



CLIMATE CHANGE ACTION COMMITTEE MEETING

August 20, 2019 at 5:30 p.m.

Location: *Council Chambers*
2205 Otter Point Road, Sooke, BC

AGENDA

ITEM	Page #
1. Call to Order	
2. First Nation Recognition	
3. Approval of Agenda	
4. Approval of Minutes THAT the Committee approve the minutes from the July 16, 2019 Climate Change Action Committee meeting.	1
5. Delegations Biochar <ul style="list-style-type: none"> Catherine Keogan Discussion and recommendation 	
6. Public Question and Comment Period	
7. Reports/Discussion <div>7.1. <u>CCAC Workshop</u> <ul style="list-style-type: none"> Councillor St-Pierre Group discussion <p><i>The Committee recommends to Council, THAT a workshop for the Climate Change Action Committee members be approved; AND THAT funding be allocated from [Council Contingency] and to not exceed \$1,500.</i></p> </div> <div>7.2. <u>Climate Change Work Plan</u> <ul style="list-style-type: none"> Councillor St-Pierre Christina Schlattner Group discussion </div> <div>7.3. <u>CCAC Terms of Reference</u> <ul style="list-style-type: none"> Overview – Councillor St-Pierre Resources - Norm McInnis, CAO Group discussion </div> <div>7.4. <u>Youth Based Climate Action</u> <ul style="list-style-type: none"> Catherine Keogan </div>	5 7

<ul style="list-style-type: none"> Group discussion 	
8. Unfinished Business	
8.1. <u>2019 CCAC Meeting Schedule</u> <ul style="list-style-type: none"> need to re-schedule October date 	9
8.2. <u>Food Security</u> <ul style="list-style-type: none"> Councillor St-Pierre Group discussion 	
8.3. <u>From the May 27, 2019 Regular Council meeting:</u>	10
8.3.1. Air Pollution - Letter from Jean Siemens <ul style="list-style-type: none"> <i>For discussion.</i> 	11
8.4. <u>From the May 13, 2019 Regular Council meeting:</u>	33
8.4.1. Compassionate Action Plan <ul style="list-style-type: none"> <i>Receive for information</i> 	34
8.4.2. Float Home <ul style="list-style-type: none"> <i>For Discussion</i> 	49
8.4.3. Climate Action through Public Ridership – Letter from Mayor Lisa Helps <ul style="list-style-type: none"> <i>Receive for information</i> 	50
8.4.4. Municipal Community Garbage Collection <ul style="list-style-type: none"> <i>To Research and Report back to Council with options</i> 	
9. Roundtable	
10. Next Meeting <ul style="list-style-type: none"> Tuesday, September 17, 2019 @ 5:30 p.m. 	
11. Adjournment	



MEETING MINUTES

Phone: (250) 642-1634 Fax: (250) 642-0541 Email: info@sooke.ca Website: www.sooke.ca

Committee:	Climate Change Action Committee			
Date:	July 16, 2019	Location:	Council Chambers	Call to Order: 5:35 p.m.

Attendees: (P=present, E=excused, A=absent)			
Councillor Tony St-Pierre, Chair	P	Diane Bernard	E
Adrienne Wass	P	Eric Nolan	P
Andrew Moore	P	Kyle Topelko	P
Catherine Keogan	P	Roland Alcock	A
Christina Schlattner	P	Susan Clarke	P
Staff:			
Laura Hooper, Head of Parks & Environmental Services	P	Jennifer Royer-Collard, Corporate Services (Recorder)	P

1. Call to Order

Councillor St-Pierre called the meeting to order at 5:35 p.m.

2. First Nation Recognition

Acknowledgment that the meeting is being held on the traditional lands of the T'Sou-ke Nation.

3. Approval of Agenda

THAT the agenda for the July 16, 2019 Climate Change Action Committee meeting be approved, as amended:

- Move Item 8.2. *Food Security*, Item 9.1. *May 27 Regular Meeting Recommendations* and Item 9.2 *Tabled Information from June 21, 2019 Committee Meeting* to the August 20, 2019 meeting.
- Change the title to Item 8.3. from "CCAC Strategic Plan" to "CCAC Action Plan".
- Change the title of Item 7.1. from "State of the Environment" to "History and Accomplishments of the CCAC".

Moved

CK

Carried

✓

<p>4. Approval of Minutes</p> <p>THAT the minutes from the June 20, 2019 Climate Change Action Committee meeting be approved, as amended:</p> <ul style="list-style-type: none"> • The bio for Catherine Keogan be changed to strike out “Local farmer” and add a bullet for read “has worked with the Sooke Fine Arts Show for many years”. • The first bullet for Christina Schlattner’s bio be edited to the following: “Background in <u>adult</u> education, research and marketing”. 	Moved	AW	Carried	✓
<p>5. Delegations</p> <p>Activities for Special Events – Ann Clement Ms. Clement provided various options for education at public events on Climate Change mitigation in the community. Suggesting that empowering the residents with strategies that are obtainable and realistic would assist in changing the negative patterns and provide opportunity for change.</p> <p>Introdcution – Eric Nolan Mr. Nolan provided a breif history of his work in the logging industry, an overview as an owner/operator of a slavage company and his work within the waste industry. Additionally he provided information on Biochar, a practice that converts waste into highly porous charcoal that is a simple tool to combat climate change.</p>				
<p>6. Public Question and Comment Period</p> <p>There were no contributions provided by the public.</p>				
<p>7. Reports</p> <p>7.1. History and Accomplishments of the CCAC The Head of Parks and Environmental Services and past chair, Jeff Bateman, provided a PowerPoint presentation and overview of the written staff report detailing the history of past Climate Change Action Committees.</p> <p>Discussion:</p> <ul style="list-style-type: none"> • Importance of identifying tangible projects to assist residents in the reduction of their contribution to climate change. <p>7.2. T’Sou-ke First Nation – Vision in Progress Andrew Moore, Special Projects Manager for the T’Sou-ke Nation, provided a PowerPoint presentation and overview of the successful project initiated by the T’Sou-ke Nation, their community education programs on climate change mitigation and future plans to ensure the future of sustainable living.</p> <p>Discussion:</p> <ul style="list-style-type: none"> • Desire to expand the initiatives developed by the T’Sou-ke into the community. • Possibilities of working together on building Eco Tourism, creating job opportunities locally and enhance education on the climate. 				

8. New Business

8.1. and 8.2. tabled until next meeting, Tuesday, August 20, 2019.

8.3. CCAC Action Plan

The objective of the plan will be to create priorities for the committee to action, based on the District of Sooke bylaws, policies and directives. The actions should identify opportunities to address a specific item/ issue and correlate with the priority (heading) in the plan. Once an overall action plan is created, each action should include an objective, strategy for execution, framework, timeline and success indicators.

Once the Action Plan is ready it will be presented to Council requesting endorsement to move forward with the execution of the plan.

The following priorities were identified as the pillars of the Action Plan, but will not remain limited to these should the committee located missing priorities:

- Active Transportation (Community Energy & Emissions Plan)
- Local Economic Development (Community Energy & Emissions Plan and the OCP)
- Zero Emissions-Green Energy (OCP)
- Waste Management (Council Direction)
- Food Security (Committee suggestion)
 - All of the above items will include community engagement and education through various forms of communication.

The following actions were discussed:

- Advocate for National telecommute plan
- Increase taxi/ ride share options
- Freedom Garden
- New policy on land acquisition
- Education program for youth and children
- Zoning amendment for easier to acquire for small home-based businesses
- Business Tax Reduction – attract new businesses
- Review DCC fees
- Options for local workstations/ office space to limit commuting
- Research biochar options
- Plastic processing facility
- Organics/ yard waste facility or pickup
- Solar panels for local distribution
- Increase EV charging stations
- Program for community on climate-wise gardening

Staff will compile information into a chart that will form the base, starting point, of the committee's Action Plan.

The next meeting will be dedicated fully to development of the committee's Action Plan.

9. Recommendations from Council

9.1. and 9.2. tabled until next meeting, Tuesday, August 20, 2019.

- Further discussion on these items will be included in the Action Planning session where each item will be prioritized.

Minutes of the District of Sooke Climate Change Action Committee Meeting - July 16, 2019

10. Next Meeting

Tuesday, August 20, 2019 at 5:30 p.m. in Council Chambers

11. Adjournment

The meeting was adjourned at 7:40 p.m.

Moved

AW

Carried

✓

Chair

Corporate Officer

PRIORITIES	Active Transportation	Food Security	Local Economic Development	Waste Management	Zero Emissions (Green Energy Initiatives)
RESOURCE	Community Engagement and Education (communication)				
ACTION	Community Energy & Emissions Plan	Committee	Community Energy & Emissions Plan OCP	Council Direction	OCP
	Advocate for National telecommute plan (work with other municipalities)	Freedom Garden Campaign	Zoning Amendment (easier to acquire for small home-based business)	Research biochar options	Solar panels for local distribution
	Increased taxi services	New Policy on Land Acquisition	Business Tax Reduction-term-Attract new businesses	Plastic Processing Facility	Increase EV Charging Stations
		Education program for youth and children.	Review of DCC fees	Organics/ Yard Waste (Facility or Pick Up)	Program for community on climate-wise gardening
			Option of local workstation office (limit commuting)		

Communication Components across all priorities:

1. Inventory community groups for active initiatives.
2. Engage with community for their priorities.
3. Social media outlets (Twitter/ Facebook)
4. Newsletters/ Hangouts

Things to Consider:

1. Objective of Project
2. Strategy (*plan of action to achieve success*)
3. Framework (Presentation/Report)
4. Timeline
5. Success Indicator(s)

GREEN


– Low Priority (2+ year plan)

YELLOW

– Medium Priority (1-2 year plan)

RED

– High Priority (less than 1 year plan)

	TERMS OF REFERENCE
	Climate Change Action Committee
	Date Adopted: April 23, 2019
Historical Changes: n/a	

Purpose:

The purpose of the Climate Change Action Committee is to provide advice to Council and recommend policies that will assist the District ~~in achieving its aspiration~~ to achieve a reduction in all carbon emissions by 40-50%, in both corporately and in the community, to be carbon neutral by 2030.-(take wording from declaration).

Mandate:

Specific responsibilities of the Committee include, but are not limited to, the following:

- Inspire and sustain community commitment to achieving the District's climate action objectives;
- Identify and provide recommendations on climate adaptation and mitigation options;
- Identify opportunities and make recommendations on ways to build local climate action awareness and promote environmental stewardship within the community;
- Identify opportunities and make recommendations on innovative projects to help achieve carbon neutrality and where appropriate, develop and implement said projects;
- Providing a local perspective on the environment while giving due consideration to the balance between social, environmental and economic aspects;
- To advise Council on issues of environmental importance to community partners and stakeholder groups of the community at large;
- Communicate and develop relationships with organizations beyond the District of Sooke for the purpose of exchanging ideas, experiences, plans and successes;
- Provide recommendations and feedback on other climate change issues, as directed by Council, including environmental bylaws and policies;

Membership:

The membership will consist of up to ten (10) members including:

- One (1) member of Council to serve as Chair, appointed by the Mayor; and
- Nine (9) community representatives appointed by the Council
- Extended invitation to Chief Planes to recommend an appropriate representative of the T'Sou-ke First Nations community as a member of the CCAC.

Term:

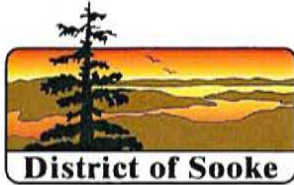
Members shall be appointed by Council resolution to a ~~one-two~~-year term, ending December 1st of ~~each~~ the second year, except for in a year of a general local election, in which case members' appointments expire on November 1st.

Meetings:

The Committee will meet once a month, ~~on the third Tuesday at 5:30 p.m. the day and time to be as determined by the committee members. No meetings are held during the summer and winter breaks (July, August and December).~~ Special meetings may be held at the call of the Chair. The meeting rules and procedures will be in accordance with the Council Procedure Bylaw.

Staff Support:

The Parks and Environmental Services Department will be the primary contact and will provide, or delegate, the required professional support. The Corporate Services Department will provide secretarial and administrative support.



