FROM: JAY STANFORD, M.A., M.P.A.
DIRECTOR, ENVIRONMENTAL PROGRAMS \& SOLID WASTE

SUBJECT: STATUS OF ACTIVITIES AND INFORMATION DEALING WITH THE AIR QUALITY AND CLIMATE CHANGE IMPACT OF VEHICLE IDLING

That, on the recommendation of the Director, Environmental Programs and Solid Waste, the following report BE RECEIVED for information.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

Relevant reports include:

1. Report to the June 17, 2008 Planning Committee (City of London Official Plan/Zoning Refinement Review – Regulation of Drive-Through Facilities, Agenda Item #8)
2. Delegation and Submission to the June 18, 2008 Environment \& Transportation Committee (ETC) (Scientific Research on Drive-through Facilities, Agenda Item #17)
4. Report to the January 14, 2008 ETC (Update – 2008 Budget for Air Quality Improvements: Focus Idling Control By-Law and Awareness Program, Agenda Item #3)

PURPOSE:

The purpose of this report is to provide a status of the ongoing work being undertaken dealing with emissions from idling vehicles and initiatives to reduce idling at a variety of locations in London.

CONTEXT:

On June 23, 2008, Council approved the June 16, 2008 ETC report clause as follows:

"At its meeting held on June 16, 2008, the Environment and Transportation Committee (ETC) heard verbal presentations and received the attached written communications from D. Bethune, Automotive Consulting, M. Lepage, Principal, RWDI AIR Inc., M. Saunders, Manager of Government Relations, Ontario Restaurant Hotel \& Motel Association and N. Javor, Vice President of Corporate Affairs, Tim Hortons with respect to air emissions at drive-throughs; it being noted that the ETC reviewed and received an e-mailed communication dated May 29, 2008 from M. Saunders with respect to scientific research on air emissions at drive-through facilities. The ETC referred the communications to the Director of Environmental Programs \& Solid Waste to include with his report of idling and asked that he provide the status of his Idling report at the July 14, 2008 meeting of the ETC."

This report highlights approximately 12 months of activities and information review dealing with emissions from idling vehicles and initiatives to reduce idling from June 2007 until the present time.
DISCUSSION:

This section is divided in three subsections:

2. Summary of Key Questions and Issues Dealing with the Environment and Idling Vehicles
3. Timetable to Complete Idling Control By-law Review


The table below highlights a number of initiatives, activities and/or points of discussion where the environmental impact of idling vehicles has been the focal point over the last year. Contained in Appendix A are further details and highlights for some of these initiatives. These various items are connected in several areas:

- education and awareness about the impacts of idling
- tools and techniques to change driver behaviour to reduce vehicle idling
- revisions to, and enforcement of, the Idling Control By-law

Each of these areas provides important details as City staff continue to review the existing Idling Control By-law, the awareness and enforcement strategies that are required to support it and its fit with other environmental initiatives dealing with air quality and climate change.

<table>
<thead>
<tr>
<th>Item</th>
<th>Date Initiated</th>
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<tr>
<td>The Advisory Committee on the Environment (ACE) presented a number of recommendations to ETC regarding the Idling Control By-Law.</td>
<td>June 18, 2007</td>
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<tr>
<td>ETC requested staff to report back on the ACE recommendations and specifically how to bring in and develop support for the proposed amendments to the by-law; ways to broaden enforcement capability; means by which public input can be broadened; and a proposed public education model.</td>
<td>June 18, 2007</td>
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<tr>
<td>Middlesex London Health Unit (MLHU) undertook a focused enforcement blitz program during the summer months issuing warnings and some tickets.</td>
<td>July to August, 2007</td>
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<tr>
<td>City staff launched a radio campaign dealing with idling and the need to reduce it.</td>
<td>September 2007</td>
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<tr>
<td>Planning Committee held a Public Participation Meeting as part of its deliberations on drive-through zoning policies. Information provided by numerous delegations.</td>
<td>November 12, 2007</td>
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<tr>
<td>City staff submit a funding submission to Natural Resources Canada for a project called Changing Driver Behaviour in London.</td>
<td>November 14, 2007</td>
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<tr>
<td>Council resolution that City staff include information on &quot;the health and environmental impacts of drive-through uses, including an independent scientific opinion on the information brought forward by the public and industry relating to the health and environmental impacts; as part of Planning Committee's ongoing deliberations.</td>
<td>November 19, 2007</td>
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<tr>
<td>City staff submit to ETC a report on the impacts of idling including the details of an anti-idling campaign to be examined during 2008 Budget deliberations.</td>
<td>January 14, 2008</td>
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<tr>
<td>City staff submit a report entitled Environmental Statement on the Need to Reduce Idling in London to the Planning Division for inclusion in their comprehensive submission to the Planning Committee.</td>
<td>May 2008</td>
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<tr>
<td>Planning Committee held a Public Participation Meeting as part of its deliberations on drive-through zoning policies. Information provided by numerous delegations.</td>
<td>May 26, 2008</td>
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<tr>
<td>ETC received several delegations providing technical details on air emissions from drive-throughs.</td>
<td>June 16, 2008</td>
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<tr>
<td>Council approved that City staff provide a status on the idling report at the July 14, 2008 meeting of ETC.</td>
<td>June 23, 2008</td>
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<tr>
<td>Natural Resources Canada approves and funds ($52,500) the Changing Driver Behaviour in London project based on a number of amendments.</td>
<td>July 2008</td>
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The Changing Driver Behaviour in London project builds upon previous idling campaigns that have been done in London. This project addresses driver idling behaviour at three types of locations that are most likely to encourage vehicle idling:

1. Commercial plazas, which are a common destination for short-term errands such as video stores, convenience stores, Canada Post locations, drug stores, and take-out restaurants;
2. Schools and daycares, where parents may idle their vehicles when dropping off or picking up children; and
3. Workplaces, where drivers may idle vehicles when dropping off or picking up passengers or packages.

Most drivers are likely to be at one of these locations during the week, and some may actually visit two of these locations during the same trip (e.g., drop off dry-cleaning on the way to dropping children off at daycare). City of London staff believe that consistent messaging on vehicle idling at these types of locations throughout London will help lead to the desired behaviour change (reduced vehicle idling).

2. Summary of Key Questions and Issues Dealing with the Environment and Idling Vehicles

Over the last year, a number of questions and issues about the environmental impact of vehicle idling have emerged in London:

1. Contrary to intuition, is short-term idling actually better for the environment than turning off your engine and re-starting?
2. At what point does idling start having an adverse impact on the environment?
3. How important is idling compared to other vehicle-related emissions contributing to air pollution and climate change?
4. What are the most effective ways to convince people to change behaviour with regards to idling?
5. Who should be responsible for delivering idling reduction messages (e.g., City of London, businesses, community groups, partnerships)?
6. How can raising awareness about idling be combined into a broader message about the need to reduce vehicle usage?
7. What locations create situations where idling occurs and do these locations differ on how behaviour needs to be changed?
8. For the purposes of the Idling Control By-Law, what is a practical time limit to use for enforcement purposes and what exemptions should be allowed?
9. What are the options available for practical and effective enforcement of the Idling Control By-Law?

Several of the information sources that are being used to help understand and/or answer these key questions and issues are contained in Appendix B. The Changing Driver Behaviour in London project will also provide key details and knowledge.

