6

PILLAR TWO

SUPPORT TRANSIT & INNOVATIVE MOBILITY SOLUTIONS

6 Pillar Two
Support Transit & Innovative Mobility Solutions

The second study pillar is the promotion of transit and innovative mobility solutions to move more people through the transportation system efficiently. Transit-oriented development and support of transit investment in key areas is emphasized in planning and policy documents including provincial plans such as the Regional Transportation Plan (The Big Move) and the Growth Plan for the Greater Golden Horseshoe, municipal plans such as the City of Toronto Official Plan and City of Toronto Complete Streets Guidelines (CSG), and local policies such as the Scarborough Centre Secondary Plan and McCowan Precinct plan.

The benefits of transit are described in this chapter, along with details on the existing and proposed transit network and supporting strategies. This chapter includes mobility options such as local buses, subways, rapid transit (RT), autonomous vehicles, and other "smart" technologies that improve network efficiency.

6.1 Benefits

Social Equity

The regional transportation plan, the Big Move, envisions that 80% of residents will live within two kilometres of rapid transit, citing that access to frequent, fast, and affordable transit is crucial for social equity and cohesion. Transit provides access to society and the economy, particularly for those with low incomes who cannot afford to own and maintain a personal vehicle, as well as individuals unable to operate a vehicle, including the youth or elderly. Transit service helps integrate individuals into communities and regions to allow overall participation in employment opportunities and other activities. The Official Plan envisions Toronto as a City with an affordable and comprehensive transit system that facilitates efficient travel. While active modes of transportation are reasonable for some, transit provides connections beyond the Centre, to the broader city and region.

Supporting Growth

The Growth Plan for the Greater Golden Horseshoe provides a framework for transportation planning and investment for the region, and recognizes public transit as the number one priority. Policies are framed around investing in transit in strategic growth areas that are expected to have higher densities and generate a strong ridership base. It is important that transit services expand into areas that will achieve

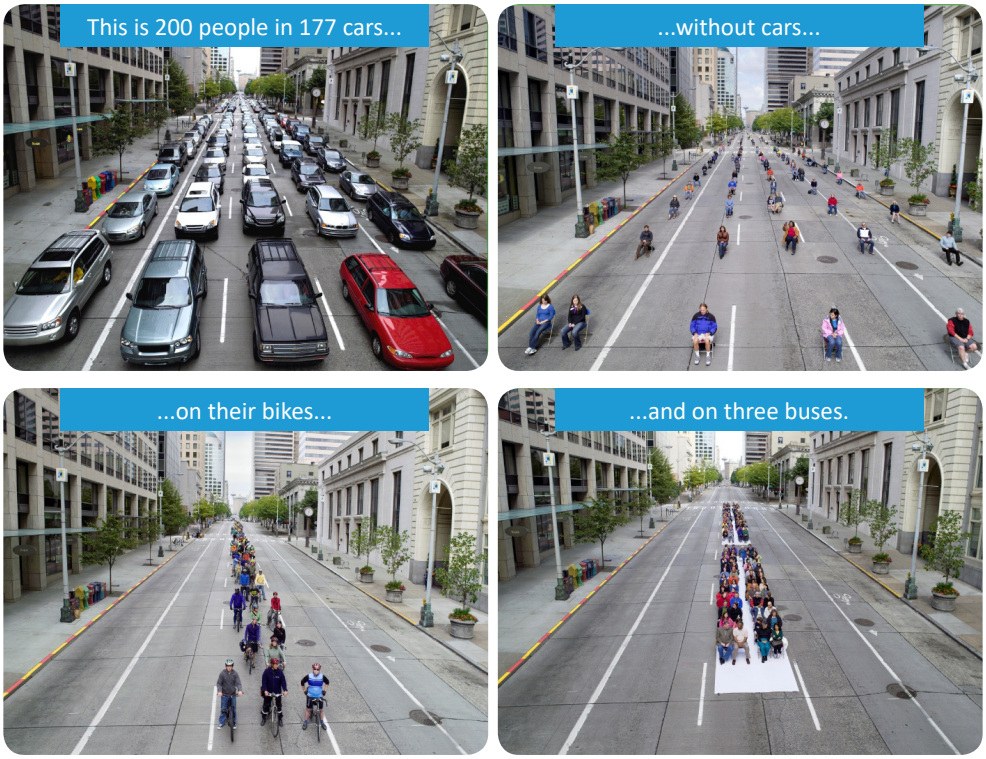
(or have already achieved) transit-supportive densities that offer a mix of residential, office, institutional, and commercial land uses. Intensification will lead to an increase in accessible services, walkability and liveability.

