4 Existing Conditions

Introduction

4.1 This chapter of the ESR presents the Existing Conditions of the EA Study Area. It provides an overview of the historical and current context of the Study Area and provides a detailed overview of the existing transportation infrastructure, traffic conditions, socio-economic environment and land uses, cultural environment, natural environment, and utilities and other infrastructure conditions. These conditions are the foundation and baseline against which alternative options have been assessed as part of this EA Study.

Overview of the Study Area

4.2 The yongeTOmorrow Study Area (Study Area) consists of a series of distinct neighbourhoods located in downtown Toronto and connected through an evolved commercial main street that itself functions as an increasingly mixed-use north-south spine within the City of Toronto. Yonge Street serves major institutions and destinations such as Ryerson University, Eaton Centre and Yonge-Dundas Square, provides a major transportation corridor for the TTC Line 1 Yonge– University subway, and functions as a site of civic gatherings, political demonstrations, and public celebrations.



Figure 4-1: Yonge Street looking north from Yonge-Dundas Square

Source: yongeTOmorrow Socio-Economic and Land Use Report, TPP, 2018

4.3 Yonge Street has a 20-metre right-of-way for most of its length through the Study Area and currently provides two-way traffic in a north-south direction. The right-of-way width of the street is narrow when compared with parallel corridors such as Bay Street and University Avenue, which have 27 metre and 45 metre rights-of-way, respectively. Within this limited right-of-way, the current allocation of space does not reflect the existing usage of the road.

- 4.4 The corridor sees a very high volume of pedestrian traffic, particularly between Dundas Street and Gerrard Street, due to the density of the area and the wide variety of land uses, including residential high-rise condos, offices, retail and leisure, public space at Yonge-Dundas Square, and one of the City's main universities, Ryerson University.
- 4.5 The Study Area spans Toronto's downtown and is reflective of the City's social and cultural evolution. In recent years, Yonge Street has undergone significant intensification, with the streetscape changing in form and density. The built form within the Study Area contains an array of built heritage resources and reflects a range of building periods including early and mid-nineteenth-century vernacular architecture to present day contemporary residential and commercial development.
- 4.6 In recent years, the Study Area has been experiencing a boom with development and activity during all hours of the day and all days of the week, notwithstanding the impacts of the global COVID-19 pandemic. As a result of this growth, there are more people using the street and street users' needs and priorities are shifting.
- 4.7 Yonge Street's history is rooted in its role as a major transportation route, from its early years as a "bush road" to the establishment of the City's first bus and streetcar routes. This was further reinforced by the continued public investment that led to the construction of Toronto's first subway line, completed in 1954 to Eglinton Avenue and then later extended to Finch Avenue, and which runs the length of the Study Area.
- 4.8 Currently, between 50-75% of people using the street are pedestrians while less than 25% of the right-of-way space is dedicated to pedestrian movement. With the population and employment within the downtown expected to nearly double by 2041, the existing infrastructure will be critically deficient and may risk pedestrian safety without change.
- 4.9 The inventory of the existing conditions natural, environmental, and socio-economic of the Study Area was completed in accordance with the EA development process. It has been developed based on reviews of secondary source information, extensive consultation with stakeholders, site investigations and traffic surveys. Existing conditions data collection and analysis were undertaken within the Study Area and Focus Area, as outlined in Chapter 0.
- 4.10 The following sections of this chapter describe the existing conditions for the area in terms of its Historical Context, Existing Transportation Infrastructure, Socio-economic Environment, Cultural Environment, and Natural Environment. Copies of all technical reports are included as Appendices to this ESR.

Historical Context

- 4.11 Yonge Street's history is rooted in its role as a major transportation route, from its early years to the establishment of the City's first bus and streetcar routes and on to the construction of Toronto's first subway line, completed in 1954 to Eglinton Avenue and later extended to Finch Avenue, which runs the length of the Study Area.
- 4.12 Public investment in transportation infrastructure provided a constant flow of people through Yonge Street establishing it as Toronto's commercial main street, solidified in the early twentieth century following significant population growth and a construction boom. This period saw the development of the mixed-use and commercial buildings that housed the services, amenities, and employment opportunities supporting daily life in neighbouring residential areas.

Figure 4-2: Looking north on Yonge Street from near Queen Street on January 12, 1929



Source: Toronto Archives, S0071, Item 6569

- 4.13 The design and operation of Yonge Street has remained unchanged since the early 1900s, comprising a 20-metre right-of-way with 4 lanes of vehicular traffic (2 southbound and 2 northbound). Sidewalks are provided on both sides of Yonge Street for its majority, which are approximately 3.7 metres in width and feature a mixture of public realm elements (poles, transit stops, subway entrances, waste receptacles, etc.) and clear width for pedestrian movements. In general, buildings are built to the property line with no building setbacks.
- 4.14 Although historically recognized as a commercial thoroughfare within Toronto, the Yonge Street corridor has also been a significant mixed-use area since the early 1900s, with office, retail, residential and institutional uses. Ryerson University's growth and evolution over time has also shaped the Yonge Street corridor, with its role as an academic institution with over 45,000

students being a significant driver of activity in the area. The past two decades have also seen a rise in residential intensification on Yonge Street with new condominium towers integrated with the existing commercial landscape and reflecting evolving neighbourhood uses.



Figure 4-3: Timeline of development of Yonge Street, early 1800s to present day

4.15 Yonge Street has a long history as a civic and cultural stage, evident through the numerous parades, demonstrations, and spontaneous celebrations and gatherings that have taken place along the street. The street has functioned as a civic artery and host to the many social and cultural shifts that have taken place throughout Toronto's history. Today, Yonge Street continues to play a preeminent role as an iconic symbol synonymous with the City of Toronto.

Existing Transportation Infrastructure

Road Network

- 4.16 There are four major arterial roads in the north-south direction and eight major arterial roads in the east-west direction in the Study Area, as shown in Figure 4-4. Due to the road network's grid pattern and short block distances, the Study Area is highly connected by road. Major intersections are spaced at 200m to 350m increments facilitating circulation through the area. However, connectivity is hampered for vehicles by regular turning restrictions, particularly during peak hours in which left turns are frequently restricted to support the movement of traffic.
- 4.17 At a number of the Study Area's intersections with high pedestrian flows, turns are also restricted to remove conflicts between turning vehicles and crossing pedestrians. There are also several one-way streets, mainly along residential roads.



