



CRAZ IDLE-FREE



SCHOOL MANUAL

In partnership with



INTRODUCTION

The Calgary Region Airshed Zone is pleased to be a part of your Idle-Free School Campaign. The resources in this document will assist in establishing your school property as an Idle Free School Zone. The materials provide valuable instruction for students and will assist in heightening driver awareness of the harm created by vehicle emissions.

This guide was developed through partnerships with Alberta Environment and Sustainable Resource Development, Alberta Health and Wellness, Edmonton Public School Board (Energy and Environmental Management), Calgary Board of Education (Energy and Environmental Services), City of Edmonton (Office of the Environment), City of Calgary (Community Sustainability Team), City of Red Deer, Lafarge, Alberta Capital Airshed Alliance, and Green Calgary Association. Natural Resources Canada also provided many of the sources included in this guide. *The materials in this text were adapted from the City of Red Deer Idle Free Resource Manual.*

CRAZ is pleased to provide training in any aspect of this manual including instructor and student training, as well as implementation. Further information and resources are available on the CRAZ website (www.craz.ca). These resources include applicable lesson plans for this campaign, courtesy of the City of Red Deer Idle-Free Resource Manual.

Student involvement is encouraged in the development of an Idle-Free Campaign. It is important for students to understand aspects of their environment, especially air quality. Through the acquired knowledge of this campaign, students will learn to make better lifestyle choices and be in a better position to positively influence the behaviour of drivers.

If you have questions regarding this manual and training, please contact Tanya Carlson, Tanya.carlson@craz.ca, or 403-968-5522 for assistance.



TABLE OF CONTENTS

Section 1	Getting Started <ul style="list-style-type: none">• Overview of Program• Idle Free Flow Chart
Section 2	Monitoring Process <ul style="list-style-type: none">• Three Step Monitoring Process• Script• Idle-Free School Monitoring Form• Turn Your Key: Commitment Intervention Form
Section 3	Idling Fact Sheets <ul style="list-style-type: none">• Idling Facts• Reduce Your Vehicle's Impact
Section 4	Sample Newsletters <ul style="list-style-type: none">• Getting the Message Out• Idle-Free School Bus Information• Newsletter 1• Newsletter 2• Newsletter 3



OVERVIEW OF PROGRAM

Implementing an Idle-Free School Zone for your school community does not need to be time consuming or difficult. Below are some tips that will assist you in developing a successful campaign.

1. Start small and keep it simple. Changing driving behaviour takes time. Your patience and persistence will eventually bring about positive results. A successful campaign would see a 30-40% reduction in the number of idling vehicles. Some individuals will respond to change faster than others.
2. The easiest approach to implementing an Idle-Free School Zone is by updating parents about the project through your school newsletter, distributing fact sheets, and by installing permanent signage on school property (signs are available for order on the CRAZ website). Through education and awareness about the dangers of idling, you can provide compelling reasons for drivers to turn their engines off.
3. Asking for a driver's commitment to the Idle Free Campaign can prove to be extremely successful. To try this approach, follow these steps:
 - a. Inform parents through your newsletter about the school campaign. Request drivers to turn off their engines at school and ask them to be prepared to make a personal commitment. Identify dates you've selected and inform drivers that volunteers will be approaching them to ask for their commitment to be Idle-Free.
 - b. Organize volunteers, and then over the course of one week, distribute information cards and static windshield stickers to drivers waiting at the school in their vehicles.
 - c. Ask drivers if they would agree to display the sticker in their car window (refer to script provided in the Monitoring section of this manual). The windshield sticker acts as a reminder to the driver to remain idle free, while encouraging others to join the campaign.
 - d. Record the number of drivers who take the stickers by either counting the stickers, or by having the volunteers complete a commitment sheet (see sample commitment sheet in this kit). Make sure to include in your newsletter the number of drivers (parents, bus drivers, and service vehicles) who have agreed to become idle free).



4. Encourage student involvement in this project. Large banners or signs can be created in art classes that can be displayed on the fences around the school where drivers congregate. Student's art acts as a reminder to parents to turn off their engines and causes students to feel connected to the positive behaviour changes resulting from this program.
5. Many other ideas can be incorporated that help to promote the fact that you are an Idle Free School. You may wish to consider adding a message onto your school's phone system or website reminding the public of your campaign. The more ways the message is heard and understood, the more drivers recognize that being idle free is the expected behaviour or norm for drivers.