Transit investment and integrated networks for all modes attract both population and economic growth into surrounding areas. Investment into transit infrastructure improves the regional economy by connecting workers to jobs, providing businesses with access to greater markets and creating connections between suppliers and purchasers. The construction of transit infrastructure also supports jobs in construction, supply chain, and service industries. The Official Plan describes Scarborough Centre as a focal point for such development, with plans to improve its regional gateway function. The mix of employment, housing, retail, services, and natural environment features all make this an attractive area for future growth and investment.

Choice

The City of Toronto CSG provide design guidelines for making public transit a more convenient, faster, and reliable mode of transportation, in turn making transit an attractive mobility choice. Supporting transit has numerous benefits as transit vehicles consume much less road space than a car and can move greater numbers of people to their destinations efficiently. The amount of space occupied by a single personal vehicle would be able to accommodate a group of people traveling in a transit vehicle or by walking or cycling, as shown in Figure 6.1.

Figure 6.1: Carrying capacity by vehicle type



6.2 Existing Conditions

6.2.1 Multi-Modal Assessment: Transit

Scarborough Centre is a major transportation hub, with strong transit services via rapid transit (Line 3 – Scarborough) and local and regional bus routes. This includes 14 TTC bus routes (regular and express routes), 4 GO-Transit Buses, regional transit services (Greyhound, Coach Canada and Megabus). The transit analysis focuses on TTC surface bus routes within the study area, examining departure and arrival demand and utilization, the presence of stops with a shelter and/or bench. Analysis for Line 3 – Scarborough was not conducted due to the anticipated Line 2 - Scarborough Subway Extension.

Today, Scarborough Centre is served by Line 3 (SRT) with two stations: Scarborough Centre Station and McCowan Station. Line 3 has operated at capacity during peak travel periods for the majority of its 30 years and the vehicle fleet is approaching the end of its design life. In the mid-2000s the line carried between 4,200 and 4,300 riders per hour, peak direction in the busiest hour in the morning rush. the existing Line 3 is that the vehicles are over 30 years old and in need of replacement. However, no manufacturers currently produce a vehicle which could be operated on the existing line. A newer model is available but it is too large for the existing facilities and would require physical changes to the infrastructure. In 2013, City Council provided its support for the replacement of the Line 3 - Scarborough with the Scarborough Subway Extension.

Scarborough Centre Station is a major terminus for bus routes serving the area. The Scarborough Centre Station includes a 19-bay bus terminal that serves TTC, GO Transit and other regional bus operators. TTC bus routes that use this terminal on a regularly scheduled basis ant the associated ridership are provided in Table 6.1.

Table 6.1: Typical Weekday* Ridership at Scarborough Centre Station

Bus Route	To Station	From Station
9 Bellamy	900	800
16 McCowan	2,100	2,000
21 Brimley	2,400	2,200
38 Highland Creek	3,300	3,700
43 Kennedy	600	600
129 McCown North	4,700	3,600
130 Middlefield	700	900
131 Nugget	1,500	1,600
132 Milner	1,200	1,000
133 Neilson	2,700	2,400
134 Progress	4,000	4,000
169 Huntingwood	100	200
190 Scarborough Centre Rocket	2,400	2,800
199 Finch Rocket	2,800	2,900
Total	29,400	28,700

* December 30, 2016

The transit vehicle utilization percentage has been separated for before the transit stop (arrival demand) and after the transit stop (departure demand). It should be noted that bus services provided by the TTC fluctuate based on observed demand. The existing TTC transit capacity analysis is summarized in Table 6.2 and Table 6.3.