Figure 4-4: Study Area Road Network Classification

4.18 Yonge Street is at the centre of the Study Area and, within this Study Area, has a consistent 20m right-of-way width for the majority of its length, with larger widths (approximately 25m) between College Street and Gerrard Street and just south of Dundas Street. This is narrower than adjacent roads such as Jarvis Street (23m), Bay Street (27m) and University Avenue (45m). Right-of-way widths for major streets in the Study Area are provided in Figure 4-5.



Figure 4-5: Existing Right-of-Way Widths in Study Area

Existing Travel Patterns

4.19 Trips to and from the Study Area are primarily local in nature. Most trips originate from the Toronto and East York District of the city, and only 20% of trips per day originate beyond the bounds of the City of Toronto. The area is home to a much higher level of employment (nearly

225,000 people in the Study Area and up to 600,000 in the wider downtown core) than its actual resident population (nearly 55,000 people in the Study Area and up to 260,000 in the wider downtown core). On this basis, typically the population within the Study Area can be observed to "swell" each morning and "contract" each afternoon as people commute to and from work.

- 4.20 Analysis of transportation patterns using the Ministry of Transportation's Transportation
 Tomorrow Survey (TTS 2016) shows that 51% of all inbound trips to the Study Area occur during the morning peak period (6 a.m. 9 a.m.), whereas 54% of all outbound trips are in the afternoon peak period (4 p.m. 7 p.m.), reflecting the extremely high volume of people who commute into the city for employment purposes and the location of the Study Area within the city.
- 4.21 Trips to and from the Study Area from within the City of Toronto are largely made by public transport (TTC) (49%), by car (18%) or on foot (24%), whereas trips to and from the Study Area from outside the City of Toronto are largely made by GO Rail (41%), by car (37%) or by the TTC (21%), reflecting GO Rail's important role in longer-distance commuting in the Greater Toronto & Hamilton Area (GTHA) and the proximity of the Study Area to Toronto's Union Station, which is 1km from Queen / Yonge St at the southern edge of the Focus Area. In recent years, walking and cycling have become increasingly more popular modes of transportation in the Study Area, especially for short distance local trips.
- 4.22 Figure 4-6 shows the mode split at each intersection within the Study Area as per City of Toronto 8-Hour Traffic Counts data. These data show the volumes at major intersections along Yonge Street within the Focus Area. The size of each circle in Figure 4-6 corresponds to the total volumes of cars, trucks, buses and streetcars, cyclists and pedestrians passing the intersection over the 8hour period. Throughout the Study Area, pedestrians make up a significant portion of total traffic, and this is particularly true on Yonge Street.



Figure 4-6: Study Area Mode Split by Intersection

Source: City of Toronto, 8-Hour Traffic Counts

4.23 Table 4-1 identifies the mode split at key intersections of the Yonge Street Focus Area.

yongeTOmorrow Environmental Study Report

Street	Car	Truck	Bus/ Streetcar Cyclist		Pedestrian	Total
College St	12,939 (28%)	455 (1%)	44 (0.1%)	1,209 (3%)	32,030 (69%)	46,677
Gerrard St	11,901 (31%)	558 (1%)	100 (0.3%)	1,790 (5%)	24,440 (63%)	38,789
Dundas St	12,489 (21%)	330 (1%)	64 (0.1%)	1,125 (2%)	44,974 (76%)	58,982
Shuter St	9,181 (36%)	310 (1%)	34 (0.1%)	278 (1%)	15,491 (61%)	25,294
Queen St	12,816 (25%)	384 (1%)	392 (1%)	1,171 (2%)	37,336 (72%)	52,099

Table 4-1: Yonge Street Mode Split at Key Intersections

Source: City of Toronto, 8-Hour Traffic Counts

Existing Traffic Operations

- 4.24 Existing traffic operations for 108 signalized intersections within the Study Area have been analysed for both a.m. and p.m. peak hours using Synchro Version 10.1, a macroscopic traffic analysis software that evaluates the capacity and performance of intersections in a road network, as per the City of Toronto's Synchro Guidelines. The Synchro model was constructed using signal timing plans and turning movement count data received from the City. In line with the City of Toronto's Synchro Guidelines, traffic volumes were balanced between intersections to account for temporal variability of data collection.
- 4.25 A more detailed traffic analysis has been conducted separately with Aimsun Next 10.2.4, which allows for complex microscopic simulation of all traffic movements through an area. This was used for the establishment of Future Baseline Conditions, as well as the assessment of the four proposed Alternatives relative to that Future Baseline. The Aimsun analysis provided travel time (mm:ss) on all major corridors in the Focus Area for both automotive and transit modes, as well as network level metrics such as total Vehicle Kilometres Travelled (VKT) to assess how traffic may redistribute through the wider network. It also fully captures some elements excluded from the Synchro model, such as transit signal priority and knock-on-effects.
- 4.26 Field reviews were conducted to validate the queue lengths given by the model at 17 intersections in the Focus Area. A minimum of 10 minutes was spent at each intersection during both the a.m. and p.m. peak periods, and photos were taken of each movement. A visual check of traffic movements in SimTraffic, a simple microscopic simulator that visualizes car movements inputted into a Synchro model, was also completed as a sense check to ensure that the Synchro model appropriately reflects actual conditions.
- 4.27 The following industry standard measures of effectiveness (MOE) were used in our Synchro analysis:
 - Level of Service (LOS) is based on the average control delay per vehicle for a given movement. Delay is an indicator of how long a vehicle must wait to complete a movement and is

represented by a letter between 'A' and 'F', with 'F' being the longest delay. Generally, LOS A, B, and C are considered acceptable. LOS D indicates that delays are more perceptible. LOS E and F indicate notable delays but may be acceptable in urban contexts.

- The volume to capacity (V/C) ratio is the proportion of theoretical capacity utilized at an intersection (with actual capacity in real-world conditions being lower than theoretical capacity due to non-optimal driver behaviour and the random nature of when vehicles arrive at intersections). Criteria for critical intersections and movements are based on a V/C ratio greater than 0.85 or a Level of Service E or F, as per industry standards.
- Queue length is an indication of how far traffic has backed up. Rather than a specific standard, this is contextually based on the specific intersection, amount of storage length and general volume of traffic.

