7

PILLAR THREE

REDUCE SINGLE-OCCUPANCY VEHICLE USE

7 Pillar Three
Reduce Single-Occupancy Vehicle Use

The third study pillar is related to the policy objectives of reducing single-occupancy vehicles. A number of solutions are proposed in the Secondary Plan, including car-share and TDM programs to reduce auto-dependency, and consideration of parking supply reductions where appropriate. The Scarborough Centre on the Move Transportation Master Plan aims to build upon this idea to create an overall transportation network that accommodates all modes of transportation, changing the Centre's modal split.

Reducing automobile use, and subsequently reducing congestion, has environmental and economic benefits, as well as public realm advantages that can help create a sense of place in the Centre. This chapter highlights these benefits and provides an assessment of the existing traffic conditions and preferred future network. Other strategies to help shift people from automobile use to active and sustainable modes are also described in this chapter.

7.1 Benefits

Experience

In traffic engineering practice, it is recognized that it is not possible to build enough road capacity to meet increasing vehicle demand. Every time new lanes are built, a latent demand that was limited before appears to fill in the new space and create further demand. The focus for planners and engineers has now shifted away from moving vehicles and onto moving people and creating environments that provide a more enjoyable travel experience. This has clear benefits – freeing up space that was previously required for accommodating cars to be reallocated for improvements to the public realm and subsequent movement of people.

Freeing up street space for alternative modes allows greater numbers of people to move through the network more efficiently, while also allowing public realm improvements. Wide tree-lined boulevards, multi-use paths or cycling facilities, and other streetscape improvements can be accommodated through this reallocation of right-of-way space.

Affordability

In the GTHA, congestion creates an economic burden of $3.3 billion dollars on residents and the economy due to direct and indirect costs of motor vehicle crashes, vehicle operating costs, loss in productivity due to long travel times, and excess vehicle emissions. This value is expected to increase to a loss of $8 billion for GTHA residents by 2031, plus an additional $7 billion dollars lost in economic activity. The costs associated with long commutes and inefficient goods movement make the economy less productive and competitive. Improvements to the transportation system should therefore be affordable to build maintain and operate. Streets that move more people more efficiently (i.e. through Complete Streets design principles) do so at a lower cost and with improved economic and health outcomes.

7.2 Existing Conditions

In order to better understand existing automobile traffic conditions, 47 intersections were assessed within Scarborough Centre. The Highway Capacity Manual (HCM), Synchro Version 8 and InterCalc software were used to evaluate operational conditions. This assessment includes quantifying volume/capacity ratio (V/C), delay and queue lengths, peak hour factors, and percentage of heavy truck vehicles (based on existing network configuration), traffic volumes and signal timing for intersections within the study area. The outcome of this section is to identify intersections and approaches with traffic constraints. Detailed results of the automobile analysis can be found in Appendix G.

Traffic conditions were defined as good, fair or poor based on the HCM level of service indicators. Table 7.1 details the level of service (LOS) categories and corresponding criteria. The existing automobile intersection LOS is shown in Figure 7.1 and Figure 7.2 for the weekday AM and PM peak hour, respectively.

Table 7.1: Auto LOS categories and delay for unsignalized and signalized intersections (HCM)

Category	LOS	Delay in seconds (unsignalized intersection)	Delay in seconds (signalized intersection)
Good	A	≤10	≤10
	B	10-25	10-15
Fair	C	20-35	15-25
	D	35-55	25-35
Poor	E	55-80	35-50
	F	>80	>50

