

Central Okanagan Idling Control Technical Report

REGIONAL AIR QUALITY PROGRAM
MARCH 2022



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This report was compiled by Nancy Mora Castro, Regional Air Quality Coordinator and is the outcome of a collaborative process involving RDCO, local government staff, and an active group of air quality experts who all volunteered their time to provide advice, assistance and information in shaping this document. Special thanks to all the members of the Air Quality Technical Committee and the following stakeholders (alphabetical by first name):

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The 2015 Central Okanagan Clean Air Strategy identified 16 strategies for implementation over the next few years. As part of the strategies, a working group of air quality experts from federal, provincial and local agencies was formed to discuss best practices for integrating clean air goals into community plans, regulations, and policies. Developing an Idling control regulation is one of the recommended actions to support the clean air vision and targets in the area.

The Central Okanagan Air Quality Technical Committee endorses an Idling Control regulation to help ensure that the health, safety, and well-being of Central Okanagan residents and their environment are protected. A regulation would put the Central Okanagan in line with 30 other British Columbia municipalities (including Vancouver, Victoria, Whistler, Kamloops and Duncan) that have implemented similar regulations, reinforcing the Central Okanagan as a progressive and green region.

The proposed one-minute maximum idle time regulation supports the vision of clean and healthy air for current and future generations and could be used as an education tool to change idling behavior over time. Considered a municipal environmental best practice, the committee believes an Idling Control regulation will help improve air quality and progress the region’s climate change commitments.



Figure 1. Central Okanagan Clean Strategies

TABLE OF CONTENTS

| | |
|--|----|
| Acknowledgements..... | 2 |
| Executive Summary..... | 3 |
| List of Figures | 5 |
| List of Tables | 5 |
| What is Idling? | 6 |
| Idling Regulations around Canada and the World..... | 6 |
| Idling Regulations in British Columbia | 7 |
| Reasons for Idling..... | 8 |
| Misconceptions about Idling..... | 8 |
| Engine Wear and Tear | 8 |
| The Need to Warm up | 8 |
| Fuel Use | 9 |
| Air Quality and Health Risk..... | 9 |
| Air Quality Health Index | 11 |
| Idling Contribution to Greenhouse Gas Emissions..... | 12 |
| Possible Greenhouse Gas Reduction in the Central Okanagan | 13 |
| Central Okanagan idling Policies..... | 14 |
| Idling Observations in the Central Okanagan | 16 |
| General Regulation Provisions | 18 |
| Large number of exemptions | 18 |
| Lengthy allowable idling period | 18 |
| Temperature exemptions..... | 18 |
| Allowed idling times for transit vehicles on layover or stopover | 19 |
| Lack of a set fine..... | 20 |
| Drive-through lanes..... | 20 |
| Warm-up time and pets | 20 |
| Effective Enforcement | 21 |
| Bylaw tickets and warnings | 22 |
| Central Okanagan Air Quality Technical Committee Consultation | 24 |
| Proposed Regulation Content | 24 |
| Financial/Budgetary Considerations..... | 26 |
| Enforcement/Personnel Implications..... | 26 |
| External Agency/Bylaw staff Comments | 27 |
| Public Environmental Analysis..... | 27 |
| Community & Media Relations..... | 31 |

| | |
|---|----|
| Recommendation..... | 31 |
| References | 32 |
| Appendix 1- Health Effects of Various Pollutants | 34 |
| Appendix 2-Central Okanagan Air Quality Committee Members and General Input..... | 35 |
| Appendix 3- Example of: Idling complaint Form, signs and Educational material | 38 |
| Appendix 4- GHG reduction estimations | 43 |

LIST OF FIGURES

| | |
|--|----|
| Figure 1. Central Okanagan Clean Strategies | 3 |
| Figure 2. Percentage of population covered by vehicle idling bylaws in British Columbia..... | 7 |
| Figure 3. Sources of GHG emissions in the Central Okanagan, 2010 | 10 |
| Figure 4. Sources of smog forming pollution | 10 |
| Figure 5. Air Quality Health Index Scale | 11 |
| Figure 6. 10- year average incidence rates of Asthma and COPD..... | 12 |
| Figure 7. Idling observations in Central Okanagan -May-June 2015..... | 16 |
| Figure 8. Air Quality inquiries/complaints (2018-2020)..... | 24 |
| Figure 9. Survey Responses by Municipality-2016 | 28 |
| Figure 10. Respondents by gender | 28 |
| Figure 11. Respondents by age | 28 |
| Figure 12. Top five Idling behaviours in Central Okanagan | 29 |
| Figure 13. My municipality should take steps to limit its air pollution- Survey 2016 | 29 |
| Figure 14. Steps should be taken to change idling behaviours- Survey 2016..... | 30 |
| Figure 15. There should be an anti-idling by-law in my municipality | 30 |

LIST OF TABLES

| | |
|--|----|
| Table 1. Idling regulations..... | 6 |
| Table 2. Individual fuel use estimations..... | 9 |
| Table 3. Community fuel use estimations..... | 9 |
| Table 4. Individual CO ₂ reduction estimations | 13 |
| Table 5. Community CO ₂ reduction estimations in Kelowna | 13 |
| Table 6. Community CO ₂ reduction estimations in Central Okanagan | 14 |
| Table 7. Summary of municipal anti-idling policies | 15 |
| Table 8. Potential impact for City fleet idling policy | 17 |
| Table 9. Idling tickets & warnings issued in Burlington | 22 |
| Table 10. Idling tickets & warnings issued in Toronto | 22 |
| Table 11. Idling experience in other B.C. communities | 23 |
| Table 12. Proposed general idling bylaw provisions..... | 25 |
| Table 13. Personnel Implications | 27 |

WHAT IS IDLING?

Vehicle idling occurs when a vehicle is in operation but not in motion. Although the vehicle is stopped, the engine is still running and creating unnecessary emissions. Natural Resources Canada states that idling for more than 10 seconds uses more fuel and produces more CO₂ than restarting the engine (Natural Resource Canada, 2017), (US Energy Department, n.d.). However, to balance factors such as fuel savings, emissions and component wear, **60 seconds is the recommended interval**. The message is: If you're going to be stopped for more than 60 seconds – except in traffic – turn the engine off.

Excessive idling can damage engine components, including the cylinders, spark plugs and the exhaust system. Natural Resources Canada also describes idling prevention as “one easy way to cut fuel consumption, save money, and reduce Greenhouse gases (GHGs)”. Work by the federal government and other Canadian municipalities indicates that an idling control regulation would be influential in improving public awareness, education programs and enforcement to reduce unnecessary vehicle idling.

IDLING REGULATIONS AROUND CANADA AND THE WORLD

In Europe, the recommended guidelines for turning engines off are 10 seconds. In the United States, the Environmental Protection Agency's Smartway and Drive Wise programs both recommend turning the engine off if you are stopped for more than 30 seconds. Copenhagen, the city with the highest rating in the European Green City Index, has had a one-minute idling bylaw since 1989. A summary of idling regulations indicates that, depending on the jurisdiction, American bylaws limit idling to as little as 2 minutes (in Philadelphia), and up to 15 minutes (several jurisdictions).¹ Regulations around the world are shown in Table 1.

Table 1. Idling regulations

| Place | Description |
|---|--|
| Canada | 82 cities have idling regulations; 97 Community Outreach |
| Switzerland | Some Regulations - turn off engines while in traffic |
| USA | 31 states with bylaws |
| England and Scotland | Fines |
| Italy, France, Copenhagen, Germany, Holland, Hong Kong, Japan and Singapore | Different idling time limits |

¹ IdleBase: Engine Idling laws and ordinances for all classes of on-road vehicles, Clean Cities, U. S Department of Energy_ https://cleancities.energy.gov/files/docs/idlebox_idlebase_database.xlsx

Vehicle idling regulations in B.C. cover 35% of the B.C. population. Vehicle idling regulations are in place in 30 municipalities within 15 regional districts. Idling regulations tend to be in place in urban areas and densely populated municipalities where vehicle idling can become a significant source of local air pollution². These are implemented as stand-alone regulations or as provisions in other bylaws (noise, nuisance, parking, etc.) with enforcement through fines or summons issued by respective agencies (bylaw enforcement, parking enforcement, police, and public health inspector).

Of the 30 local governments in B.C. with vehicle idling regulations, the majority state idling for more than a specified amount of time is prohibited. All anti-idling regulations and street, traffic, noise control, nuisance, good neighbour and smoking and idling control bylaws were included if they contained the following provisions for improving air quality: idling restrictions must apply to all vehicle types, idling rules do not allow a vehicle to idle longer than 3 minutes and the bylaw applies to all areas of the municipality (residential and commercial). The most common time limit prohibits idling for more than 3 minutes. Yet, recently updated regulations are moving towards a one-minute regulation to be aligned with Natural Resources Canada. (British Columbia Ministry of Environment, 2015)

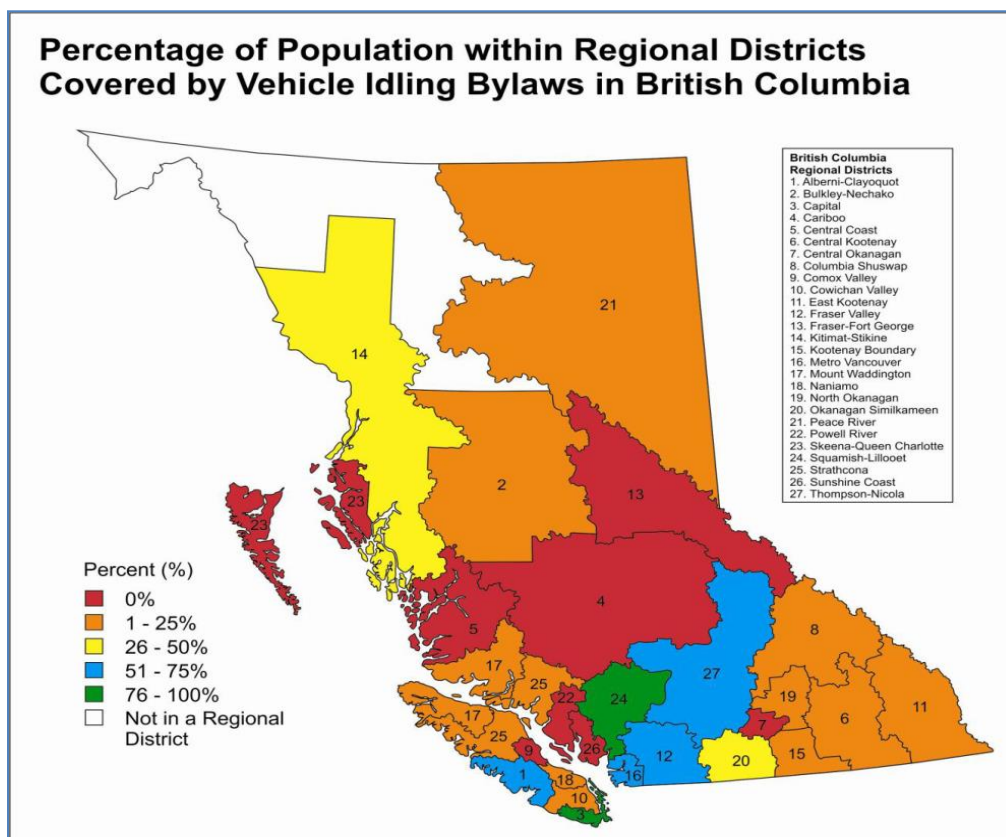


Figure 2. Percentage of population covered by vehicle idling bylaws in British Columbia

In addition to the 30 B.C. local governments with regulations, covering 35% of BC’s population, another 30 local governments have adopted vehicle idling policies. While most of these pertain to municipal vehicle fleets only, some target all citizens. Furthermore, various local governments mention the use of signage in idling hot spots to create awareness.

² [Status of Air Quality Bylaws in B.C.](#)

REASONS FOR IDLING

Idling occurs in many places including but not limited to roadways, truck stops and rest areas, bus terminals, restaurant drive-throughs, tourist attractions, landfill and ferry lineups, car washes, company terminals or distribution centres, and school's zones. Warming up or cooling down a vehicle is the most common reason given for idling. Surveys show that Canadians also idle their vehicles for other reasons that include:

- waiting for passengers
- stopping at railway crossings
- waiting to park
- running quick errands
- waiting to refuel or to have their car washed
- stopping to talk to an acquaintance or friend
- preparing to leave the house
- sitting in drive-through lanes

Research shows some interesting trends. For example, the amount of idling a driver does 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 age – a retiree is the least likely to idle. A person living in a rural area is more likely to idle than a driver living in an urban centre. Regionally, a person in British Columbia is the least likely to idle a vehicle (Natural Resource Canada, 2017).

