CORPORATION OF THE TOWNSHIP OF ESQUIMALT

A G E N D A

ENVIRONMENTAL ADVISORY COMMITTEE MEETING

November 22, 2018
7:00 p.m.
Wurtele Room, Esquimalt Municipal Hall

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1. **CALL TO ORDER**

2. **LATE ITEMS**

3. **APPROVAL OF THE AGENDA**

4. **MINUTES**

   (1) Minutes of the Environmental Advisory Committee meeting, September 27, 2018 — Pg. 1 – 3

5. **NEW BUSINESS**

   (1) Memorandum from Tricia deMacedo, dated September 17, 2018, Re: Environmental Options for Cigarette Butt Disposal (Deferred from the September 27, 2018 Meeting) — Pg. 4 – 31

6. **REPORTS FROM STAFF LIAISON**

   (1) Climate Change Adaptation Planning — Pg. 32 – 35

   (2) Greenhouse Gas Reporting — Pg. 36 – 60

   (3) Green Building Checklist — Pg. 61 – 65

7. **ADJOURNMENT**

CORPORATION OF THE TOWNSHIP OF ESQUIMALT

MINUTES
ENVIRONMENTAL ADVISORY COMMITTEE

Thursday, September 27, 2018
7:00 p.m.
Wurtele Room, Municipal Hall

PRESENT: Lorne Argyle
Paul Helston
Ronn Stevenson
Waheema Asghar
Louise Blight
Councillor Lynda Hundleby (Council Liaison)
STAFF: Tricia deMacedo, Planner 2 (Staff Liaison)
Bill Brown, Director of Development Services
Deborah Liske, Recording Secretary
GUEST: Zoe Melanie Minnaard, Co-Vice Chair, Surfrider Foundation, Vancouver Island Chapter
REGRETS: Susan Low
Brenda Bolton
Councillor Olga Liberchuk (Council Liaison)

1. CALL TO ORDER

Tricia deMacedo, Staff Liaison called the meeting to order at 7:00 p.m.

2. LATE ITEMS

There were no late items.

3. APPROVAL OF THE AGENDA

Moved by Lorne Argyle, seconded by Louise Blight that the agenda of the Environmental Advisory Committee meeting of September 27, 2018 be approved as presented.
The motion **CARRIED**.

4. INTRODUCTIONS

Committee members provided brief introductions.

5. ELECTIONS

(1) Election of Chair and Vice-Chair

The Director of Development Services opened the floor to nominations for Chair.

Waheema Asghar was the only nomination for the position of Chair of the Environmental Advisory Committee and was appointed to the position of Chair of the Environmental Advisory Committee by acclamation.

Chair Asghar assumed the roll of Chair.

Chair Asghar opened the floor to nominations for Vice Chair.

Ronn Stevenson was the only nomination for the position of Vice-Chair. Mr. Stevenson was appointed to the position of Vice-Chair of the Environmental Advisory Committee by acclamation.

6. MINUTES

(1) Minutes of the Environmental Advisory Committee meeting, October 26, 2017

Moved by Lorne Argyle, seconded by Paul Helston that the minutes of the Environmental Advisory Committee meeting of October 26, 2017 be approved as presented.
The motion **CARRIED**.

7. NEW BUSINESS

(1) Council Policies
  (a) Operational Guidelines for Council Committees
  (b) Environmental Advisory Committee Terms of Reference

Ms. deMacedo provided an overview of the committee orientation session, reviewed the Operational Guidelines for Council Committees and the Environmental Advisory Committee Terms of Reference.

(2) Council Strategic Priorities 2015 – 2019
  a) Updated Strategic Priorities Chart (September 2018)
  b) Strategic Priorities Report (2018)

Ms. deMacedo outlined the 2015 – 2019 strategic priorities of Council.

(3) Membership List Contact Information

A confidential membership contact list was circulated for review by committee members. It was requested any revisions be provided to the Recording Secretary.

(4) Agenda Items and Distribution

Items for the agenda must be provided to the Chair and Staff Liaison for review and approval. Council and staff will also refer items to the agenda. Committee members will be advised via email once agendas are posted on municipal website. For those that require, a paper copy of the agenda will be made available at the meeting.

(5) Meeting Schedule Dates and Times

The committee will meet as required, at the call of the Chair on the fourth Thursday of the month at 7:00 p.m. in the Wurtele Room or on an alternate date as deemed necessary to complete the business of the committee.

(6) Zoe Minnaard, Surfrider Presentation, Re: Single Use Plastic Bags

Ms. Minnaard presented a Powerpoint presentation on the work the Surfrider Foundation has done to reduce the use of single use plastic bags, cigarette butts, their effects on wildlife and the environment and why the use of single use plastic bags and cigarette butts should be regulated.

Ms. Minnaard responded to questions from the committee.

(7) Memorandum from Tricia deMacedo, dated September 17, 2018, Re: Options for Single Use Plastic Bag Reduction in the Township

Committee members discussed a recommendation on the regulation of single use plastic checkout bags.

Moved by Louise Blight, seconded by Paul Helston that the Environmental Advisory Committee recommend to Council to direct staff to draft a bylaw to regulate the use of plastic checkout bags in the Township of Esquimalt in combination with engagement of the public, retailers and stakeholders.
The motion **CARRIED**.

Moved by Paul Helston, seconded by Ronn Stevenson that the Environmental Advisory Committee recommend to Council to direct staff to develop a public engagement program that includes providing information and consultation.
The motion **CARRIED**.

Moved by Ronn Stevenson, seconded by Paul Helston that the Environmental Advisory Committee

recommend to Council that the Township of Esquimalt bylaw be based on the City of Victoria single use checkout bag regulation bylaw and / or a combination of other existing bylaws pertaining to single use plastic check out bags.
The motion **CARRIED**.

(8) Memorandum from Tricia deMacedo, dated September 17, 2018, Re: Environmental Options for Cigarette Butt Disposal

Moved by Lorne Argyle, seconded by Louise Blight that item (8) Memorandum from Tricia deMacedo, dated September 17, 2018, Re: Environmental Options for Cigarette Butt Disposal be deferred to the November 22, 2018 meeting of the Environmental Advisory Committee.
The motion **CARRIED**.

8. ADJOURNMENT

The meeting adjourned at 9:28 p.m.

_____ Waheema Asghar, Chair This 22nd day of November, 2018	Certified Correct: _____ Anja Nurvo, Corporate Officer

Township of ESQUIMALT

MEMORANDUM

DATE: September 17, 2018

TO: Environmental Advisory Committee

FROM: Tricia deMacedo, Policy Planner

SUBJECT: Environmental options for cigarette butt disposal

Referral from Council

Operational Strategies 2015-2019: Support revitalization and beautification initiatives along Esquimalt Road.

- **Refer cigarette butt program to Environmental Advisory Committee for recommendations and options.**

Background

Cigarette butts account for a large proportion of the litter found on city streets. Since the implementation of indoor and public area smoking bans, smokers have less access to ash trays and other disposal mechanisms. Many smokers incorrectly believe that cigarette filters are biodegradable, but in fact they are composed of cellulose acetate, a form of plastic that is very slow to degrade in the environment. Additionally, cigarettes contain a multitude of environmental toxins that can be very harmful to wildlife, including aquatic organisms. As most littered cigarettes will eventually find their way through the storm drain system into the ocean, this creates a real environmental problem.

Many options exist for reducing cigarette litter, including collection, recycling, enforcement of anti-littering bylaws, education, additional maintenance etc. Each of these options can be tried in isolation, or in combination. It is very difficult to find information on the effectiveness of each of the options, but one recent study in Australia (for marine plastic debris) suggests that integrated solutions may be most effective and that targeting a specific waste stream (such as cigarette butts) can make a difference (Appendix A).

Collection and Recycling

Several municipalities, including Victoria, have installed cigarette disposal canisters in targeted areas where cigarette litter has been found to be higher than average. In some of these cases, the municipality is partnering with a non-profit organization to run the program. For example, in Kamloops, the canisters are purchased, installed and maintained by the Kamloops Central Business Improvement Association. Victoria's canisters were purchased by the City, but are maintained by the Downtown Victoria Business Association (DVBA). The material deposited in the containers is sent to TerraCycle, a company which recycles cigarettes and cigarette packaging. TerraCycle pays for the material (by weight) back to the organization. The DVBA has opted to send their cheques directly to Surfrider. In its first year of operation, Surfrider estimates that over one million butts have been collected.

In Vancouver, United We Can is responsible for maintaining the containers and shipping the material to TerraCycle. United We Can is a non-profit employment agency that hires downtown eastside residents exclusively.

Physicians for a Smoke Free Canada (PSFC) has taken a strong stand against any public 'ashtray' programs such as the ones in Victoria and Vancouver. Their rationale is that receptacles re-normalize smoking in public areas by creating a zone where smokers congregate, creating areas of second hand smoke for other members of the public. In addition, TerraCycle is funded primarily by the tobacco industry. Finally, PSFC questions the effectiveness of the canisters at actually reducing litter (Appendix B).

Surfrider reports that two other issues have developed with the canisters in Victoria. Most of the canisters had to be moved, as they were installed within the no-smoking zone enforced by the CRD and smokers were congregating within the no-smoking zone. The Clean Air Bylaw 3962 requires that all smoking outdoors must be at least 7 m from a window, door or air intake. A second issue was vandalism of the canisters by people wishing to salvage cigarette butts to smoke.

Collection and Disposal

Another disposal option is personal pocket ashtrays, which are small, closed containers that the smoker can keep on their person and dispose of the ashes at home or in a proper receptacle. Edmonton and Vancouver are promoting the use of these pocket ashtrays as part of their litter reduction strategy (Appendix C). Cigarette butts are considered regular household garbage by the CRD and are accepted at Hartland as such. Garbage cans with built-in ashtrays are available and could be used in place of the existing garbage cans emptied by Public Works crews. More regular street sweeping could also take place in 'hotspots' around the municipality. These options will have resource implications for Engineering and Public Works.

Education Programs

Many more municipalities are fighting cigarette litter through educational campaigns. Clever slogans, hashtags and posters are used to promote responsible disposal and de-normalize butt tossing. Examples include: #ButtfreeYYC (Calgary), Hold on to Your Butts! (Surfrider), Don't be a Tosser (Australia) etc. (Appendix D). However, like any public education campaign, the educational message must be continual as a one time effort is unlikely to elicit long-term changes in behaviour.

Deposit Programs

The Physicians for a Smoke-Free Canada have proposed a provincial deposit system for cigarettes based on the beverage container model already in use for decades. Their proposal is outlined in Appendix B. Council has endorsed this strategy by forwarding a resolution to the 2016 UBCM which was in turn forwarded to the Province for their response (Appendix E).

Options for Recommendations to Council

1. Do nothing.
2. Have staff further investigate the extent of the problem within the municipality and report back on this to the Committee before taking any further steps.
3. Have staff prepare a report on the feasibility of establishing a cigarette collection program in the municipality.
4. Engage a third party to prepare and deliver an outreach program on cigarette litter.
5. Another approach, or combination of approaches.

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Communication

Cigarettes Butts and the Case for an Environmental Policy on Hazardous Cigarette Waste

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Abstract: Discarded cigarette butts are a form of non-biodegradable litter. Carried as runoff from streets to drains, to rivers, and ultimately to the ocean and its beaches, cigarette filters are the single most collected item in international beach cleanups each year. They are an environmental blight on streets, sidewalks, and other open areas. Rather than being a protective health device, cigarette filters are primarily a marketing tool to help sell 'safe' cigarettes. They are perceived by much of the public (especially current smokers) to reduce the health risks of smoking through technology. Filters have reduced the machine-measured yield of tar and nicotine from burning cigarettes, but there is controversy as to whether this has correspondingly reduced the disease burden of smoking to the population. Filters actually may serve to sustain smoking by making it seem less urgent for smokers to quit and easier for children to initiate smoking because of reduced irritation from early experimentation. Several options are available to reduce the environmental impact of cigarette butt waste, including developing biodegradable filters, increasing fines and penalties for littering butts, monetary deposits on filters, increasing availability of butt receptacles, and expanded public education. It may even be possible to ban the sale of filtered cigarettes altogether on the basis of their adverse environmental impact. This option may be attractive in coastal regions where beaches accumulate butt waste and where smoking indoors is increasingly prohibited. Additional research is needed on the various

policy options, including behavioral research on the impact of banning the sale of filtered cigarettes altogether.