SAFETY

It is imperative schools take ALL NECESSARY PRECAUTIONS to ensure participants safety when implementing the Idle Free School program.

If participating in the monitoring process, students must follow all safety rules outlined by their school. Monitoring of idling behaviour should always occur from a location that ensures participants safety.

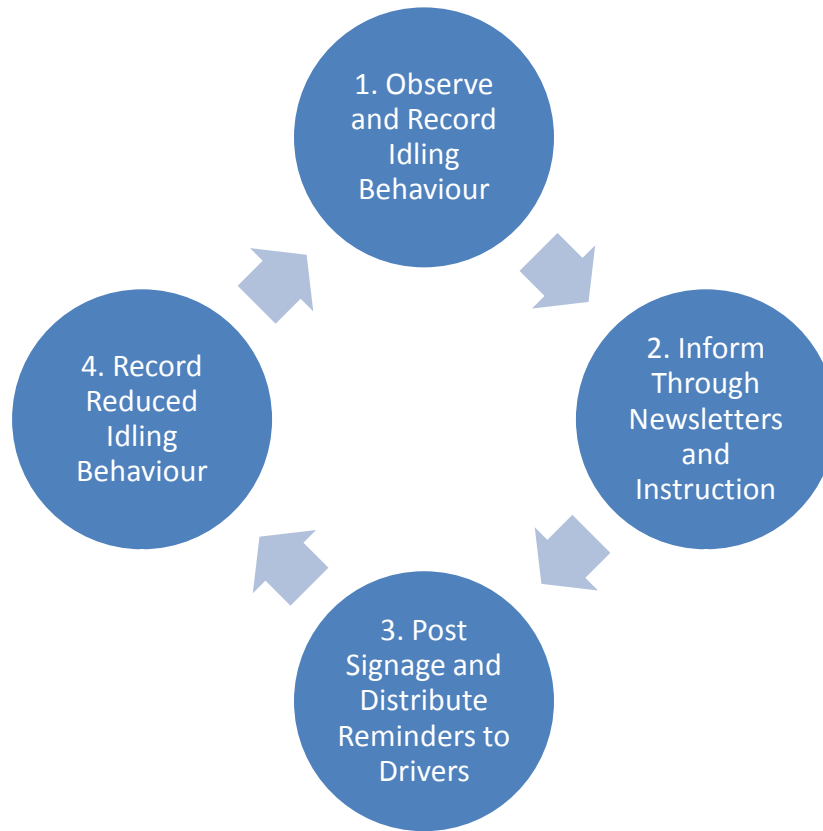
The distribution of commitment forms and static stickers should never compromise a volunteer's safety. Wherever possible, adult volunteers are recommended for these activities. All volunteers should wear a SAFETY VEST to ensure their visibility.

Please refer to your school division's safety policies, your local municipality's by-laws and always demonstrate due diligence to ensure all participants are safe from any possible risk of injury.



IDLE FREE FLOW CHART

Steps to Creating an Idle-Free School Zone





THREE STEP MONITORING PROCESS

Step One

1. Preparation

- a. Establish key idling areas (around the outside of the school) and the number of volunteers/students required in each working group.
- b. Provide the materials required to carry out the observation such as charts, pencils, and stop watches. Samples for forms are available in the monitoring section of this kit.

2. Carrying Out the Observation

- a. Selected groups of students/volunteers will make *discreet observations* of vehicles driving onto school property. Have each group responsible for ONLY one area near the school. This can be done several times over the period of a week to obtain a reasonably accurate reading of how many parents idle their vehicles at the school. The best time to do this is when idling is most likely to occur, usually at the beginning or end of the school day. After several weeks you can re-do your initial observations to determine if the number of idling vehicles has decreased. Take the season into account when spacing your observation weeks (eg. Idling increases in the winter so any observations done in the fall should be done before the first snow fall).