It has been the position of City staff that idling is just one of a long list of personal behaviours and choices that need to be addressed. The primary impacts of unnecessary idling are well known:

- Climate change and greenhouse gas (GHG) impacts - The average car produces about 2.4 kilograms of carbon dioxide (CO₂) for every litre of gasoline burned. Carbon dioxide is the principal greenhouse gas. Any time a vehicle is not running, greenhouse gas emissions are not being produced.
- Idling wastes fuel and money - With today's high fuel prices, including estimates of $1.40 to $1.50 per litre during the summer of 2008, individuals are beginning to recognize that money can be saved by not idling vehicles.
Idling wastes a non-renewable resource - Gasoline is produced from crude oil, a non-renewable resource. Crude oil reserves in Canada and around the world are being depleted at increasingly faster rates than experienced in the past.

From an individual's perspective, reducing idling by just one minute per day will have the same energy and climate change benefit as replacing one to two incandescent light bulbs with compact fluorescent light bulbs. Collectively, if every Londoner reduced idling by just one minute per day, over 1.5 million litres of fuel would be saved every single year. At today's gas prices, this amounts to a savings of approximately $2 million per year.

The reasons why people idle their vehicles are also well known: waiting for someone, talking to someone outside of the car, running a quick errand, warming up the car, or combinations of the above.

Idling at drive-throughs has received the most recent attention in the media. However, the drive-through lane is just one location where idling occurs. Common locations for idling include driveways, schools or daycares, workplaces, malls, railway crossings, and the local commercial plaza. It is quite possible that a driver in London may idle their vehicle at more than one of these locations in a day.

3. Timetable to Complete Idling Control By-law Review
The following table highlights the upcoming activities related to idling awareness and education activities planned for London and the completion of the Idling Control By-law review.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Timeframe</th>
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<tr>
<td>Review of the Idling Control By-Law and supporting initiatives and implementation strategies. This includes discussions with the Middlesex London Health Unit and further discussions with other City enforcement areas.</td>
<td>Ongoing to October 2008</td>
</tr>
<tr>
<td>Implement NRCan project entitled “Changing Driver Behaviour in London”</td>
<td>July 2008 – March 2009</td>
</tr>
<tr>
<td>Submit report to ETC on information review, potential amendments, impacts and implementation plan for a potential amended by-law. This work will include answering/addressing the key questions and issues identified in the previous subsection of this report.</td>
<td>November 2008</td>
</tr>
<tr>
<td>Implement Council-approved changes</td>
<td>Winter, Spring 2009</td>
</tr>
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</table>

ACKNOWLEDGEMENTS:
This report and background details were prepared with assistance from Gregg Barrett, Manager, Land Use Planning Policy and Chuck Parker, Senior Planner. It is also important to recognize the important contributions that have been made by many Londoners, local and national community and environmental groups; and Tim Hortons corporate head office and other local members of the OHRMA.

SUBMITTED BY: JAMIE SKIMMING, B.ENG. MANAGER, AIR QUALITY
RECOMMENDED BY: JAY STANFORD, M.A., M.P.A. DIRECTOR, ENVIRONMENTAL PROGRAMS & SOLID WASTE

Appendix A Highlights of Recent Idling-Related Activity in 2007-2008
Appendix B Summary of Information on Vehicle Idling

Dr. Pollett, Medical Officer of Health, Middlesex-London Health Unit
Jim Reffle, Director, Environmental Health & Chronic Disease Prevention Services
Gregg Barrett, Manager, Land Use Planning Policy
Appendix A
Highlights of Recent Idling-Related Activity in 2007-2008

This appendix contains additional, existing information for a number of the recent activities with respect to reducing idling in London.

Advisory Committee on the Environment (ACE) Comments on the City of London Idling Control By-Law (June 18, 2007)
The activity around the proposed regulation of drive-throughs occurred concurrently with recommendations to review and revise the City of London's existing Idling Control By-Law. ACE, at its session held on June 6, 2007, put forth recommendations to amend the existing Idling Control By-Law, including:

1. Replacing the existing five (5) consecutive minute limit with one defined as three (3) minutes within a sixty-minute period
2. Prohibiting the idling of vehicles on a sidewalk used by pedestrians
3. Prohibiting the idling of vehicles at a railway crossing
4. Changing the administration of the by-law from the Medical Officer of Health to the City of London
5. Allowing the enforcement of the by-law by any officer or employee with enforcement capability including any police officer, cadet, commissionaire, or by-law enforcement officer.

At the June 18, 2007 meeting of ETC, these proposed amendments were referred to the Director of Water, Environment, and Customer Relations and the City Solicitor's Office for consideration and requested to report back, specifically on:

1. Recommendations on how to bring in and develop support for the proposed amendments to the by-law
2. Ways to broaden enforcement capability
3. Means by which public input can be broadened
4. A proposed public education model.

This work is underway and scheduled to be complete by November 2008.

Idling Awareness and Education Activities (2007 and 2008)
- During the first quarter of 2007, the City of London in partnership with the Thames Region Ecological Association (TREA), and with funding from Environment Canada ($5,000) ran a two-month pilot program to test the effectiveness of a number of anti-idling social marketing techniques at commercial retail plazas. One of the most important findings was that the incidents of idling were observed to be about 10 to 15 percent lower after the interventions. The study also confirmed that weather is an important factor in the choice to idle a vehicle. This study became a key input document for the more comprehensive proposal to Natural Resources Canada (NRCan) for the project entitled Changing Driver Behaviour in London.

- In July-August 2007, the Middlesex London Health Unit (MLHU) undertook a focused enforcement program during the summer months issuing warnings and some tickets.

- In September 2007, the City of London launched a radio campaign promoting the “ten second rule” for idling, based on statistics from NRCan that show that idling an engine for longer than ten seconds wastes more fuel than needed to re-start an engine. This PSA generated local print and radio media discussions on vehicle idling.

- In November 2007, a proposal to the federal ecoENERGY for Personal Vehicles program for a follow-up anti-idling campaign focusing on drive-throughs, schools, daycares, and commercial retail plazas was submitted to NRCan. In January 2008, NRCan informed the City of London that its proposal had been accepted subject to a number of questions being answered. In July 2008, City
staff and NRCan agreed to modify the scope of work to defer the drive-through component until such time that a private sector partner was willing to participate in a drive-through pilot project. Project activities are expected to start in September 2008.

- In January 2008, a report on the impacts of idling was submitted to the ETC for the purpose of being reviewed for the 2008 Budget deliberations. Funding support was not made available for additional idling initiatives due to competing environmental and community needs.

**Environmental Impact of Drive-Throughs**

On November 19, 2007, Council resolved that:

> That, the report from the General Manager of Planning and Development with respect to the City of London Official Plan/Zoning Refinement Review for the Regulation of Drive-Through Facilities BE REFERRED back to staff to allow for further review of the issues raised by Members of Council and for staff to hold further consultations with industry, and to report back at a public participation meeting of the Planning Committee in six month's time; it being noted the staff report is to include information on the following:

(a) the health and environmental impacts of drive-through uses, including an independent scientific opinion on the information brought forward by the public and industry relating to the health and environmental impacts;

(b) the impact of a complete moratorium on drive-through uses;

(c) details as to the impact of restricting drive-through uses on persons with disabilities; and

(d) the effect of restricting drive-through uses on future land use planning, including parking requirements.