Figure 4-7: Definitions of LOS Levels and Delay



- 4.28 There are certain limitations in this analysis due to the Synchro software and data available, some of which are addressed in Aimsun analysis. These include:
 - **Transit:** Synchro is not a suitable tool for analyzing transit operations as it makes no distinction between buses, streetcars and other heavy vehicles. Additionally, Synchro is unable to model transit signal priority and the effect that this has on traffic.
 - **Construction:** Due to the nature of the downtown urban environment, construction is common. Some of the counts used in this model may have been impacted by the presence of construction nearby. Some of the field reviews were impacted by construction.
 - **Data Variability:** Differences in the turning movement counts in terms of the year and month they were conducted could result in variability between intersections. Furthermore, peak hour traffic volumes per intersection were used which may also result in variability of peak hours between the various intersections. Volume balancing was done to reduce the effect of this, as per the City's Synchro Guidelines.
 - **Knock-on Effects:** Long queues at one intersection can spill over to the adjacent intersection, causing flows to back up for several cycles. Synchro does not fully capture these effects.
- 4.29 The results of the existing conditions traffic assessment in the Focus Area are provided in Table 4-2 and Table 4-3 for both the a.m. and p.m. weekday peak hours, respectively.

Table 4-2: Critical Movements (a.m.)

	Intersection	Int LOS	Int V/C	Critical Movement			
Int No.				Movement	LOS	V/C	95% Queue (m)
5	Jarvis Street & Richmond Street E	С	0.86	WBT	с	0.86	129.1
13	Jarvis Street/Ted Rogers Way & Mt Pleasant Road	F	1.16	WBL	F	1.16	285.3
				WBT	F	0.87	212.6
				NBT	F	0.95	205.0
25	Church Street & Bloor Street E	D	1.72	SBL	F	1.72	118.6
37	Yonge Street & Gerrard Street W/Gerrard Street E	С	0.92	SBR	F	0.92	46.8
41	Yonge Street & Davenport Road/Church Street	С	0.86	WBT	D	0.86	79.7
42	Yonge Street & Belmont Street/Aylmer Avenue	С	0.94	WBT	D	0.94	184.7
70	Bay Street & Bloor Street W	С	0.70	NBL	E	0.67	34.8
78	University Avenue & Adelaide Street W	С	0.97	SBL	D	0.97	136.7
79	University Avenue & Richmond Street W	В	1.07	NBL	F	1.07	26.5
86	Queens Park/Avenue Road & Bloor Street W	С	0.98	SBT	D	0.98	149.1
108	Avenue Road & Davenport Road	С	0.96	SBT	с	1.04	118.8
132	Mt Pleasant Road & Elm Avenue	С	0.92	SBT	С	0.92	181.5
166	University Avenue & Armoury Street	В	0.9	SBT	В	1.56	37.7
225	Church Street & Charles Street E	В	0.89	WBT	D	0.89	127.0
541	Davenport Road & New Street/Belmont Street	D	0.89	WBT	D	0.89	126.3
				SBL	E	0.89	97.6
896	Bay Street & Davenport Road	С	0.82	NBL	E	0.82	112.2

Movements are denoted by direction (NB = northbound, EB = eastbound, SB = southbound, WB = westbound) and turning movement (L = left turn, T = through, R = right turn); "Int" refers to Intersection.

Table 4-3: Critical Movements (p.m.)

Int	Intersection	Int LOS	Int	Critical Movement			
NO.			V/C	Movement	LOS	V/C	95% Queue (m)
9	Jarvis Street & Gerrard Street E	С	0.91	EBT	D	0.91	135.1
12	Jarvis Street & Isabella Street	В	0.84	EBL	E	0.84	86.0
13	Jarvis Street/Ted Rogers Way & Mt Pleasant Road	D	1.13	WBL	E	0.55	104.4
				WBT	E	0.31	70.4
				NBT	F	1.13	269.4
				SBT	E	0.54	48.2
14	Ted Rogers Way/Jarvis Street & Bloor Street E	С	1.17	WBL	F	1.17	80.9
25	Church Street & Bloor Street E	D	1.46	SBL	F	1.46	119.9
37	Yonge Street & Gerrard Street W/Gerrard Street E	С	0.79	SBR	F	0.79	26.7
42	Yonge Street & Belmont Street/Aylmer Avenue	С	0.98	EBL	F	0.98	79.8
				WBT	D	0.9	151.4
67	Bay Street & Gerrard Street W	E	1.37	WBL	F	0.95	50.5
				WBT	F	1.37	206.5
69	Bay Street & Wellesley Street W	с	1.01	NBL	E	1.01	94.1
78	University Avenue & Adelaide Street W	С	0.79	SBL	E	0.79	65.0
79	University Avenue & Richmond Street W	С	1.61	NBL	F	1.61	69.3
84	Queen's Park Cres E & Wellesley Street W	D	1.43	EBT	F	1.43	139.0
108	Avenue Road & Davenport Road	С	0.74	SBT	С	1.23	63
483	Chestnut Street & Dundas Street W	В	0.86	NBT	D	0.86	89.6
541	Davenport Road & New Street/Belmont Street	E	1.2	NBT	F	1.06	193.7
				SBL	F	1.2	153.9
896	Bay Street & Davenport Road	E	1.2	NBL	F	1.2	253.0
913	Bay Street & Elm Street	С	1.06	EBT	F	1.06	125.3
1482	Queen's Park Cres E & Hoskin Avenue	A	0.88	EBR	С	0.88	63.5

- 4.30 These results show that existing traffic operations on Yonge Street are satisfactory, as the street caters to comparatively low levels of traffic relative to parallel corridors. All intersections along Yonge Street have an acceptable Level of Service (A, B or C) and none are over capacity in both the a.m. and p.m. peak periods. However, a few individual movements do not have adequate performance and/or are approaching capacity.
- 4.31 Within the Focus Area and wider Study Area, traffic operations are also satisfactory, though there are isolated movements and intersections which have unacceptable Level of Service D, E and F. Typically, performance degrades in the p.m. period, and is worse in the east-west direction, particularly on Gerrard Street.