Keywords: cigarette litter; waste; butts; smoking; filters; environment

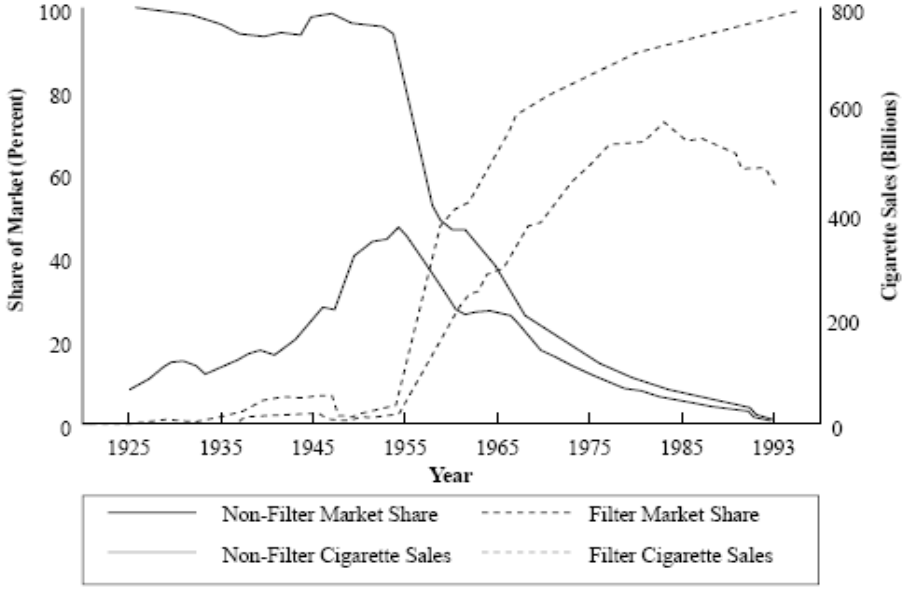
1. The History and Function of Cigarette Filters

The cellulose-acetate filter was added to cigarettes in the 1950s in the wake of increasingly convincing scientific evidence that cigarettes caused lung cancer and other serious diseases [1]. Filters were found to reduce the machine-measured yields of tar and nicotine in smoked cigarettes, and at first this seemed to be a healthy technological improvement in the cigarette product. In 1966, a review by the US Public Health Service concluded that, "The preponderance of scientific evidence strongly suggests that the lower the 'tar' and nicotine content of cigarette smoke, the less harmful would be the effect." Following this report, both Government and tobacco industry scientists conducted studies of cigarette manufacturing and tobacco cultivation that could lead to lower "tar" and nicotine yields. Cigarette manufacturers promoted such products, especially filtered cigarettes, through advertising that included an implied health claim for 'safer' cigarettes. Some epidemiological studies have alluded to reduced health impacts attributable to lower tar- and nicotine-yielding cigarettes [2,3]; in fact, the sales-weighted averages of these constituents in cigarettes has dramatically declined over the last 50 years. Nevertheless, smokers who switched to these low-yield brands did not substantially alter their exposure to tar and nicotine because of compensatory smoking (deeper and more frequent puffing, plugging ventilation holes on filters, etc.) and the changes in the way cigarettes were manufactured. To address this confusion, the National Cancer Institute undertook a comprehensive review of low-tar and low-nicotine yielding cigarettes' potential health benefits. Its 2001 *Monograph 13, Risks Associated with Smoking Cigarettes with Low Machine- Measured Yields of Tar and Nicotine*, [4] concluded that "Epidemiological and other scientific evidence, including patterns of mortality from smoking-caused diseases, does not indicate a benefit to public health from changes in cigarette design and manufacturing over the last fifty years." In addition, a 2006 US Department of Justice ruling against the tobacco companies, at present stayed and pending appeal, "bans terms including "low tar," "light," "ultra light," "mild," and "natural" that have been used to mislead consumers about the health risks of smoking and prohibits the tobacco companies from conveying any explicit or implicit health message for any cigarette brand" [5]. Over the last 50 years, smokers switched almost entirely (99%) to filtered cigarettes (Figure 1), and nearly all of these sold in the United States are made of cellulose acetate, a plastic product [6].

Filters likely discourage many smokers from making the quit attempt because they still cling to the belief that filtered cigarettes are protective of their health; thus, filters may have overall a detrimental effect on population health. Filters are a rod of about 12,000 fibers, and fragments of this material become separated from the filter during the manufacturing process and may be released during inhalation of a cigarette. It has been reported in tests on 12 popular brands that fibers are inhaled and also ingested, and filter fibers have been reportedly found in the lung tissue of patients with lung

cancer [7]. Furthermore, consumer preference for filtered cigarettes may have been associated with a histological shift in predominant lung cancer type from squamous cell to the more aggressive adenocarcinoma cell type [8].

Figure 1. Market share and sales of filtered and non-filtered cigarettes in the United States, 1925-1993.



Source: US National Cancer Monograph No. 13, 2001 [4]

Currently, cigarette manufacturers are contemplating and test marketing additional "reduced harm" products, including new types of filters that may reduce toxic constituents in cigarette smoke (these new filters also contain cellulose acetate as well as new filter materials) [9]. Nonetheless, filters continue to be primarily a marketing tool to help sell cigarettes.

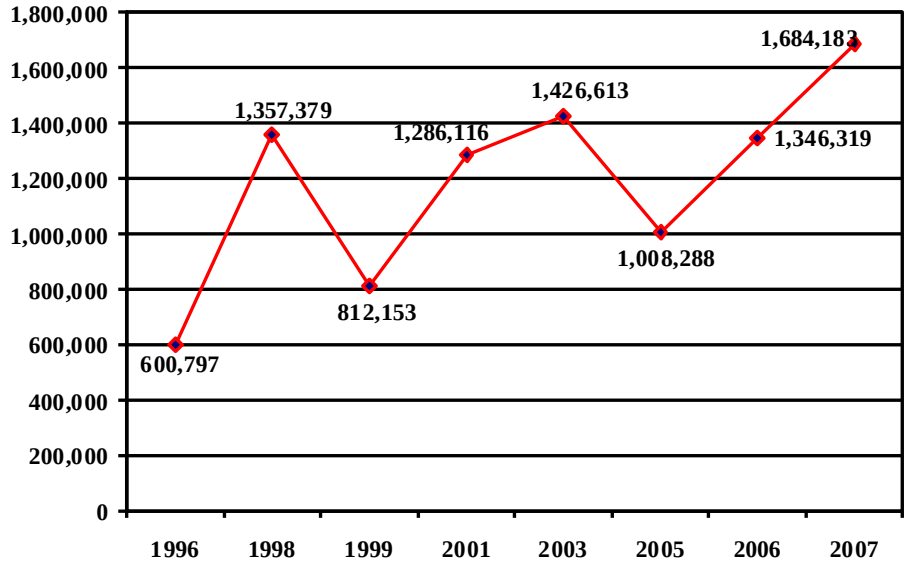
2. The Environmental Problem of Cigarette Butts

Whatever their direct health impact on or benefit to smokers, cigarette filters pose a serious litter and toxic waste disposal problem. Cellulose acetate is photodegradable but not bio-degradable. Although ultraviolet rays from the sun will eventually break the filter into smaller pieces under ideal environmental conditions, the source material never disappears; it essentially becomes diluted in water or soil [10,11].

While the environmental impact of a single disposed cigarette filter is minimal, there were 1.35 trillion filtered cigarettes manufactured in the United States in 2007, and of these, more than 360 billion were consumed here [12]. About 680,000 tons of cellulose acetate was used in the production of these filtered cigarettes. With 5.6 trillion filtered cigarettes consumed worldwide in 2002, and nine trillion expected by 2025, the global environmental burden of cigarette filters is also significant [13]. It is estimated that 1.69 billion pounds (845,000 tons) of butts wind up as litter worldwide per year [14].

Most attention has been given to the cigarette butt waste problem because of the filters that end up on beaches. The annual Ocean Conservancy's International Coastal Cleanup (ICC) reports that 'cigarette butts have been the single most recovered item since collections began' [15]. Although volunteers collected 1,684,183 cigarette butts (33.6% of all debris) in the 2007 US Cleanup (Figure 2), these data likely underestimate total discarded filters. For example, a comprehensive cleanup in Orange County, California, yielded 20 times more butts than the estimated ICC total for that beach for the same year [16].

Figure 2. Cigarettes and Cigarette Filters Collected in the United States in the International Coastal Cleanup, 1996-2007. Source: Ocean Conservancy 2007.



The cigarette butts recovered from beaches are not necessarily due to cigarettes that are smoked on them. Butts are dropped on sidewalks or thrown from moving cars; they then move to the street drains, and thus to streams, rivers, and the oceans. In addition, since the early 1980s there has been increasing concern about the health consequences of passive smoking, and thus more smoking occurs outdoors, likely contributing to this chain of events. As a consequence, cigarette butts become unsightly and difficult-to-remove waste in multiple locations, including streets, storm drains, streams, and beaches. In a review of litter cleanup project reports, the *Keep America Beautiful Campaign* reported that cigarette butts comprise from 25 to 50 percent of all collected litter items from roadways and streets. One report from a college campus estimated the cost of cigarette litter cleanup at $150,000 for a single, two-week-long effort. No other economic impact studies have been reported [17]. Their non-biodegradability means that they also increase landfill demands, add costs to municipalities' waste disposal programs, and create environmental blight in public spaces.

Discarded cigarette butts are not only unsightly; they are also toxic in and of themselves. Environmental groups have expressed concern for marine creatures that ingest littered filters [18,19]. A 2006 laboratory study found that cigarette butts were found to be acutely toxic to a freshwater cladoceran organism and a marine bacteria (microtox) and that the main cause of toxicity was attributed to nicotine and ethylphenol in the leachates from cigarette butts [20]. A 1997 report from the

Rhode Island Department of Health reported 146 cases of cigarette butt ingestion among children < 6 years old; of these, approximately one-third displayed transient nicotine toxicity [21]. Even if properly disposed, cigarette butts are hazardous solid waste. It is unknown as to how many must be consumed to cause adverse health effects in marine animals such as birds or mammals.

3. The Tobacco Industry Response

In the 1990s, market research prompted cigarette manufacturers to recognize that environmental concerns about discarded butts might become more important to consumers and policymakers. A 1992 Philip Morris USA internal memo identified cellulose acetate filters as non-degradable material and reported that Eastman Chemical Products Company and Celanese Fibers Company were conducting research on cellulose acetate degradation [22]. Alternatives to the cellulose acetate filter were also pursued by Brown & Williamson Tobacco Company [23] and RJR, whose 'Degradable Team' reported in the minutes from an April 4, 1996, meeting that it had tested five biodegradable filter prototypes in sensory evaluation tests. However, these filters were found to be unacceptable to smokers: "all products had greater artificial lit aroma, less tobacco taste, more artificial taste, more generic taste, less sweet, more bitter, less tobacco aftertaste, greater bitter, non-tobacco aftertaste and greater drying."[24]. In 1998, RJR scientists filed a US patent on a "degradable smoking article" that utilized dissociable cigarette parts to accelerate disintegration by increasing exposure of surface areas to "natural elements". However, their research found that the disintegrated filter components were still deposited in the environment as small particles [25].

CORESTA, the tobacco industry's international research organization, formed a 'Cigarette Butt Degradability Task Force' in the early 1990s to "develop a test to determine the rate of degradability of a complete cigarette butt" [26]. The task force's membership of cigarette makers, filter suppliers, paper manufacturers, and adhesive companies displayed extensive interest in biodegradability research. If a biodegradable filter were marketable, these industries would reap significant financial benefits through a new marketing tool that would help smokers identify themselves as environmentally friendly. However, the task force's final report stated that their objective "was made more difficult by the fact that most of the available reference work supported efforts to enhance stability not degradability, and were applied to single component products, not systems composed of different types of materials". The task force disbanded in 2000 after CORESTA found that it was "unlikely that the level of interest could justify the scale of the effort", which would require more data collection and the development of instrumentation to establish a standardized test for cigarette filter degradation [27].

In 2000, Philip Morris' consumer research on cigarette litter found that the issue was not "top of mind" for smokers, that there is ritualized behavior in the disposal of cigarette butts, and that "adults who choose to smoke need convenient alternatives to cigarette disposal" [28]. As a result of this research, Philip Morris proposed distribution of convenient disposal receptacles and direct communication with smokers to encourage them to dispose of butts in an environmentally conscious manner. Subsequently, Phillip Morris became one of the major supporters of the *Keep America Beautiful Campaign* ([KAB] a non-profit, grass roots organization), which encourages individual responsibility for proper butt disposal and other wastes [29]. However, there are no evaluation data on

the effectiveness of such campaigns in reducing butt litter. It may be that Philip Morris' interests lie primarily in shifting the responsibility for butt waste to the consumer; KAB's efforts focus on public education and increasing availability of butt receptacles, including hand held ashtrays; its campaigns support Philip Morris' corporate social image [30]. In 2007, it received a $3 million grant from Philip Morris USA for its butt litter campaigns [31].