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NOTICE OF CLIMATE CHANGE ACTION COMMITTEE (CCAC) 2019 MEETING SCHEDULE

These Committee meetings are to be held on the third Tuesday of the month at 5:30 p.m. held in the District of Sooke *Council Chamber* located at 2225 Otter Point Road, Sooke, BC.

CCAC Meeting @ 5:30 pm

Public Statutory Holiday

July 2019						
S	M	T	W	T	F	S
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14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

August 2019						
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25	26	27	28	29	30	31

September 2019						
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29	30					

October 2019						
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27	28	29	30	31		

November 2019						
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17	18	19	20	21	22	23
24	25	26	27	28	29	30

December 2019						
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15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				


 Carolyn Mushata
 Corporate Officer

<u>Meeting Date</u>	<u>Meeting Type</u>	<u>Agenda Item #</u>	<u>File Number</u>	<u>Description</u>	<u>Resolution Number</u>	<u>Resolution Text</u>	<u>Staff Responsible</u>	<u>Follow-Up Status</u>
27 May 2019	Regular Council	14.1.		Correspondence for May 9 - 21, 2019	2019-278	THAT Council direct staff to forward the letter on Air Pollution from Jean Siems to the Climate Change Action Committee, once it has been established, for discussion.	Patti Rear	In Progress

From: [REDACTED]
Subject: Bigger air polluter than cars
Date: May 17, 2019 8:39:40 AM

Hello Mayor

Summertime and the air is about to become much more polluted.

According to.....

<https://sites.psu.edu/math033fa17/2017/10/10/american-lawn-care-emissions/>

Every weekend in the United States, fifty-four million Americans mow their lawns, which uses eight-hundred million gallons of gas per year [Springfels n.pag]. When broken down, that's about 15 million gallons of gasoline to cut our yards and businesses alone. The eight-hundred million gallons of gas used each weekend is accompanied by the seventeen million gallons of gasoline we spill just filling up our tanks of gas each year, this amount is more than the amount of oil that was spilled by the Exxon Valdez [Springfels n.pag].

According to.....

<https://www.scientificamerican.com/article/how-to-pick-a-lawnmower/>

According to the U.S. Environmental Protection Agency (EPA), traditional gas-powered lawn mowers are a public nuisance, to say the least. **Using one of them for an hour generates as many volatile organic compounds—dangerous airborne pollutants are known to exacerbate human respiratory and cardiovascular problems—as driving a typical car for 350 miles.** The EPA estimates that, with some 54 million Americans mowing their lawns on a weekly basis, gas lawn mower emissions account for as much as five percent of the nation's total air pollution. Beyond that, homeowners spill some 17 million gallons of gasoline every year just refueling their lawn mowers.

Further Information:

<https://www.epa.gov/sites/production/files/2015-09/documents/banks.pdf>

Regards,
Jean Siemens
[REDACTED]

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"It is time to stop treating nature as a commodity that we own, and to acknowledge instead that nature is a community to which we belong." - David R.

American Lawn Care Emissions

Posted on [October 10, 2017](#) by [Kyle Nolan](#)

Kyle Nolan

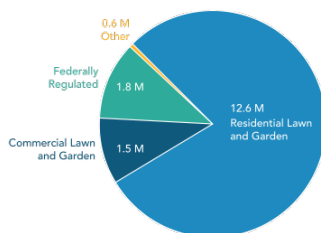
Russ deForest

Math 33, W&R1

9 October, 2017

American Lawn Care Emissions

In the simmering ninety-degree heat of summer through the months of May to August, my primary work title is laborer. More specifically, I weed-whack with a gas-powered Stihl FS-250 for 8 hours a day, five days a week. This doesn't seem like much, but according to data the emissions that I put out alone in a week is comparable to a road trip across the United States in a sedan. Factor this in with the five-other weed-whackers I work with and the fifty-four million people in the United States that uses their lawn care equipment in the U.S. and we quickly have a much larger problem on our hands. The problem is not merely that we want our lawns to look clean and cut, but that we are using gas-powered engines to do this work. With switching to a greater power such as electricity comes a great responsibility... and a greater time spent in the yard on the weekend finishing your work. When it boils down, you can have a powerful machine with bad emissions, or a less-powerful machine with no emissions at all. When you are done considering which you would rather have, and what your specific stance is on the environment, you have to weigh the scales... with the money you have to spend for your choice. Practicality in the electric and gas-powered engines is the next question, leaving your morals stranded in the thought process of which is easier to buy. The following will show what the cost of the switch from electric to gas-powered engines would be to an average American and what they would benefit from in practicality.

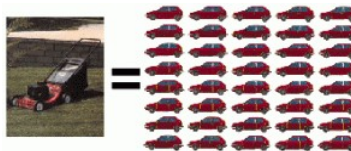


Every weekend in the United States, fifty-four million Americans mow their lawns, which uses eight-hundred million gallons of gas per year [Springfels n.pag]. When broken down, that's about 15 million gallons of gasoline to cut our yards and businesses alone. The eight-hundred million gallons of gas used each weekend is accompanied by the seventeen million gallons of gasoline we spill just filling up our tanks of gas each year, this amount is more than the amount of oil that was spilled by the Exxon Valdez [Springfels n.pag].

Avoiding all of this mess could be an easier process than we would expect as Americans, but the real question asks if the pros outweigh the cons. Five percent of the nation's air pollution was accounted for by carbon monoxide, volatile organic compounds, and nitrogen oxides due to unregulated emissions from lawn care equipment [Springfels n.pag]. This changed in 1995, when the Environmental Protection Agency started regulating the emissions coming from these lawn care machines like lawn-mowers and weed-whackers. Now as a nation, we are

under the EPA's "phase 3," which has successfully cut these volatile compounds down by seventy percent than what they used to be [Springfels n.pag].

Although the regulations put in place and the impact it has had seems impressive, the Union of Concerned Scientists released a statistic, saying that when you run a gas-powered mower, you are creating an equal amount of pollution to driving eight sedans at 55 miles per hour for one hour [Springfels n.pag]. This is no longer a sustainable number that we can ignore, the switch to greener, and electric mowers are right on the horizon. The people of your neighborhoods around the nation have been pushing to ban the gas-powered mowers and leaf-blowers because they're typically found to be harmful to the environment and noisy to the neighborhood. A lot of this can be attributed to the characteristics of the two-stroke engine: which completes a cycle of combustion through two pistons, is very cheap, compact, and lightweight [Palmer n.pag].



According to Springfels, for every 500 gas-powered mowers eliminated, you take away 212 lbs. of hydrocarbons, 2 lbs. of nitrogen oxides, and about 1 ton (2,000 lbs.) of carbon dioxide [Springfels n.pag]. This, paired with the number of Americans mowing and maintaining their lawns each weekend, will yield the results of how much pollutant Americans wouldn't release into the atmosphere each year.

Hydrocarbons:

$$\frac{54 \text{ Million Americans}}{\text{Weekend}} \times \frac{500 \text{ gas mowers}}{500 \text{ Americans}} \times \frac{.424 \text{ lbs. Hydrocarbons}}{1 \text{ gas mower}} \times \frac{52 \text{ weeks}}{1 \text{ year}} = \frac{1.2 \times 10^9 \text{ lbs. hydrocarbons saved}}{\text{year}}$$

Nitrogen Oxides:

$$\frac{54 \text{ Million Americans}}{\text{Weekend}} \times \frac{500 \text{ gas mowers}}{500 \text{ Americans}} \times \frac{.004 \text{ lbs. Nitrogen Oxides}}{1 \text{ gas mower}} \times \frac{52 \text{ weeks}}{1 \text{ year}} = \frac{1.1 \times 10^7 \text{ lbs. Nitrogen Oxides saved}}{\text{year}}$$

Carbon Dioxides:

$$\frac{54 \text{ Million Americans}}{\text{Weekend}} \times \frac{500 \text{ gas mowers}}{500 \text{ Americans}} \times \frac{4 \text{ lbs. Carbon Dioxides}}{1 \text{ gas mower}} \times \frac{52 \text{ weeks}}{1 \text{ year}} = \frac{1.1 \times 10^{10} \text{ lbs. Carbon Dioxides saved}}{\text{year}}$$

As the calculations from the practicality show, we would save so much on emissions each year, but does that still outweigh the cost of getting all Americans to switch to the electric models? Top of the line electric mowers can cost you a pretty penny, with the "Ryobi R48110" costing \$2,500 and the "Cub Cadet RZT S Zero ZTR" costing roughly \$4,000 [Hope n.pag]. These mowers and weed-whackers are mostly attributed to the use of their Lithium-Ion batteries, which require extra electricity to charge and power [Hope n.pag]. In my experience working as a weed-whacker, the halt in progress to stop and charge batteries for an eight-hour day would be enough to just fire us and let the weeds overgrow. To charge each battery the cost is about \$5 per year in electricity, which doesn't seem like much but has a larger effect on the nation as a whole, and these batteries only last about 60 minutes on a charge [How to Pick n.pag].

$$\frac{\$5.00}{\text{Year}} \times 54 \text{ Million Americans} = \frac{\$270,000,000}{\text{Year}}$$

According to the article "How to Pick A Lawn Mower That's Easy on Man—And Nature," the ratio in cost between buying a gas-powered mower, and an electric-powered mower is 1.5, meaning the cost is 1 1/2 times more expensive for an electric mower with the same output and performance [How to Pick n.pag]:

$\$1000 \text{ gas mower} \times 1.5 \text{ (Constant ratio for gas-electric mower cost conversion)} \times 54 \text{ Million Americans} = \81 Billion

Walking head-to-toe in coveralls, boots, hardhats, and not to mention fresh cut grass, it is hard to believe that your weed-whacker still put out more energy and emissions than you have; even if you have sweat through two layers of clothing and almost passed-out from heat exhaustion plus the direct exhaust from the engine itself. Though it may seem dramatized, there are many young Americans working for contractors, Americans walking house to house to make money, and many more Americans using their mowers for lawncare use each weekend; not only putting themselves in harm's way, but the whole planet as well. When it comes down to finding the appropriate piece of lawncare equipment, switching to electric-power as a collective in the United States would surely outweigh the cons of keeping the gas-guzzling mowers and weed-whackers used in today's world. The key points to consider in these findings would be cutting down on the emissions produced by a quarter of all Americans, the relative low cost it would be to switch to the electric, and how the performance isn't fully out-matched to the reign of gas-powered engines. Thank you for following throughout this piece of writing, hopefully it will guide your thoughts and actions as you progress through buying greener lawncare equipment, whether it be for the first time or for renewing and replacing old pieces of equipment.

Bibliography

Hope, P. (2017, April 22). How Green Are Electric Lawn Mowers? Retrieved September 17, 2017, from <https://www.consumerreports.org/lawn-mowers-and-tractors/how-green-are-electric-lawn-mowers/>

How to Pick A Lawn Mower That's Easy on Man--And Nature. (n.d.). Retrieved September 17, 2017, from <https://www.scientificamerican.com/article/how-to-pick-a-lawnmower/>

Palmer, B. (2013, September 16). How bad for the environment are gas-powered leaf blowers? Retrieved September 17, 2017, from https://www.washingtonpost.com/national/health-science/how-bad-for-the-environment-are-gas-powered-leaf-blowers/2013/09/16/8eed7b9a-18bb-11e3-a628-7e6dde8f889d_story.html?utm_term=.dc112f7dea78

Springfels, C. (n.d.). Cleaner Air : Gas Mower Pollution Facts. Retrieved September 17, 2017, from <http://www.peoplepoweredmachines.com/faq-environment.htm>

This entry was posted in [Write and Respond 1](#) and tagged [atmosphere](#), [Carbon Emissions](#), [Electric](#), [environment](#), [Gasoline](#). Bookmark the [permalink](#).

5 Responses to *American Lawn Care Emissions*



Joe Balawajder says:

October 19, 2017 at 6:44 pm

Hi Kyle!

