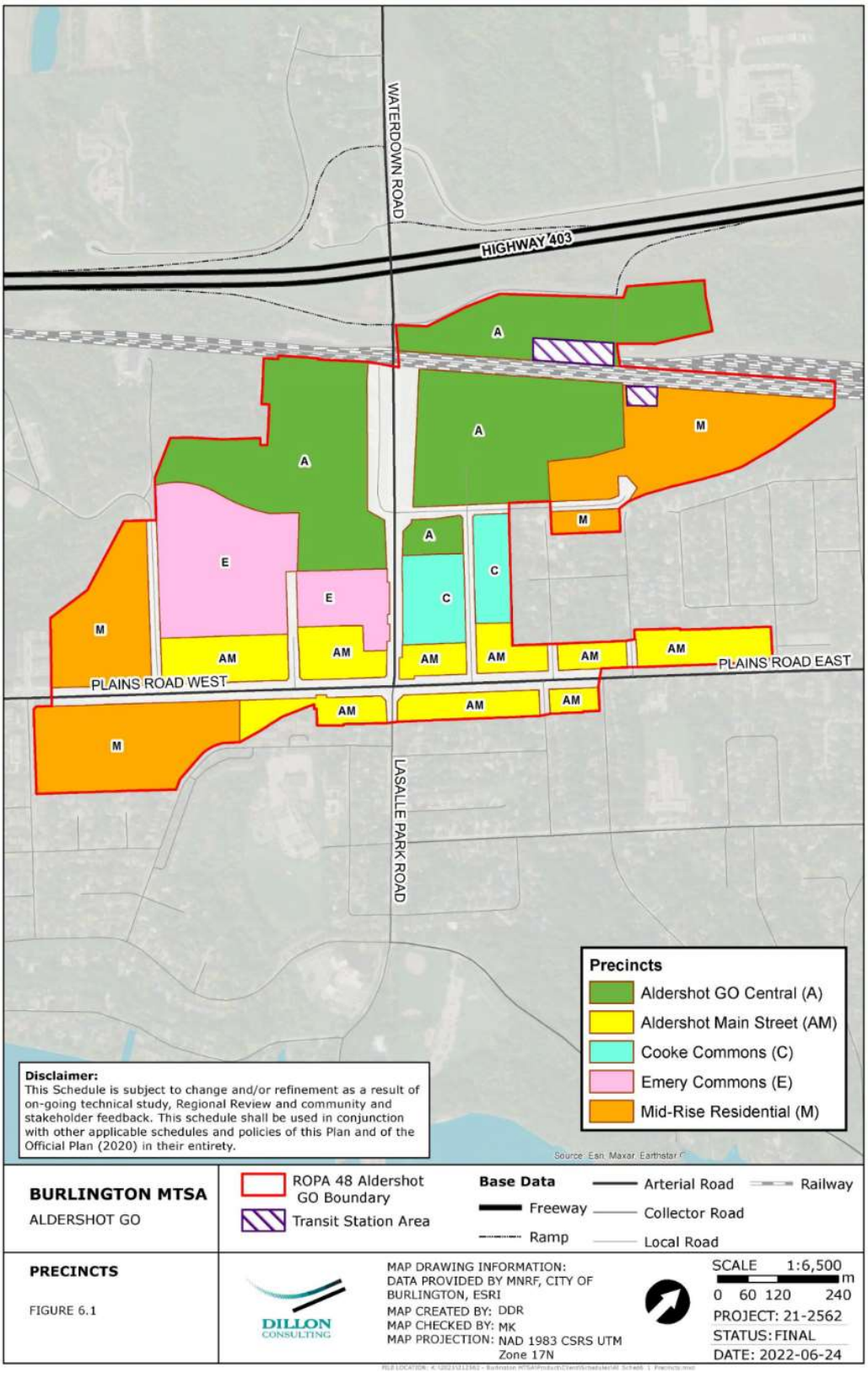
4.1 Precinct Plan

This Transportation Report was prepared based on the land use plan and development concepts for the MTSA that was outlined in the MTSA ASP Planning Study Final Report (June 2022), based off a set of growth assumptions that utilized the best information available at the time for the purposes of analysis. As Dillon and the City continued to refine the land use plan and development concept into 2023, a sensitivity review showed that the refinements did not alter this report's recommendations.

4.1.1 Structure and Land Use

The land use plan for the Aldershot GO MTSA contains a number of different precincts. **Figure 10** presents an overview of the study area and the Precinct land use plan as shown in the MTSA ASP Planning Study Final Report.

Figure 10: Aldershot GO MTSA – Precinct Plan



The precincts are broken down by the development data (Gross Floor Area (GFA), residents, and jobs per site) in **Table 8**.

Table 8: Aldershot GO MTSA – Precinct Plan Development Data

Precinct	000's GFA (ft^2)				Residential Units	# of Residents	# of Jobs		
	Residential	Office	Retail	Total			Office	Retail	Total
Aldershot GO Central	6,485	360	360	7,205	6,341	7,609	1,447	362	1,809
Mid-Rise Residential	1,777	0	0	1,777	1,738	2,086	0	0	0
Aldershot Main Street	1,587	54	123	1,764	1,552	1,862	280	163	443
Cooke Commons	685	14	23	722	670	804	66	25	91
Emery Commons	1,910	40	60	2,010	1,867	2,241	184	69	253
Total	**12,444**	**468**	**566**	**13,478**	**12,168**	**14,602**	**1,977**	**619**	**2,596**

Source: MTSA ASP Planning Study Final Report (June 2022). The data used is based on the best information available at the time for the purposes of the transportation analysis and may not align with the overall growth assumptions that were refined in 2023.

4.1.2 Mode Share Targets

The future mode shares targets for Aldershot GO MTSA are based on existing conditions, policy directions, and case studies of similar developments. **Table 9** summarizes the existing and future neighbourhood mode shares for Aldershot and future the recommended MTSA mode shares.

Table 9: Aldershot GO MTSA – Existing and Future Daily Mode Shares

Travel Mode	Existing (2016) Mode Shares (TTS)	Future (2051) Mode Share Targets	
	Neighbourhood – Aldershot	Neighbourhood – Aldershot	MTSA – Aldershot GO
Walking	3%	5%	13%
Cycling	1%	5%	9%
Transit	2%	17%	23%
Auto	95%	73%	55%

4.1.3 Trip Generation

For ease of analysis, the Aldershot GO MTSA study area was subdivided into seven traffic zones based on the existing transportation network, access points, physical barriers and the proposed development concept. The traffic zones and assumed access points are displayed in **Figure 11.**

Figure 11: Aldershot GO MTSA – Traffic Zones

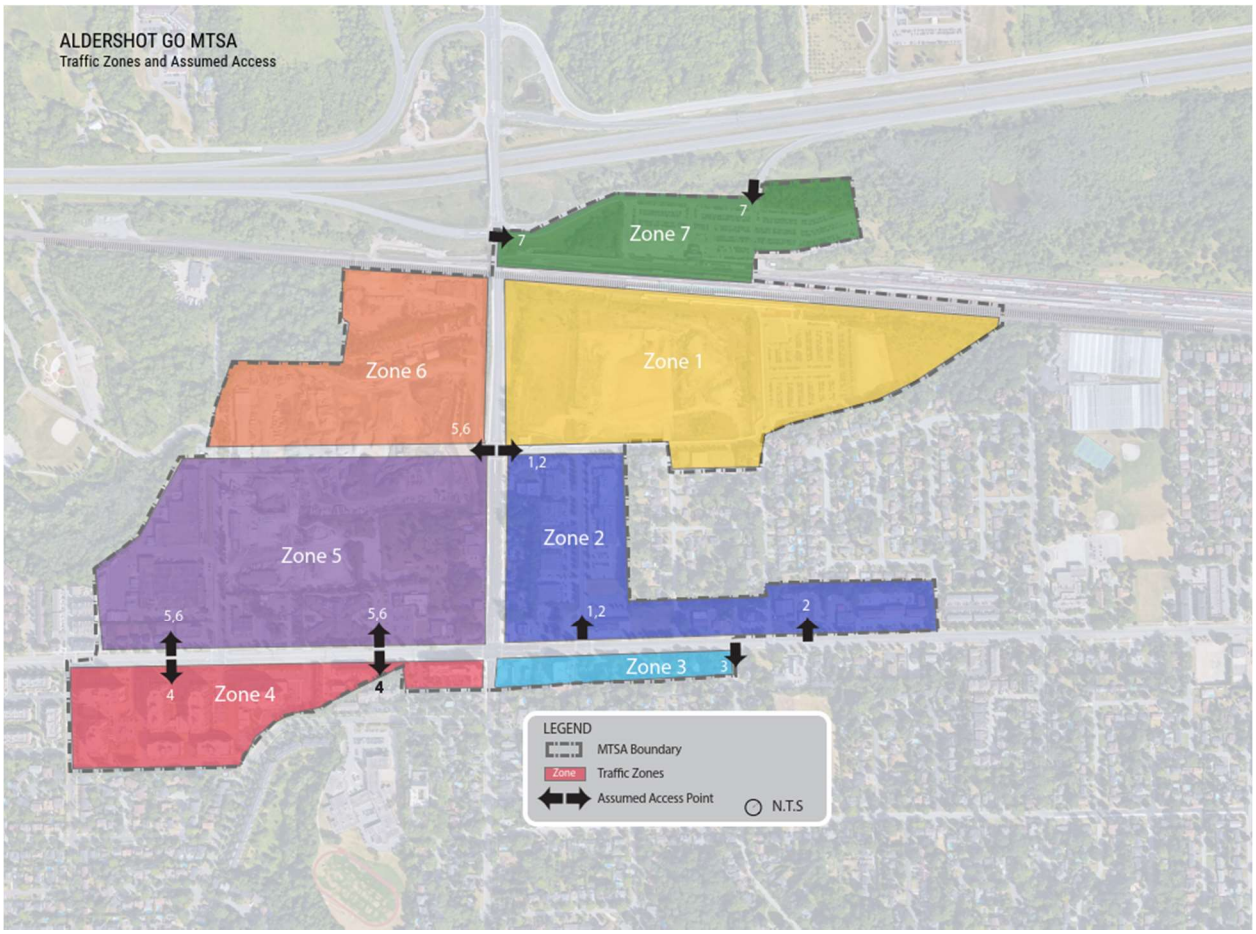


Table 10 summarizes the proposed precincts development data by traffic zone. The final AM and PM peak hour generated person trips by land use for each of the traffic zones are shown in **Table 11** and **Table 12**, respectively.

Table 10: Aldershot GO MTSA – Proposed Precincts – Development Data by Traffic Zone

Traffic Zone	Precinct	Office (GFA - ft^2)	Retail (GFA - ft^2)	Residential (units)
1	Mid-Rise Residential	0	0	869
	Aldershot GO Central	180,115	180,115	3,171
2	Aldershot Main Street	18,516	43,203	543
	Aldershot GO Central	18,012	18,012	317
	Cooke Commons	14,431	21,646	670
3	Aldershot Main Street	15,871	37,031	466
4	Mid-Rise Residential	0	0	521
	Aldershot Main Street	5,290	12,344	155
5	Mid-Rise Residential	0	0	348
	Aldershot Main Street	13,225	30,859	388
	Emery Commons	40,199	60,299	1,867
	Aldershot GO Central	36,023	36,023	634
6	Aldershot GO Central	90,058	90,058	1,585
7	Aldershot GO Central	36,023	36,023	634
Total		**467,762**	**565,613**	**12,169**

Table 11: Aldershot GO MTSA – Person Trips by Traffic Zone and Land Use – AM Peak Hour

Traffic Zone	Office		Retail		Residential		Total	
	In	Out	In	Out	In	Out	In	Out
1	313	43	122	74	446	1,493	880	1,609
2	88	12	56	35	169	565	313	612
3	27	4	25	16	52	171	104	191
4	9	3	8	5	75	249	92	257
5	156	21	86	53	358	1,196	599	1,269
6	157	21	61	38	175	585	393	643
7	62	9	25	14	70	235	157	258
Total	812	112	381	235	1,345	4,493	**2,538**	**4,839**

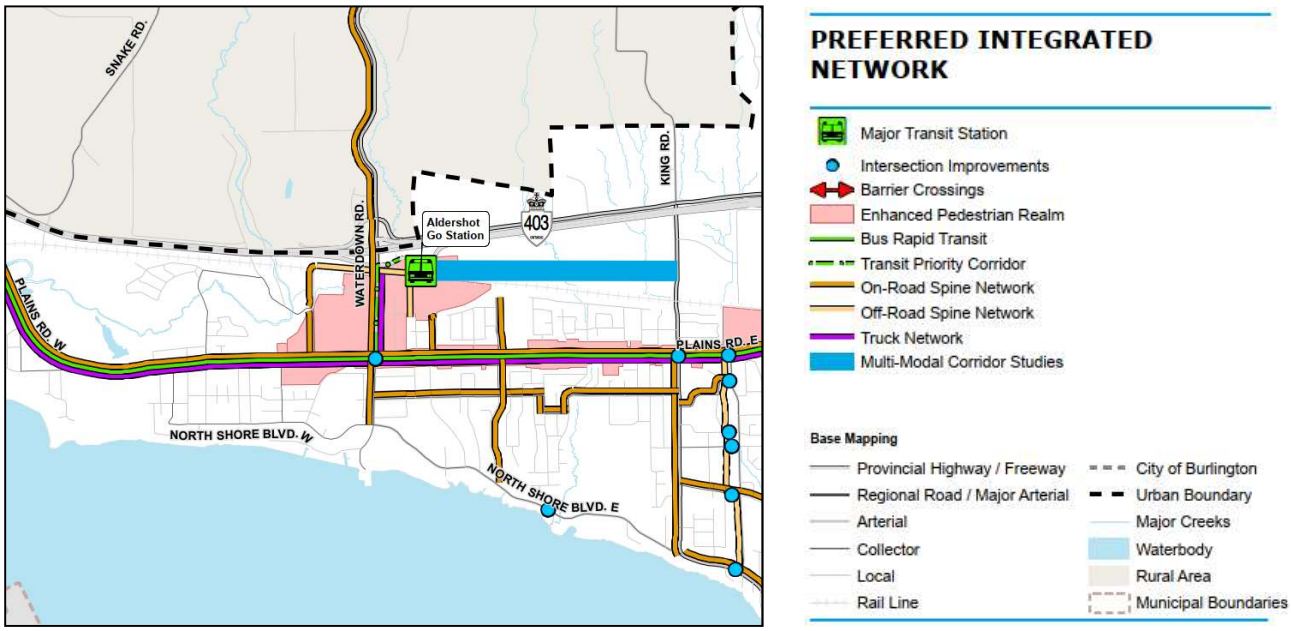
Table 12: Aldershot GO MTSA – Person Trips by Traffic Zone and Land Use – PM Peak Hour

Traffic Zone	Office		Retail		Residential		Total	
	In	Out	In	Out	In	Out	In	Out
1	57	279	381	412	1,246	797	1,684	1,489
2	16	79	175	191	472	302	663	572
3	5	25	78	86	144	92	227	202
4	5	9	26	29	209	134	240	171
5	29	139	268	292	998	638	1,295	1,068
6	29	140	191	206	489	313	708	659
7	12	56	77	82	196	124	284	262
Total	152	726	1,196	1,297	3,754	2,400	**5,101**	**4,423**

4.2 IMP Network – Aldershot

The IMP preferred integrated network (**Figure 12**) identifies a number of planned network elements in the vicinity of the Aldershot GO MTSA. Planned network elements of particular importance include: the Bus Rapid Transit and the on-road cycling spine network on Plains Road; the on-road cycling spine network on Waterdown Road; and the local on and off-road cycling spine network on a number of connector and local streets within the Aldershot GO MTSA.

Figure 12: Aldershot GO MTSA – IMP Preferred Integrated Network



4.2.1 Street Network

The IMP proposes a study to review the feasibility of constructing a new South Service Road extension (connecting the Aldershot GO Station and the Highway 403 eastbound on ramp to King Road - see 'Multimodal Corridor Studies' on **Figure 12**). Although the connection is subject to future study to confirm the need, ultimate location, and cross-section requirements, this new east-west connection will provide many benefits to the transportation system and will improve access for all modes.

Plains Road is proposed as a future Bus Rapid Transit (BRT) corridor with dedicated transit lanes (as illustrated in **Figure 12**). Ultimately, one vehicle lane per direction will be converted to a transit lane if and when bus volumes dictate the need for the conversion. BRT typically operate a more reliable and higher-frequency service when compared to a conventional bus route.

4.2.1.1 Boundary Street Network Operations

The City, like all GTA municipalities, is going to continue to grow and develop through intensification. The Province of Ontario has made a number of legislative changes to the planning framework with the goal of delivering more homes faster. The City of Burlington, guided by the planning framework and vision of the City's Official Plan is planning to accommodate that growth in compact, sustainable and transit supportive complete communities in close proximity to existing and future infrastructure, including provincial investment in transportation infrastructure at the GO Stations.

Several of the turning movements at major intersections in the study area (i.e. Waterdown Road at Highway 403 Off-Ramp (EB)/ Aldershot GO Access and Waterdown Road at Plains Road) that show poor performance under future total conditions are nearing capacity today. This means that any growth in vehicular demands (background or development-related) attributed to these turning movements will cause congested conditions in the near future. It is anticipated that the automobile road network within the Aldershot GO MTSA will continue to perform poorly under total future conditions. With background traffic growth and the addition of thousands of site trips, the study area road network is expected to be very congested during the peak periods.

Mitigation will be required to address the significant congestion in the study area network. However, the selection of mitigation strategies must also take into account that there are no plans, or desire, to widen City owned roadways for the sole purpose of increasing auto capacity.

Given this limitation, the following is a discussion of recommended future actions and mitigation strategies to improve mobility under future total conditions.

Reduce Vehicular Travel Demands

Since there are already a number of turning movements nearing capacity today, reducing auto demands must be a key part of the strategy to minimize future congestion. When roughly comparing the existing

condition volumes to the 2051 total future volumes at two key intersections – Waterdown Road at Highway 403 Off-Ramp (EB)/ Aldershot GO Access and Waterdown Road at Plains Road – the total reduction in critical movement volumes required to bring all critical movements back to "just below capacity conditions" (i.e. v/c ratios less than 1.2) is a 5-25% critical movement volume reduction in the AM peak and a 15% critical movement volume reduction in the PM peak.

The 2051 Aldershot neighbourhood mode share profile targets an auto reduction of 22% over existing conditions. If achieved or slightly exceeded, this reduction in existing demands could provide a substantial portion of the auto capacity required to support additional development.

However, achieving such significant reductions in vehicle demands will require an aggressive, robust, and effective transportation demand management (TDM) program. Therefore, the City should work to develop TDM programs to reduce vehicle demands on roads within the study area. Additionally, the City should require site-specific TDM strategies for the proposed concept.

Manage Peak Hour Congestion
Despite efforts, key arterial corridors are and will remain congested. A traffic management plan (formed in partnership with Region) will need to be enacted on Waterdown Road and Plains Road. Establishing automated and responsive traffic signal control, digital data collection, Digital banners for real-time communication will ensure flow of passengers and goods is maintained.

4.2.2 Active Transportation (AT)

Both Waterdown Road and Plains Road are proposed to be part of the on-road cycling spine network (as illustrated in **Figure 12**). A protected bikeway is currently being constructed along Plains Road (first phase to be complete in 2023), while Waterdown Road is proposed to have a protected bikeway between Plains Road and Highway 403 and conventional painted bike lanes between Highway 403 and Craven Avenue. North of the Aldershot GO MTSA, Waterdown Road between Craven Avenue and Mountain Brow Road will be rehabilitated and widened to include an in-boulevard multi-use path.

The intersection of Waterdown Road and Plains Road is being redesigned to become a protected intersection for cyclists (as illustrated in **Figure 12**).

4.3 Aldershot MTSA Transportation Networks

The transportation networks in MTSA will change significantly with redevelopment and intensification of lands. The City requires a street and pathway network that provides access, and accommodates mobility safely for all modes of transportation.

4.3.1 Street Network

A street network was developed for the Aldershot MTSA considering:

- Physical and operational constraints/ barriers;
- The general structure and land use concept for the MTSA;
- Efficient network layout principles, such as providing even spacing between collector roads to maximize future flexibility and connectivity; and
- The opportunity to maximize new access opportunities to boundary system because of significant increase in number of trips generated within the MTSA.

Physical barriers included such things as rail lines, existing bridges/ underpasses, watercourses – things that cannot be connected to and can only be crossed under specific conditions. Operational constraints include such things as existing traffic signals and freeway ramp locations and design. For example, current thinking on roadway operations indicates that minimum preferred spacing between traffic signals in intensification areas is 200m; whereas MTO prefers a minimum 400m from ramp terminals.

Constraints/ barriers influencing the development of the Aldershot MTSA network include:

- GO Rail line;
- Grade-separation on Waterdown Road at GO Rail crossing and QEW crossing; and
- The existing traffic signals.