This recommendation has generated a significant amount of technical, general and personal observation information on the topic of vehicle idling emissions at drive-through facilities and vehicle idling in general. Many of these details have been printed as part of the following City staff reports:

- Report to the June 17, 2008 Planning Committee (City of London Official Plan/Zoning Refinement Review – Regulation of Drive-Through Facilities, Agenda Item #8)

- Delegation and Submission to the June 16, 2008 Environment & Transportation Committee (ETC) (Scientific Research on Drive-through Facilities, Agenda Item #17)

- Report to the May 26, 2008 Planning Committee (City of London Official Plan/Zoning Refinement Review – Regulation of Drive-Through Facilities, Agenda Item #18)
Appendix B
Summary of Information on Vehicle Idling

The following is a summary of many of the available sources of information on vehicle idling. Most of this information has been made available to the public through the May 26th and June 17th reports to Planning Committee in the Regulation of Drive-Through Facilities report.

Natural Resources Canada Idle-Free Zone Website
Natural Resources Canada (NRCan) is recognized as the leading authority on the issue of vehicle idling in Canada. The Idle-Free Zone website (at www.idlina.sc.ca) has been maintained by NRCan for a number of years, and is normally the “one-stop shop” for resources on anti-idling activities.

In recent months, this website has not been available due to concerns that the Ontario Restaurant, Hotel, Motel and Restaurant (ORHMA) raised regarding the content of the website, in particular the “ten second rule of thumb for when idling exceeds start-up emissions. As of July 8, 2008, this website was still unavailable. In addition, City staff have been informed by NRCan staff that the decision to re-release this information to the public resides with the Minister’s office.

It is City staff’s understanding that the Air Quality Assessment for Tim Hortons Restaurants study prepared by Rowan Williams Davies & Irwin (RWDI – see details in the next section) has been reviewed by NRCan scientists. What is not clear is what actions may be taken by NRCan in light of this study and what comments will be made available publicly about its review of the contents of the study. City staff remain in contact with NRCan staff regarding this matter.

Air Quality Assessment for Tim Hortons Restaurants (Rowan, Williams, Davies & Irwin – 2008)
In late 2007, TDL Group, the parent company for Tim Hortons, commissioned RWDI to carry out the Air Quality Assessment for Tim Hortons Restaurants study. The study involved a one-hour traffic survey at four Tim Hortons locations – three with drive-throughs and one without a drive-through. The report methodology and findings were subject to a peer review by Dr. Deniz Karman of Carleton University. It is unclear how this peer reviewer was selected and under what terms and conditions.

RWDI concludes that emissions of smog-forming pollutants at a Tim Hortons facility without a drive-through would be higher than a location with a drive-through, due to congestion in the parking lot as customers compete for a limited number of parking spaces. RWDI also had a similar conclusion, to a lesser degree, for the impact of parking lot congestion on greenhouse gas emissions (about a 10 to 30 percent increase due to congestion).

Environmental Statement on the Need to Reduce Idling in London (City of London – 2008)
City of London Environmental Programs staff prepared this statement for use in the May 26, 2008 report to Planning Committee to lay out staff opinion that the environmental aspects of drive-throughs are part of a broader societal issue around unnecessary idling. Included in this statement was City staff’s preliminary review of the RWDI study. City staff had no concerns about the methodology used to estimate emissions, but staff disagreed with and/or had questions about some assumptions and conclusions being made by the RWDI study and ORHMA’s application of the study’s conclusions to all drive-throughs.

City staff’s review of the RWDI data also showed that the “break-even point” for when idling emissions exceed start-up emissions is:

- 10 seconds for carbon dioxide (wasting fuel - consistent with NRCan’s “ten second rule” - these emissions are important as they deal specifically with climate change)
- 2 minutes and 43 seconds for nitrogen oxides (these emissions are important as they deal with localized pollutants that impact air quality)
- 1 minute and 17 seconds for volatile organic compounds (unburned fuel - these emissions are important as they deal with localized pollutants that impact air quality)

In City staff’s opinion, follow-up correspondence from RWDI has not disputed the statements made by City staff at this point in time. A copy of the environmental statement has been included with this appendix. It is important to note the environmental statement represents a key point in time and was based on information available at that time and on City staff’s understanding of the data.
New Information Submitted to ETC by ORHMA Delegation on June 16, 2008
The written comment submitted by Doug Bethune on behalf of ORHMA provides a very useful narrative discussion on how a modern vehicle engine works. The narrative in the submission does not include a referenced source of information or data.

On the topic of idling versus turning the engine off and re-starting, the commentary suggests that the breakeven point for fuel use between idling and engine re-start may now be longer than 10 seconds. The commentary noted that after start up, "the idle speed is above base idle and eventually settles down in approximately 5 to 15 seconds depending upon conditions". No data have been provided to quantify how much more fuel is burned during this period compared to "base idling". However, if you assume that the amount of fuel used during this period is twice that for base idling, you still end up with a breakeven point in the 5 to 15 second range. If the fuel use after start-up is three times that of base idling, then the breakeven point is in the 10 to 30 second range. In the absence of further data from Doug Bethune, it is the opinion of City staff that idling for longer than one minute will certainly waste fuel and increase greenhouse gas emissions.

The commentary also stated the need to avoid vehicle idling after cold starts (i.e., warming up the car in the morning) and even suggests a municipal ban on remote car starters. These comments are consistent with the messaging used by the City of London and NRCan in its anti-idling campaigns.

GW Taylor Consulting prepared this report at the request of NRCan for use in their AutoSmart program. This report was essentially a compilation of idling information available at that time. The report estimated the total amount of time vehicles idled, and its conclusions include:

- Vehicles are idling between 13% to 23% of the time while the engine is turned on
- Events under 3 minutes (typical of intersection delays) represented 72% to 80% of total idling
- Extended idling over 10 minutes represented between 1% and 7% of total idling
- Pre-trip (cold start) idling over 5 minutes represented between 3% and 4% of idling time
- Fuel wasted by idling is proportional to engine size, at approximately 0.6 litres per hour for every litre of engine displacement (e.g., a 3 litre engine idling for 10 minutes wastes about 0.3 litres of fuel)
- The "10 second rule" for the point where idling starts to waste fuel was confirmed
- In terms of wear and tear on a starter, the cost breakeven point between extra wear & tear on starters and fuel saved by not idling is around 45 seconds
- There is little impact on emissions due to the choice between idling or engine shutdown when the vehicle is stopped between 10 seconds and 10 minutes

This report also estimated that the maximum reduction potential in annual consumer fuel use achievable by an anti-idling campaign is between 0.6 and 1.8 percent. Whether this is perceived as being significant is a matter of perspective.

An Analysis of the Effect on Emissions of Allowing Drive-Thru Service Lanes (Sierra Research Inc. – 1997)
Sierra Research prepared this report at the request of the Business Properties Association (i.e., owners of drive-through operations) in Lake Tahoe, California. This report compared the emissions associated with vehicles that used the drive-through, parked and used take-out, and parked and ate-inside. The report concluded that the emissions per vehicle were highest for those who chose to park and eat-inside.

It is City staff's opinion that the latter activity, eating in, should not be used in a comparison. The only fair comparison is between using the drive-through and using take-out service as these two activities tend to be a substitute for one another in a comparison of this nature. The prolonged engine shut-down associated with eating in grossly inflated the restart emissions, as was the case for the RWDI study, as well the evaporative loss of fuel from the fuel system.