Within each group:

- i. One to two members will record TOTAL car numbers – all the cars in your area. Work together, one observation sheet – one “total car observer” and one “total car recorder”.
- ii. One person (“idling recorder”) will record idling car information.
- iii. Remainder of group will be “idling observers” (taking their own notes if necessary) and working together to pass along information to “idling recorder”.

Note: This is a fast moving activity. Have patience. Wait until “idling recorder” has taken down previous observation information, before telling them your observation.



3. Gathering Idling Car Information

- a. During the observation exercise, volunteers will be responsible for identifying and recording the car type or model if possible. If the recorders are unfamiliar with the vehicle they should describe it the best way possible: large, small, SUV, van, station wagon, truck etc. In addition, recorders should identify the vehicle colour, its arrival and departure time.

Step Two

1. Preparation

- a. Have available bookmarks and static windshield stickers for volunteers.

2. Review of Idling Observations

- a. Calculate the total number of vehicle observations
 - i. Total number of cars
 - ii. Total number of vehicles idling
 - iii. Total amount of time idling
- b. Discuss what this amount of idling means
 - i. Amounts of pollutants
 - ii. Amount of fuel expended
 - iii. Cost of wasted gas
 - iv. Impacts on health and the environment

3. Idling Facts

- a. Review with recorders that there are occasions when engine idling is necessary. This would include:
 - i. Defrosting windows for safety during winter months
 - ii. When detained in traffic or stopped at traffic lights
 - iii. If operating a truck and truck-trailer combination equipped with power take-offs required to idle for the operation of refrigeration units, heaters, boom cranes, and truck-mounted equipment
- b. While there are exceptions that should be considered it is important to educate drivers that:
 - i. Only 10 seconds of idling is necessary on winter day, if windows are clear, before driving away.
 - ii. Contrary to popular belief, idling is not an effective way to warm up your vehicle, even in cold weather. The best way to do this is to drive the vehicle.



- iii. The notion that idling is good is passé – in fact it hasn't been the right thing to do since the advent of electronically controlled engines. The truth is that excessive idling can actually damage your engine.
- iv. Unnecessary engine idling causes environmental damage by:
 - 1. Creating unnecessary exhaust emissions into the atmosphere.
 - 2. Producing pollutants that impact our health.
- v. Unnecessary engine idling is expensive as it:
 - 1. Wastes fuel that you've already paid for.
 - 2. Increases your maintenance costs (some fleet managers are shocked to discover that some of their vehicles idle up to 65% of the time).
 - 3. If you idle your vehicle for more than 10 seconds, you use more fuel than it would take to restart your engine.

Step Three

- 1. Preparation
 - a. Before class, establish key idling areas (around the outside of the school) and number of students in each working with teacher.
- 2. Practicing the Message
 - a. It is important campaign volunteers have practice delivering the Idle Free message to one another before approaching drivers. When a city or town does not have a bylaw concerning idling, it is important that volunteers recognize their efforts centred on awareness and education and not enforcement. If a driver does not wish to comply, a volunteer is advised to focus on another driver who may be more receptive to the goal of the program.

Provide volunteers with the script provided below that they may use to inquire if drivers are willing to participate in becoming idle free.

- 3. Getting the Message Out
 - a. Distribute the idling static stickers to the volunteers. Have each group responsible for ONLY one area near the school. Two to three volunteers can work together. They will safely approach parked drivers using the scripted message provided below to inform them of the Idle Free School Program being implemented by your school.



4. Follow-Up Data Collection

- a. Following your intervention, you may wish to carry out additional monitoring to determine the effectiveness of your campaign. As before, carry out these measurements in an unobtrusive manner.

Want to share your results?

Email your pre and post results to alyssa.gerling@calgary.ca to have them posted on the CRAZ website! Share the effectiveness of your Idle Free campaign!



SCRIPT

Hello, my name is _____ and I am working with the school on a project to reduce vehicle engine idling. Most citizens already work to protect the environment by participating in community programs, such as recycling. Do you have just 30 seconds for me to share some information on the benefits of reducing engine idling, another way to help the environment?

IF NO – Thank and continue to another vehicle.

IF YES – Continue...

When you don't idle your engine, you reduce the amount of gas you use. This means you'll save money on fuel – well over \$60 per year, depending on gas prices. In addition, engine exhaust, as you know, is unhealthy to breathe. By turning your engine off, you and others around you won't have to breathe in fumes from a vehicle that is going nowhere.