4.3.1.1 Recommended Street Network

Figure 13 shows the recommended street network for the Aldershot MTSA. The rationale for the recommended network is presented in **Table 13.**

Figure 13: Aldershot GO MTSA – Street Network

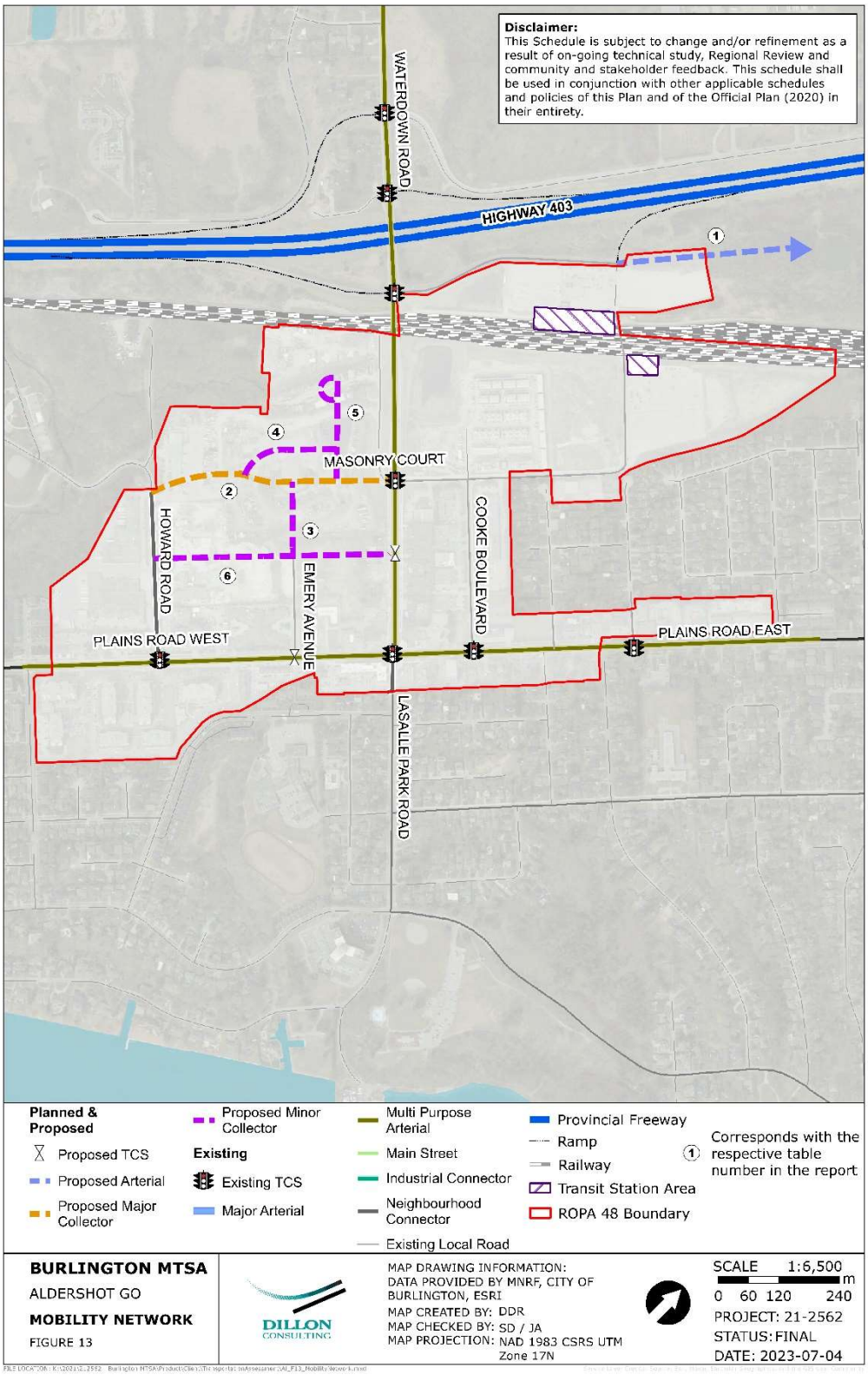


Table 13: Aldershot GO MTSA – Planned/ Proposed Street Network Rationale

Street	Classification	ROW Width	Rationale
South Service Road extension (Street 1)	Arterial	35m	• Connects Waterdown Road to King Road • Improves access to potential development parcels west of King Road and connections from development parcels to GO Station • Creates a multimodal corridor to connect sustainable modes to development • Requires an EA study to confirm need, location and design
Masonry Court extension (Street 2)	Major Collector	30m	• Distributes travelers east-west between the QEW and Plains Road • Creates a multimodal corridor to connect sustainable modes to development
Masonry Court	Major Collector	30m	• Distributes travelers east-west between the QEW and Plains Road • Creates a multimodal corridor to connect sustainable modes to development
Howard Road	Major Collector	30m	• Distributes travelers north-south west of Waterdown Road • Creates a multimodal corridor to connect sustainable modes to development
Emery Avenue	Minor Collector	26m	• Provides access to development parcels • Creates multimodal corridors to connect sustainable modes to development
Cooke Boulevard	Major Collector	30m	• Distributes travelers north-south east of Waterdown Road • Creates a multimodal corridor to connect sustainable modes to development
Streets 3 - 6	Minor Collector	26m	• Provides access to development parcels • Creates multimodal corridors to connect sustainable modes to development

The IMP Preferred Solutions paper provides the following rationale for the South Service Road Extension:

South Service Road Extension (Aldershot GO Station to King Road)

The proposed South Service Road extension from Aldershot GO Station and King Road, just south of Highway 403, is required to facilitate the development of a 49-hectare parcel of land (1200 King Road) that proposes various employment and commercial uses. This multimodal corridor connection will also benefit the overall transportation system by providing an additional multimodal access to Aldershot GO Station, reducing auto demands on Waterdown Road (between North Service Road and Plains Road) and on Plains Road (between Waterdown Road and King Road) as commuters accessing the GO station from the east will be able to use the new and more direct South Service Road extension. It will also provide an additional Active Transportation and Transit link to the Aldershot GO Station thus providing additional

route flexibility for transit and providing cyclists with a safe option to get to/from the Aldershot GO station without having to travel through the Waterdown Road/ Highway 403 interchange. The City has identified a number of significant natural environment constraints in the vicinity of the route for the South Service Road Extension, and as such the proposed South Service Road extension would be subject to a future Environmental Assessment study.

4.3.2 Active Transportation (AT) Network

MTSA AT networks must strongly support and promote sustainable transportation to accommodate the planned development levels. Right of way on the boundary streets is not available to increase auto capacity further. Planning for AT infrastructure is the only way to move people in the quantities that are forecasted for peak commuter hours. Maximum capacity and service for AT trips will be created in the MTSA by implementing a network or complete streets with robust AT infrastructure complemented by major capital projects and pathways where necessary. A robust AT network is also critical to maximize the use of local and GO transit for people traveling longer distances to connect to the MTSA. A network that maximizes capacity and access to transport is critical to create sustainable transit options for the people of Burlington now, and in future growth.

Figure 14 shows the planned AT network for the Aldershot GO MTSA. It features a network of complete streets that connects to Waterdown Road and Plains Road and a number of off-road links in dedicated rights-of-way.

The rationale for the recommended off-street AT connections is presented in **Table 14**.

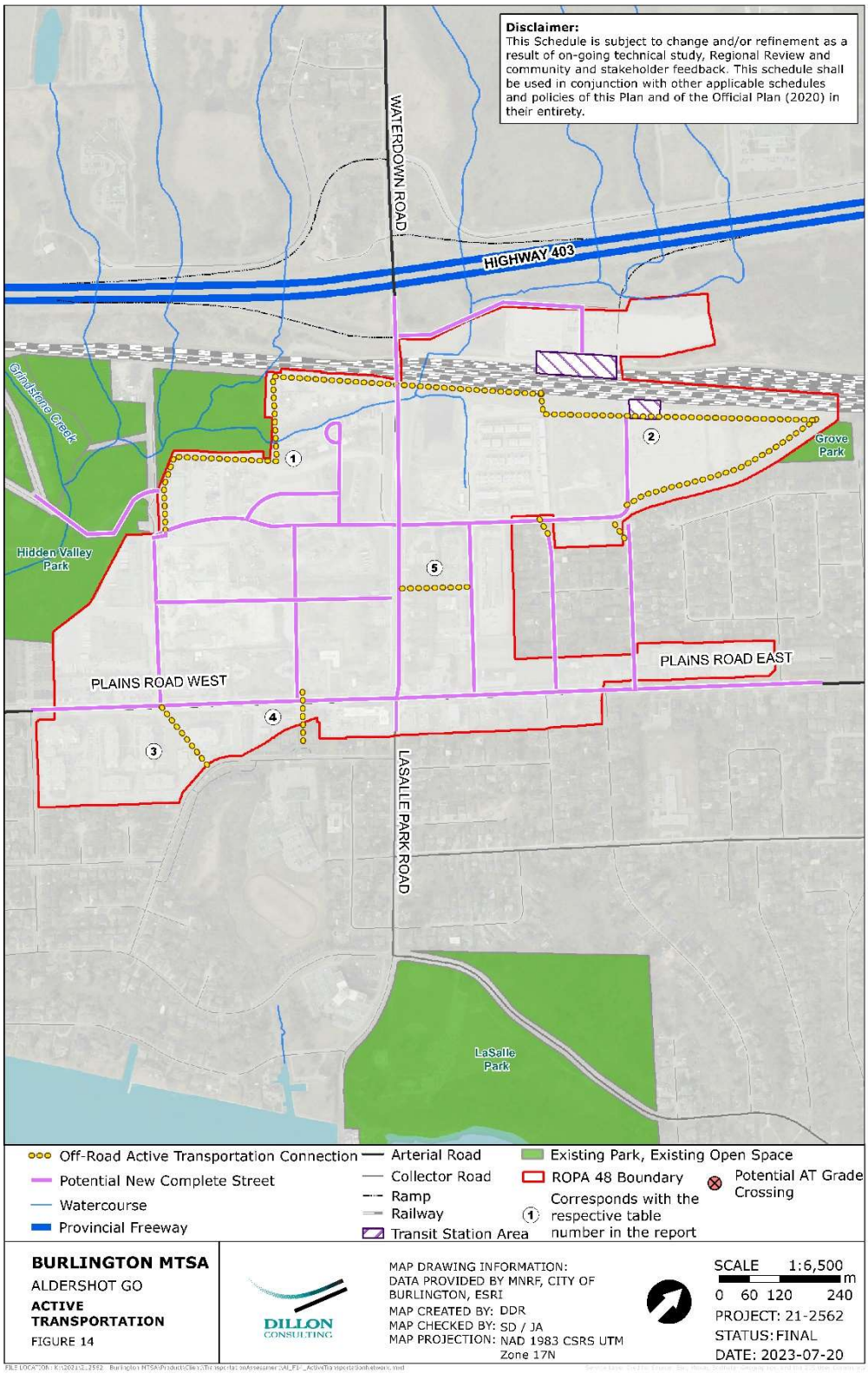
Table 14: Aldershot GO MTSA – Active Transportation Network Rationale

Active Transportation Connection	Rationale
AT Connections 1 & 2	• Creates a linear park for the purpose of recreational AT • Provides AT connections to/from Hidden Valley Park and Grove Park • Provides AT connections to/from Aldershot GO Station
AT Connection 3 -5	• Creates an off-road AT corridor that provides a shorter / more direct route to development parcels • Creates AT connectivity to existing public service facilities outside the MTSA

The off-road Active Transportation connections shown are conceptual in nature; the Transportation Study recommends these connections to improve sustainable transportation within the MTSA area, to support the City's efforts to increase sustainable mode shares and to provide direct high-quality connections to the GO Station areas. Location and design of each facility will be established through future conversations with Metrolinx and local landowners.

The MTSA Active Transportation network relies on the City's commitment to Complete Streets. A complete street is a street designed, built and operated to enable safe access for all users, in that pedestrians, cyclists, transit-users, and motorists of all ages and abilities are able to safely move along and across the right of way. Complete streets foster livability while enhancing the public realm and encouraging sustainable growth patterns.

Figure 14: Aldershot GO MTSA – Active Transportation Network



5.0 Burlington GO MTSA

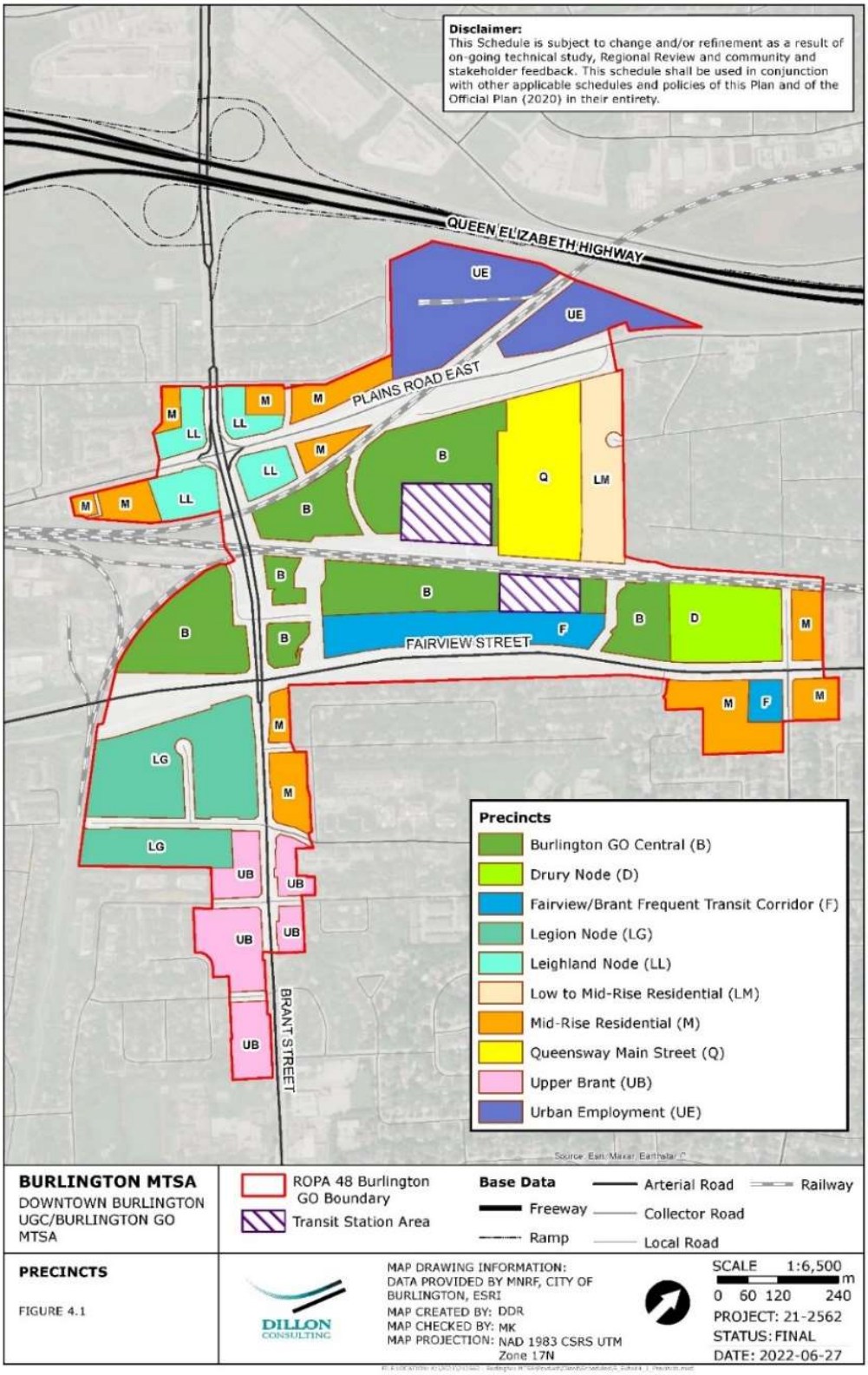
5.1 Precinct Plan

This Transportation Report was prepared based on the land use plan and development concepts for the MTSA that was outlined in the MTSA ASP Planning Study Final Report (June 2022), based off a set of growth assumptions that utilized the best information available at the time for the purposes of analysis. As Dillon and the City continued to refine the land use plan and development concept into 2023, a sensitivity review showed that the refinements did not alter this report's recommendations.

5.1.1 Structure and Land Use

The land use plan for the Burlington GO MTSA contains a number of different precincts. **Figure 15** presents an overview of the study area and the Precinct Plans as shown in the MTSA ASP Planning Study Final Report.

Figure 15: Burlington GO MTSA – Precinct Plan



The precincts are broken down by the development data (Gross Floor Area (GFA), residents, and jobs per site) in **Table 15**.

Table 15: Burlington GO MTSA – Precinct Plan Development Data

Precinct	GFA (000's ft²)					Res. Units	# of Residents	# of Jobs			
	Res.	Office	Retail	Ind.	Total			Office	Retail	Ind.	Total
Burlington GO Central	4,185	1,196	598	0	5,979	4,093	4,912	4,003	500	0	4,504
Mid-Rise Residential*	1,626	90	89	0	1,806	1,590	1,908	363	91	0	454
Leighland Node	1,029	61	121	0	1,211	1,007	1,208	304	152	0	456
Legion Node	697	38	38	0	773	681	818	156	39	0	194
Queensway Main Street	1,242	73	146	0	1,461	1,214	1,457	367	183	0	550
Upper Brant	1,023	146	292	0	1,461	1,000	1,200	734	367	0	1,100
Drury Node	331	41	41	0	413	323	388	166	42	0	208
Urban Employment**	0	0	0	0	0	0	0	0	0	0	0
Fairview/ Brant Frequent Transit Corridor	845	121	241	0	1,207	827	992	606	303	0	910
Total	**10,978**	**1,766**	**1,567**	**0**	**14,311**	**10,735**	**12,882**	**6,699**	**1,677**	**0**	**8,376**

Source: MTSA ASP Planning Study Final Report (June 2022). The data used is based on the best information available at the time for the purposes of the transportation analysis and may not align with the overall growth assumptions that were refined in 2023.

Notes: Res. = Residential
Ind. = Industrial
*The 'Mid-Rise Residential' precinct is a consolidation of 'Low to Mid-Rise Residential' precinct and 'Mid-Rise Residential' precinct.
**The Urban Employment precinct has no values within the table as it does not have any lands available for development or redevelopment

5.1.2 Mode Share Targets

The future mode shares targets for Burlington GO MTSA are based on existing conditions, policy directions, and case studies of similar developments. **Table 16** summarizes the existing and future neighbourhood mode shares and future recommended MTSA mode shares.

