Parking Master Plan

Appendix D
Transportation Demand Management

Transportation Demand Management

The object of the Transportation Demand Management (TDM) review is to provide a high level overview of potential parking-related TDM measures to adopt. The review takes into consideration relevant Whitby planning documents, such as the Master Plans, Whitby Official Plan, and the Downtown Secondary Plan.

- TDM measures have three overarching benefits:
- Enhance the Town's environmental sustainability goals;
- Make it easier and more convenient for employees, shoppers, and residents to access Downtown Whitby and Brooklin; and
- Improve parking management within the Downtown cores.

TDM initiatives are often used by municipalities to influence travel behaviour to improve transportation system efficiency and help manage parking demand by decreasing the volume of single-occupancy vehicles. These initiatives take many forms, including policies, programs, services, and products to influence why, when, where, and how people travel.

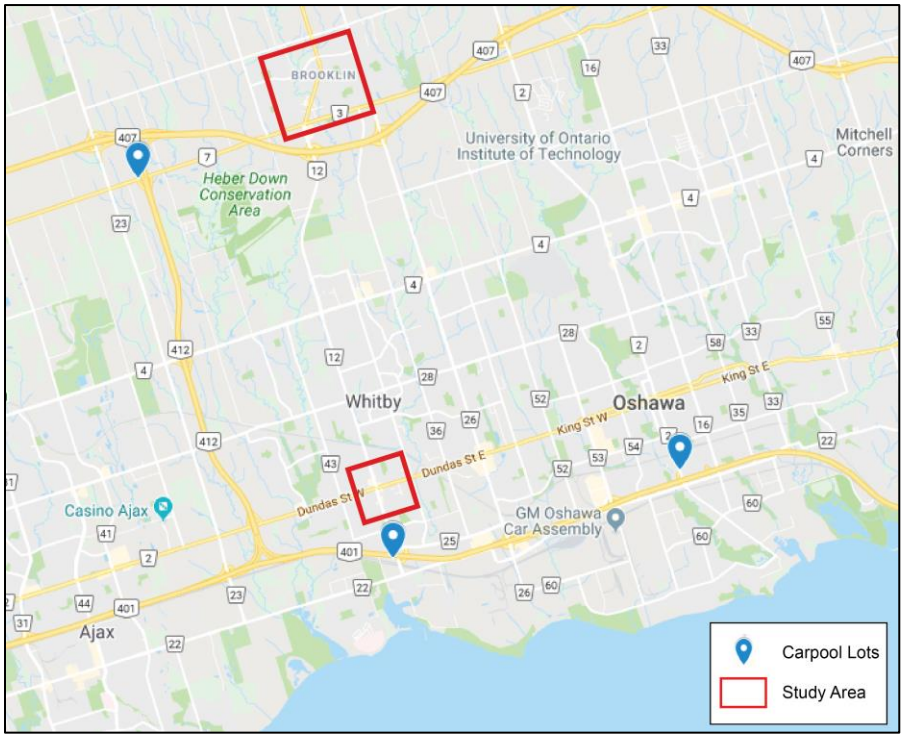
In Whitby and Brooklin, TDM measures can be applied to manage long-term parking demand, while supporting mobility to, from, and within the Downtown.

Carpooling

Carpooling occurs when two or more people, not living at the same address, travel together for all or part of their trip. They can either meet at a central location, such as a carpool lot, or pick-up one another on the way to their destination. In many municipalities, establishing a formal municipal carpool program has been an effective way of meeting daily commuter needs when transit and active modes are not a practical option, especially for individuals commuting from rural areas or other municipalities. Generic benefits of carpooling include reduced parking costs, reduced gas costs, and reduced vehicle wear and tear.

The Ministry of Transportation on Ontario (MTO) provides free carpool parking lots near highway interchanges throughout Ontario. As displayed in Error! Reference source not found. there are lots located at the Whitby GO Station (Highway 401 and Brock Street South), Highway 7 by Highway 412, and by Highway 401 and Simcoe Street South. Additional carpool lots are planned along Highway 407 at Baldwin Street and Thickson Road.

Exhibit D- 1: Location of MTO-Operated Carpool Lots



The MTO lots are available on a first-come-first-served basis and act as a meeting point for people who wish to carpool the remainder of the journey.

The Town of Whitby is a member of the Smart Commute Durham Transportation Management Association (TMA). Through Smart Commute Durham, Whitby participates in Carpool Week in February and Smart Commute Week in September.

Cycling

A trip that is 5 kilometres or less in distance is considered to be “cycle-friendly” and can be made in approximately 20 minutes. The Whitby Active Transportation Plan sets out an ongoing plan for a comprehensive cycling network within the Town, including the areas within 5 km of Downtown Whitby and Brooklin. Currently, some segments of this network have been implemented and the Region and Town are advancing on others. The segments currently being advanced include Cochrane Street, the Greenbelt Route, and Brooklin and South Whitby Connection.