Table 6.2: Highest TTC bus utilization within Scarborough Centre during the AM peak hour

Route	Direction	Location	Capacity *	Departure Demand	Departure Utilization **	Arrival Demand	Arrival Utilization **
AM Peak Hour							
134 Progress	NB	Scarborough Centre Station	742	593	80%	0	0%
129 McCowan North	SB	Triton Road at McCowan Road	636	469	74%	469	74%
133 Neilson	SB	Ellesmere Road at Bellamy Road North	371	270	73%	266	72%
131 Nugget	WB	Triton Road at McCowan Road	477	319	67%	318	67%
95 York Mills	WB	Ellesmere Road at Brimley Road	848	523	62%	477	56%
130 Middlefield	SB	McCowan Road at Triton Road	265	160	60%	161	61%
38 Highland Creek	WB	Ellesmere Road at McCowan Road	424	254	60%	231	54%
21 Brimley	SB	Brimley Road at Progress Avenue	530	290	55%	290	55%
9 Bellamy	NB	88 Corporate Drive	212	95	45%	81	38%
16 McCowan	NB	McCowan Road at Ellesmere Road	477	209	44%	214	45%
190 Scarborough Centre Rocket	WB	Scarborough Centre Station	636	224	35%	14	2%
43 Kennedy	NB	Progress Avenue at Midland Avenue	265	54	20%	51	19%
199 Finch Rocket	WB	Scarborough Centre Station	1219	167	14%	14	2%
169 Huntingwood	EB	McCowan Road at Triton Road	159	17	11%	16	10%

*Assume capacity of buses is 53 persons (Orion VII)

**Departure and arrival utilization is based on observed conditions at the time of survey.

Table 6.3: Highest TTC bus stop utilization within Scarborough Centre during the PM peak hour

Route	Direction	Location	Capacity *	Departure Demand	Departure Utilization **	Arrival Demand	Arrival Utilization **
PM Peak Hour							
133 Neilson	NB	Ellesmere Road at McCowan Road	477	418	88%	405	85%
129 McCowan North	NB	McCowan Road at Progress Avenue	795	683	86%	675	85%
21 Brimley	NB	Brimley Road at Progress Avenue	371	301	81%	292	79%
131 Nugget	EB	McCowan Road at Progress Avenue	424	329	78%	329	78%
38 Highland Creek	WB	Ellesmere Rd at Dolly Varden Boulevard	583	452	78%	441	76%
134 Progress	SB	100 Consilium Place	636	460	72%	437	69%
95 York Mills	EB	Ellesmere Road at Birkdale Road	265	190	72%	188	71%
16 McCowan	SB	McCowan Road at Ellesmere Road	530	322	61%	276	52%
9 Bellamy	SB	Bellamy Road North at Ellesmere Road	212	126	59%	111	52%
130 Middlefield	NB	McCowan Road at Progress Avenue	265	133	50%	131	49%
43 Kennedy	SB	Progress Avenue at Cosentino Drive	212	93	44%	90	42%
190 Scarborough Centre Rocket	WB	Scarborough Centre Station	795	318	40%	15	2%
199 Finch Rocket	WB	Scarborough Centre Station	795	199	25%	15	2%
169 Huntingwood	EB	McCowan Road at Triton Road	159	17	11%	18	11%

*Assume capacity of buses is 53 persons (Orion VII)

**Departure and arrival utilization is based on observed conditions at the time of survey.

The 134 Progress Avenue TTC bus route is observed to have the highest utilization within the Centre (peak utilization of 80%) during the AM peak hour. To enter/exit the terminal station, this bus route conducts a complex loop around Grangeway Avenue, Bushby Drive, McCowan Road and then Consilium Place. Approximately 600 people board/alight the 134 Progress Avenue TTC bus route at the Scarborough Centre Station during the morning peak hour. Furthermore, it was observed that the busiest bus stop/station in the study area, after Scarborough Centre Station, is the bus shelter at the intersection of Corporate Drive and Lee Centre Drive, as 136 people utilize the route during the AM peak hour in the southbound direction.