MISCONCEPTIONS ABOUT IDLING

ENGINE WEAR AND TEAR

Many people are concerned that frequent restarts could damage components of their car, such as the starter and the battery. For most light-duty vehicles, the **wear and tear cost** of frequently turning the vehicle off and back on is estimated at about **\$10 per year**. The cost is more than outweighed by the fuel savings gained by reducing idling. The United States Environmental Protection Agency and Natural Resources Canada indicate that for heavy-duty vehicles, unnecessary idling increases maintenance costs for vehicles and reduces the time period between engines rebuilds as well reduces the warranty period if warranty is based on engine hours. (Environmental Protection Agency, n.d.).

When a gasoline or diesel engine idles for prolonged periods, the engine oil becomes contaminated more quickly than when the vehicle is being driven. Prolonged idling typically reduces the operating life of engine oil by 75%, from 600 engine-hours to 150 engine-hours. Additionally, idling produces carbon deposits and unburned fuel residues that accumulates and can damage the engine at several vital points. Idling trucks excessively can result in more frequent servicing of spark plugs, fuel injectors, valve seats and piston crowns. (City of Toronto, 2009).

THE NEED TO WARM UP

Excessively long vehicle warm-ups cost money, waste fuel and generate unnecessary greenhouse gas emissions that contribute to air pollution and climate change. Excessive idling is not an effective way to warm up a vehicle, even in cold weather. **The best way to warm up a vehicle is to drive it.** In fact, with today's computer-controlled engines, even on cold winter days, the recommended idling times are minimum; **just 30 seconds** for light duty vehicles. For newer diesel engines can be up to three minutes (Indiana Department of Environmental Management, n.d.). For specific warm-up times it is recommended to follow the vehicle owner's manual. Test results showed that with a 5-minute warm-up total fuel consumption (and resulting CO₂ emissions) increased by 7% to 14% and with a 10-minute warm-up total fuel consumption increased by 12% to 19%.

FUEL USE

Natural Resources Canada suggests that idling for more than 10 seconds uses more fuel than shutting off the engine and restarting. Canadians own about 19 million light-duty vehicles including cars, vans and light-duty trucks, and typically drive more than 300 billion kilometers per year. With close to one vehicle for every two Canadians, we have one of the highest ratios of car ownership in the world.

Inefficient driving behaviors, such as unnecessarily idling and speeding, and failing to properly maintain our vehicles (for example, neglecting to properly inflate the tires) means that great amounts of fuel are wasted in Canada; each driver could save hundreds of dollars per year in fuel and maintenance costs by adopting fuel-efficient practices. Since the time spent idling determines fuel use, idling also contributes to fuel waste. Individual fuel use and possible fuel cost reductions are listed below:

Table 2. Individual fuel use estimations

| If each driver³: | Idle Fuel use (litres/year) (3 L engine vehicle) | Idle fuel costs (\$/year) @ 1.42 \$/litre of fuel (average –Jan 2021- Dec 2021) |
|------------------------------------|---|--|
| Idles for 1 min a day | 11 | \$16 |
| Idles for 3 min a day | 33 | \$47 |
| Idles for 6 min a day | 66 | \$93 |

Community fuel use and possible fuel cost savings:

Table 3. Community fuel use estimations

| If all drivers in the Central Okanagan | Idle Fuel use (litres/year) (3 L engine vehicle) | Idle fuel costs (\$/year) @ 1.42 \$/litre of fuel (average –Jan 2021- Dec 2021) |
|---|---|--|
| Idle for 1 min a day | 1,087,004 | \$ 1,541,155 |
| Idle for 3 min a day | 3,261,013 | \$ 4,623,465 |
| Idle for 6 min a day | 6,522,027 | \$ 9,246,929 |

Considering the household survey data 2018, it is estimated that 99,270 vehicles are on the road in the region on a typical weekday (fueled only with gas and diesel). As a community we could avoid the use of millions of litres of fuel by turning off our vehicles.

AIR QUALITY AND HEALTH RISK

Air pollutants of greatest concern to human and environmental health in the Central Okanagan are particulate matter and ground level ozone. Recent emissions data shows that vehicle emissions are responsible for 32% of the sources of smog-forming pollution in the Central Okanagan and personal and commercial vehicles are responsible for 61% of total primary sources of greenhouse gas emissions from community activities in the region (Figure 3). In the Central Okanagan, the total greenhouse gasses emitted from community activities in 2010 were estimated to be 1.2 million tonnes. (Ministry of Environment and Climate Change, 2014).

³ [Natural Resources Canada](#)

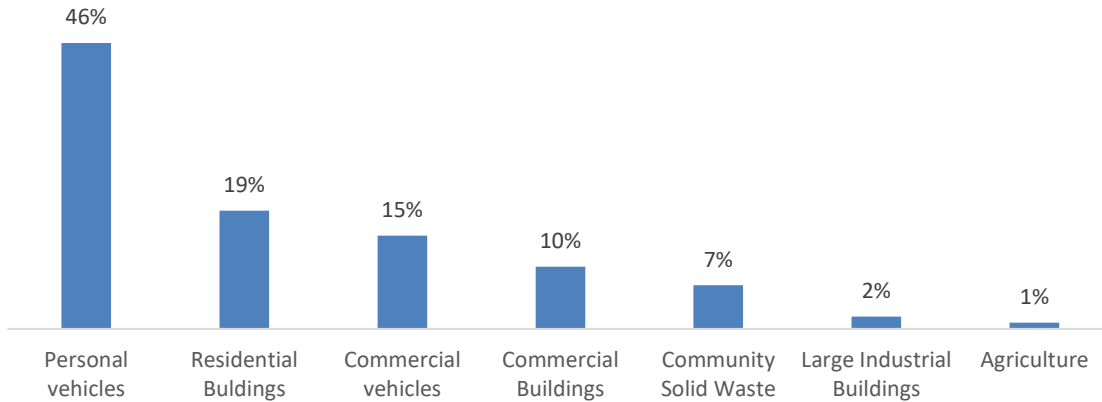


Figure 3. Sources of GHG emissions in the Central Okanagan, 2010

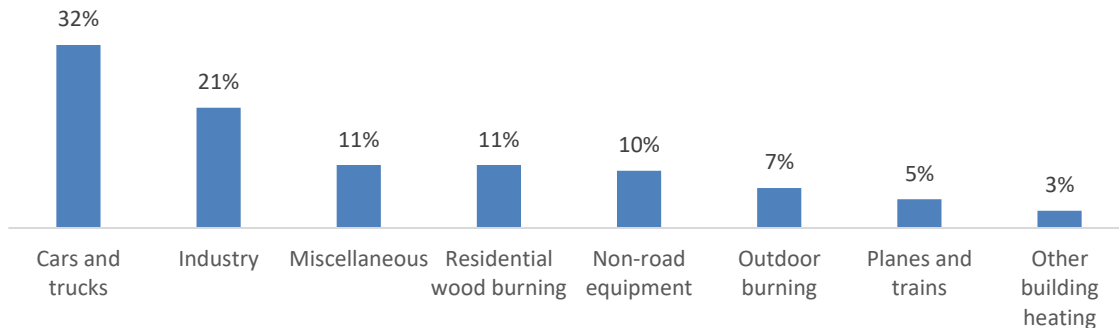


Figure 4. Sources of smog forming pollution

An operating vehicle emits a range of gases from its tailpipe into the atmosphere, one of which is carbon dioxide (CO₂), the principal greenhouse gas that contributes to climate change. **Each litre of gasoline** that is used **produces about 2.3 kg of CO₂** (Natural Resources Canada, 2017). Vehicles produce other emissions, such as volatile organic compounds (VOCs), carbon monoxide (CO) and oxides of nitrogen (NO_x). All these emissions are known to contribute toward air pollution and smog (a combination of fine particulate matter, nitrogen oxides, sulphur oxides, volatile organic compounds, and ammonia, which react in the presence of sunlight to form ozone, vapours and particles).

Smog forming pollutants seriously affect human health, causing cardiovascular disease, cardiovascular mortality, respiratory disease, and lung cancer, and have negative impacts on our local environment and the economy. The elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. Numerous studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks and premature deaths among those suffering from respiratory problems. Since children's lungs and respiratory systems are still developing, they are also more susceptible than healthy adults to fine particles (World Health Organization). Exposure to fine particles is associated with increased frequency of childhood illnesses and can also reduce lung function in children.

Health Canada, in collaboration with colleagues at Environment and Climate Change Canada, updated estimates of health impacts of air pollution. Using the Air Quality Benefits Assessment Tool, they estimate that 1,600 premature deaths in B.C. in 2015 can be linked to above-background air pollution (fine particulate matter, nitrogen dioxide and ozone) from all sources, with an economic valuation of \$11.5B per year.

Nationally, the health burden of air pollution was estimated at 14,600 premature deaths, 2.7 million asthma symptom days, and 35 million acute respiratory symptom days, with a total economic valuation equal to \$114B per year⁴. Previous research states sustained air quality improvements yield substantial cumulative benefits associated with the annual avoided health costs and other impacts.

For example, the assessed quantifiable annual benefits associate with a **10% improvement** in PM_{2.5} and Ozone (O₃) in the Central Okanagan are **\$16,646,630 and 1,833,540, respectively** (Parker, 2006). Recent estimations state Air Quality regulations **cost benefit ratio is 4:1 to 30:1** (Office of Management and Budget, USA, 2015). This means per each dollar spent on programs or air quality regulations, between \$4 to \$30 will be returned in health care associated costs and undervalued impacts like tourism industry (recreation), visibility improvements and other effects difficult to quantify (i.e., long-term cancer risk associated with toxic pollutants). Such estimates highlight the value of not only reducing the extreme air quality events, but also focusing on ensuring air quality always remains at the highest possible level (Hasselback & Taylor, 2010). The specific health effects of nitrogen dioxides, volatile organic compounds and diesel can be found in Appendix 1.

AIR QUALITY HEALTH INDEX

The Air Quality Health Index is a scale designed to help the public understand what the air quality around them means to their health. The scale ranges from 1 to 10.

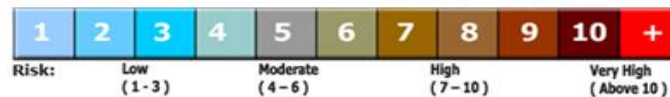


Figure 5. Air Quality Health Index Scale

According to the 2010 report, Air Quality Health Index Variation across British Columbia⁵, all communities monitored from 2000-2006, including Kelowna, are in the Low Health Risk category most of the time. However, **over 95% of negative health outcomes** attributable to poor air quality **occur on days** that would be **considered Low or Moderate** Health Risk.

This supports the premise that air pollutants at even relatively low concentrations can still trigger health problems. For this reason, irrespective of the air quality in a community, continuous efforts should be made to improve the air quality in our communities to reduce the negative health outcomes in both the short-term and over longer time periods. Short-term health risks of concern are predominantly the exacerbation of pulmonary disorders and the impacts on cardiac function. A report prepared by the Interior Health’s Medical Health Officer office (April 9, 2015) states; “A general increasing trend of Chronic Obstructive Pulmonary Disease (COPD) can be observed across the Interior Health region, as shown in Figure 6. Rates of COPD appear to be slightly higher in the Interior Health catchment area compared to B.C.

⁴ [B.C. State of the Air Report-2020](#)

⁵ [Air Quality Health Index Variation across British Columbia \(gov.bc.ca\)](#)

Asthma and COPD rates are highly influenced by smoking behaviors and/or exposure to second-hand smoke. The data shown in Figure 6 is not controlled for exposure to tobacco smoke or other environmental contaminants that may impact incidence of respiratory illnesses. It is very difficult to separate the impact of different exposures without conducting a research study that allows for control of these factors”.

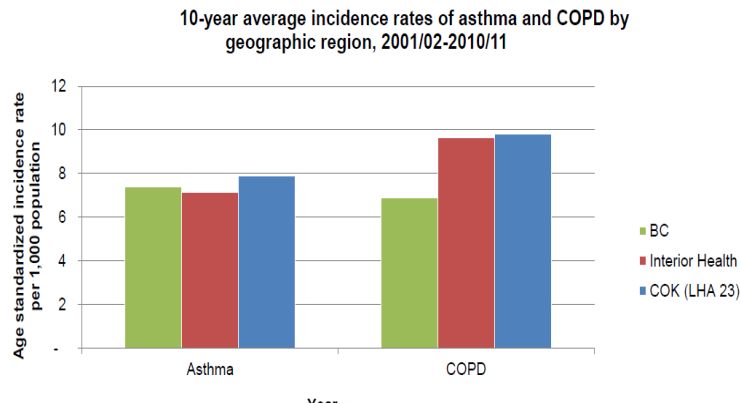


Figure 6. 10- year average incidence rates of Asthma and COPD

Children, the elderly, and population who have asthma, lung and heart conditions are more sensitive to air pollution (i.e., idling cars, etc.), therefore, any efforts to improve the air quality in the region will increase their well-being. According to the provincial Chronic Disease Registry, approximately 12% of persons aged 5-54 years in the Central Okanagan have asthma and approximately 9% of persons aged 45 years and older have Chronic Obstructive Pulmonary Disease (COPD) (Interior Health, 2017).