Considering the large number of residents, institutions, and jobs within 5 km of Downtown Whitby and Brooklin, providing a safe, connected, and year-round cycling network is anticipated to reduce the personal vehicle mode share and manage parking demand.

To support cycling, it is recommended to provide bicycling parking opportunities and bicycle infrastructure, such as repair stands, adjacent to off-street parking lots and at key locations within the Downtowns.

Public and Private Transit

The Whitby GO Station is the central transit hub in Whitby and serves a combination of local and regional transit, including:

- Nine daytime routes operated by Durham Region Transit. These routes primarily operate roughly every 20-40 minutes from 5:40 a.m. to 11:30 p.m. on weekdays and Saturdays, and from 8:00 a.m. to 9:30 p.m. on Sundays; and
- GO Lakeshore East train service to Toronto, operating every 30 minutes on weekdays and weekends, and three GO bus routes operating every 30-60 minutes.

Downtown Whitby is also served by Greyhound bus service between Toronto and Peterborough. Durham Region fares, at the time of writing the report, are provided in Error! Reference source not found..

Exhibit D- 2: Durham Region Transit Fares

Fare Medium	Cost
Adults	
Cash	$3.75
Single Trip PRESTO / paper ticket	$3.10
Monthly PRESTO e-pass	$117.00 / month
Seniors (65+)	
Cash	$2.50
Single Trip PRESTO / paper ticket	$2.10
Monthly PRESTO e-pass	$46.00 / month
Youth (ages 13-19)	
Cash	$3.75
Single Trip PRESTO / paper ticket	$2.80
Monthly PRESTO e-pass	$93.50 / month
Children (ages 6-12)	
Cash	$2.50
Single Trip PRESTO / paper ticket	$2.10
Monthly PRESTO e-pass	$65.00/ month
5 and under	Free

Fare Medium	Cost
Special Fares	
Access Pass (specialized service)	$46.00 / month
Cash Co-Fare (with GO transit)	$0.80

Durham College full-time students receive a Universal Transit Pass (U-Pass) as part of their student fees. The U-Pass offers unlimited use of any Durham Region Transit or GO Transit bus operating in Durham Region, as well as reduced GO transit fare outside of Durham Region.

An adult monthly pass costs $117.00 while a monthly parking pass to a Downtown lot ranges from $80.00 to $100.00 plus tax (depending on the duration of the pass) with an average cost of $90.00. To make transit a financially competitive option compared to driving, monthly parking pass prices are recommended to be equal to or more than the cost of a monthly transit pass.

Carshare

Carsharing is a system which enables members to borrow vehicles for short periods of time (i.e. hours rather than days). Carshare vehicles may be permanently parked in the Downtown parking supply in dedicated carshare spaces. Users borrow the vehicle for short trips and are required to return the vehicle to the designated carshare space upon trip completion. They fill a gap within the transportation network by helping individuals meet their daily needs when other transportation options (e.g. transit, walking, or cycling) are not practical options for their trip. From a municipality's perspective, carshare may enable residents and employees to commute by sustainable modes while still having access to a vehicle for quick personal or business trips during the day, especially in Downtown areas. Carsharing can lead to a reduction in parking demand by allowing multiple travelers to use the same vehicle and parking space, instead of driving their own vehicles into Downtown and requiring separate parking spaces.

Carshare systems operate in a variety of municipalities in Ontario including Hamilton, St. Catharines, Burlington, Guelph, London, Toronto, and Ottawa.

TDM in New Developments

The way in which the Town of Whitby grows will have a profound impact on how residents, workers, and visitors will travel in the future, including to and from the Downtown. Many municipalities are beginning to require large developments to demonstrate how they will help minimize vehicle travel and parking demand, particularly in Downtown areas. This can include hard infrastructure (e.g. secure bike parking, cyclist facilities, and carpool parking spaces) and soft infrastructure and services (e.g. carshare vehicle site, discounted transit passes, and membership in a transportation management association like Smart Commute). Municipalities that now have these types of requirements include the Cities of Kitchener, Hamilton, Burlington, and Markham, and the Regions of Halton, Peel, and Waterloo.

Requirements for these plans are typically integrated into the development approval process for a municipality and their implementation is a condition of site approval. For example, in Kitchener and Waterloo, the requirement forms part of the transportation impact assessment while Hamilton requires a standalone memo. Hard infrastructure requirements are typically required to be shown on site plan, allowing the municipality to ensure they are included in the final development prior to the issuing Certificate of Occupancy. Any soft infrastructure and services typically require the proponent to submit signed contracts or agreements indicating that they will be provided by a third party (e.g. carshare vehicle on site and bulk purchase of transit passes agreement from local agency).