The tobacco industry has considered this problem further with some of their own research on filter degradability. Philip Morris documents described "Project Natural" at the 1990 Philip Morris International Marketing Meeting, where the litter issue and the problems with filter degradability were discussed. The presenter stated: "to avoid this problem, the simplest solution would be to eliminate the filter! But this of course would defy consumer preference and make it difficult to control tar and nicotine levels" [32].

In a 2006 Stakeholder analysis and response project, RJR described these internal and industry-sponsored programs as mainly to develop test methods that define the photo, water and biological degradability of existing and new materials. RJRs final message to stakeholders was, "Our opinion is that the *current state of the art in material technology has not produced a material that is commercially feasible*. While some degradable materials have been identified, they are unsuitable because of poor taste, short shelf-life and physical instability during smoking, manufacturability and/or material variability. The company is continuing to look at all technological solutions to biodegradability" (emphasis added) [33].

Currently, there is no evidence that the industry has developed a marketable, degradable filter. However, one biotech company (Stanelco) has developed a food-starch-based filter and has appointed Rothschild International, to develop and test this device for possible widespread adoption [34]. Starch used in the filter is essentially a carbohydrate polymer found in foods such as potato and rice. The biodegradability of such filters could theoretically reduce the environmental impact of butt waste by being compostable. Stanelco has touted this filter as not only eco-friendly but 30 to 50% cheaper than cellulose acetate filters at bulk prices. Compared with cellulose acetate filters, the company claims that starch-based filters may also have health effects because smokers will not be exposed to "fall-out" of cellulose acetate fragments entering the lung through inhalation [35]. Even with starch-based composition, these filters may take two months to biodegrade, and they would still release toxic filtrates into the environment when they do so.

4. Community and State Response

In response to the issue of cigarette butt litter, some municipalities have banned smoking on beaches, including in Chicago, San Diego, and other areas (Table 1). These bans are widely seen as a good first step to controlling butt waste, but because of the runoff from streets to waterways to ocean, they will not eliminate them from beaches. Butts despoil these heavily used public spaces, which then become the responsibility of the state and local authorities to clean up. In California, a law that would ban smoking on all 64 state-run beaches and State Parks in California failed by two votes in 2004 in the state Senate and is currently under consideration again [36]. There appears to be considerable

interest in beach smoking bans, mainly at the local level, where responsibility for cleanup resides. Detailed cost analyses and impact assessments on such bans are as yet lacking.

Table 1. Smoking bans on beaches by State and Municipality, United States, 2008.

State	Municipality
California	Albany, Belmont, Calabasas, Capitola, Carmel, Carpinteria, Del Mar, El Cajon, El Segundo, Encinitas, Hayward, Hermosa Beach, Imperial Beach, Laguna Beach, Loma Linda, Los Angeles, Los Angeles County, Manhattan Beach, Monterey, Morro Bay, Novato, Oceanside, Pacific Grove, Pacifica, Palos Verdes Estates, San Diego, San Mateo County, Sand City, Santa Cruz, Santa Monica, Seal Beach, Torrance
Florida	Jupiter Island
Hawaii	Hawaii County
Iowa	Des Moines, Johnson County
Illinois	Chicago, Highland Park, Lake Forest, Wilmette
Massachusetts	Abington, Braintree, Grafton, Holliston, Sharon, Tyngsborough, Upton, Westford
Michigan	Grand Haven Township, Howell, Ottawa County
Minnesota	Battle Lake, Bloomington, Buffalo, Fergus Falls, Hennepin County, Hoffman, Ramsey County, Washington County
New Hampshire	Gilford, Windham
New Jersey	Brick Township, Dover Township, Lavallette Borough, Mount Arlington Borough, Seaside Park, Ship Bottom Borough, Surf City Borough
New York	Kingston
Puerto Rico	Puerto Rico
Rhode Island	Westerly
South Carolina	Surfside Beach
Utah	Davis County
Washington	Lake Stevens
Wisconsin	Madison

Source: Personal communication, B. Frick, Americans for Nonsmokers Rights, December 2008

5. Policy Options to Reduce the Environmental Impact of Cigarette Butt Litter

Our previous report [37] established the environmental externalities of smoking, focusing on the enormous number of butts reported in international beach cleanups and on the hazardous wastes resulting from cigarette manufacturing processes. There is precedent for enacting state and local regulation to protect the environment from non-biodegradable solid waste from consumer products; we suggest several models for possible action against cigarette butt waste.

5.1. Labeling

Some products carry warnings printed on them advising consumers not to litter the packages or the product (aluminum cans, bottles, plastics, etc). This has never been proposed as a means of warning smokers about the non-biodegradability of filters (or of package litter). A warning label of sufficient

size could be required as part of the proposed FDA regulatory authorization that simply states: "Cigarette filters are non-biodegradable hazardous waste. Disposal of filters should be in accordance with state law" (with appropriate state law requirements included on each package sold in the each state). These could go on to describe potential human toxicity, methods for safe handling, etc.

5.2. Deposit/Return

In the 1970s, Oregon and several other states introduced "bottle bills" as a way to reduce the hazards, clean-up costs, and waste of discarded glass containers (mostly from beverages). Deposit/recycling laws have been implemented around the world, in fact. These laws mandate that consumers pay a deposit when they purchase specified items which will be returned when the container is returned. The Oregon law is credited with reducing litter and increasing container recycling, with return rates of up to 90%. The Oregon Department of Environmental quality reports that discarded items covered by the laws were reduced from 40% of roadside litter collected to 6% [38]. In South Australia, there has been similar success with bottle bills and electronics [39]. Similarly, cigarettes could be sold with a "butt deposit" to be refunded when the pack is returned to the vender with the butts. As with bottles and cans, this could spark both more care on the part of smokers and provide income to others who retrieve any butts that smokers discard. It would also increase the opportunity costs of smoking, thus perhaps having a salutary effect on reduced cigarette consumption.

5.3. Waste Tax

Concern about toxic waste resulting from technology products such as computers, telephones, and televisions, has given rise to legislation implementing a consumer funded Advanced Recycling Fee (ARF); this is assessed at the point of purchasing electronic products [40]. These fees are intended to pay for the costs of recycling the item and disposing properly of any non-recyclable material. The fees are minimal (compared to the cost of the products), ranging from $6 to $10. Of note, this system functions with complete support of the manufacturers themselves, with core principals calling for shared responsibility. Adding a waste *fee* to cigarettes is another possibility, and the funds collected could be used to mitigate environmental consequences and to fund research on butt waste. A fee or tax has the added advantage of increasing costs of cigarettes, thereby reducing consumption. Such fees would have to be supported by careful litter audits and economic costs of cleanup studies.

5.4. Litigation

To date, most litigation against the tobacco industry has focused on the health costs that others (individuals, insurance companies, states) end up paying as a result of cigarette consumption. Similarly, the industry could be held responsible for environmental impacts associated with the sales of their product. In addition, although the tobacco industry has yet to produce a commercially viable biodegradable filter, it may be that there is a technological solution which has so far not met economic requirements. Litigation may change that equation.

Litigation has been pursued against manufacturers of products that damage the environment. In fact, entire communities have filed class action lawsuits to sue polluters, and these cases are typically based on two tort theories: negligence and nuisance. Negligence is a tort theory that permits someone who is injured by another's unreasonable conduct to recover money damages. The primary element of a successful negligence case is proof of the defendant's wrongful conduct, or failure to take reasonable steps to prevent the harm. Nuisance is a tort theory that protects someone's right to use and enjoyment of their real property [41]. Settlement of these cases sometimes requires abatement as well as restitution. Interesting to note is that the responsibility of hazardous waste abatement may include the waste generator who is in part responsible for the waste handler's actions. Thus, if the handler does a poor job and pollutes the environment, the generator may be responsible for cleanup. One could imagine beach communities in particular resorting to litigation to hold accountable the waste generator (in this case the cigarette manufacturers) for the action of the waste handler (the smoker).

5.5. Fines

Fines are levied by local communities for violations of smoking bans on beaches and in enclosed places. Fines for littering may be as high as $1,000 in some states if the littering subject can be observed and cited by authorities. Fines could also be levied by states (or municipalities) against cigarette manufacturers based on the amount of cigarette waste found either as litter or as properly disposed waste. These fines would at least partially compensate for the costs of cleaning up and disposing of cigarette waste; they would certainly be passed along to consumers, thus increasing the costs of smoking and reducing consumption.

5.6. Mandatory Filter Biodegradability

Food and Drug Administration (FDA) Regulation of Tobacco products is now being considered for authorization under the US Senate *Family Smoking Prevention and Tobacco Control Act* (already passed by the House of Representatives and not approved in the Senate). If passed, this act would:

- Empower the FDA to establish a periodically re-evaluated content standard, and require changes in tobacco products to meet the standard.
- Grant the FDA authority to require changes in current and future tobacco products to protect public health, such as the reduction or elimination of harmful ingredients, additives and constituents, including smoke constituents.
- Empower the FDA to reduce nicotine yields to any level other than zero (reserved to Congress). This means the FDA can reduce nicotine to minimal levels, including levels that do not lead to addiction.
- Authorize the FDA to require the reduction or removal of harmful or potentially harmful constituents to protect the public health [42].

Clearly, this legislation would have implications for states that hope to regulate tobacco products in any way, and there is concern among tobacco control advocates as to whether such regulation would pre-empt state actions. However, there is already precedent for state regulation of tobacco projects.

Cigarettes are regulated by 22 states to be fire safe if sold in a specific state. Canada has become the first nation to mandate the sale of fire-safe cigarettes [43]. State legislation to mitigate a significant non-point-source of environmental pollution may be an effective means of either prohibiting the sale of cellulose-acetate filtered cigarettes or mandating that only biodegradable filtered cigarettes could be sold in the state.

5.7. Ban Disposable Filters

Some products known to be hazardous or prone to improper disposal have simply been banned entirely from sales and distribution. For example, pop-tops on aluminum cans [44], which were frequently littered and caused injury when stepped on, and plastic tampon applicators, which even when disposed of properly tended to wash up on beaches [45] were regulated by state laws. Thus, States could simply ban the sale of filtered cigarettes if these were to be considered as an environmental problem. This controversial proposal requires further research to determine its potential individual and population health impacts. There may in fact be significant positive behavioral impacts in reducing smoker's consumption of unfiltered cigarettes or reducing initiation among children.

5.8. Consumer Education and Responsibility

There are several grass roots organizations and websites addressing the issue of cigarette butt waste, both in the United States and elsewhere around the world (Table 2). These focus primarily on consumer education and responsibility to dispose of butts properly. Many, such as KAB, may be funded by the tobacco industry [46]. However, it is an accepted notion in health behavior science that human behavior changes only slowly if at all unless there are costs, benefits, and social norms to support these changes. Butt littering is for the most part an ignored behavior among smokers; it may even be a part of the smoking ritual. Added to this is the now widespread regulation of indoor smoking, which causes smokers to retreat to the street and sidewalk where there may be no butt receptacles. The question arises as to the responsibility to provide suitable receptacles. Should these be the property owner, the city or county, or should there be requirements for all smokers to carry hand-held ashtrays? If they did carry and use these, how would disposal of the ashtray contents be regulated or assured?

Table 2. Environmental Groups Concerned with Cigarette Butt Waste.

Organization	Main Focus	Website
Surfrider Foundation	Clean Water, Beach Access, Beach Preservation and Protecting Special Places	http://www.surfrider.org/a-z/cig_but.php
Earth Resource Foundation	Environmental Education	http://www.earthresource.org/events/hotyb-current.html
Clean Virginia Waterways	Waterway cleanup	http://www.longwood.edu/cleanva/cigarettelitterhome.html
Ocean Conservancy	International Coastal Cleanup	http://www.oceanconservancy.org/site/PageServer?pagename=icc_home
Queensland Litter Prevention Alliance	Anti-litter advocacy	http://www.qldlitter.com/litter_facts.php
ButtsOut	Personal Ashtrays	http://www.buttsout.net/UK

Public information campaigns that involve all stakeholders will be important no matter what the policy approaches to controlling butt waste. Public enforcement of littering regulations will follow changing social norms. Increased regulatory activity at the state and local level will follow raised awareness of the butt litter problem. Increased publicity about 'green' behavior may affect the littering behavior of smokers. Added to this are fines, fees, and other economic disincentives, and smokers may change behavior even more. One thing is certain, however: when cigarette consumption decreases as a result of reduced prevalence of smoking, butt waste decreases. In the last ten years, the per capita consumption of cigarettes declined almost 20% in the United States [4].