As I read your Write and Respond 1 article, I immediately noticed your outstanding use of the MathJax application within the blog. To start, you listed the current problems with the emissions produced by lawn care and then you also provided a small pie-chart and this was a great way to back up what you stated. The topic of lawn care emissions is not a topic that we have discussed as a class, at least to my knowledge, but this was a great topic of choice in that it clearly involves the topic of sustainability. The lawn care emissions from lawn mowers, leaf blowers, weed whackers, etc. are negatively affecting our air, and you did a great job of describing these problems and also backing your information up using multiple graphs and again, the great usage of MathJax. You mentioned that 1/4 of Americans are guilty of using gas-powered machines, which I believe adds some perspective to your article. Mentioning that the switch to electric-powered devices would be a relatively low-cost switch is very important as many Americans would say that they simply do not want to spend money on a new lawn mower when theirs works perfectly fine. The fact of the matter is, it doesn't. Sure it cuts their grass, but the pollution that takes place during the action of mowing is the real problem at hand. I also like the fact that you listed proper alternatives to the gas-powered machines that pollute our environment's air. The switch to electric-powered machines would certainly outweigh the

cons of a gas-powered lawn mower/leaf blower/weed whacker etc.
Great job Kyle!

-Joe Balawajder



Jonathan Demi Ajayi says:

October 22, 2017 at 3:37 am

Hi It was a really insightful piece and I believe the question of switching from gas power to electric power appliances is asked not for just lawncare but for many other products such as cars, cookers etc. I think you did a good job analysing in detail all the aspects of your argument especially costs. Cost is an important factor and is usually what most people consider when this topic comes to mind. I think there are pros and cons for both gas and electric power. In my opinion I think gas powered appliances are more eco friendly than electric powered appliances because charging electric appliances will ultimately raise one's carbon footprint but there are other factors involved. I do like the way you laid out your arguments and equation and all your points helped strengthen your stance.



Madi Murphy says:

October 23, 2017 at 2:00 am

The topic of this post was unique and personal and that's made it great. Firstly, the topic of lawn work is mostly not acknowledged when thinking of ways to cut down on unnecessary waste. This is incredibly odd when you see just how much this matter accumulates. This seems like a big issue that should be addressed. The math was done in a way that made it easy to understand and it was nice that you went farther than just one source that would be saved with reductions. Plus the fact you used an issue that directly affects you, made it more passionate of a blog post and that's something that will make people relate to it more. Overall a great piece.



Dave VanLandingham says:

October 23, 2017 at 2:41 am

Kyle, I thought your blog post about American lawn care emissions was really interesting. I spent a summer working for a landscaping company and spent much of that summer working with a mow crew and doing line trimming/ weed whacking. Truthfully, the emissions from the mowers and weed whackers were not something I thought much about despite considering myself an environmentally conscious person, so when I read that the emissions emitted in one weeks worth of work are equivalent to those from a cross country road trip, I was pretty surprised. Your blog post did a good job of breaking down these large figures into understandable quantities which helped support your point. While I agree that currently electric weed whackers are not comparable to 2 stroke gas weed whackers, I do believe that electric weed whackers will be the way of the future. You addressed battery storage issues in your blog post, but battery storage and cost and the the two biggest obstacles standing in the way. Electric motors make more torque than gasoline motors and the power, quietness, efficiency of electric motors make them a great substitute to gasoline motors, however, until battery storage issues and price point issues are addressed, they will not be a viable option.



Dominique C Miller says:

October 23, 2017 at 9:29 pm

Hi Kyle,
Awesome post! I'd like to start by mentioning how clearly your calculations were presented and how easy it was for me to follow through your post. This topic was very unique and this post goes on to explain the significance of being more eco friendly by using gas and less electricity. I think the information provided in this post was useful and not only met the desired requirements but explained the importance of gas powered lawn mowers because you were so passionate about the topic being that it was a job you spent most of your summer doing. Overall great topic and the specification of a low cost switch was a good point to throw in because everyone can be eco friendly even at a low cost.



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SUSTAINABILITY

How to Pick A Lawn Mower That's Easy on Man--And Nature

What is currently available in lawn mowers that are easier on the environment, and run on more than human power?

Dear EarthTalk: What's available now in lawn mowers that are easier on the environment? My yard is too big for one of those "reel" mowers, and I'm no longer a spring chicken, so I have to buy something that runs on more than human power. What's out there?

-- Joel Klein, Albany, NY

According to the U.S. Environmental Protection Agency (EPA), traditional gas-powered lawn mowers are a public nuisance to say the least. Using one of them for an hour generates as many volatile organic compounds—dangerous airborne pollutants known to exacerbate human respiratory and cardiovascular problems—as driving a typical car for 350 miles. The EPA estimates that, with some 54 million Americans mowing their lawns on a weekly basis, gas lawn mower emissions account for as much as five percent of the nation's total air pollution. Beyond that, homeowners spill some 17 million gallons of gasoline every year just refueling their lawn mowers.

So what's a green-minded property owner to do about keeping the grass down? Go electric, of course!



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Electric mowers, which either plug into a wall outlet via a long cord or run on batteries charged up from the grid, create no exhaust emissions and run much cleaner than their gas-powered counterparts. They also need less maintenance, with no spark plugs or belts to worry about, and are easier to use, as they tend to be smaller and come with push-button starters. The icing on the cake might be the fact that electric mowers are cheaper to run, using about as much electricity as an ordinary toaster. Most electric mower owners spend about \$5 a year on electricity to keep their grass trimmed just right. The non-profit Electric Power Research Institute reports that replacing half of the 1.3 million or so gas mowers in the U.S. with electric models would save the equivalent amount of emissions of taking two million cars off the road.

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30-60 minutes on a charge, depending on battery size and type, though that's plenty sufficient for the average lawn (just remember to re-charge it in time for the next mow).

And, of course, just because electric mowers don't consume fossil fuels or spew emissions directly doesn't mean they are totally green-friendly. Most people derive their household electricity from coal-fired power plants, the dirtiest of all energy sources. Of course, running an electric mower on electricity generated from clean and renewable sources (solar, wind or hydro power) would be the greenest of all possibilities, and those days may be upon us soon.

For those ready to take the electric mower plunge, the Greener Choices website, a project of *Consumer Reports*, gives high marks to Black & Decker's corded (\$230) and cordless (\$400) models for their efficiency, reliability and ease-of-use. Corded models from Worx and Homelite (both around \$200) also fared well, along with cordless offerings from Craftsman, Homelite, Remington and Neuton (\$300-450).

CONTACTS: Black & Decker, www.blackanddecker.com; Remington, www.remingtonpowertools.com; Homelite, www.homelite.com; Worx, www.worxpowertools.com; Neuton, www.neutonpower.com; Greener Choices, www.greenerchoices.org.



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National Emissions from Lawn and Garden Equipment

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Abstract

Background: The contribution of gasoline-powered lawn and garden equipment (GLGE) to air pollutant emissions in the United States has not been extensively studied. **Goal:** Our goal is to provide annual US and state-level emissions estimates of volatile organic compounds (VOC): criteria pollutants (carbon monoxide [CO], nitrogen oxides [NO_x], particulate matter [PM] <10 microns, including PM < 2.5 microns [PM₁₀, PM_{2.5}]; and carbon dioxide (CO₂) from GLGE, with a focus on 2-stroke engines. **Methods:** Pollutant emissions data were extracted from the Environmental Protection Agency's (EPA) 2011 and 2018 modeling platform (version 6), for GLGE (Source Code Classifications 2260004021–2265004071), and equipment population data were obtained from the EPA's nonroad model. Data were sorted by equipment type and characteristics. Aggregate and equipment-specific emissions were calculated and compared with emissions from all gasoline-fueled nonroad equipment. Results are presented as descriptive statistics. **Results:** In 2011, approximately 26.7 million tons of pollutants were emitted by GLGE (VOC=461,800; CO=5,793,200; NO_x=68,500, PM₁₀=20,700; CO₂=20,382,400), accounting for 24%–45% of all nonroad gasoline emissions. Gasoline-powered landscape maintenance equipment (GLME; leaf blowers/vacuums, and trimmers, edgers, brush cutters) accounted for 43% of VOCs and around 50% of fine PM. Two-stroke engines were responsible for the vast majority of fine PM from GLME. State data (California, New York, Texas, Illinois, and Florida), 2018 projections, and additional comparisons are presented. Methodological issues are discussed. **Conclusions:** GLGE accounts for a major portion of US nonroad gasoline emissions. Two-stroke engines are an important source of VOCs and criteria pollutants.

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INTRODUCTION

Gasoline-powered lawn and garden equipment (GLGE) ranging from string trimmers to stump grinders and tractors is a source of high levels of localized emissions that includes hazardous air pollutants, criteria pollutants, and carbon dioxide (CO₂).¹⁻⁴ Workers using commercial equipment are exposed when they are close to the emitting sources several hours each day, several days a week in seasons of use. Other members of the public, including children, may also be exposed to high levels of emissions from commercial landscape maintenance equipment (GLME) such as leaf blowers, trimmers, and mowers, used routinely around residential neighborhoods, schools, parks, and other public spaces. The commercial landscape maintenance industry has experienced strong growth over the last 15 years and depends largely on gasoline-powered equipment for most tasks once performed manually. These factors are raising concerns about the health impacts of GLGE emissions on workers and the public.

Extensive evidence exists on the adverse health effects of exhaust emissions and other fine particulates which include cardiovascular disease, stroke, respiratory disease, cancer, neurological conditions, premature death, and effects on prenatal development.⁵⁻¹³ Short term and long term exposures are implicated. However, GLGE as a source of these emissions has received little attention. Understanding the characteristics of GLGE and GLME emissions can help estimate potential health impacts of these close-to-the-source emissions.

The goal of this study was to characterize annual emissions from GLGE at the national level and in selected states and to estimate the contribution of GLME to those emissions. Special attention is paid to 2-stroke GLME engines. The emissions contributions from the four of the five most populated states are derived from the NEI, and for California, from the emissions inventory of the California Air Resources Board (CARB).

METHODS

Study Design

The GLGE emissions analyzed are total volatile organic compounds (VOC) and individual VOCs (benzene, 1,3 butadiene, acetaldehyde, formaldehyde); criteria pollutants (carbon monoxide [CO], nitrogen oxides [NO_x], particulate matter [PM] <10 microns, including PM < 2.5 microns [PM₁₀, PM_{2.5}]); and carbon dioxide (CO₂). Equipment pollutant data were extracted from SCC summary reports from the EPA's 2011 and 2018 modeling platform (version 6), and equipment population data were obtained from the Nonroad model. GLGE included the equipment in **TABLE 1** and identified by Source Code Classifications 2260004021–2265004071. The GLME subset is defined as leaf blowers/vacuums; trimmers/edgers/brush cutters; and mowers. Groupings of equipment, eg, leaf blowers/vacuums, were predefined by the NEI.

“All Emissions” are defined as all emissions from stationary and mobile sources, excluding biogenic and naturally occurring emissions. “All Nonroad Emissions” are defined as all emissions from the equipment types accounted for within the Nonroad model; note that this does not include emissions from commercial marine, rail, and aircraft sources. “Gasoline Nonroad Emissions” are defined as emissions from gasoline fueled equipment accounted for within the Nonroad model. National emissions were analyzed by type of equipment and engine configuration as shown in **TABLE 1**. All results are presented as descriptive statistics.

Table 1. Categorization scheme for analysis of GLGE emissions

Type of Equipment	Engine Configuration
<i>GLME</i>	
Leaf Blowers/Vacuums	2 stroke, 4 stroke
Trimmers/Edgers/Cutters	2 stroke, 4 stroke
Mowers	4 stroke
<i>Other GLGE</i>	
Chain Saws	2 stroke, 4 stroke
Rotary Tillers	2 stroke, 4 stroke
Snowblowers	2 stroke, 4 stroke
Turf Equipment	2 stroke, 4 stroke
Chippers/stump grinders	4 stroke
Tractors	4 stroke
Shredders	4 stroke
Other	4 stroke

Analyses

All analyses except for the 2018 projections represent 2011 estimates.

Equipment Populations

The national populations of all types of GLGE were obtained from the Nonroad model. The contribution of each type to the whole population was determined.

Contributions of All Nonroad and GLGE Sources

All Nonroad Emissions were compared to All Emissions. GLGE emissions were then calculated and compared with All Nonroad Emissions and All Emissions.

Contribution of Landscape Maintenance Equipment to GLGE Emissions

GLME emissions and their contribution to GLGE and All Nonroad Emissions were analyzed. Additional analyses were conducted to examine the relative contributions of 2-stroke GLME engine emissions.

