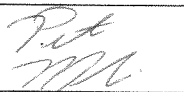




**TOWN OF COMOX
PLANNING REPORT**

TO:	MAYOR AND COUNCIL – COMMITTEE OF THE WHOLE
FROM:	MARVIN KAMENZ, PLANNER PETER MAROHNIC, PLANNING TECHNICIAN
SUBJECT:	Rezoning Application No. RZ 09-2 Drive-thrus
MEETING DATE:	JUNE 24, 2009


 Submitted by


 Concurrence


 Approval

Background:

At the April 15, 2009 RCM the motion that “drive-thrus be permitted on parcels where they currently exist, and prohibited elsewhere” was tabled until after a legal opinion was sought on possible conflict of interest.

At the April 15, 2009 RCM Council issued the following resolution:
 “That staff research other communities that have banned drive-thrus including their bylaws and the impacts of the bans.”

The Town issued a broadcast email through CivicInfoBC to Chief Administrative Officers of all municipal and regional governments in British Columbia requesting information on their community’s experience with regulating drive-thrus (**Attachment 1**). A further request for information was issued via CivicInfoBC’s weekly newsletter. A third request for information (**Attachment 2**) was issued through the Federation of Canadian Municipalities to the Chief Administrative Officers of all Ontario and BC municipalities with a population between 10,000 – 50,000 residents. The Town received responses from 18 local governments. A summary of these responses is provided in **Attachment 3**.

The drive-thru regulatory experiences of the 18 communities that responded to the Town’s request for information can be classified in four broad categories:

1. Prohibited in all commercial zones (i.e. Qualicum Beach, Gibsons, and Sidney)
2. Prohibited in the downtown area, but permitted in highway or business park commercial zoning (i.e. Golden, Cranbrook, and View Royal)
3. Generally permitted in commercial zones (i.e. Langley and Vernon)
4. Have no experience regulating drive-thrus (i.e. Salmon Arm)

Town of Gibsons:

Gibsons prohibits drive-thru developments by regulating them through design guidelines that encourage pedestrian orientated developments and, therefore, do not permit drive-thrus. Gibsons also has an anti-idling bylaw that regulates vehicle idling time¹.

Town of Qualicum Beach:

Qualicum Beach prohibits drive-thru restaurants by providing a distinct definition in their Land Use and Subdivision Bylaw for a 'restaurant' and a 'fast food outlet'. A 'restaurant' that provides the sale of prepared foods and beverages, which are consumed on the premises, and provides table service to customers seated in their premises is a permitted use in eight of Qualicum Beach's nine commercial zones. A 'fast food outlet' that provides for the sale of prepared food and beverages over a counter, through a take-out window, or by means of a drive-thru service is not a permitted use in any commercial zone.

Town of Sidney:

The Town of Sidney prohibits drive-thru restaurants by providing a separate definition in their Zoning Bylaw for a 'restaurant, class I' and a 'drive-thru restaurant'. A 'restaurant, class I' is defined as:

"an area of land, building, structure or part thereof where food and non-alcoholic beverages are offered for sale to the public for consumption either on or off the lot, but not in a vehicle on the lot; does not include a drive thru restaurant."

A 'drive-thru restaurant' is defined as:

"a restaurant where persons order, pay for and pick up food while remaining in their vehicles."

A 'restaurant, class I' is a permitted use in four of Sidney's six commercial zones. A 'drive-thru restaurant' is not a permitted use in any of the commercial zones, but is permitted in two comprehensive development zones.

Village of Harrison Hot Springs:

Similar to Qualicum Beach and Sidney, the Village of Harrison Hot Springs' Zoning Bylaw provides a separate definition for 'restaurant' and 'drive-in restaurant.' A 'restaurant' is a permitted use in seven of eight commercial zones. A 'drive-in restaurant' is not a permitted use in any commercial zone. A 'drive-in restaurant' is defined as:

"means an eating establishment with facilities for attracting and servicing prospective customers travelling in motor vehicles driven to the establishment, and where customers may remain in their vehicles to consume the food which is purchased or may enter the establishment."

Very few survey responses addressed the economic impact issue although the Town's information requests specifically asked for feedback on this topic. The few responses received on this topic were inconclusive (i.e. not certain what economic impact exists).

In addition to the responses provided by the 18 communities, the Town received additional information from the Canadian Restaurant and Foodservices Association regarding the economic benefit of drive-thrus (**Attachment 4**).

¹ According to the BC Climate Action Toolkit North Vancouver and Vancouver have also passed anti-idling bylaws, while Williams Lake and Richmond have introduced idle-free policies for their corporate fleets.

Discussion:

Permitting drive-thrus on parcels where they currently exist and prohibiting drive-thrus on all other parcels through a zoning amendment will result in drive-thrus being a permitted use at 1966 Guthrie Road (Shoppers Drug Mart) and 727 Anderton Road (McDonalds and Tim Hortons).

Attachment 5 identifies these properties. An application for a drive-thru development on any other parcel would require a zoning amendment application.

Development applications of all forms are assessed individually based on relevant regulatory and site impact considerations. However, some trends seem to exist in regards to the land use compatibility implications of drive-thru developments. For instance drive-thrus generally do not support pedestrian oriented development, but rather support an automobile oriented development style as they are a convenience only to those who own and operate vehicles. They may pose health and safety risks for pedestrians through increased vehicular traffic, noise, and pollution. Drive-thrus generally do not assist commercial developments in complementing the surrounding residential character of Comox. They may increase the impact a commercial development has on surrounding uses (i.e. residential) through the possibility of increased noise from idling cars and voice amplification equipment, lighting, and queuing traffic interfering with on-site and off-site traffic.