Figure 7.1: Auto level of service (weekday AM peak hour) in the SCTMP study area

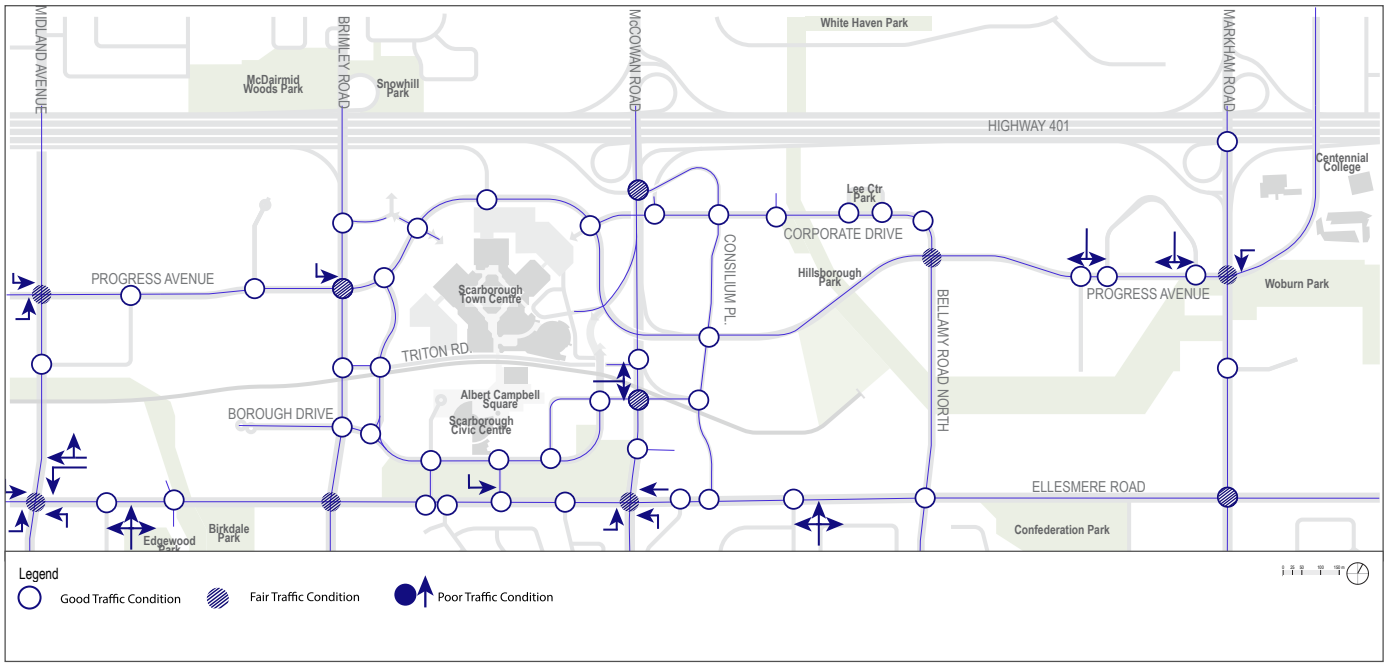
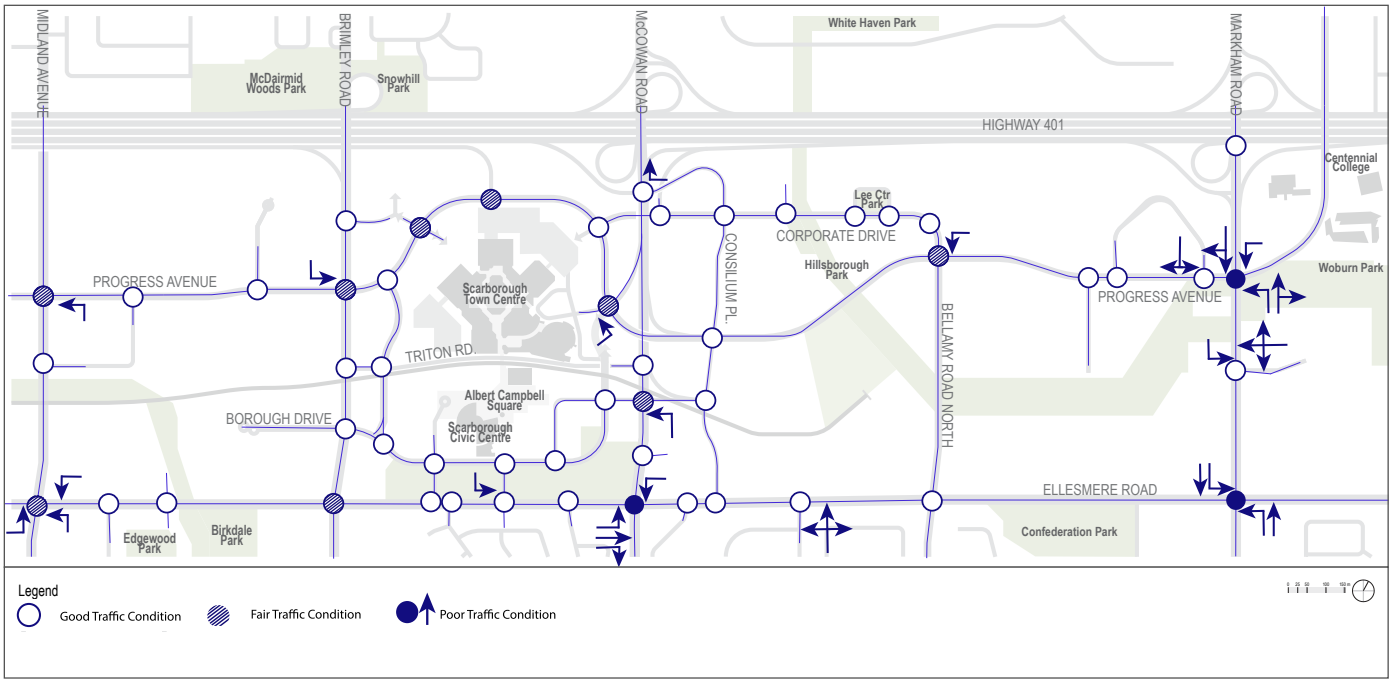