Projected Growth of GLGE Emissions: 2011–2018

GLGE emissions projected for 2018 were obtained from the EPA’s 2018 modeling platform, version 6, and compared with 2011 emissions.

GLGE Emissions in the Five Largest States

State level emissions data from the five most populated states (US Census) – California, Florida, Illinois, New York, and Texas – were extracted and analyzed. Estimates of GLGE emissions for Florida, Illinois, New York, and Texas were based on 2011 data from the EPA’s 2011 modeling platform, version 6. Estimates of GLGE emission for California were based on data from the CARB’s OFFROAD2007 Model and estimated for 2012. No adjustments were made for potential differences in annual emissions between 2011 and 2012 California data. The program structure of the OFFROAD2007 Model provides a general overview of the methodology used to estimate emissions from off-road sources (http://www.arb.ca.gov/msei/offroad/pubs/offroad_overview.pdf).

Each state's contribution to national GLGE Emissions was calculated and compared with its contributions to the US landscape maintenance labor force and the US population. Labor force statistics were sourced from the Bureau of Labor Statistics, May 2013 reports (www.bls.oes) and population data from the 2011 US Census.

Nonroad Air Emissions Model

EPA developed a nonroad air emissions model in the 1990s to provide estimates of emissions from most types of nonroad equipment, including construction equipment, recreational marine vessels, and lawn and garden equipment (LGE). The model is referred to simply as the "Nonroad" model, and it has been updated a number of times since its creation. Documentation for the model exists as a number of technical reports available on EPA's website (<http://www.epa.gov/otaq/nonrdmdl.htm>). Total emissions are determined by summing the exhaust and evaporative emission components.^{14, 15} The preponderance of emissions from Nonroad equipment occurs as exhaust emissions due to the combustion of fuel. The methodologies for determining exhaust emissions are summarized below.

Exhaust Emissions from Nonroad Engines

The Nonroad model uses the following equation to calculate exhaust emissions from nonroad engines (ref: Median):

$$\text{Emissions} = (\text{Pop}) \times (\text{Power}) \times (\text{LF}) \times (\text{A}) \times (\text{EF})$$

Where Pop = Engine population

Power = Average Power (hp)

LF = Load factor (fraction of available power)

A = Activity (hrs/yr)

EF = Emission factor (g/hp-hr)

The derivation of the default model data for each factor from the above equation is discussed below.

a. Equipment populations and average power (horsepower)

The technical report titled "Nonroad Engine Population Estimates"¹⁶ indicates that equipment population data for most types of equipment were obtained from Power Systems Research, an independent marketing research firm, although in some instances other data source were used. Of interest for this analysis, for many LGE categories EPA used sales data obtained from equipment manufacturers during the development of its Phase 1 emission standards for small (less than 25 hp) gasoline fueled nonroad engines. This was done for the following LGE categories: lawn mowers, trimmers/edgers/brush cutters, leaf blowers/vacuums, and chainsaws. The report notes that an equipment population base year of either 1996 or 1998 was used for the LGE types.

Once estimates of equipment populations were derived, information obtained by the state of California was used to divide the equipment between the residential and commercial sectors. This step was needed because of the large difference in usage patterns between these two sectors. **TABLE 2** below contains an extract of data from Table 3 of the Nonroad Engine Population report mentioned above, and illustrates how the split between residential and commercial equipment was apportioned for a number of LGE types.

Table 2. Percentage split between residential and commercial equipment

SCC code	Application	Horsepower categories	Residential (% of equipment population)	Commercial (% of equipment population)
22xx004010 22xx004011	Lawn mowers	All	96.3	3.7
22xx004025 22xx004026	Trimmers/edgers/cutters	0-1 hp	100	0
		1-3 hp	85.3	14.7
		> 3 hp	0	100
22xx004020 22xx004021	Chainsaws	0-1 hp	100	0
		1-3 hp	97.0	3
		> 3 hp	0	100
22xx004030 22xx004031	Leaf blowers/vacuums	0-1 hp	100	0
		1-3 hp	92.5	7.5
		> 3 hp	0	100

i. Geographic allocation of residential LGE Populations (except snowblowers)

The Nonroad model uses US Census data on one and two unit housing to allocate national equipment populations to the county level. The population documentation report mentioned above notes that other variables are likely to also affect the distribution of LGE population, such as average yard size. However, no consistent, reliable data surrogates could be found to apportion the national level equipment populations based on these alternative factors, and so the model relies solely upon US Census data on one and two unit housing to allocate national LGE population data to the county level.

ii. Geographic allocation of commercial L&G Equipment Populations (except snowblowers)

The Nonroad model uses the number of employees in the landscaping services industry to disaggregate national level LGE population data to the county level. This was accomplished using data from the North American Industry Classification System (NAICS); specifically, for NAICS code 561730, landscaping services.

iii. Equipment population projections

The Nonroad model enables the user to obtain estimates of emissions for years other than the base year used for equipment populations. This is accomplished by the development of processes to handle the growth in equipment populations due to the purchase of new equipment as years pass, and adjustments made to account for the scrappage of old equipment. The reader is referred to the EPA technical reports “Nonroad Engine Growth Estimates,”¹⁷ and “Calculation of Age Distributions in the Nonroad Model – Growth and Scrappage”¹⁸ for further information on these topics. Both of these reports are available on the EPA website (<http://www.epa.gov/otaq/nonrdmdl.htm>).

b. Activity levels and load factors.

Equipment populations and horsepower levels alone are not sufficient for determining emissions from nonroad equipment; assumptions about frequency and patterns of use must also be made. The EPA report, “Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling”¹⁹ describes how the Nonroad model assigns default activity levels, in hours per year, and

load factors in performing its calculations. Load factors are needed to account for the fact that equipment is not typically used at full power 100% of the time; load factors reflect that and are presented in terms of average percent of full power for the equipment as it is used. The activity levels and load factors for small (< or = to 25 hp) spark-ignition engines for many LGE types was taken from data supplied to EPA during the comment period for the regulation of these engines. **TABLE 3** below contains an extract of the default activity data, in annual hours of equipment use, and load factor data, expressed as fraction of full power, taken from Table 6 of the above mentioned report.

Table 3. Example default activity levels and load factors for LGE

Equipment type	Use	Activity level (Annual hours)	Load factor (fraction of full power)
Lawn mowers	Residential	25	0.33
	Commercial	406	0.33
Trimmers/Edgers/Cutters	Residential	9	0.91
	Commercial	137	0.91
Leaf blowers\Vacuums	Residential	10	0.94
	Commercial	282	0.94
Chainsaws	Residential	13	0.70
	Commercial	303	0.70

c. Emission factors

EPA's documentation for the source of the emission factors used within the Nonroad model are contained in the following two reports: "Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling: Compression-Ignition"²⁰ and "Exhaust Emission Factors for Nonroad Engine Modeling: Spark-Ignition."²¹ Information pertaining to LGE contained in the latter report is discussed below.

Emission factors for spark-ignition engines rated at less than 25 hp were segregated into 5 engine classes based on primary use of the engine (handheld vs. non-handheld), and engine size according to engine displacement. Beginning in 1997, engines designed for both handheld and non-handheld applications became subject to several phases of regulation geared towards reducing fuel consumption (expressed in terms of brake-specific fuel consumption [BSFC]) and producing fewer air emissions in the combustion process. **TABLE 4** below contains an extract of information from Table 1 of the Exhaust Emissions 2010 report, and shows the impact of EPA's regulation on one such class of engines: small, hand-held, gasoline fueled two-stroke engines.

Table 4: Impact of regulation on small*, hand-held, gasoline fueled two stroke engines

Engine Tech Type	HC (g/hp-hr)	CO (g/hp-hr)	NOx (g/hp-hr)	PM (g/hp-hr)	BSFC (lb/hp-hr)
Baseline	261.00	718.87	0.97	7.7	1.365
Phase 1	219.99	480.31	0.78	7.7	1.184
Phase 2 (with catalyst)	26.87	141.69	1.49	7.7	0.822

BSFC: Brake-specific fuel consumption; CO: carbon monoxide; HC: hydrocarbon; NOx: nitrogen oxides; PM: particulate matter

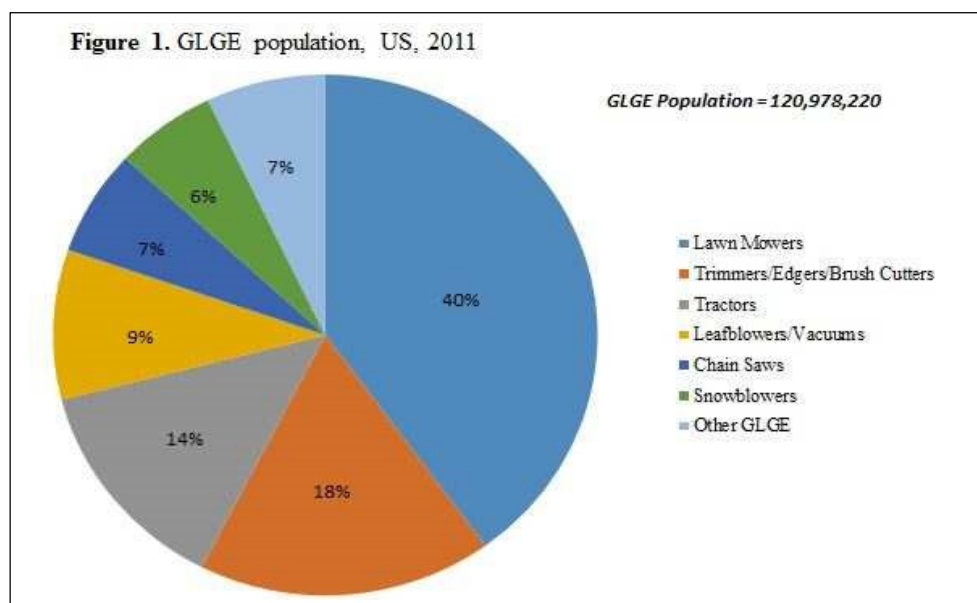
* These emission factors are for engines sized from 0 to 1 hp.

Other factors also influence the combustion related exhaust emissions from nonroad engines, such as fuel type, ambient temperature, and deterioration of equipment with age and use. The reader is referred to the EPA web-site (<http://www.epa.gov/otaq/nonrdmdl.htm>) for additional information on these topics.

RESULTS

Equipment Populations

Approximately 121 million pieces of GLGE are estimated to be in use in the United States (**FIGURE 1**). GLME accounts for two-thirds of all GLGE of which lawn mowers are the most numerous, followed by trimmers/edgers/ brush cutters, and then leaf blowers/vacuums. Projections from 2011 indicate a 13% increase across all equipment types after the combined effect of new equipment purchases and scrappage of old equipment are evaluated, resulting in an estimated 136 million pieces of GLGE in use by 2018.