6. Discussion

Cigarette butts are undoubtedly an environmental problem causing blight on beaches, streets, sidewalks, waterways, and public spaces. Most of the policy approaches proposed above would likely have two benefits to health and the environment. First, they would likely increase the costs of cigarettes to consumers, as manufacturers would pass along the costs of taxes, fees, litigation, or new production technology. Increasing the price of smoking is a well-established way to reduce smoking [47]. Even a returnable deposit, if large enough, might deter some from starting to smoke, since it would require a larger initial outlay. Reduced smoking rates would in turn lead to fewer discarded butts. The health consequences of changing or removing filters from the market altogether are not known. However, the possibilities range from improved population health due to decreased consumption (if smokers were induced to quit by the absence of their preferred cigarettes, and the loss of the psychological "safety" of filters); worse population health (if smokers continued to smoke unfiltered, somewhat more hazardous cigarettes); or unchanged population health (if new products created in response to these regulations replaced filtered cigarettes, or if filters are confirmed to have no appreciable health benefits). New products might include cigarettes with toxins removed in some other way, or the introduction of non-disposable, reusable filters. Under the new FDA regulations that may be authorized by Congress, changes in the tobacco products would need to undergo FDA review.

Second, adoption of these policies would mean no longer allowing the industry to externalize the costs of the cleanup of butt litter. The current industry approach (as with its historical approach to the direct health consequences of smoking) is basically to 'blame the victim'. In this context, the smoker is the litterer and thus it is his or her responsibility to take care of the butt disposal. However, it is clear that municipalities, businesses, states, voluntary groups, and other external bodies bear the brunt of most butt waste cleanup costs.

Although some aspects of tobacco product policy in the United States are reserved for the Federal government (for example, labeling), others are clearly in the camp of state or local intervention. For example, states are increasingly requiring that cigarettes sold be designed for Reduced Ignition Propensity (RIP), to reduce fire risk. Pollution mitigation fees can be charged at numerous governmental levels. It is clear that under current conditions Federal authority is not required to adopt state or local policies aimed at reducing cigarette litter and waste.

There may be drawbacks or unintended consequences to many the policies to control butt waste. Would biodegradable filters make smoking more acceptable, or allow cigarette companies to tout their products as "green"? Would states or municipalities come to rely on taxes, fines, or fees, and therefore be reluctant to impose new tobacco control laws that might reduce revenue? Would the negative health consequences of banning or changing filters outweigh the behavioral changes anticipated in removing them from the market? Clearly, more research is called for on many of these issues, especially on the behavioral effects on smokers and potential smokers, and on the economic impact of butt waste cleanup.

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A Provincial Deposit – Return Program for Cigarettes

A well structured program can protect the environment and overcome the deficiencies of public ashtray programs.

Cigarette butts are the leading source of litter, both by number and weight, both in Canada and worldwide, where billions are littered daily. They are unsightly, non-biodegradable and toxic to the environment. They are increasingly getting the attention that they deserve as an environmental concern.

Awareness and enforcement campaigns are ineffective and/or impractical, therefore recently public ashtray-equivalent-based programs have been proposed. This tactic is supported by the tobacco industry and clean-up groups, who often do not see any problem in partnering with them.

A pilot program of such is currently underway in Vancouver, yet is not succeeding (estimated 3% to 6% efficacy) with multiple butts seen not only meters away from the "receptacles", but even directly below them. A properly designed deposit-return program will likely be much more effective as it relies only on personal financial self-interest, and not any plea to "do the right thing".

Ashtray programs are bad for public health.

1 By nature, these programs counter a principal public health tenet - the denormalization of tobacco use. Government programs should aim to lessen the visibility and acceptability of the tobacco industry and smoking. The widespread presence of ashtrays (Vancouver's ultimate plan was for 2000 of them) imply tacit government consent, acceptance and even approval of widespread smoking in public. They strengthen the impression that smoking is common, and create smoking zones in public places. Such re-normalization of smoking is directly aligned with the strongest interests of the tobacco industry.

2 Many of these ashtrays are placed within no-smoking buffer zones around doorways etc.. This ridicules and encourages violations of, hard-fought for, City Health Bylaws.

3 These programs often involve partnering with the tobacco industry (as initially was the case in Vancouver, albeit indirectly). This is inappropriate and runs counter to government obligations under Canada's participation in the WHO Framework Convention on Tobacco Control .

Deposit-Return Programs can support public health objectives.

1 Tobacco litter serves as free, albeit perverse, advertising for the tobacco industry, possibly just the sort that appeals to rebellious teenagers, the highest risk group for starting.

2 Tobacco litter serves as withdrawal triggers/reminders to all smokers, and especially those trying to quit.

3 Tobacco litter in places where smoking is prohibited (eg: building entrances, park benches) is used as an excuse by the next potential smoker to break the bylaw as well, knowing that so many others have previously ignored it.

4 Although (in this proposal) fully refundable, the increased up-front cost of purchasing a pack, as well of the inconvenience of needing to return it to a depot, will likely dissuade some smokers/potential smokers from the purchase.

134 Caroline Avenue ♦ Ottawa ♦ Ontario ♦ K1Y 0S9
Tel: 613 600 5794 ♦ www.smoke-free.ca ♦ psc @ smoke-free.ca

DESIGN PRINCIPLES:

Deposit: this must be large enough to dissuade most smokers from actually littering. We would suggest $1 per package or $0.05 per cigarette butt.

Fully Refundable: on return of the pack with all 20 used (or preferably unused!) filters. It is important to be able to state that this is not an additional tobacco tax in order to help foster public consent for the program.

Return: this should be done at central depots. This will decrease the visibility of smoking and of tobacco litter, thereby furthering the public health mandate of denormalizing the tobacco industry.

(In British Columbia, Encorp Pacific, http://www.return-it.ca is a federally incorporated, not-for-profit, product stewardship corporation with beverage container management as their core business, who are also charged with collecting multiple other products. They have 172 locations across the province and would seem an obvious fit. It is likely that individuals will spontaneously design business arrangements whereby they collect and return multiple packs from other smokers for a small percentage of the return; we see no reason to discourage such.)

Recycleability: it should be recognized that being able to recycle the butts is an added bonus, and not necessary to the usefulness of the program. Even if all the butts were to end up being placed en-masse in a landfill, this would be infinitely better than billions entering sensitive areas of the environment individually.

(Currently, to our knowledge, TerraCycle is the only company recycling cigarette butts, and they do so in open partnership with the tobacco industry. We recommend that the government either develop their own recycling facility, or consider partnering only with private companies willing to forgo all ties with the tobacco industry. Whether TerraCycle would have the capacity to handle the considerably increased volumes that would be generated via a deposit-return program is unknown.)

Portable ashtrays: these cost very little, and their use can be encouraged as a means to extinguish and transport the butts before placing them in the packs. In reality a few seconds care in extinguishing the butt and a plastic baggie is all that is required. Alternately the packs could easily be redesigned with a foil pocket in order to serve as their own portable ashtrays from the beginning.

Marking of packs eligible for return: cigarette packs are already marked by provincial origin and multiple options are available to enhance such including stamps, bar codes, and other electronic means. This will lead to the packs themselves as the functional holders of most of the deposit value, and therefore any littered packs will become quite valuable, as they could be filled up with any 20 littered butts for a full refund (such is not a problem as ultimately the same end will result).

Return of “orphaned” littered butts: these should also be considered for refund, however at a much lower rate, We suggest 1¢/butt. This should be done in bulk by dry weight.

A pilot project run by WestEnd Cleanup June 18, 2013 proved that this will work, and gathered widespread media attention and approval (as proof of principle for a deposit-return program and a call for such), collecting 60 000 butts in several hours by paying $20/ pound of butts, calculated to be 1¢ each.

Including this component will virtually guarantee that almost all cigarette litter will rapidly disappear one way or the other. This also provides a small source of income for many disadvantaged individuals, although such should not be viewed as the principal goal of the program (having the butts not be littered in the first place is). The lower rate of return is necessary in order to prevent a degree of inevitable cheating from bankrupting the system, as we see no way to prevent such cheating (both attempts to mix in non-cigarette litter, and the return of non-eligible butts from other sources).

There should also be a maximum weekly return of these, such as 7lbs/wk/individual, and names/addresses should be recorded in order to discourage organized cheating. We would also suggest that the roll-out of this aspect of the program occur only following a 3-6 month delay for two reasons: Firstly, so that the percentage of marked packs being returned can be assessed; if it is very high (~95%?) then there would be less need for this component, and also both a tendency for a greater percentage of cheating, and less available funds to cover such. Secondly there should be time for an attempt to clean up butts pre-existing from before the deposit program was initiated as, of course, all such butts will not have been covered by any deposit.

Funding: with the above details the program would be ahead 4¢/ littered butt, this should be enough to both cover cheating (even if an unimaginable 50% by weight, the program would still be ahead 3¢/ littered butt), and administration costs. Therefore, after start-up, the program should be self-funding. There also will be some income from the temporary holding of funds. Should the above calculations fail, the program could be modified to claw back a small percentage of the deposit. Current efforts to clean up tobacco litter are quite expensive- estimated at over $7 million/yr by the City of San Francisco.

Anticipated Volumes: according to Propel's Tobacco Use in Canada[1] British Columbia has 515,000 smokers, who smoke an average of 12.9 cigarettes per day, suggesting a daily consumption in this province of 6.6 million cigarettes or 330,000 packages.

The following calculations obviously make multiple assumptions, but should serve as a useful guide:

- If all eligible and returned in full packs, the above would translate to $330,000 in deposit funds collected daily, or $120 million in a year.
- If there were 172 depots, each would be expected to handle on average 1,900 packages per day, providing $1,900 in refunds.
- Most customers could be assumed to batch packs and return them on an infrequent (say monthly) basis, resulting in about 65 transactions per depot per day.

The tobacco industry should not be involved: other recycling programs do involve the source industry, via the notion of Extended Producer Responsibility.

However as a pariah industry which has repeatedly shown that its intentions are not in-line with the good of society, and the sole to be affixed the relationship status of "denormalization" by the government, the tobacco industry should be allowed no role in this program. Deposit funds awaiting return should be held either by the government, the collecting corporation, or one of their proxies.

The industry's views on this program are not known at this time. Given that it would lessen the visibility of their product, their opposition could be anticipated.

Pilot projects are not advisable: The feasibility of a deposit-return model has already been demonstrated by the success of B.C.'s beverage container recovery system. Additionally any smaller pilot jurisdiction would face challenges that would be less daunting province-wide, including the incentive for smokers to just buy their packs outside the region and the marking of packs eligible for deposit-return.

However if a pilot project is viewed as politically expedient, we believe that if designed properly such could be successful. It would be most feasible in isolated communities such as islands (Haida Gwaii?) or up north (or if larger is desired an entire health region could be considered, such as Island Health or Northern Health) where the closest tobacco vendor outside the region would be quite far, and hopefully local leaders would sign on and help instil a sense of pride in the community at being pioneers in this fully refundable environmental/ health initiative. We advise against including any return for "orphaned" littered butts in such a pilot as there would be too great a potential for butts being brought in from elsewhere.

British Columbia's beverage container recovery system, enacted in 1970, is the oldest legislated deposit-return system in North America, and has been highly successful, and widely copied.

British Columbia can again take the environmental lead with a bold and innovative approach to fighting cigarette litter.

It must do so in a manner that is consistent with public health objectives.

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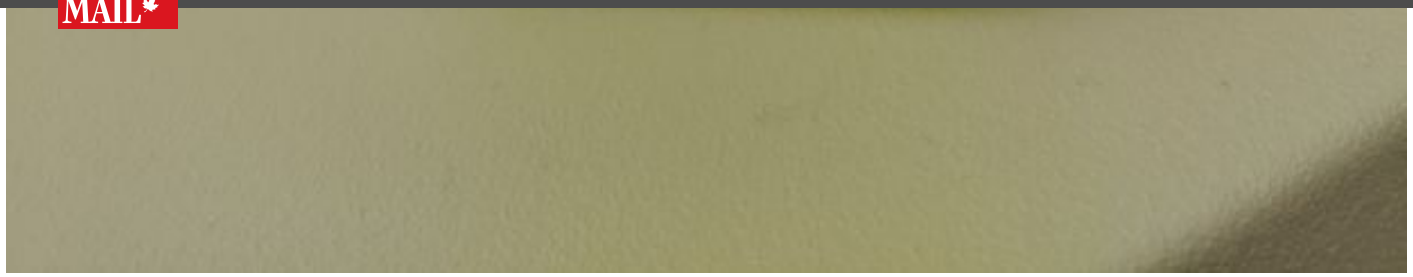
Physicians for a Smoke-free Canada
British Columbia
June, 2014

[1] *Propel Centre for Population Health Impact. Tobacco Use in Canada. Patterns and Trends – 2014 edition.*

Appendix C

Will Vancouver's distribution of wearable ashtrays prevent littering?