Figure 7.2: Auto level of service (weekday PM peak hour) in the SCTMP study area



Overall, the majority of intersections in the study area are operating at an acceptable level of service, which contributes to the attractiveness of driving. However, significant traffic constraints were observed at the intersections of Markham Road and Ellesmere Road, as well as McCowan Road and Ellesmere Road, during morning and afternoon peak hours. This is due to high left turn volumes competing with high opposing through volumes. The circuitous street pattern, large blocks, and lack of active connections to/from surrounding communities all contribute to high levels of automobile use in the Centre.

Photo locations and photos of existing automobile traffic conditions (including parking) are shown in Figure 7.3.

Figure 7.3: Existing Automobile Traffic Conditions Photo Locations

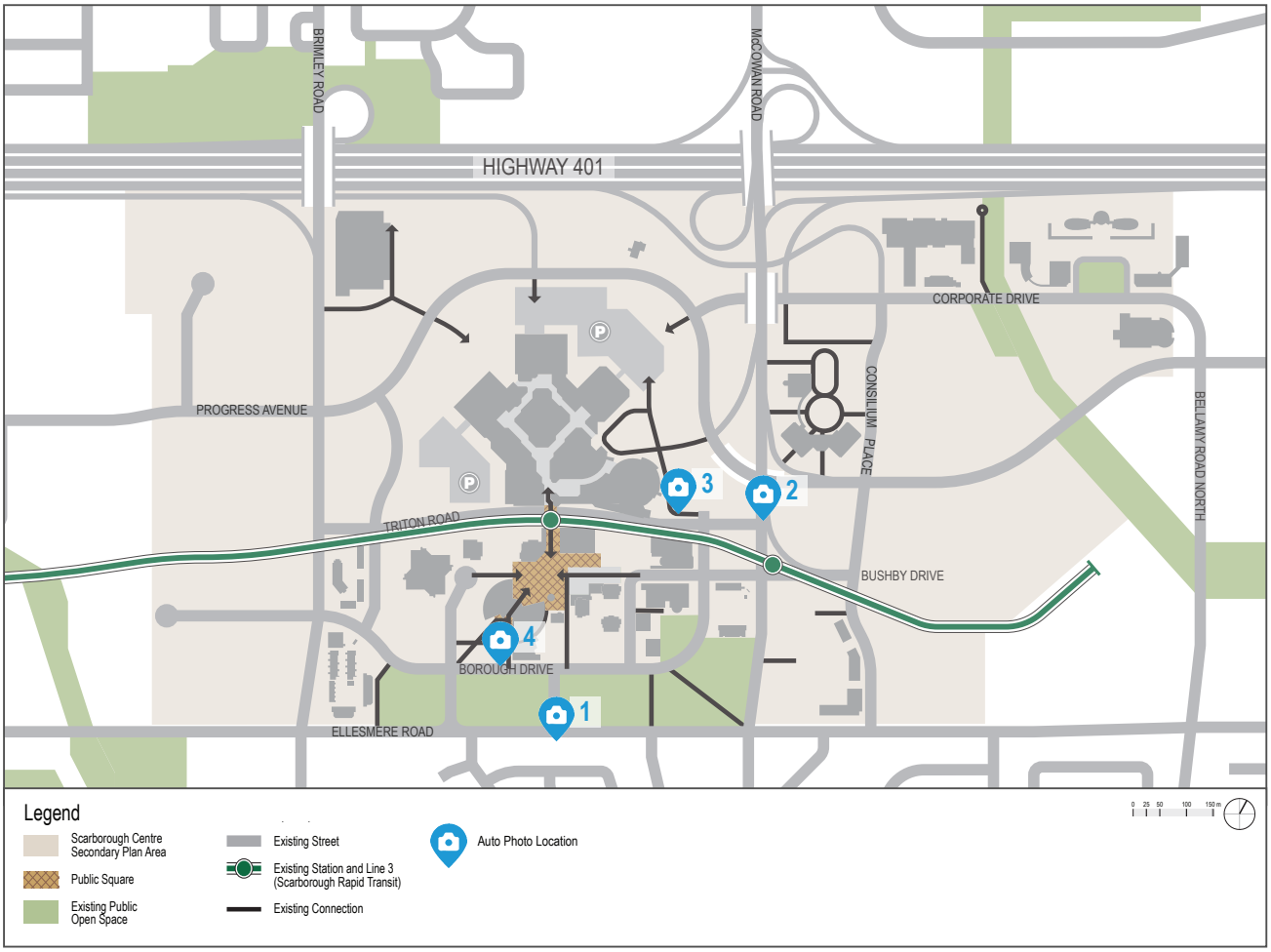


Figure 7.4: Existing Automobile Traffic Conditions Photos

Restricted Movements at Ellesmere Road and Borough Approach East

McCowan Road

Parking at Scarborough Town Centre (Cineplex)