IDLING CONTRIBUTION TO GREENHOUSE GAS EMISSIONS

Calculations drawn from a Canadian survey of driving habits and behavior 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 alone uses over 2.2 million litres of fuel and produces over five million kilograms of greenhouse gases (GHGs) per day and is equal to the amount of fuel required to drive over 1,100 vehicles for a year. One easy way to cut fuel consumption, save money and reduce GHGs is to avoid unnecessary idling. If all drivers avoided unnecessary idling for three minutes a day, we would save over \$630 million per year (assuming a fuel cost of \$1/litre). Moreover, collectively, we would prevent 1.4 million tonnes of carbon dioxide (CO₂) from entering the atmosphere daily (Natural Resource Canada, 2017).

According to the latest Sixth Assessment Report (AR6) by the Intergovernmental Panel on Climate Change (ICPP); “Human-induced climate change is already affecting many weather and climate extremes in every region across the globe. Evidence of observed changes in extremes such as heatwaves, heavy precipitation, droughts, and tropical cyclones, and their attribution to human influence, has strengthened since AR5. From a physical science perspective, limiting human-induced global warming to a specific level requires limiting cumulative CO₂ emissions, reaching at least net zero CO₂ emissions, along with strong reductions in other greenhouse gas emissions. Strong, rapid and sustained reductions in CH₄ emissions would also limit the warming effect resulting from declining aerosol pollution and would improve air quality”.⁶

⁶ [Climate Change 2021. The Physical Science Basis- Summary for policymakers](#)

Each municipality in the Central Okanagan has set ambitious targets to reduce community greenhouse gas emissions by 33% from 2007 levels by 2020 (OCPs). And the Regional District has set targets to reduce emissions by 80% from 2007 levels by 2050 (RGS, 2014). Idling reduction can be one way to help reduce emissions as described in the 2018 Kelowna’s Community Climate Action Plan. (City of Kelowna, 2018). According to the Greenhouse Gas Implications of Land-Use Scenarios for the Regional Growth Strategy, 2012, scenario 1 (Sustainability Solutions Group, 2012) it was estimated that to reach 33% GHG reduction by 2020, 796,835 Tonnes of CO_{2e} should be reduced through several actions. Idling control policies and regulations are a practical way to help reduce vehicle emissions, as they will help to: eliminate unnecessary idling and reduce the amount of fuel consumed by vehicles and reduce emissions of toxic air contaminants and greenhouse gases. Kelowna has the highest per capita vehicle ownership of 33 Canadian municipalities (Transportation Association of Canada, 2010). With information provided by the Insurance Corporation of British Columbia, it was estimated that the total number of registered vehicles (including passenger, commercial) in the Central Okanagan was 156,773 (ICBC 2019).

Every tonne of CO₂ adds to global warming and Central Okanagan residents could help reduce local emissions. In Kelowna, most recent ICBC data shows that 7% of registered vehicles are either electric or hybrid (2012-2020). Even now, industry estimates that only 42% of new vehicles (Model 2020) are equipped with start-stop technology, resulting in most of the registered vehicles not having this technology⁷. A downside, is that some vehicles have also the option to disengage or turn off the system. Therefore, about 93% of the vehicles in the region are still fueled with gasoline and diesel and the shift to zero or partial zero-emission vehicles will take several years. As stated by Natural Resources Canada, the average Canadian idles between 6 to 8 minutes a day. The Individual CO₂ possible reductions are:

Table 4. Individual CO₂ reduction estimations

| If each driver ⁸ : | Idle CO ₂ emissions per vehicle (Kg/year) |
|-------------------------------|--|
| Avoids Idling for 1 min a day | 25 |
| Avoids Idling for 3 min a day | 76 |
| Avoids Idling for 6 min a day | 151 |

Table 5. Community CO₂ reduction estimations in Kelowna

| If all drivers in Kelowna: | CO ₂ savings (Ton/year) | Number of vehicles off the road in Kelowna |
|------------------------------|------------------------------------|--|
| Avoid Idling for 1 min a day | 1,580 | 344 |
| Avoid Idling for 3 min a day | 4,741 | 1,031 |
| Avoid Idling for 6 min a day | 9,482 | 2,061 |

Considering the 2018 Okanagan Travel Survey it is estimated that:

- Approximately 112,000 drivers (gas, diesel, electric, hybrids, etc.,) are on the road in the Central Okanagan on a typical weekday:
 - 62,750 vehicles (gas and diesel) are on the road in Kelowna
 - 36,520 vehicles (gas and diesel) are on the road in Lake Country, West Kelowna, and Peachland.

⁷ US Environmental Protection Agency, ES-5 [Highlights of Automotive Trends Report](#) consulted July 7, 2021.

⁸ [Natural Resources Canada](#)

The City of Kelowna could reduce between 1,580 to 9,482 tonnes CO₂/year. District of Lake Country, City of West Kelowna and District of Peachland CO₂ savings could be between 920 to 5,519 tonnes/year. Estimations of CO₂ idling reductions for the entire region are:

Table 6. Community CO₂ reduction estimations in Central Okanagan

| If all drivers in Central Okanagan | CO ₂ savings (Ton/year) | Number of vehicles off road in Central Okanagan |
|------------------------------------|------------------------------------|---|
| Avoid Idling for 1 min a day | 2,500 | 544 |
| Avoid Idling for 3 min a day | 7,500 | 1,631 |
| Avoid Idling for 6 min a day | 15,001 | 3,261 |

GHG estimations are described in Appendix 4.

CENTRAL OKANAGAN IDLING POLICIES

The major benefit of the idling policies and regulations is the reduced amount of pollution being created. The long-term goal of anti-idling measures is to create societal change, where unnecessary idling is seen as an unacceptable behavior. Also, the implementation of regulations seems to be the most cost-efficient type of initiative because they introduce a more powerful motivation than simple educational programs alone.

Anti-idling strategies are usually implemented through employee protocols, educational programs and regulations. The Central Okanagan region has been taking the necessary actions through several steps before the proposed regulation. In January 11, 2010, Council discussed implementing an idling control regulation, but opted to refer to the Regional District of Central Okanagan for discussion by the Regional District's Okanagan Similkameen Airshed Coalition (OSAC), who could comment on idling control with respect to both corporate and community carbon and air quality issues. Following the Council resolution, the former Okanagan Similkameen Airshed Coalition (OSAC) made two motions at the Feb. 24, 2010, meeting: *1. Consider a social marketing program for anti-idling, and 2. Request regional and municipal governments forward any anti-idling policies to the Okanagan Similkameen Airshed Coalition for their review.*

Subsequent to these recommendations, anti-idling policies were compiled and shared with the regional partners. In 2011, there was an educational program in the Central Okanagan through public awareness campaigns, school-based initiatives, signage, city websites, media releases and social media. Two hundred anti-idling signs provided by the provincial government were installed through the region to support public awareness. In 2004, the RDCO, the District of Lake Country and City of Kelowna and in 2012 West Kelowna and District of Peachland, adopted municipal anti-idling policies as a practical way to help reduce vehicle emissions from municipal vehicle fleets (Table 7). Westbank First Nation currently does not have an anti-idling policy.

Table 7. Summary of municipal anti-idling policies

| Municipality | Policy | Effective |
|---------------------------------|--|-------------------|
| Kelowna | No operator of a City Vehicle shall permit the engine of that vehicle to idle for more than three (3) consecutive minutes except as provided in under the “Exemptions” listed below. | February 17, 2004 |
| City of West Kelowna | All operators of District of West Kelowna vehicles shall ensure that vehicles are not idling for more than 5 minutes except in the following situations: | June 19, 2012 |
| District of Peachland | No operator of a District of Peachland vehicle shall permit the engine of that vehicle to idle for more than one minute , except as provided in “Exemptions” of this Policy. | August 28, 2012 |
| District of Lake Country | No operator of a District of Lake Country vehicle shall permit the engine of that vehicle to idle for more than three (3) consecutive minutes except as provided in Section 3 (Exemptions) of this ordinance. | February 24, 2004 |
| RDCO | No operator of an RDCO vehicle shall permit the engine of that vehicle to idle for more than three (3) consecutive minutes except as provided in Section 3 (Exemptions) of this ordinance. | February 9, 2004 |

When implementing an idling control regulation or policy a **regional approach is recommended** to avoid inconsistent provisions in neighbouring municipalities (Clean Air Partnership, 2006). Experience from other municipalities across Canada indicates that an idling control regulation that supports a comprehensive public awareness campaign is the most effective way to reduce unnecessary vehicle idling. The duplication of various municipalities discussing and researching the issue of idling control initiatives can be avoided, reducing costs, and sending a unified message to Central Okanagan residents: “Turn your engine off”.

It's safe to say that most Canadian motorists do some idling. However, to collect baseline data, staff performed idling observations at four locations where idling behavior was expected: an elementary school, the airport, a drive-through and the Queensway Transit Exchange. The observations were made for half an hour each morning and afternoon for three days at each location during May and June 2015. The percentages of drivers who idle for more than one minute at those locations are shown below:

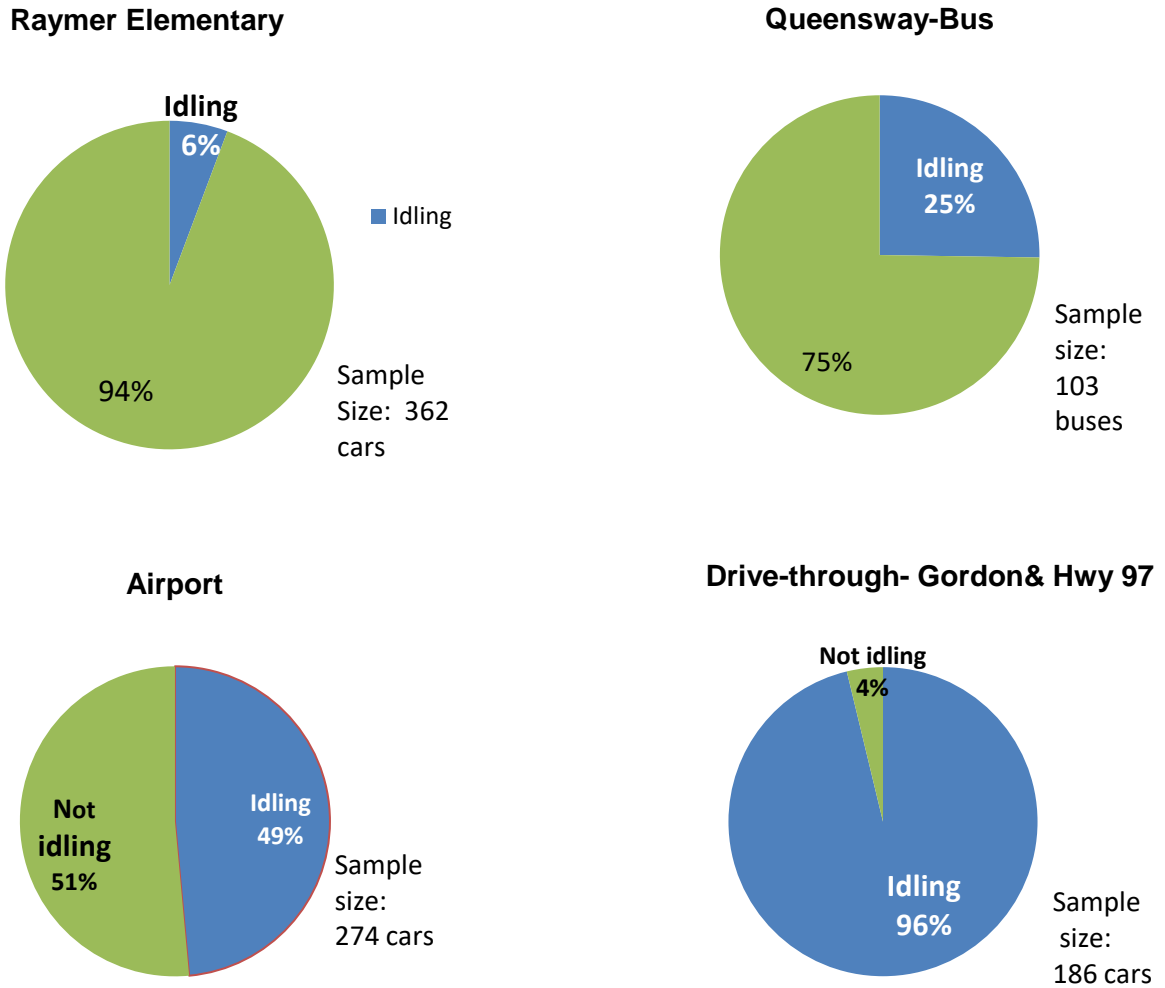


Figure 7. Idling observations in Central Okanagan -May-June 2015.