Parking

4.32 On-street parking is restricted along Yonge Street at all times, with a general 'No Stopping' restriction Monday to Friday 7.30 a.m. to 9.30 a.m. and otherwise 'No Parking' outside of these times. Parking is available on certain side streets, as shown in Figure 4-8. A complete inventory of parking restrictions can be found in the Existing Transportation Conditions Report in Appendix B of this ESR.



Figure 4-8: Overview of Parking Inventory in Yonge Street Study Area

Existing Transit Network

- 4.33 The Study Area is currently served by a range of transit options, including services on the TTC subway, streetcar and bus networks that connect to the rest of the City of Toronto.
- 4.34 The Line 1 Yonge-University TTC subway line runs directly under Yonge Street, with stations roughly every 500m. At major cross streets, streetcar lines provide east-west transit access. Typically, both the subway and streetcar networks experience significant crowding and delays during peak periods. TTC Dundas Station, the busiest station in the Focus Area and second busiest in the Study Area, accommodates over 77,000 passengers each day, while College and Queen stations accommodate 47,000 and 75,000 passengers, respectively. The four major streetcar routes operating within the Study Area carry a significant number of passengers daily¹¹:
 - 504 King: 64,579 daily passengers
 - 501 Queen: 43,464 daily passengers
 - 506 Carlton: 39,601 daily passengers
 - 505 Dundas: 32,410 daily passengers
- 4.35 The high number of daily streetcar passengers can result in significant pedestrian volume build-up at streetcar stops. This can also result in crowding at subway entrances; which is particularly acute at TTC Dundas Station.
- 4.36 Major routes are operated all night as part of the City's Blue Night Network, generally at a lower frequency of service. When subway service ends on Yonge Street and Bloor Street at approximately 1.30 a.m. each night, these services are replaced by the 320 Night Bus and the 300 Night bus, respectively.
- 4.37 In addition, TTC operates the Wheel-Trans service, offering door-to-door transit for persons with physical disabilities using a fleet of accessible minibuses. Wheel-Trans operates throughout the Study Area, including high demand addresses along Yonge Street, including:
 - 423 Yonge Street, a retirement home located between College Street and Gerrard Street
 - Ryerson University, with a designated accessible stop located near the junction of O'Keefe Ln and Gould St
 - Dundas Station, which is a designated accessible station
 - 250 Yonge, located between Queen Street and Shuter Street at the entrance of the CF Toronto Eaton Centre

Existing Pedestrian Network

4.38 The pedestrian network within the Study Area is extensive, as sidewalks are present on both sides of most streets. Due to the closely spaced grid-based road layout, pedestrians have a high level of connectivity. However, pedestrian permeability is significantly reduced by crowding, particularly on Yonge Street and Queen Street as flows are restricted by the volumes experienced. Crowding on Yonge Street and adjacent cross streets during peak periods can form a barrier between the east and west for pedestrians, reducing ease of crossing.

¹¹ Based on City of Toronto Open Data at 31 December 2016

Pedestrian Demand

- 4.39 Pedestrian data gathered from TTS 2016, City of Toronto 8-Hour Counts, and the Downtown Yonge Business Improvement Area (DYBIA) counts all show considerably high levels of pedestrian demand near the Yonge and Dundas intersection (between 90,000-100,000 pedestrians per day) and in zones comprising Ryerson University and the CF Toronto Eaton Centre. The majority of walking trips within the Study Area originate from the zones in and around it and are generally less than 3km in distance.
- 4.40 Pedestrian volumes typically build throughout the morning, reaching a peak in the afternoon rush hour, and decrease through the evening. However, pedestrian volumes on Yonge Street are high throughout the day and see consistent volumes on Saturday and Sunday. Due to the central location/entertainment attractions, pedestrian volumes are high during typical off-peak times, such as on Friday and Saturday evenings.
- 4.41 Between 1996 and 2016 there has been an observed increase in alternative modes of transportation such as walking, cycling and transit usage within the downtown area while driving has decreased by 17% over the same period. This trend shift is attributed to more people choosing to live within the core and improved regional transit service, walking and cycling within the Study Area. A complete pedestrian analysis can be found in the Existing Transportation Conditions Report in Appendix B of this ESR.

Cycling Network

- 4.42 The cycling environment within the Study Area and along Yonge Street is poor. The immediate area lacks a north-south dedicated cycling corridor (i.e. a corridor comprised of more than just sharrows for cycling), though there are several east-west options, including dedicated cycle routes on Richmond Street and Adelaide Street, Shuter Street and parts of College Street and Gerrard Street. There are segments of Bay Street with dedicated facilities, but they have large gaps that reduce their effectiveness.
- 4.43 Due to the general lack of cycling infrastructure within the Study Area and general narrow rightof-way (ROW) widths, the cycling environment is largely poor except along designated cycle routes where riders are separated from vehicular traffic. Cycling traffic is not separated from vehicular traffic except on key corridors, including Yonge Street.
- 4.44 Large cycling volumes within the Study Area largely correspond with the presence of cycle lanes. Eight-hour cyclist counts at signalized intersections are provided in Figure 4-9.



Figure 4-9: 8-Hour Cyclist Counts at Signalized Intersections

4.45 Cycle parking is relatively common along Yonge Street. As assessment of the existing conditions for cycling identified 575 bicycle parking furniture rings or posts in the Focus Area and 2,813 in the Study Area. Yonge Street has only 25, compared to 142 on Bay Street.

Goods Movement

4.46 The presence of various large shopping malls, food retail, and restaurants on Yonge Street means that frequent access for delivery trucks is required. Most businesses on Yonge Street currently

have alternative access available (such as via laneways and side streets), in addition to their access from Yonge Street which itself does not allow curbside stopping (during peak periods) or parking (at any time). There are also several loading bays for larger sites such as CF Toronto Eaton Centre which provide access to trucks.