A development's impact on the environment is based on a number of factors (i.e. energy and water efficiency, building material, location, etc.). Scientific conclusions regarding the environmental implications of drive-thrus are mixed. For instance the findings in the letter/report provided by Tim Hortons (**Attachment 6**) differ from the findings of Natural Resources Canada (**Attachment 7**) and the BC Climate Action Toolkit (**Attachment 8**). Therefore, any future zoning amendment applications to permit a drive-thru should demonstrate an overwhelming environmental benefit by receiving Leeds Certification (or certification from an equivalent third party organization). This certification would avoid any ambiguity regarding environmental implications of drive-thrus and will ensure any environmental impacts are mitigated.

MK/PM

Schedule: 0
Attachments: 8



TOWN OF COMOX

RZ 09-2
DRIVE-THRU
JUNE 24, 2009

ATTACHMENT 1

File No. OCP/RZ 09-2

April 23, 2009

CivicInfo BC
7th Floor – 620 View Street
Victoria, BC
V8W 1J6

Attention: Chief Administrative Officer

The Town of Comox is seeking information from any municipal government in British Columbia that has experience regulating drive-thru developments. Specifically the Town is interested in learning the following:

- How does your municipality regulate drive-thrus? (e.g. limit drive-thrus to specific zones or properties)
- Has your municipality considered a bylaw prohibiting drive-thrus? If so, what were your experiences on this matter and was the bylaw passed by Council?
- What, if any, has been the anecdotal or direct economic impact resulting from these drive-thru regulations?

At the April 15, 2009 Regular Council Meeting, Town of Comox Council resolved "that staff research other communities that have banned drive-thrus, including their bylaws and the impacts of the bans."

We would greatly appreciate hearing from anyone with experience regarding this issue. Please contact the Planning Department at (250) 339-1118 or email at pmarohnic@comox.ca.

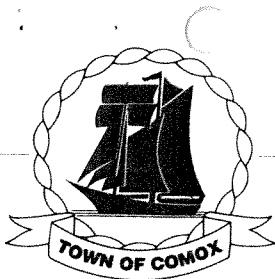
Thank you very much in advance for any insight you may be able to offer.

Yours truly,

Richard Kanigan
Chief Administrative Officer

Enclosure: 1

RK/PM



TOWN OF COMOX

RZ 09-2
DRIVE-THRU
JUNE 24, 2009

ATTACHMENT 2

File No. OCP/RZ 09-2

May 4, 2009

Federation of Canadian Municipalities
24 Clarence Street
Ottawa, Ontario
K1N 5P3

Attention: Chief Administrative Officer

The Town of Comox is seeking information from any municipal government that has experience regulating drive-thru developments. Specifically the Town is interested in learning the following:

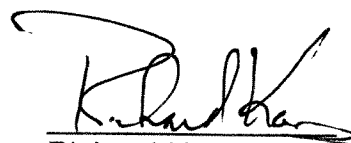
- How does your municipality regulate drive-thrus? (e.g. limit drive-thrus to specific zones or properties)
- Has your municipality considered a bylaw prohibiting drive-thrus? If so, what were your experiences on this matter and was the bylaw passed by Council?
- What, if any, has been the anecdotal or direct economic impact resulting from these drive-thru regulations?

At the April 15, 2009 Regular Council Meeting, Town of Comox Council resolved "that staff research other communities that have banned drive-thrus, including their bylaws and the impacts of the bans."

We would greatly appreciate hearing from anyone with experience regarding this issue. Please contact the Planning Department at (250) 339-1118 or email at pmarohnic@comox.ca.

Thank you very much in advance for any insight you may be able to offer.

Yours truly,


Richard Kanigan
Chief Administrative Officer

Enclosure: 1

RK/PM

Summary of Responses to Town of Comox Request for Information on Experience Regulating Drive-Thrus

1. Sidney, BC

- Prohibit the development of new drive-thrus through zoning
- This is accomplished making the distinction between drive-thru restaurants and regular restaurants in the definitions section
- drive-thru restaurants are excluded from the list of Permitted Uses contained within the zoning sections

2. Qualicum Beach, BC

- The Town of Qualicum Beach does not have any drive-thrus
- Restaurant is an allowable use in the town while Fast Food Outlets are not an allowable use
- Definition of restaurant is an eating establishment providing only for the sale of unpackaged prepared foods and beverages which are consumed on the premises and which provide table service to customers seated in the premises, and specifically excludes neighbourhood pubs and fast food outlets.
- Definition of fast food outlet is an eating establishment providing for the sale of prepared food and beverages which are served over a counter or through a take-out window or by means of a drive through service to customers who may consume the food and beverages on or off the premises, but specifically excludes grocery stores, delicatessens and the sale of bakery goods, ice cream and soft drinks.

3. Gibsons, BC

- Drive-thrus are regulated through design guidelines which encourage a style of development that is pedestrian oriented and a drive thru does not create that type of environment
- Gibsons also has an anti-idling bylaw that restricts the time cars can idle - a drive thru is counter to this as well

4. Harrison Hot Springs, BC

- Do not permit fast food outlets or drive-thrus.