The average idling time at the drive-through was 4 minutes 12 seconds. The average idling time at the airport was 3 minutes 46 seconds and the average idling time at Queensway station for buses was 5 minutes, and 3 minutes for cars at the same station. The average morning temperature was 19°C and the afternoon temperature was 29°C. Although this is not a statistically valid survey of idling behaviour in the region, it provides baseline data to measure the impact of any educational programs/campaigns implemented in conjunction with a possible idling regulation.

The District of Peachland and City of Kelowna have incorporated many green principles into managing their operations. With a Geotab fleet manager system in place they can track idling of their respective fleets.

City of Kelowna has a three-minute idling policy, and the average idling time is 6 minutes/day/vehicle. District of Peachland has a one-minute idling policy and recently implemented its fleet management system; the average idling time is 8 minutes per day/vehicle. This baseline data could be also used for comparison after any educational programs/campaigns are implemented. The potential impact a workplace idling initiative would have if employees were committed to reducing idling of their vehicles is shown in the table below:

Table 8. Potential impact for City fleet idling policy

| Potential Impact for fleet Idling Policy | | | | | | | |
|--|--------------|-----------|------------------------------|---|-----------------------|---|--|
| | # Min idling | # Drivers | Litres of fuel reduced /year | Money saved/ year (\$1.42/litre-2021 average) | Reduce GHG (kg)/ year | Equal to taking X vehicles off the road | Total each driver would save annually |
| Kelowna | 6 | 177 | 11,629 | \$16,280 | 26746 | 8 | 66 litres fuel \$92 in fuel cost 151 kg of GHG |
| District of Peachland | 8 | 24 | 2,102 | \$2,943 | 4,836 | 2 | 88 litres of fuel \$123 in fuel costs 201 kilograms of GHG |
| Westbank First Nation | 8 | 32 | 2,803 | \$3,924 | 6,447 | 2 | As above |
| City of West Kelowna | 8 | 51 | 4,468 | \$6,254 | 10,275 | 3 | As above |
| District of Lake Country | 8 | 56 | 4,906 | \$6,867 | 11,283 | 4 | As above |
| RDCO | 8 | 44 | 3,854 | \$5,396 | 8,865 | 3 | As above |
| Total Region | | | 21,762 | \$41,667 | 68,425 | 21 | |

GENERAL REGULATION PROVISIONS

In the provisions of existing regulations several weaknesses make enforcement difficult, time-consuming, or costly. These include:

- Large number of exemptions;
- Lengthy allowable idling period;
- Temperature exemptions;
- Allowed idling times for transit vehicles on layover or stopover;
- Absence of a set fine;
- Drive-Through Lanes
- Warm-up time and pets

LARGE NUMBER OF EXEMPTIONS

Most of the existing by-laws have between 10 and 12 exemptions that allow vehicles to idle beyond the prescribed 1, 3 or 5-minute limits. While most of the exemptions are reasonable when examined individually, the effect of having many exemptions is to create a patchwork law that is unevenly applied to some vehicles in some circumstances. Some enforcement officers report that this frustrates citizens who call to lay a complaint about idling vehicles in their communities, only to discover that the vehicles are exempted from the provisions of the regulation for one reason or another. Municipalities that wish to make their bylaws more credible and enforceable should consider reducing the number of exemptions.

Several Canadian jurisdictions have included fewer exemptions in their bylaws. For example, Victoria's includes 8, and Duncan's bylaw includes 9. Most jurisdictions have incorporated exemptions addressing idling by vehicles in traffic, emergency vehicles, armoured vehicles, mobile workshops, transit vehicles while passengers get on and off, and during repairs.

LENGTHY ALLOWABLE IDLING PERIOD

One-minute was the recommended timeline for the "model idling bylaw" (The Clean Air Partnership, 2005) identified in a report commissioned by Natural Resources Canada in 2005, to balance emissions, fuel use and potential extra wear and tear for the car components. Any reduction in permitted idling time will increase ease and efficacy of enforcement officers, so that they do not need to wait for three or more minutes prior to writing a ticket. Natural Resources Canada message is: **If you're going to be stopped for more than 60 seconds – except in traffic – turn the engine off.**

TEMPERATURE EXEMPTIONS

Most of the existing anti-idling bylaws exempt vehicles from idling prohibitions when temperatures are higher than 27°C or lower than 5°C, so that drivers can operate air conditioners or heaters to maintain passenger comfort in the vehicle. Three municipalities in Canada exempt vehicles whose interior temperature is greater than 27°C or less than 5°C. The justification for this is that a vehicle standing in a sunny location might get quite hot inside even though the outside temperature is cooler. However, most municipalities that have adopted this exemption have applied it to the outside temperature rather than the temperature on the interior of the vehicle. That is because bylaw enforcement officers do not have the right to enter a vehicle to check the temperature, which makes the provision difficult to enforce.

Both the inside and outside temperature exemptions allow for unlimited idling for a large part of the year in much of Canada. Even more problematic, allowing vehicles to idle when the temperature is above 27°C means that unlimited idling is permitted on most smog days. Recognizing these enforcement problems, the Greater Vancouver Regional District did not include a temperature exemption in its model bylaw, neither did Whistler, Victoria, and Gibson in their respective idling bylaws. In Ontario, several municipalities have excluded temperature exemptions in their original idling bylaw, including Bracebridge, Guelph, Markham, Orillia, Peterborough, Pickering, and Whitchurch-Stouffville. Toronto removed the temperature exemption from its idling bylaw in 2010. Other municipalities including Huntsville and London indicated that they might also consider changes to the temperature exemption in their idling bylaws.⁹ The Air Quality Technical Committee, recommended the Central Okanagan Idling Control Regulation should not include any temperature exemptions.

ALLOWED IDLING TIMES FOR TRANSIT VEHICLES ON LAYOVER OR STOPOVER

Most existing anti-idling bylaws allow transit vehicles to idle for 10 or even 15 minutes on layover or stopover, except where idling is substantially for the convenience of the operator. This is usually justified on the grounds of providing a comfortable environment for passengers. However, a 10 or 15-minute allowable idling period makes enforcement problematic as Toronto learned from experience. They updated their anti-idling bylaw in 2010 from three to a one-minute maximum idling time, removed the layover and stopover past provisions and now exempt transit vehicles only while passengers are embarking or disembarking, allowing for efficient enforcement. Transit vehicles are of particular concern because diesel vehicles – especially those with older or poorly maintained engines – are particularly dirty when idling, emitting particulates as well as greenhouse gases and other pollutants. Emissions from idling buses can become problematic in bus terminals or other partially enclosed areas. BC Transit has an anti-idling policy (BC Transit, 2018):

“ This procedure is not intended to conflict with local by-laws. Where no by-law currently exists, or one exists that is less stringent, follow the BC Transit Idling Policy. When operating a bus in the outdoor temperature range of zero degrees Celsius (0 C°) and thirty degrees Celsius (30 C°) and upon arriving at a terminus, timing point or layover, and it is anticipated that the bus will be parked for a period beyond one (1) minute, you are required to shut off the engine unless loading or unloading passengers. On some buses, shutting off the power will cause the door(s) to close automatically, potentially endangering customers boarding or departing the bus. Outside these specified temperature ranges the requirements of the local by-laws apply.”

Since a policy is already in place, a smooth transition is expected from their internal policy to a Local/Regional Regulation. According to the BC Transit 2014 Carbon Neutral Action Report, (BC Transit, 2016) BC Transit will work with local governments to reduce harmful greenhouse gas emissions by limiting idling; therefore, this possible Idling control regulation is a great opportunity to achieve our common goals.

The approach for tour buses is usually the same as with any motor vehicle: no specific exemptions for those vehicles are included in most bylaws. According to tour bus manufacturers, businesses and automobile clubs, there is no technical or economical reason to leave a well-maintained engine idling over a longer period. If the bus is left to idle for a longer period it is usually due to convenience and comfort, for example to maintain the temperature of the bus’s interior. In a standby mode a bus consumes an average 3-4 litres of fuel per hour. If the air conditioning system is additionally operated, it uses 8-10 litres, when connecting a heater, it uses even more, about 12 litres of fuel per hour (The Official Website of Berlin, 2018). Efforts should be made to avoid the use of tour vehicles as mobile hotel rooms and prevent unnecessary fuel waste and exhaust emissions into our local airshed.

⁹[Cracking Down on Idling.](#)

LACK OF A SET FINE

Bylaws with set fines are easier to enforce. An enforcement officer can write a ticket for an idling infraction, and the offending driver in most cases simply pays the fine in the same way they would pay a parking ticket, with the option to go to court if they wish to contest the charge. In establishing a set fine, municipalities must also consider a penalty that is perceived as "fair" in relation to the damage inflicted on the environment and public health. Currently, most set fines for idling range between \$100 and \$155. These are considered significant penalties and strong deterrents. The recommended fine for the Central Okanagan Idling Control Regulation is \$150.

DRIVE-THROUGH LANES

The purpose of a drive-through lane is to use one's vehicle to obtain a service, the consequences are the pollution caused by idling and traffic problems, particularly during rush hour when lineups spill into turning lanes. The intention of the Idling Control Regulation has always been to address *unnecessary* idling. The term "*unnecessary*" refers to when the device is not put into operation immediately after turning on the motor. For some municipalities, vehicles in drive-through lanes are similar to vehicles in traffic congestion and are exempted. However, traffic congestion, emergency and mechanical difficulties are exemptions set mainly because the driver has no control over those situations; **idling by choice** on a drive-through lane is for the convenience of the driver and **can be avoided** if they park and go into the building. While it is true that drive-through lanes provide an important service for the disabled, elderly or parents with children in car seats, they all can avoid unnecessary idling **by turning off the engine while waiting**, avoiding unnecessary pollution and fuel waste. Municipalities in the region are trying to support urban and rural land uses that provide affordable, effective, and efficient services and infrastructure that conserve land, water and energy resources, increased density of settlement areas, building form and urban design¹⁰. By their very nature drive-throughs do not lend themselves to this type of intensity and building form. Municipalities in Ontario, British Columbia and Nova Scotia have considered banning new drive-throughs to deal with idling. As part of the Clean Air Strategies, the Central Okanagan Air Quality Committee will later discuss a possible ban on the future construction of drive-throughs in the region. In the meantime, it is recommended the Central Okanagan Idling Control regulation should also apply to drive-throughs.

WARM-UP TIME AND PETS

It should be emphasized that the proposed regulation addresses *unnecessary* idling. One should only need to idle a vehicle during the **warm-up time recommended by engine manufacturers**. However, the overall stationary warm-up period for light duty vehicles is **just 30 seconds**, even in winter and for some heavy-duty diesel vehicles could be up to 3-5 minutes. To help speed up the warming up process, drivers can use a block heater (used for up to 2 hours, not all night) and should consider installing a winter front cover on the car to reduce the amount of cold air reaching the radiator. During winter, drivers are also expected to scrape their windows and not rely solely on the defrost/defog function in vehicles. One of the most common concerns about driving a car before it warms up is the potential for the windows to fog up and make it difficult to see. There are several things that drivers can do to avoid this problem:

- When park a vehicle, leave a window open just a few millimeters. This allows hot air and moisture inside the car to escape before it forms frost on the window.
- Clear away the snow from the air intake (in front of the windshield area).

¹⁰ [Regional District of Central Okanagan Regional Growth Strategy](#)

- Once inside the vehicle open the windows a little bit. It may seem counter intuitive, but opening the window allows some of the moisture from the drivers' breath to escape and not condense on the windows.

It is also expected vehicle owners do not leave children or any pets inside of an unattended idling car at any time, due to the risk of carbon monoxide poisoning and high pollution levels of toxic substances (measured to be 10x higher than outside). A published review of death certificates indicates that auto exhaust caused 6,600 unintentional CO poisoning deaths in the United States during 1979–1988 (Marr, Morrison, Nazaroff, & Harley, 2011).