Table 16: Burlington GO MTSA – Existing and Future Daily Mode Shares

Travel Mode	Existing (2016) Mode Shares (TTS)	Future (2051) Mode Share Targets	
	Neighbourhood – Plains	Neighbourhood – Plains	MTSA – Burlington GO
Walking	3%	5%	13%
Cycling	1%	5%	9%
Transit	2%	17%	23%
Auto	95%	73%	55%

5.1.3 Trip Generation

For ease of analysis, the Burlington GO MTSA study area was subdivided into ten traffic zones based on the existing transportation network, access points, physical barriers and the proposed development concept. The traffic zones and assumed access points are displayed in **Figure 16.**

Figure 16: Burlington GO MTSA – Traffic Zones

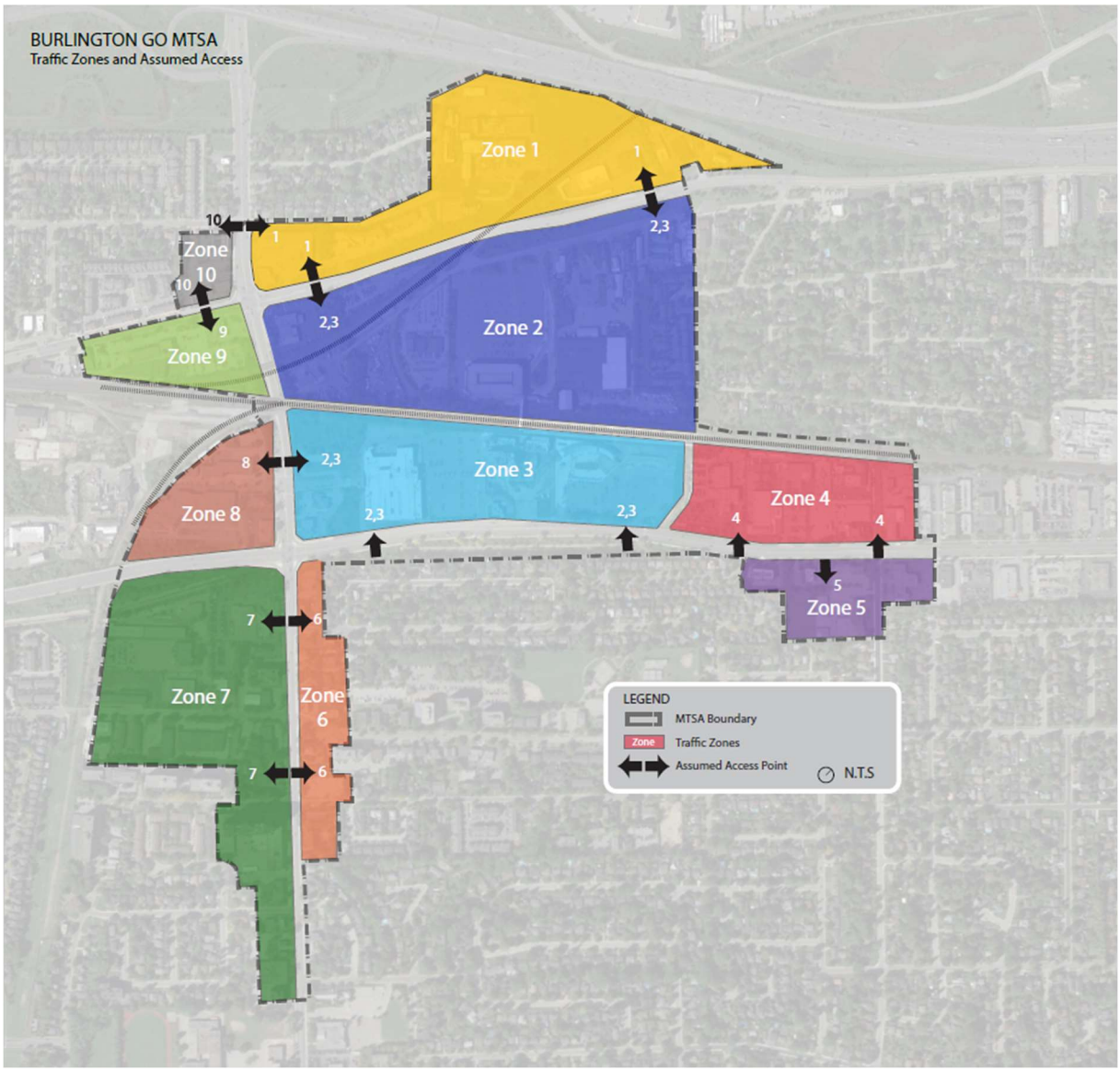


Table 17 summarizes the proposed precincts development data by traffic zone. The final AM and PM peak hour generated person trips by land use for each of the traffic zones are shown in **Table 18** and **Table 19**, respectively.

Table 17: Burlington GO MTSA – Proposed Precincts – Development Data by Traffic Zone

Traffic Zone	Precinct	Office (GFA - ft2)	Retail (GFA - ft2)	Residential (units)
1	Urban Employment	0	0	0
	Mid-Rise Residential	25,809	25,809	454
	Leighland Node	15,137	30,273	252
2	Burlington GO Central	538,122	269,061	1,842
	Mid-Rise Residential	25,809	25,809	454
	Leighland Node	15,137	30,273	252
	Queensway Main Street	73,036	146,071	1,214
3	Burlington GO Central	418,539	209,270	1,433
	Fairview Frequent Transit Corridor	108,671	217,341	744
4	Mid-Rise Residential	3,226	3,226	57
	Drury Node	41,329	41,329	323
5	Mid-Rise Residential	16,131	16,131	284
	Fairview Frequent Transit Corridor	12,075	24,149	83
6	Mid-Rise Residential	12,905	12,905	227
	Upper Brant	58,435	116,870	400
7	Legion Node	38,714	38,714	681
	Upper Brant	87,653	175,305	600
8	Burlington GO Central	239,165	119,583	819
9	Mid-Rise Residential	3,226	3,226	57
	Leighland Node	15,137	30,273	252
10	Mid-Rise Residential	3,226	3,226	57
	Leighland Node	15,137	30,273	252
Total		**1,766,617**	**1,569,118**	**10,735**

Table 18: Burlington GO MTSA – Person Trips by Traffic Zone and Land Use – AM Peak Hour

Traffic Zone	Office		Retail		Residential		Total	
	In	Out	In	Out	In	Out	In	Out
1	71	9	38	23	78	261	187	293
2	1,131	154	319	195	415	1,390	1,865	1,739
3	914	124	288	176	240	804	1,442	1,105
4	77	12	30	18	41	141	148	171
5	49	6	27	17	40	136	117	159
6	123	17	88	53	69	232	280	302
7	219	30	145	88	141	473	506	591
8	415	57	80	49	91	302	586	408
9	31	5	22	14	34	114	87	134
10	31	5	22	14	34	114	87	134
Total	3,062	420	1,059	648	1,183	3,968	**5,304**	**5,036**

Table 19: Burlington GO MTSA – Person Trips by Traffic Zone and Land Use – PM Peak Hour

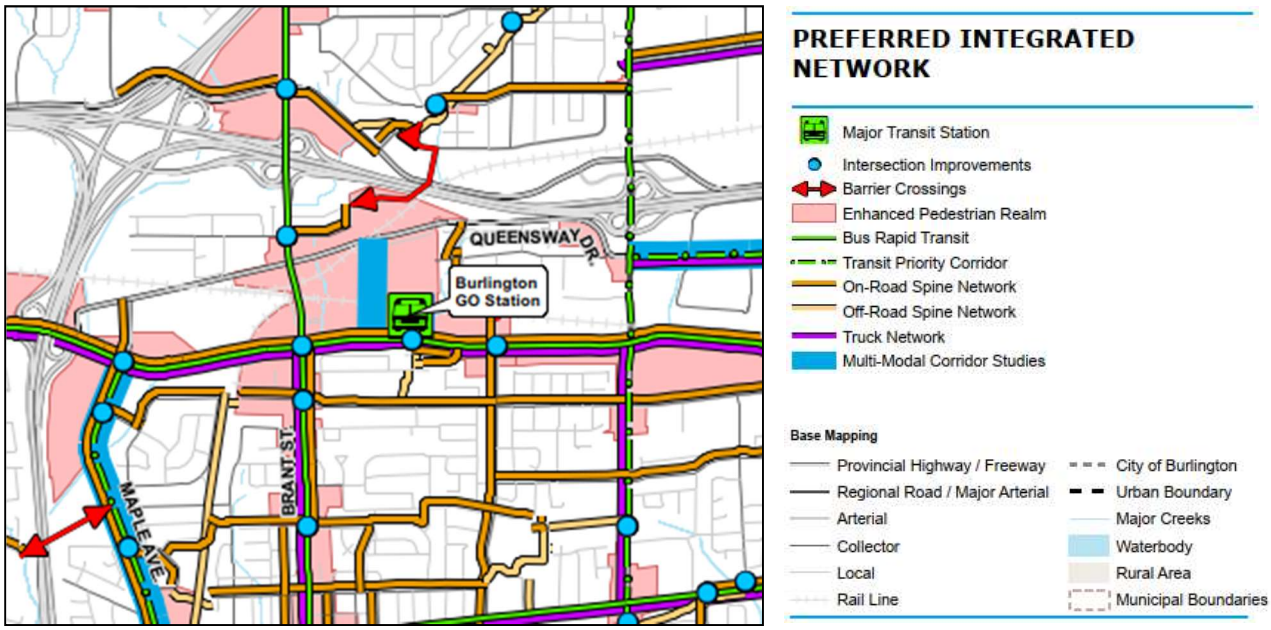
Traffic Zone	Office		Retail		Residential		Total	
	In	Out	In	Out	In	Out	In	Out
1	13	64	119	128	218	139	350	331
2	207	1,010	997	1,080	1161	742	2,365	2,832
3	167	817	903	978	672	429	1,741	2,224
4	16	71	93	102	117	75	226	249
5	9	44	86	92	113	73	207	209
6	23	110	275	297	193	124	491	532
7	40	196	453	491	395	253	888	940
8	75	371	253	275	253	161	581	807
9	8	30	71	77	96	61	175	167
10	8	30	71	77	96	61	175	167
Total	567	2,743	3,321	3,597	3,313	2,118	**7,201**	**8,457**

5.2 IMP Network – Burlington

5.2.1 Street Network

The IMP preferred integrated network (**Figure 17)** does not identify any new roadways within the Burlington GO MTSA study area. The IMP network does include a number of planned sustainable transportation network elements, including: the bus rapid transit and on-road cycling spine network on Fairview Street, the Bus Rapid Transit and the on-road cycling spine network on Brant Street; and the off-road cycling spine network (Barrier Crossing) that crosses the QEW/ Highway 403 just north of the Burlington GO MTSA.

Figure 17: Burlington GO MTSA – IMP Preferred Integrated Network



Brant Street from North Service Road to Dundas Street (just north of the Burlington GO MTSA) is expected to be widened by Halton Region from 4 to 6 lanes to accommodate the proposed BRT with dedicated lanes. Fairview Street and Brant Street are proposed as future Bus Rapid Transit (BRT) corridors, as illustrated in **Figure 17**. Fairview Street east of Burlington GO Station and Brant Street north of Fairview Street are proposed as future BRT with dedicated lanes, while Fairview Street West of Burlington GO Station and Brant Street south of Fairview Street are proposed as BRT with optimized performance.

Ultimately, the future BRT corridors with dedicated lanes will only happen if and when bus volumes dictate their need. BRT typically operate a more reliable and higher-frequency service when compared to a conventional bus route.

5.2.1.1 Boundary Street Network Operations

The City of Burlington, like all GTA municipalities, is going to continue to grow and develop through intensification. The Province of Ontario has made a number of legislative changes to the planning framework with the goal of delivering more homes faster. The City of Burlington, guided by the planning framework and vision of the City's Official Plan is planning to accommodate that growth in compact, sustainable and transit supportive complete communities in close proximity to existing and future infrastructure, including provincial investment in transportation infrastructure at the GO Stations.

Several of the turning movements at major intersections in the study area (i.e. Brant Street at North Service Road, Brant Street at Plains Road and Brant Street at Fairview Street) that show poor performance under future total conditions are either at, or nearing, capacity today. This means that any

growth in vehicular demands in the study area (background or development-related) will cause heavily congested conditions in the near future. It is anticipated that the automobile road network within the Burlington GO MTSA will continue to perform poorly under total future conditions. With background traffic growth and the addition of thousands of site trips, the study area road network is expected to be very congested during the peak periods.

Mitigation will be required to address the significant congestion in the study area network. However, the selection of mitigation strategies must also take into account that there are no plans, or desire, to widen City owned roadways for the sole purpose of increasing auto capacity.

Given this limitation, the following is a discussion of recommended future actions and mitigation strategies to improve mobility under future total conditions.

Reduce Vehicular Travel Demands

Since there are already a number of turning movements nearing capacity today, reducing auto demands must be a key part of the strategy to minimize future congestion. When roughly comparing the existing condition volumes to the 2051 total future volumes at two key intersections – Brant Street at Plains Road and Brant Street at Fairview Street – the total reduction in critical movement volumes required to bring all critical movements back to "just below capacity conditions" (i.e. v/c ratios less than 1.2) is a 15-25% critical movement volume reduction in the AM peak and a 25-30% critical movement volume reduction in the PM peak.

The 2051 Plains neighbourhood mode share profile targets an auto reduction of 20% over existing conditions. If achieved or slightly exceeded, this reduction in existing demands could provide a substantial portion of the auto capacity required to support additional development.

However, achieving such significant reductions in vehicle demands will require an aggressive, robust, and effective transportation demand management (TDM) program. Therefore, the City should work to develop TDM programs to reduce vehicle demands on roads within the study area. Additionally, the City should require site-specific TDM strategies for the proposed concept.

Manage Peak Hour Congestion

Despite efforts, key arterial corridors are and will remain congested. A traffic management plan (formed in partnership with Region) will need to be enacted on Brant Street, Plains Road and Fairview Street. Establishing automated and responsive traffic signal control, digital data collection, Digital banners for real-time communication will ensure flow of passengers and goods is maintained.

5.2.2 Active Transportation (AT)

Fairview Street, Brant Street, Grahams Lane/ Prospect Street, Drury Lane (south of Fairview Street), and Leighland Road (east of Brant Street) are proposed to be part of the on-road cycling spine network

(as illustrated in **Figure 17**). Fairview Street, Brant Street and Prospect Street are proposed to have protected bikeways, while Drury Lane is proposed to have painted bike lanes and Grahams Lane and Leighland Road are proposed to be local street bikeways.

The intersections of Brant Street and Leighland Road, Brant Street and Fairview Street, Brant Street and Grahams Lane/ Prospect Street and Fairview Street and Drury Lane are proposed to become protected intersections for cyclists (as illustrated in **Figure 17**), while intersection improvements for pedestrians and cyclists are proposed for a mid-block crossing of Fairview Street (at the Burlington GO driveway).

An active transportation barrier crossing is also proposed between Leighland Road and Industrial Street, crossing over the QEW/ Highway 403.

5.3 Burlington MTSA Transportation Networks

The transportation networks in MTSA will change significantly with redevelopment and intensification of lands. The City requires a street and pathway network that provides access, and accommodates mobility safely for all modes of transportation.

5.3.1 Street Network

A street network was developed for the Burlington MTSA considering:

- Physical and operational constraints/ barriers;
- The general structure and land use concept for the MTSA;
- Efficient network layout principles, such as providing even spacing between collector roads to maximize future flexibility and connectivity; and
- The opportunity to maximize new access opportunities to boundary system because of significant increase in number of trips generated within the MTSA.

Physical barriers included such things as rail lines, existing bridges/ underpasses, watercourses – things that cannot be connected to and can only be crossed under specific conditions. Operational constraints include such things as existing traffic signals and freeway ramp locations and design. For example, current thinking on roadway operations indicates that minimum preferred spacing between traffic signals in intensification areas is 200m; whereas MTO prefers a minimum 400m from ramp terminals.

Constraints/ barriers influencing the development of the Burlington MTSA network include:

- GO Rail line and CN Rail line;
- Grade-separation on Brant Street at GO Rail crossing, Plains Road at CN Rail crossing and Fairview Street at CN Rail crossing; and
- The existing traffic signals.

5.3.1.1 Recommended Street Network

Figure 18 shows the recommended street network for the Burlington MTSA. The rationale for the recommended network is presented in **Table 20.**

Figure 18: Burlington GO MTSA – Street Network

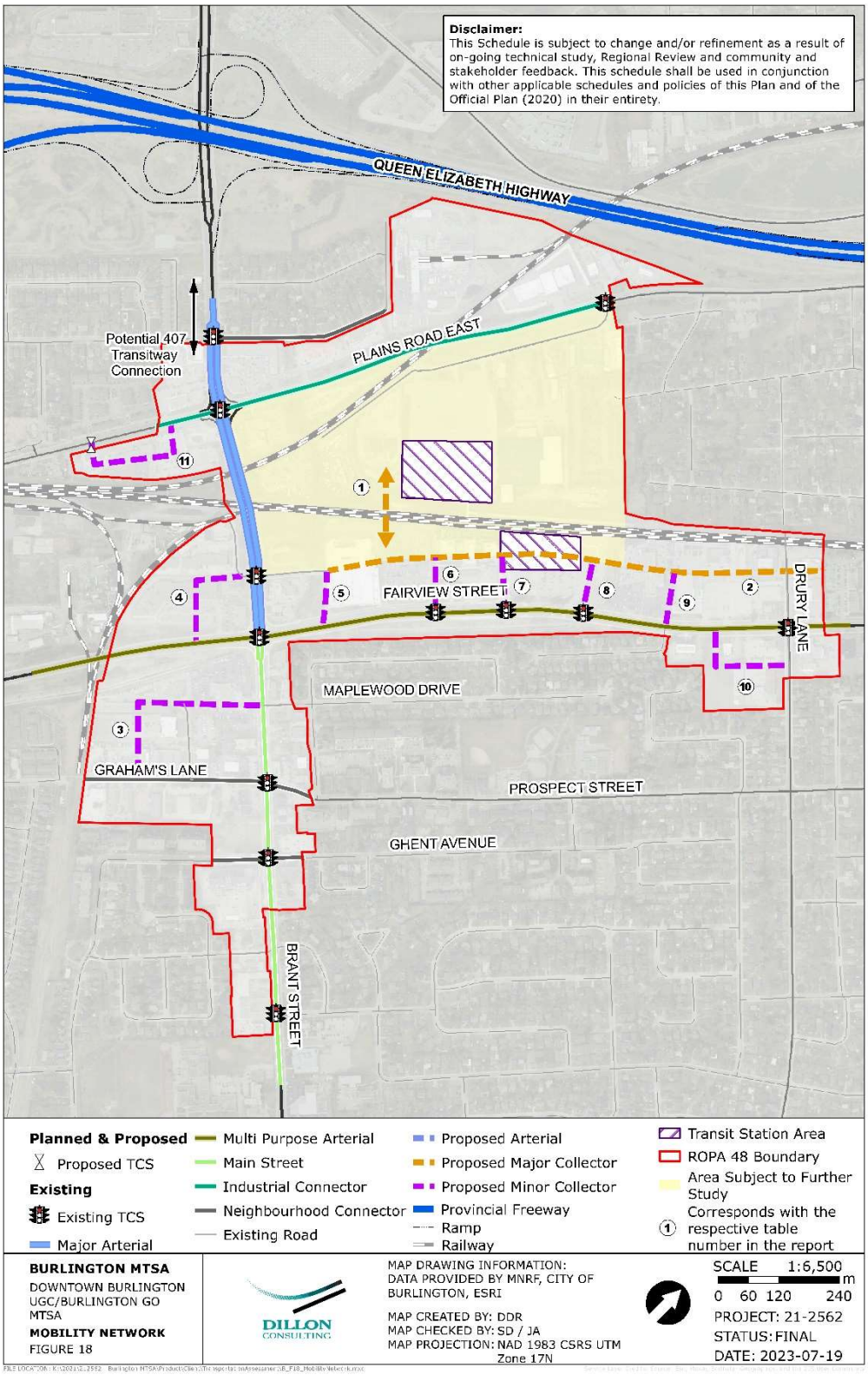


Table 20: Burlington GO MTSA – Planned/ Proposed Street Network Rationale

Street	Classification	ROW Width	Rationale
Street 1	Major Collector	30m	• Connects Fairview Street to Plains Road • Ties into Queensway Drive south of Plains Road • Includes a new crossing of GO Rail line • Distributes travelers north-south east of Brant Street • Creates a multimodal corridor to connect sustainable modes to development • Requires an EA study to confirm need, location and design
Street 2	Major Collector	30m	• Connects Brant Street to Drury Lane • Distributes travelers east-west between GO Rail line and Fairview Street • Creates a multimodal corridor to connect sustainable modes to development
De Pauls Lane	Major Collector	30m	• Connects Brant Street to Drury Lane • Distributes travelers east-west between GO Rail line and Fairview Street • Creates a multimodal corridor to connect sustainable modes to development
Grahams Lane	Minor Collector	26m	• Provides access to development parcels • Creates multimodal corridors to connect sustainable modes to development
Drury lane (north of Fairview)	Minor Collector	26m	• Provides access to development parcels • Creates multimodal corridors to connect sustainable modes to development
Streets 3 - 11	Minor Collector	26m	• Provides access to development parcels • Creates multimodal corridors to connect sustainable modes to development

Street 1 (Fairview Street to Plains Road)

The proposed street 1 from Fairview Street to Plains Road is needed to accommodate the planned travel demands from the Precinct. It creates another connection from the Burlington GO Central Precinct north of the GO Rail tracks to the boundary street system. This multimodal corridor connection will also benefit the overall transportation system by providing an additional Active Transportation and Transit link to the Burlington GO Station thus providing additional route flexibility for transit and providing cyclists with a safe option to cross the GO Rail line without having to travel on Brant Street. A number of physical constraints within the Burlington MTSA, including the of Brant Street underpass, the CNR rail line overpass and the Plains Road overpass, make connecting a new crossing of the GO Rail line to the

boundary street system very challenging. As such, this connection would be subject to a future Environmental Assessment study to confirm the need, ultimate location, and cross-section requirements.

Area Subject to Further Study

The area north of the future east-west connection (street 2), south of Plains Road and west of Brant Street will be subject to a future study to determine the transportation network elements. This future study and comprehensive block planning exercise will determine transportation connections within this area and will evaluate the opportunities (including street 1) for a crossing of the rail corridor to enable access and connectivity within and out of the Burlington GO Central precinct.

5.3.2 Active Transportation (AT) Network

MTSA AT networks must strongly support and promote sustainable transportation to accommodate the planned development levels. Right of way on the boundary streets is not available to increase auto capacity further. Planning for AT infrastructure is the only way to move people in the quantities that are forecasted for peak commuter hours. Maximum capacity and service for AT trips will be created in the MTSA by implementing a network or complete streets with robust AT infrastructure complemented by major capital projects and pathways where necessary. A robust AT network is also critical to maximize the use of local and GO transit for people traveling longer distances to connect to the MTSA. A network that maximizes capacity and access to transport is critical to create sustainable transit options for the people of Burlington now, and in future growth. The design of the network is outlined below.