Contribution of Nonroad Emissions to All Emissions

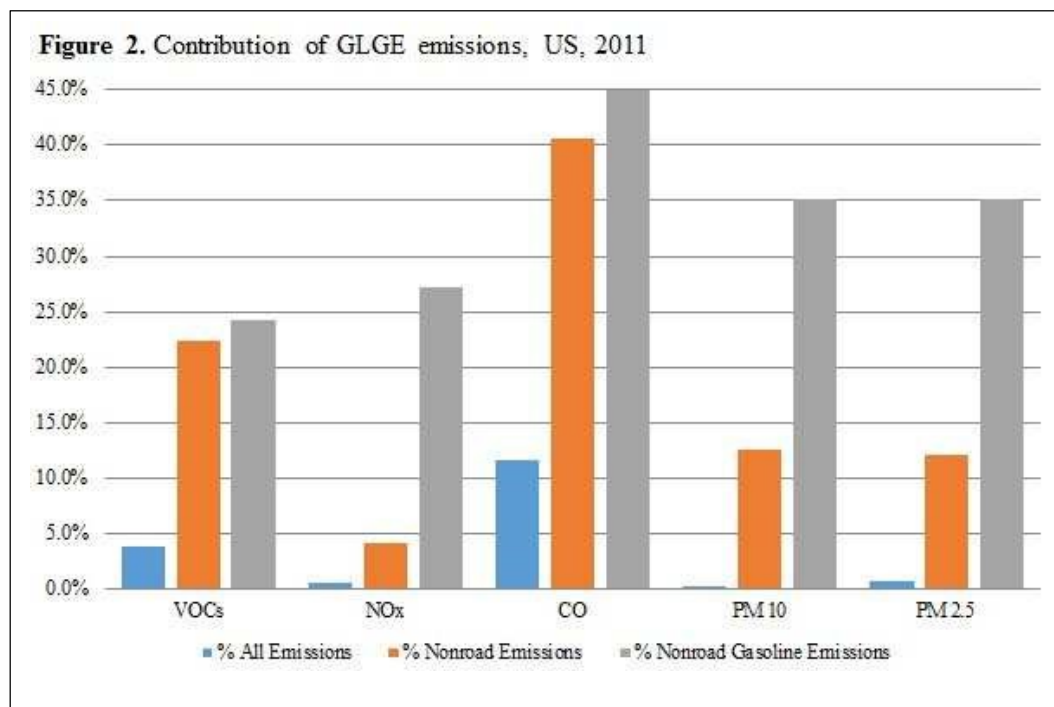
All Nonroad sources account for approximately 242 million tons of pollutants each year, accounting for 17% of all VOC emissions, 12% of NOx emissions, 29% of CO emissions, 4% of CO2 emissions, 2% of PM10 emissions, and 5% of PM2.5 emissions.

All Nonroad Emissions account for a substantial percentage of All Emissions of benzene (25%), 1,3 butadiene (22%), CO (29%), PM10 (2%), and PM2.5 (5%). Because of the relatively small contribution of GLGE CO2 to All Emissions (0.3%), it is not further considered in this report.

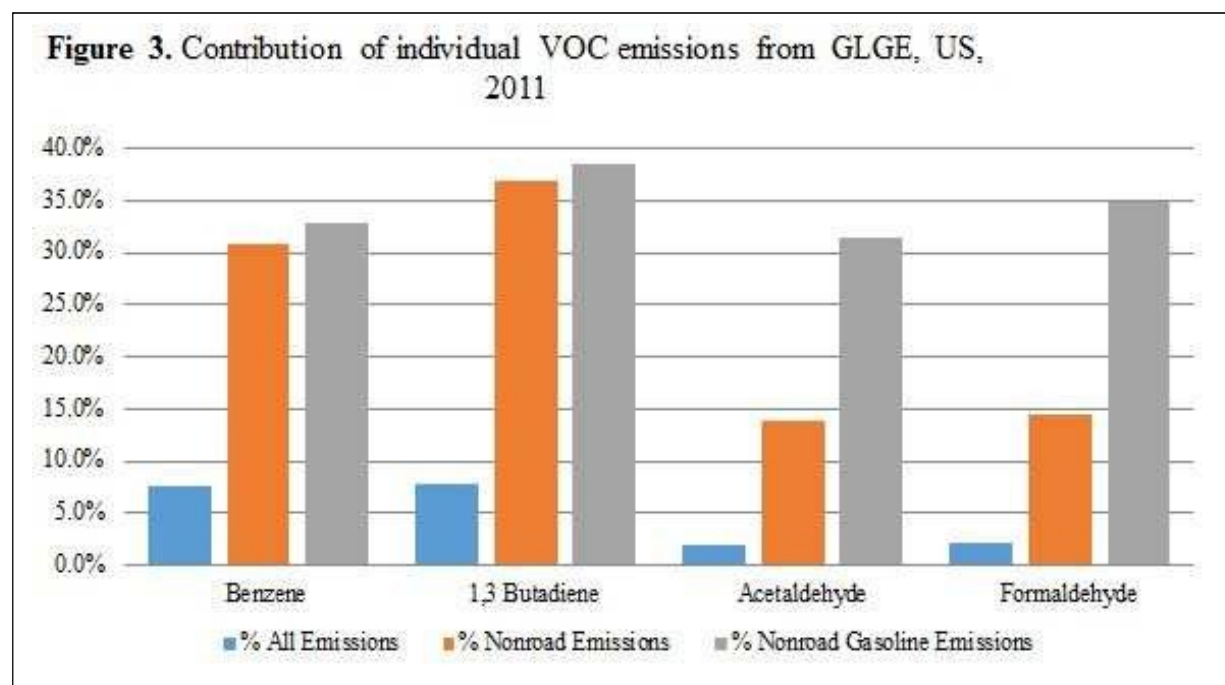
Contribution of GLGE to All Emissions and Nonroad Emissions

GLGE emitted approximately 6.3 million tons of VOCs (461,800) and criteria pollutants (CO=5,793,200; NOx=68,500, PM10=20,700 [19,000 of which is PM2.5]), and 20.4 million tons of CO2 in 2011. GLGE represented nearly 4% of All Emissions of VOCs and 12% of All Emissions of CO

(FIGURE 2). GLGE fine PM emissions constitute a fraction of a percent of All Emissions of fine PM, but is a major Nonroad source, accounting for nearly 13% of All Nonroad Emissions of fine PM and more than one-third of Gasoline Nonroad Emissions of fine PM.

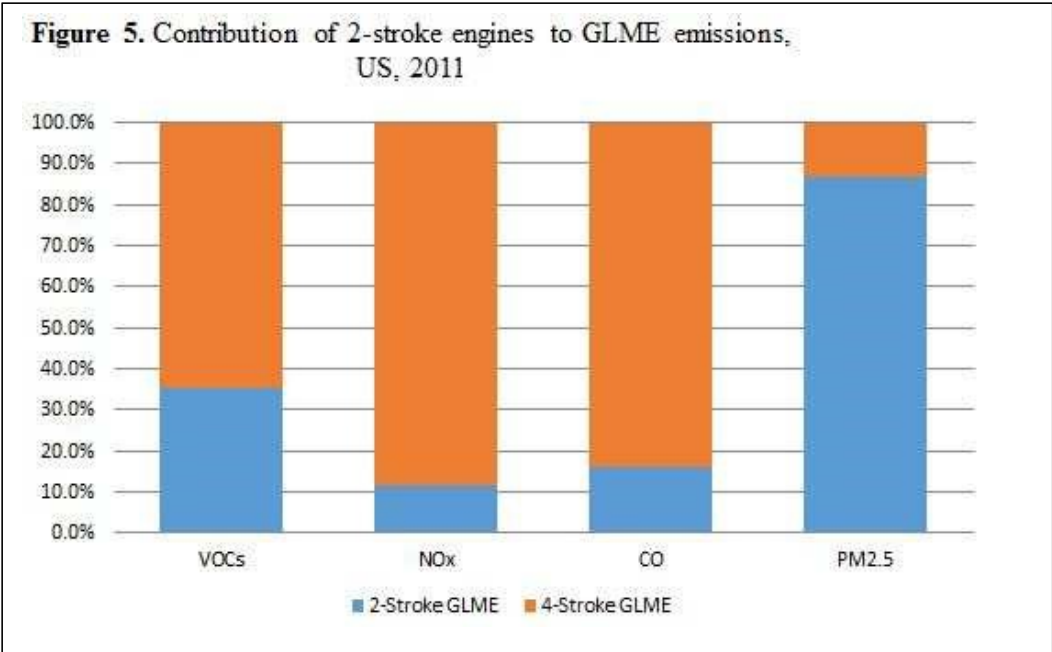
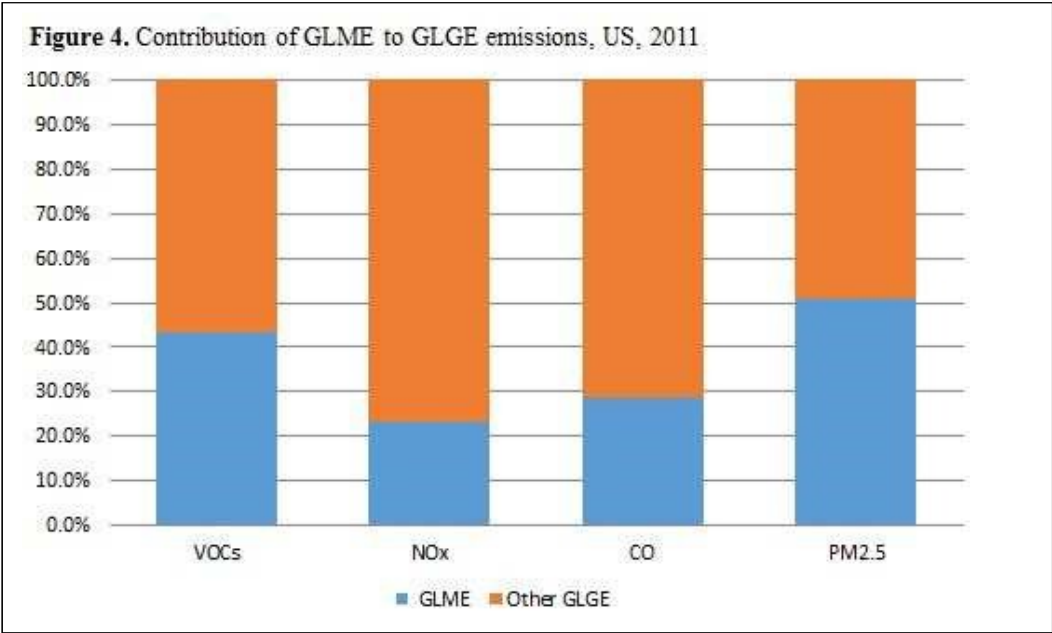


Analysis of individual VOC emissions shows that GLGE contributes nearly 8% of All Emissions of both benzene and 1,3 butadiene (**FIGURE 3**). Within All Nonroad Emissions and Gasoline Nonroad Emissions, GLGE accounts for nearly one-third or more of benzene and 1,3 butadiene emissions, and also becomes a major source of aldehyde and formaldehyde emissions from Gasoline Nonroad sources.



Contribution of GLME to GLGE Emissions

Compared with the GLGE contributions of Nonroad Gasoline Emissions shown in **FIGURE 2**, contributions of VOCs and fine PM emissions from GLME are disproportionately high, and for NOx and CO, are disproportionately low (**FIGURE 4**). Small GLME engines account for more than 40% of VOC emissions and one-half of PM10 and PM2.5 emissions from GLGE. Close to 90% of fine PM emissions from GLME come from 2-stroke engines (**FIGURE 5**).



Projected Growth of GLGE Emissions: 2011–2018

By 2018, the annual tonnage of ozone precursors, VOCs and NO_x, emitted by GLGE is projected to decrease substantially from 2011, as more of the in-use fleet becomes represented by equipment built to meet EPA nonroad emission standards. CO emissions remain comparable to 2011 levels, while CO₂ and fine PM emissions are projected to increase modestly.