Typically, monitoring of the long-term effectiveness of TDM in new development requirements is based on sampling sites where this was done and comparable control sites. No significant large scale studies are known to have been done by an Ontario municipality to date as most municipalities have only begun requiring this within the past 3 to 5 years.

It is recommended that the Town development a Transportation Demand Management Plan and require large scale office, institutional, and residential developments to prepare TDM plans that demonstrate how they will support the reduction of single occupancy vehicle travel.

TDM's Potential Effectiveness

To evaluate TDM's potential effectiveness at managing single occupancy vehicle trips to Whitby and Brooklin, the Transportation Tomorrow Survey (TTS) was examined. The TTS is a comprehensive travel survey conducted in the Greater Golden Horseshoe Area every five years, mostly recently in 2016. The survey collects household and trip data, including the origin and destination of each trip made.

The trips to Whitby and Brooklin were extracted and analysed, specifically those to Ward 1 (Downtown Brooklin) and Ward 3 (Downtown Whitby). From the dataset, 56% of trips originate from within Town of Whitby. This observation suggests that TDM strategies can be an effective tool at managing single occupancy vehicle trips.

After internal trips, the highest number of trips originate from Oshawa (14%) and Toronto (11%). Trips made from Oshawa and Toronto to Whitby are susceptible to transit improvement TDM measures. Toronto is connected to Whitby through GO train, GO bus, and Greyhound bus service. Improve transit connections between the Whitby GO Station and the Downtown core through increased frequency of existing transit lines or by adding new transit routes could increase transit usage. Many commuters who would otherwise drive could be enticed to take transit, and single occupancy vehicle trips could be replaced with transit trips.

There may be an opportunity for Whitby, or large developments, to partner with a Transportation Network Company, such as Uber or Lyft, to provide a fast and reliable connection between the Whitby GO Station and a few popular Downtown core destinations (ex: Public Library). The partnership would allow commuters to pay a flat

fare (for example, $3-5, depending on agreement reached) with the rest subsidized by the Town of Whitby/others. Further investigation outside of this study would be required. The subsidized Uber transit strategy has been successfully adopted in the Town of Innisfil with a projected savings of $8 million per year compared to what an equivalent door-to-door bus service would cost.

A similar conclusion can be applied trips originating from Oshawa, which is connected to Whitby by both GO transit and Durham Region Transit. By improving transit connections between the two municipalities, the number of single occupancy vehicle trips to Whitby and Brooklin could be decreased.

Shared Parking Provisions

Shared parking involves the use of one parking facility by more than one land use, taking advantage of different parking demand patterns by time of day to reduce the total amount of parking that would have been required if facilities were not shared.

Shared parking ensures that parking spaces are not designated for any particular user, but operate as a pooled parking resource. This strategy can be considered on a “micro” scale within a single development, or on a “macro” scale between several developments. The Downtown Whitby and Brooklin parking systems can be considered a macro scale shared parking resource for the entire Downtown core.

The biggest benefits are realized with mixed-use developments, where uses have different peak demand times. For example, a restaurant and an office can share a parking facility with fewer total parking spaces than would otherwise be required for two separate parking facilities. As a result, shared parking encourages more efficient use of the parking supply.

The consideration of shared parking requires an assessment of typical occupancy rates during different times of the day for each of the land uses included in a shared parking scheme. **Exhibit D-3** compares the typical occupancy rates for the residential, office, retail, and restaurant land uses used for several municipalities. These land uses are selected as they are anticipated to comprise the majority of Downtown land uses.

Exhibit D- 3: Typical Parking Occupancy Rates

Municipality	Residential (non visitor)				Office				Retail				Restaurant			
	AM	Noon	PM	Eve	AM	Noon	PM	Eve	AM	Noon	PM	Eve	AM	Noon	PM	Eve
Weekday																
Toronto	100%	-	100%	100%	100%	-	60%	0%	20%	-	100%	100%	100%	-	100%	100%
Pickering	-	-	-	-	100%	90%	95%	10%	65%	90%	90%	90%	20%	100%	30%	100%
Markham	-	-	-	-	100%	-	95%	10%	50%	-	100%	100%	-	-	-	-
Newmarket	90%	65%	90%	100%	100%	90%	95%	10%	80%	90%	90%	90%	20%	100%	30%	100%
Ottawa	-	-	-	-	100%	90%	100%	15%	75%	80%	85%	75%	30%	90%	60%	100%
Vaughn	-	-	-	-	100%	90%	95%	10%	65%	90%	80%	100%	20%	100%	30%	100%
Average	**95%**	**65%**	**95%**	**100%**	**100%**	**90%**	**90%**	**9%**	**59%**	**88%**	**91%**	**93%**	**38%**	**98%**	**50%**	**100%**
Saturday																
Pickering	-	-	-	-	10%	10%	10%	0%	80%	100%	100%	70%	20%	100%	50%	100%
Newmarket	90%	65%	90%	100%	10%	10%	10%	10%	80%	100%	100%	70%	20%	100%	50%	100%
Ottawa	-	-	-	-	20%	20%	10%	5%	60%	90%	100%	50%	30%	80%	50%	100%
Vaughn	-	-	-	-	10%	10%	10%	10%	80%	85%	100%	40%	20%	100%	50%	100%
Average	**90%**	**65%**	**90%**	**100%**	**13%**	**13%**	**10%**	**6%**	**75%**	**94%**	**100%**	**58%**	**23%**	**95%**	**50%**	**100%**