Figure 19 shows the planned AT network for the Burlington GO MTSA. It features a network of complete streets that connects to Brant Street, Plains Road and Fairview Street and a number of off-road links in dedicated rights-of-way.

The rationale for the recommended off-street AT connections is presented in **Table 21**.

Table 21: Burlington GO MTSA – Active Transportation Network Rationale

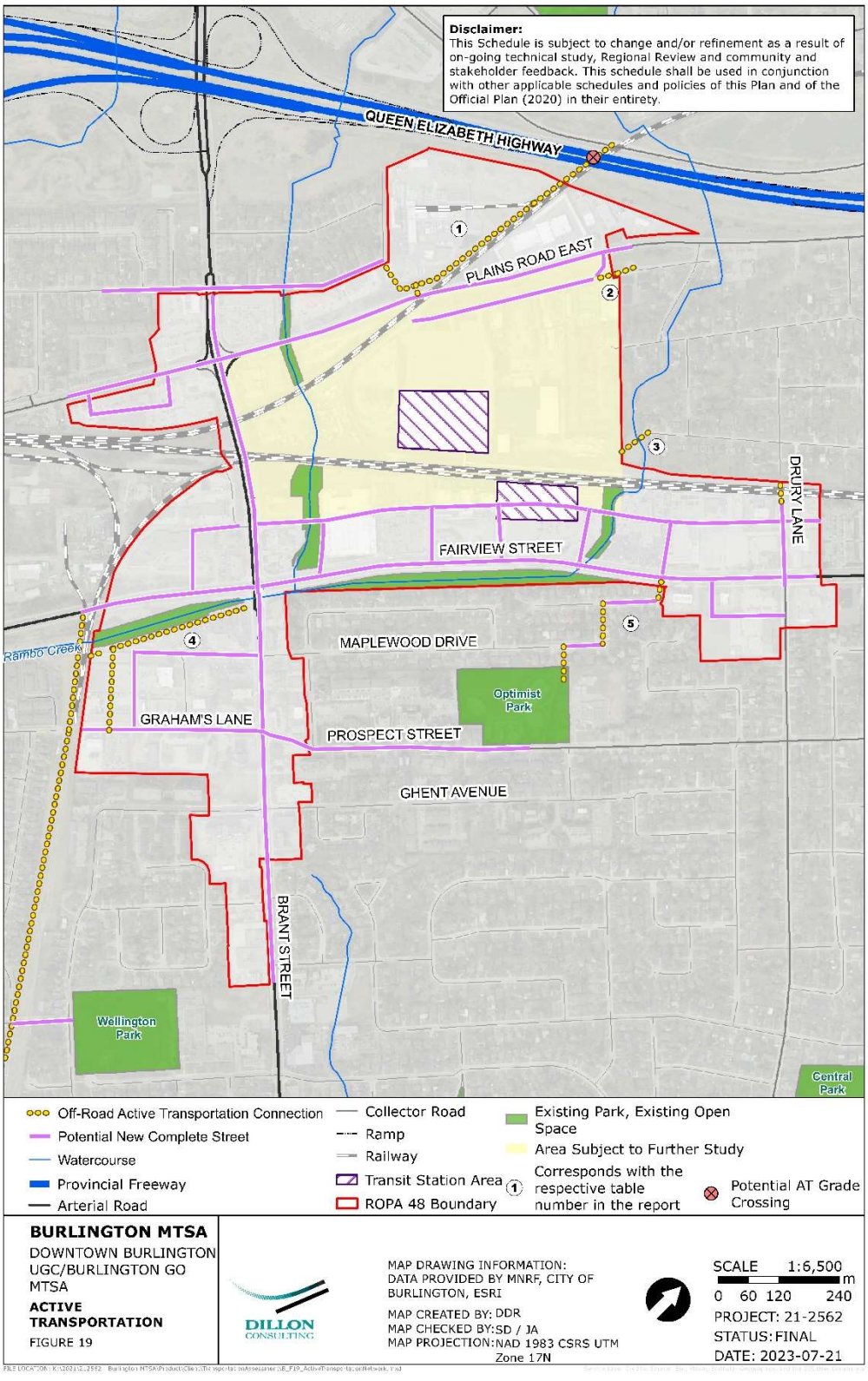
Active Transportation Connection	Rationale
AT Connection 1	• Provides AT connections to/from the proposed AT crossing of Hwy 403 / QEW
AT Connection 2, 3 & 5	• Creates an off-road AT corridor that provides a shorter / more direct route to development parcels
AT Connection 4	• Creates an off-road AT corridor that provides a shorter / more direct route to development parcels • Provides AT connections to/from the Maple Trail

The off-road Active Transportation connections shown are conceptual in nature; the Transportation Study recommends these connections to improve sustainable transportation within the MTSA area, to

support the City's efforts to increase sustainable mode shares and to provide direct high-quality connections to the GO Station areas. Location and design of each facility will be established through future conversations with Metrolinx and local landowners.

The MTSA Active Transportation network relies on the City's commitment to Complete Streets. A complete street is a street designed, built and operated to enable safe access for all users, in that pedestrians, cyclists, transit-users, and motorists of all ages and abilities are able to safely move along and across the right of way. Complete streets foster livability while enhancing the public realm and encouraging sustainable growth patterns.

Figure 19: Burlington GO MTSA – Active Transportation Network



6.0 Supporting Services

Since the planned daily mode shares for each of the MTSA is 23% transit and 22% active (13% walk and 9% cycle), supporting services must be a key part of the strategy to make non-auto modes attractive. The following services would make non-auto modes attractive by providing first mile last mile options and access to an automobile if necessary.

6.1 Transit

GO Transit – The GO Transit Regional Express Rail (RER), also known as GO Expansion, (already underway) will provide 15-minute, two-way and all-day service along the Lakeshore West line (Downtown Toronto via Union Station to Aldershot GO Station).

Burlington Transit – Local transit system planning within each MTSA should be conducted to ensure the local transit routes servicing each MTSA have appropriate route configurations, stop locations, headways, etc. to sufficiently serve the future transit demand within each MTSA. Local transit service within each of the MTSA will enable local connections and multimodal trips, allowing people to use local transit for only part of a trip, such as accessing rapid and/or regional transit. The proportion of GO passengers using Burlington Transit can be increased by improved connections between the GO station and Burlington. Route structures should be improved with attention to trip origin-destination information. This allows for optimization of routes based on user travel within the region. Study of on demand services should be a future priority to improve transit opportunities

6.2 Shared Micromobility

Shared micromobility is an umbrella term for fleets of shared bicycles and e-scooters, although there are examples of other shared micromobility devices. Shared micromobility has become a common mobility option in many cities around the world. They allow the public to have access to micromobility devices that are available for short-term rentals via memberships or as a casual, one-time user. Shared micromobility enables multimodal and first mile/ last mile trips, allowing people to use devices for only part of a trip, such as accessing transit, and incorporate other modes. It also provides access to maintained devices, removing the need to own, maintain and store a device.

Intensification within the MTSA will continue as development progresses. This will cause an increase in short trip within MTSAs and surrounding areas. GO stations are a great opportunity for shared/ micromobility hubs as it is a natural transfer point between transportation modes. Development of micromobility through a city-wide review will be recommended through Burlington's IMP.

6.3 Car Share

Car share is another growing mobility option which is oriented to providing people with access to cars, with an emphasis on short trips. Car share systems are most often owned by a private company or non-profit operator who own and are responsible for managing a fleet of cars that are available to members of the system. Car share members most often just pay for the distance and temporal length of their trip, with gas, insurance, and other vehicle costs covered by the operator through that fee. Car share enables people to choose to not own a car but still have access to a car, or provides flexibility for families to reduce the number of cars they own, by having access to additional vehicles when needed. Car share offers more flexibility than car rentals as they can be rented for an hour, and do not require additional paperwork or going to a central location to access the car.

GO stations provide opportunity for shared/ micromobility hub as it is a natural transfer point between modes. Adopting a car share strategy would prove the city with another tool to further reduce driving and parking within MTSAs. It is recommended that a Car Share strategy for MTSA be reviewed through City-wide review micromobility.

7.0 Supporting Programs

7.1 Transportation Demand Management (TDM)

A TDM Plan – consistent with Burlington's city-wide TDM Strategy and Action Plan – must be developed for each of the MTSAs. The TDM plans should feature a Transportation Management Association (TMA) to provide effective, active, local leadership of the MTSA TDM plan. It should consider the mode share targets for the MTSA and the required mode shift. The TDM plans must identify strategies for increasing short trips (or reducing average trip length), reducing car ownership, increasing auto occupancy, and increasing attractiveness of sustainable transportation.

7.2 Strategic Parking Management

Travel characteristics in Burlington currently demonstrate a high dependence on auto use, even for trips that could reasonably be accomplished by more sustainable modes. Over the long term, the mode share profiles for the MTSA areas in Burlington are going to evolve to be significantly less reliant on cars to accommodate the travel demands of the planned growth. However, the pace at which these changes in travel characteristics occur is uncertain and thoughtful control of parking supply is one of the key levers that can be used for accomplishing the required shift.

Cities undergo physical change (in their built form: their infrastructure and land uses, etc.), and they undergo cultural change (in the demographics, values and priorities of their residents, employers and employees). If physical change advances too quickly before there is time for aspects of the established culture to evolve, there can be negative public feedback around the physical changes which are occurring. Similarly, if cultural change outpaces physical change, governments are perceived as not doing their job. In the context of parking, the key is to advance both by regularly monitoring parking supply and demand within the MTSAs over time and updating the standards accordingly.

It is recommended that the City develop a monitoring program to ensure that the standards for parking effectively satisfy market demands and achieve the mobility and land use objectives for the MTSAs. The monitoring program should consider parking management standards and best practices from other growth centres and urbanizing communities and should also assess how well the current standards address local needs. The monitoring program should also assess the effectiveness of bicycle, micro mobility and EV parking standards as well as on-street parking and short-term loading standards for the MTSAs. The monitoring program may also identify opportunities for City-owned parking.

8.0 Recommended ASP Policy Framework

8.1 Policy Approach

The following section translates the technical commentary, analysis and recommendations outlined in the previous sections into policies that can be easily incorporated in the ASP policy framework. For organization purposes, this section envisions a set of general transportation policies that would apply to all three MTSAs, along with a complementing set of area specific policies and plans that apply uniquely to each MTSA.

8.2 General Transportation Policies

8.2.1 Street Hierarchy

The Transportation Report proposes a number of new streets in the MTSA study areas. The existing City of Burlington street hierarchy/ classifications, as shown in 2020 Official Plan Schedule O-1 Classification of Transportation Facilities – Urban Area, were reviewed to determine the appropriate street classifications for the new streets.

Schedule O-1 includes several street classes that are potentially relevant to the MTSA transportation planning studies:

- Major Arterial;
- Multi-purpose Arterial;
- Urban Avenue;
- Main Street;
- Industrial Connector;
- Neighborhood Connector; and
- Industrial/ Commercial Local Street.

The existing hierarchy does not include any Collector street classifications that are appropriate for the MTSA land use context (intensifying areas, priority on high level of service to Active and Sustainable Transportation, design features supportive of adjacent commercial uses). Two new Street Classifications are identified to provide clear guidance on the intended planning, design and operational assumptions for the new MTSA streets and are described in **Table 22**. The City should update Schedule O-1 / Table 2 and related policies of the Official Plan to incorporate the two additional street classifications, along with the associated ROW widths identified in **Table 6**, **Table 13** and **Table 20** for the MTSA networks shown on **Figure 20**, **Figure 22** and **Figure 24**. In addition to this, further study of City's existing arterials (Plains Road East, Fairview Street, Brant Street and Appleby Line) will be required to confirm the preferred design for each link based on their revised function as MTSA connectors / complete streets.

Table 22: Street Classification Function

Street Classification	ROW Width	Function	AT Assumptions		Design Speed (kph)
			Cycling Provisions	Pedestrian Provisions	
MTSA Mixed Use/ Commercial Connector	30m	• A community "Main Street" or "High-street"; street balances mobility and access; • Moves moderate to high volumes of cycling, transit and vehicle movements; • Balances priority of all modes; • Traditionally "auto-oriented" land use, but often subject to intensification or redevelopment; and • Likely to have mixed, but predominantly commercial land-use.	Min. 1.5m protected cycle track	Min. 1.8 m pedestrian clearway + 1.5m planting and furnishing zone	50
MTSA Mixed Use/ Commercial Distributor	26m	• A community street that provides 'rear' service and access functions to adjacent commercial and residential properties • Moves low to moderate volumes of vehicular traffic • High level of service for walking and cycling • Provides an attractive environment that complements adjacent main or civic streets	Wide Lanes – sharrows	Min. 2.0 m pedestrian clearway + 1.5m planting and furnishing zone	40

Flexible Streets

The City of Burlington Official Plan supports the use of a "Flexible Street" or "Flex Street" design approach to street design under the appropriate context and urban design conditions. As per the Official Plan:

Flex Street - Those portions of a City public-right-of-way used primarily for vehicular activities which are designed so as to function either wholly or partially, as desired, for vehicular-centric activities and/or pedestrian, public gathering and/or public event functions through the use of design elements including, but not limited to, bollards, flexible on-street parking configurations, pavement materials, enhanced streetscapes and/or modified curbs.

MTSA street networks will potentially provide strong opportunities to employ a Flex Street design approach in areas where there a desire to support ground-floor retail and/or integrate the design of private space with public right-of-way.

Guidelines for identifying appropriate locations for Flex Streets and executing design studies will be provided in the future Complete Street Design Guide.

New Streets

The existing and planned road network for each MTSA identifies the new major street improvements (all of which are required to be dedicated as public streets) that are anticipated from a circulation and network connectivity perspective. As development occurs, the expectation is that additional local streets (all of which are required to be dedicated as public streets) will be needed, allowing for a finer grain street grid pattern that will help to implement the mobility objectives within each MTSA. These new local streets are not presently identified in the ASP and will be added at the plan of subdivision/site plan stage of the development process. The City should consider the following criteria when making decisions related to new additional local public roads:

- Local roads should be spaced between 150 metres up to a maximum of approximately 200 metres apart, allowing for relatively convenient access to local transit stops and the broader network.
- Local road right of way width should be sufficient enough to accommodate sidewalks on both sides of the street, cycling infrastructure and/or any multi-use path connections (as required). For planning purposes, the minimum width for a local road should be approximately 20 metres, depending on function/design.
- Local roads should be designed to avoid the creation of dead-end streets or cul-de-sacs to maximize street connectivity.
- Local roads should avoid the creation of lay-by lanes which result in increased street widths and decreased pedestrian space within the sidewalk and boulevard area of the street[1].

[1] While generally not desired, there may be circumstances such as schools or daycares where high numbers of drop-offs and legitimate passenger safety concerns may require the use of lay-by lanes to facilitate passenger drop-off and pick up.

8.2.2 Active Transportation

The active transportation networks within the three MTSAs are planned to provide direct and safe connections to the City's three GO Transit Station as well as transit stops, multi-use trails, public spaces and parks, schools, mixed use areas, employment areas and other community uses. Each MTSA ASP incorporates a series of local area improvements intended to enhance overall connectivity within and through the area. Improvements to the active transportation network, combined with a complete streets approach for new/ existing roads and the incorporation of TDM measures at the site level are intended to complement the overall ridership growth objectives, as well as improve the safety and overall efficiency for pedestrian and cyclists.

8.2.3 Transportation Demand Management

8.2.3.1 TDM Plan

The City will develop a TDM Plan, consistent with Burlington's city-wide TDM Strategy and Action Plan for each of the MTSAs. The TDM plans should feature a Transportation Management Association (TMA) to provide effective, active, local leadership of the MTSA TDM plan. It should consider the mode share targets for the MTSA and the required mode shift. The TDM plans must identify strategies for increasing short trips (or reducing average trip length), reducing car ownership, increasing auto occupancy, and increasing attractiveness of sustainable transportation.

8.2.3.2 Interim Approach

Until such time as the TDM Plan is completed, the City will use the TDM policies outlined in the current Official Plan to guide decision-making. Given the importance of connectivity to transit, the City will prioritize TDM measures which enhance first mile/ last mile connectivity, such as micromobility infrastructure, car share/ bike share programs and site level connections to the planned active transportation.

8.2.4 GO Station Design and Integration

Burlington's three GO stations will continue to evolve over time, as Metrolinx makes improvements to its services. The City will work proactively with Metrolinx to ensure that future physical improvements to the station areas support the broader objectives for each MTSA, including, but not limited to:

- Improving station access for pedestrians, cyclists, transit users, local transit vehicles, kiss and ride and carpool users;
- Incorporating wayfinding improvements;
- Implementation of micromobility infrastructure;
- Enhancement of landscaping, including incorporation of shade trees and native plant species; and
- Incorporation of sustainable design elements.

8.2.5 Strategic Parking Management

8.2.5.1 Initial Approach

The following parking standards should be considered for the City's Community Planning Permit System By-Law[2]:

Parking Standards

Type of Development	No of Parking Spaces Minimum	No of Parking Spaces Maximum
Mixed Use or Apartment Building, Bachelor Unit	0.70 parking spaces per dwelling unit plus 0.15 visitor spaces per dwelling unit	0.85 parking spaces per dwelling unit plus 0.15 visitor spaces per dwelling unit
Mixed Use or Apartment Building, 1 Bedroom Unit	0.80 parking spaces per dwelling unit plus 0.15 visitor spaces per dwelling unit	1.00 parking spaces per dwelling unit plus 0.15 visitor spaces per dwelling unit
Mixed Use or Apartment Building, 2 Bedroom	1.00 parking spaces per dwelling unit plus 0.15 visitor spaces per dwelling unit	1.20 parking spaces per dwelling unit plus 0.15 visitor spaces per dwelling unit
Mixed Use or Apartment Building, 3 Bedroom or more	1.2 parking spaces per dwelling unit plus 0.15 visitor spaces per dwelling unit	1.4 parking spaces per dwelling unit plus 0.15 visitor spaces per dwelling unit

Reduced Rates for Affordable Housing / Rental Housing

Where a dwelling unit qualifies as an affordable housing dwelling unit (and/or rental unit), the minimum parking space rate and the maximum parking space rate for the dwelling unit may be reduced by 30% of the standard minimum and maximum parking space rates for the applicable dwelling unit type (this reduction does not apply to the visitor Parking Space per dwelling unit rates).

[2] Prior to implementing the initial standards, the City may wish to refine the above-noted standards based on further study and feedback. The above-noted standards are based on a high level review of Richmond Hill Centre Hill Centre zoning, City of Hamilton Transit Oriented Corridor zoning, Town of Oakville zoning by-law, City of Kitchener Urban Growth Centre and Mixed Use zones (by law 2019-51) and the draft Bowmanville West Major Transit Station Area Secondary Plan and Zoning by-law Amendment (Clarington).

Car Share Spaces

The minimum parking space requirement may be reduced by up to 3 parking spaces for each dedicated car-share parking space. The limit on the parking space reduction is calculated as the greater of:

- 4 x (total number of units / 60), rounded down to the nearest whole number; or
- 1.0 parking space.

8.2.5.2 Monitoring

The CPPS framework is a flexible tool that will allow for some variation in standards, accordingly as part of the program for monitoring the implementation of the City's CPPS, the City should study, monitor and revise the parking standards to ensure that are able to effectively satisfy market demands and achieve the mobility and land use objectives of the ASP/CPPS.

8.2.6 Transportation Impact Study

The implementing ASP OPA and related CPPS should include guidance for Traffic Impact Study(ies) (TIS) to accommodate development applications. The TIS should examine the impact of the proposed development on operations of the surrounding existing and planned multi-modal transportation network. Depending on the findings of the TIS, specific improvements to the network may be required before development applications are approved.

8.3 Area Specific Plan Policies

8.3.1 Appleby GO MTSA ASP

8.3.1.1 Street Network

The planned street network for the Appleby GO MTSA is illustrated on **Figure 20**. This figure illustrates the proposed street network and the existing streets that require upgrade / additional right-of-way width as identified in **Table 6**. The planned street network will be implemented through an OPA.