5. Cranbrook, BC

- The City of Cranbrook allows for drive-thrus in its highway commercial zone
- The City specifically prohibits drive thru food services in the downtown and neighbourhood commercial zones
- Not aware of any particular economic impacts that have arisen regarding their regulation
- Access and on-site traffic circulation are matters that need to be reviewed carefully with respect to development approvals

6. Saanich, BC

- A few zones exist where drive-thrus are permitted
- Required to be processed through DP review process
- Only one drive-thru built in last 9 years

7. View Royal, BC

- Separate definition for drive-in restaurant in zoning bylaw
- Drive-in restaurant is allowed in only one zone – Business Park C-7 Zone
- Limited number of drive-thru restaurants and coffee shops
- Not sure regulations affect business opportunities

8. Vernon, BC

- Vernon's Zoning Bylaw #5000 defines drive-thru services as follows 'the business where customers order and receive services, food or other goods in their motor vehicles via one or more designated drive-thru lanes or through one or more car attendant services, but does not include drive-thru vehicle services'
- This use is permitted in the following zones:
 - a. C5 – Community Commercial
 - b. C7 – Heritage Business District
 - c. C8 – Central Business District
 - d. C9 – Regional Commercial
 - e. C10 – Tourist Commercial
 - f. C11 – Service Commercial
 - g. CD1 – Comprehensive Development Area 1
- In the City's Official Community Plan (OCP) there is no specific policy reference to governing this use.

9. Langley, BC

- City of Langley does not have any special zoning regulations for drive-through uses
- Drive-through uses are permitted in the commercial zones
- The City has not considered a bylaw to prohibit drive-through uses

10. Golden, BC

- Only allow drive-thrus in one zone which is highway commercial
- Don't allow them in downtown

11. Woolwich, Ontario

- The Zoning By-law permits drive-thru restaurants in certain commercial and industrial zones, but prohibits the use in Buffer Commercial or Neighbourhood commercial zones. There are provisions that require a minimum number of stacking spaces for drive-thru restaurants including a minimum of 8 spaces for restaurants and a minimum of 12 spaces for coffee shops (each stacking space is 2.5 metres by 6 metres in size).
- The Township has not considered prohibiting drive-thru restaurants at this time.
- There has been no analysis of the cost-benefit of drive-thrus in Woolwich

12. Cornwall, Ontario

- Deal with drive-thru's at what we would refer to as Site Plan Approval
- Look at stacking numbers to avoid congesting the site or the adjacent streets
- Impact of ordering speakers and headlights can be an issue after hours/evening
- Also look at pedestrian/patron access safety and crossing of lanes and conflicts while getting in and out of the building

13. Strathroy-Caradoc, Ontario

- The Municipality of Strathroy-Caradoc regulates drive-thrus in the Zoning By-law. They are expressly prohibited in the "General Commercial (C1)" Zone (which is essentially the Downtown Core) and only permitted in the "Highway Commercial (C2)" Zone.
- In addition to the zone requirements, where a drive-through facility is listed as a permitted use, the following provisions shall apply:
 - a) 2 m of landscaped open space shall be provided along the edge of the lot where parking areas, driveways or stacking lanes are adjacent to a public street.
 - b) The landscaped open space, in Subsection a) shall form distinctive edge along the lot line, which shall define the lot line against the public street between a height of 30 cm to 60 cm, not including curbing.
 - c) Outdoor loading areas, garbage storage and stacking lanes shall not be located directly adjacent to any non-commercial or non-industrial lot.
 - d) Where pedestrian walkways intersect the drive-thru stacking lanes, they shall have clear visibility, and be emphasized by enriched paving or striping.
 - e) Drive-through stacking lanes shall accommodate a minimum length of 6 parking spaces behind the menu board.
- This provision was brought into effect in September 2008, when we were undertaking our Comprehensive Zoning By-law review (i.e. re-doing the entire Zoning By-law)

14. Vanderhoof, BC

- No experience regulating drive-thru developments

15. Ashcroft, BC

- Never had to deal with a drive-thru development and consequently have no regulations on the issue

16. Creston, BC

- Do not regulate drive-thrus, nor has there been any public discussion about doing so locally

17. Salmon Arm

- Does not regulate drive-thrus in developments

18. South Stormont, Ontario

- Does not have any drive-thrus in the municipality

Peter Marohnic

RZ 09-2
DRIVE-THRU
JUNE 24, 2009

From: Marvin Kamenz
Sent: Friday, May 08, 2009 1:46 PM
To: Peter Marohnic
Subject: FW: Economic info

ATTACHMENT 4

Marvin Kamenz
Municipal Planner
Town of Comox
1809 Beaufort Avenue, Comox BC, V9M 1R9
Ph (250) 339-1118
Fax (250) 339-7110

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From: Richard Kanigan
Sent: Friday, May 08, 2009 1:45 PM
To: Mark von Schellwitz
Cc: Marvin Kamenz
Subject: RE: Economic info

Thanks Mark.

I have passed on this information to the Planning Department who will be preparing the report in due course.

Regards,

Richard Kanigan
Chief Administrative Officer
Town of Comox
(250) 339-2202
rkanigan@comox.ca

From: Mark von Schellwitz [mailto:crfa@telus.net]
Sent: May 8, 2009 1:40 PM
To: Richard Kanigan
Subject: Economic info

Richard,

Further to our brief discussion a few days ago, I thought you might be interested in the following basic economic information I collected from local QSR operators with drive-throughs. You may already have this data.

Drive-throughs are an increasingly important component of quick service restaurant business. Most quick service restaurants would not be viable without the drive-through component. A new quick service restaurant with a drive-through generates more than \$1 million in development activity employing numerous professionals and trades people. These new businesses employ between 50-100 people and generate more than \$20,000 in annual municipal tax revenue.

Please let me know when you think the drive-through issue is scheduled to come back to Council.

Have a great weekend!

Cheers, Mark

Mark von Schellwitz
Vice President, Western Canada
Canadian Restaurant & Foodservices Association
#2410 - 555 West Hastings Street
P.O. Box 12125
Vancouver, B.C.
V6B 4N6

Phone 604-685-9655
Toll Free 1-866-300-7675
Email mark@crfa.ca
Website www.crfa.ca

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PAUL I.