- 4.47 Based on site investigations, almost all properties with a frontage on Yonge Street have access to either off-street loading facilities, or also have an access onto a rear laneway or a cross street. The exceptions to this are:
 - McDonald's restaurant at 356 Yonge St (on the western side between Walton Street and Elm Street)
 - Yonge-Dundas Square (as the Yonge Street frontage provides the only level access for deliveries)
 - HomeSense store at 195 Yonge Street (on the eastern side between Shuter Street and Queen Street)

Goods Movement Demand

- 4.48 In the Study Area, Bay Street sees significantly higher volumes of truck traffic than Yonge Street particularly between College Street and Dundas Street. Nathan Phillips Square and CF Toronto Eaton Centre loading docks are both located here.
- 4.49 Data obtained from StreetLight Data were used to examine flows between zones within the Focus Area for commercial vehicle movements. Results show truck traffic building through the morning and peaking between 9 a.m. and 10 a.m., but this remains relatively constant for the bulk of the day, then drops in the afternoon. Weekend truck traffic is lower, and peaks earlier in the morning, then remains steady for much of the day. Results also show that the Focus Area acts more as a destination or through-corridor than as a trip generator but is primarily used for through-traffic.

Special Events

- 4.50 Yonge Street is host to many special events each year, including the annual Santa Claus Parade and Canada Day celebrations. Using secondary resources and the City of Toronto's Open Data platform, a review of festivals and events was undertaken to inform the demands expected from these during special events in the Study Area. Major annual events requiring major road closures and crowds on Yonge Street include:
 - St Patrick's Day Parade
 - Pride Parade
 - Santa Clause Parade
 - Labour Day Parade
 - Open Streets Toronto
 - NXNE North by Northeast Summer Music Festival
 - Pan American Food and Music Festival
 - Sporting Life 10K
- 4.51 Yonge-Dundas Square also hosts a number of events each year which also lead to partial closures of Yonge Street for a short period of time in coordination with the City of Toronto. Further details

on Special Events on Yonge Street are provided in the Existing Transportation Conditions Report in Appendix B of this ESR.

Emergency Services

- 4.52 The Study Area contains first response areas for the following paramedic stations:
 - Station 40 at 58 Richmond St between Victoria St and Church St
 - Station 45 at 135 Davenport Rd between Avenue Rd and Bay St
- 4.53 Toronto Paramedic Services provided supporting data on emergency calls that they have responded to in or around Yonge Street from Richmond Street to College Street over a five-year period, broken down by month, outlined in Figure 4-10. Response calls have grown from 9,749 in 2014 to 12,832 in 2018.



Figure 4-10: Emergency Response Calls, 2014-2018

- 4.54 The Study Area also contains first response areas for the following fire stations:
 - Station 314 at 12 Grosvenor St to the west of Yonge Street and between College Street and Wellesley Street
 - Station 332 at 260 Adelaide St located to the west of University Avenue, south-west of the Study Area
 - Station 333 at 207 Front St E to the east of Lower Jarvis Street, south of the Study Area
- 4.55 As per the City of Toronto Curb-Radius Guidelines, fire trucks must be able to manoeuvre right turns at all intersection concerns, regardless of turning restrictions or one-way traffic flow, and must always be able to maintain a 300 mm separation from the curb at all times. Standard fire trucks are 2.54m wide, 12.8m long and have a steering angle of 37 degrees.
- 4.56 The number of responses to incidents by Fire Services in the Study Area demonstrates how busy the Study Area is for Fire Services. In 2018, Fire Services at Station 314 responded to 5,743 calls; 17,441 calls by Station 332; and 2,547 calls by Station 333.

- 4.57 Toronto Police patrol zone 524 is located within the Focus Area of this Study. Toronto Police headquarters are located at 40 College Street just west of Yonge Street. The Study Area is located within Police Divisions 51 and 52, which are served by Police Services Stations 51 and 52. However, both stations, identified below, are physically located outside of the Study Area:
 - Station 51 at 51 Parliament St near Front Street
 - Station 52 at 255 Dundas St West just west of University Avenue

Ride Hailing

- 4.58 Ride hail pick-up and drop-off data was received from the City of Toronto for a total of nine weeks on weekdays from January 2018 to September 2018. Within the study area, there is a high level of pick-up and drop-off activity concentrated around CF Toronto Eaton Centre on Yonge Street and Dundas Street and College Park on Bay Street and Gerrard Street West. On Yonge Street itself, the highest concentration of pick-ups and drop-offs occur between Dundas Street and Shuter Street.
- 4.59 Analysis of City of Toronto data shows that the number of pick-ups within the Study Area on weekdays gradually builds throughout the day, with a slight dip between 6 p.m. to 7 p.m. before peaking approximately between 8 p.m. and 9 p.m. While pick-ups tend to decline after 10 p.m. Monday-Thursday, it appears to remain steady on Fridays. This pattern suggests many of the pick-ups are discretionary trips for retail, restaurant, and entertainment purposes. According to the data, there are two distinct drop-off periods each day: approximately between 8 a.m. to 10 a.m. and 5 p.m. to 7 p.m. While taxi data was unavailable, it is worth noting that taxi activity has been observed, particularly around CF Toronto Eaton Centre and theatres. There are no taxi ranks on Yonge Street. Full details of the ride hail data analysis can be found in the Existing Transportation Conditions Report in Appendix B of this ESR.

Socio-Economic Environment

Existing Land Use

- 4.60 Yonge Street is a mixed-use, predominantly commercial main street in downtown Toronto which is home to a large variety of retail stores, restaurants, and cultural and commercial activity, including fashion, grocery, home and furniture, jewellery, electronics, sporting goods, pharmacies, convenience stores, entertainment, bookstores, and art supplies.
- 4.61 The Study Area is located within the *Downtown Urban Growth Centre*¹², which is expected to achieve a minimum density of 400 residents and jobs per hectare by 2031. The City of Toronto's Official Plan designates the majority of the Study Area as *Mixed Use Areas*, with some limited properties as *Neighbourhoods*, *Parks and Open Space Areas Parks* and *Institutional Areas*. The land current land use designations within the Study Area have been extracted from the City of Toronto's Open Data portal in 2019 and are shown in Figure 4-11.
- 4.62 The area surrounding Yonge Street is undergoing dramatic change as a result of large numbers of new mixed-use residential developments being constructed along and in close proximity to Yonge Street. The trend is continuing with numerous developments under construction or in the planning stages.
- 4.63 The character of the street is inevitably responding to net in-migration of new residents, becoming more service-oriented, while increasing retail rents are encouraging more chain and franchise type stores to locate within the Study Area. Ryerson University's expansion out to Yonge Street has attracted more students out to Yonge Street and is creating a new hub between Ryerson facilities, Dundas subway station, Yonge-Dundas Square and the Toronto CF Toronto Eaton Centre.