ADRIENNE TANNER
SPECIAL TO THE GLOBE AND MAIL
PUBLISHED JULY 27, 2018



The City of Vancouver is handing out pocket cigarette-butt holders in a bid to cut down on the number of butts tossed onto the street.

HANDOUT

As a former smoker, to me the only thing worse than the stale smoke smell that lingered in my hair and clothes was the stench of spent cigarette butts. I remember it most vividly from my days slinging beer in a bar when smoking was still permitted.

Picking up the ashtrays wasn't so bad: I took a clean one, placed it over the dirty one on the table and lifted them both onto my tray. This prevented stinky ashes from flying all over the customers and spared me from having to touch the rim of the dirty one. The bad part came later when I had to empty the overflowing ashtrays. Even though I smoked, the vile smell of those butts just about made me gag every time.

So when I heard that the city was handing wearable, bright green plastic ashtrays to smokers, I had to wonder who would want to cart around their used butts in their pocket? City staffers say the ashtray distribution program is just part of a larger anti-littering campaign. One round of ashtrays was given out last year, and this month another batch was ordered and distributed. Smokers are encouraged to empty them into cigarette butt recycling receptacles that hang on poles along busy streets, including Robson, Granville, Georgia, Water and assorted other downtown locations. "The smokers that did take them were happy to receive them," says Brian Wong, Vancouver's clean streets co-ordinator. "Some said, 'it's a great idea.' "

But will any of these plastic ashtrays be used more than once? I'm skeptical. Mr. Wong acknowledges there is no way to know whether the ashtrays will turn out to be as habit-forming as cigarettes. But that's almost besides the point, he adds. The ashtrays double as a reminder that cigarette butts are litter.

Of that, there is no doubt. Counted by piece, cigarette butts top the city's litter list and are the second most common item found during shoreline cleanups. Many people don't realize they can be recycled. Once or twice a week city crews empty the receptacles and the butts are shipped to TerraCycle's recycling plant in Ontario. The tobacco and paper are composted, the filters melted down and used to make plastic benches and picnic tables. Vancouver was the first city to sign on to the program and a number of Toronto business improvement associations followed.

Despite the diminishing ranks of smokers, there is still no shortage of butts. "This year we passed a milestone of collecting 100 million cigarette butts," says Jessica Panetta, TerraCycle's marketing and communications manager.

But given the number that still end up as litter, it is obvious many more still could be collected for recycling. The question becomes how best to achieve that goal. In 2013, organizers of a West End cleanup, received a $500 small grant from the Vancouver Foundation to buy back cigarette butts. The money was gone in less than three hours and more than 60,000 butts were collected.

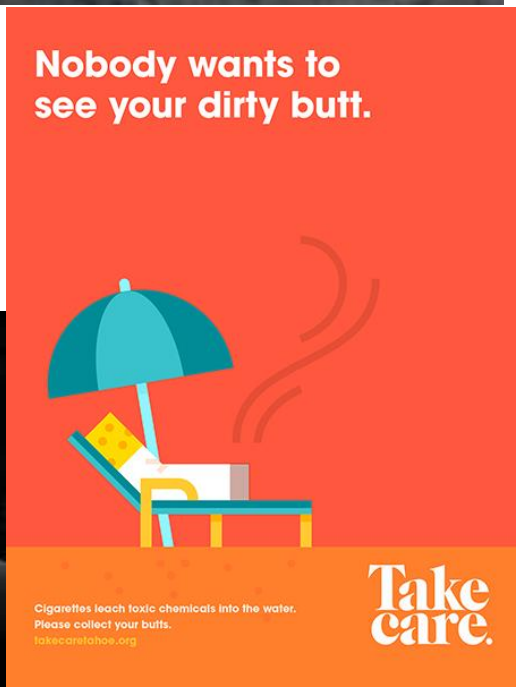
North Vancouver Mayor Darrell Mussatto has for years tried to persuade the provincial government to legislate a large-scale buyback program by placing a dollar deposit on every package of cigarettes sold in B.C. The money would be returned when the butts are turned in.

"I tried with the provincial Liberals and got nowhere," he said. "I thought I'd have better

succeed. Instead of producing plastic ashtrays that will probably end up in the trash, the city should join Mr. Mussatto and lobby for a deposit on cigarettes.

Not only would the butts get picked up, the extra charge may persuade a few more smokers to quit.

Appendix D: Examples of Educational Posters for Cigarette Litter Reduction



B129 CIGARETTE BUTT DEPOSIT RETURN PROGRAM

WHEREAS cigarette butts are a significant source of litter in many local communities;

AND WHEREAS cigarette butts are non-biodegradable and leach toxic organic chemicals and heavy metals into the environment impacting soil, fresh and saltwater, and have a significant negative impact on the aquatic and land-based organisms that ingest them;

AND WHEREAS a cigarette butt deposit-return program offers a promising solution to significantly reduce cigarette butt litter and improve environmental health:

THEREFORE BE IT RESOLVED that the BC Ministry of Environment implement a province-wide cigarette butt deposit-return program for the elimination of cigarette litter.

RESPONSE: Ministry of Environment and Climate Action Strategy

The Province's long term policy regarding waste management and recycling is to shift the onus of responsibility for managing products at their end of life from local governments and the general taxpayer to industry and consumers, through the approach known as Extended Producer Responsibility (EPR). In BC, we now have province-wide recycling programs for packaging and printed paper (PPP), beverage containers, electronics, tires, pharmaceuticals, paint, oil, pesticides and other household hazardous wastes.

The Ministry of Environment prioritizes new product categories to be added to the Recycling Regulation by aligning with the schedules in the Canadian Council of Ministers of the Environment Canada-Wide Action Plan for Extended Producer Responsibility (CCME CAP-EPR). For example, the Regulation was amended in May 2011 to include Packaging and Printed paper (PPP) as a product category. This means that producers of PPP, including producers of cigarette packaging, had to be part of a product stewardship plan by May 2014.

Construction and demolition waste, textiles and mattresses have been identified by the CCME as future priorities for regulation. Many of these waste types are significant in volume, problematic to recycle and costly to manage. Local governments across BC have also echoed their support for regulation of several of these product categories.

The Ministry is currently focusing on full implementation and continuous improvement of its existing programs before further pursuing new EPR programs. As a result of the Ministry's current focus on continuous improvement of its EPR programs and the fact that tobacco product waste, specifically cigarette butts, is currently not part of the CCME CAP-EPR, the addition of tobacco product waste to the Regulation is not being considered at this time.

As the Ministry recognizes the issues caused by cigarette butts, it is suggested that adoption of pole-mounted collection container programs that are proving successful in other BC jurisdictions be as a means to collect these problematic items. An alternative or additional measure may be to approach industry to assist in piloting and/or funding these programs.

Together for Climate

Managing Risk Through Community Collaboration

CLIMATE CHANGE is already being experienced in communities throughout the Country – flooding, extreme heat, changing water levels, and increased storms – are just some of the impacts facing municipalities in British Columbia and throughout Canada. It truly is one of the defining issues of our time.

Meaningful climate change responses draw on the skill-sets of many stakeholders and decision-makers, including municipal, provincial, and federal governments, private sector specialists, industry associations, planners, health professionals, and others; each stakeholder has a unique and key role to play in helping to mitigate the causes of and adapt to the effects of a changing climate.

Join this ICLEI Canada project to bring together these stakeholders locally to co-develop an implementation-ready climate adaptation strategy.

Eight municipalities from British Columbia are being invited to join the project. Participating municipalities do not need to have any experience with climate change adaptation or mitigation, but should be ready to come together with their broader community partners and stakeholders to assess and plan for the effects of climate change.

TCP

Fast facts about the Together for Climate Project

This project will help municipalities move from climate change assessment, to planning to action by:

- Identifying and bringing together local stakeholders in a community wide planning effort,
- Using climate change modelling data to identify local vulnerabilities,
- Assessing and prioritizing climate risks, and
- Developing implementation-ready adaptation plans.

About the Project

The Together for Climate project will build agents of change for climate adaptation in communities across British Columbia. Centered around building capacity to engage stakeholders, collaboratively assessing vulnerability and risk, and co-developing an implementation-ready local adaptation plan, the project will result in adaptation being integrated across both the municipality and wider community. The element of collaborative and co-developed planning is especially important as the development of resilience plans that are not collaborative can miss crucial interdependences whose omission can actually increase risk as opposed to eliminate it. With technical guidance from ICLEI staff, participants will initiate their adaptation effort with local stakeholders, assess their risks, and develop a local action plan through a series of local and regional workshops involving local stakeholders to work with climate information, assess vulnerability and risk and work collaboratively to develop their local action plan.

The results each participating community can expect are:

1) local climate impact report
2) vulnerability and risk assessment
3) implementation ready adaptation plan
4) engaged network of local stakeholders.

This innovative project will create lasting change in participant communities by creating and strengthening collaborations within and between municipalities, thus enabling broader regional collaborations in the future. The project is scalable and replicable, and has the potential to create true leadership in municipalities that are eager to take action. The success of ICLEI's BARC methodology ensures that this project is far beyond the proof of concept phase, and will result in tangible and meaningful outcomes for the participating communities.

Project Details

Why Join?

- Travel funds for two representatives to attend three provincial workshops over the course of the project;
- One-on-One advisory services from ICLEI on climate change science, vulnerability and risk assessment, local action planning, climate communications, and stakeholder engagement;
- Individual climate science data reports that summarize and coalesce localized climate science for both historical and climate projection data including summaries of projected changes to temperature, precipitation, intensity-duration frequency curves, and extreme events;
- Facilitated networking with project peers from across BC;
- All take home materials related to identifying climate impacts, assessing risks, developing action plans, and training on delivering localized workshops;
- Access to specialists and experts in climate change science, assessment, planning, and communications;
- Assistance in the planning, logistics, delivery, and reporting of localized workshops; and
- Full summary reports of workshop outcomes, vulnerability and risk assessment findings, lessons learned throughout the process.
- Draft version of a community-wide climate change adaptation plan – including prioritized climate change impacts, actions to address these impacts, and a preliminary implementation strategy.
- Opportunity to share your experience and the lessons learned in your municipality with a national audience.

What is the Commitment?

- Actively participate in all project related workshops, meetings, and webinars;
- Contribute to the development of targeted training materials for your community;
- Spearhead the process of setting up local workshops related to climate change impacts, risks, and planning;
- Identifying a broad range of local stakeholders (i.e. municipal staff colleagues, conservation authorities; health units, researchers, local businesses, community groups, etc.);
- Assist in the delivery of local training with colleagues and identified stakeholders;
- Report final results and lessons learned in an annotated way to be framed into a designed final report and case study for broad dissemination.
- Share project experience in either a webinar and/or face-to-face workshop with a national audience.
- Estimated time commitment of approximately 15 days over a 2-year period.

For more details about the Together For Climate project contact:

Craig Brown, BC Manager, ICLEI Canada

T: 250-818-9481

E: craig.brown@iclei.org

Timing of the Project

Funding for this project is being sought through the General Grants program of the Real Estate Foundation of British Columbia. As such the exact timing of the project is contingent on the award of funding and the timing of that award. Below is a table outlining approximate dates and timing surrounding the project:

Summer 2018	Launch of Together for Climate project, stakeholder identification, etc.
Fall 2018	Climate science reports and vulnerability assessments
Fall 2018	Provincial workshop #1
Winter 2019	Risk assessment analysis and prioritization
Spring 2019	Provincial workshop #2
Summer 2019	Adaptation plan development
Fall 2019	Provincial workshop #3
Winter 2020	Dissemination and implementation

About Us

ICLEI is a non-profit organization focused on building and serving a worldwide movement of local and regional governments that are committed to achieving tangible improvements in environmental sustainability through cumulative local actions. Our Canada office provides Canadian-focused programming, training, and fee consulting on a variety of local sustainability issues. These range from energy and greenhouse gas (GHG) management to climate change adaptation and resilience planning, and urban biodiversity. Our staff are environmental professionals with more than 40 years cumulative experience in the municipal, non-profit and private sectors. We have a thorough understanding of the municipal arena and technical knowledge required to help local governments plan, implement, and achieve their sustainability objectives.

•I•C•L•E•I
Local Governments for Sustainability

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Township of ESQUIMALT

DEVELOPMENT SERVICES

Climate Action Revenue Incentive Program 2017 Public Report

May 31, 2018

Climate Action Revenue Incentive (CARIP) Public Report for 2017

Local Government:
Township of Esquimalt

Report Submitted by:
Name: Tricia deMacedo
Role: Planner 2 - Policy
Email: tricia.demacedo@esquimalt.ca
Phone: 250-414-7114

Date: May 29, 2018

The Township of Esquimalt has completed the 2017 Climate Action Revenue Incentive Program (CARIP) Public Report as required by the Province of BC. The CARIP report summarizes actions taken in 2017 and proposed for 2018 to reduce corporate and community-wide energy consumption and greenhouse gas emissions (GHG) and reports on progress towards achieving carbon neutrality.