On-Street Parking on Borough Drive

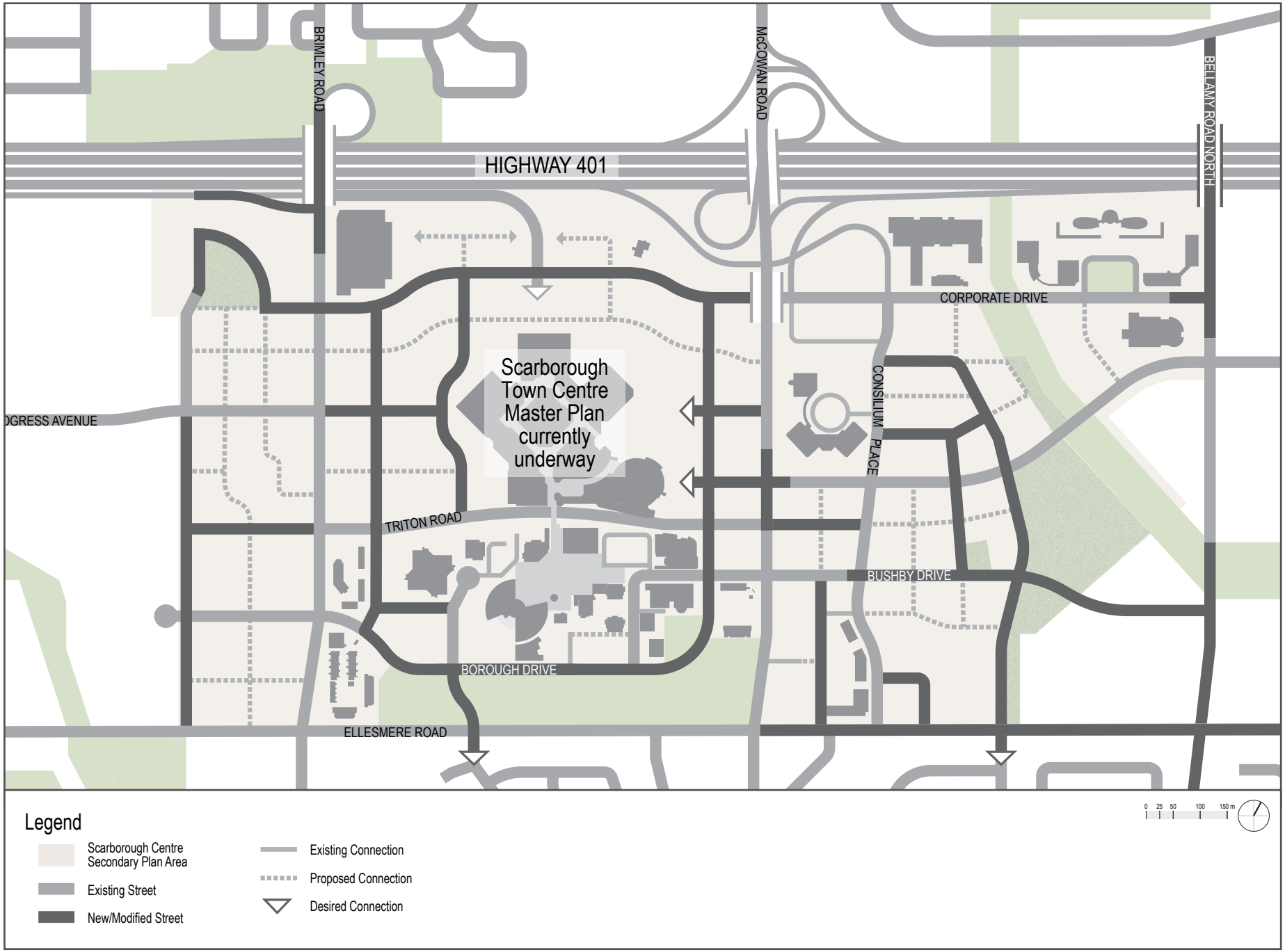
7.3 Preferred Street Network

The recommended street network accommodates automobiles by providing a simplified grid that increases route options. This street network also supports development, improves walkability, and provides safer cycling opportunities. The recommended street network is shown in Figure 7.5.

The preferred street network contains the following proposed key changes:

- Bushby Drive extension to Bellamy Road
- Reconfiguration of McCowan Road and Progress Avenue into an at-grade intersection
- Reconfiguration of Progress Avenue and Corporate Drive
- Reduction of Borough Drive to two lanes (from Omni Drive to Town Centre Court)
- Realignment of Borough Approach West to align with Packard Boulevard at signalized intersection of Ellesmere Road
- Decommission of Borough Approach East into a park trail, and signalization of Saratoga Drive at Ellesmere Road
- Bellamy Road extension to Milner Avenue
- Reconfiguration of Brimley Road and Highway 401 interchange

Figure 7.5: Preferred Street Network: Emerging Vision



7.4 Supporting Strategies

7.4.1 Car Share

Car share programs have been shown to reduce single-occupant vehicle travel and increase the use of sustainable transportation options in areas where it is feasible to take transit, walk, or cycle for the majority of trips. Car sharing provides users with the convenience of car access without the financial and maintenance responsibilities of owning a vehicle. These programs help address vehicle demand by ensuring there are opportunities for people to use shared vehicles.