¹² City of Toronto Official Plan, updated 2019



Figure 4-11: Land Use Designations within the Study Area

- 4.64 According to the Downtown Yonge BIA, there is over four million square feet (370,000m²) of retail space and over 700 retail stores located in the BIA, not including the Shops at Aura (that advertises 130 shops and a food court). The Toronto CF Toronto Eaton Centre, one of the busiest shopping malls in North America, is home to more than 240 different stores and services and is the second largest shopping centre in Canada.
- 4.65 At the point of land use characterization undertaken in 2019, the BIA was home to 27 bars, pubs and lounges, 23 cafes and coffee shops, 60 restaurants, 27 fast food restaurants, and seven separate food courts. In addition, the Study Area is home to personal services, cinemas, theatres

and four separate shopping centres (College Park, the Shops at Aura, the Atrium on Bay, and the CF Toronto Eaton Centre).



Figure 4-12: Points of Interest within the yongeTOmorrow Study Area

Right-of-Way

- 4.66 The Yonge Street right-of-way varies between 20m and 29m (where it has been widened, primarily north of Gerrard Street and in front of the northern boundary of the CF Toronto Eaton Centre). The street wall formed by adjacent buildings is for the most part unbroken apart from the opening of Yonge-Dundas Square. The building facades are largely built right up to the edge of the right-of-way with no setbacks. A full Right-of-Way Inventory is found in the Existing Transportation Conditions Report in Appendix B of this ESR, containing information on:
 - Public Realm Context i.e. presence of public realm
 - Width of pedestrian clearways

- Road surface material features
- Space restrictions in the public realm
- Accessibility issues
- Seating attributes
- Street furnishings/bike racks

Population Overview

- 4.67 The 2016 Census provides a population of 64,282 people living in the census tracts covering the area from University Avenue to Jarvis Street and from Davenport Road to Front Street. The population grew by 19% between 2011 and 2016. Only 5% of the population was 0-14 years old compared to 15% for the City as a whole. However, 15-24-year-olds represented 19% of the area population, compared to 12% City-wide. The working age (25-64 years) population was 62% versus 57% across the City. Those 65 years and over comprised 11% of the area population, compared to 16% City-wide. These data show 37,310 employed persons living within the area in 2016, of which approximately 35% took transit to work, 45% walked and 4% cycled.
- 4.68 Census data identified 45,411 dwellings in the area in 2016. Of those dwellings, 94% were in apartment buildings 5-storeys or higher. 32% of dwellings were owner-occupied and 68% rented.
 61% were condominium. The composition of dwelling sizes includes 5% bachelor/studio apartments, 56% 1-bedroom, 34% 2-bedroom, 4% 3-bedroom and 0.5% 4-bedroom and more.

Income

4.69 According to the 2016 Census, the median income varied significantly amongst the 13 census tracts covering the boundaries of the Study Area, from a low of \$24,133 to a high of \$63,424, compared to the city-wide median of \$30,089. The median household income also varied significantly, from a low of \$42,807 to a high of \$110,336, compared to the city-wide median of \$65,829. Only 3 of the 13 census tracts have a low-income prevalence lower than the city-wide rate of 20.2% based on the Low-income measure, after tax (LIM-AT). The low-income rates were 37.7% for the 4 census tracts between Yonge Street and University Avenue and Bloor and Front Streets (the Bay Street Corridor) and 26% for the 7 census tracts between Yonge and Jarvis Streets and Bloor and Front Streets (the Church-Yonge Built Heritage and Cultural Landscape Features).

Developments

4.70 The area around Yonge Street is undergoing dramatic changes as a result of large numbers of new residential towers being built along and near Yonge Street. Numerous developments are under construction or in the planning stages. Figure 4-13 provides a map of development applications within the Study Area based on a review of the City of Toronto's Development Pipeline in 2019.



Figure 4-13: Identified Development Applications, 2019

Cultural Environment

Built Heritage and Landscape

4.71 The Study Area consists of a series of distinct neighbourhoods located in downtown Toronto that itself functions as an increasingly mixed-use spine within the City. The built form within the Study Area contains an array of built heritage resources and reflects a range of building periods including early and mid-nineteenth-century vernacular architecture to present day contemporary residential and commercial development. The Study Area spans Toronto's downtown and is reflective of the City's social and cultural evolution.

- 4.72 The Study Area contains various heritage buildings, including some of Toronto's most significant historic landmarks. On Yonge Street, there are 30 listed and designated heritage buildings including College Park, the former Simpson's Department Store and the Confederation Life Building as well as several banks.
- 4.73 The Study Area also includes listed and designated properties such as Holy Trinity Church, Old City Hall, the Metropolitan United Church, St. Michael's Cathedral, the Arts & Letters Club, and Maple Leaf Gardens. Further details on built heritage on Yonge Street is provided in the Cultural Heritage and Landscape Screening Assessment (CHLSA) report in Appendix C of this ESR.