0- Planning
Comox Council

ATTACHMENT 6

Comox Council

March 27/2009

LOG: 09151	REFER:	COW
FILE: planning	ACTION: MR	Apr 8

My name is John Brocklehurst. My wife and I own 3 Tim Hortons franchises in the Comox Valley. As Tim Hortons we have been a member of this community for 10 years and we employ 110 people through out the Valley. We are proud supporters of the Comox Community.

We are concerned regarding the current campaign to prohibit drive throughs within the limits of Comox and the impact this could have on future growth and our ability to best serve the residents of Comox and the area. Drive-thrus are very important service to our customers as approximately 55% of them use this service.

Our business success is dependant on our team delivering fast, efficient and friendly service and providing good value in a safe manner. Therefore it is in our best interest to minimize the time vehicles spend in our drive through and we are constantly striving to do just that. We staff our drive thru operation to the maximum that space allows; we take every opportunity to invest in the latest and most efficient equipment available. For example we now offer many forms of cashless payment (Tim Card, MasterCard and Interac) to help speed up service. We know that every second counts when people are in the drive-thru on there way to a busy day and as such monitor our service times during the entire day.

Prohibiting drive throughs would have a significant impact on my customers and my business. Many people use our drive-thru because they have to: People with mobility difficulties, senior citizens and parents with children and young infants, just to name a few.

I have attached a briefing note regarding an Air Quality assessment done on OUR behalf and funded by our Parent Company The TDL Group. The scientific study that was conducted, concluded that the elimination of drive thus would not have a measurable impact on air quality. In addition stores without drive-thrus require more land and parking to handle the same volume of business.

The Canadian Restaurant and Foodservices Association has also provided other studies that have concluded that a car generates 9 times the greenhouse gasses at 50km/hr than at idle. Their studies conclude a car would have to idle for more than 10 minutes to match emissions generated by turning a car off and on again.

We also cannot forget that the automotive industry is finally changing and now there are vehicles with alternate fuels (hybrids) and better emission controls. These factors are all helping to improve the situation. The fact is people are using there vehicles to go from point A to point B while conducting the lives. Some of them stop for refreshments on their way and chose the drive-thru as a convenience. We do provide the choice.

We certainly agree that drive-thrus need to be managed properly. They need to be managed right from the planning stage through to staffing and equipping. Adequate stacking space, parking lot functionality and managing the business are the keys to efficiency.

We encourage the Comox Council to study the implications of such a prohibition, and to consider the scientific evidence before rendering a decision. We ask you to also consider the public who uses drive-thrus every day because there is a value to them and to their lifestyle and in some cases they are not able to leave their vehicles easily and come inside.

Thank you for considering my letter and listening to our concerns.

Sincerely


John Brocklehurst
Owner Operator
Tim Hortons
Comox Valley

Tim Hortons



John & Lynda Brocklehurst

Owners
#2 - 789 Ryan Road
Courtenay, BC V9N 3R6
Tel / Fax: (250) 338-9401

727 Anderton Road
Comox, BC V9M 3S6
Tel / Fax: (250) 339-3926

2451 Cliffe Avenue
Courtenay, BC V9N 2L5
Tel / Fax: (250) 338-6728

Briefing Note - Summary of the Air Quality Assessment of Tim Hortons Restaurants: Ontario, Canada (May 2008)

Conducted By RWDI AIR Inc Consulting Engineers & Scientists

650 Woodlawn Road West Guelph, Ontario N1K 1B8 www.rwdi.com

PROJECT DIRECTOR: MIKE LEPAGE, M.S., CCM

PROJECT MANAGER: COLIN WELBURN, M.ENG., P.ENG.

PROJECT SCIENTIST: TERRY LYN PEARSON, B. SC. (AGR.)

SENIOR ENGINEER: SHARON SCHAJNOHA, P.ENG

PEER REVIEWER: DR. DENIZ KARMAN, PHD, P.ENG, PROFESSOR OF
ENVIRONMENTAL ENGINEERING, CARLETON UNIVERSITY

Purpose:

RWDI AIR Inc. (RWDI) was retained by the TDL Group Corp. to conduct an air quality study of vehicles using their facilities. The TDL Group is interested in having sound technical information on vehicle emissions at its facilities that have a drive-through component. The TDL Group also requested comparing these vehicles emissions to other common sources of air pollution to assist the public with an easily understood comparison when discussing vehicle emissions at drive-throughs.

In addition, the TDL Group wanted to know how the drive-through emissions will change in the future as aging models of automobiles are gradually phased out and replaced by newer models with lower emissions. Finally, the TDL Group wants information on how the emissions at drive-through facilities affect the local air quality around those facilities.

Methodology

Based on actual traffic surveys taken at peak times in four typical stores, an emission inventory was developed for two scenarios, Scenario 1: a conventional store with both drive-through and in-store operations and Scenario 2: a store with in-store service only (no drive-through.) Typical patterns or modes of operation for vehicles using the drive through and the parking lot were developed from these and other observations

This study examined the main pollutants of concern for motor vehicles, which are as follows:

- Smog pollutants – oxides of nitrogen (NO_x), hydrocarbons (HC), sulphur dioxide (SO₂) and particulate matter (PM);
- Local pollutants – carbon monoxide (CO); and
- Greenhouse gases – carbon dioxide (CO₂).

Emission models produced by the U.S. Environmental Protection Agency and other accepted methodologies were used to estimate emissions. Tedesco Engineering provided detailed traffic survey data that was used to calculate site-specific emissions.

The emission inventory for the drive-through portion of the facility was compared to "everyday" emission sources (i.e. lawn mowers, snow blowers, etc.). Dispersion modelling was conducted for a drive-through facility to predict maximum pollutant concentrations in the areas adjacent to a Tim Hortons store and compare them to provincial standards set out by the Ontario Ministry of the Environment (MOE).