Furthermore, RDCO Bylaw 1343 in section 33 states: “No Owner shall cause or permit his or her dog to be confined to an enclosure or vehicle without adequate ventilation...”; while some pet owners could dispute that they leave the car idling to provide adequate ventilation, an unattended and idling car represents a safety issue and must not be permitted; pets will be safe and more comfortable if left at home.

EFFECTIVE ENFORCEMENT

An effective enforcement program should have a clear and enforceable law, resources to administer and implement the law, appropriate penalties, and an enforcement plan. Municipalities with a separate parking enforcement office or agency should seriously consider assigning responsibility for idling control bylaw enforcement to this department. Parking enforcement officers are an appropriate group to enforce idling control bylaws because:

- There are comparatively large numbers of parking enforcement officers, and they have fewer competing responsibilities than general by-law enforcement staff.
- Parking enforcement departments often have a more pro-active enforcement mandate than general by-law enforcement personnel.
- Parking enforcement officers are usually on the streets looking for infractions (whereas other bylaw enforcement typically depends on complaints or permitting systems to alert them to a potential concern or violation); and
- Many idling infractions occur in areas where parking officers regularly patrol, and they are more likely to spot and be able to respond to these misdemeanors.

A thoughtful enforcement planning can ensure that enforcement resources are used to the best effect; areas where idling compliance may be a problem, should be identified so that education and enforcement efforts are appropriately targeted. The enforcement or legal action to compel compliance and impose penalties for violating the law may include:

- Complaints-based enforcement.
- Pro-active blitzes of hotspots (usually connected to idling control campaigns).
- On-going proactive enforcement.
- Some combination of the above.

Most municipalities recognize that there is an enforcement challenge when it comes to idling bylaws. However, a combination of regulations and public education campaigns has often been adopted for effective idling behaviour change. Details about [idling campaigns](#) can be found in the Natural Resources Canada website.

Natural Resources Canada’s recommends shorter allowable idling times. Toronto and Burlington have had bylaws in effect for some time and recently reduced their bylaw to a one-minute restriction. The City of Burlington (population 205,000+), updated their bylaw in 2009 from three-minutes to one-minute and stated that it has brought positive changes:

- *“It is much easier for parking enforcement officers to enforce the bylaw, instead of standing around for 3 minutes watching a parked car idle.*
- *They can issue the ticket against the vehicle license and not the driver; this eases the ability of the officer to issue the ticket (doesn’t have to ask the driver for personal information).*
- *Increased the number of tickets issued. Under the old bylaw, one or two tickets might have been issued. The warnings are in the form of a bookmark that the officers can hand out.*
- *The fine was lowered from \$150 to \$120”.*

Table 9. Idling tickets & warnings issued in Burlington

Environment staff from Burlington registered approximately 57 tickets for unnecessary idling from 2015 to 2020. Complaints resulted in mailing 30 letters to residents or businesses and seven patrols by Parking Bylaw Officers. To keep the costs of enforcement to a minimum, officers now enforce the bylaw on a complaints basis and as they come across idling vehicles while conducting their normal work duties of issuing parking tickets. As part of their normal enforcement routine, officers also visit locations where complaints were previously reported on a quarterly basis to ensure compliance with the Idling Control Bylaw. There are currently only two Parking Bylaw Officers, the warnings are in the form of a bookmark that the officers can hand out. As of Apr. 1, 2017, tickets for unnecessary idling are \$120.

| Year | # Tickets | #Warnings |
|------------------|-----------|-----------|
| 2015 | 9 | 3 |
| 2016 | 21 | 0 |
| 2017 | 8 | 0 |
| 2018 | 9 | 0 |
| 2019 | 9 | 0 |
| 2020 (Oct 31) | 1 | 0 |

Table 10. Idling tickets & warnings issued in Toronto

In 2010, Toronto (population 2.93 million), changed the idling bylaw from a three-minute restriction to a one-minute and removed the temperature exceptions to be consistent with neighboring municipalities and for easier enforcement. They follow a complaints-based system. Enforcement is done by 40 municipal bylaw officers (who have many other responsibilities) and the Toronto Police. They receive a complaint through the 311 system (the witness provides a picture of the car or license plate), bylaw officers trace the license plate and send a warning to the vehicle’s owner stating that if a second complaint is received a fine will be issued.

| Year | # Tickets | # Warnings |
|------|-----------|------------|
| 2015 | 1 | 995 |
| 2016 | 0 | 1148 |
| 2017 | 0 | 2041 |
| 2018 | 2 | 1800 |
| 2019 | 29 | 1555 |
| 2020 | 5 | 337 |

The bylaw provides for fines from \$105 (plus \$25 provincial surcharge and a \$5 court fee) up to a maximum of \$5000 for infractions of the bylaw¹¹. If drivers are caught in the act the officer’s approach them, provide a brochure, explain the bylaw and give them a warning. So far, the complaints-based system satisfies the public. The tickets and warnings issued in Toronto are shown in Table 10.

¹¹ [City of Toronto- Idling Website](#)

B.C. Municipalities that have adopted idling control regulations in the past five years, such as Duncan, Lions Bay and Whistler, also have a one-minute restriction. Duncan has issued less than 10 warnings and two tickets in the last 5 years (2015-2020). The two tickets were disputed. One lady left the vehicle idling for 20 minutes while banking with a dog inside the vehicle and the other was during wintertime; a car was left 25 minutes idling because the owner didn't want to get in a cold car. A temperature provision will be revised by Duncan's staff in the future to address these issues. Some experiences of other B.C. communities with an idling regulation in place are outlined in Table 11:

Table 11. Idling experience in other B.C. communities

| Community | Population | Idle Time | Tickets | Warning | Experience |
|----------------------------------|------------|-----------|----------------------------|--|---|
| Kamloops | 90,000+ | 3-min | 2018-1 2019-0 2020-0 | 2018-6 2019-9 2020-12 | Enforced by Bylaw officers"-Council voted on June 26, 2018, to adopt the amended Good Neighbour Bylaw. The bylaw prohibits all motor vehicles within city boundaries from idling for more than three consecutive minutes and includes exceptions for necessary idling. Enforcement occurs through education first around expectations. Proactive or reactive enforcement may also occur. Enforcement of the prior Anti-idling Noise Control Bylaw was based on complaints. In 2016-2017, an idling reduction campaign was implemented with City staff, using community-based social marketing techniques, including information and awareness and securing pledges from drivers". In 2018, a wider community idling reduction campaign was launched, with widespread educational messaging on social media, on billboards, and on the back of buses. We created resources to assist Bylaws staff in engaging with residents about idling. These resources were placed in all Bylaws vehicles. The anti-idling bylaw is mostly educational to us and to date we only issued one ticket in 2018." |
| Vancouver FOI | 675,000+ | 3-min | (2014- 2017) -323 | 2014-68 2015-89 2016- 77 2017- 89 | Enforced by Vancouver police Department" Parking Enforcement Officers are deployed in vehicles, on bikes, and on foot. While Officers will enforce this bylaw on their own ori routine patrol, in most cases, they respond to complaints/ requests from the public. All Officers are responsible for enforcing this by-law; however, as they are more mobile, vehicles are utilized to respond to complaints. The City received 76 requests for the enforcement of the Anti-Idling By-law in 2016 and 119 in 2017." ¹² |
| Victoria | 92,000+ | 3-min | | | The City invested in a substantial public education and awareness campaign leading up to the adoption of and implementation of this bylaw. During this grace period, warnings were issued and information provided. Fines were imposed after Feb 1 2009. ¹³ February 1, 2008 – July 31, 2008 – Public Education August 1, 2008 – January 31, 2009 – Warnings February 1, 2009 - Effective Date of Bylaw Enforcement |
| Other municipality | 11,000+ | 1-min | 2018-6 2019-6 2020-1 | 2018-5 2019-0 2020-1 | Enforced by Bylaw officers- "Beyond ticketing, the existence of the idling ticket allows Bylaw Officers the ability to verbally educate drivers who they observe idling their vehicles, even if they have not observed them idling longer than the prescribed idling time limit. This not only reduces the number of idling vehicles but also educates drivers. The idling regulation also empowers the public to educate drivers who they observe idling. Together everything helps work towards making shutting of your engine the social norm, which is usually the most successful route to compliance." |
| Grand Forks | 4000+ | 3-min | (2017- 2020) -0 | 2017- 2020) -3 | Enforced by bylaw-"The idling bylaw has not proven to be an onerous enforcement concern. We proactively install signs at all the local hot spots, usually requested by business owners, and people tend to pay attention. Given that our bylaw is not applicable when temperatures are below freezing, it is rare that offences occur. Grand Forks residents by and large are aware of the bylaw, and agree with it. Awareness is everything!" |

¹² [FOI records-City of Vancouver](#)

¹³ [Idling Control Bylaw across Canada](#)

In Kelowna, other complaint-based bylaws receive a considerable number of complaints per year, but only a few are directed to a bylaw officer for investigation and possible enforcement. For example, the Regional Bylaw 773, which handles smoke complaints regarding indoor wood burning appliances, receives around 30 complaints annually (2018-2020); however, only 2 complaints per year were sent to a bylaw officer during the same period.

The City of Kelowna Pesticide Bylaw receives 3 to 5 complaints per year. Most complaints are unfounded as the issue is exempt in the bylaw and bylaw officers have attended a valid bylaw situation 4 times over 5 years (2015-2020) where only warnings were issued. No one has ever been ticketed.

Most people living in Canada are law abiding citizens and, with education, want to do the right thing. To effectively reduce idling, we need a two-pronged approach which includes regulations and education. Education alone won't make a significant change. Adding regulation and enforcement will help change people's behaviours over time.

CENTRAL OKANAGAN AIR QUALITY TECHNICAL COMMITTEE CONSULTATION

The Central Okanagan Air Quality Technical Committee and guests met on June 30, 2015, and June 10, 2016, to discuss the idling bylaw among other clean air strategies. After a thorough review of the most recent anti-idling bylaws in Canada and internationally, a proposed regulation and an updated policy were drafted by the Air Quality Coordinator and presented to the Central Okanagan Air Quality Technical Committee for their input. The committee members and general input to this proposed regulation are listed in Appendix 2. The proposed idling control model regulation and policy will be presented to each City Council for their consideration.

PROPOSED REGULATION CONTENT

The Central Okanagan Air Quality Technical Committee is recommending the Regional District of Central Okanagan and all partners to adopt a **one-minute (60 seconds) idling maximum bylaw**. It is recommended a Regional Idling Control Regulation to avoid inconsistent provisions in neighboring municipalities (Clean Air Partnership, 2006). The main content of the proposed regulation is outlined in Table 12. It is important to note that this regulation would not apply to vehicles zero or partial emissions neither to vehicles when they are in traffic. This regulation would apply to all drivers of motor vehicles on highway, municipal, private, and commercial property. It is recommended the proposed one-minute Idling Control Regulation to be adopted within the jurisdictions to which the Regional District of the Central Okanagan provides an air quality program service; the City of Kelowna, the District of Lake Country, the District of Peachland, the Regional District of Central Okanagan, the City of West Kelowna, Central Okanagan West Electoral Area and Central Okanagan East Electoral Area and Westbank First Nation.