Archaeology

- 4.74 A Stage 1 Archaeological Assessment has been conducted in accordance with the Ontario Heritage Act (2009) covering from a section of downtown roughly bounded by Davenport Road, Church Street, Queen Street and Bay Street covering the Study Area to evaluate, in detail, the property's archaeological potential and to support recommendations for Stage 2 survey work for all or parts of the property.
- 4.75 The Ontario Archaeological Sites Database (OASD) maintained by the Ministry of Heritage, Sport, Tourism and Culture Industries has been consulted¹³ to provide a summary of registered or known archaeological sites within a minimum one-kilometre distance from the Study Area limits. According to the OASD, a total of 38 archaeological sites are located within a one-kilometre radius of the Study Area, including 6 which are located within the Study Area – MacKenzie House, Elgin and Winter Garden Theatre Centre, John Bugg Stores, Squire, Michie-Stitt Site and The Sandhill.
- 4.76 Based on the information gathered from background research undertaken as part of the Archaeological Assessment, elevated archaeological potential has been established within the Study Area limits. This work identified the potential for the recovery of archaeologically significant materials within specific portions of the Study Area due to the documented presence of 19th century occupations and former watercourses.
- 4.77 The Study Area section between Bloor Street and Queen Streets, already subject to an extensive review of archaeological potential on a property-by-property basis in 2016¹⁴, contains a few areas with retained archaeological potential, according to the official archaeological potential map of the City of Toronto. Some areas have been determined to no longer hold potential or have had all their archaeological concerns addressed via future Stages of fieldwork and may be excluded from further work. These remaining areas of potential will be considered in the Stage 2 Archaeology Assessment and are identified in the Stage 1 Archaeological Assessment which can be found in Appendix D of this ESR.
- 4.78 In addition, no areas within the existing road rights-of-way were found to retain archaeological potential, given that deep and extensive disturbance of various infrastructure and utilities related

¹⁴ DIALOG, 2016

¹³ Per Section 1.1, Standard 1 and Section 7.5.8, Standard 1 of the 2011 Standards and Guidelines for Consultant Archaeologists

works would have caused underlying deposits, including the construction of the subterranean subway infrastructure which lies beneath the street.

Natural Environment

- 4.79 A natural heritage investigation of existing conditions on Yonge Street was carried out to review and document background information, determine the presence and significance of natural heritage features and identify opportunities to integrate natural heritage features found along the corridor into streetscape design.
- 4.80 The segment of Yonge Street from College Street to Queen Street is highly urbanized and does not support any natural heritage features. As a result, no significant adverse effects on vegetation and vegetation communities, fish and fish habitat, wildlife and wildlife habitat and designated natural areas have been identified.
- 4.81 The main findings of the natural heritage assessment can be categorized into four areas physiography and soils, aquatic habitat, terrestrial habitat and designated natural areas. The complete Natural Heritage Assessment Report and Arborist Study is provided in Appendix E and F of this ESR respectively.

Physiography and Soils

4.82 The Study Area is located within the South Slope and Lake Iroquois Sand Plain physiographic regions. The South Slope is located south of approximately Bloor Street, while the Lake Iroquois Sand Plain is located north of approximately Bloor Street. The soils in the study area are highly disturbed given the urban development that has occurred in the City of Toronto. Originally, the soils south of Dundas Street comprised older tills of silty clay to silt till; the soils between Dundas Street and Bloor Street comprised deeper water deposits of silt and clay, and the soils north of Bloor Street comprised shallow water deposits of sand and silty sand.

Terrestrial Habitat

- 4.83 The Study Area lies within the Lake Erie Lake Ontario ecoregion (Ecoregion 7E) of the Mixedwood Plains ecozone. The Study Area is heavily urbanized with the only natural heritage feature associated with Ramsden Park and the Rosedale Ravine Lands, which are both located north of College/Carlton Street.
- 4.84 A field investigation was performed along Yonge Street to provide an inventory of trees in accordance with the requirements of the City of Toronto Tree Protection Bylaw and/or the Ravine and Natural Feature Protection Bylaw, whichever applied. A total of 139 trees were identified and assessed during the tree inventory. All trees surveyed were planted as streetscape and amenity features. Overall, trees within the Study Area range in size from 4 to 40 cm diameter at breast height (DBH) and are generally considered to be in good to fair condition.

Aquatic

4.85 The Study Area is located within the Lower Don River sub-watershed, which is regulated by the Toronto and Region Conservation Authority (TRCA). One tributary of the Lower Don River, Castle Frank Brook, flows underground through a pipe along Rosedale Road, which is north of College / Carlton Street. Yellow Creek, another tributary of the Lower Don River, is located beyond the Study Area.

Designated Natural Areas

4.86 Designated natural areas include areas identified for protection by the Ministry of Natural Resources and Forestry (MNRF), the Toronto and Region Conservation Authority (TRCA) and upper and lower tier municipalities. There are no Provincially Significant Wetlands (PSWs) or Areas of Natural and Scientific Interest (ANSIs) located in the Study Area. Two Environmentally Significant Areas (ESAs), Rosedale Valley ESA and Park Drive Ravine ESA, are located beyond the Study Area.

Stormwater Management

- 4.87 The Yonge Street corridor within the Focus Area is serviced by a fully combined system, with sewers ranging in diameter from 300mm to 1200mm. The sewers are generally circular shaped, made with a variety of pipe materials including: Brick, Reinforced Concrete, and Vitrified Clay. Along the Yonge Street Corridor within the Focus Area, the sewers were mostly constructed between 1945 and 1955, while the sewers in the contributing area range from 1876 to 2007.
- 4.88 The combined sewers along Yonge Street are all local systems, with no major trunk systems running along it. The Yonge Street corridor is crossed by the 3050mm diameter Mid-Toronto Interceptor at Gerrard Street. The average depth of the combined sewers along Yonge Street is just over 4m, while the Interceptor is located approximately 25m underground.
- 4.89 A particular feature of the sewer pipes within the Study Area is that they are co-located with the 'cut and cover' reinforced concrete box for the subway, typically located between the subway box and adjacent property basements.

Ground Conditions

- 4.90 A Phase 1 Environmental Site Assessment (ESA) was completed within the Study Area. This assessment included a review of historical archival information for the site and surrounding properties, site reconnaissance, and a report on the findings of the assessment. Site reconnaissance consisted of a walk-by review of the properties from publicly accessible areas and did not include an investigation of the buildings or current operations.
- 4.91 Several potential issues of environmental concern were identified in the Study Area and were taken forward for further investigation in the Phase 2 ESA.

Air Quality

- 4.92 An air quality study has been carried out for the Study. As part of the existing conditions assessment, the following background conditions in the Study Area were assessed:
 - Identification of sensitive receptors (land uses where occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants) within the Study Area, including healthcare, long-term, childcare, and educational facilities, residential dwellings, and places of worship.
 - Summarization of the background containment concentrations for 2013 through 2017 in comparison to the applicable Ministry of the Environment, Conservation and Parks (MECP) and Canadian Ambient Air Quality Standards (CAAQS).