It is interesting to note that when these two activities are compared (i.e., emissions from using a drive-through and using take-out service), this report found that for emissions on site (during the summer):

- Carbon monoxide emissions were 50% lower for take-out service
- Nitrogen oxide emissions were about 3 times higher for take-out service
- Unburned hydrocarbons were about 25% lower for take-out service
This report does not address fuel use and associated carbon dioxide emissions, as the focus was solely on the impact of drive-throughs on local air quality and not on climate change or fuel efficiency.

The drive-through queue time used in this report was about 3.5 minutes for peak time and just over 4 minutes for off-peak time. Therefore, in situations where drive through queue lines are longer, one can assume that emissions would be proportionally larger (i.e., waiting 7 minutes would roughly double the drive-through vehicle emissions.)

It is important to note that this report is over 10 years old and that Lake Tahoe is 1,900 metres (6,225 feet) above sea level. Older vehicles have significantly higher emissions than modern vehicles. Also, at higher altitudes, gasoline evaporates more readily and combustion engines do not work as efficiently. Given these factors, it is the opinion of City staff that the RWDI report would be more representative of emissions here in London today.

Preliminary Conclusions and Observations by City Staff

The information presented in the RWDI study and GW Taylor report clearly show that idling for longer than 10 seconds wastes fuel and increases greenhouse gas emissions. However, as the RWDI study and the Sierra Research study show, the situation around smog-forming pollutants like nitrogen oxides and unburned hydrocarbons is more complex due to start-up emissions after parking. In the case of air quality, the RWDI study found that the breakeven point for various air pollutants vary between one and three minutes. As the City of London moves forward on revising its Idling Control By-law, there will be a need to "balance" the concerns about climate change and air quality.

The written comments provided by Doug Bethune suggest that the breakeven point for saving fuel could be higher than 10 seconds. However, no supporting technical information has been provided at this time. Based on the limited information available in the Doug Bethune commentary and the information presented in the RWDI study and GW Taylor report, City staff believe the breakeven point for fuel consumption (and greenhouse gas emissions) could be in the 10 to 30 second range. This is still well below the current five minute limit in the Idling Control By-law.

In the case of the environmental impact of drive-through operations, which were the main focus of the RWDI and Sierra Research studies, the relative impact is dependent upon the wait time (idling time) in the queue. Using a drive-through when there is little or no queue may be better for local air quality. However, long queues during peak demand periods (wait time over 3 minutes) clearly have a negative impact on air quality. The same statement can be made for any situation that encourages long-duration idling, such as waiting at a railway crossing or waiting to pick up children after school.
Environmental Statement on the Need to Reduce Idling in London

May 2008

Document Prepared By:

Jamie Skimming, P.Eng., Manager, Air Quality

Jay Stanford, M.A. M.P.A., Director, Environmental Programs and Solid Waste
This Environmental Statement on the Need to Reduce Idling in London is divided into five parts:

- Part B: The Role of Corporate Social Responsibility in Addressing Idling
- Part C: Staff Review of the Air Quality Assessment for Tim Hortons Restaurants
- Part D: Next Steps for London
- Part E: Staff Recommendations

Background data and information used for this Environment Statement are limited as this is a relatively new field of investigation. Conclusions drawn in this document combine technical information regarding vehicle emissions with personal behaviour in general and location-specific behaviours.

Natural Resources Canada’s Idle Free Zone website is the primary source for information on vehicle idling in Canada.

In the first quarter of 2007, the City of London obtained some London-specific information for idling behaviour at commercial retail plazas in London. The study found that about 10 to 15 per cent of drivers idle their vehicles while visiting plazas, and that the average idling time was around two minutes and 20 seconds. This preliminary investigation found that visual prompts, such as anti-idling signs, reduced the incidence of vehicle idling by around 10 to 15 percent. However, the study also found that ambient weather conditions also influenced idling behaviour, with the incidence of vehicle idling decreasing as winter turned to spring.

In late 2007, TDL Group, the parent company for Tim Hortons, commissioned Rowan Williams Davies & Irwin (RWDI) to carry out the Air Quality Assessment for Tim Hortons Restaurants study. The RWDI study will add to the limited pool of information that is available on the topic of idling.

In January 2008, a report on the impacts of idling was submitted to the ETC for the purpose of being reviewed for the 2008 Budget deliberations. Funding support was not made available for additional idling initiatives due to competing environmental and community needs.
The primary impacts of unnecessary idling are well known. Point form details below are from Natural Resources Canada's website called *Welcome to the Idle-Free Zone*. Direct quotes from this site are in italics. To put idling in perspective, research in Canada suggests that Canadian motorists idle their automobiles an average of 5 to 10 minutes a day. More idling occurs in winter due to our climate but idling does occur year round (e.g., hot summer days).

- **Climate change and Greenhouse Gas (GHG) Impacts** - The average car produces about 2.4 kilograms of carbon dioxide (CO₂) for every litre of gasoline used. Carbon dioxide is the principal greenhouse gas. Any time a vehicle is not running; greenhouse gas emissions are not being produced.

  *If every driver of a light-duty vehicle in Canada avoided idling for just five minutes a day, we would prevent more than 1 million tonnes of CO₂ from entering the atmosphere each year. That would represent a huge contribution to Canada's climate change efforts.*

- **Health impacts of idling** - Vehicles not only generate carbon dioxide but smog-forming pollutants as well, such as nitrogen oxides (NOₓ), unburned hydrocarbons, and fine particulate matter. Increased air pollution can impact all Londoners but it has the greatest impacts on children and the elderly. Children breathe faster than adults therefore they inhale more air per kilogram of body weight. Elderly people and those with respiratory problems, such as asthma, emphysema and chronic bronchitis, can be further aggravated by poor air quality and smog.

  *These health problems could become even more common and pronounced as climate change progresses. That's because climate change results in more frequent and severe heat waves, which tend to make smog and air pollution worse. One way to head off the problem is to stop unnecessary idling. Our air would be cleaner, and respiratory health would improve in our communities.*

- **Idling wastes fuel and money** - With today's high fuel prices, including estimates of $1.40 to $1.50 per litre by the summer of 2008, individuals must recognize that money can be saved by not idling vehicles.

- **Idling wastes a non-renewable resource** - Gasoline is produced from crude oil, a non-renewable resource. Crude oil reserves in Canada and around the world are being depleted at increasingly faster rates than experienced in the past. In addition, wasting crude oil via unnecessary gas consumption will have unintended consequences on the ability to consume oil for other energy uses.

**An Example - What Does Less Idling Mean to Londoners?**

*Question:* What are the benefits if every driver of a light-duty vehicle (e.g., car, van) in London reduced their amount of idling by 20% per year (or about one minute per day?)

*Assumptions:*  
- Londoners idle, on average, for 5 minutes per day  
- There are about 190,000 light-duty vehicles in use everyday in London  
- Fuel prices in London average about a $1.20 per litre
Using *The Idling Impact Calculator* found on the Natural Resources Canada website (www.oee.nrcan.gc.ca), environmental impacts and financial impact data specific to London can be calculated based on the above assumptions.