Air Quality Public Inquiries (2018-2020)

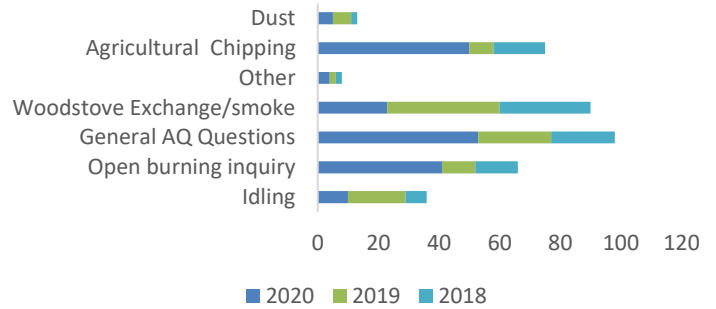


Figure 8. Air Quality inquiries/complaints (2018-2020)

Table 12. Proposed general idling bylaw provisions

| Section | Contents |
|---|---|
| Part 4. General regulation | 6. A person must not cause or permit a motor vehicle to idle for more than one-minute (60 seconds) . |
| Part 5. Exemptions | 7. The one-minute (60 seconds) limit does not apply to the following situations, except where idling is substantially for the convenience of the operator or passengers of the motor vehicle: <ul style="list-style-type: none"> a) police, fire, ambulance, while engaged in operational activities, including training activities. b) armoured motor vehicle, used to transport money or valuables, in which a person remains to guard the contents, in the course of the loading or unloading of such money or valuables. c) motor vehicles with power take-off while they are in the course of being used for their basic function. d) Motor vehicle while engaged in a mechanical test or maintenance procedure. e) Motor vehicle in the course of a race or parade the City Council or authorized person has approved; f) Motor vehicle forced to remain motionless because of highway traffic, an emergency, or mechanical difficulties over which the driver has no control. g) Motor vehicles that must remain idling so as to power a heating or refrigeration system or any ancillary equipment for the preservation of perishable cargo, but not when idling disturb the quiet, peace, rest, enjoyment or convenience of a neighborhood or of persons in the vicinity. h) Transit vehicles while its passengers are in the course of embarking or disembarking. |
| Part 6. Use of Alternatives Technologies | 8. As an alternative to idling the primary engine, motor vehicles may, as an option, be equipped with Idle Reduction Technologies. |

While the use of heating and refrigeration systems for the preservation of perishable cargo are excluded in most Canadian idling bylaws and fleet operations, the compulsory use of alternatives to idling should be encouraged and proposed by the federal government to avoid province to province differences (Reaj , 2010). In the meantime, bylaw officers often receive idling complaints regarding commercial vehicles with sleeper’s cabs and can only respond according to noise bylaws. As suggested by bylaw officers in the region, with the addition of g), drivers can no longer allow a vehicle to idle if they are disturbing the peace and quiet of a neighborhood or persons in the vicinity. Officers could then request to move the vehicle further away and this could give them an opportunity to educate fleet operators and trucking companies to install alternative forms of heating/cooling. If not for the benefits of reducing unnecessary emissions, then for their own comfort, convenience and to reduce operation costs.

Also, to help bylaw officers deal with both noise and idling concerns, educational materials would be available about the use of **Idling Reduction Technologies**, which are **not compulsory at this time**, but it could be encouraged as a step forward to minimize vehicle emissions. The installation of alternative technologies can be anywhere from \$9,000 to \$12,000 US and the payback periods could be from 18-37 months¹⁴. The SmartWay Verified List of Idling Reduction Technologies¹⁵ (IRTs) for Trucks and School Buses can be found in the EPA website (Environmental Protection Agency, n.d.).

¹⁴ Idle Free Systems - Costs provided by email to Air Quality on June 1st 2016.

¹⁵ [SmartWay Verified List of Idling Reduction Technologies-EPA](#)

FINANCIAL/BUDGETARY CONSIDERATIONS

Commonly, the main concern is the staff time required for enforcement and its financial impact. However, with the use of the City of Kelowna's Service Request System the time and resources required from bylaw officers could be significantly reduced. The City of Kelowna's System Request (SR) software has the capability to set-up an "vehicle idling" request with detailed questions and mapping for internal use.

As any other request from the public, when an idling complaint is made through the system, it would be directed first to Air Quality staff, who could support bylaw officers by providing the first point of contact via educational materials with a warning. When a second complaint is received for the same license plate or address, the complaint could be redirected to the appropriate bylaw officer for enforcement. Residents could keep and later present video as evidence, if requested, to accelerate the enforcement process. Allowing the air quality coordinator being the first point of contact and later assign the request to other departments – are all capable functions from the existing SR System.

An idling map for internal use could be a convenient tool to track idling hotspots and redirect resources to specific areas. It is recommended that the regulation be enforced by bylaw officers, and if possible, with the support of other staff (parking enforcement), through both a complaints-based enforcement process and/or publicized campaigns of proactive enforcement at areas of concern (schools, hospitals, etc.) or locations receiving complaints. Other potential costs include staff time for signage installation. The Regional Air Quality Program budget will account for educational campaigns, marketing material and advertising to make people aware of the possible new regulation. All material design and sign production costs will be accounted for by the Regional Air Quality Program budget. In Canadian communities with a population between 50,000-150,000 the average budget for an idling regulation/community outreach campaign is between \$8,000-\$ 10,000.

ENFORCEMENT/PERSONNEL IMPLICATIONS

The mandate for the Regional Air Quality Program Service includes public education, as well as development and implementation of regulations. If a regulation is adopted, some activities would include:

- Update the Idling section on the RDCO [Air Quality Website](#); reasons for idling, myths and facts, FAQ, etc.
- Develop content and design downloadable/printable materials, signage for the public and fleet drivers.
- Arrangements to set and develop an idling service request. Appendix 3 includes an example of the idling complaint form and educational material.

The Central Okanagan Air Quality Technical Committee recommended the proposed idling control regulation should be enforced by bylaw officers and parking officers (whenever possible) from the respective municipalities with the support of the Regional Air Quality Coordinator. The Regional Air Quality Coordinator will oversee, manage, and maintain a complaints-based enforcement process, respond to first-time reported offences, and organize proactive educational campaigns at areas of concern (schools, hospitals, etc.) or locations receiving multiple complaints. Bylaw officers from the respective municipalities could enforce the second and further complaints from the same vehicle or address. To reduce complexity of region-wide enforcement, a "mirror" regulation in each municipality/District could be implemented in parallel.

Once the regional or local regulation is updated, the idle-free policy of each local government should also be updated. A Regional Idling Control Regulation is preferred as will lessen the financial impact to each municipality/District as the educational resources (brochures, signage, etc.) would be standardized through the region.

When necessary, bylaw enforcement officers, district parking staff/ contractors could issue idling information and/or fines to the offender through the respective Bylaw Notice of Enforcement. A set fine of \$150 is recommended.

The Communications Strategy could be developed by the City of Kelowna's Communication Department. The personnel involvement is summarized in the following table:

Table 13. Personnel Implications

| | Educational Period | Regulation Adopted | |
|--------------------------------|--------------------|-------------------------|------------------------------|
| | | First Complaint | Second Complaint/Enforcement |
| Air Quality | ✓ | ✓(Educational material) | ✓(As needed) |
| Communication-City/RDCO | ✓ | ✓(As needed) | ✓(As needed) |
| Bylaw Officers | ✓ | | ✓(Notice of enforcement) |

EXTERNAL AGENCY/BYLAWS STAFF COMMENTS

The idling proposal was sent and discussed with BC Transit staff and their input was added in this section. Kelowna Transit System- Rob Williams, BC Transit – email communication on April 25 after teleconference meeting with BC staff April 22, 2016. *“Thanks for all who have been able to be part of this idling discussion. There have since been further internal discussions at BC Transit regarding anti-idling and would like to inform you that a notice was distributed to all transit operators across the province clarifying the procedure and expectation regarding bus idling, see attachment. In summary, local governments have the authority to enact specific Bylaws within their jurisdiction and BC Transit has created an idling procedure with provincial application. Local anti-idling Bylaws can be stricter or lax than BC Transit’s procedure with compliance required accordingly. Please keep us in the loop on any new anti-idling Bylaws the City of Kelowna adopts.”*

During May 2016, Regional staff met with bylaw staff from all local governments to present the initiative. All Bylaw enforcement officers stated a general support to the one-minute Idling Regulation. The complaints-based proposed approach and specially the support from the Air Quality coordinator as the first point of contact and education are crucial in adopting this type of Regulation. Their comments and suggestions are included in Appendix 2.

PUBLIC ENVIRONMENTAL ANALYSIS

In order to provide supplementary information to the Regional District of Central Okanagan Board of Directors or City Councils, so they may be better equipped to pass judgment on an idling control regulation, a Public Environmental Analysis¹⁶ was performed in January-February 2016 by a student researcher from Okanagan College (Fullerton, 2016). The research followed these main objectives:

- To identify RDCO citizens’ perceptions of idling, air pollution, and air quality.
- To identify if RDCO citizens are aware that idling contributes to poor air quality, climate change, and adverse health effects.

¹⁶ [Idling and Air Quality Attitudinal Study](#)

- To identify if RDCO citizens are willing to change their idling behaviours.
- To identify if RDCO citizens would be receptive of an anti-idling bylaw; and
- To identify which communication channels and tools would be effective in providing RDCO citizens with information about change in idling policy.

A survey instrument was used to collect primary data. The survey was managed in person and online. The online version was promoted through Facebook¹⁷, municipal websites, media,^{18, 19} and communication channels such as CBC radio One 88.9FM, who interviewed the researcher and promoted the survey on January 18, 2016, as well as other participating organizations. The in-person survey was administrated at major shopping centres. Central Okanagan citizens 18 years of age or older were valid for participating in the survey. In order to be 95% confident that the sample is representative of the population, within ±5.9% margin of error, a sample of 276 is needed.

Survey Responses by Municipality 2016

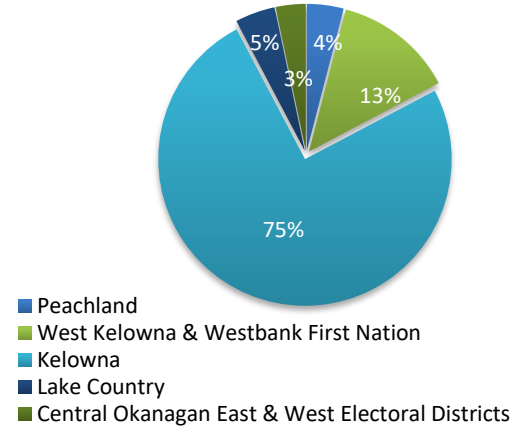


Figure 9. Survey Responses by Municipality-2016

A total of 276 respondents participated in the survey. In this analysis, respondents were grouped based on four different grouping variables: age, gender, majority of life, and municipality:

Survey by Gender

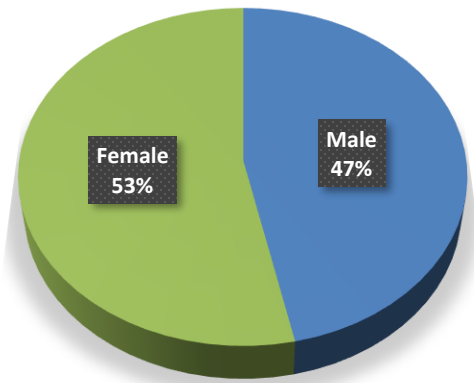


Figure 10. Respondents by gender

Age Group distribution

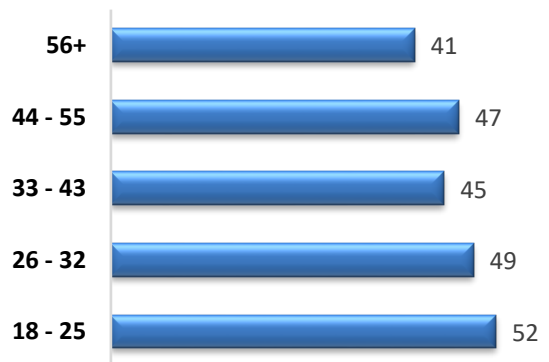


Figure 11. Respondents by age

Central Okanagan citizens’ top five idling behaviours based on frequency are:

¹⁷ [Air Quality Survey-Central Okanagan](#)

¹⁸ https://www.kelownanow.com/watercooler/news/news/Central_Okanagan/16/01/11/Student_Research_on_Idling_Could_Change_Local_Bylaws/

¹⁹ http://www.kelownadailycourier.ca/news/local_news/article_9cf1190e-bc10-11e5-8321-03e758937a6d.html

Top 5 Idling Behaviours Survey 2016

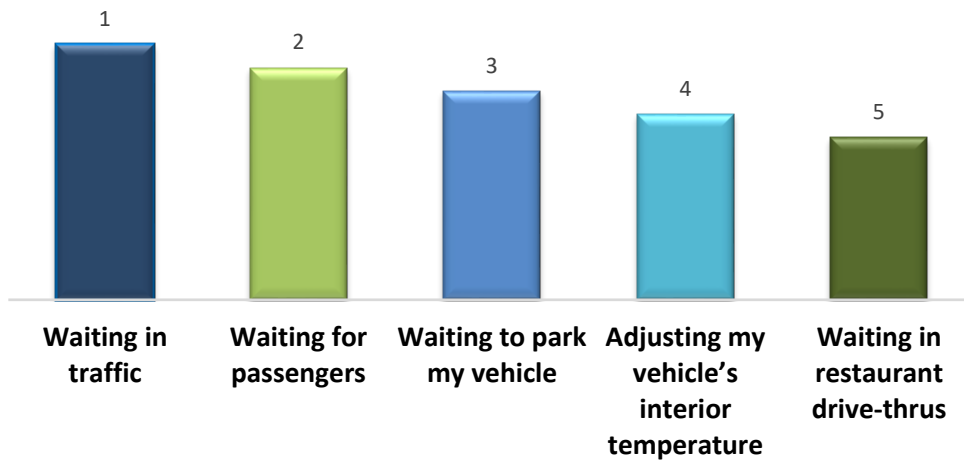


Figure 12. Top five Idling behaviours in Central Okanagan

On a scale of zero to five, citizens think idling has an above average impact on air quality, climate change, and adverse health effects and 77.6% agree their municipality should take steps to limit its air pollution.