Further technical details of the methodology can be found in the main text of the report. The method and findings were subjected to peer review by Dr. Deniz Karman of Carleton University http://www.carleton.ca/engineering/design-research/profiles/personal_bio.php?id=64.

Briefing Note - Summary of the Air Quality Assessment of Tim Hortons Restaurants: Ontario, Canada (May 2008)

Findings

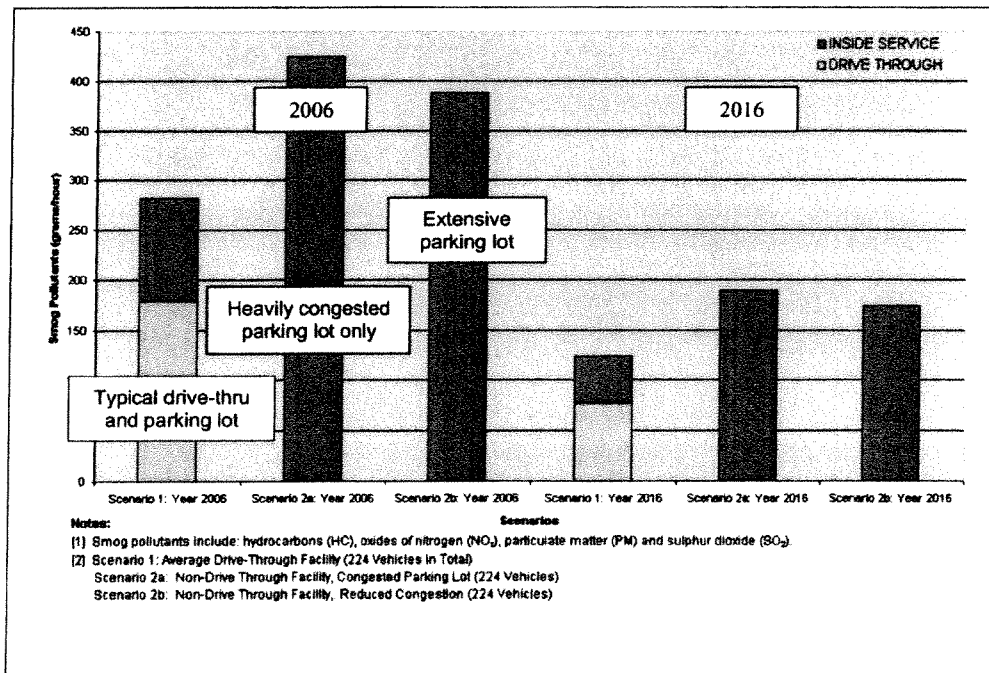
The total number of vehicles that use a conventional Tim Hortons facility during the morning peak hour was averaged to be 224; for vehicles using the drive-through, the average time on site ranged from 3 to about 4.5 minutes and for vehicles using the parking lot, the average time on site is about double, ranging from 7 to 8 minutes.

Modes of operation that produce emissions were determined to be:

- Moving into position in the queue lane or moving into a parking space (this mode of operation is referred to as "crawling");
- Idling while waiting for a parking space or warming up a vehicle in a parking space or waiting in the queue lane of the drive-through
- Pulling into and out-of a parking space;
- Starting up the engine in a parking space before exiting (referred to as a "start-up");
- Moving from the service window or from a parking space to the curb while exiting the site ("additional crawling"); and,
- Idling at the curb while waiting to get on the street.

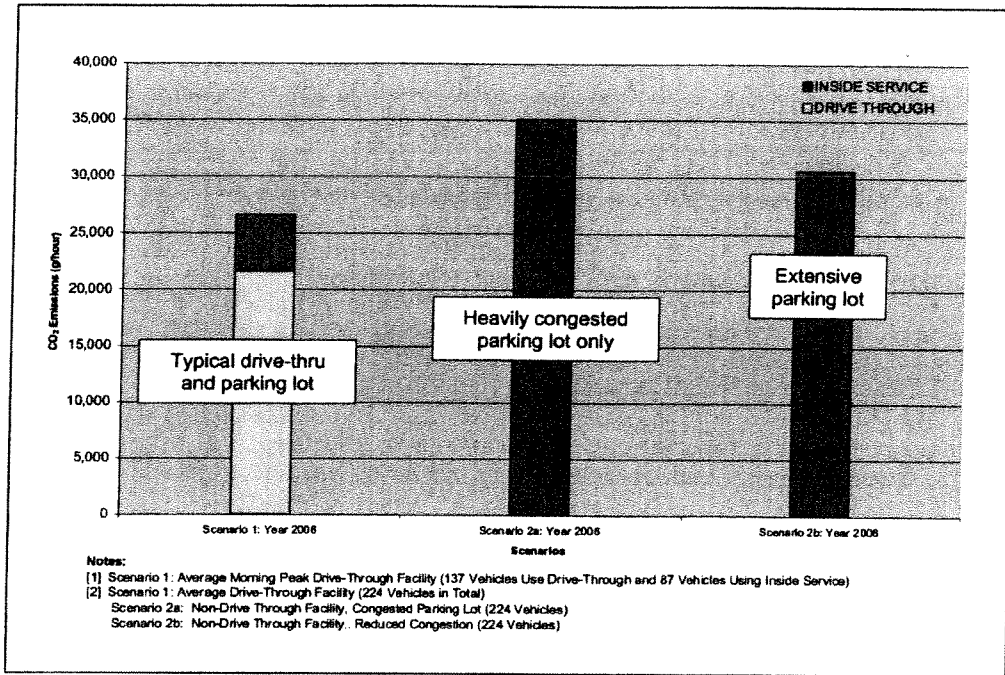
Applying the standard vehicle emission data to these modes of operation for the average number of Tim Hortons customers at peak times in stores with drive throughs and without (using two scenarios in which the parking lot was approximately doubled and tripled in size, 2a and 2b respectively) produced the following emissions results during a peak hour of operation:

Figure i: Smog Pollutant Emissions for Drive-Through Restaurants (Scenario 1) and Non-Drive-Through Restaurants (Scenarios 2a and b)



Briefing Note - Summary of the Air Quality Assessment of Tim Hortons Restaurants: Ontario, Canada (May 2008)

Figure ii: CO₂ Emissions for Drive-Through Restaurants (Scenario 1) and Non-Drive-Through Restaurants (Scenarios 2a and b)



Conclusions

- Overall, the findings for the Tim Hortons stores examined in this study indicate no air quality benefit to the public from eliminating drive-throughs.
- For a Tim Hortons store with no drive-through, the congestion that occurs in the parking lot, together with the start-up emissions and emissions from the extra travel distance to get to and from a space, all contribute to produce somewhat higher emissions per vehicle compared to a store that has a drive-through, this is particularly true in the case of smog pollutants and carbon monoxide (about 40 to 70% higher for those pollutants) but is also true for greenhouse gases (about 10 to 30% higher). These results are considered to be representative for Tim Hortons stores but cannot be generalized to other types of drive-through facilities.
- To put drive-throughs into perspective, combined emissions generated from all vehicles using a drive-through facility during a peak-hour of operation are relatively small in relation to other common emission sources: smog pollutant emissions from all vehicles are comparable to a single chain saw operating for one hour; CO₂ emissions are comparable to a single bus operating for one hour; emissions from all vehicles using a store with a drive-through during the peak hour are less than one fifth of the emissions at an urban intersection; and emissions of smog pollutants and greenhouse gases from a single vehicle using a drive-through are less than 10% and 5% respectively of a typical 30-minute morning commute.

Briefing Note - Summary of the Air Quality Assessment of Tim Hortons Restaurants: Ontario, Canada (May 2008)

- A comparison of Year 2006 and Year 2016 modelling indicates that predicted trends in fleet-wide emissions will result in reduced impacts from smog pollutants and carbon monoxide in the future.
- Dispersion modeling shows that 1-hour off-site concentrations of CO and NO_x are below the provincial standards in 2006 and even further below in 2016. Therefore, based on a typical site layout, there are no adverse air effects predicted for land uses adjacent to the drive-through facility.

Peer Review

Dr. Deniz Karman, PhD, P.Eng, received a Ph.D. in Chemical Engineering from the University of New Brunswick and is now a professor of environmental engineering at Carleton University in Ottawa. His research interests include: motor vehicle emissions and air quality in microenvironments; air pollution sources, control methods and dispersion modelling; and greenhouse gas emissions from industrial sources.

In addition to pursuing his own research interests, Doctor Karman has acted as a consultant on projects involving motor vehicle emissions monitoring, alternative fuel effects on motor vehicle emissions, dispersion modelling for roadways and street canyons, and receptor modelling source apportionment for volatile organic and particulate matter. http://www.carleton.ca/engineeringdesign/research/profiles/personal_bio.php?id=64

After reviewing the RWDI study Dr. Karman concluded

The RWDI study is a detailed quantitative attempt to estimate emissions from different vehicle patterns around *Tim Hortons* facilities with and without drive-through service. It has applied appropriate methodologies for quantifying these emissions in typical cases, has put the results obtained in the context of other emission sources, and estimated ambient concentrations around a typical facility. It provides a sound basis for estimating the effect of the two types of *Tim Hortons* facilities.

Project Director

Mike Lepage, M.Sc., CCM, Principal / Project Director, joined RWDI in 1981 and became an Associate of the firm in 1988. As a Project Director, he provides overall direction on air quality and meteorological projects, ensuring that a high level of service is provided and, at the same time, RWDI's interests are preserved on all projects. Mike also oversees RWDI regional atmospheric modeling group, which is involved in high-end numerical modeling of regional air pollutants such as ground-level ozone and fine particulate matter. In recent years he has been extensively involved in regional modeling of meteorology and atmospheric chemistry to investigate large scale smog events, using models such MM5, Models-3/CMAQ, SAQM, CALGRID and CALPUFF.

RWDI

RWDI is the leading wind engineering consulting services firm in the world. With 400+ staff and offices in five countries, the company offers a complete range of wind engineering, sustainable design, environmental air quality, noise and risk services.



[NRCan](#) > [OEE](#) > The links between idling, climate change and health

Personal: Transportation

Links between fuel consumption, climate change, our environment and health

The transportation sector is responsible for 27 percent of greenhouse gas (GHG) emissions in Canada. Light-duty vehicles – the cars, vans and light-duty trucks we drive – are responsible for almost half of that total. While automakers have been successful in reducing criteria air contaminant (CAC) emissions from cars and light trucks, fuel usage and carbon dioxide (CO₂) emissions have grown steadily over the past two decades. That's because CO₂ – the principle GHG linked to climate change – is an unavoidable by-product of the burning of fossil fuels. Although light-duty vehicles are more fuel efficient than they were in the 1970's, there are many more vehicles on the road today, and we're driving them further than before, thus using more fuel. While much of the energy use in Canada is necessary, there are times when we could use energy more wisely.

The millions of Canadians who drive vehicles every day can take steps to help reduce their fuel use and slow down the rate of climate change by making a commitment to drive more fuel-efficiently. For example, planning trips carefully to combine errands, driving at the posted speed limit, avoiding jackrabbit starts, maintaining proper tire pressure, or even walking or taking a bus can result in significant fuel and CO₂ reductions.