Exhaust also affects air quality and contributes to climate change. Therefore, not idling your engine also means that you'll reduce problems like smog and climate change. We have information cards from your local airshed with other tips on how to save money and emissions. Would you like one?

We're also asking people to make a commitment to turn off their engines when they're parked and waiting in their vehicles by placing this sticker on their windows. The sticker is a reminder for you to turn your engine off, and also tells others of your commitment to reduce engine idling. The static cling sticker has been designed so that it can be easily removed from your window at a later time.

Many people have already made this commitment. Would you be willing to make a similar commitment?

May I place this sticker on your windshield?

Thank you and have a nice day!

COMMITMENT INTERVENTION

“Turn Your Key, Be Idle Free.”

Monitor(s): _____

Location: _____

Monitoring Time: _____

Date: _____

	Gender of Driver (F/M)	Info Card Taken? (Y/N)	Sticker Accepted? (Y/N)	Sticker Placed? (Y/N)	Notes
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
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IDLING FACTS

Drivers idle their vehicles for a number of reasons. The fact sheets provided in this section of the manual offers valuable information you can share in assemblies, classroom presentations, or in newsletters. Hopefully, this information will be useful in assisting you in bringing about positive changes on the activity of idling.

By sharing this information with your school community, you can help drivers become more aware of the harm idling poses, not only to our physical health, but also to our environment. While you are establishing your idle free campaign you may encounter some individuals who are reluctant to participate in the program. Their reluctance to alter their driving behaviours may be based on idling myths. It is important to have research data available to assist you in your goal to educate drivers on the facts concerning idling.

What is the “profile” of a typical idler?

It’s safe to assume that most Canadian motorists so some idling. However, research shows some interesting trends. For example, the amount a driver idles tends to increase with the number of people in the household. A driver living with children is more likely to idle than one without children. As well, the frequency of idling appears to decrease as a person ages – a retiree is the least likely to idle. A person living in a rural area is more likely to idle than a driver in an urban centre.

Why do Canadians idle?

Warming up or cooling down a vehicle is the most common reason given for idling, in the winter and summer. Surveys show that Canadians also idle their vehicles for many other reasons that include:

- Waiting for passengers
- Stopping at railway crossings
- Waiting to park
- Running quick errands
- Sitting in drive-through lanes
- Waiting to refuel or to have the car washed
- Stopping to talk to an acquaintance or friend
- Preparing to leave the house



Calculations drawn from a Canadian survey of driving habits and behaviour suggest that in the peak of winter, many Canadian motorists idle their vehicles for about eight minutes a day, resulting in a combined total of more than 75 million minutes of idling a day. This day alone uses over 2.2 million litres of fuel and produces over five million kilograms of greenhouse gases (GHGs) and is equal to the amount of fuel required to drive over 1100 vehicles for a year or to idle one vehicle for 144 years!

If stopped for more than 10 seconds (except in traffic) turn the engine off. Unnecessary idling wastes money and fuel, and produces greenhouse gases (GHGs) that contribute to climate change.

1. What's the problem with idling?
 - a. Pollutants – A variety of pollutants given off from vehicle emissions that impact our health and the environment. Of particular concern are particulate matter and carbon dioxide.
 - b. Pollutants impact our air quality. Poor air quality affects all living things.
 - c. For humans, vehicle emissions impact our health, especially those with respiratory problems. Particulate matter (PM) is breathed deep into the lungs.
 - d. Impacts on the wallet – Wastes gas and money
 - i. If you idle your vehicle for more than 10 seconds, you use more fuel than it would take to restart your engine.
2. Some solutions to idling include:
 - a. Reduce your time idling – don't arrive at school early for pick-up, don't go through drive-thru restaurants etc.
 - b. Turn vehicles off (go inside and wait)
3. With today's computer-controlled engines, even on cold winter days, your vehicle is suitable to be driven as soon as the windows are clear of snow and ice.
4. Cars warm faster and operate more efficiently when being driven. Warming up the vehicle means more than warming the engine. The tires, transmission, wheel bearings and other moving parts also need to be warmed up for the vehicle to perform well. Most of these parts don't begin to warm up until you drive the vehicle.
5. Vehicle engine emissions create ground level ozone. Ozone is a respiratory irritant. Walk or bike whenever you can to reduce vehicle use.