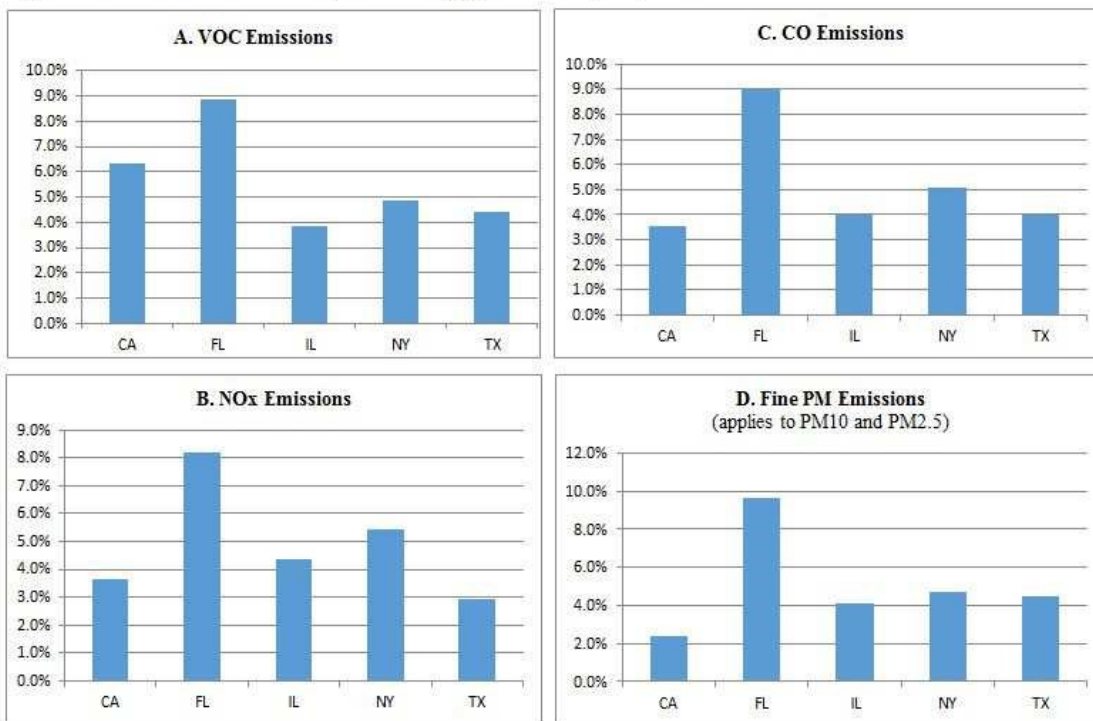
Table 5: Estimated Change in GLGE Emissions, 2018 vs 2011

Emissions	% Change
VOCs	-20.9%
NO _x	-31.1%
CO	-4.9%
CO ₂	12.3%
PM 10	8.2%
PM 2.5	8.4%

GLGE Emissions in the Five Most Populated States

When considered together, GLGE emissions from California, Florida, Illinois, New York and Texas constitute approximately one-quarter of national GLGE emissions.

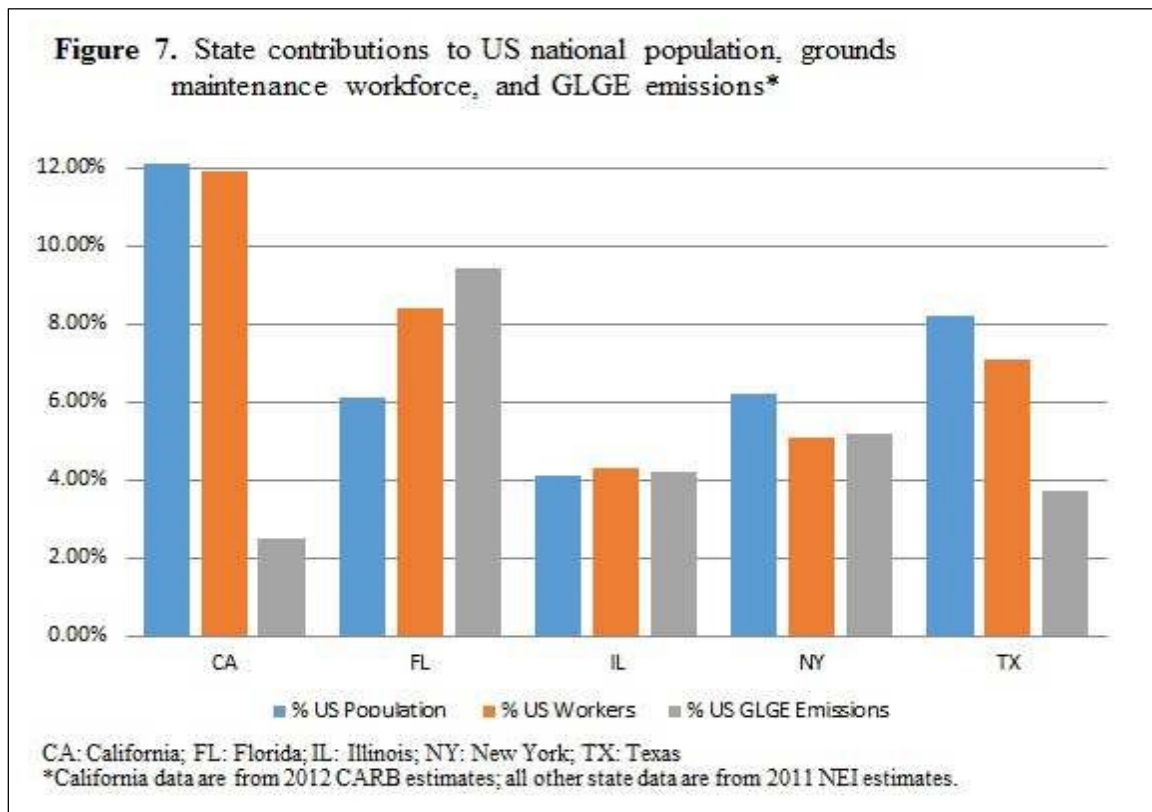
Figure 6. Emissions contributed by the 5 most populated states, US, 2011*



CA: California; FL: Florida; IL: Illinois; NY: New York; TX: Texas
*California data are from 2012.

Florida's GLGE emissions were 1.4 to 2.1-times higher compared with emissions in states having the next highest level of emissions in each GLGE pollutant category, and 2.2 to 4.4-times higher compared with emissions in states having the lowest level of emissions in each GLGE pollutant category (**FIGURE 6**).

For Florida, Illinois, and New York, state-specific contributions of GLGE emissions compared to the national total were relatively consistent with their contributions to the national population and the national grounds maintenance workforce. For California, its GLGE emission contribution was one-fifth that of its contribution to the national population and to the national grounds maintenance workforce. For Texas, its GLGE emission contribution was 40%–50% that of its contribution to the national population and to the national grounds maintenance workforce (**FIGURE 7**).



DISCUSSION

The main findings of this study are: 1) GLGE is a prevalent source of toxic and carcinogenic emissions; 2) GLGE contributes substantially to nonroad emissions of benzene, 1,3 butadiene, formaldehyde, CO, and fine PM; 3) GLME accounts for a disproportionately large share of VOC and fine PM emissions; 4) 2-stroke engines account for most fine PM emissions from GLME; 5) VOCs and NOx are projected to decrease substantially by 2018; CO emissions remain comparable to 2011 levels; and CO2 and fine PM emissions are projected to increase modestly; and 6) the GLGE emissions contributions from the the largest states are not always consistent with contributions to national population and national grounds maintenance workforce.

The large volume of emissions from GLGE found in this study is consistent with findings previously reported by the EPA¹ and from other studies.²⁻⁴ The very substantial contribution of VOC, in particular benzene and 1,3 butadiene, deserves attention especially because of their localized nature.

While VOC emissions are expected decrease 21% on average by 2018, the rates of equipment replacement on which those projections are based are only approximated.

Adverse health effects from the GLGE emissions are well known. Benzene, 1,3 butadiene, and formaldehyde are listed among the four top ranking cancer-causing compounds.²² They cause lymphomas, leukemias, and other types of cancer (International Agency for Research on Cancer, World Health Organization).^{23, 24} Ground level ozone (formed by VOCs and NO_x in the presence of sunlight) and fine PM cause or contribute to early death, heart attack, stroke, congestive heart failure, asthma, chronic obstructive pulmonary disease, and cancer.⁵⁻¹¹ Growing evidence suggests these pollutants also contribute to developmental and neurological disorders, including autism.^{7-9, 12, 13} The mounting evidence on the dangers of short term exposure are especially concerning.^{7, 9, 11}

The high levels of VOCs and fine PM from GLME are health risks for workers and other members of the public close to the emitting source. Although no studies of grounds maintenance workers were found, studies of gas station workers have shown that regular exposure to gasoline vapors can produce hematological and immunological abnormalities and elevate the risk of cancer.²⁵⁻²⁷ In addition, children, seniors, and persons with chronic illnesses are especially vulnerable to the negative health impacts of GLME emissions.²⁸ Routine use of GLME in the vicinity of residential neighborhoods, schools, parks, and other public spaces may be exposing the public to unnecessary and preventable health risks. New equipment standards do not affect fine PM emissions; in fact, those emissions are expected to increase.

School buses represent another example of a close-to-emitting source in which children are subjected to increased exposure from diesel exhaust.²⁹ Tests of school buses found that diesel exhaust entering through the front door of the bus results in elevated levels of PM over time. When queuing, PM built up rapidly in the bus cabin when the front doors were open.

The variation in emissions levels observed among the five most populated states should be explored further. The reasons for the high emissions contribution from Florida and relatively low emissions contributions from Texas and California are not clear. Differences between CARB data and NEI data may account for some of the difference between California and other states. For example, the NEI baseline equipment population data are older compared with those of CARB. Other factors that may be involved include but are not limited to emissions estimation procedure, geographic and climate factors, regulations and their effectiveness, and efforts to promote cleaner alternatives.

This study has several limitations. Not all potentially harmful emissions were characterized; for example, polycyclic aromatic hydrocarbons. Other limitations concern the source data. Although the NEI is a comprehensive source of GLGE emissions data, the accuracy of the reported data is uncertain. Baseline equipment population data for the Nonroad model is 15–20 years old and does not account for growth of the commercial industry. This older population data supplies emission estimates to NEI, which in turn is used to create EPA's 2011 and 2018 modeling platforms. Although the residential and commercial CARB inventories and activity data are newer, they depend largely upon telephone survey data.^{30, 31} Methodological weaknesses with the commercial survey data are discussed in the survey report.³¹ For both data sources, the rates of replacement of older equipment by newer, cleaner equipment that meets the newer Phase 3 standards³² can only be approximated.

CONCLUSIONS

GLGE is an important source of toxic and carcinogenic exhaust and fine particulate matter. Improved reporting and monitoring of localized GLGE emissions should be implemented. Medical and scientific organizations should increase public awareness of GLGE and GLME and identify GLGE as an important local source of dangerous air pollutants. Communities and environmental, public health, and other government agencies should create policies and programs to protect the public from GLGE air pollutants and promote non-polluting alternatives.

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Date	Item #	Resolution #	Resolution	Recommendation from CCAC
May 13, 2019	6.1	2019-206	THAT Council appoint Councillor Tony St-Pierre as the Chair to the District's Climate Change Action Committee. CARRIED UNANIMOUSLY.	
May 13, 2019	7.3	2019-209	THAT Council endorse the Sooke Compassionate Action Plan and support the recognition of Sooke as a Compassionate Community. AND Further that the Compassionate Action Plan be forwarded to the Affordable Housing Committee and Climate Action Committee, for information. CARRIED (Annex)	
May 13, 2019	7.5	2019-211	THAT Council refer the topic of Float Home communities to the Affordable Housing Committee and Climate Action Committee for further discussion. CARRIED UNANIMOUSLY	
May 13, 2019	14 (page 108 of agenda package)	2019-236	THAT the correspondence received April 29, 2019 from Mayor Lisa Helps regarding Climate Action through Public Transit Ridership be forwarded to the Climate Change Action Committee. CARRIED	
May 13, 2019	16.1	2019-238	MOVED by Councillor Al Beddows, seconded by Councillor Jeff Bateman: THAT Council direct the Climate Action Committee to research and report back on options for municipal community garbage collection. CARRIED UNANIMOUSLY	

Introduction - Sooke Compassionate Action Plan

Compassion is concern for the suffering of others. It requires empathy and understanding rather than pity and judgement. Compassion is often the motivation for acts of caring and kindness.

The Charter for Compassion invites communities of all sizes to encourage and reinforce compassionate action in practical, specific ways to address troubling issues. These issues are often deep-rooted and persistent. Much good work is already underway to reduce the resultant harm to affected individuals and households. The development of a Compassionate Action Plan (CAP) by a diverse and inclusive coalition of caring individuals and groups in our community is intended to help Sooke to become a more fully Compassionate Community.

A Compassionate Action Plan Workshop was held at the Sooke Baptist Church on Saturday, October 27th. It was well-attended with close to 50 participants from 29 community groups and service agencies (listed in Appendix 1). The afternoon began with short context-setting presentations by speakers from the Sooke Shelter Society, the Sooke Food Bank, the Sooke detachment of the RCMP and the BC Ministry of Mental Health and Addictions.

A broad range of issues were raised in six breakout groups. Reports to a plenary session followed. A review of the findings and recommendations by these many Sooke voices, not surprisingly, revealed many shared concerns and underlying linkages between issues. Communities are evolving, organic entities, like a forest with its trees connected in the web of life.