One of the easiest actions that Canadians can take – with a simple turn of a key – is to avoid unnecessary idling. Idling is not only a waste of energy and money – after all, we're burning fuel but going nowhere – it is also a needless source of greenhouse gas emissions.

While reducing vehicle idling alone won't solve the climate change problem, it's a step in the right direction and it's easy to do! Keep in mind that if we each do our part, our individual actions add up.

Consider some of the implications of climate change on the environment and our health. The potential impacts include everything from more severe weather events, such as more frequent and intense rainstorms, to rising sea levels, droughts, forest fires and floods.⁹

Natural Resources Canada's Climate Change Impacts and Adaptation: [Human Health and Well-Being](#) web site has noted other potential direct and indirect impacts of climate change on our environment and health across all regions of Canada. It is important that all Canadians become aware of the impact of their energy use on our environment and way of life.

Recent [Health Canada](#) studies suggest that Canadians can expect a wide range of impacts, some of which are already being felt as milder winters and hotter summers. Hot summers can have significant consequences where, the chemicals in the air that form smog react even faster as a result of higher temperatures. This suggests that GHG emissions can indirectly affect air quality by magnifying the effects of air pollution, thereby posing a risk to human health. Furthermore, this can mean that where smog is already a problem, smog episodes can become worse, affecting both our air quality and health.¹⁰

Given these facts, why would anyone add to the growing problem of climate change by wasting

fuel? That's exactly what happens when Canadians idle their vehicles unnecessarily.

If Canadian motorists avoided unnecessary idling for just three minutes every day of the year, it would prevent 630 million litres of fuel from being wasted and 1.4 million tonnes of carbon dioxide from being needlessly pumped into the environment. Annually, that would be the equivalent of taking 320,000 cars off of the road!

Clearly, individual actions can make a difference when taken by millions of Canadians.

More information on greenhouse gas (GHG) emissions, climate change and their impact on the environment and human health is available at:

Health Canada: [Understanding the Health Impacts of Climate Change](#)

Health Canada: [Climate Change and Health](#)

Natural Resources Canada: [Climate Change Impacts and Adaptation – Summary](#)

NOTE: Links to sites external to Natural Resources Canada (NRCan) are provided as a convenience and their inclusion in no way implies that Natural Resources Canada endorses or accepts any responsibility for the content or use of these sites. As the organizations that maintain these sites may not be subject to the Official Languages Act, information found on these sites may be presented only in the language in which it was written.

9 Natural Resources Canada: Climate Change Impacts and Adaptation Program (Retrieved July 22, 2008)

10 Health Canada: Climate Change and Health (Retrieved July 22, 2008)

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NRCan > OEE > Emission impacts resulting from vehicle idling

Personal: Transportation

Emission impacts resulting from vehicle idling

An operating vehicle emits a range of gases from its tailpipe into the atmosphere. Some emissions, principally carbon dioxide (CO₂), are classified as greenhouse gases (GHGs) because they increase the earth's natural "greenhouse effect" and in doing so, are contributing to the changing of the world's climate. Other emissions, such as volatile organic compounds (VOCs), carbon monoxide (CO) and oxides of nitrogen (NO_x), are criteria air contaminants (CACs) and these emissions are known to contribute towards air pollution and smog.

The following sections outline the impacts of your vehicle's GHG and CAC emissions.

Greenhouse gas emissions

For every litre of gasoline used, a vehicle produces about 2.3 kilograms² of CO₂, the principle GHG linked to climate change. With internal combustion engines, no technology exists for eliminating CO₂ emissions, an unavoidable by-product of burning fossil fuels. One simple and effective way to reduce the production of CO₂ emissions from light-duty vehicles is by choosing to eliminate unnecessary vehicle idling. This is an action that you – as a driver – can take.

In fact, if Canadian motorists avoided idling for just three minutes every day of the year, CO₂ emissions could be reduced by 1.4 million tonnes annually. This would be equal to saving 630 million litres of fuel and equivalent to taking 320,000 cars off of the road for the entire year. Eliminating unnecessary idling is one easy action that Canadians can take to reduce their GHG emissions that are contributing to climate change.

Air quality emissions

Other vehicle emissions, such as volatile organic compounds (VOCs), carbon monoxide (CO) and oxides of nitrogen (NO_x) are criteria air contaminants (CACs) that contribute to air pollution and smog.

Advanced emission control technologies (e.g., catalytic converters, exhaust gas recirculation, engine monitoring sensors, computer controls and feedback systems) have dramatically reduced CACs from the tailpipes of new vehicles. In fact, today's vehicles produce 99 percent less CACs than vehicles built in the 1970's thanks to advances in engine and emission control technologies and improved fuel quality standards. However, CAC emission reductions from newer vehicles have been partially offset by the growing number of vehicles on the road and the greater distances we now travel.

Within the context of idling, while reducing unnecessary idling can save a significant amount of fuel and reduce GHG emissions, the effect on CAC emissions is dependent upon a variety of factors

related to restarting the engine. A study³ completed in 2003 concluded that "there is little (CAC) impact in the choice of vehicle operation (idling or shut down) when the vehicle is stopped for durations between 10 seconds and 10 minutes". What this means in terms of CAC emissions is that there is no substantial difference between turning the engine off and restarting it versus letting your vehicle idle, as both options produce some CAC emissions.

What are the benefits?

The 2003 study supports NRCan's position that "idling for over 10 seconds uses more fuel and produces more CO₂ emissions than restarting your engine." This clearly confirms that there are direct benefits – in the form of fuel savings and reduced GHG emissions – that are obtained by turning the engine off instead of idling. As such, when considering all of the factors, the study showed it is better to turn the engine off rather than to let it idle unnecessarily.