Legend

DS	Development Services
EPW	Engineering and Public Works
FN	Financial Services
PR	Parks and Recreation Services

2017 BROAD PLANNING ACTIONS

Broad Planning Actions

Broad Planning refers to high level planning that sets the stage for GHG emissions reductions, including plans such as Official Community Plans, Integrated Community Sustainability Plans, Climate Action Plans or Community Energy Emissions Plans. Land use planning that focuses on Smart Growth principles (compact, complete, connected, centred) plays an especially important role in energy and GHG reduction.

Community-Wide Actions Taken in 2017	
DS	Prepared draft Official Community Plan (OCP) which includes policies and guidelines to reduce GHG emissions in the community. The new OCP will set a target for carbon neutrality by 2050 and will contain design guidelines with an emphasis on transit oriented, density along transit corridors and the E and N railway and density bonusing for higher levels of the Step Code.
DS	Approved rezoning application for mixed use development in Esquimalt Village, which incorporates energy efficient initiatives including geothermal heating and cooling.
Community-Wide Actions Proposed for 2018	
DS	Adoption of an updated Official Community Plan.
DS	Implementation of policies and guidelines related to GHG reduction and resource conservation.
DS	Completion of rezoning application for 12-storey wood frame Passive House multi-family development.

Corporate Actions Taken in 2017	
DS	Purchase of 1237 Esquimalt Rd. for construction of a new Public Safety Building to be built to higher energy standards.
Corporate Actions Proposed for 2018	
DS	Establish a methodology for tree canopy assessments for the municipality in order to track urban forest coverage.

Broad Planning		
What is (are) your current GHG reduction target(s)?	To reduce community greenhouse gas emissions by at least 38% reduction by 2020, 83% by 2050 compared to 2007 levels.	
Are you familiar with your community's community energy and emissions inventory (e.g. CEEI or another inventory)?		**Yes**
What plans, policies or guidelines govern the implementation of climate mitigation in your community? • Community Energy and Emissions (CEE) Plan • Community- Wide Climate Action Plan • Integrated Community Sustainability Plan • Official Community Plan (OCP) • Regional Growth Strategy (RGS) • Do not have a plan • Other:		**No** **No** **No** **Yes** **Yes** **No**
Does your local government have a corporate GHG reduction plan?		**No**

2017 BUILDING AND LIGHTING ACTIONS

Building and Lighting Actions

Low-carbon buildings use the minimum amount of energy needed to provide comfort and safety for their inhabitants and tap into renewable energy sources for heating, cooling and power. These buildings can save money, especially when calculated over the long term. This category also includes reductions realized from energy efficient street lights and lights in parks or other public spaces.

Community-Wide Actions Taken in 2017	
DS	Participated in oil to heat pump replacement program-5 heat pumps installed.
DS	Implemented new urban design guidelines for projects located on Esquimalt Rd.
Community-Wide Actions Proposed for 2018	
DS	Continue with oil to heat pump replacement program.

Corporate Actions Taken in 2017	
PR	Converted 17 light panels, 44 light strips and 7 pot lights in the Archie Browning Sports Centre (ABSC) to LED.
PR	Converted 14 light panels, 27 pot lights and one fixture to LED in the Esquimalt Recreation Centre.
DS	Continued with Environmental Advisory Committee.
Corporate Actions Proposed for 2018	
PR	Replacement of the ice chiller in the Archie Browning Sports Centre will reduce the amount of ammonia being used on site and will be more energy efficient.
EPW	Preparing Scope of Work for replacement of HVAC control system in Municipal Hall.

Building and Lighting The Province has committed to taking incremental steps to increase energy-efficiency requirements in the BC Building Code to make buildings net-zero energy ready by 2032. The BC Energy Step Code--a part of the BC Building Code--supports that effort	
Is your local government aware of the BC Energy Step Cost?	Yes
Is your local government implementing the BC Energy Step Code?	No

2017 ENERGY GENERATION ACTIONS

A transition to renewable or low-emission energy sources for heating, cooling and power supports large, long-term GHG emissions reductions. Renewable energy including waste heat recovery (e.g. from biogas and biomass), geo-exchange, micro hydroelectric, solar thermal and solar photovoltaic, heat pumps, tidal, wave, and wind energy can be implemented at different scales, e.g. in individual homes, or integrated across neighbourhoods through district energy or co-generation systems.

Community-Wide Actions Taken in 2017	
Community-Wide Actions Proposed for 2018	

Corporate Actions Taken in 2017	
Corporate Actions Proposed for 2018	

Energy Generation	
Is your local government developing, or constructing: • A district energy system	**No**

• A renewable energy system	**No**
Is your local government operating: • A district energy system • A renewable energy system	 **No** **No**
Is your local government connected to a district energy system that is operated by another energy provider?	**No**
Are you aware of the Integrated Resource Recovery guidance page on the BC Climate Action Toolkit?	**Yes**
Are you familiar with the 2017 "List of Funding Opportunities for Clean Energy Projects Led by First Nations and Local Governments?"	**Yes**

2017 GREENSPACE/NATURAL RESOURCE PROTECTION ACTIONS

Greenspace Actions

Greenspace/Natural Resource Protection refers to the creation of parks and greenways, boulevards, community forests, urban agriculture, riparian areas, gardens, recreation/school sites, and other green spaces, such as remediated brownfield/contaminated sites as well as the protection of wetlands, waterways and other naturally occurring features.

Community-Wide Actions Taken in 2017	
PR	Hosted 'Branch Out' events in Highrock Park, Gorge Park, Saxe Point Park and Macaulay Park with over 100 volunteers assisting in the removal of invasive plants (100 m2 in each park) and the planting of 40-50 native trees and shrubs in each park. www.esquimalt.ca/parks-recreation/parks/branch-out-events-educational-materials
PR	Hosted the 5th Annual Earth Day celebration in Highrock Park. The event drew 800 students. Activities included invasive pulling of English Ivy and Himalayan Blackberry, trail building, Garry Oak planting, native plant understory planting, and 7 goats that fed on the invasive plants.
PR	Supported ecochamps program during the summer in Esquimalt Parks. Eco-education for ages 3-6.
PR	Planted 73 full-sized new boulevard trees.
PR	Removal of invasive species within a large area of Macaulay Point Park in order to protect three endangered plant species (for DND).
EPW	Remediation of Esquimalt Town Square construction was initiated and completed.
Community-Wide Actions Proposed for 2018	
PR	Beginning of public engagement process for amenity funds provided by the McLouglin Point Wastewater Treatment Plant (MPWTP). Amenity funds will be targeted towards acquisition of waterfront parkland and development of waterfront parkland.
EPW	Application for Certificate of Compliance for remediation of ETS will be submitted.
PR	Continued support for Anderson Community Garden

Corporate Actions Taken in 2017	
EPW	Working with CRD on development and implementation of common design guidelines for storm water management.
Corporate Actions Proposed for 2018	
DS	Implementation of policies to protect native ecosystems and shorelines through new Development Permit Areas in updated OCP.

EPW	Continuing membership on CRD integrated watershed management committee.

Greenspace	
Does your local government have urban forest policies, plans or programs?	**Yes**
Does your local government have policies, plans or programs to support local food production?	**Yes**

2017 SOLID WASTE ACTIONS

Solid Waste Actions

Reducing, reusing, recycling, recovering and managing the disposal of the residual solid waste minimizes environmental impacts and supports sustainable environmental management, greenhouse gas reductions, and improved air and water quality.

Community-Wide Actions Taken in 2017	
EPW	Composting bins and recycling collection provided at all community events.
EPW	Continued collection of kitchen scraps from households for composting.
Community-Wide Actions Proposed for 2018	

Corporate Actions Taken in 2017	
Corporate Actions Proposed for 2018	

Solid Waste	
Does your local government have construction and demolition waste reduction policies, plans or programs?	**No**
Does your local government have organics reduction/diversion policies, plans or programs?	**Yes**

2017 TRANSPORTATION ACTIONS

Transportation Actions

Transportation actions that increase transportation system efficiency, emphasize the movement of people and goods, and give priority to more efficient modes, e.g. walking, cycling, ridesharing, and public transit, can contribute to reductions in greenhouse gas emissions and more livable communities.

Community -Wide Actions Taken in 2017	
FN	Introduced user fee of $1/hour for Level 2 electric vehicle charging to improve availability of the station to more users and to achieve cost neutrality.
EPW	502 m of sidewalk replaced or constructed during 2017. New sidewalk constructed on Wychbury Ave. between Kinver and Lampson St.
EPW	Two new transit shelters installed.
EPW	Colville/Hutchinson Intersection upgrade completed to facilitate pedestrian movements and bus stop shelters.
EPW	Reviewed crosswalk locations between Admirals and Fernhill Rds on Esquimalt Rd.
DS	Met with BC Transit to discuss improvements to public transit in Esquimalt.
Community-Wide Actions Proposed for 2018	
EPW	Sidewalk between Old Esquimalt and 832 Esquimalt Rd. to be completed.
EPW	Two pedestrian crossings to be installed at 1100 block of Esquimalt Rd. and Fraser St. based on the review conducted in 2017.
EPW	Conduct Lampson St. corridor cross section study to determine the corridor's ability to accept bike lanes in order to increase multi-modal orientation.
FN	Entering into licencing agreement with UBike for 35 shared bikes within the municipality.
PR/EPW	Conduct public engagement for a new crossing of Tillicum Road between Craigflower Rd and Tillicum Bridge (connected with McLoughlin Point WTP amenity funds public engagement).

Corporate Actions Taken in 2017	
EPW	Two new solar pedestrian beacons installed on Esquimalt Rd.
	Employee participation in Greater Victoria Bike to Work Week.
DS	Bus tickets provided for employee trips to locations within the Greater Victoria area.
DS	A number of parking variances were approved in order to reduce the parking requirements associated with development.
Corporate Actions Proposed for 2018	
EPW	Conduct traffic count analysis.
EPW	Tender being prepared to confirm availability of electric truck for fleet.
EPW	Four new solar pedestrian crossing beacons planned.

Transportation	
Does your local government have policies, plans or programs to support: • Walking • Cycling • Transit Use • Electric Vehicle Use • Other (please specify)	**Yes** **Yes** **No** **Yes** **Yes/No**
Does your local government have a transportation demand management (TDM) strategy (e.g. to reduce single-vehicle occupancy trips, increase travel options, provide incentives to encourage individuals to modify travel behavior)?	**No**
Does your local government integrate its transportation and land use planning?	**Yes**

2017 WATER AND WASTEWATER ACTIONS

Managing and reducing water consumption and wastewater is an important aspect of developing a sustainable built environment that supports healthy communities, protects ecological integrity, and reduces greenhouse gas emissions.

Community-Wide Actions Taken in 2017	
DS	Approved state of the art waste water treatment centre at MacLoughlin Point.
PR	New children's water play park filters water through raingarden prior to its release to the storm drain system.
PR	Reducing watering of boulevard and park trees by use of individual tree bags which hold a week's worth of water.
Community-Wide Actions Proposed for 2018	
EPW	Engineering to prepare preliminary modelling data of Inflow and Infiltration in the stormdrain system.
EPW	Engineering to prepare a draft bylaw for inflow and infiltration control for discussion, which will include a cost sharing program for cross connections and service line condition.

Corporate Actions Taken in 2017	
EPW	Participation on Esquimalt Liaison Committee to review concerns and activities associated with the Waste Water Treatment Plant project.
Corporate Actions Proposed for 2018	

Water Conservation	
Does your local government have water conservation policies, plans or programs?	**No**

2017 CLIMATE CHANGE ADAPTATION ACTIONS

This section of the CARIP survey is designed to collect information related to the types of climate impacts local governments are experiencing and how they are being addressed.