As shown in Error! Reference source not found., the reviewed land uses generally have similar occupancies across the reviewed municipalities with only small variations (10-20%). The policies of the reviewed municipalities can be divided into two formats. Toronto and Markham have similar policies where occupancy rates are provided for only the AM, PM, and evening periods. While the all other municipalities also provide occupancy rates for the Noon period as well and distinguish occupancies between weekdays and Saturdays. Of the review municipalities, only Toronto and Newmarket allow shared parking reductions for the residential (non-visitor) land use.

Based on the occupancy data presented in Error! Reference source not found., it can be seen that combining the office and restaurant land uses within the same parking facility leads to an overall reduction in the total number of parking spaces than otherwise required. For example, the shared parking calculation for a hypothetical development requiring 100 parking spaces for an office and 50 for a restaurant is illustrated in Error! Reference source not found.. Note that the presented calculations are based on Newmarket's shared parking policy.

Exhibit D- 4: Shared Parking Requirement

Land use	Required Parking	Reduced Parking Requirement							
		AM		Noon		PM		Evening	
		WD	Sat.	WD	Sat.	WD	Sat.	WD	Sat.
Office	100	100	10	90	10	95	10	10	10
Restaurant	50	10	10	50	50	15	25	50	50
Total	**150**	**110**	**20**	**140**	**60**	**110**	**35**	**60**	**60**

*Note: WD = Weekday

Based on the shared parking assessment presented in Error! Reference source not found., the shared parking requirement for the hypothetical development is 140 spaces, which is reduced from the 150 spaces required otherwise.

There are a number of factors that need to be considered in implementing shared parking effectively:

- A mixed use development must be planned with land use types and gross floor area known in advance (e.g., retail, office, restaurant), so that a shared parking calculation can be conducted and is accurate;
- Parking must be unreserved and designed to serve all uses;
- When a new business moves in to an existing development, its parking demand profile may be different from the original use, which would reduce the potential for shared parking and lead to parking undersupply; and

- The submission of a shared parking agreement between the proposed users of a shared parking facility should be required to ensure that it can be reviewed and enforcement undertaken if necessary.

It is recommended that Whitby adopt a shared parking policy to assist private developers in making shared parking decisions. Based on the best practices review, a shared parking policy similar to Newmarket, Pickering, Ottawa, and Vaughn in format is recommended. The occupancies for various land uses are specified for the AM, Noon, PM, and evening periods for both weekdays and Saturdays. This strategy allows for the most comprehensive shared parking demand assessment to ensure the provided parking supply is minimized while still meeting the projected parking demand at all times.

When evaluating development proposals that include shared parking between land uses, is recommended that the applicant a shared parking analysis to ensure the proposed shared parking supply is adequate.

Peer-to-peer Shared Parking

Peer-to-peer shared parking refers to individuals sharing their private parking spaces and driveways with other members of the public who are looking for parking supply. Peer-to-peer shared parking has become more prevalent through the emergence of the shared-economy and through mobile payment and supply-demand search pairing applications.

Recent advancements in mobile technology have stipulated the development of new private services that leverages private parking supplies that are underutilized to address parking demand. This is called the peer-to-peer parking market and several applications have gained user popularity recently, such as Rover. These applications are used extensively in more urban contexts, but are starting to become more popular in suburban areas, where paid parking has been implemented as well. While Rover is primarily available in Toronto, the application is expanding across North America.

This service can be effective at opening up private parking supplies that are underutilized, to address the demands of the parking market. Although there are several benefits of these types of services from a user's perspective, the outcomes of the mass and unregulated use of these services could result in unwanted traffic in residential neighbourhoods and unwanted competition for publicly owned parking supply. Potential liability concerns, and other unintended consequences, do not make this a viable recommendation without further understanding the impacts.

As these services push harder into the market, they will need to be studied further to understand their net effects on the community and to realize the potential to partner with these services to ultimately leverage their strengths.