What about diesel vehicles?

Diesel-powered vehicles are inherently more fuel-efficient than their gasoline-powered counterparts due to the higher energy (carbon) content of diesel fuel and combustion process efficiencies. Therefore a diesel vehicle will tend to travel further on a litre of fuel than a gasoline equivalent but will also produce more CO₂ emissions (2.7 kg CO₂/L⁴ – 15 percent more than gasoline).

When considering air quality emissions like CACs, it is also important to take into account the impact of diesel-powered vehicles. In general, diesels produce higher levels of particulates and NO_x than their gasoline counterparts and the best way to reduce these emissions is to turn the engine off. This is in addition to the reduction in fuel consumption and CO₂ emissions achieved by turning off the engine. Fewer than five percent of light-duty vehicles in Canada are diesel powered. On the other hand, heavy-duty diesel vehicles, such as school buses, delivery trucks and transit buses typically have larger diesel-powered engines and more limited emission controls as compared to light duty vehicles. These vehicles may idle for longer periods in communities and present their own specific CAC concerns and impacts on local air quality. More information on heavy-duty vehicles can be obtained at the [Fleetsmart](#) website.

So when should you turn your engine off?

Idling for over 10 seconds uses more fuel and produces more CO₂ compared to restarting your engine. However, as a more practical guideline, balancing factors such as fuel savings, overall emissions and potential component wear on the starter and battery, 60 seconds is the recommended interval. You will save money on fuel that should more than offset any potential increase in maintenance costs from any wear and tear on your starter or battery.

If you're going to be stopped for more than 60 seconds – except in traffic – turn the engine off. Unnecessary idling wastes money and fuel, and produces greenhouse gases that contribute to climate change.

Idling initiatives around the world

Countries around the world are concerned with the impact of transportation on the environment and human health. Messages to reduce unnecessary idling are therefore a key component of many national climate change programs.

In Europe, the recommended guidelines for turning engines off are 10 seconds in Italy and France,

20 seconds in Austria, 40 seconds in Germany and 60 seconds in the Netherlands. In the United States, the Environmental Protection Agency's Smartway and Drive Wise programs both recommend turning the engine off if you're stopped for more than 30 seconds.

Avoiding unnecessary idling is a universal approach to reduce the environmental impact of vehicles. *After all, idling gets you nowhere!*

² Actual value: 2.289 kg CO₂/L – National Inventory Report 1990-2006, Table A12-7, April 2008

³ Review of the Incidence, Energy Use and Costs of Passenger Vehicle Idling. Gordon W. Taylor, P.Eng. Prepared for the Office of Energy Efficiency, Natural Resources Canada, 2003.

⁴ Actual value: 2.663 kg CO₂/L – National Inventory Report 1990-2006, Table A12-7, April 2008

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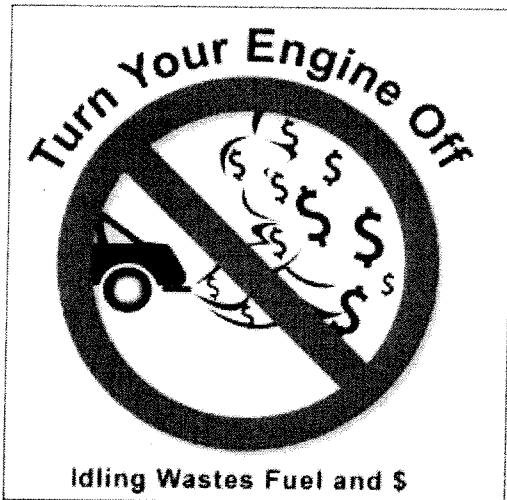


Our Partnership The Big Picture Taking Action Reference Centre

Idle Reduction Bylaw

WHAT HOW

Idle Free in BC



There are several programs that provide toolkits to help communities initiate an idle-free campaign like Idle Free BC and Idle Free Zone.

potential maintenance costs to the starter or battery is under 60 seconds. So, as a guideline, if a car is stopped for more than 60 seconds the engine should be turned off. [1]

MYTH: *Idling warms the engine.* Idling is not an effective way to warm up your vehicle, even in cold weather. The best way to warm a car is to drive it. The tires, transmission, wheel bearings and other moving parts all need to be warmed up for the vehicle to perform well, and most of these parts do not begin to warm up until you drive. [1]

FACT: For the average vehicle with a 3-litre engine (e.g. 2000 Nisan Patrol) every 10 minutes of idling costs more than a quarter of a litre in wasted fuel or approximately 0.6 kg of carbon dioxide.

FACT: If Canadians avoided idling for just three minutes every day of the year, CO2 emissions could be reduced by 1.4 million tonnes annually, which is the equivalent of taking 320,000 cars off the road

Idle-free initiatives are a straightforward and cost-effective action that local governments can immediately take to reduce greenhouse gas emissions. When a vehicle's engine is turned off instead of idling, not only does this reduce GHG emissions, but saves fuel as well.

A successful idle-free campaign can also be a catalyst for public involvement in reducing greenhouse gas emissions. An idle reduction initiative may mark a personal transition that leads to other actions on climate change and support for policies that reduce emissions. This change in behavior can be a foundation for learning about climate change and the role that we each play.

Myths and Facts About Idling

MYTH: *Idling uses less gas than restarting the engine.* Studies clearly show that idling for over 10 seconds uses more fuel and produces more CO2 emissions than restarting your engine. The amount of time to offset any

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for the entire year. [1]

[Use the tab above to learn HOW to reduce emissions with this tool.]

[1] Office of Energy Efficiency, Idle-Free Zone, Natural Resources Canada.
<http://www.see.nrcan.gc.ca/communities-government/idling.cfm>

Rating:

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