Please identify the THREE climate impacts that are most relevant to your Local Government.	
• Changes to temperature and precipitation causing seasonal drought • Extreme weather events contributing to urban and overland flooding • Sea level rise and storms causing coastal flooding and/or erosion	
Other:	

In 2017 has your local government addressed the impacts of a changing climate using any of the following?	
Risk and Vulnerability Assessments	Yes
Risk Reduction Strategies	Yes
Emergency response planning	Yes
Asset management	No
Natural/Eco asset management strategies	No
Infrastructure upgrades (e.g. storm water system upgrades)	No
Beach Nourishment projects	No
Economic diversification initiatives	No
Strategic and financial planning	No
Cross-department working groups	No
OCP policy changes	Yes
Changes to zoning and other bylaws and regulations	Yes
Incentives for property owner (e.g. reducing storm water run-off)	Yes
Public education and awareness	Yes
Research	Yes
Mapping	Yes
Partnerships	Yes
Other:	

Climate Change Adaptation Actions Taken in 2017 Please elaborate on key actions and/or partnerships your local government has engaged in to prepare for, and adapt to a changing climate. Add links to key documents and information where appropriate.	
DS	Drafted OCP policies related to heating and cooling in private buildings.
	Regional wastewater treatment plant designed to be adaptive to climate change.
Climate Change Adaptation Actions Proposed for 2018	
DS	Participation in ICLEI Canada's proposed 'Adapting Together' project. Specifically Esquimalt proposes to identify and bring together local stakeholders in a community wide planning effort, use climate change modelling data to identify local vulnerabilities, assess and prioritize climate risks and develop an implementation-ready adaptation plan.
For more information please contact:	

The following are key resources that may be helpful to your local government in identifying climate impacts, as well as, strategies, actions and funding to deal with them. For those resources that you have used, please indicate whether they were useful in advancing your work in climate change adaptation?	
Indicators of Climate Change for British Columbia, 2016	Haven't Used
Plan2Adapt	Haven't Used
Climate Projections for Metro Vancouver	Haven't Used
Climate Projections for the Capital Region	Useful
Climate Projections for the Cowichan Valley Regional District	Not Useful
Province of BC's BC Adapts Video Series	Haven't Used
Preparing for Climate Change: An Implementation Guide for Local Governments	Useful
The Public Infrastructure and Engineering Vulnerability Committee's (PIEVC) protocol	Useful
Sea Level Rise Primer	Useful
BC Regional Adaptation Collaborative Webinars	Haven't Used
www.ReTooling.ca	Useful
Water Balance Model	Not Useful
The Water Conservation Calculator	Haven't Used
Funding:	
National Disaster Mitigation Program (NDMP)	Haven't Used
Community Emergency Preparedness Fund (CEPF)	Haven't Used
Municipalities for Climate Innovation Program (MCIP)	Useful
Climate Adaptation Partner Grants (FCM)	Useful
Infrastructure Planning Grants (MAH)	Useful
Federal Gas Tax Fund	Useful
Other:	

2017 OTHER CLIMATE ACTIONS

Other Climate Actions

This section provides local governments the opportunity to report other climate actions that are not captured in the categories above.

Community-Wide Actions Taken in 2017	
	Not applicable
Community-Wide Actions Proposed for 2017	
	Not applicable

Corporate Actions Taken in 2017	
	Not applicable
Corporate Actions Proposed for 2017	
	Not applicable

Other	
Are you familiar with the Community Lifecycle Infrastructure Costing Tool (CLIC)?	**Yes**
Have you used CLIC?	**No**

INNOVATION AND PEER-TO-PEER LEARNING

Innovation

This section provides the opportunity to showcase an innovative Corporate and/or Community-Wide GHG reduction and/or climate change adaptation activity that your local government has undertaken and that has had, or has the potential to have, a significant impact. You are welcome to repeat an action that has already been listed.

Projects included here may be featured as success stories on the B.C. Climate Action Toolkit and/or shared with other local governments to inspire further climate action. Please add links to additional information where possible.

Communities that have conducted innovative initiatives may want to consider raising their profile through applications to CEA's Climate and Energy Action Awards, UBCM Climate and Energy Action Award, FCM Sustainable Communities Awards or through submissions to FCM's National Measures Report.

Community-Wide Action
In the fall of 2017, the Cool It! program reached 109 students in the Township of Esquimalt, through 5 workshops at 2 schools. During the program challenge, students committed to several energy saving actions over a 4-week period. Students' energy conserving and emissions saving actions at home resulted in the projected savings of a total of 58.723 tonnes of carbon dioxide (CO2e), if they continue their actions for one year. For more information contact: Tricia.demacedo@esquimalt.ca
Corporate Action
For more information contact:

Programs, Partnerships and Funding Opportunities

Local governments often rely on programs, partnerships and funding opportunities to achieve their climate action goals. Please share the names of programs and organizations that have supported your local government's climate actions by listing each entry in the box below.

Mitigation

Programs and Funding
CRD Climate Action Program-Cool It!, Oil to Heat Pump Program

Adaptation

Programs and Funding

2017 CARBON NEUTRAL REPORTING

Local governments are required to report on their progress in achieving their carbon neutral goal under the Climate Action Charter. Working with B.C. local governments, the joint Provincial-UBCM Green Communities Committee (GCC) has established a common approach to determining carbon neutrality for the purposes of the Climate Action Charter, including a Carbon Neutral Framework and supporting guidance for local governments on how to become carbon neutral.

Prior to completing this portion of the survey, please ensure that you are familiar with guidance available on the B.C. Climate Action Toolkit website, especially the Becoming Carbon Neutral: A Guide for Local Governments in British Columbia.

Please note: As a result of the BC Recycling Regulation, local governments are no longer required to account for greenhouse gas (GHG) emissions from vehicles, equipment and machinery required for the collection, transportation and diversion of packaging and printed paper, in their annual Climate Action Revenue Incentive Program (CARIP) reports.

Reporting Emissions

Did you measure your local government's corporate GHG emissions in 2017?	**Yes**
If your local government measured 2017 corporate GHG emissions, please report the number of corporate GHG emissions (in tonnes of carbon dioxide equivalent) from services delivered directly by your local government:	1307.3
If your local government measured 2017 corporate GHG emissions, please report the number of corporate GHG emissions (in tonnes of carbon dioxide equivalent) from contracted services:	
TOTAL A: CORPORATE GHG EMISSIONS FOR 2017	**1307.3 tCO2e**

Reporting Reductions and Offsets

To be carbon neutral, a local government must balance their TOTAL corporate GHG emissions generated in 2017 by one or a combination of the following actions:

- undertake GCC-supported Option 1 Project(s)
- undertake GCC-supported Option 2 Project(s)
- purchase carbon offsets from a credible offset provider

If applicable, please report the 2017 GHG emissions reductions (in tonnes of carbon dioxide equivalent (tCO2e)) being claimed from Option 1 GHG Reduction Projects:

OPTION 1 PROJECTS	REDUCTIONS
Energy Efficient Retrofits	
Solar Thermal	
Household Organic Waste Composting (CRD+Esquimalt composting)	105.6+99.3=204.9
Low Emission Vehicles	
Avoided Forest Conversion	
TOTAL B: REDUCTIONS FROM OPTION 1 PROJECTS FOR 2017	**204.9 tCO2e**

If applicable, please report the names and 2017 GHG emissions reductions (in tonnes of carbon dioxide equivalent (tCO2e)) being claimed from Option 2 GHG Reduction Projects:

OPTION 2 PROJECT NAME	REDUCTIONS
TOTAL C: REDUCTIONS FROM OPTION 2 PROJECTS FOR 2017	**tCO2e**

If applicable, please report the name of the offset provider, type of project and number of offsets purchased (in tonnes of carbon dioxide equivalent (tCO2e)) from an offset provider for the 2017 reporting year:

(NOTE: DO NOT INCLUDE ANY FUNDS THAT MAY BE SET ASIDE IN A CLIMATE ACTION RESERVE FUND)

OFFSET PROVIDER NAME	OFFSETS
TOTAL D: OFFSETS PURCHASED FOR 2017	**tCO2e**

TOTAL REDUCTIONS AND OFFSETS FOR 2017 (Total B+C+D) = 204.9 tCO2e

Corporate GHG Emissions Balance for 2017

Your local government's Corporate GHG Emissions Balance is the difference between total corporate GHG emissions (direct + contracted emissions) and the GHG emissions reduced through GCC Option 1 and Option 2 projects and/or the purchase of offsets.

CORPORATE GHG EMISSIONS BALANCE FOR 2017 = 1307.3 - 204.9 = 1102.4 tCO2e

If your Corporate GHG Emissions Balance is negative or zero,
your local government is carbon neutral.
CONGRATULATIONS!

If applicable, please record any emissions reductions you will be carrying over for future years and the source of the emissions reductions, including the year they were earned (E.g., Organics diversion, 2016 100 tCO2e).

SOURCE OF CARRY OVER EMISSION REDUCTIONS (and year earned)	REDUCTIONS
BALANCE OF REDUCTIONS ELIGIBLE FOR CARRY OVER TO NEXT YEAR	**tCO2e**

Carbon Neutral Reporting	
Does your local government have a climate reserve fund or something similar?	**Yes**

GCC CLIMATE ACTION RECOGNITION PROGRAM

Green Communities Committee (GCC) Climate Action Recognition Program

The joint Provincial-UBCM Green Communities Committee (GCC) is pleased to be continuing the Climate Action Recognition Program again this year. This multi-level program provides the GCC with an opportunity to review and publicly recognize the progress and achievements of each Climate Action Charter (Charter) signatory.

Recognition is provided on an annual basis to local governments who demonstrate progress on their Charter commitments, according to the following:

Level 1 – Demonstrating Progress on Charter Commitments: for local governments who demonstrate progress on fulfilling one or more of their Charter commitments

Level 2 – Measuring GHG Emissions: for local governments that achieve level 1, and who have measured their Corporate GHG Emissions for the reporting year and demonstrate that they are familiar with their community's energy and emissions inventory (i.e. CEEI)

Level 3 – Accelerating Progress on Charter Commitments: for those local governments who have achieved level 1 and 2 and have demonstrated undertaking significant action (corporately or community wide) to reduce GHG emissions in the reporting year (i.e: through undertaking a GHG reduction project, purchasing offsets, establishing a reserve fund).

Level 4 - Achievement of Carbon Neutrality: for local governments who achieve carbon neutrality in the reporting year.

For purposes of Level 3 recognition, if applicable, please identify any new or ongoing corporate or community wide GHG reduction projects (other than an Option 1 or Option 2 project) undertaken by your local government that reflects a significant investment of time or financial resources and is intended to result in significant GHG reductions:

PROJECT NAME:
Sustainability Reserve Fund: The CARIP grant is deposited in the Sustainability Reserve Fund to be used for funding sustainability initiatives that reduce GHG emissions and move the Township forward to achieving its Climate Action Charter goals.

Based on your local government's 2017 CARIP Climate Action/Carbon Neutral Progress Survey, please check the GCC Climate Action Recognition Program level that best applies:

	Level 1 – Demonstrating Progress on Charter Commitments	
	Level 2 – Measuring GHG Emissions	
	Level 3 – Accelerating Progress on Charter Commitments	**x**
	Level 4 - Achievement of Carbon Neutrality	
	Not Sure	

Appendix: 2017 Corporate Energy and Emissions Inventory

Local Government Name:	**Township of Esquimalt**
Year:	**2017**
Contact Information:	
Name:	**Tricia deMacedo**
Position:	**Planner 2**
Telephone Number:	**250-414-7114**
Email address:	**tricia.demacedo@esquimalt.ca**

Stationary Energy GHG Emission Sources:

Fuel	End Use	Unit of Measure	Quantity	Emissions (tCO_2e)
Electricity	Engineering & Public Works	kWh	121,051	1.3
Electricity	Fire	kWh	346,560	3.7
Electricity	Municipal Hall	kWh	295,074	3.1
Electricity	Parks & Recreation	kWh	3,407,522	36.4
Electricity	Infrastructure (sewer/traffic/lighting)	kWh	841,288	9.0
Electricity	0	kWh	-	-
Natural Gas	Engineering & Public Works	GJ	269	13.4
Natural Gas	Fire	GJ	-	-
Natural Gas	Municipal Hall	GJ	262	13.1
Natural Gas	Parks & Recreation	GJ	18,119	903.6
Natural Gas	Infrastructure (sewer/traffic/lighting)	GJ	-	-
Natural Gas	0	GJ	-	-
Propane	Engineering & Public Works	Litres	-	-
Propane	Fire	Litres	-	-
Propane	Municipal Hall	Litres	-	-
Propane	Parks & Recreation	Litres	-	-
Propane	Infrastructure (sewer/traffic/lighting)	Litres	-	-
Propane	0	Litres	-	-
Heating Oil	Engineering & Public Works	Litres	-	-
Heating Oil	Fire	Litres	-	-
Heating Oil	Municipal Hall	Litres	-	-
Heating Oil	Parks & Recreation	Litres	-	-
Heating Oil	Infrastructure (sewer/traffic/lighting)	Litres	-	-
Heating Oil	0	Litres	-	-
Stationary Energy GHG Emissions (all fuel types)				**983.5**
Stationary Energy Refrigerant GHG Emissions				**-**

Imported Steam or District Heat GHG Emissions

Tier	Unit of Measure	Quantity	Emissions (tCO_2e)
	MWh	-	-
Imported Steam or District Heat GHG Emissions			**-**

