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DATE: December 18, 2001

TO: Chairman and Members of the Planning and Development Committee

FROM: Thomas S. Mokrzycki, Commissioner of Planning and Building

SUBJECT: **Drive-through Restaurants / Convenience Kiosks**

MEETING DATE - January 21, 2002

ORIGIN: **Planning and Building Department**

BACKGROUND: Concerns have been raised regarding drive-through facilities servicing restaurants and convenience kiosks associated with automobile service stations. The issues relate primarily to: the design and location of drive-through lanes; their impact on traffic circulation, both within the development site and the public boulevard; and, the adequacy of existing zoning standards for required spaces in a stacking lane.

As background to the study, a survey of existing drive-through facilities in the municipality was conducted during July and August, 2001. This report outlines the scope of the study, its findings and the implications related to the issues under study. Design considerations related to the design and location of stacking lanes are further outlined with associated recommendations on zoning amendments and design guidelines.

COMMENTS: **SURVEY OF DRIVE-THROUGH FACILITIES**

During the months of July and August 2001, a utilization study of the drive-through lanes associated with eating establishments was conducted to determine if the existing Zoning By-law requirements adequately provide for demand (see Exhibit 1 attached). The current standard requires a stacking lane accommodating a minimum of five

vehicles for automobile service station convenience kiosks and 10 vehicles for restaurants.

The utilization survey included six automobile service station convenience kiosks and 35 restaurants. The restaurants were selected to represent a variety of franchises and were located in different areas of the City. Five sites with two restaurants operating a drive-through lane were included in the survey. Generally, each site was surveyed on one Monday and one Friday from 6:30 a.m. to 9:00 a.m., 11:30 a.m. to 2:00 p.m, and 5:00 p.m to 7:00 p.m. The evening survey period for drive-through convenience kiosks was from 4:30 p.m to 6:00 p.m. Survey times were also dependent upon hours of operation. For instance, Wendy's restaurants are not open in the morning, therefore, data were not collected during this period. Some restaurants with a morning peak (e.g., those specializing in coffee and donuts) were also surveyed on a Saturday from 7:30 a.m. to 10:30 a.m. The number of vehicles in the stacking lane and those stacked beyond the lane was recorded every ten minutes. Prior to conducting the survey, the Ontario Restaurant Hotel and Motel Association (ORHMA) and individual companies were advised of the study and permission was received to conduct the survey on the selected sites.

A total of 504 observations were collected from convenience kiosk stacking lanes, and 3,046 observations were collected from restaurant stacking lanes. These large data samples add to the confidence which can be placed in the results of the survey. In order to establish a confidence level for the conclusions, descriptive statistics were calculated for each set of data, including the mean, median and standard deviation. The observations were ranked from highest to lowest and the observed and theoretical 95th, 85th and 75th percentiles were calculated. The data for convenience kiosks and restaurants were analyzed separately, however, the two sets of data generated similar results and, as such, it was decided that it would be possible to combine the data and have one stacking lane standard for all drive-through lanes associated with an eating establishment.

Because of concerns regarding on and off-site circulation issues that occur when vehicles exceed the capacity of the stacking lane, given that peak demand is a daily recurring event, and given that the use is not conducive to any other mode of transportation other than private vehicles, it was considered appropriate to use the demand at the 95th percentile to derive the stacking lane standard. Further, because July and August have rush hour traffic that is 5% to 10% less than other months of the year, a factor was added to the observed data. Based on the observed demand at the 95th percentile factored to account for the time of year in which the survey was conducted, it is proposed that

drive-through lanes associated with eating establishments be amended to require a minimum of 12 spaces.

The existing provisions regarding convenience uses associated with automobile service stations is the result of reports prepared in 1996 and 1997 and an agreement reached between City Council and the Canadian Petroleum Products Institute (CPPI) and subsequently approved by the Ontario Municipal Board (OMB) in November, 1998. That agreement allowed a take-out restaurant in convenience kiosks and a drive-through lane. The definition of "convenience retail and service kiosk" allows a take-out restaurant but does not specifically state that a drive-through lane is permitted. At the time the definition of a "convenience retail and service kiosk" was drafted, drive-through lanes were allowed with "take-out restaurants". At the same time as the provisions regarding convenience kiosks were being developed, a review of restaurant uses was underway. That review resulted in, among other things, a change to the definition of a take-out restaurant in Zoning By-law 5500 which prohibited a drive-through lane. In order to make the Zoning By-laws reflective of the OMB decision of November, 1998, and City Council's position regarding "take-out restaurants", the definition of "convenience retail and service kiosk" should be amended in all three By-laws to specifically allow a drive-through lane. Further, the definition of "take-out restaurant" in Zoning By-law 1227 and Zoning By-law 65-30 should be revised to not allow a drive-through lane. These amendments would provide consistency between the three Zoning By-laws and reflect the intent of City Council and OMB decisions.