Five areas of focus for short (within the next 12 months) and longer term (one to five years) compassionate actions are proposed in this draft Sooke CAP:

- Homelessness
- Affordability Crisis (Housing, Food, Childcare)
- Social Isolation (Seniors, Disabled, Youth)
- Inadequate Health Services (Access, Mental Health, Whole Person Care)
- Communication/Awareness/Collaboration

Specific compassionate actions are indicated for each area of focus, based on the reports of the breakout groups. Comments and suggestions on a draft Sooke CAP,

distributed in December, were used to complete this initial plan. An implementation strategy will be developed at a second workshop which will be held on March 2nd.

The Sooke CAP, if supported by the participants at the upcoming workshop participants and by Sooke Council, will be submitted to Charter for Compassion International. It is hoped that this submission will occur in the Spring.

Recognition of Sooke as a Compassionate Community by Charter for Compassion International would not involve the issue of a certificate or a seal of approval for the Cap. Our community will join a worldwide humanitarian movement of citizens in over 400 cities, town, villages and neighbourhoods that are striving for a kinder, better planet.

Five Proposed Areas of Focus for the Sooke Compassionate Action Plan

The five areas of focus for the Sooke CAP are proposed below. Their order of presentation does not indicate their relative importance.

Several groups and organizations are already working independently and together in each of these areas of focus. Compassionate actions are being taken but it was agreed at the workshop that much remains to be done. The March 2nd workshop may identify further short- and longer-term actions, as well as the human and material resources necessary to implement these actions.

1. Homelessness

Estimates of the number of homeless people in Sooke range from about 35 to more than 100. They are a nearly invisible part of our community. They spend much of each day trying to satisfy basic needs for food, safe shelter and hygiene. Social contact with the larger community is often avoided by these individuals, just as more fortunate residents tend to avoid contact with them. Many homeless people contend with mental illnesses aggravated by addictions to alcohol and street drugs. These challenges become more difficult during our winter months, especially during periods of extreme weather. Some working poor are also

homeless due to the lack of affordable housing in Sooke. They may inhabit vehicles and moored boats.

The stigmas associated with homelessness, addiction and mental illness can be reduced through greater awareness of the struggles involved and empathy towards the afflicted.

Short-Term Compassionate Actions:

1. Designation of safe areas for the homeless with storage lockers, coolers, trash receptacles and access to showers and laundry facilities. Provision of temporary shelters such as tents. Access to a commercial kitchen with food safe certification.
2. Establish an extreme weather shelter for the homeless (cold temperatures, heavy rains). It would eventually evolve into a seasonal shelter for the October to April period.
3. Continue and broaden the ongoing dialogue and joint activities by individuals, groups and agencies to relieve the plight of the homeless residents in Sooke. Examples are the ongoing efforts by the Sooke Shelter Society, Sooke Homeless Coalition and Sooke Crisis and Referral Society.

Longer-Term Compassionate Action:

1. Establish a seasonal shelter that will provide for homeless residents -from October through April.
2. Support the purchase of modular housing for homeless Sooke residents (170 units recently purchased for Nanaimo).

2. Affordability Crisis

Sooke is a fast-growing community with an increasing range of goods and services amenities for residents with the required income. It is becoming unaffordable for many households who are struggling to meet the costs of housing, food, childcare and transportation.

The historical view of Sooke as a cheap place to live within Greater Victoria no longer holds. One indicator is the increasing number of individuals and families who use the Sooke Food Bank on a regular basis. Another indicator is the cost of

driving to and from Victoria with gasoline prices increasing year over year. Limited bus services within Sooke and between Sooke and Langford/Victoria discourage a shift from private to public transportation.

Canada's Official Poverty Line, across all regions of the country, was \$37,542 for a family with two adults and two children in 2015. It is based on the cost of housing, transportation, nutritious food, clothing and other household requirements.

Perhaps the greatest affordability concern is the cost of housing in Sooke for both potential owners and renters. Local figures are not available but the Canada Mortgage and Housing Corporation (CMHC) reported in January 2017 that the Victoria Region was the least affordable small city in Canada for single family houses: the median price was over eight times the median household income. Rent costs in Greater Victoria increased by 8% between 2015 and 2016. Current low vacancy rates only worsen the situation.

The current District of Sooke Official Community Plan (OCP) defines affordable housing as housing that sells or rents at a rate that is affordable (no more than 30% of annual income) to households with the lower half of incomes in Sooke.

Attainable housing refers to the gap in housing and services for people who do qualify for provincially or federally defined affordable housing and yet do not make enough to purchase a home at the market rate.

The Capital Regional District (CRD) in its draft housing affordability study (April 2018) estimates that there is a shortfall of 6,200 affordable rental units in Greater Victoria.

Short-Term Compassionate Actions

1. Broaden the mandate of the District of Sooke's Affordable Housing Committee to specifically include affordable and attainable housing as defined in the OCP. Consideration would be given to renaming it "the Housing Committee" to reflect this broader mandate.
2. Request the District of Sooke to hold meetings with developers, real estate agents, concerned citizens and other stakeholders to develop policies to increase the availability of affordable and attainable housing Sooke.

3. Request the District of Sooke to investigate non-market options to increase the stock of affordable and attainable housing in our community. These options might include the use of District-owned lots with other designations, such as inactive parkland, for the construction of buildings which would be sold or rented at an affordable non-market cost plus a fixed percentage.

Longer-Term Compassionate Actions

1. Lobby both the CRD and the provincial government for increased funding for both affordable housing and attainable housing (alternative structures such as tiny houses) for low to moderate income Sooke residents.
2. Work with Sooke Council and developers to make rental suites in private houses more suitable for families, e.g. better sound-proofing.
3. Lobby BC Transit for better coverage and increased frequency in bus services both within Sooke and between Sooke and Langford/Victoria. BC Transit's Local Area Plan Consultations are now underway. (Reference: <https://bctransit.com/victoria/transit-future/local-area-transit-plans/project-updates/sooke>).
4. Lobby both the CRD and the provincial government for building code exceptions that allow alternative housing structures, such as trailers, recreational vehicles and tiny houses, for marginal-income (homeless, unemployable) and moderate-income Sooke residents.

3. Social Isolation

Some Sooke residents live marginal lives. There are many causes, including mental illnesses, psychological disorders and dementia. Others suffer from chronic physical handicaps and drug/alcohol addictions. Social interaction with the broader population is often limited by communication challenges, behavioural issues and social stigmas/prejudices.

Social isolation is an issue also faced by single people, youth and the elderly. Generally speaking, there is an increasing disconnection in our communities and less opportunities for social interaction.

Short-Term Compassionate Actions

1. Expand mental health services in Sooke, including addiction treatment and counselling.
2. Establish neighbourhood programs for regular checks on persons with psychological disorders and dementia. An existing example is the Keep in Touch (KIT) program which is run by the RCMP.

Longer-Term Compassionate Action

1. Increase the number of rooms for persons with dementia at Ayre Manor.
2. Increase the number of easily accessible public spaces in Sooke where people can feel secure and have opportunities for interaction. Such a space might be provided as part of the development of Lot A on Wadams Way in Sooke.
3. Encourage events and activities that foster intergenerational contact, particularly between seniors and youth.
4. Establish a program, possibly through local faith-based groups, that would allow seniors and people with disabilities to rent extra space in their homes to trustworthy individuals. This action would also address the housing affordability concern in Sooke.

4. Inadequate Health Services

The need for additional physicians and a well-equipped medical facility is a long-standing issue in Sooke. This problem is especially acute for persons with physical and mental disabilities and addictions.

Short-Term Compassionate Action

1. Support efforts by the Sooke Family Resource Society and Sooke Region Communities Health Network to enhance health services in our community.
2. Support efforts by the Mayor's Sooke Region Primary Health Care Services Working Group to bring more physicians to Sooke and improve medical facilities.
3. Explore the importance of spirituality in fostering compassionate action and mental health.

Longer-Term Compassionate Action

1. Establish a multi-service clinic in Sooke that would provide a whole person approach (physical, psychological, spiritual) to patient care.
2. Ensure that each resident of Sooke has access to a local physician by 2023.
3. Establish a respite lodge in Sooke for temporary accommodation for persons requiring homecare. Private caregivers would benefit from the opportunity for a break from their daily responsibilities.
4. Provide independent multi-belief spiritual development space integrated with the multi-service clinic in Sooke
5. Sponsor a public parade for peace/climate/community development to involve the whole community and to demonstrate implementation of the Sooke Compassionate Action Plan.

5. Need for Better Communication/Awareness/Collaboration

Participants at the October Sooke CAP Workshop exchanged a great deal of useful information about their respective concerns, current activities and aspirations on a broad number of issues. It was an awareness-building event that will hopefully lead to further alliances and partnership between individuals, service groups, agencies and local government. The success of the Sooke CAP will depend on this communication and collaboration.

The Sooke Region Volunteer Centre has produced a very useful brochure, entitled *Where To Find Help In The Sooke Region*, which provides a good start in generating greater awareness of local services.

A network for regular communication between individuals, service groups and agencies would allow compassionate actions in the above four areas of focus to be monitored and, where possible, measured.

This network would also have an advocacy role. Parties who are striving for the same goals would jointly press for needed changes in our community.

Short-Term Compassionate Action

1. Foster alliances and partnerships between individuals, service groups, agencies and local government.

2. Submit the Sooke CAP to the District of Sooke for inclusion in the new Official Community Plan (OCP).
3. Further promote the Charter of Compassion, keep a list of members of the community who have signed the Charter and share stories of how the Charter is being applied in the community.
4. Establish a Compassionate Action Registry to record acts of kindness. Hopefully, this recognition will have a “snowball” effect by fostering further good works in our community.

Longer-Term Action

1. Establish a communications/advocacy network which would have a triage or “navigation” capability to direct persons with specific needs to the appropriate service providers in an efficient, timely manner.
2. Monitor progress and prepare an annual public report on implementation of the Sooke CAP.

Concluding Remarks

The Sooke CAP was prepared for discussion at a workshop which will be held on March 2, 2019. Participants will be asked to develop an implementation strategy by which to carry out the specific short-term and long-term actions.

This plan will be further revised in coming years to reflect new areas of concern in our community and, hopefully, successful implementation of short-term and longer-term goals in the initial document submitted to Charter for Compassion International.

The Charter for Compassion calls on us to treat others as we wish to be treated, to help alleviate the suffering of others and to enhance our interdependent spiritual and material wellbeing. It is a journey to a better world for all of us.

Appendix 1: List of Participants at Sooke CAP Workshop, October 27, 2018

Shirley Alphonse	T'Sou-ke Nation Elder
Sherry Thompson	Sooke Shelter Society, Sooke Homelessness Coalition
Earle Bretherton	Sooke Shelter Society, Sooke Homelessness Coalition
Dale McLean	Sooke Shelter Society
John Ede	Sooke Resident (Homeless Representative)
Jeff Bateman	District of Sooke Councillor, EMCS Society, Transition Sooke
Tony St-Pierre	District of Sooke Councillor, Cast Iron Farm, Sooke Farmland Trust Society
Carolyn Bateman	Transition Sooke
Bernie Klassen	Transition Sooke, Zero Waste Sooke
Michael Tacon	Transition Sooke
Koshin-Moonfist	Sooke Region Multi-Belief Initiative
Jackson Hughes	Sooke Resident
Corporal Sam Haldane	RCMP – Sooke Detachment
Sharon Sterling	Team Sooke Refugee Sponsorship
Barbara Michell	Holy Trinity Anglican Church
Gerry Kusuqak	Sooke Resident
Michael Kusuqak	Sooke Resident
Rick Eby	Minister, Sooke Baptist Church
Maddi Prinn	Youth Worker, Sooke Baptist Church
Josh Fast	Youth for Christ, Victoria
Les Haddad	Sooke Chamber of Commerce, Baha'i Faith
Bernie Klasschuk	Sooke Resident
Christine Brown	Baha'i Faith
Elaine McMath	Sooke Resident
Neil Poirier	Sooke Resident

Sheila Wallace	Sooke Country Market
Frederique Philip	Sooke Resident
Joanne Scholten	Sooke Resident (Allies, Alliances)
Ted Mehler	Sooke Resident
Loretta Deutscher	Sooke Resident
Jen Wilde	Greater Victoria Extreme Weather Shelters
Britt Santowski	Sooke Pocket News
Shayna Chamitoff	Women Care (?) Group, SFA
Pauline Kissinger-Hamilton	Sooke Resident
Maxine Medhurst	Sooke Resident
Nicky Logins	Sooke Family Resource Society, Sooke Region Communities Health Network, District of Sooke Affordable Housing Committee, Sooke Homelessness Coalition
Jonny Morris	BC Ministry of Mental Health and Addictions
Kim Kaldal	Sooke Food Bank
Christina Brown	Big House Breakfast
Ron Ramsey	Sooke Region Resident
Melody Kimmel	Sooke Region Resident
Caroline Hudson	Sooke Food CHI
Sean Brown	Sooke Resident
Tracy Ewert	Public Health Nurse, Island Health Authority
Don Brown	Sooke Region Multi-Belief Initiative, Baha'i Faith
E.M. Anderson	Sooke Region Multi-Belief Initiative
Phil Rossner	Sooke Region Multi-Belief Initiative, Vancouver Island Counselling Centre for Immigrants & Refugees
Mark Ziegler	Sooke Region Multi-Belief Initiative, Rotary Club of Sooke

Annex 1: Moving Forward: Implementation of Sooke Compassionate Action Plan

Foreword

The short- and long-term actions proposed the five areas of focus in the Sooke Compassionate Action Plan (CAP) can only be taken through the concerted, collaborative efforts of individuals, service groups and agencies in the community. There must be a consensus among these players as to what needs to be done.