During the PM peak hour, TTC route 129 McCowan North has the highest ridership with 683 people utilizing the bus route, resulting in a peak utilization of 86%. It should be noted that 97% of users of TTC bus route 129 (McCowan North) board from Scarborough Centre Station. TTC route 133 (Neilson) is the second busiest bus route, with 500 people, and a peak utilization of 88%.

The existing transit network is shown in Figure 6.2, photo locations are shown in Figure 6.3, and images of existing transit experience are shown in Figure 6.4.

Figure 6.2: Existing Transit Routes and Stops in the SCTMP Study Area

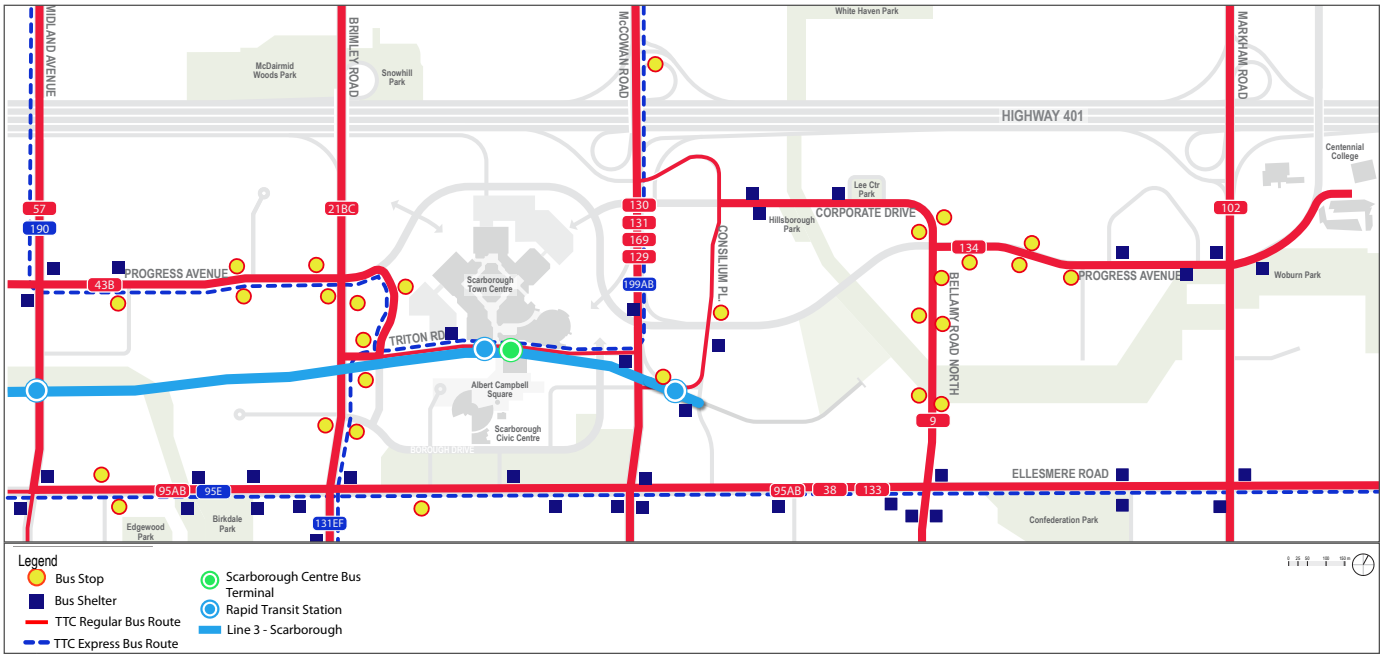


Figure 6.3: Existing Transit Conditions Photo Locations

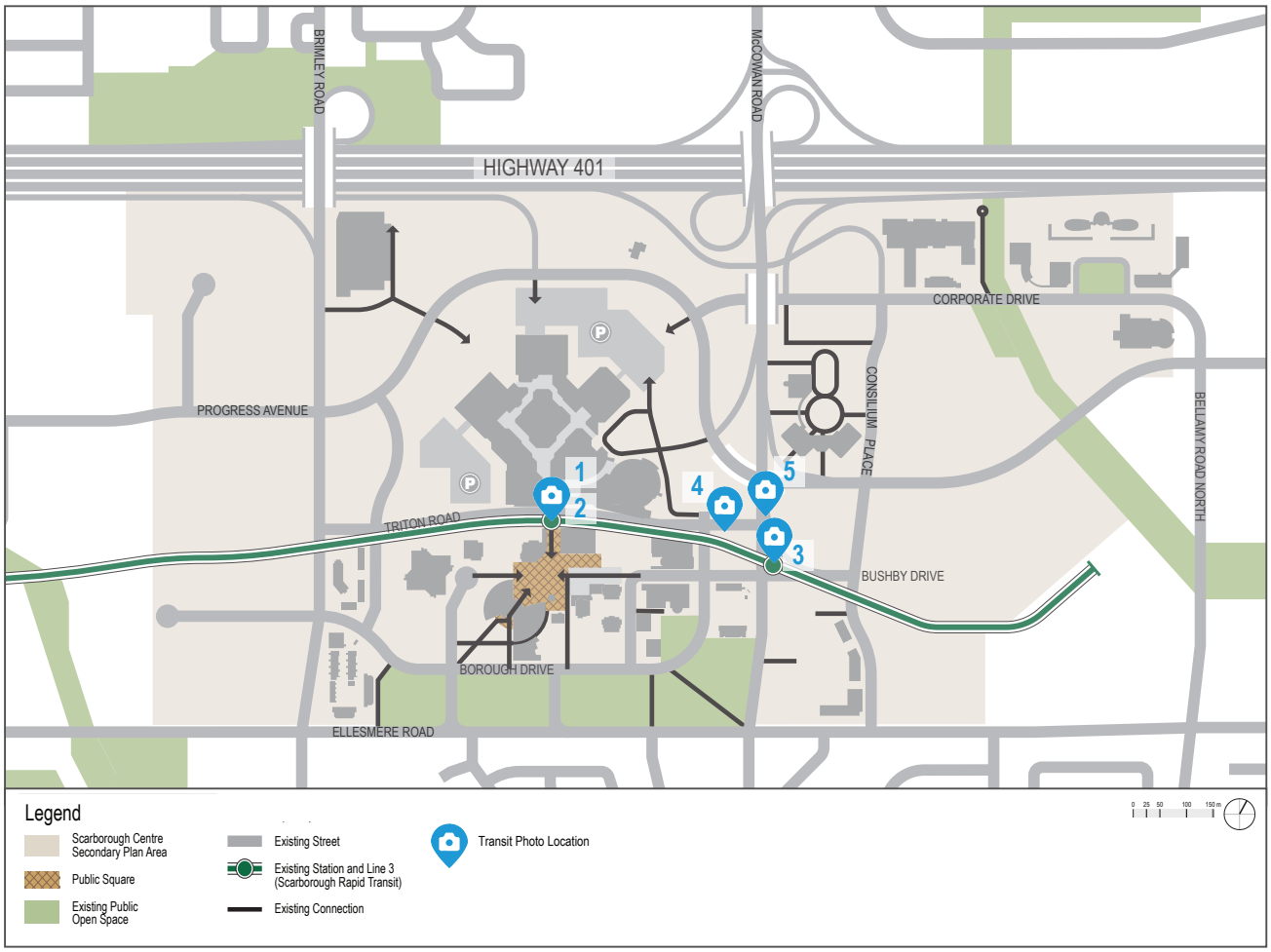


Figure 6.4: Existing Transit Conditions Photos

Scarborough Centre Rapid Transit Station

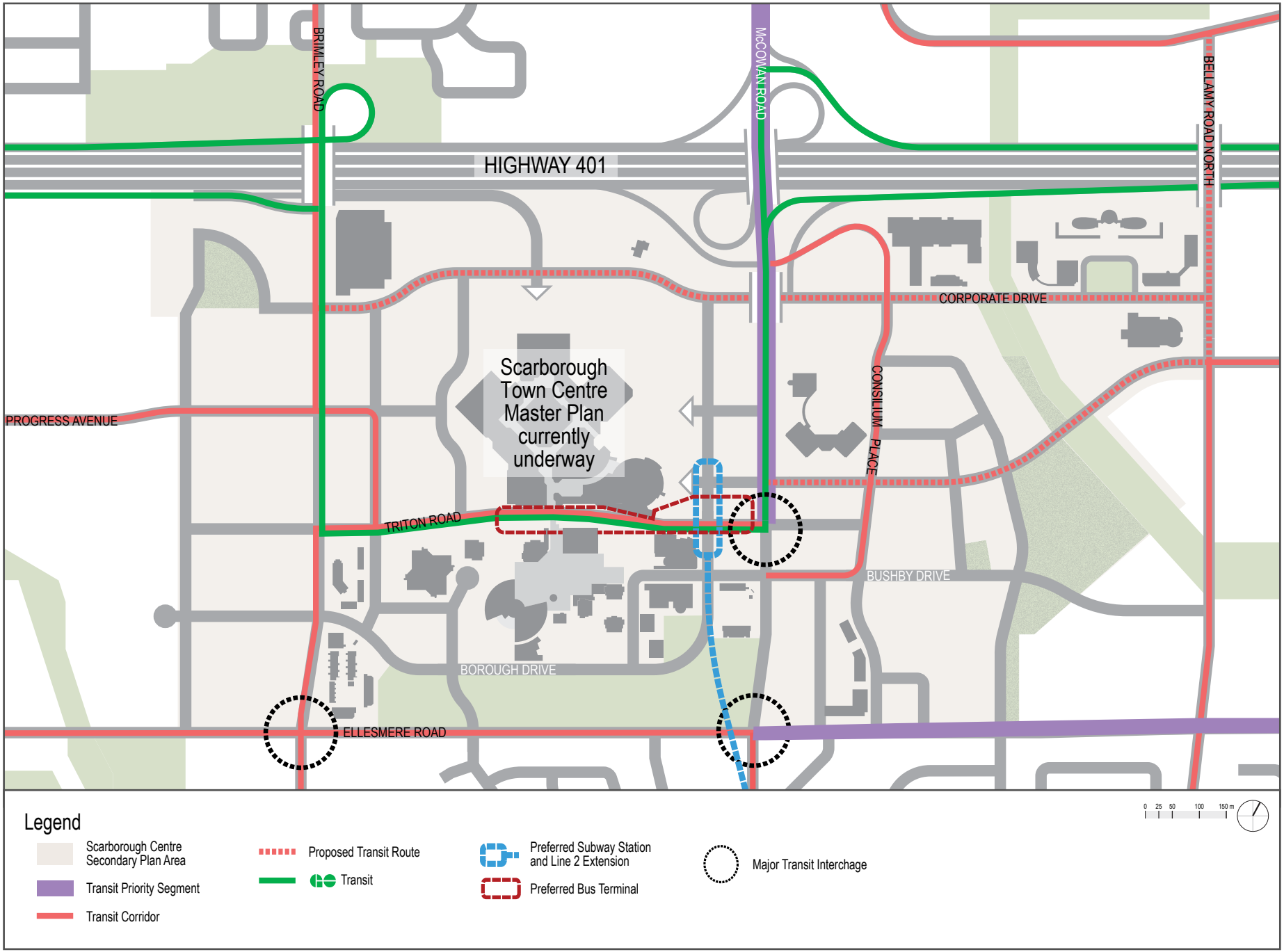
Scarborough GO Transit and Intercity Bus Terminal Entrance

McCowan Rapid Transit Station

Bus Stop on Triton Road

Local TTC Bus

Figure 6.5: Preferred Transit Network



6.3 Preferred Transit Network

To support growth in the Centre, the ageing infrastructure of the existing TTC Line 3 – Scarborough will be replaced by an extension of Line 2 to Scarborough Centre. Additional proposed transit improvements include Durham-Scarborough Bus Rapid Transit (BRT), McCowan Rapid Transit, and a new Scarborough Centre bus terminal. The recommended transit network is shown in Figure 6.5.