DESIGN ISSUES

Impact of Stacking Lanes on Site Development

Drive-through facilities introduce greater complexity to site design from a number of perspectives:

- additional traffic movements are created on the site with often circuitous and intersecting traffic conditions;
- 'decision' points for drivers are more frequent which causes vehicles to slow or stop, resulting in congestion and traffic back-ups which can impact road traffic;
- additional space needs are generated on the site to accommodate vehicle stacking;
- pedestrian convenience and safety can be compromised; and,
- constraints can be imposed on achieving broader objectives

including the design of safe and efficient parking layouts, the integration of the development site with the public boulevard and quality urban design.

Identifiable Site Design Problems

The above impacts on site design can be further exacerbated by one or more of the following situations:

Proximity of Stacking Lane to Public Street (Exhibit 2)

Where the access point to the stacking lane is close to the public street, excess stacking space at peak hours of operation may spillover onto the public right-of-way. Further, the driver upon entering the site, is presented with a decision point on which way to proceed resulting in a momentary hesitation or stopping of the vehicle. These two aspects can affect the safe and efficient movement of traffic on the street and block the public sidewalk.

Where the access point is set more deeply into the site, excess vehicular stacking will be less likely to impact on the public road and decision points for drivers are internalized to the site. In discussions with staff of the Transportation and Works Department and Region of Peel, Public Works Department, one of their principal objectives is to locate the access point to the stacking lane as deep into the site as possible. To ensure that sufficient spacing to the public right-of-way is maintained, it is proposed that a minimum separation of 16m (53 ft.), equivalent to three car lengths, from the entry point of the stacking lane to the abutting streetline, be required in the Zoning By-law.

The various issues noted above are most acute on a corner site where on-site vehicular congestion backing onto the public street will detrimentally affect traffic movement at the abutting intersection. Discussions with the Transportation and Works Department and Region of Peel, Public Works Department, note that this is a concern; their objective being to locate the site entrance as far from the intersection as possible.

The Transportation and Works Department does not have a specified minimum distance between an entrance driveway and an adjacent intersection given variances in site size, frontage and geometries. Regional Public Works, through the Controlled Access By-law (59-77 as amended), stipulates minimum distances to a site entrance from an abutting intersection. For right-in/out access, the minimum is 130m (427 ft.) to near-side (deceleration) and 100m (326 ft.) to far-side (acceleration). For full access, the minimum spacing is 300m

(984 ft.).

Stacking Lane is Intersected by Other Traffic (Exhibit 3)

When a stacking lane is not continuous, given its intersection with another laneway, several conditions can occur:

- Vehicles entering, or circulating through, the site may be stopped periodically due to conflicts with crossover traffic on the stacking lane. Congestion results, often at critical entry driveways to the site or at access points to parking areas. In particularly acute situations, traffic back-ups could extend to the public street affecting safe and efficient traffic movement.
- Similarly, vehicles in the stacking lane do not always have a clear path to proceed to the pick-up window. It is not always clear to the driver when to proceed across the laneway; if the driver moves ahead prematurely, incoming traffic will be blocked. If the driver hesitates, the stacking may be quickly blocked by cross traffic.
- Vehicles may jump the queue. Due to confusion of where to enter the stacking lane or intentional action, the driver may proceed ahead of vehicles already stacked in line. This creates confusion, ill will and traffic back-ups as other drivers in the stacking lane move forward to block any further vehicles from the same manoeuver.

Lane Geometrics and Design Parameters

While drive-through lanes generally move traffic through the lane relatively efficiently, the greater the number of turning movements and alignment changes along the route, the less efficient and less user-friendly the lane will become. Proposals have been considered where a stacking lane wraps around three facades of the building making the route circuitous and effectively cutting the building off from the site. The objective of maintaining a linear form to the stacking lane with no, or very limited, turning movements, is therefore desirable.

The width of the lane and the tightness of any curves are further factors related to the efficiency and usability of the stacking lane. Too narrow of a laneway will restrict vehicle access, particularly in winter when snow may build up. Too tight of a radius will result in larger vehicles cutting across curbs with detrimental impacts on landscaped and/or pedestrian zones. Based on a review of plans on file and consultation with the Transportation and Works Department, it is proposed that stacking lanes have a minimum width of 4.0 m (13.1 ft.) and maintain a minimum centreline radius of 6.5m (21.3 ft.).

Stacking Lanes Blocking Parking Stalls / Servicing (Exhibit 4)

Stacking lanes which block access to abutting parking stalls effectively make the parking spaces inaccessible for much of the time. When the spaces are accessible, patrons leaving may, in turn, have their egress blocked by stacked vehicles. The net effect is that the spaces required under the Zoning By-law can not be guaranteed to be available resulting in under supplied parking on the site and overflow on abutting lands.

Similarly, a stacking lane which blocks access to a service or loading area will render that function unavailable for periods of the day. This will result in trucks blocking traffic and, over time, service vehicles simply avoiding the designated loading area on the site.