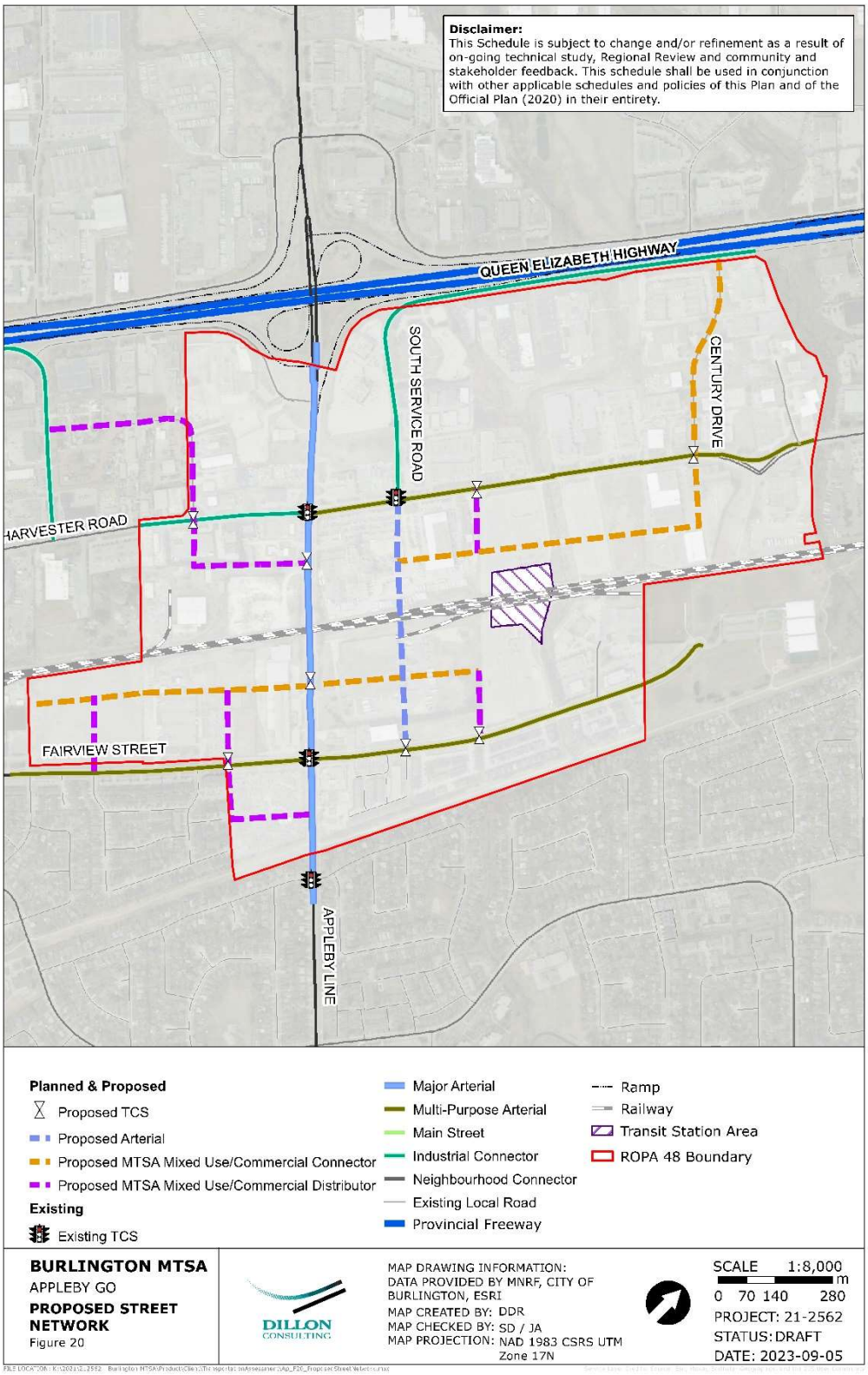
The location of new planned streets are conceptual and the ultimate location of any new streets, along with their design will be subject to further review through Planning Act application or Environmental Assessment Act processes, as the case may be. The design or improvement to any street within the ASP area shall incorporate the design parameters identified in **Section 8.2**.

The following improvements are planned for the area:

1. A new north/south street connection across the rail corridor between Fairview Street and Harvester Road, east of Appleby Line to replace the extension of Fairview Street through Sherwood Forest Park. This connection is subject to future study to confirm the need, ultimate location, and cross-section requirements, this new north-south connection will provide many benefits to the transportation system and will improve access for all modes.

2. Appleby Line and Fairview Street are proposed as future Bus Rapid Transit (BRT) corridors with dedicated lanes, and Harvester Road is proposed as a future Transit Priority Corridor. The proposed BRT with dedicated lanes on Fairview Street will convert existing vehicle lanes (one lane per direction) to transit lanes, while the proposed BRT with dedicated lanes on Appleby Line will widen Appleby Line from 4 to 6 lanes to accommodate the additional transit lanes.
3. A series of Mixed Use/ Commercial Connectors and Distributors intended to facilitate access to various development lands.

Figure 20: Appleby GO MTSA Proposed Street Network

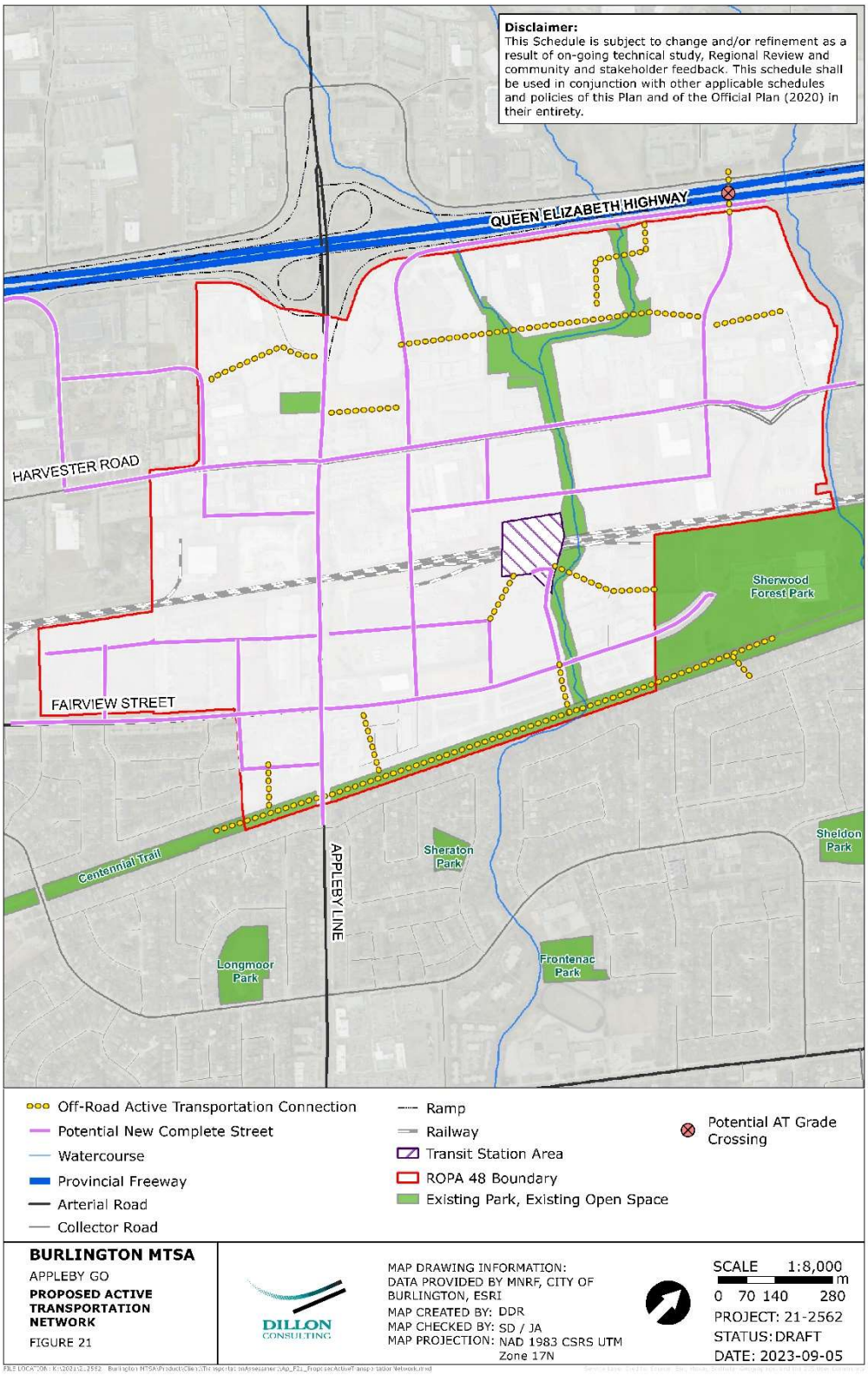


8.3.1.2 Active Transportation Network

Figure 21 shows the planned AT network for the Appleby GO MTSA. The planned network includes:

1. A network of complete streets that connects to Appleby Line, Harvester Road and Fairview Street;
2. A multimodal crossing of the Go Rail Line east of Appleby Line;
3. An AT crossing of the QEW;
4. Multiple AT connections to/from Appleby GO Station; and
5. Multiple AT connections to/from the Centennial Bikeway including one via the main vehicle driveway to the GO station and the existing pathway on the south side of Fairview Street.

Figure 21: Appleby GO MTSA Proposed Active Transportation Network



8.3.2 Aldershot GO MTSA ASP

8.3.2.1 Street Network

The planned street network for the Aldershot GO MTSA is illustrated on **Figure 22**. This figure illustrates the proposed street network and the existing streets that require upgrade / additional right-of-way width as identified in **Table 13**. The planned street network will be implemented through an OPA.

The location of new planned streets are conceptual and the ultimate location of any new streets, along with their design will be subject to further review through Planning Act application or Environmental Assessment Act processes, as the case may be. The design or improvement to any street within the ASP area shall incorporate the design parameters identified in **Section 8.2**.

The following improvements are planned for the area:

1. A new South Service Road extension (connecting the Aldershot GO Station and the Highway 403 eastbound on ramp to King Road). This new east-west connection will provide many benefits to the broader transportation system and will improve access for all modes. This connection is subject to future study to confirm the need, ultimate location, and cross-section requirements.
2. Plains Road is proposed as a future Bus Rapid Transit (BRT) corridor with dedicated transit lanes. Ultimately, one vehicle lane per direction will be converted to a transit lane if and when bus volumes dictate the need for the conversion.
3. A series of Mixed Use/ Commercial Connectors and Distributors intended to facilitate access to various development lands.

8.3.2.2 Active Transportation Network

Figure 23 shows the planned AT network for the Aldershot GO MTSA. The planned network includes:

1. A network of complete streets that connects to Waterdown Road and Plains Road;
2. Multimodal corridor connecting the MTSA to development parcels west of King Road;
3. Multiple AT connections to/from Aldershot GO Station; and
4. Multiple AT connections to/from existing public service facilities and local parks outside the MTSA.

Figure 22: Aldershot GO MTSA Proposed Street Network

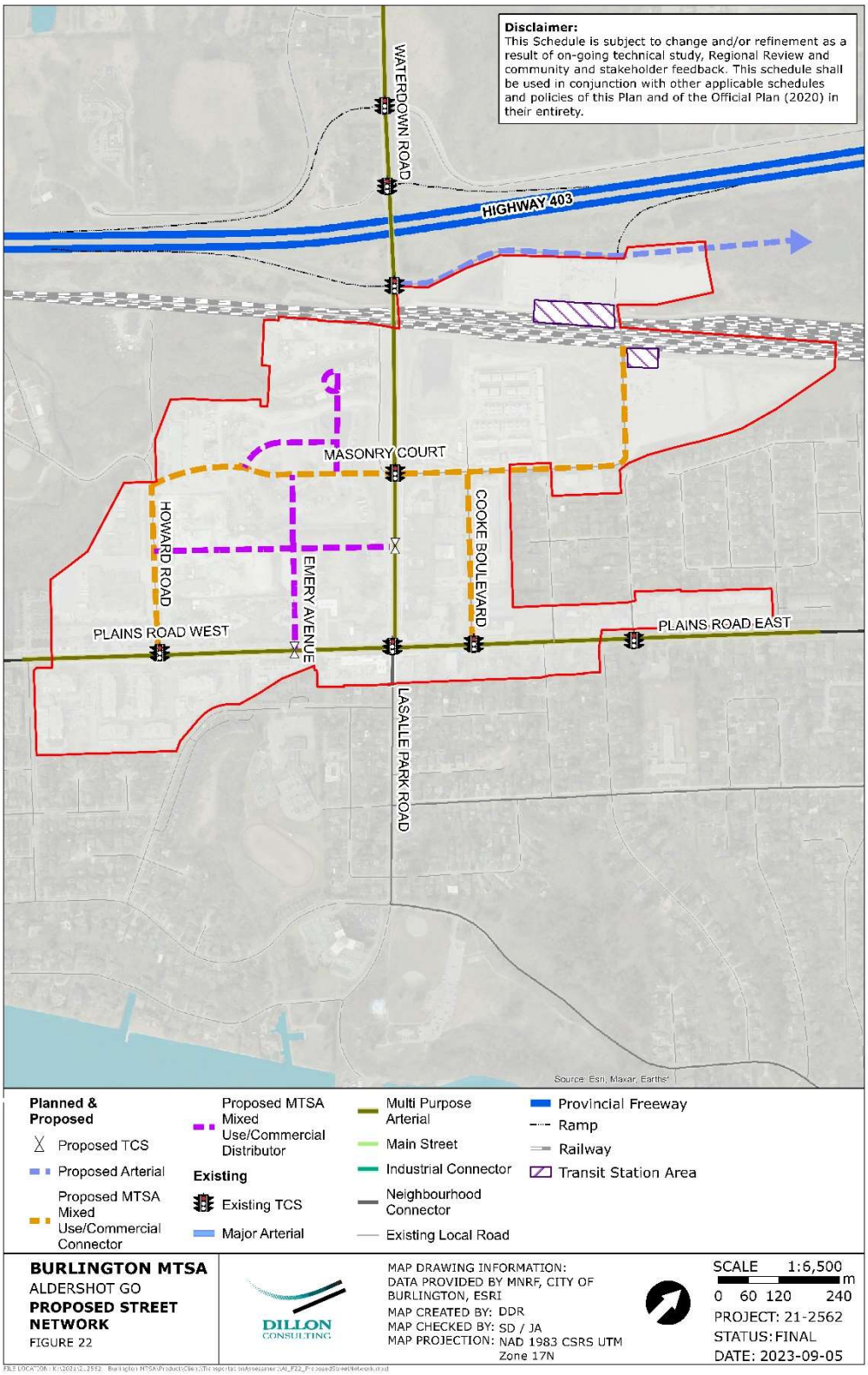
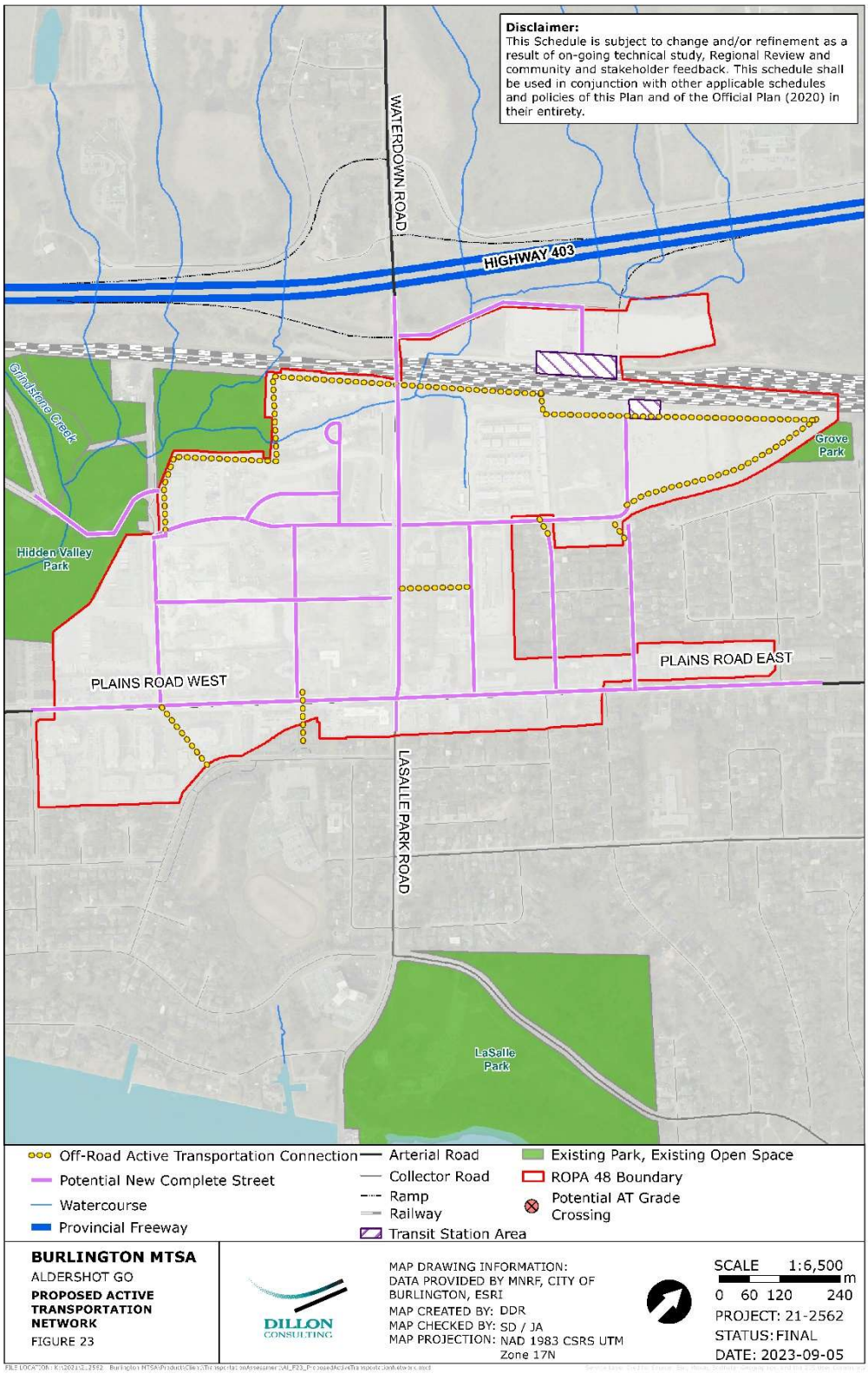


Figure 23: Aldershot GO MTSA Proposed Active Transportation Network



8.3.3 Burlington GO MTSA ASP

8.3.3.1 Street Network

The planned street network for the Burlington GO MTSA is illustrated on **Figure 24**. This figure illustrates the proposed street network and the existing streets that require upgrade / additional right-of-way width as identified in **Table 20**. The planned street network will be implemented through an OPA.

The location of new planned streets are conceptual and the ultimate location of any new streets, along with their design will be subject to further review through Planning Act application or Environmental Assessment Act processes, as the case may be. The design or improvement to any street within the ASP area shall incorporate the design parameters identified in **Section 8.2**.

The following improvements are planned for the area:

1. A new north/south street connection across the rail corridor between Fairview Street and Plains Road, east of Brant Street. This connection is subject to future study to confirm the need, ultimate location, and cross-section requirements, this new north-south connection will provide many benefits to the transportation system and will improve access for all modes.
2. Fairview Street and Brant Street are proposed as future Bus Rapid Transit (BRT) corridors. Fairview Street east of Burlington GO Station and Brant Street north of Fairview Street are proposed as future BRT with dedicated lanes, while Fairview Street West of Burlington GO Station and Brant Street south of Fairview Street are proposed as BRT with optimized performance.
3. A widening of Brant Street from North Service Road to Dundas Street (just north of the Burlington GO MTSA) by Halton Region from 4 to 6 lanes to accommodate the proposed BRT with dedicated lanes.
4. A series of Mixed Use/ Commercial Connectors and Distributors intended to facilitate access to various development lands.

8.3.3.2 Active Transportation Network

Figure 25 shows the planned AT network for the Burlington GO MTSA. The planned network includes:

1. A network of complete streets that connects to Brant Street, Plains Road and Fairview Street;
2. A multimodal crossing of the Go Rail Line east of Brant Street;
3. An AT crossing of the QEW; and
4. An AT connections to/from Maple Trail.