My municipality should take steps to limit its air pollution Survey 2016

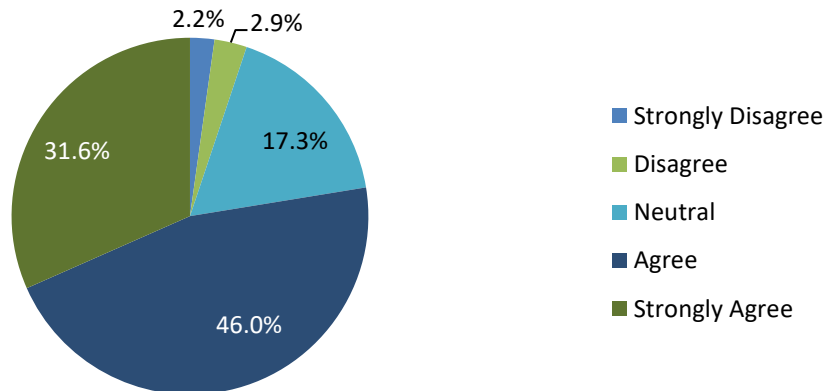


Figure 13. My municipality should take steps to limit its air pollution- Survey 2016

78.3% of respondents agree steps should be taken to change idling behaviours, 82.6% are willing to reduce idling behaviours and 66% desire access to anti-idling resources.

Steps should be taken to change idling behaviours

Survey 2016

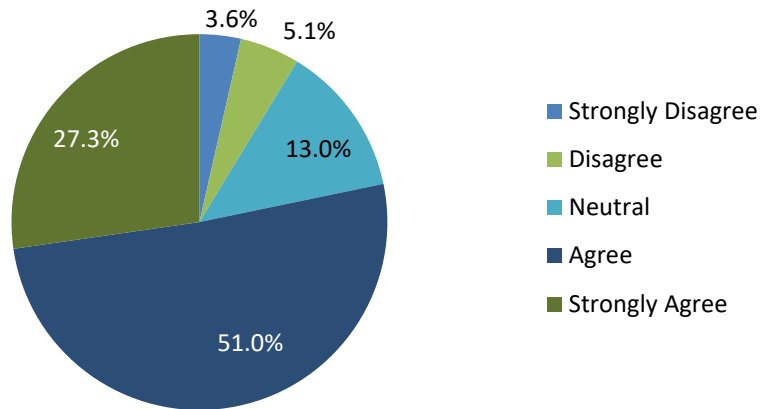


Figure 14. Steps should be taken to change idling behaviours- Survey 2016

59.8% of respondents agree that their municipality should implement an anti-idling bylaw and 22.8% are neutral to that statement; only 17.3% disagree. There is a significant difference between male and females' perceptions as to whether their municipality should implement an anti-idling regulation.

There should be an anti-idling by-law in my municipality

Survey 2016

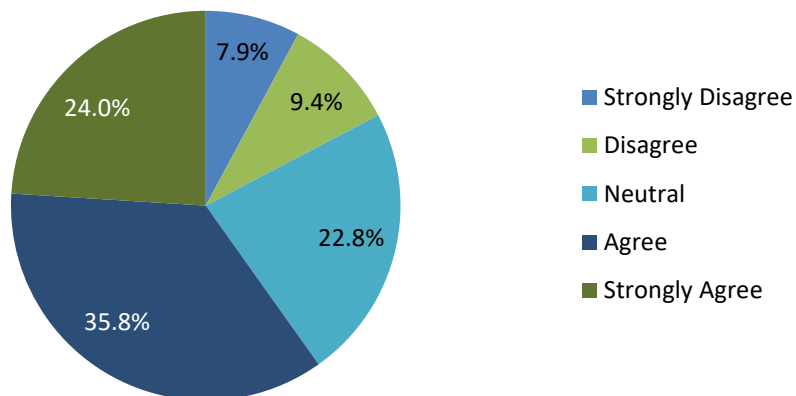


Figure 15. There should be an anti-idling by-law in my municipality

Respondents feel that an anti-idling bylaw would be best communicated (in order of preference) through traffic signs, social media, radio, billboards, and TV. Due to small response rates from each municipality, except Kelowna, these results cannot be generalized to each municipality individually because of underrepresentation in the study. However, this research can be generalized to the Central Okanagan population. Respondents were surveyed mainly through electronic means which may skew results for effective communication channels.

An analysis of the communications strategies used in the successful implementation of idling control bylaws in other jurisdictions will be studied to determine best practices. For example, a 2001 community-based social marketing anti-idling campaign²⁰ in Mississauga, Ont., used posters, banners, cling vinyl window decals, air fresheners, information cards, and ambassadors to raise awareness about idling at the gas station level. More recently, Burlington ON, produced posters, bookmarks and stickers as part of a [school campaign](#), and in London, UK a [vehicle idling action](#) is in place, and also [Natural Resources Canada](#) provides other examples.

Other tactics the RDCO could use include a social and mass media educational campaign; anti-idling education aimed at elementary, high school and post-secondary school students; press releases and a region-wide campaign themed around catchphrases, such as: “Idling gets you nowhere”, “[It’s your turn, turn it off](#)”, “[Be idle free. A minute or less is best](#)”, “Let’s clear the air”, “[Engines Off. Every Stop](#)”, “Idle Less. Clear the Air”, “Turn the key. Be idle free”, “Idle Free Zone. Turn engine Off”, among others.

RECOMMENDATION

The Central Okanagan Air Quality Technical Committee reviewed and analyzed the available information and possible options for the region and recommends that the Regional District of the Central Okanagan and all municipal partners consider **adopting a one-minute idling control regulation** with the least number of exemptions.

It is also recommended the regulation come into force one hundred and eighty (180) days after the date of adoption to run a six-month public education campaign. This educational campaign would aim to increase awareness of the regulation and promote behaviour change over time, where turning off one’s vehicle when parked for more than one minute is considered a social norm by the time the regulation is enforced.

Natural Resources Canada’s national guideline for idle-reduction suggests that shutting engines off after one-minute balances issues such as emissions, fuel costs, and wear and tear on the vehicle. Hence, this regulation could help reduce greenhouse gas emissions, improve local air quality, and decrease urban noise pollution in the Central Okanagan. This regulation would support the regional vision and goals of clean and healthy air for current and future generations.

²⁰[Anti-Idling Campaign-Natural Resources Canada](#)

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Health Effects of Nitrogen Dioxides

Nitrogen dioxide (NO₂) belongs to a group of nitrogen-containing substances called nitrogen oxides (NO_x). NO_x are released into the atmosphere from high-temperature combustion processes such as car engines, power plants and industrial processes. Although primarily emitted as nitric oxide (NO), NO₂ is rapidly formed when NO reacts with ozone (O₃) and volatile organic compounds (VOCs). The major sources of NO₂ in Canada are on-road and off-road vehicles, the oil and gas industry, and the use of fuel for electricity generation and heating. It is a precursor to fine particulate matter (PM_{2.5}). In the Okanagan, 68% of NO_x comes from vehicles.

Nitrogen dioxide can irritate the lungs and lower resistance to respiratory infections such as influenza and increase susceptibility to allergens for people with asthma. The effects of short-term exposure are still unclear, but continued or frequent exposure to concentrations that are much higher than those normally found in the ambient air may cause increased incidence of acute respiratory illness in children. Nitrogen oxides contribute to ozone formation and NO_x in the air can significantly contribute to several environmental effects such as acid rain and eutrophication in coastal waters.

Health Effects Volatile Organic Compounds (VOCs)

In the Central Okanagan, 37% of Volatile Organic Compounds (VOCs) come from on-road and off-road vehicles. VOCs are of interest due to the environmental and health impacts associated with their release to the atmosphere.

Health effects can include eye, nose, and throat irritation, headaches, loss of coordination, nausea, and damage to the liver, kidney, and central nervous system. The ability of organic chemicals to cause health effects varies greatly from those that are highly toxic to those with no known health effect. As with other pollutants, the extent and nature of the health effect will depend on many factors including level of exposure and length of time exposed. Eye and respiratory tract irritation, headaches, dizziness, visual disorders, and memory impairment are among the immediate symptoms that some people have experienced soon after exposure to some organics. Many organic compounds are known to cause cancer in animals; some are suspected of causing or are known to cause cancer in humans.

Health Effects of Diesel Exhaust

Compared to emissions of gasoline vehicles, diesel exhaust is considered particularly harmful to health. Diesel exhaust is a complex mixture of particles and gases containing several hundred different organic and inorganic components, including many substances that have been designated as toxic. While the specific components of diesel exhaust depend on factors such as the age and type of diesel vehicle, many of the constituents of diesel exhaust, such as particulate matter, NO_x and air toxins are common to all diesel vehicles and are like those emitted from other vehicles.

Exposure to diesel exhaust can have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat and lungs, and it can cause coughs, headaches, lightheadedness and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks.²¹

²¹ Office of Environmental Health Hazard Assessment (OEHHA) <https://oehha.ca.gov/>

APPENDIX 2-CENTRAL OKANAGAN AIR QUALITY COMMITTEE MEMBERS AND GENERAL INPUT

| Name | Institution/ Government | Position |
|---|----------------------------|---|
| Tarek Ayache | BC Government | Environmental Quality- Meteorologist |
| Greg Baytalan | Interior Health | Air Quality Specialist |
| Lou Wilde | Kelowna Fire Department | Deputy Chief |
| Janelle Taylor | RDCO | Planner |
| Corine Gain | District of Peachland | Director of Planning & Development Services |
| Jamie McEwan | District of Lake Country | Community Development Manager |
| Danielle Johnston Jarod Kawalle | City of West Kelowna | Engineering Technologist |
| Graeme Dimmick Jayden Riley | West Bank First Nation | Senior Planner Planner |
| Tracy Guidi | City of Kelowna | Sustainability Coordinator Policy & Planning |
| Rafael Villarreal Cameron Tylor-Noonan | STPCO | Regional Planning Manager Regional Planning |
| Jerry Dombowsky | City of Kelowna | Transit and Programs Manager |
| Nancy Mora | City of Kelowna/RDCO | Regional Air Quality Coordinator |
| Doug Lundquist/ Andre Besson | Environment Canada | Warning Preparedness Meteorologist |

Guests

| Name | Institution/ Government | Position |
|-------------------|----------------------------|------------------------------|
| Julie Steffler | Interior Health | Community Health Facilitator |
| Jim Vanderwal | Fraser Basin Council | Senior Manager |
| Timothy Atkinson | Infrastructure Division | Co-Op Student |
| Markus Kellerhals | B.C. Government | Air Quality Science Officer |

The Central Okanagan Air Quality Technical Committee Input during planning process

- We should exclude hybrids/mild hybrids because their technology already turns the engine off while stopped.
- Keep the bylaw as high level as possible to permit/accommodate new technologies and coordinate with existing bylaw definitions.
- Diesel vehicles need a cool down period (intercooled turbo chargers); the recommended shut-down idle time of diesel engines is 10 to 30 seconds. Therefore, they can comply with a 1-minute restriction.
- Include boats with a very specific description on when they cannot idle. Not practical for enforcement on the lake, maybe only within marinas. Maybe initially we could exclude boats as it would be easier to enforce the bylaw. Rationale for including or excluding boats: exclusion-if represent small percentage of the problem. Inclusion- why should motorboats be an exception?
- Include boats because they have a combustion motor and use fuel (gasoline or diesel) and have a significant greenhouse footprint similar to vehicles on the road (16,000 boats were on the lake in 40 days). If the main goal is behavioural change over time, boat users should also be included. For enforcement purposes we could add an exemption: “Boats, unless the boat is at anchor or tied to a dock”. However, adding that exemption will allow unlimited idle to boat users and that shouldn’t be encouraged.
- Bylaw should be regional, with clear specification of authority to ticket; too confusing otherwise. A regional bylaw set standard for equity.
- Include drive-throughs and partner with businesses to install visible signage. Agreed to later work and discuss to ban future construction of drive-throughs in the region. However, this would have a negative economical impact.
- An educational period of six months is recommended; sustainability of the communication plan and limit the time to create bad habits rooted in no enforcement. Time is needed for the population to adjust to this bylaw. Key stakeholders need to buy in through consultation.
- A mock ticket in drive-throughs, a reminder pamphlet on the windscreen, school boards and school initiatives and resources could be given to students to take home. Schools’ involvement can also be achieved through the Clean Air and Safe Routes 4 School programs with participant’s schools.
- Concerns about staff for enforcement and to send mock tickets. Using an idling hotspot map on the Air Quality website for public involvement to send mock tickets through the website is an option during the educational period.
- Review Waste Reduction Compliance letter to check how system is going.
- If education is the main objective, we have to send the right message. We already know that idling for more than 10 seconds uses more fuel than it takes to restart the vehicle but the break-even time to make up for any potential incremental maintenance costs to the starter or battery is under 60 seconds. Therefore, a one-minute idling limit should be recommended.
- Through enforcement procedures/protocols bylaw officers may be cautioned not to ticket a 90-year-old citizen for using AC during 38°C degree weather.
- Transit bus drivers are stewards of anti-idling, take ownership and provide incentives to general public (e.g. to every 100th person to ride the bus and or uses a bike). Also, more training and continuing education is needed. BC Transit has a one-minute anti-idling policy in place since 2009. Provide information/training to fleet users not just transit drivers.
- All municipals’ policies should be updated to a one-minute idle limit. A 10 second rule for city fleets could be a further step.
- A \$150 fine for offence is recommended.
- Collaborative effort with businesses to install signage (e.g., municipalities pay for the sign and business for installation). Design and provide through the Air Quality website downloadable/printable materials for their use. Consistency in signage through out the region.
- This Bylaw may be enforced by any Bylaw Enforcement Officer by complaint and the Police parking enforcement units should also be considered to do this the job. Bylaw should not apply on road or in an active transportation lane.