A workshop was held on the afternoon March 2, 2019 at the Sooke Baptist Church to address how best to realize the Sooke CAP.

Rick Eby, Pastor of the Sooke Baptist Church, welcomed and thanked the 24 workshop participants (list of names attached). T'Sou-ke Elder Shirley Alphonse gave an opening blessing on the value of compassion and love in helping others. District of Sooke Mayor Maja Tait described the many initiatives being undertaken by the Primary Health Services Working Group which she chairs.

Workshop Findings and Conclusions

1. It was agreed from the outset of the workshop that the five areas of focus in the Sooke CAP are closely linked. These areas of focus are:
 - a. Homelessness
 - b. Affordability
 - c. Social Isolation
 - d. Inadequate Health Service
 - e. Need for Improved Communication/Awareness/Collaboration
2. One of the participants passionately called attention to Sooke residents who are “falling between the cracks” because their basic human needs for shelter, nutritious food and meaningful social contact are currently not being met. Homelessness, for example, often arises from an inability to rent “affordable” units which is in turn linked to the social isolation arising from mental illness and/or drug and alcohol addiction. Health services are not adequate to provide effective treatment. One woman in her 50s doubted the value of a Compassionate Action Plan since even short-term actions under the plan do not

meet her basic need for shelter NOW. Many others, however, saw the benefits of the CAP provided it focuses on realistic ambitions and the pathways to achieve these goals.

3. A comprehensive, collaborative approach across service groups, agencies and concerned individuals is needed to deal with the whole person at risk and to avoid duplication of limited human and financial resources. The fifth area of focus in the Sooke CAP, the need for better communication, awareness, and collaboration, supports development of this comprehensive approach.
4. The awareness component of the fifth area of focus in the Sooke CAP also pertains to the need for recognition of the plight of its less fortunate members by the wider community. Sooke is a good place to live for most but not all of its residents. It is, in some measure, a fragmented community. A revealing statistic is that the average total household income in the District Municipality of Sooke in 2015 was \$81,455 according to the Canada Census. Sooke is no longer a place to find cheap accommodation for single parents, seniors on fixed incomes or the homeless. The importance of the Sooke Food Bank and below market/subsidized housing units to these marginalized residents cannot be overstated. The high costs of land acquisition, labour and materials remain a barrier to further construction of affordable units.
5. Although these challenges exist, much good work is underway in Sooke. It was recognized on March 2nd that progress has been made under certain areas of focus since the October 27, 2018 workshop which led to development of the Sooke CAP. Indications of this progress are:
 - a. the creation of the Sooke Extreme Weather Shelter in February at the Juan de Fuca Electoral Area Administration Building on Otter Point Road. It provided a warm, secure space for the local homeless during the particularly harsh winter conditions that month. The facility was created through the compassionate efforts of Our Place, the Sooke Shelter Society and Mike Hicks, Regional Director for the Juan de Fuca Electoral Area.

- b. the support which Mayor Tait and the Primary Health Services Working Group has secured from the Government of BC and local medical practitioners for expansion of health services in Sooke. The recent hiring of a Community Paramedic for the District of Sooke is already benefitting residents.
 - c. the recent opening of the Knox Vision Society's affordable housing complex (the Knox Centre) with 42 units at Church Road and Wadams Way, with approvals for additional such projects.
 - d. the announcement by BC Housing of 244 units of genuinely affordable housing in the Throup and Drennan Road areas for a broad range of income levels. These include 49 units at the BC Ministry of Social Development & Poverty Reduction's shelter rate (\$375 per person) along with 76 "affordable units" and 109 units at "near-market" rental rates.
6. In terms of improved communications and awareness, participants identified the need for a full-time "navigator" who could serve as a point person and clearing house for information about social services and helping organizations in the Sooke region. It was felt that the Sooke Region Community Health Network (formerly Sooke Region CHI) was the natural home base for such a person, who would be available by phone, online and in person to help Sooke residents "navigate" their way through the options. This person would also feed updated information about Sooke region services to the well advertised BC 211 phone hotline service run by the United Way. The trick will be to source and secure stable long-term funding for this position in an era when the Province of BC has either eliminated these kinds of programs or downloaded responsibility for them to citizens and/or municipal governments.
7. Participants were not asked to commit to short- or long-term actions. The Sooke CAP, if endorsed by the District of Sooke Council and recognized by the Charter for Compassion International, will be a call to action by the community.

Next Steps

1. Presentation of the Sooke CAP, including the finalized Annex, to the District of Sooke Council in late April or early May. The Council's endorsement will be requested on that occasion, as well as consideration for inclusion of the plan in an appendix to the new Official Community Plan for the District of Sooke.
2. Submission of the Sooke CAP, if endorsed by Council, to Charter for Compassion International in May.
3. Recognition of Sooke as a Compassionate Community by Charter for Compassion International in May or June.
4. Community engagement in the compassionate actions under the Sooke CAP with regular reports on implementation of the plan.

Attendees : Sooke Compassionate Action Plan Implementation Workshop

Sooke Baptist Church, Saturday, March 2, 2019, 2:00-4:00 pm

Shirley Alphonse

Jeff Bateman

Don Brown

Doug Cook

Rick Eby

Ken Gorel

Les Haddad

P.G.K. Hamilton

Bruce Hegerat

Liz Johnson

Pauline Johnson
Sifu Koshin-Moonfist
Sue Lidster
Nikki Logins
Elaine McMath
Maxine Medhurst
Brenda Parkinson
Maddison Prinn
Sharon Sterling
Maja Tait
Betty Tully
Jen Wilde
Amelie(?) Wilde
Mark Ziegler

From: Carolyn Mushata
To: Jennifer Royer Collard; Sarah Temple
Cc: Patti Rear
Subject: FW: Delegation to Council
Date: May 1, 2019 2:15:49 PM

Confirmed for the May 13th regular meeting.

From: Jody Hartley [REDACTED]
Sent: May 1, 2019 11:00 AM
To: Carolyn Mushata <cmushata@sooke.ca>
Subject: Re: Delegation to Council

Hi Carolyn.

I would like council to lift or amend bylaws restricting float homes here. Housing prices are crazy... there is little availability for single persons and a dog. Our shorelines, water and marinas are beautiful and could be utilized for off grid float homes. I am not even sure of the bylaw however every single marina in sooke told me NO the municipality does not allow float homes. I wish council to consider off grid float home living in their futures planning and shoreline development easing the housing issues and adding incredible charm to our little Sooke.

Jody

Sent from my iPhone

On May 1, 2019, at 10:29 AM, Carolyn Mushata <cmushata@sooke.ca> wrote:

Hi Jody,

Can you provide me a little bit more detail about what you would like to discuss and what you are requesting of Council, if anything? Thanks.

Carolyn Mushata
Corporate Officer



April 29, 2019

Dear Mayor and Council,

On behalf of Victoria City Council, I am requesting favourable consideration and resolutions of support for climate action through the expansion of public transit ridership. This is a big, bold vision. We don't know how it will be achieved but we do hope that by working together we can come up with some creative approaches to financing fare replacement and service expansion that will be sustainable in the long term. We look forward to working with you on this exciting proposal.

At its April 25, 2019 meeting, Victoria City Council approved the following resolution:

Resolution: Climate Action through a Major Expansion of Public Transit Ridership

WHEREAS local governments in the Capital Region have declared a climate emergency, pledging to achieve carbon neutrality by 2030 to avoid the worst consequences of global warming;

AND WHEREAS emissions from transportation generate the majority of community-based emissions within the region, meaning that switching from private vehicles to public transit has the potential to make a very large impact in achieving carbon neutrality;

AND WHEREAS forward-looking jurisdictions around the world from Kingston, Ontario to Luxembourg and Estonia are eliminating user-fee barriers to public transit ridership, with public transit services paid through the tax system rather than at the fare box.

THEREFORE BE IT RESOLVED THAT the City of Victoria calls on the Victoria Regional Transit Commission and BC Transit to:

1. Embrace determined climate leadership through a major expansion of public transit ridership in the Capital Region, focused on the phasing out of user fees and a substantial improvement in service levels and fleet electrification.
2. Begin implementing this climate-action policy with a pilot programme in the 2020 budget eliminating user fees for people 18 years of age and younger, replacing revenues currently generated through fares with adjustments to provincial transfers and the property tax requisition.

.../2



3. Develop an implementation plan for a pilot programme to eliminate user fees for all riders within the Capital Region as a form of climate action, including enhanced service levels, enhanced transit priority including an extensive network of bus lanes, and fleet expansion to meet increased demand, in conjunction with fleet electrification.

We eagerly look forward to your support on this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Lisa Helps".

Lisa Helps
Victoria Mayor

Cc. Victoria Regional Transit Commission
Mayor and Councils in the Capital Regional District



April 29, 2019

Dear Victoria Regional Transit Commission,

On behalf of Victoria City Council, I am requesting favourable consideration and resolutions of support for climate action through the expansion of public transit ridership. This is a big, bold vision. We don't know how it will be achieved but we do hope that by working together we can come up with some creative approaches to financing fare replacement and service expansion that will be sustainable in the long term. We look forward to working with the Transit Commission on this exciting proposal.

At its April 25, 2019 meeting, Victoria City Council approved the following resolution:

Resolution: Climate Action through a Major Expansion of Public Transit Ridership

WHEREAS local governments in the Capital Region have declared a climate emergency, pledging to achieve carbon neutrality by 2030 to avoid the worst consequences of global warming;

AND WHEREAS emissions from transportation generate the majority of community-based emissions within the region, meaning that switching from private vehicles to public transit has the potential to make a very large impact in achieving carbon neutrality;

AND WHEREAS forward-looking jurisdictions around the world from Kingston, Ontario to Luxembourg and Estonia are eliminating user-fee barriers to public transit ridership, with public transit services paid through the tax system rather than at the fare box.

THEREFORE BE IT RESOLVED THAT the City of Victoria calls on the Victoria Regional Transit Commission and BC Transit to:

1. Embrace determined climate leadership through a major expansion of public transit ridership in the Capital Region, focused on the phasing out of user fees and a substantial improvement in service levels and fleet electrification.
2. Begin implementing this climate-action policy with a pilot programme in the 2020 budget eliminating user fees for people 18 years of age and younger, replacing revenues currently generated through fares with adjustments to provincial transfers and the property tax requisition.

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3. Develop an implementation plan for a pilot programme to eliminate user fees for all riders within the Capital Region as a form of climate action, including enhanced service levels, enhanced transit priority including an extensive network of bus lanes, and fleet expansion to meet increased demand, in conjunction with fleet electrification.

We eagerly look forward to your support on this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Lisa Helps".

Lisa Helps
Victoria Mayor

Cc. Mayor and Councils in the Capital Regional District