Figure 24: Burlington GO MTSA Proposed Street Network

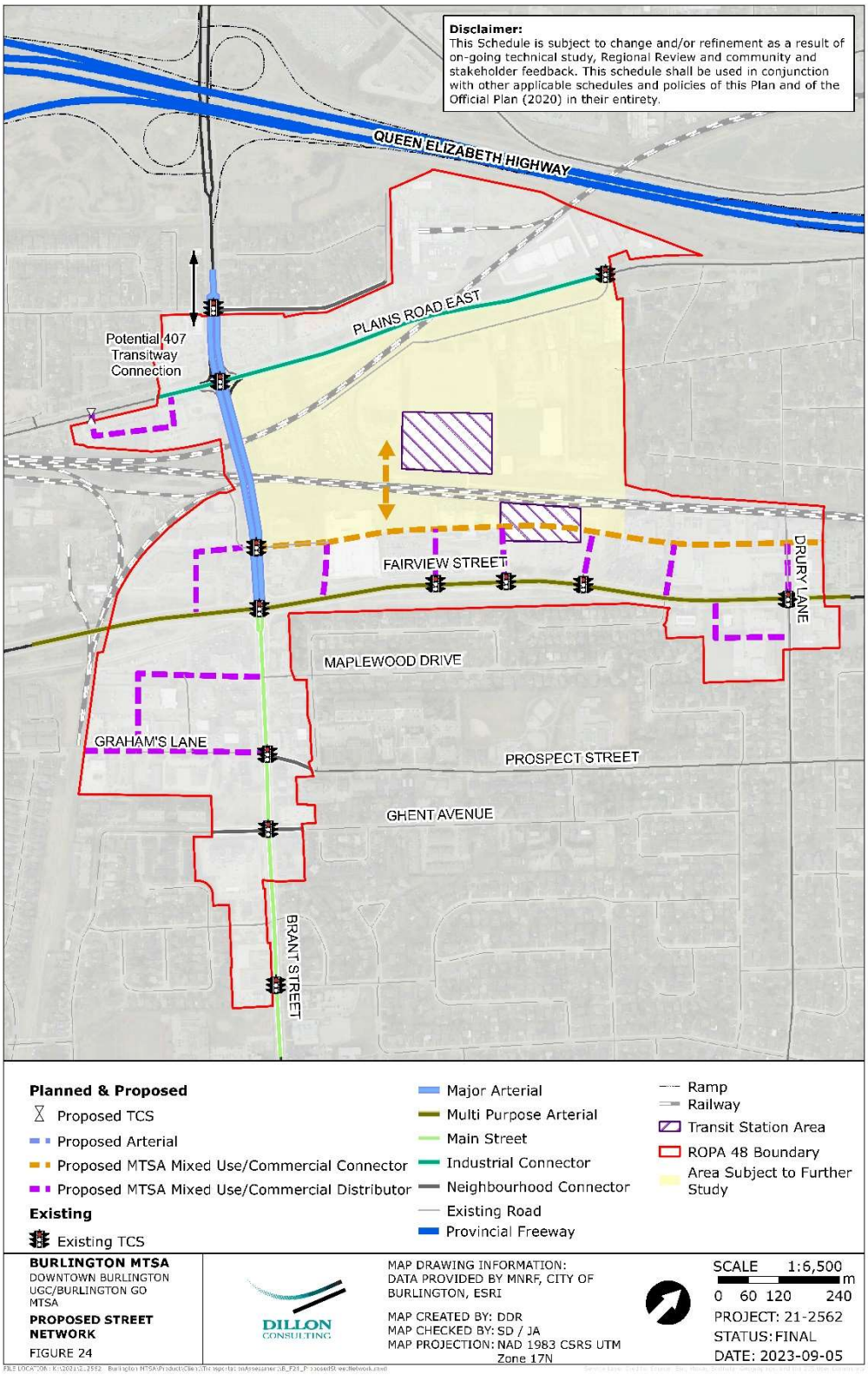
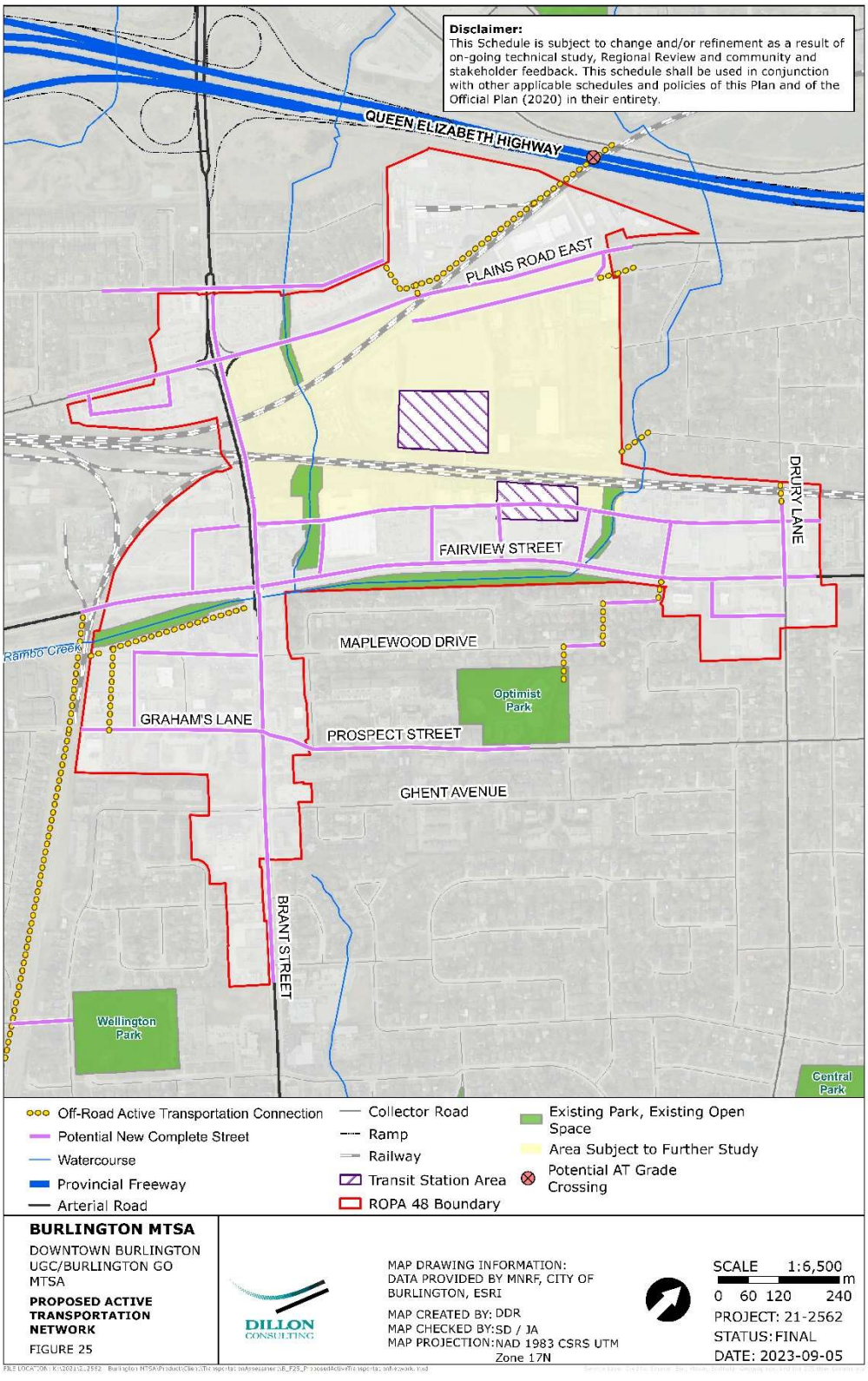


Figure 25: Burlington GO MTSA Proposed Active Transportation Network



Appendix A

MTSA Proposed Street Type Design Concepts

Memo

To: Jenna Puletto

From: Jeff Axisa

Date: April 17, 2023

Subject: Burlington MTSA Proposed Street Type Design Concepts

Our File: 21-2562

This memo recommends street design parameters for use in the Burlington MTSA transportation study to support the Area Specific Plan project.

Methodology:

1. Identify the relevant street classes from the Burlington Official Plan, 2020 (subject to appeal)
2. Review the draft street class descriptions outlined in the City of Burlington Revision of Classification of Transportation Facilities, 2016 memo
3. Identify any new street classes recommended to be added
4. Select potential Complete Street cross-sections from available Complete Street Design Guides
5. Recommend MTSA street design parameters to be used in the MTSA transportation study to inform the Area Specific Plans

1.0 Street Classes from Burlington Official Plan

We reviewed Schedule O-1 Classification of Transportation Facilities – Urban Area of the Burlington Official Plan, 2020 and identified the following street classes as potentially relevant to the MTSA transportation planning studies:

- Major Arterial
- Multi-purpose Arterial
- Urban Avenue
- Main Street
- Industrial Connector
- Neighborhood Connector
- Industrial/ Commercial Local Street

These Street Classes are supported by the City of Burlington Revision of Classification of Transportation Facilities, 2016 memo from IBI, which provides additional guidance on design and ROW for the street types. However, this collection of street classes does not meet all of the needs of the MTSA areas; additional street classes will be required.

2.0 New Street Classes

We have identified the following additional new street types needed to build out the MTSA transportation networks:

- Mixed Use/ Commercial Connector; and
- Mixed Use/ Commercial Distributor.

A qualitative description of role and function for these three street classes is provided for clarity.

Mixed Use/ Commercial Connector

- A community "Main Street" or "High-street"; street balances mobility and access
- Moves moderate to high volumes of cycling, transit and vehicle movements
- Balances priority of all modes
- Traditionally "auto-oriented" land use, but often subject to intensification or redevelopment
- Likely to have mixed, but predominantly commercial land-use

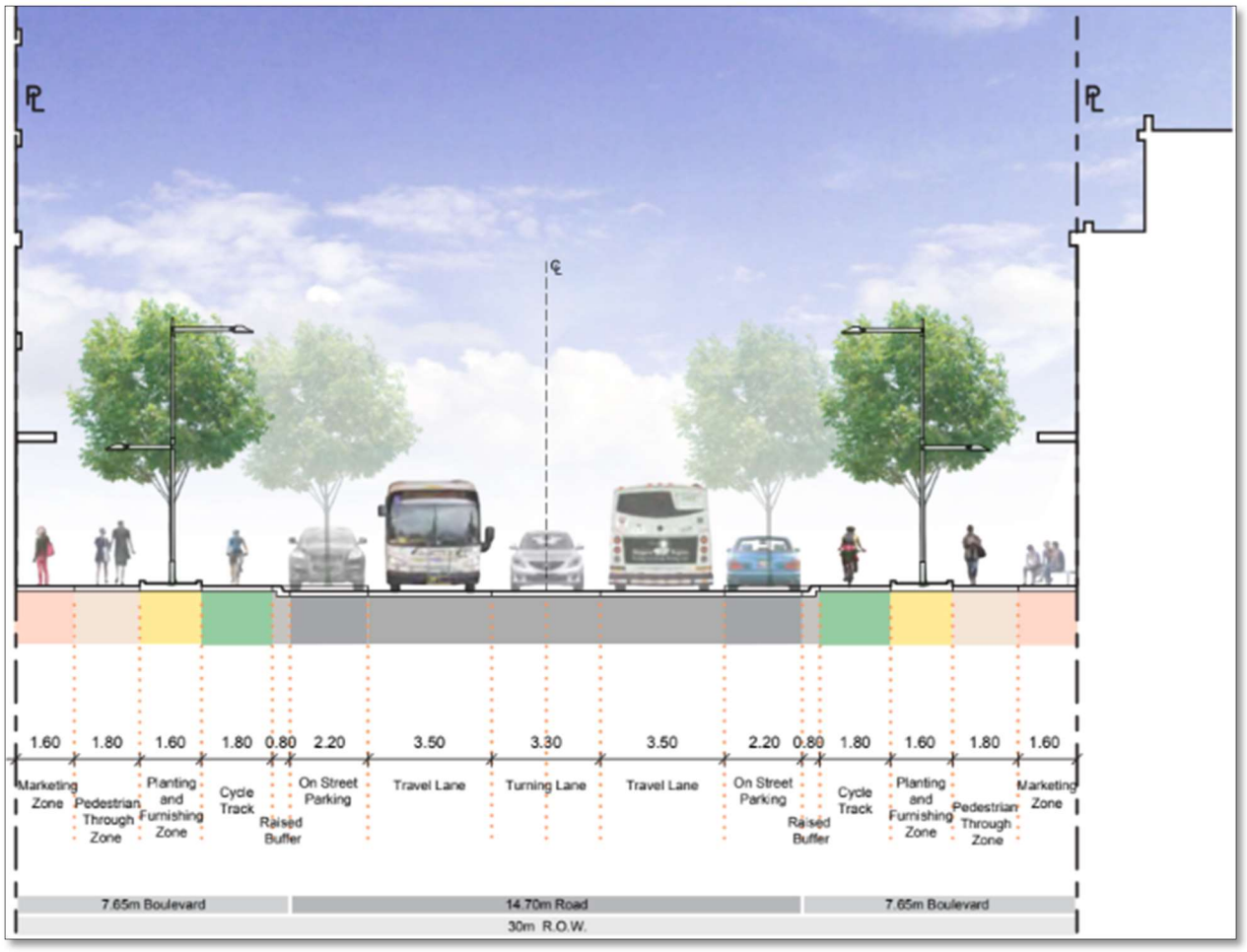
Mixed Use/ Commercial Distributor

- A community street that provides 'rear' service and access functions to adjacent commercial and residential properties
- Moves low to moderate volumes of vehicular traffic (e.g. cars, service vehicles)
- Priority on enhanced vehicle movement; balances service to other modes
- Provides an attractive environment that complements adjacent main or civic streets
- Likely to have mixed, but predominantly commercial land-use

3.0 Potential Design Concepts

The following presents design approaches used by other municipalities that may help to inform the recommended design and operating parameters for each of the recommended new street types.

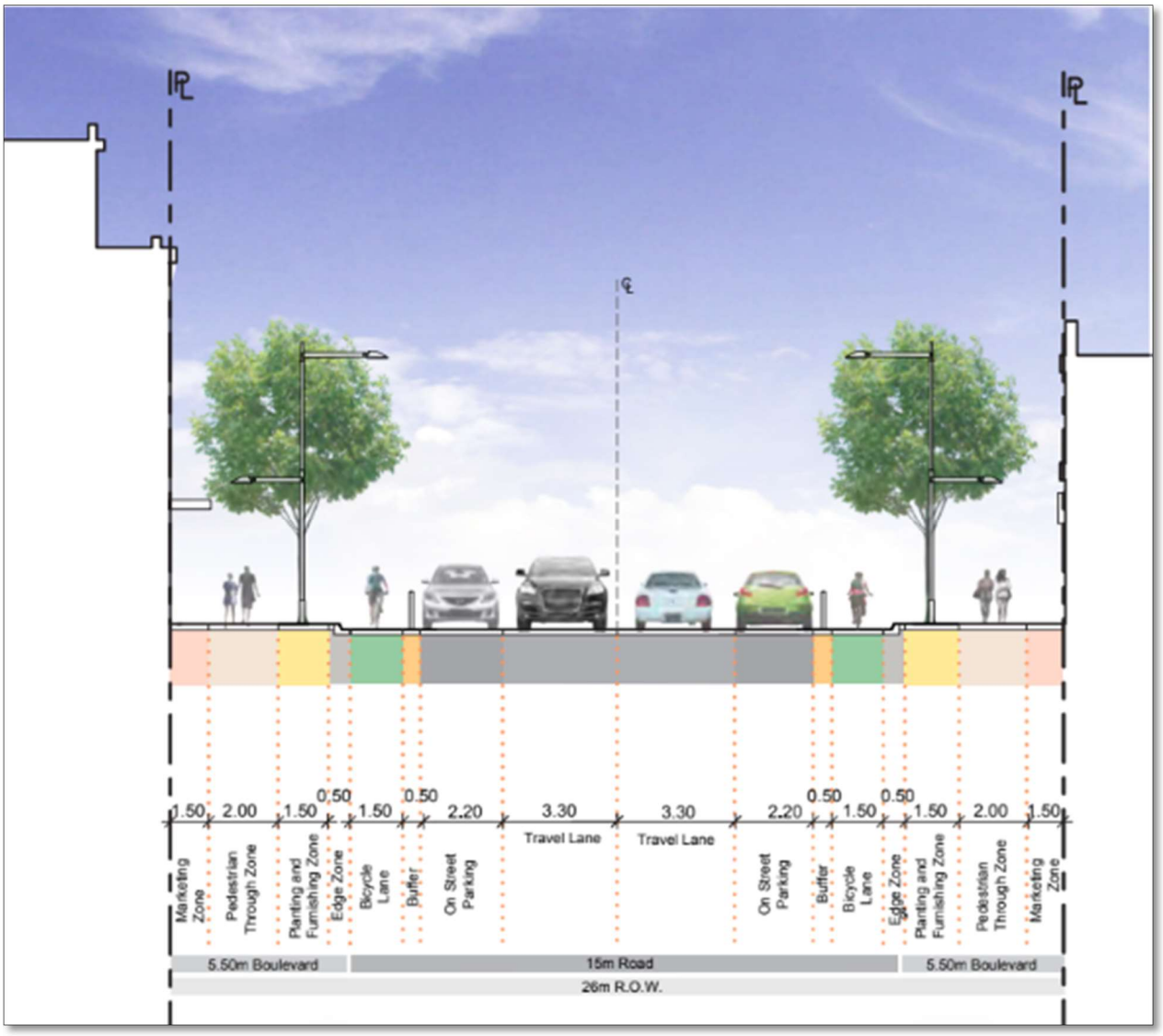
3.1 Mixed Use/ Commercial Connector



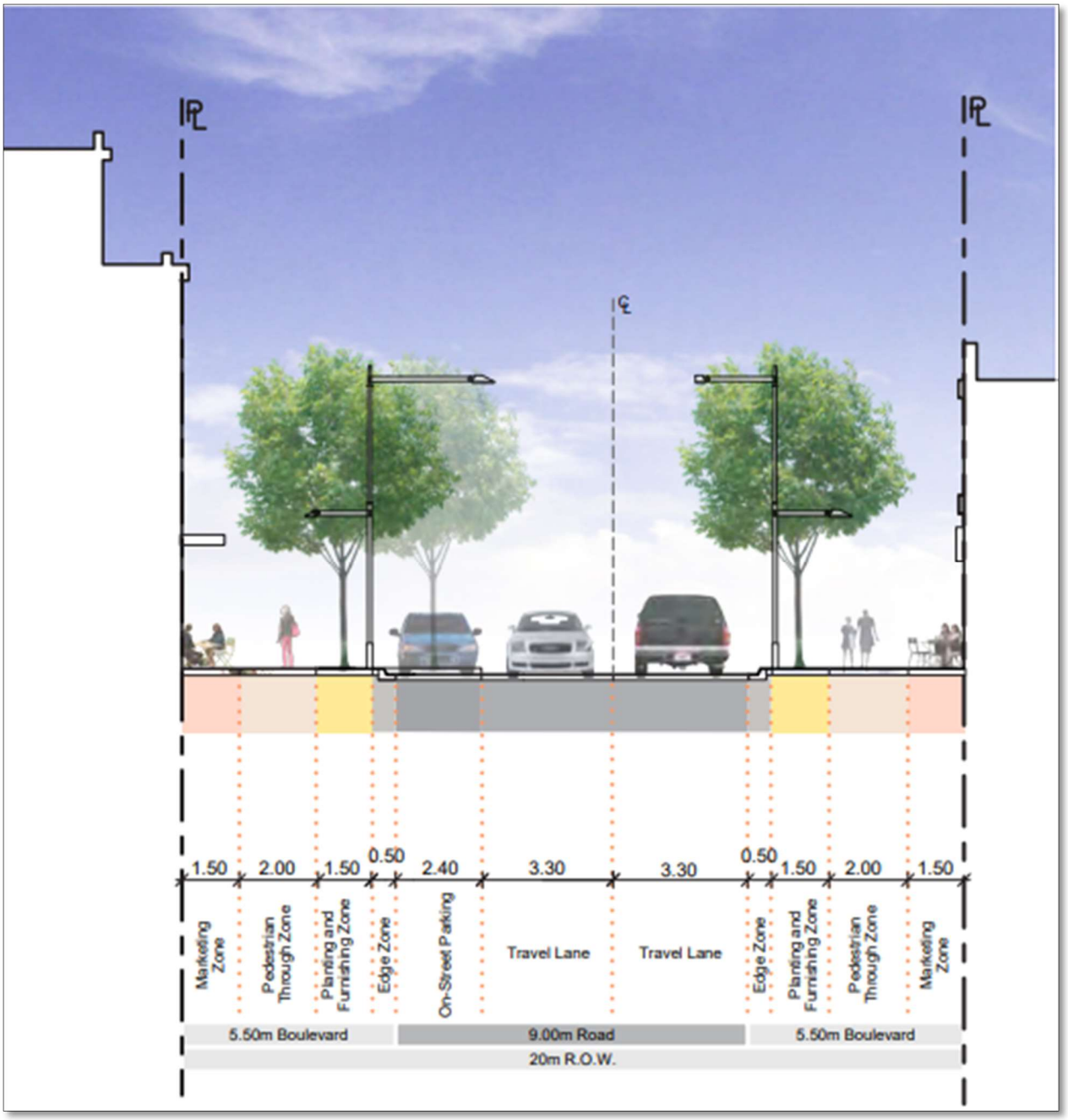
(Urban General Wide – Niagara Region Complete Streets Design Guideline)

(Mixed-use Connector – Toronto Complete Street Guidelines)