Reductions in maximum and minimum parking requirements may be considered as part of the development approval process based on this TDM measure. The reduction or elimination of maximum and minimum parking standards for small scale retail uses and ground floor commercial uses near transit routes may also be considered.

7.4.2 Parking Management

Parking management solutions reduce the overall developable space dedicated to parking and are implemented to discourage the use of single occupancy vehicles in the area.

Parking management strategies included in this plan to support a reduction in automobile use are as follows:

- Permit reductions in maximum and minimum parking requirements once TDM measures are adopted as part of the development approval. Reduce or eliminate maximum and minimum parking standards for small scale retail uses and ground floor commercial uses near transit routes and designed to cater to pedestrian traffic.
- Encourage shared parking arrangements between uses to reduce the need for parking spaces within a development
- Unbundle parking from the cost of a residential unit (to buy a unit without buying a space)
- Charge for parking in and around all major transit stops and station areas to help promote a shift toward alternative forms of transportation. Use daily rates rather than monthly rates in structured parking to reduce parking demand (does not apply to required visitor parking as part of residential developments).
- Encourage paid, on-street parking to minimize the need for dedicated parking spaces, provide space for short-stay visitors and help to support main street retail uses
- Wrap above-ground parking structures in residential, retail or commercial uses to screen parking from the street and increase street-level activity
- Locate surface parking in the rear of buildings to minimize the visual impact

7.4.3 Street Redesign

This plan proposes the redesign of the streets to improve the public realm and reallocate space for pedestrians and cyclists. Measures to reduce automobile use in the Centre include lane reductions, lane narrowing, speed reductions, and widening/establishing pedestrian and cyclist facilities. A lane reduction (or “road diet”) is proposed for Borough Drive, between Omni Drive and Town Centre Court, to reduce automobile use and prioritize active modes of transportation. The removal of one travel lane in each direction to create a two-lane

cross-section can result in the following improvements: reduced vehicle speeds, reduced crashes and injuries, and improved access, liveability, and quality of life.

Speed reductions are also proposed throughout the Centre to improve safety and minimize conflicts for all modes. Crashes that occur at lower speeds are less likely to result in severe injuries or fatalities for pedestrians. Reducing the speed limit by 10 km/hr significantly improves the outcome of a pedestrian involved in a vehicle crash. Vision Zero: Toronto's Road Safety Plan identifies speed reductions as a key safety measure adopted to reduce the occurrence of pedestrian or cyclist fatalities. As shown in the Complete Streets Guidelines (Figure 7.6), high vehicle speeds result slower reaction times and lower chances of survival upon collision.

Figure 7.6: Vehicle Speed, Thinking Distance, Braking Distance, and Chances of Survival