6. If every driver of a light duty vehicle avoided idling by three minutes a day, collectively over the year, we would save 630 million litres of fuel and \$630 million annually in fuel costs (assuming fuel costs are \$1.00/L).
7. You can help reduce the impact of cold starts – and reduce idling times – by using a block heater on cold winter days. This device warms the coolant, which in turn warms the engine block and lubricants. The engine will start more easily and reach its proper operating temperature faster.
8. You don't need to leave a block heater plugged in overnight to warm the engine – two hours is more than enough. In fact, you can use an automatic timer to switch on the block heater two hours before you leave. At -20°C, block heaters can improve overall fuel economy by as much as 10%. For a single short trip at -25°C, your fuel savings could be in the order of 25%.
9. A poorly-tuned engine uses up to 15% more energy when idling than a well-tuned engine. Keeping your vehicle properly maintained according to the manufacturer's suggested maintenance schedule is a key to fuel efficiency.
10. Calculations drawn from a 1998 survey on driving habits suggest that in the peak of winter, Canadians voluntarily idle their vehicles for a combined total of more than 75 million minutes a day – equal to one vehicle idling for 144 years. We idle about 40% less in summer, but Canadian motorists still waste a significant amount of fuel and emit unnecessary air pollutants.
11. Many drivers also mistakenly believe that turning off their engines for a short stop is more harmful to their car than leaving the engine running. An idling gas engine burns about 3.5 litres an hour. Ten seconds of idling uses more fuel than restarting the engine!
12. Approximately \$1.8 million of fuel is idled away by Canadians every day. An idling engine produces twice as many exhaust emissions as an engine in motion, significantly contributing to local air pollution.
13. An idling engine is not operating at its peak temperature, which means fuel combustion is incomplete. Soot deposits can accumulate on cylinder walls leading to oil contamination and damaged components. Idling, while warming an engine does not warm the wheel bearings, steering, transmission and tires – only driving does this.
14. Children are particularly vulnerable to air pollution because they breathe faster than adults and inhale more air per pound of body weight. Smog levels tend to be worse in the late afternoon, precisely when driving parents accumulate around the



schoolyard. This glut of idling engines contributes to the bubble of smog that engulfs the school and into which rush excited and active children.

When you are dropping off or picking up your children at school, please stop in a safe, legal parking space and turn off your engine. Then safely walk your children to and from the school.

Help to make your school an idle-free zone. We'll all breathe a little easier.

15. Frequent starting has little impact on engine components like battery and starter motors. Wear caused by restarting is estimated to add \$10.00 per year to the cost of driving, money likely recovered several times over in fuel savings (Natural Resources of Canada).
16. Exposure to vehicle exhaust increases the risk of death from heart and lung disease and lung cancer.
17. Children's asthma symptoms increase as a result of car exhaust.



REDUCE YOUR VEHICLE'S IMPACT

One easy way to cut fuel consumption, save money and reduce emissions is to avoid unnecessary idling. 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.

You can achieve savings and reduce your vehicle's impact on the environment by following these tips:

- **Consult your owner's manual.** It contains important information about how to drive and maintain your vehicle for optimum performance and efficiency.
- **Follow the manufacturer's recommended maintenance schedule.** A poorly maintained vehicle can cost the equivalent of up to 15 cents more per litre on fuel.
- **Check fluid levels at least once a month.** Check and change the engine oil, engine coolant, transmission fluid and power steering fluid according to the manufacturer's recommendations in your owner's manual. Also check around and under the vehicle for fluid leaks. If there are leaks, have them repaired.
- **Measure your tire pressure at least once a month.** Inflate cold tires to the recommended pressure. The correct tire inflation information for your vehicle is usually indicated near the driver's door, in the glove compartment or in the owner's manual. For every 28 kilopascals (4 pounds per square inch) of under-inflation, fuel use increase by about 2%. Properly inflated tires will last longer, make your vehicle safer to drive and save fuel.
- **Reduce idling.** Idling for more than 10 seconds uses more fuel than it takes to restart your vehicle. If you think you are going to be stopped for more than 10 seconds, except in traffic, turn off your engine. The break-even point to offset any incremental maintenance costs is under 60 seconds.
- **Warm up your vehicle by driving it at a moderate speed.** In most cases, you need no more than 2-3 minutes of idling from a cold start on winter days. Of course, ensure your windows are free of ice and snow before driving. Vehicle components, such as wheel bearings, steering, suspension, transmission and tires, are best warmed up by driving the vehicle.
- **Use a block heater in the winter to warm your engine before starting.** A cold engine is at its worst for fuel consumption, engine wear and exhaust emissions. Block heaters can improve overall winter fuel economy by pre-warming the engine,