**What are the annual benefits if every driver of a light-duty vehicle in London reduced their amount of idling by 20 percent per year (or about one minute per day?)**

- 1,548,000 litres of fuel, a non-renewable resource, would be saved.
- Almost $1.9 million would be saved by London drivers every year.
- 3,760 tonnes of greenhouse gas would not be produced (enough GHG to fill over 2,200 NHL-sized hockey rinks).
- 22,580 trees would have to be planted to have the same benefit.
- 2,670 vehicles would have to be taken off the road to have the same benefit.

**Why do People Idle?**

There are many reasons why people idle their vehicles:

- listening to the radio
- waiting for someone
- talking to someone outside of the car
- running a quick errand
- parking illegally
- keeping the heat or air conditioning on
- combinations of the above

Some parents prefer to heat up (or cool down) the interior of their car first before buckling in their young children. Another reason is because some people believe that the car's engine needs to be warmed up before driving away, or that idling is better for the engine than turning off the engine and restarting it if running a short errand.

All of these reasons are unnecessary – there is no reason to idle a vehicle engine.

**What are the Most Common Locations for Idling?**

Idling at drive-throughs has received the most recent attention in the media. However, the drive-through lane is just one typical location where idling occurs. Common locations for idling include:

- Warming up (or cooling down) a vehicle in the driveway
- Dropping off and/or picking up children at school or daycare
- Dropping off and/or picking up a passenger at work, the mall, or any other destination
- Waiting for a train at a railway crossing
- Running quick errands at the plaza, such as dropping off dry-cleaning or returning rental DVDs

It is quite possible that a driver in London may idle their vehicle at more than one of these locations in a day.
What about Emissions from Re-Starting My Car?
According to Natural Resources Canada, idling your engine for longer than ten seconds wastes more fuel than then fuel needed to re-start your engine. This means that for greenhouse gas (carbon dioxide) emissions, engine start-up emissions are the same as ten seconds of idling.

However, as discussed in the RWDT study, the emissions of smog precursors from engine start-up increases the longer an engine has time to cool. Based on the information provided in the RWDT study, the emissions associated with starting up a vehicle after five minutes of parking are:

- Equivalent to 2 minutes and 43 seconds of idling for nitrogen oxides
- Equivalent to 1 minute and 17 seconds of idling for hydrocarbons

What are the Challenges for Reducing Idling?
North Americans are creatures of comfort and convenience. In general, they like to be in a comfortable environment that's not too hot or not too cold and to have everything at their fingertips to minimize effort. The automobile provides this kind of environment and service, as long as the engine is running.

Given that automobiles are the dominant form of personal transportation, products and services have evolved so that they can be delivered to people in the comfort and convenience of their car. For example, traditionally associated with quick-service restaurants, the drive-through "craze" now extends to services such as pharmacies and beer stores and unlikely services like drive-through wedding chapels, funeral homes, and flu-shot clinics.

Unfortunately, this has contributed to energy-intensive cityscapes that have been designed to accommodate automobiles rather than people. It has also led to a dependency on the automobile for everyday needs such as accessing food and workplaces. With rising global fuel demand and declining fossil fuel resources comes rising energy costs and air emissions.

Idling may not be the largest component of automobile-related emissions. However, the decision to leave an automobile's engine running is a voluntary one, and one that usually serves no useful purpose except to provide comfort and convenience.

Efforts to reduce idling face challenges, in that we are asking people to, for example:

- Sit in and/or drive their vehicle whose interior may be cold (or hot) for a couple of minutes
- Park and get out of their vehicle to get their morning coffee or lunch

For many people, these are trivial issues. However, for people with mobility challenges, drive-throughs provide a valuable service. Efforts to address idling must take into account the societal value drive-through services provide. However, at the same time, providers of drive-through services must address the adverse environmental impact of idling associated with these services.
Individual driver responsibility along with awareness-raising support specific to locations where idling occurs is equally important. All vehicle idling is a problem—not just drive-throughs and quick-service restaurants.

Part B: The Role of Corporate Social Responsibility in Addressing Idling

Tim Hortons should be commended for taking the initiative in commissioning the RWDI study. This can be seen as a first step in applying corporate social responsibility principles to address community concerns about idling at drive-throughs. This builds upon Tim Hortons' reputation for supporting local community initiatives (e.g., minor sports programs, free access to community arenas during designated times of the year, London Clean & Green) and broader social initiatives for children. It is imperative that Tim Hortons and other members of the Ontario Restaurant, Hotel & Motel Association become part of the solution to reduce idling.

As stated on the Industry Canada website:

"Corporate social responsibility, or CSR, is a concept that frequently overlaps with similar approaches such as corporate sustainability, corporate sustainable development, corporate responsibility, and corporate citizenship. While CSR does not have a universal definition, many see it as the private sector's way of integrating the economic, social, and environmental imperatives of their activities... CSR also frequently involves creating innovative and proactive solutions to societal and environmental challenges, as well as collaborating with both internal and external stakeholders to improve CSR performance."

Generally, CSR programs contain various elements that typically fall into one or more of the following categories:

- Community investment, engagement and values
- Environmental investment, engagement and values
- Workplace investment, engagement and values
- Business strategy—competitiveness, financial sustainability and values
The adaptation of CSR by corporations across Canada varies. Well-known companies such as the Starbucks Coffee, Royal Bank of Canada, Suncor (Sunoco), Loblaw and Home Depot are cited as examples of corporations applying CSR principles to their businesses.

A CSR initiative that includes environmental responsibility prominently is demonstrated at Vancity, Canada’s largest credit union.

In terms of the environmental aspects of CSR, more and more corporations are starting to look at the environmental footprint of their products and services. Often, this is focused on the core business’s products. In a number of cases, these principles can be applied to customer use and post-consumer management of products and services, as is the case for those corporations participating in Stewardship Ontario (e.g., Kelloggs Canada, Kraft Canada, Coca Cola Bottling Company, Proctor & Gamble Inc.). The concept of extended producer responsibility – taking responsibility from cradle to grave to cradle to cradle - has been implemented for some products in different locations around the world.

With respect to idling, corporations who have embraced CSR should start addressing the impact that their customer behaviour can have on the environment. Corporations whose businesses include drive-throughs need to educate their customers on the environmental impact of vehicle idling. Businesses with parking lots and loading docks also need to remind customers and

Excerpt from Vancity’s Corporate Social Responsibility Webpage - Climate Change Solutions

Thinking ahead is in our nature. And while we enjoy a spectacular environment in British Columbia, it may not always be so. That's why we're committed to supporting ways to find positive solutions to climate change. There are so many easy, everyday changes we can make to reduce our impact on the environment around us: recycling, using less energy, alternative forms of daily transportation. Here’s what we’re doing to be part of the solution...

- **Funding community action** — Over the past three years, we've funded numerous organizations for activities like sustainable transportation, greening spaces, sustainable urban form and green energy. Examples include:
  - Better Environmentally Sound Transportation (BEST)
  - Friends of Renewable Energy BC
  - Sierra Club of BC Foundation’s Victoria Get Cool Climate Change Project
  - A program, created in partnership with the Real Estate Foundation of BC. The program’s goal is to minimize the impacts of climate change and to improve sustainable land use practices by supporting green building initiatives in BC. Grants of up to $50,000 are available.

- **Encouraging sustainable transportation** — Our employee incentive programs offer priority parking for carpoolers and reduced-rate transit passes. Our branches, which are located close to public transit, have bike racks and our head office has a secure bike room, lockers and shower facilities. And it’s working. Today, over 50 per cent of our employees take alternative transportation.