Mobile GHG Emission Sources:

Vehicle Class	Vehicle Fuel	Unit of Measure	Quantity	Emissions (tCO_2e)
Light Duty Vehicle	Gasoline	Litres	1,877	4.4
Light Duty Truck	Gasoline	Litres	36,029	85.7
Heavy Duty Truck	Gasoline	Litres	12,105	27.4
Off Road Vehicle	Gasoline	Litres	2,027	4.5
Light Duty Vehicle	E10	Litres	-	-
Light Duty Truck	E10	Litres	-	-
Heavy Duty Truck	E10	Litres	-	-
Off Road Vehicle	E10	Litres	-	-
Light Duty Vehicle	E15	Litres	-	-
Light Duty Truck	E15	Litres	-	-
Heavy Duty Truck	E15	Litres	-	-
Off Road Vehicle	E15	Litres	-	-
Light Duty Vehicle	Diesel	Litres	-	-
Light Duty Truck	Diesel	Litres	-	-
Heavy Duty Truck	Diesel	Litres	-	-
Off Road Vehicle	Diesel	Litres	3,623	10.6
Light Duty Vehicle	B5	Litres	-	-
Light Duty Truck	B5	Litres	-	-
Heavy Duty Truck	B5	Litres	52,052	130.9
Off Road Vehicle	B5	Litres	10,740	29.9
Light Duty Vehicle	B10	Litres	-	-
Light Duty Truck	B10	Litres	-	-
Heavy Duty Truck	B10	Litres	-	-
Off Road Vehicle	B10	Litres	-	-
Light Duty Vehicle	B20	Litres	-	-
Light Duty Truck	B20	Litres	-	-
Heavy Duty Truck	B20	Litres	-	-
Off Road Vehicle	B20	Litres	-	-
Light Duty Vehicle	Natural Gas	kg	-	-
Light Duty Truck	Natural Gas	kg	-	-
Heavy Duty Truck	Natural Gas	kg	-	-
Off Road Vehicle	Natural Gas	kg	-	-
Light Duty Vehicle	Propane	Litres	4,603	7.1
Light Duty Truck	Propane	Litres	3,494	5.4
Heavy Duty Truck	Propane	Litres	-	-
Off Road Vehicle	Propane	Litres	-	-
Mobile GHG Emissions (all fuel / vehicle combinations)			**126,549**	**305.8**
Fleet A/C Refrigerant GHG Emissions				**18.0**
Total GHG Emissions (all Sources)				**1,307.3**

Township of
ESQUIMALT

GREEN BUILDING CHECKLIST

The purpose of this Checklist is to make property owners and developers aware of specific green features that can be included in new developments to reduce their carbon footprints to help create a more sustainable community.

Creating walkable neighbourhoods, fostering green building technologies, making better use of our limited land base and ensuring that new development is located close to services, shops and transit are some of the means of achieving sustainability.

The Checklist which follows focuses on the use of **Green Technologies** in new buildings and major renovations. The Checklist is not a report card, it is a tool to help identify how your project can become 'greener' and to demonstrate to Council how your project will help the Township of Esquimalt meet its sustainability goals. It is not expected that each development will include all of the ideas set out in this list but Council is looking for a strong commitment to green development.

There are numerous green design standards, for example, Built Green BC; LEED ND; Living Building Challenge; Green Shores; Sustainable Sites Initiative. Esquimalt is not directing you to follow any particular standard, however, you are strongly encouraged to incorporate as many green features as possible into the design of your project .

As you review this checklist, if you have any questions please contact **Development Services at 250.414.7108** for clarification.

**New development is essential to Esquimalt.
We look forward to working with you
to ensure that development is
as green and sustainable as possible.**

Other documents containing references to building and site design and sustainability, which you are advised to review, include:

- Esquimalt's Official Community Plan
- Development Protocol Policy
- Esquimalt's Pedestrian Charter
- Tree Protection Bylaw No. 2664
- A Sustainable Development Strategic Plan for the Township of Esquimalt

"One-third of Canada's energy use goes to running our homes, offices and other buildings. The federal government's Office of Energy Efficiency (Natural Resources Canada) reports that a corresponding one-third of our current greenhouse gas (GHG) emissions come from the built environment."
[Green Building and Development as a Public Good, Michael Buzzelli, CPRN Research Report June 2009]

Please answer the following questions and describe the green and innovative features of your proposed development. Depending on the size and scope of your project, some of the following points may not be applicable.

Green Building Standards

Both energy use and emissions can be reduced by changing or modifying the way we build and equip our buildings.

1	Are you building to a recognized green building standard? If yes, to what program and level?	Yes	No
2	If not, have you consulted a Green Building or LEED consultant to discuss the inclusion of green features?	Yes	No
3	Will you be using high-performance building envelope materials, rainscreen siding, durable interior finish materials or safe to re-use materials in this project? If so, please describe them.	Yes	No
4	What percentage of the existing building[s], if any, will be incorporated into the new building? _____ %		
5	Are you using any locally manufactured wood or stone products to reduce energy used in the transportation of construction materials? Please list any that are being used in this project. _____		
6	Have you considered advanced framing techniques to help reduce construction costs and increase energy savings?	Yes	No
7	Will any wood used in this project be eco-certified or produced from sustainably managed forests? If so, by which organization? _____ For which parts of the building (e.g. framing, roof, sheathing etc.)? _____		
8	Can alternatives to Chlorofluorocarbon's and Hydro-chlorofluorocarbons which are often used in air conditioning, packaging, insulation, or solvents] be used in this project? If so, please describe these. _____	Yes	No
9	List any products you are proposing that are produced using lower energy levels in manufacturing. _____		
10	Are you using materials which have a recycled content [e.g. roofing materials, interior doors, ceramic tiles or carpets]?	Yes	No
11	Will any interior products [e.g. cabinets, insulation or floor sheathing] contain formaldehyde?	Yes	No

Water Management

The intent of the following features is to promote water conservation, re-use water on site, and reduce storm water run-off.

Indoor Water Fixtures				
12	Does your project exceed the BC Building Code requirements for public lavatory faucets and have automatic shut offs?	Yes		No
13	For commercial buildings, do flushes for urinals exceed BC Building Code requirements?	Yes		No
14	Does your project use dual flush toilets and do these exceed the BC Building Code requirements?	Yes		No
15	Does your project exceed the BC Building Code requirements for maximum flow rates for private showers?	Yes		No
16	Does your project exceed the BC Building Code requirements for flow rates for kitchen and bathroom faucets?	Yes		No
Storm Water				
17	If your property has water frontage, are you planning to protect trees and vegetation within 60 metres of the high water mark? [Note: For properties located on the Gorge Waterway, please consult Sections 7.1.2.1 and 9.6 of the Esquimalt Official Community Plan.]	Yes	No	N/A
18	Will this project eliminate or reduce inflow and infiltration between storm water and sewer pipes from this property?	Yes	No	N/A
19	Will storm water run-off be collected and managed on site (rain gardens, wetlands, or ponds) or used for irrigation or re-circulating outdoor water features? If so, please describe. _____ _____	Yes	No	N/A
20	Have you considered storing rain water on site (rain barrels or cisterns) for future irrigation uses?	Yes	No	N/A
21	Will surface pollution into storm drains will be mitigated (oil interceptors, bio-swales)? If so, please describe. _____	Yes	No	N/A
22	Will this project have an engineered green roof system or has the structure been designed for a future green roof installation?	Yes	No	N/A
23	What percentage of the site will be maintained as naturally permeable surfaces?	_____%		
Waste water				
24	For larger projects, has Integrated Resource Management (IRM) been considered (e.g. heat recovery from waste water or onsite waste water treatment)? If so, please describe these. _____	Yes	No	N/A

Natural Features/Landscaping

The way we manage the landscape can reduce water use, protect our urban forest, restore natural vegetation and help to protect the watershed and receiving bodies of water.

25	Are any healthy trees being removed? If so, how many and what species? _____ Could your site design be altered to save these trees? Have you consulted with our Parks Department regarding their removal?	Yes	No	N/A

26	Will this project add new trees to the site and increase our urban forest? If so, how many and what species? _____	Yes	No	N/A
27	Are trees [existing or new] being used to provide shade in summer or to buffer winds?	Yes	No	N/A
28	Will any existing native vegetation on this site be protected? If so, please describe where and how. _____	Yes	No	N/A
29	Will new landscaped areas incorporate any plant species native to southern Vancouver Island?	Yes	No	N/A
30	Will xeriscaping (i.e. the use of drought tolerant plants) be utilized in dry areas?	Yes	No	N/A
31	Will high efficiency irrigation systems be installed (e.g. drip irrigation; 'smart' controls)?	Yes	No	N/A
32	Have you planned to control invasive species such as Scotch broom, English ivy, Himalayan and evergreen blackberry growing on the property?	Yes	No	N/A
33	Will topsoil will be protected and reused on the site?	Yes	No	N/A

Energy Efficiency

Improvements in building technology will reduce energy consumption and in turn lower greenhouse gas [GHG] emissions. These improvements will also reduce future operating costs for building occupants.

34	Will the building design be certified by an independent energy auditor/analyst? If so, what will the rating be? _____	Yes	No	N/A
35	Have you considered passive solar design principles for space heating and cooling or planned for natural day lighting?	Yes	No	N/A
36	Does the design and siting of buildings maximize exposure to natural light? What percentage of interior spaces will be illuminated by sunlight? _____%	Yes	No	N/A
37	Will heating and cooling systems be of enhanced energy efficiency (ie. geothermal, air source heat pump, solar hot water, solar air exchange, etc.). If so, please describe. _____ If you are considering a heat pump, what measures will you take to mitigate any noise associated with the pump? _____	Yes	No	N/A
38	Has the building been designed to be solar ready?	Yes	No	N/A
39	Have you considered using roof mounted photovoltaic panels to convert solar energy to electricity?	Yes	No	N/A
40	Do windows exceed the BC Building Code heat transfer coefficient standards?	Yes	No	N/A
41	Are energy efficient appliances being installed in this project? If so, please describe.			
42	Will high efficiency light fixtures be used in this project? If so, please describe.	Yes	No	N/A
43	Will building occupants have control over thermal, ventilation and light levels?	Yes	No	N/A
44	Will outdoor areas have automatic lighting [i.e. motion sensors or time set]?	Yes	No	N/A
45	Will underground parking areas have automatic lighting?	Yes	No	N/A

Air Quality

The following items are intended to ensure optimal air quality for building occupants by reducing the use of products which give off gases and odours and allowing occupants control over ventilation.

46	Will ventilation systems be protected from contamination during construction and certified clean post construction?	Yes	No	N/A
47	Are you using any natural, non-toxic, water soluble or low-VOC [volatile organic compound] paints, finishes or other products? If so, please describe. _____	Yes	No	N/A
48	Will the building have windows that occupants can open?	Yes	No	N/A
49	Will hard floor surface materials cover more than 75% of the liveable floor area?	Yes	No	N/A
50	Will fresh air intakes be located away from air pollution sources?	Yes	No	N/A

Solid Waste

Reuse and recycling of material reduces the impact on our landfills, lowers transportation costs, extends the life-cycle of products, and reduces the amount of natural resources used to manufacture new products.

51	Will materials be recycled during demolition of existing buildings and structures? If so, please describe. _____	Yes	No	N/A
52	Will materials be recycled during the construction phase? If so, please describe. _____	Yes	No	N/A
53	Does your project provide enhanced waste diversion facilities i.e. on-site recycling for cardboard, bottles, cans and or recyclables or on-site composting?	Yes	No	N/A
54	For new commercial development, are you providing waste and recycling receptacles for customers?	Yes	No	N/A

Green Mobility

The intent is to encourage the use of sustainable transportation modes and walking to reduce our reliance on personal vehicles that burn fossil fuels which contributes to poor air quality.

55	Is pedestrian lighting provided in the pathways through parking and landscaped areas and at the entrances to your building[s]?	Yes	No	N/A
56	For commercial developments, are pedestrians provided with a safe path[s] through the parking areas and across vehicles accesses?	Yes	No	N/A
57	Is access provided for those with assisted mobility devices?	Yes	No	N/A
58	Are accessible bike racks provided for visitors?	Yes	No	N/A
59	Are secure covered bicycle parking and dedicated lockers provided for residents or employees?	Yes	No	N/A
60	Does your development provide residents or employees with any of the following features to reduce personal automobile use [check all that apply]: ☐ transit passes ☐ car share memberships ☐ shared bicycles for short term use ☐ weather protected bus shelters ☐ plug-ins for electric vehicles			

Is there something unique or innovative about your project that has not been addressed by this Checklist? If so, please add extra pages to describe it.