coolant, and oil. Use an automatic timer to turn on the block heater no more than two hours before you plan to drive.

- **Do not overuse your remote starter.** People with remote starters sometimes start their vehicles long before they are ready to drive. Remote starts can result in needless idling and wasted fuel. If you use a remote starter, start your vehicle shortly before you are ready to drive away.
- **Avoid speeding.** Increasing your highway speed from 100 km/h to 120 km/h can increase your fuel consumption by up to 20%.
- **Use cruise control.** Under normal driving conditions, cruise control saves fuel on the highway by keeping your speed constant and avoiding inadvertent speeding. Check your owner's manual regarding the safe operation of your vehicle's cruise control system.
- **Use your air conditioning sparingly.** Air conditioning can increase fuel consumption by up to 20% due to the extra load on the engine. Use your vehicle's flow-through ventilation on the highway, or open a window during city driving. If you use your vehicle's air conditioning, set the controls to a comfort level that allows the system to shut off once the vehicle's interior is cool. Refer to the owner's manual for information on your vehicle's air conditioning system.
- **Remove unnecessary weight.** If you add weight to your vehicle for extra traction in the winter months, remember to remove it when the snow melts. Unnecessary weight can result in waster fuel and needless CO2 emissions.
- **Take off the roof rack.** A loaded or empty roof rack increases fuel consumption through aerodynamic drag. A removable roof rack, installed only when needed, is your best option.
- **Adopt fuel-efficient driving habits.** Accelerate smoothly, as abrupt starts and stops waste fuel. Plan your driving and look ahead of traffic. Anticipate problems and keep a safe distance between your vehicle and the one ahead to avoid sudden braking.
- **Make one long trip instead of several short trips.** Plan to combine your trips as taking short trips burns more fuel, regardless of the season, because the engine and drive train do not reach their most efficient operating temperatures.
- **Leave the vehicle at home, or park partway to your destination.** Walk, cycle, car pool or take public transit whenever you can.



GETTING THE MESSAGE OUT

The electronic versions of these documents are available on the CRAZ website in the Idle-Free Section. Schools may wish to use these documents in their entirety and distribute them as separate documents or include them in their regular newsletter or school website.

If a school wishes, they may also use individual sections of these documents, entering one section per newsletter. This approach will reduce the amount of reading required and may increase the readership of the document. Using this approach a school will have additional entries available for future newsletters. A school may also paraphrase the information contained in these documents to make them conform to your newsletter.

It is important during the campaign to regularly include information on idling to your school community. If your campaign begins in the fall, you may observe compliance with the program while the weather is mild. However, once cold weather sets in, you may observe vehicle idling to reoccur. For this reason it is important to provide drivers with a constant source of information so they can be better informed about the issues surrounding idling. Through this educational process it is hoped drivers will become committed to permanently altering their driving behaviour.

The information contained in the newsletter section can also be used in other ways to advertise your school's initiative to be idle free.

- Newsletter information can be modified and placed onto your school's website, informing all readers of your idle free status.
- Newsletter information can be placed onto your school's telephone messaging system as a tag line or an information message to be heard by callers while they are on hold.
- Newsletter information can be programmed onto school television monitors at school entrances used to share activities occurring at a school.

Invite students to write a newsletter entry for a school contest, with the winner's entry being placed into your regular newsletter. This will reinforce student learning while promoting writing skills. By keeping your school community informed on the hazards of idling, you can create a new norm for all drivers entering onto school property.