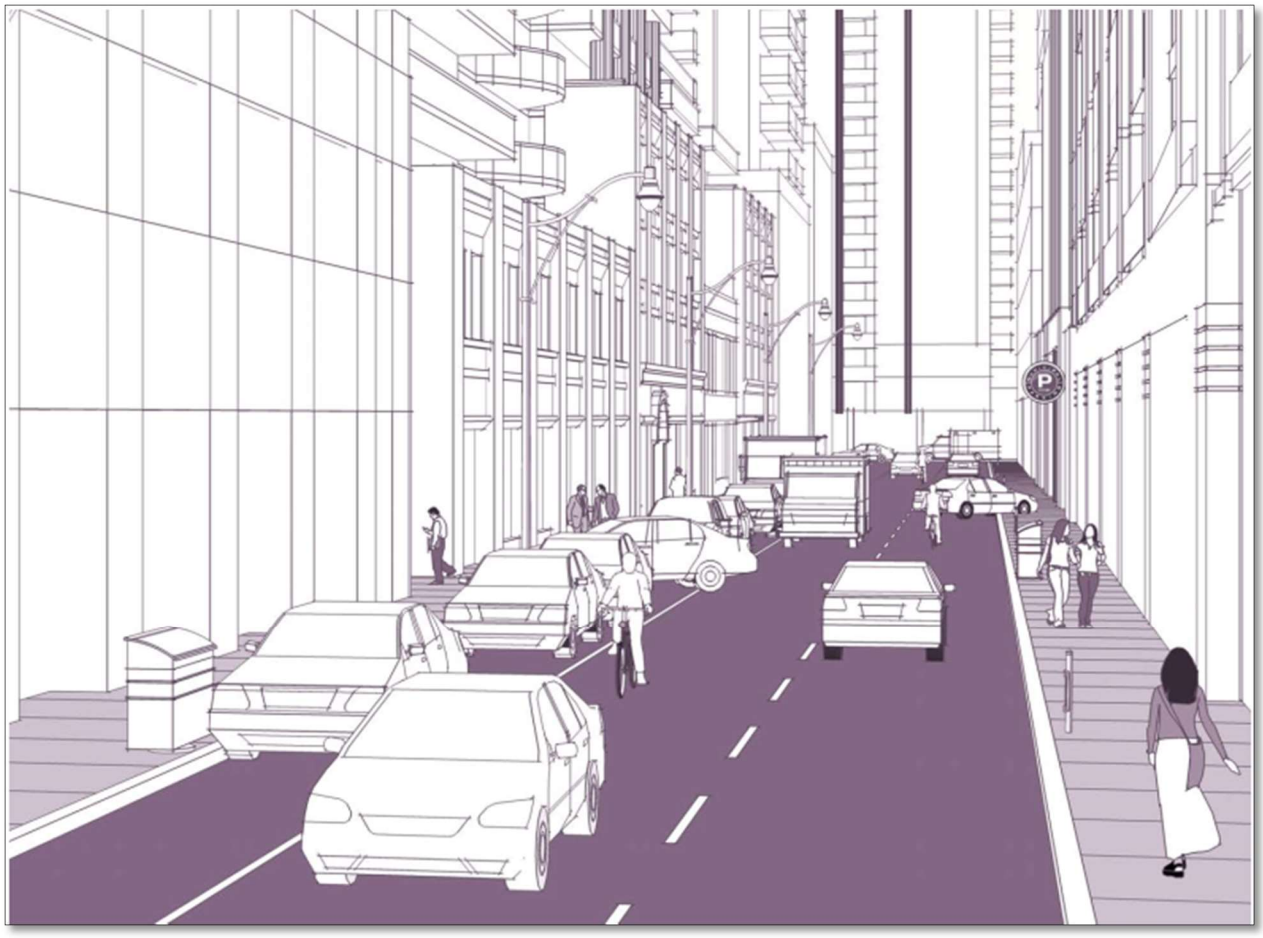
3.2 Mixed Use/ Commercial Distributor



(Main Street – Option 1 - Niagara Region Complete Streets Design Guideline)



(Main Street – Option 2 – Niagara Region Complete Streets Design Guideline)



(Mixed-use Access Street – Toronto Complete Streets Guidelines)

4.0 Design and Operating Parameters

Table 1 shows the design and operating parameters for the proposed new street types:

- Mixed Use/ Commercial Connector; and
- Mixed Use/ Commercial Distributor.

Table 1: New Street Types – Design and Operating Data

Street Type	ROW Width	Active Transportation Assumptions			Design Speed (km/h)
		Cycling Provisions	Pedestrian Provisions	Transit/HOV Provisions	
Mixed Use/ Commercial Connector	30m	Wide Lanes – sharrows	Min. 1.8m pedestrian clearway + 1.5m planting and furnishing zone	Generally avoided	50-60
Mixed Use/ Commercial Distributor	24m-26m	Min. 1.5m protected cycle track	Min 2.0m pedestrian clearway + 1.5m planting and furnishing zone	Buses may move in mixed traffic	40-50

5.0 Appendix

5.1 Official Plan Street Types – Design and Operating Data

Table 2 summarizes the design and operating data for each of the relevant street types in the Burlington Official Plan, 2020.

Table 2: Burlington OP Street Types – Design and Operating Data

Street Type	ROW Width	Active Transportation Assumptions			Design Speed (km/h)
		Cycling Provisions	Pedestrian Provisions	Transit/HOV Provisions	
Urban Arterial					
Major Arterial	35m-50m	On-street bike lane on key bike routes	Min 3.0m multi-use path	May contain bus-only or HOV lane	60-80
Urban Centre (Multi-purpose Arterial)	30m-35m	Min. 1.8m on-street bike lanes or 1.5m protected cycle track	Min. 3.45m pedestrian clearway + 1.5m planting and furnishing zone	May contain bus-only or HOV lane	40-50
Urban Avenue (Parkway)	30m-40m	Min 1.5m protected cycle track	Min. 2.0m pedestrian clearway + 2.5m planting and furnishing zone	May contain bus-only or HOV lane	40-60
Main Street (Downtown Streets)	24m-30m	Min. 1.8m on-street bike lanes	Min. 3.45 pedestrian clearway + 3.0m planting and furnishing zone	Buses may move in mixed traffic	40-50
Urban Collectors					
Industrial Connector	24m-35m	Min. 1.5m protected cycle tracks/multi-use path/wide lanes (sharrows)	Min. 1.5m pedestrian clearway/3.0m multi-use path +1.5m planting and furnishing zone	Buses may move in mixed traffic	60-70

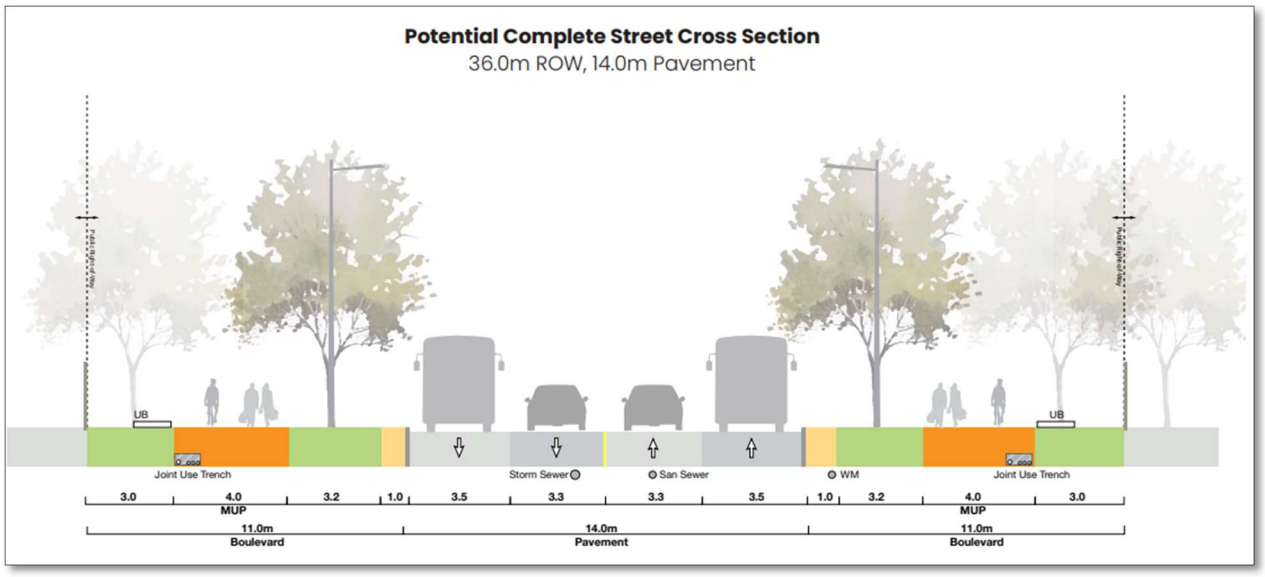
Neighbourhood Connector	24m-35m	Min 1.5m protected cycle tracks/multi-use path	Min. 1.5m pedestrian clearway/3.0m multi-use path +1.5m planting and furnishing zone	Buses may move in mixed traffic	40-50
Urban Local Street					
Industrial/ Commercial Street	20m-26m	Wide lanes - sharrows	Min. 1.5m pedestrian clearway on both sides + 1.5m planting and furnishing zone	Generally avoided	50-60
Shared Street	Varies	Wide lanes - sharrows	Min. 2.0m pedestrian clearway	Generally avoided	

5.2 Official Plan Street Types – Potential Design Concepts

The following are design concepts for each of the street classes in the Burlington Official Plan, 2020. The street design concepts that are referenced were from a review of existing complete street design guidelines in the Greater Toronto and Hamilton Area (GTHA). The guidelines from the review include: The City of Brampton Street Design Guide, The City of Hamilton Complete Streets Design Guidelines and the Niagara Region TMP Complete Street Design Guideline. The design concepts are intended to be used as a reference as the potential design concepts will be based on the available right-of-way space in proximity to the MTSAs.

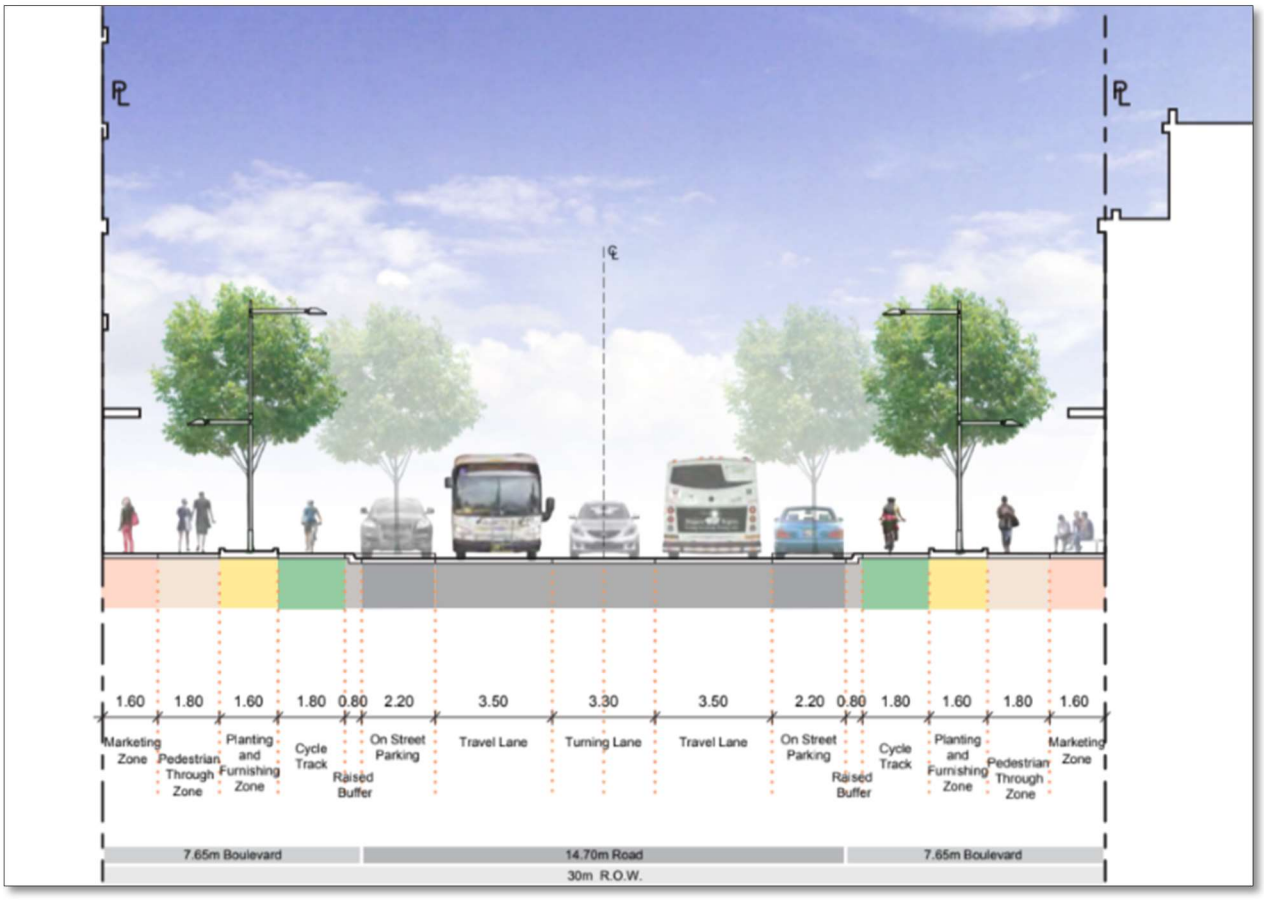
5.2.1 Urban Arterial

5.2.1.1 Major Arterial



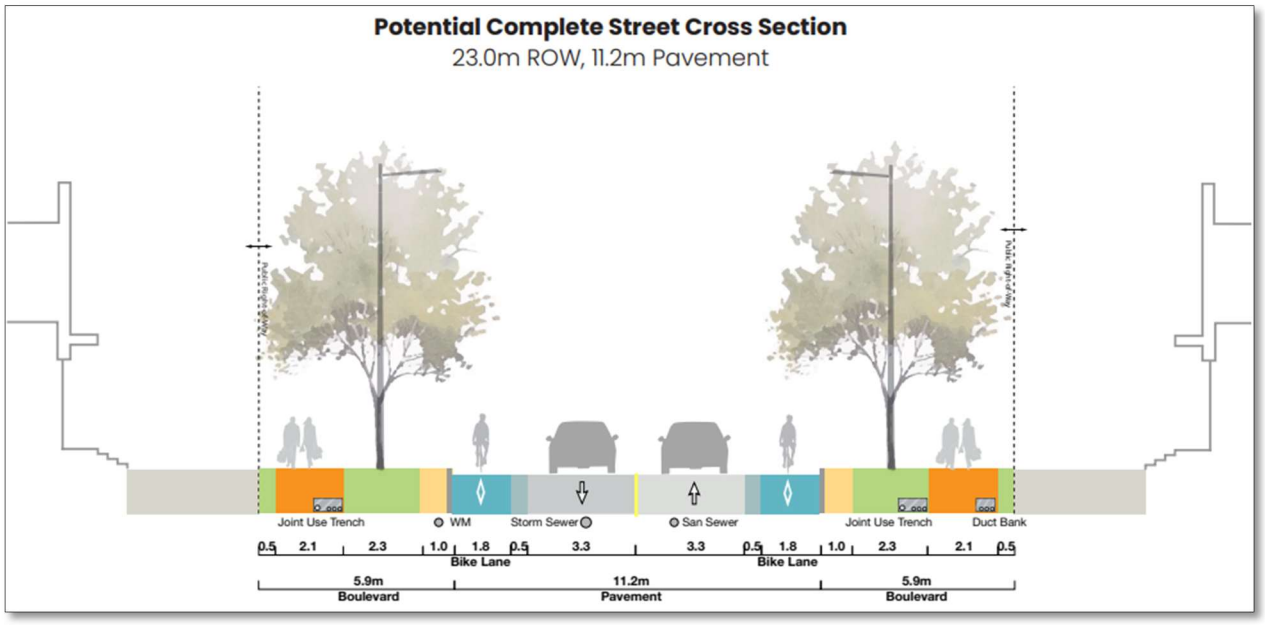
(Neighbourhood Connector - Brampton Complete Streets Guide)

5.2.1.2 Urban Centre (Multi-purpose Arterial)

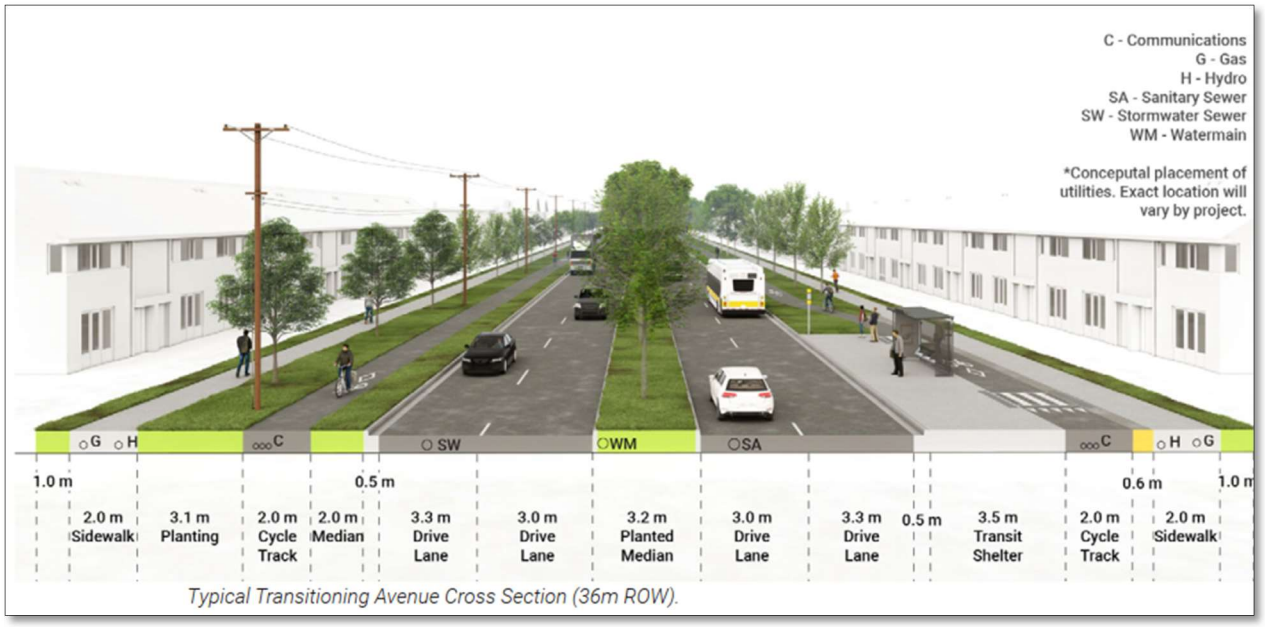


(Urban General – Wide - Niagara Region TMP Complete Streets Design Guideline)

5.2.1.3 Urban Avenue (Parkway)



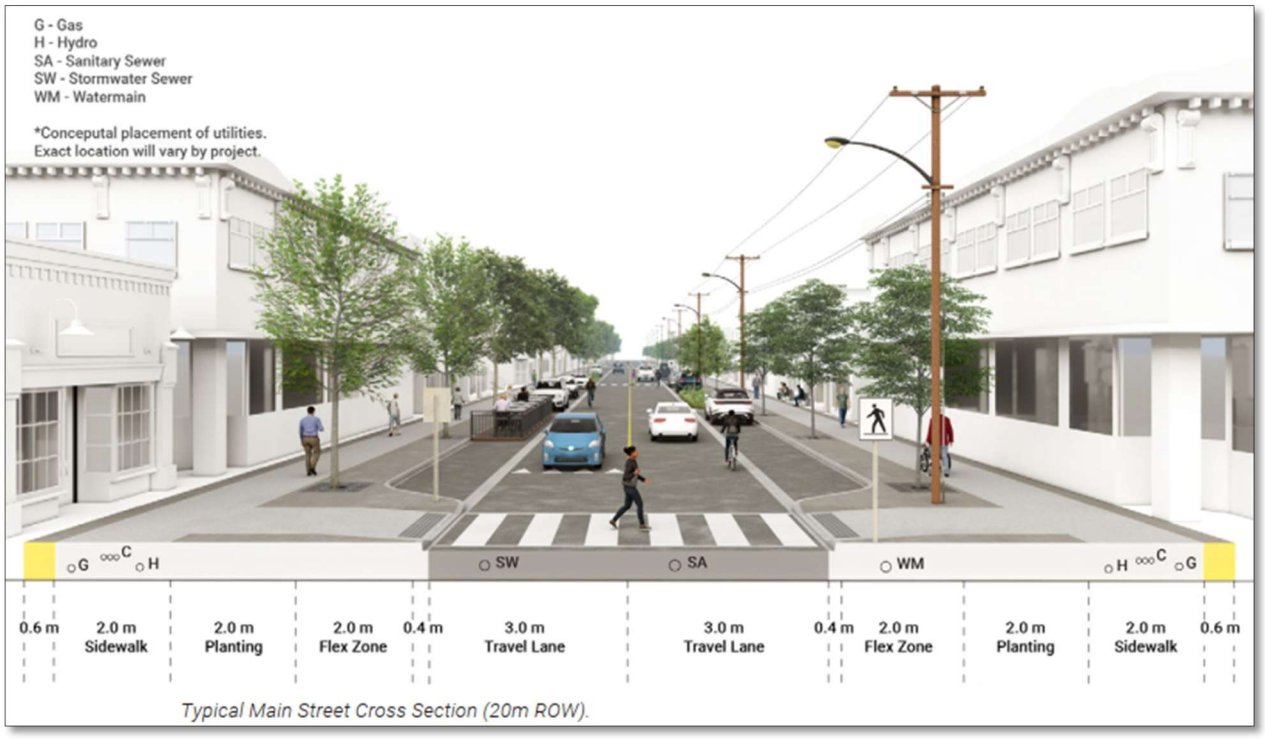
(Neighbourhood Residential - Brampton Complete Streets Guide)



Typical Transitioning Avenue Cross Section (36m ROW).