The preferred transit network contains the following proposed changes:

- Durham-Scarborough BRT along Ellesmere Road
- Line 2 – Scarborough Subway Extension
- Future McCowan Rapid Transit
- Regional transit connections (GO, Greyhound, Coach Canada and Megabus) via new Scarborough Centre bus terminal
- Transit Priority Segments
- Transit Corridors
- Major Transit Stations

Transit priority segments are identified in the Official Plan as corridors where priority measures are implemented to increase the efficiency of the transit network, including reserved or dedicated transit lanes, transit signal priority, or limiting on-street parking. The SCTMP recommends protecting for high-order surface transit along Ellesmere Road (Durham-Scarborough BRT) and McCowan Road (McCowan Rapid Transit). Major transit interchanges are shown in areas where high bus stop utilization has been observed and/or at the intersection of transit corridors. Active transportation amenities, such as wide sidewalks, bicycle parking, and benches should be considered in these locations during detailed design in order to promote walking and cycling to transit and help overcome the first-mile/last-mile problem.

The local surface transit routes have been developed based on the TTC's indicative bus route plan for the extension of Line 2 to Scarborough Centre Station and the decommissioning of Line 3. The key principles of the network plan are as follows:

- Similar to existing routing connecting to Scarborough Centre
- Enables new routes not currently accommodated due to capacity constraints at the Scarborough Centre Bus Terminal and new crossings of Highway 401
- Ensures transit service nearby major destinations
- Ensures seamless connections between all forms of transit (surface routes and rapid transit)
- Minimizes transit user travel time
- Ensures a coverage of at least 90% of the population and employment within 400m of a transit route

6.4 Supporting Strategies

6.4.1 Transit Signal Priority

Transit signal priorities (TSPs) are operational improvements used to improve transit travel time by lengthening the duration of a green signal or shortening the length of a red signal for transit vehicles. Transit signal priority offers a way to increase the efficiency of transit operations and subsequently attract more riders to the system.

6.4.2 MicroTransit

Microtransit is a small-scale transit system that can be requested via a mobile app to transport individuals between locations of high demand. This demand-responsive transit system is proposed to operate within Scarborough Centre to promote shared mobility while helping people overcome distances that may be too long for walking. Particularly around the Town Centre Commercial Precinct, this would allow individuals to engage in retail activities without having to carry goods (i.e. shopping bags) long distances while walking or cycling.

The recommended transportation infrastructure lends itself to a demand-responsive transit system; however, further study (i.e. a business case) is required to determine the design and operator. The existing Kevric shuttle service in Scarborough Centre reveals a demand for a local transit service.

6.4.3 Autonomous Vehicles and Smart Technologies

Further to traditional modes of transportation, technological advancements warrant consideration of a range of future “smart” travel options. “Smart roads” have the potential to reduce traffic congestion and improve safety through wireless communications between vehicles and their physical environment, including vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) interaction. Sensors and wireless communication will enable vehicles to respond to changes in the environment.

Depending on the timeline, the emergence of autonomous vehicles (AVs) may require upgrades to the transportation network to enable self-driving vehicles. Public acceptance and road safety issues are a few of the challenges that must be overcome before this can happen; however, AVs have the potential to impact the future transportation landscape in many ways. Car ownership, site layouts, parking demand and supply, vehicle efficiency (e.g. for transit, cars, trucks, etc.), and safety are all areas that require future assessment to determine the potential positive and negative impacts.