- **Leading the way in energy management** — Since 1992, we have undertaken dozens of initiatives to make our operations more energy efficient. As a result, we’ve saved more than $1.16 million in electricity costs, reduced our energy use by 27 per cent per square metre and decreased greenhouse gas emissions by 223 tonnes.

We are committed to a further 10 per cent reduction in total energy use over the next three years. And we’ve set a goal to rank among the top 10 per cent of organizations in energy efficiency within our industry.
suppliers to turn off their engines when vehicles are parked. This introduction of additional messaging and constant reminders (i.e., message repetition and message frequency) are fundamental components of behaviour change initiatives that are needed to create change.

The City of London has undertaken its own efforts to reduce the idling activity of the City Fleet. To-date, the City has adopted, and is subject to the Idling Control By-Law, and has implemented anti-idling training at both new staff orientation classes and at the mandatory driver education course that every employee must pass before driving a City Vehicle. We do know that more can be done. We are taking steps in that direction by providing in kind support to a Government of Canada project, the Intelligent Vehicle Tracking and Monitoring System Pilot Program. This program consists of technology that monitors fleet vehicle use, including excessive vehicle idling. The final report for the pilot program is expected by late spring/summer 2008.

Part C: Staff Review of the Air Quality Assessment for Tim Hortons Restaurants

On November 12, 2007, the Planning Committee recommended that:

The report from the General Manager of Planning and Development with respect to the City of London Official Plan/Zoning Refinement Review for the Regulation of Drive-Through Facilities BE REFERRED back to staff to allow for further review of the issues raised by Members of Council and for staff to hold further consultations with industry, and to report back at a public participation meeting of the Planning Committee in six month’s time; it being noted the staff report is to include information on the following:

(a) the health and environmental impacts of drive-through uses, including an independent scientific opinion on the information brought forward by the public and industry relating to the health and environmental impacts; and

(b) the impact of a complete moratorium on drive-through uses.

One of the reports that are being submitted by the industry to the Planning Committee is the RWDI study commissioned by Tim Hortons. The RWDI study has raised the bar in terms of the available information on idling, in that:

- It is the first attempt to quantify the environmental impact of drive-throughs that is being made available to the general public

- It has provided information on smog-forming pollutants, such as nitrogen oxides and hydrocarbons, as well as greenhouse gas emissions (carbon dioxide)

- It has provided information on emissions associated with start-up emissions as well as idling emissions
The technical environmental impact information provided can also be applied to other idling scenarios besides drive-through operations.

The report methodology and findings were subject to a peer review by Dr. Deniz Karman of Carleton University, as selected by Tim Hortons.

City staff have reviewed the RWDI study. It should be noted that any comments that have been raised by City staff are limited to information contained within the RWDI study, and that we have not done any in-depth analysis or data gathering of our own. City staff welcome any additional information that can be made available on this topic from Tim Hortons or its parent association.

Regarding the RWDI study, in general, City staff do not have concerns about the tools used in the study. RWDI is a well-known environmental consultancy specializing in air quality management. The vehicle emission dispersion modelling tools RWDI used for their evaluation are well-established, industry-standard tools for studies of this nature.

As valuable as this report is as a source of information on idling, there are some limitations that City staff have noted:

- The study is based on traffic surveys of four Tim Hortons facilities in Ontario – three facilities with drive-throughs and only one facility without a drive through
- The traffic survey at each location consisted of only one hour of observation on one day only, covering the morning peak demand period only

City staff also have some concerns about the assumptions being used as inputs to these models and some of the conclusions that are being drawn from the RWDI study, specifically:

- Is Drive-Through Use Environmentally Insignificant?
- Do You Get Faster Service at a Drive-Through During Peak Times?
- Would the Number of Vehicle-Driving Customers Remain the Same Without a Drive-Through?
- Are the RWDI Study Results Applicable to All Drive-Throughs?

**Is Drive-Through Use Environmentally Insignificant?**

**Answer:** It is the opinion of City staff that vehicle idling at drive-throughs is not an insignificant environmental impact. Vehicle idling at drive-throughs needs to be viewed in the context of the broader vehicle idling issue. Idling has an environmental impact (e.g., it produces greenhouse gases which contribute to climate change).

Figures 5 and 6 of the RWDI study illustrate a drive-through trip as being relatively small compared to the emissions from the daily commute, at about 2 percent of the trip's emissions. However, the results presented in the graphs have assumed a one-way commuting trip of 25 kilometres. That distance may be representative of the commute in the Greater Toronto Area.
However, according to the 2006 Census, the average one-way work-day commute in London was 5.6 kilometres. Therefore, in London, a typical commuter using a drive-through would increase their greenhouse gas emissions (and fuel use) by approximately 10 percent.

**Why is this Important?**

The environmental impact of using a drive-through is also dependent upon how long the queue is. As discussed in the RWDI study, the "soak time" of a cooling engine plays a significant role in the emissions from starting-up an engine. Based on the information provided in the RWDI study, the emissions associated with starting up a vehicle after five minutes of parking are:

- Equivalent to 2 minutes and 43 seconds of idling for nitrogen oxides
- Equivalent to 1 minute and 17 seconds of idling for hydrocarbons
- Equivalent to 10 seconds of idling for carbon dioxide

This information shows that there could be air quality benefits specifically from avoiding the "start-up" emissions of smog precursors if your anticipated wait time is around two minutes or less. This is based on giving nitrogen oxide and hydrocarbon emissions equal importance for air quality benefits.

It is the understanding of City staff that service delivery time target for handling a drive-through customer transaction during morning peak hours is around 20 to 25 seconds. Using this information, a drive-through queue length of 5 to 6 vehicles at a typical Tim Hortons should be processed in around two minutes, which would represent a "neutral" air quality impact scenario compared to parking and walking in for service. Once the drive-through queue is longer than 6 vehicles, it would start to have a negative impact on air quality. For other quick-service restaurants with longer customer service delivery time, the optimum drive-through queue length would be shorter.

For many people, climate change is just as important an issue as local air quality. Given that "start-up" emissions only produce greenhouse gas emissions equivalent to 10 seconds worth of engine idling, the use of a drive-through will, in most cases, have a greater climate change impact than parking and walking-in. If you balance both air quality and climate change concerns and give them equal importance, a drive-through queue time of longer than one minute would start to have negative impacts on the environment as a whole.

There is also the need to balance the environmental aspects of drive-through use with the social and economic aspects. This is a topic that requires further exploration.

City of London staff also recognize this information is applicable to other idling situations besides drive-through use, such as waiting at a railway crossing or picking up children after school. The choice to idle is a voluntary one, and citizens need to be aware of the environmental impacts that these choices may have particularly if the engine is idling for more than one or two minutes.
Do You Get Faster Service at a Drive-Through During Peak Times?

Answer: It is the opinion of City staff that, during peak times, the service time for customers waiting in the drive-through queue is actually slower than for customers who park and walk-in for service.

Table 1 of the RWDL study illustrates that the average time on site for those customers choosing to park and walk-in was about two to four minutes longer than those who used the drive-through. This was used to support the position that a drive-through offers faster service.

However, City of London staff noted that these values included park and walk-in customers who were remaining on site for 12-15 minutes or 15 or more minutes. The number of customers staying on site for 12 or more minutes was significant, at around 15 percent of parking customers. These customers clearly fall into a different category than those using the drive-through as they may be:

- choosing to sit and stay for breakfast,
- meeting with friends or family,
- stopping to use the washroom, etc.