- Concerns about pets in the summer. RDCO Bylaw 1343 in section 33 states. “No Owner shall cause or permit his or her dog to be confined to an enclosure or vehicle without adequate ventilation...”; However, leaving a car unattended and idling to provide adequate ventilation represents a safety issue and must not be encouraged.
- Has anybody banned remote starters? Education is needed to not overuse the remote starter.
- I think the ban should be more around remote starters that do not have built-in timers. So that the behavior of setting a time falls into place. This would influence the manufacturers over time to only build remote starters that have built-in timers.
- Enforcement of bylaw -Mention complaint only, how does that work? (If someone calls in a complaint by time bylaw responds they are either no longer there or have turned off their vehicle).
- Education/Communication - What has been done in other communities? What is successful?
- Costs. What costs are associated with implementing a bylaw. What have other BC communities had to do?
- Successes. Have other B.C. communities found success in having their bylaws? Do they notice a reduction in idling?
- Where it is mentioned where idle hot zones are you might want to include, landfill lineups, car washes and ferry lineups?

Bylaw staff Input during planning process

- Agree with Idling bylaw, we support the one-minute bylaw for education purposes.
- We support the initiative, but definitely our local government requires support for the first point of education.
- Should verify a possible ICBC account through RDCO to track BC license plates.
- Very difficult to track license plates from Alberta and other specific provinces, but we can track within BC.
- Supported one minute- If Regional- the Revenue could stay in the municipality where the complaint was originated.
- Need support for the first point of education-possible ICBC account to track license plates-ask RDCO.
- Supported 1- min & Educational period 6 months. Agreed with first point of education through AQ.
- Information sharing Agreements could be necessary for the Service request. Internal procedures for enforcement (mindful with seniors)- Preferred Municipal Bylaw for easier enforcement.
- They would like to consider not to exempt the perishable cargo. Regular complaints about idling vehicles all night long.
- WFN needs a minimum 120 days to write a law
- WFN would need to sign an agreement with RDCO/Infrastructure Division -Similar to False Alarm
- Progressive fines for repeat violations
- I suggest that the Anti-Idling Bylaw simply make reference to the Bylaw Notice Enforcement Bylaw so as to avoid having to amend two bylaws should the fee need to be changed over time.
- Each community will need to adopt their own bylaw to allow the municipality’s officers to respond to complaints.
- We do not issue warning tickets; we issue Bylaw Notices that allow early payment options.
- You suggest a fine of \$150.00 is an early payment option with a reduction to \$100.00 if paid within fourteen days. Is a penalty if not paid within 30 days a consideration?
- Can we take a disputed ticket to adjudication?
- Our Bylaw Officers can issue MTI tickets that require court time if the MTI is disputed. We have no desire to write tickets that require our Bylaw Officers to attend Court in Kelowna.
- Signage. Are you expecting to produce generic signage that would be uniform throughout the Regional District? If so, do you have a format & a cost per sign or a price for larger numbers?
- Cost for different sized signage for business owners who may wish to install signage.
- Are removable signs that could be placed inside windows on business properties a consideration?
- Are there costs associated with the use of the Kelowna based website/information?

Complaint Form Example

Unnecessary idling wastes fuel and pollutes the air.

If you see a vehicle idling, report it! [Service Request- Air Quality](#)

Be aware this Idling Control Bylaw X does not apply to full electric cars and motor vehicles are exempted during traffic and in the following situations- *(Redirect to new window with exemptions and link to the original bylaw)*

What & Where-Already part of the City of Kelowna Service Request System

Service request - Air Quality

For urgent requests, call the Customer Service line at 250-469-8600. For emergencies, call 911.

Request details

Location *

| | | |
|-------------------|---|-------------|
| 1473 Water Street |  | FIND ON MAP |
|-------------------|---|-------------|

Enter an address or place marker on map.

What type of air quality issue are you reporting? *

| | |
|----------------|---|
| Vehicle Idling | ▼ |
|----------------|---|

Additional information

 ATTACH AN IMAGE...

File is restricted to an image format (JPG, GIF, PNG, etc.)

The City does not accept anonymous service requests. Please provide a name and contact information.

First name *

Last name *

Business name

Phone

Email *

Required if you would like to receive a confirmation email, or view the status of your service request online.

Address

If you need to provide additional information and would like someone to contact you, please check



Proposed additional information to be included in the City of Kelowna Service Request System:

License Plate Number

Model Make

Company Name (if visible)

Duration of Idling

If available, keep video evidence for consideration.

| | |
|--|---|
| <p>* Is this a chronic problem?:</p> | <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> |
| <p>* Type of vehicle(s) idling::</p> | <p><input type="checkbox"/> Delivery vehicle</p> <p><input type="checkbox"/> School bus</p> <p><input type="checkbox"/> Tour bus</p> <p><input type="checkbox"/> Transit bus</p> <p><input type="checkbox"/> Tractor trailer</p> <p><input type="checkbox"/> Mobile food vendor</p> <p><input type="checkbox"/> Private car/Truck</p> <p><input type="checkbox"/> Passenger vehicle</p> <p><input type="checkbox"/> Other</p> |
| <p>* What days of the week does the problem tend to happen? (Check all that apply.):</p> | <p><input type="checkbox"/> Monday</p> <p><input type="checkbox"/> Tuesday</p> <p><input type="checkbox"/> Wednesday</p> <p><input type="checkbox"/> Thursday</p> <p><input type="checkbox"/> Friday</p> <p><input type="checkbox"/> Saturday</p> <p><input type="checkbox"/> Sunday</p> <p><input type="checkbox"/> Only happened once</p> |
| <p>* What time of the day does the problem tend to happen?</p> | <p><input type="radio"/> Before 6 PM</p> <p><input type="radio"/> 6 PM or later</p> |



**1 MIN IDLING LIMIT
IDLING POLLUTES AND IS ILLEGAL**



Examples of [Educational Material](#)

Idling: Facts & Myths

If you're going to be stopped for more than 60 seconds - **stop traffic - turn the engine off**



myth Shutting off and restarting your vehicle is harder on your engine and uses more gas than if you leave it running.

fact Natural Resources Canada has proven that idling for as little as 10 seconds uses more fuel and produces more GHG emissions than stopping and restarting your engine. Frequent restarting has little impact on engine components like battery and starter motor. Wear caused by restarting is estimated to add \$10 per year to the cost of driving, which is money likely recovered several times over in fuel savings when you aren't idling your car.

myth Idling my car doesn't cost me money or waste fuel.

fact Inefficient driving behaviors, such as unnecessarily idling and speeding, plus failing to properly maintain vehicles (for example, neglecting to properly inflate tires) means that large amounts of fuel are wasted. Each driver could save hundreds of dollars per year in fuel and maintenance costs by adopting these fuel-efficient practices. Since the time spent idling determines fuel use, idling also contributes to fuel waste.

If each driver in the Central Okanagan avoids idling for at least 6 min a day, each driver would save 50.81 litres of fuel or \$50.81 in fuel costs a year.



1 Liter of fuel used = 0.3 kg of CO₂

myth The engine should be warmed up for long periods before driving and cooled down afterwards.

fact Idling is not an effective way to warm up your vehicle, even in colder weather. The best way to warm up the lubricants in transmission etc. is to drive your vehicle. Even diesel engines in very cold weather require no more than 30 seconds of idling before starting to drive. Idling causes unnecessary emissions.

CO + NO_x + VOC = Vehicle Emissions

myth Idling doesn't affect my health.

fact Vehicle exhaust can have severe health implications for children, the elderly, persons that work outside, and residents of urbanized areas are particularly vulnerable. Exhaust from gasoline and diesel engines contains many toxins and can be inhaled into the deep parts of the lungs, where it can enter the bloodstream. This contributes to an increase in premature death, asthma attacks, and emergency-room visits and can increase the symptoms of asthma as well as other chronic obstructive pulmonary diseases, including bronchitis and emphysema.

myth Idling is good for the engine.

fact Excessive idling can actually damage engine components, including cylinders, spark plugs and the exhaust system. That's because an idling engine is not operating at its peak temperature, which means that fuel combustion is incomplete. Excessive idling can also allow water to condense in the vehicle's exhaust, which can lead to corrosion and reduce the life of the exhaust system.

myth Even if I stop idling, my contribution is insignificant.

fact Every day there are approximately 123,000 drivers on the road. If each of those drivers stopped idling for 6 minutes per day, the region would save 15,142 tonnes of CO₂ per year, which represents 1.9% of the 55% GHG reduction target by 2020.

For more information, please visit www.rdc.o.com/airquality



APPENDIX 4- GHG REDUCTION ESTIMATIONS

| ICBC Kelowna 2020 ²² | |
|---|---------|
| Passenger vehicles | 78,278 |
| Commercial vehicles | 28,614 |
| Total (Passenger+ commercial) | 106,892 |
| Passenger Cars with start stop tech (2012-2020) | 6,522 |
| Passenger Car Electric + hybrids (2019) | 1731 |
| New Tech (Start-stop+ electric+hybrids) | 8,253 |
| Total Cars registered in Kelowna ICBC (Total-New Tech) | 98,639 |
| Percentage cars bylaw applies (Total cars in Kelowna/Total) | 92.3% |

| According to Household Survey 2018 | |
|--|--------|
| Estimated Daily Vehicles on the Road in Kelowna | 68,000 |
| Estimated Daily Vehicles on the Road in Kelowna. Apply percentage of 92.3% | 62,750 |

Natural Resources Canada states residents idle between 6-8 minutes a day. Considering there are daily 62,750 vehicles on the road in Kelowna and 36,520 in West Kelowna, District of Peachland and District of Lake Country to which this bylaw could apply (Household travel survey data). 1-minute idling=10.95 L fuel/year 2.3 kg of CO₂ emitted/L fuel 25.185 kg of CO₂/ vehicle

| If drivers: | CO ₂ savings (Ton/year) Kelowna | CO ₂ savings (Ton/year) West Kelowna, District of Peachland and District of Lake Country | Total CO ₂ savings (Ton/year) in the Central Okanagan | Total Number of vehicles off road in Central Okanagan |
|------------------------|--|---|--|---|
| Avoid Idling for 1 min | 1,580 | 920 | 2,500 | 544 |
| Avoid Idling for 3 min | 4,741 | 2,759 | 7,500 | 1,631 |
| Avoid Idling for 6 min | 9,482 | 5,519 | 15,001 | 3,261 |

| Description | 2020 | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 | 2013 | 2012 | Total | % |
|-------------------------|-------|-------|-------|-------|-------|------|------|------|------|-------|----|
| Electric vehicles | 526 | 369 | 184 | 106 | 67 | 29 | | | | 1281 | |
| Hybrid vehicles | 1581 | 1362 | 1177 | 1055 | 951 | 57 | 80 | 72 | 75 | 6410 | |
| Total Electric + Hybrid | 2,107 | 1,731 | 1,361 | 1,161 | 1,018 | 86 | 80 | 72 | 75 | 7691 | 7% |

²² GHG Idling reduction estimations.xlsx- [SharePoint-Air Quality-Standards Bylaws and Policies](#) (internal use)

**Central Okanagan Idling Control Technical Report
March 2022**

Questions or concerns should be directed to:

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