- 4.93 The initial assessment identified a cluster of sensitive locations to the west of Yonge Street between Dundas Street and College/Carlton Street related to low density residential and university and other educational land uses with a more dispersed pattern of sensitive locations across the remaining Study Area comprising mostly high density residential land uses.
- 4.94 The initial assessment involved the collection of 5-year trend data on air background concentrations levels between 2013-2017 which were obtained from the MECP Toronto Downtown monitoring station, which is approximately 500m from the northern extent of the Study Area and which is the closest monitoring station to the Study Area.
- 4.95 Based on this assessment, all background concentrations of pollutions assessed are below the applicable air quality criteria guidelines outlined by MECP and CAAQS, with the exception of PM₁₀¹⁵. PM₁₀ background concentrations exceeded the guideline a total of nine (9) days in the five (5) year dataset (2013-2017).

Noise and Vibration

- 4.96 As part of the existing conditions assessment, the following assessments were undertaken:
 - Identification of noise sensitive areas (NSAs) within the Study Area, including residential dwellings, townhouses, apartments with outdoor living areas, and healthcare and long-term facilities with outdoor living areas for patients.
 - Prediction of sound levels from the existing roadway network and characteristics influencing vibration levels in the Study Area.
- 4.97 The initial assessment identified very few NSAs in the vicinity of Yonge Street between Queen Street and College/Carlton Street. Yonge-Dundas Square is a notable exception and is considered an NSA due to the types of outdoor activities that are hosted there occasionally.
- 4.98 The initial assessment of noise generated by roadway traffic identified sound levels ranging from 40 dBA to 60 A-weighted decibels (dBA)¹⁶ in the Study Area¹⁷ and identified that road noise is not the dominant noise source in the Study Area, with ambient noise from other noise sources (such as mechanical and/or HVAC units in commercial buildings) expected to generate considerably higher than roadway traffic noise.
- 4.99 The initial assessment of vibration in the Study Area identified that ground-borne vibration is not usually generated by road traffic from roadways such as Yonge Street. In many areas along Yonge Street, vibration generated by subway trains running below the street can be clearly felt. Another

 $^{^{\}rm 15}$ PM_{\rm 10} describes inhalable particulate matter with diameters that are generally 10 micrometres and smaller.

¹⁶ A-weighted decibel (dbA) are used when describing sound level recommendations for healthy listening. While the dB scale is based only on sound intensity, the dBA scale is based on intensity and on how the human ear responds. Because of this, dBA provides a better understanding of when sound can damage human hearing.

¹⁷ Based on an assessment of existing sound levels from roadway traffic for the 16-hour day period between 7 a.m. AND 11 p.m.

major source of vibration is caused by the incorrect placement of water catch basins within the travelled portion of the roadway.

4.100 The assessment confirmed that the future design of roadways along Yonge Street should avoid placing any utility access covers in the wheel paths of the roadway and minimize the number of utility cuts required to mitigate vibration. In addition, the initial assessment confirmed that maintenance of smooth pavement surfaces would mitigate the potential for ground-borne vibration through any future detailed design.

Utilities and Other Services

- 4.101 The Study Area contains the typical range of city utilities and the TTC Subway Line 1 structure. An investigation was conducted to document and map the horizontal location and type of utility apparatus, using a combination of record drawings and fieldwork.
- 4.102 TTC Subway Line 1 lies underneath Yonge Street between Queen Street and College/Carlton Street, generally running as a twin track within a concrete box structure. The original construction was carried out using a 'cut and cover' technique and therefore the depth of the subway is relatively shallow, varying between 2m to 5.5m to the top of the structure.
- 4.103 Three TTC stations are located as follows:
 - Queen Station between Queen Street and Shuter Street
 - Dundas Station between Dundas Square and Edward Street
 - College Station between Granby Street and College Street.
- 4.104 A typical cross-section (Figure 4-14) through Yonge Street comprises the following utility pipes and apparatus:
 - Deep (4.5m) combined sewers either side of the subway, located underneath the sidewalks
 - A variety of electricity conduits, both underneath the roadway and the sidewalk, at depths of about 1.0m
 - Road lighting power cables
 - Traffic signal cables at intersections
 - Two medium sized watermains, generally either side of the corridor and within the roadway, but above the subway box and generally at 2.0m depth
 - A medium sized gas main, generally in the centre of the roadway and at 1.5m depth
 - Various telecommunications conduits, generally within sidewalks and at a depth of 1.0m
 - Various abandoned lines. In addition to the abandoned lines identified from City records, the ground investigation borehole work completed to date indicates that there are numerous abandoned utilities within the corridor which may not have been identified on record drawings
 - Various service manholes, chambers and valves below ground
 - Fire hydrants above ground





Conclusions

- 4.105 The following is a summary of conclusions, based on the inventory of existing conditions undertaken for this ESR:
 - The Study Area is recognized as an increasingly mixed-use north-south spine within the City of Toronto. It has undergone significant intensification and its streetscape is changing in form and density. As a result, more and more people are using the street and street users' needs and priorities are shifting.
 - In particular, the Focus Area has a long history as a civic and cultural stage, and is home to many key institutions, centres of commerce and economic activity and is a key part of the urban fabric of the city. The Focus Area is already highly urbanized and is undergoing significant growth in population and employment, with the Study Area's population expected to accommodate a minimum density of 400 residents and jobs per hectare by 2031. Its strategic location in the heart of the downtown, with high levels of connectivity and access to transit is resulting in an influx of new residents to the neighbourhood, fuelling interaction along Yonge Street and fostering a sense of community.
 - Currently, between 50-75% of people using the entire street are pedestrians while less than 25% of the right-of-way space is dedicated to pedestrian movement. With the population and employment within the downtown expected to nearly double by 2041, the existing infrastructure will be critically deficient and may risk pedestrian safety without change.
 - The cycling environment within the Study Area and along Yonge Street is poor. The immediate area lacks a north-south dedicated cycling corridor (i.e. a corridor comprised of more than just sharrows for cycling), though there are several east-west options.
 - Together, these conditions all influence the operations and success of the numerous businesses in the Study Area, the large and growing residential community, and the many tourism and recreation attractions within downtown Toronto.