Therefore, it is the opinion of City staff that the best comparison of service time between park and walk-in service and drive-throughs would be done with those walk-in customers who were there for walk-in/walk-out service (i.e., less than 12 minutes.)

When City of London staff removed longer-term customers and recalculated the average time on site for service, a different result emerged.

<table>
<thead>
<tr>
<th>Location</th>
<th>Traffic Volume</th>
<th>Distribution of Time Spent on Site (Minutes)</th>
<th>Average Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>&lt;3.5</td>
<td>3.5-7.0</td>
</tr>
<tr>
<td>Hamilton - Concession St.</td>
<td>Drive-Thru</td>
<td>141</td>
<td>23%</td>
</tr>
<tr>
<td></td>
<td>In-Store</td>
<td>82</td>
<td>40%</td>
</tr>
<tr>
<td>Ottawa - Bank St. &amp; Heron</td>
<td>Drive-Thru</td>
<td>165</td>
<td>52%</td>
</tr>
<tr>
<td></td>
<td>In-Store</td>
<td>79</td>
<td>41%</td>
</tr>
<tr>
<td>Mississauga - Dundas St.</td>
<td>Drive-Thru</td>
<td>106</td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td>In-Store</td>
<td>62</td>
<td>29%</td>
</tr>
<tr>
<td>Ottawa - no drive through</td>
<td>In-Store</td>
<td>83</td>
<td>14%</td>
</tr>
</tbody>
</table>

At two of the three facilities with a drive-through (in Hamilton and Mississauga), service was faster on average for those customers who chose to use in-facility service over the drive-through. This finding supports the anecdotal belief that, during peak times, you will get faster service if you park and walk into the facility than if you remain in the drive-through lane.

Why is this Important?
The "soak time" of a cooling engine plays a significant role in start-up engine emissions. The start-up emissions of smog precursors for an engine that has cooled for over 15 minutes are three-to-
eight times higher than those for an engine that has cooled for only 5 minutes. Including the “sit-down” customers within the comparison of park and walk-in versus drive-through customers introduces a bias to the emission scenario – 50% higher hydrocarbon emissions and 22% higher nitrogen oxide emissions for the park and walk-in scenario.

Using the information contained in the RWDI study, calculations by City of London staff show that the emissions from customers who choose to park and walk-in for service (and don’t stay) are significantly lower than those who remain in the drive-through lane during peak hours (see table on next page). This illustrates the potential environmental benefit for diverting vehicles out of the drive-through lane towards in-facility service during peak times.

<table>
<thead>
<tr>
<th>Drive-Through (including sit-down customers)</th>
<th>VOC Emissions (g/vehicle)</th>
<th>NOx Emissions (g/vehicle)</th>
<th>CO2 Emissions (g/vehicle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>activity</td>
<td>Hamilton</td>
<td>Ottawa</td>
<td>Miss.</td>
</tr>
<tr>
<td>moving</td>
<td>0.06</td>
<td>0.06</td>
<td>0.06</td>
</tr>
<tr>
<td>idling in drive-through</td>
<td>0.80</td>
<td>0.58</td>
<td>0.82</td>
</tr>
<tr>
<td>total</td>
<td>0.86</td>
<td>0.84</td>
<td>0.86</td>
</tr>
<tr>
<td>average</td>
<td>0.79</td>
<td>0.55</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Park &amp; Walk-in (including sit-down customers)</th>
<th>VOC Emissions (g/vehicle)</th>
<th>NOx Emissions (g/vehicle)</th>
<th>CO2 Emissions (g/vehicle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>activity</td>
<td>Hamilton</td>
<td>Ottawa</td>
<td>Miss.</td>
</tr>
<tr>
<td>moving</td>
<td>0.09</td>
<td>0.09</td>
<td>0.09</td>
</tr>
<tr>
<td>idling</td>
<td>0.11</td>
<td>0.11</td>
<td>0.11</td>
</tr>
<tr>
<td>start-up</td>
<td>0.46</td>
<td>0.46</td>
<td>0.46</td>
</tr>
<tr>
<td>total</td>
<td>0.66</td>
<td>0.66</td>
<td>0.66</td>
</tr>
<tr>
<td>average</td>
<td>0.66</td>
<td>0.59</td>
<td></td>
</tr>
</tbody>
</table>

| difference from drive-through               | -16%     | 8%     | -56%    | 76       | 76     | 76     |

Would the Number of Vehicle-Driving Customers Remain the Same Without a Drive-Through?

Answer: It is the opinion of City staff that the number of vehicle-driving customers at a facility without a drive-through would likely be lower than at a facility with a drive-through.

The emission scenario modeling work for the RWDI study was based on a vehicle-based peak hour customer volume of 224 vehicles per hour at facilities equipped with a drive-through. This number was based on the traffic studies of the three Tim Hortons facilities with drive-throughs.
The RWDI study made a comparison of emissions between a Tim Hortons facility with and without a drive-through, and assumed that the volume of vehicle traffic would remain the same (224 vehicles per hour at peak time). As a result, there would be congestion in the parking lot as vehicles compete over limited parking spaces, which would increase the emissions of smog precursors and greenhouse gases. However, City staff believe that the volume of vehicle traffic would likely be lower at facilities without a drive-through. This would be due to two main reasons:

- The absence of a drive-through may discourage some customers due to loss of convenience
- The congestion in a parking lot may discourage some customers from stopping at that facility

City staff recognize that there may be a financial impact on the operation as a result. The traffic study of the one Tim Hortons facility without a drive-through indicated vehicle traffic volume about 50 percent lower (109 per hour) than facilities with drive-throughs (179-258 per hour). This would appear to support our opinion.

**Why is this Important?**

Using the information contained in the study, City staff calculated the peak hour emissions for the four facilities, based on the measured traffic volumes.

<table>
<thead>
<tr>
<th>Location</th>
<th>Number of Vehicles</th>
<th>Peak Emissions (g/h)</th>
<th>Overall Emissions per Vehicle (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>VOCs</td>
<td>NOx</td>
</tr>
<tr>
<td>Hamilton</td>
<td>235</td>
<td>161</td>
<td>130</td>
</tr>
<tr>
<td>Ottawa</td>
<td>258</td>
<td>146</td>
<td>121</td>
</tr>
<tr>
<td>Mississauga</td>
<td>179</td>
<td>125</td>
<td>100</td>
</tr>
<tr>
<td>Ottawa - no drive through</td>
<td>109</td>
<td>100</td>
<td>89</td>
</tr>
</tbody>
</table>

This shows that the total peak hour emissions from the one store without a drive-through was actually lower than those with a drive-through, even though the per-vehicle emissions were higher. Therefore, the impact of that facility on its neighbours would be lower than the three locations with drive-throughs.

The RDWI study demonstrates that a Tim Hortons facility with a drive-through is capable of handling around twice the number of customers than a facility without drive-throughs. It also shows that emissions at facilities with drive-throughs are lower on a per-vehicle basis. However, it is City staff's opinion that the increased volume of vehicle traffic at facilities with a drive-through negates any per-vehicle emission reductions at that location.