Double Stacking Lanes:

There are two situations where a double stacking lane can occur:

- Two tenancies (Exhibit 5): Where two tenants are accommodated on a site within a single building, two separate stacking lanes and pick-up areas may occur. Both sides of the building have stacking lanes abutting the building wall which can isolate the building on the site for those patrons not using the drive-through feature. This can result in unsafe and inconvenient pedestrian access from parking to the building entrances. Dead-ended parking areas may be unavoidable causing traffic congestion.
- Double vehicle lanes (Exhibit 6): A recent development in the industry is the provision of a double lane serving a single user. As illustrated in Exhibit 6, two parallel lanes at the ordering point of the stacking lane funnel into a single lane for pick-up. An overhead green/red light advises drivers which line is free. As this design has seen only limited application in Mississauga, it will be monitored to determine how well it functions.

Pedestrian Access / Barrier-Free Access

Another form of traffic on the site is pedestrian. Site observations indicate that where a site provides one or more stacking lanes, pedestrian access can be compromised. The stacking lane can restrict access to the building entry from parking areas on site and/or the public sidewalk. This results in pedestrians having to thread their way through stacked vehicles in an unsafe situation. As vehicles leave the stacking lane, visibility of pedestrians walking to and from the building entrance may be restricted by the building.

PROPOSED SOLUTIONS

It is proposed that the municipality, while not prohibiting the development of drive-through facilities, adopt specific standards and design criteria for their use. Most significantly:

- that the Zoning By-laws be amended to require a vehicle stacking capacity of 12 spaces for drive-through uses associated with eating establishments;
- that the critical objective of locating the access point to the stacking lane as deep into the site as possible (as identified by both the City of Mississauga Transportation and Works, and Regional of Peel, Public Works, Departments) be reinforced by adoption of a zoning standard that requires a minimum spacial separation of the access point to a stacking lane from the streetline(s) of the site. A distance of 16m (53 ft) is proposed, equivalent to three vehicle lengths;
- that standards establishing minimum design parameters for a stacking lane be defined in the Zoning By-law, including:
 - that a stacking lane must be a continuous laneway having no obstruction by intersecting traffic or abutting parking stalls/loading spaces;
 - that a stacking lane have a minimum width of 4.0 m (13.1 ft.);
 - that a minimum centreline radius of 6.5m (21.3 ft.) be maintained on any curves;
- that design guidelines noting that a stacking lane should be linear and straight in design minimizing curves and turning movements, be adopted. Further, that the stacking lane be defined by concrete curbs and landscaping areas to ensure that it is separated from other traffic.
- that design guidelines related to safe and convenient pedestrian and barrier-free access be adopted regarding access to and from parking areas and the public sidewalk to the building entries.

CONCLUSION:

While drive-through facilities will likely continue to be a significant part of restaurant and convenience kiosk development, their use, design and operation must be conditional upon the municipality being satisfied that the site functions safely, efficiently, and does not impact on the functions of the public right-of-way. In this regard, based on the site surveys and design evaluation of this type of development as outlined above, it is concluded that:

Zoning By-law Standards:

- Required stacking spaces under the Zoning By-laws be amended to require a minimum of 12 spaces for drive-through uses associated with eating establishments.
- Definitions in the Zoning By-laws be revised as follows:
 - definition of a "convenience retail and service kiosk" be amended to allow a drive-through lane;
 - definition of "take-out restaurant" in Zoning By-laws 1227 and 65-30 be amended to prohibit a drive-through lane.
- A minimum distance of 16m (53 ft.) be required in the Zoning By-laws between the entry point to a drive-through lane and the closest streetline of the site.
- Standards establishing minimum design parameters for a stacking lane be defined in the Zoning By-law, as follows:
 - that a stacking lane must be a continuous laneway having no obstruction by intersecting traffic or abutting parking stalls/ loading spaces;
 - that a stacking lane have a minimum width of 4.0 m (13.1 ft.);
 - that a minimum centreline radius of 6.5m (21.3 ft.) be maintained on any curves.

Design Guidelines / Principles:

That the following design guidelines be adopted for the review of developments incorporating drive-through lanes:

- no stacking of vehicles shall occur on the public right-of-way;
- stacking lanes should be linear and straight in design minimizing curves and turning movements
- stacking lanes shall be defined by raised curbs and defining landscaped areas;
- the entrance to a stacking lane shall be set into the site as deeply as possible;
- access driveways on a corner site shall be located as far as possible from the abutting intersection;
- that pedestrian/barrier-free access to the building entrances be provided in a safe and convenient manner by ensuring that direct pedestrian links are provided to main parking areas and the public sidewalk that do not pass through a stacking lane.

RECOMMENDATION: That the Report entitled "Drive-through Restaurants / Convenience Kiosks", dated December 18, 2001, from the Commissioner of Planning and Building, be circulated to the Ontario Restaurant Hotel and Motel Association, the Mississauga Board of Trade and the Business Improvement Area Associations for their comments by March 22, 2002; and, that a public meeting be held at the Planning and Development Committee at a future date to deal with this matter.

Original Signed By: _____

Thomas S. Mokrzycki
Commissioner of Planning and Building