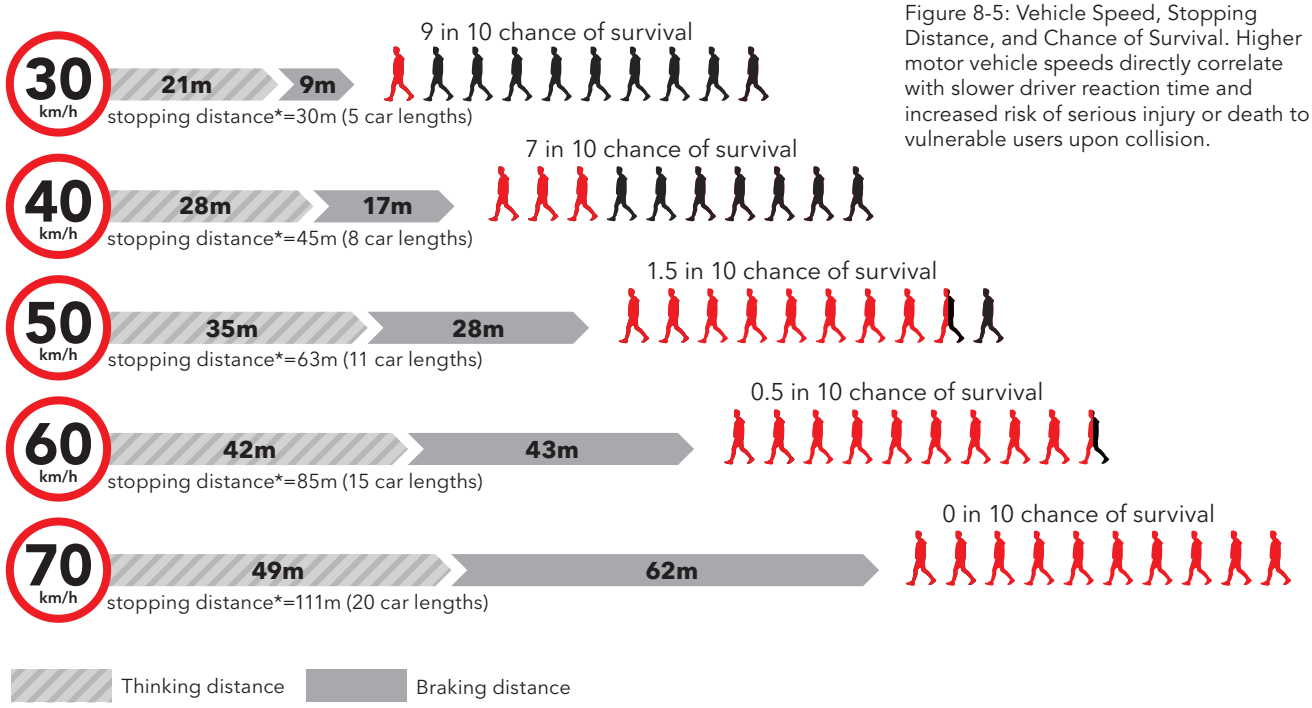


Figure 8-5: Vehicle Speed, Stopping Distance, and Chance of Survival. Higher motor vehicle speeds directly correlate with slower driver reaction time and increased risk of serious injury or death to vulnerable users upon collision.

*Stopping distances during wet conditions. Single car length=5.6m. Based on a 2.5s reaction time, representing 90th percentile of drivers.

source: Adapted from World Health Organization, 2008. Speed management: a road safety manual for decision-makers and practitioners.
Transportation Association of Canada, 2011. Geometric Design Guide for Canadian Roads Part 1. 1.2.5.2 - 1.2.5.4.

Source: Toronto Complete Streets Guidelines

Table 7.1 shows the speed reductions that are proposed in the Centre.

Table 7.1: Existing and Proposed Speeds in the Centre

Street(s)	Existing Speed (km/hr)	Proposed Speed (km/hr)
Ellesmere Road, Markham Road, Bellamy Road, McCowan Road, Brimley Road	60	50
Progress Avenue	50	40
Corporate Drive, Bushby Drive	50	40
Borough Drive	40	40
Collector/Local Roads	-	30

7.4.4 Smart Commute Workplaces - Smart Commute Scarborough

Businesses and organizations can become designated as a Smart Commute Workplace by participating in the Smart Commute program. Participating workplaces provide options for employees to travel to work in sustainable ways, reducing their company's impact on congestion and the environment. Participating workplaces in the study area are City of Toronto (150 Borough Drive - Scarborough Civic Centre) and TELUS (200 & 300 Consilium Place).

TELUS operates a "Work Styles" program that encourages employee teleworking, with a goal to have at least half of its workforce teleworking at least part of the time. Not only has this teleworking program reduced office costs, but it has increased productivity by approximately 20%, and over 90% of surveyed employees identified Work Styles as a significant factor in remaining an employee at TELUS. Integrating Smart Commute programs into the workplace is a TDM strategy that provides benefits to the community through reduced environmental and economic impact (i.e. financial cost of work time lost to long commutes), as well as to the employer through employee satisfaction and productivity.

There will be opportunities to expand Smart Commute Workplace programs into existing and new office developments, since they provide benefits to employers through increased productivity and benefits to the community through sustainable practices. Telecommuting can help reduce the number of trips made by traditional modes of transportation.