It is important to note that there is great uncertainty as to how a customer's behaviour would change if there was no drive-through available. We do not know the answers to these questions:

- How many customers would switch to coffee made at home or at work?
- How many customers would still make the effort to park even though the parking lot is busy?
- Would additional facilities be needed to meet demand if no drive-through was available?
  If so, what would be the additional environmental impact?
Are the RWDI Study Results Applicable to All Drive-Through Operations?

Answer: It is the opinion of City staff that the results of the RWDI study are only representative of Tim Hortons facilities during the morning peak hour. We are supportive of the statement made in the RWDI Study that states this. We are not supportive of the statements made by ORHMA that contradict the RWDI Study.

The RWDI study has explicitly stated that:

"these results are considered to be representative for Tim Hortons stores but cannot be generalized to other types of drive-through facilities."

However, the May 2, 2008 letter from the Ontario Restaurant Hotel & Motel Association (ORHMA) states that, in reference to the RWDI study, that:

"As an industry, we along with our representatives have prepared and completed various studies and reports... that demonstrate unequivocally that the measures proposed by staff that will result in the reduction in drive-through facilities will lead to growth of parking lots, and resulting increases in emissions of both particulate pollutants and green house gases."

"We note with some interest that such targeting of drive-through facilities as environmental villains by some members of the public might seem to make superficial sense. However, we would expect a greater standard of a government dealing with the property rights of persons and corporations. The expectation would be that a proper level of investigation and study take place before the making of recommendations broadly contained in your report."

"The only available study... is that of RWDI Air Inc... The study conclusively establishes that with respect to air quality and green house gases (associated with climate change), drive-through facilities are less harmful for the environment than are parking lots."

Why is this Important?

Tim Hortons have developed business processes that allow them to service customers efficiently during morning peak times, with the amount of time between the start of order-taking to delivery of goods being around 20 to 25 seconds.

Ordering, preparing, and delivering a breakfast, lunch or dinner order at other ORHMA-member quick service restaurant may likely take longer than 25 seconds. Further studies should be carried out at other ORHMA-members (e.g., McDonalds, Wendy's, Burger King, and A&W) first before any definitive statement can be made about the environmental impacts of drive-throughs for a wide-ranging group of businesses.

This is important because the media, general public, and some members of the industry are likely to confuse the results of the RWDI study as being applicable to all drive-through operations. In our opinion, the statements made by the OMRHA as noted above, compared with those in the RWDI Study statements support our concern that these data are easily misinterpreted and have been already.
Part D: Next Steps for London

Planned Activities for 2008 and 2009
The City of London, in partnership with the Middlesex-London Health Unit, is in the process of reviewing the existing Idling Control By-Law. The information provided by the RWDI study will be of value for our review of issues such as time limits for vehicle idling.

The City of London, with funding from Natural Resources Canada, will be carrying out idling awareness campaign that will include activities specifically-targeted at schools, daycares, workplaces, and commercial plazas.

The City of London will seek out corporate and industry partners to develop idling awareness pilot programs targeting drive-throughs at fast food outlets, car washes, and banking facilities. As with other environmental issues such as electricity conservation and traffic gridlock, City of London staff believe that actions are needed to manage “peak demand” at drive-throughs so that unnecessary emissions are avoided.

Part E: Staff Recommendations

The following recommendations have been made solely from the perspective of the environmental aspects of drive-through use within the context of the broader vehicle idling issue. These recommendations do not address land use planning issues, design issues, or health issues.

Recommendations for Vehicle Idling in General

1. Senior levels of government (e.g., Ontario Ministry of the Environment, Natural Resources Canada) and major service sector corporations where idling is frequent should work together on idling research to expand knowledge in this area.

2. The City of London, in partnership with the Middlesex-London Health Unit, major service sector corporations and Natural Resources Canada, should work together on idling campaigns that address Londoner’s behaviours.

3. The City of London should continue working with local stakeholders (schools, daycares, employers) to address idling at their facilities.

4. The Idling Control By-Law should be modified to take into account the information from the RWDI study, recommendations proposed by the Advisory Committee on the Environment (ACE) in 2007, and new data compiled by ACE in 2008. This should include the following:

   • The permitted idling time should be reduced from the current five minute limit. Options for the future limit could go as low as a two-minute limit based on smog precursor emissions, or a one minute limit based on a balance of air quality and climate change concerns. There is also the need to balance the environmental aspects of idling with the public’s willingness and ability to curtail idling; along with the enforceability of a by-law.
The existing Idling Control By-Law temperature exemptions (< 5°C and >27°C) should be modified, or possibly eliminated.

This is currently being explored by City of London and Middlesex-London Health Unit staff, and it is expected that a follow-up report to Council will be ready by Summer 2008.

5. There is a need to increase local education and awareness that focuses on the environmental, health and financial impact of idling. Local information exists that can be used in these kinds of campaigns.

Recommendations Specific for Drive-Thrughs

1. Additional information on the environmental aspects of a wider range of drive-through operations is required. This additional research should focus on the broader lifecycle aspects of drive-through operations across all environmental media (air, water, and land-related issues). This research should take into account input from all stakeholders (industry, government, environmental non-government organizations, academia, etc.).

2. Owners of drive-throughs must be encouraged to add to their corporate social responsibility programs the need to dramatically reduce idling on their premises. On premise and in-store advertising can be used to raise this important issue with their customers. It is recognized that selling products to their customers in the most efficient and effective manner possible is their primary goal. This same level of efficiency and effectiveness can be used to promote much needed environmental behaviour change messaging. For example:
   - customers should be encouraged to park and walk-in when the drive-through wait time exceeds a specified time that takes into account the by-law limit as well as the typical time spent moving within a drive-through line.
   - drive-through operations should provide the customer means to estimate drive-through wait time, so that customers can make an informed decision whether to use the drive-through or to park and walk-in for service.

3. Facilities with drive-throughs should ensure that their operations are designed and staffed to serve both drive-through customers and walk-in customers as efficiently as possible to minimize wait times and associated emissions.

4. New drive-through operations built in London should be required to include within their site design means to provide customers with information about estimated wait times and the ability to access parking once the queue wait time exceeds the Idling Control By-Law time limit.

5. There should be no moratorium on new drive-through operations at this point in time as drive-throughs only represent a portion of the idling issue in London. Businesses that operate drive-through operations should first be given an opportunity to apply corporate social responsibility principles to their drive-through operations prior to considering a regulatory option. Also, efforts to address the broader idling issue need to be given time to come into effect, given that drive-
through use is driven by consumer behaviour. It is imperative that these actions occur quickly from these businesses. The marketing ability of businesses is recognized as one of their strengths; therefore applying these same principles to help "sell" the public that idling must be reduced for environmental reasons along with financial and health reasons is a perfect fit.

Rationale
The following is a list of some of the environmental pros and cons of placing a moratorium on new drive-throughs.

**Pros:**
- Removing drive-throughs allows for a pedestrian- and cycling-friendly site designs that complement Placemaking principles, which reduces emissions
- Over time, and in combination with rising fuel costs, the unnecessary use of a drive-through would decline

**Cons:**
- There is potential for people to divert away from the most direct route to their destination to use a drive-through, which increases emissions
- There is potential for existing drive-throughs to experience longer queues, which increases emissions
- At new locations, "habitual" drive-through users may be tempted to idle their vehicles when they park and walk in for service
- As hybrids and electric vehicles become more commonplace in the future, the negative air quality impacts of drive-throughs decrease