(Transitioning Avenue - Hamilton Complete Streets Design Guideline)

5.2.1.4 Main Street (Downtown Streets)



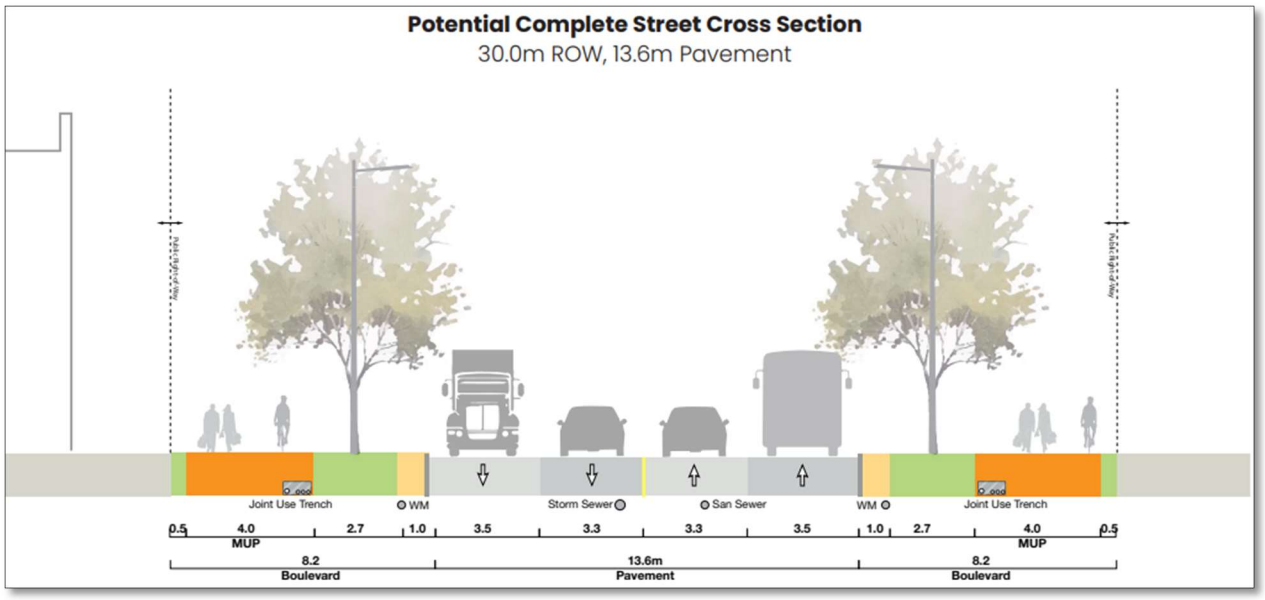
Typical Main Street Cross Section (20m ROW).

(Main Street – Hamilton Complete Streets Design Guideline)

We note that this potential design concept is for a 20m ROW. The design can be modified to include cycling lanes in the flex zone and wider pedestrian and planting zone if ROW space is available along the corridor.

5.2.2 Urban Collector

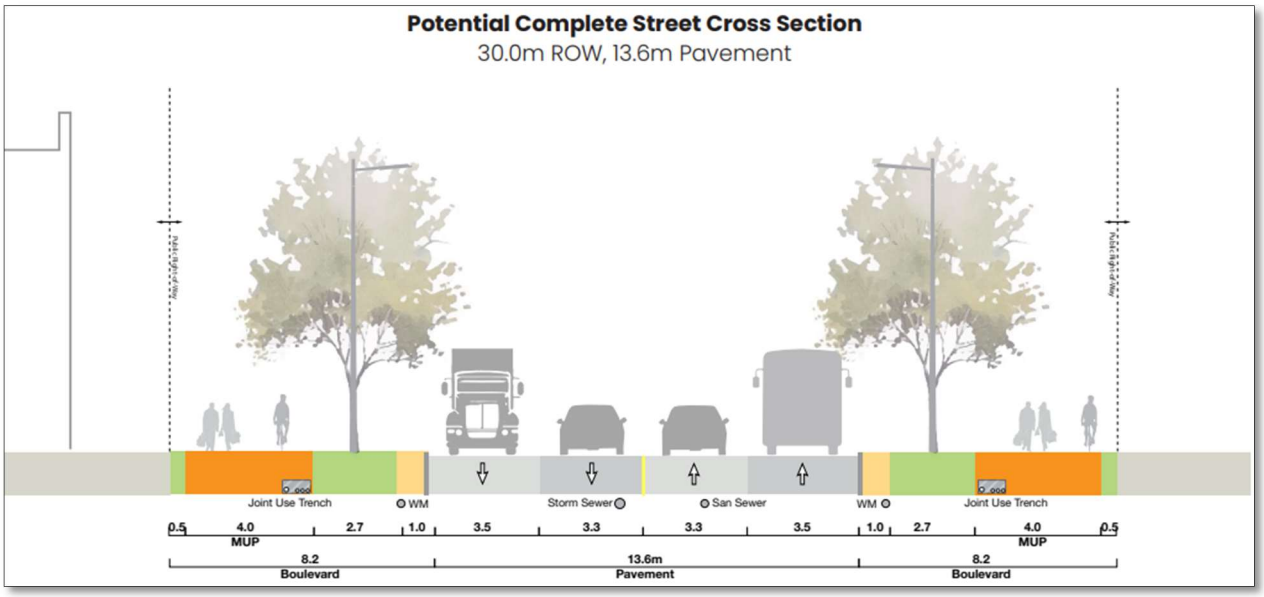
5.2.2.1 Industrial Connector



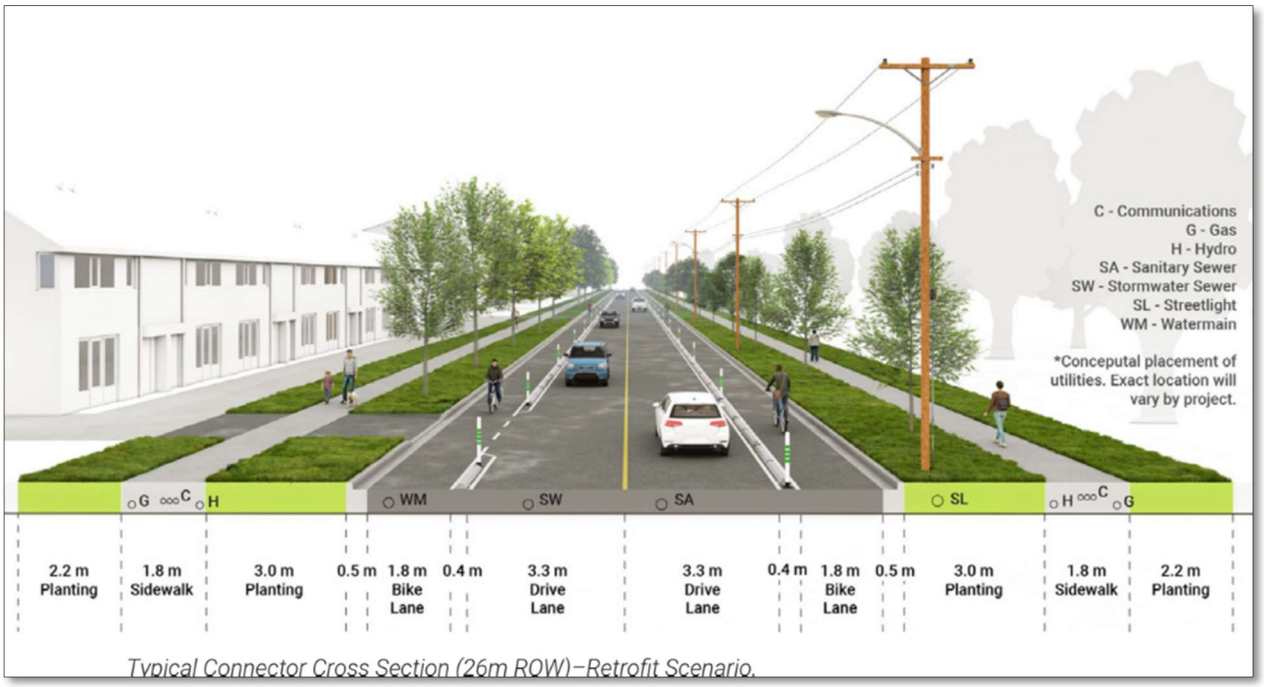
(Employment Collectors - Brampton Complete Streets Guide)

(Industrial Connector – Hamilton Complete Streets Design Guideline)

We note that this potential design concept is for a 26m ROW. The design can be modified to have additional/wider lanes and planting zones if ROW space is available along the corridor.



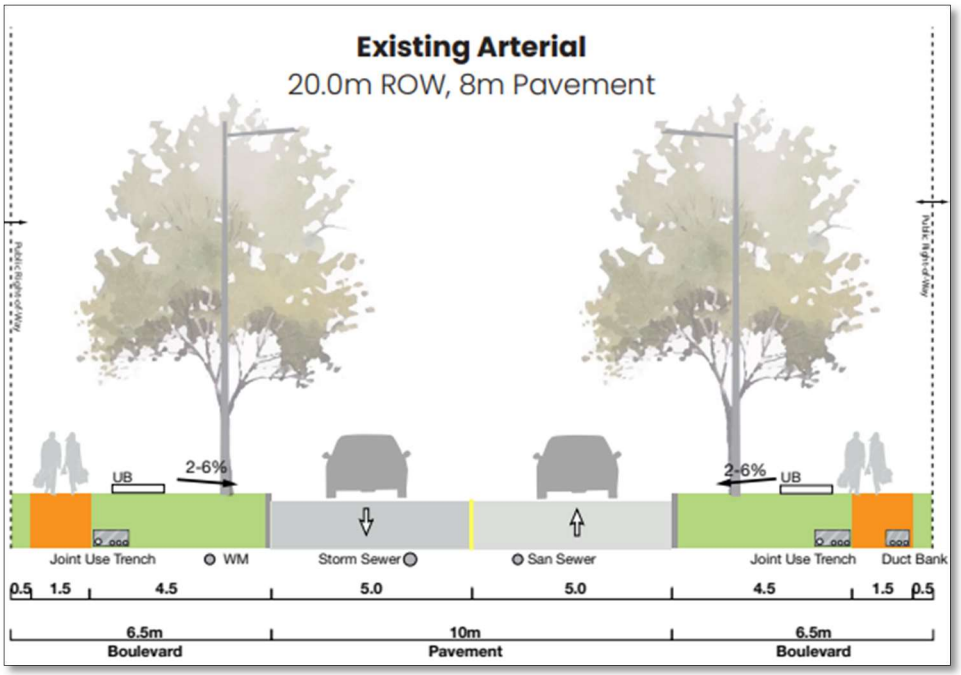
(Employment Collectors - Brampton Complete Streets Guide)



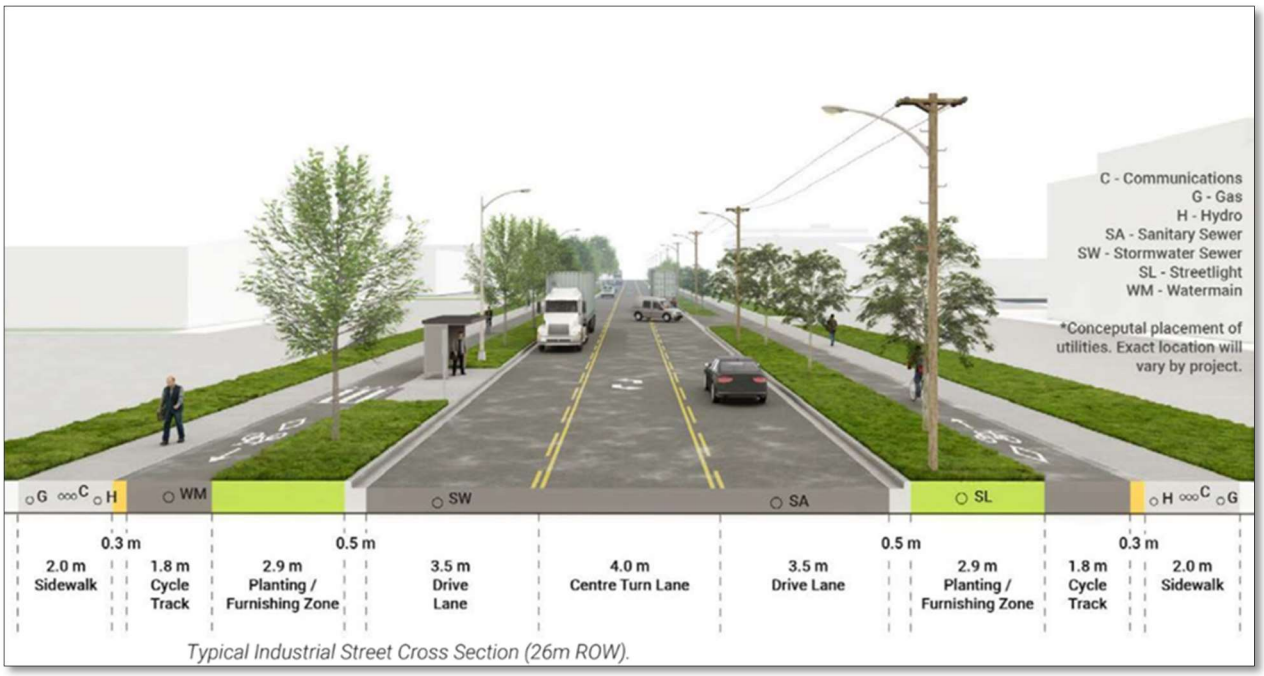
(Connector Street – Hamilton Complete Streets Design Guideline)

5.2.3 Urban Local Street

5.2.3.1 Industrial/ Commercial Street



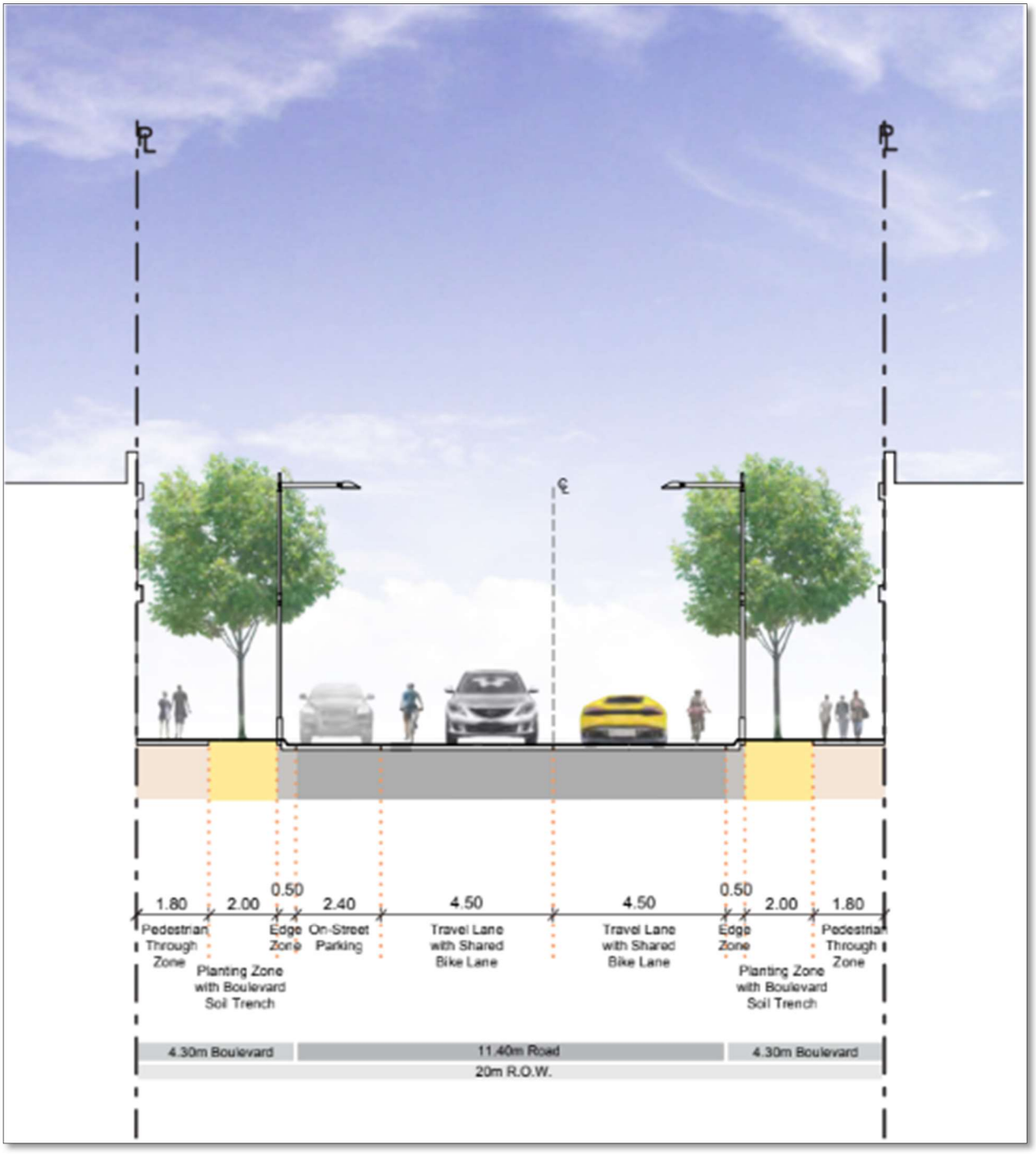
(Local Employment Streets - Brampton Complete Streets Guide)



Typical Industrial Street Cross Section (26m ROW).

(Industrial Connector – Hamilton Complete Streets Design Guideline)

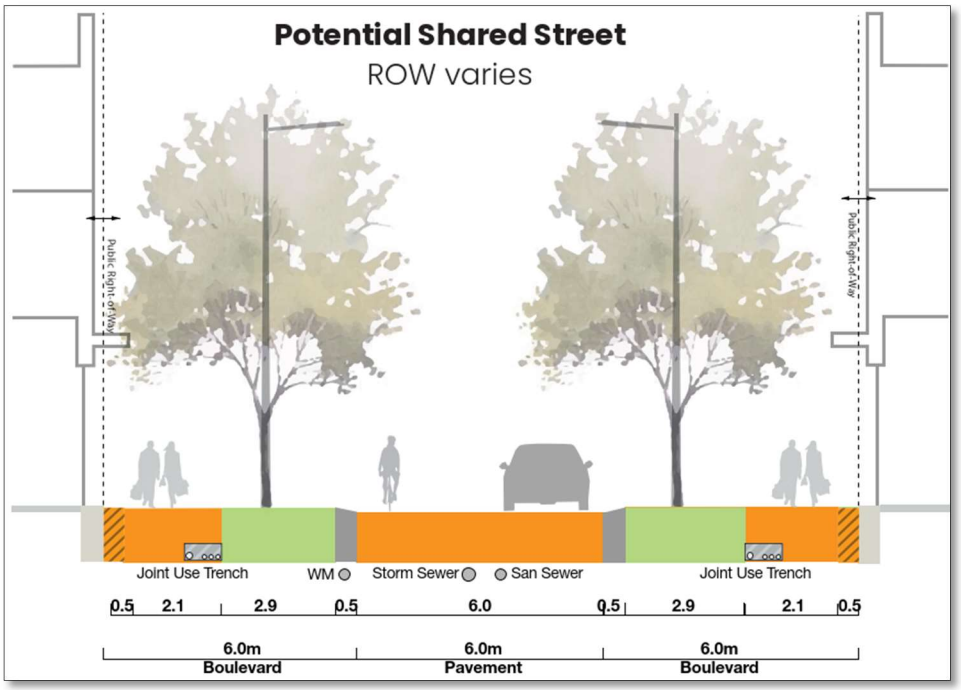
5.2.3.2 Neighbourhood Street/ Local Street



(Hamlet - Niagara Region TMP Complete Streets Design Guideline)

(Neighbourhood Street – City of Hamilton Complete Streets Design Guidelines)

5.2.3.3 Shared Street



(Shared Street – Brampton Complete Streets Guide)