

# **Small Cells & a Wireless World**

## **The Right To Choose**

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## Essentials

This document intends to guide you in making informed decisions about the installation of small cells on Salt Spring.

Chapters 1 to 4 provide an overview of issues relevant to microcells and the objectives established in Salt Spring's Community Plan.

If pressed for time, read the Summaries at the beginning of each of these chapters, and then move on to Chapters 5 and 6 –the regulatory and recommended action sections. (Be sure to look at Appendix E: the Regulatory Cluster Chart .)

For a quick, accessible introduction to this subject, please enjoy [Cellular Deception](#), a music video I created this past December featuring Salt Spring nature and children.

With Warm Regards,

A handwritten signature in blue ink that reads "Oona McQuat". The signature is written in a cursive style with a light blue shadow effect behind the text.

# 1

## The Precautionary Principle, EMF, and Human and Environmental Health

### Chapter Summary

1. Salt Spring's Official Community Plan has adopted the precautionary principle.
2. Over ten thousand peer-reviewed scientific studies point to the health and environmental risks caused by EMF.
3. International scientists and physicians urge regulatory bodies like Health Canada and the WHO to develop more precautionary and protective EMF guidelines.
4. Accepting small cell transmitters on Salt Spring violates *Section A.4.1.4* of Salt Spring's Official Community Plan.



# 1

## Overview

Microcells operate 24 hours a day, and in the case of the small cells TELUS is installing on neighbourhood utility poles across BC, they emit frequencies in the same range as cell towers. Although microcells are private commercial ventures whose sole purpose is to profit from offering faster data to subscribers, they are being placed on public land. All living things in their proximity are bombarded by their frequencies.



Photo by Leigh Hilbert

This is not a problem if you dismiss tens of thousands of peer-reviewed [scientific studies](#) on the effects of electromagnetic radiation, and adhere to *Health Canada's* antiquated [Safety Code 6](#). Or if you ignore the **Wingspread Statement** which Canada signed onto in 1998, which states that:

“When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.”<sup>1</sup>

## The Precautionary Principle, Salt Spring & Technology

Sound familiar? This statement appears almost verbatim in Section A.4.1.4 of the [Salt Spring Island Official Community Plan](#).

At the 1998 *Wingspread Conference*, scientists, philosophers, lawyers and environmental activists reached agreement on the necessity of the precautionary principle in creating public health and environmental policy. Carolyn Raffensberger, an environmental lawyer and the executive director of the *Science & Environmental Health Network*, offers further commentary on the relationship between the precautionary principle and emerging technologies:

“(Conference) Participants noted that current policies ... give the benefit of the doubt to new products and technologies, which may later prove harmful. And when damage occurs, victims and their advocates have the difficult task of proving that a product or activity was responsible. The precautionary principle shifts the burden of proof, insisting that those responsible for an activity must vouch for its harmlessness and be held responsible if damage occurs.”<sup>2</sup>

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<sup>1</sup> This statement arose from the [Wingspread Conference on the Precautionary Principle](#) which took place in Wisconsin in January, 1998.

<sup>2</sup> Norman Miller, editor, *Environmental Politics Casebook: Genetically Modified Foods*, (CRC Press, 2016), 220.

Let's compare the above-stated approach to risk management to a statement made on the *Canadian Radiocommunications Information and Notification Service's* cellular industry site: (Please note, the use of **Bold** face font was theirs.)

### **Health Canada Guidelines Safety Code 6**

“There are a number of studies purporting that radiocommunications structures increase risks of certain types of illnesses and symptoms. Health Canada has the mandate and responsibility to consider these studies and revise its guidelines and requirements in those cases where they feel these studies warrant changes to the regulations that proponents operate under. Proponents defer to Health Canada to establish proper exposure limits.

**Notwithstanding any of the above, the proponent is not responsible during the consultation process for proving to the public or LUAs (Land Use Authorities) that SC6 provides adequate (*Sic*) protection from EME, nor disproving statements regarding possible health implications of EME exposure. Provided the proponent is compliant with SC6, CPC 2-0-03 (2014) indicates that a proponent may proceed with a proposed radiocommunications site independent of any such concerns from the public or LUA.”<sup>3</sup>**

The precautionary principle is of greatest importance when the damage from a new technology could be irreversible. The [2001 Expert Panel Report on the Future of Biotechnology](#) urged Canadian regulatory agencies to “adopt the ... precautionary principle as a framework for assessing new technologies.”<sup>4</sup>

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<sup>3</sup> [Canadian Radiocommunications Information and Notification Service \(CRINS\)](#).

<sup>4</sup> See “Elements of Precaution: Recommendations for the Regulation of Food Biotechnology in Canada”, Expert Panel on the Future of Food Biotechnology. *Royal Society of Canada* (2001). The quotation is from “Expert Panel Raises Serious Questions About the Regulation of GM Food”: Press Release, *Royal Society of Canada*, (February 5, 2001).

The *Wingspan Convention* concluded that corporations, government entities, organizations, communities, and scientists must adopt a precautionary approach to all human endeavours. Clearly, Salt Spring's local Islands Trust took note.

## The Precautionary Principle & Health

Asbestos, tobacco, thalidomide – there are countless examples of government regulators allowing industry to put us in harm's way for the sake of profit or progress, abandoning the precautionary principle with heartbreaking results. The electromagnetic frequencies emitted by microcells and all wireless and smart technologies have not been proven to be safe. Regulatory bodies like *Health Canada* and the *World Health Organization (WHO)* are ignoring science at everyone's peril.

Two hundred and twenty four scientists from 41 nations have signed [this appeal](#) asking the *United Nations* to encourage the *WHO* to encourage precautionary measures and foster the development of more protective EMF guidelines.

Take a peek at the detailed [BioInitiative Report](#), 2012 (2014). Written by 29 precautionary scientists it states: "Bioeffects are clearly established and occur at very low levels of exposure to electromagnetic fields and radiofrequency radiation." Or read this list of [50+ EMF Safety Tips & Insights](#) compiled by Camilla Rees of [The National Institute for Science, Law, and Public Policy](#), and following the precautionary principle, rather than adhering to Safety Code 6, seems to be the genuinely "smart" thing to do. As reported in the [Canadian Medical Association Journal](#), at the April, 2015 *Parliament's Standing Committee on Health* hearings, some of Canada's top scientists mounted "a withering attack, saying that *Health Canada's* rationale and Safety Code 6 are outdated, incomplete and invalid."<sup>5</sup>

Safe levels in the Safety Code 6 (2015) version are egregiously high and do not recognize non-thermal EMF. On September 28, 2014, over [50 Canadian](#)

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<sup>5</sup> Webster, Paul Christopher. "[Scientists decry Canada's outdated Wi-Fi safety rules.](#)" *CMAJ* June 16, 2015 vol. 187 no. 9 First published May 11, 2015, doi:10.1503/cmaj.109-5061.

[physicians](#) condemned Safety Code 6. On July 9, 2014, [fifty-three scientists from eighteen countries](#) called on *Health Canada* to intervene to “help avoid an emerging health crisis.”<sup>6</sup>

## The Not So Pretty Picture

A truly safe technology would not cause damage to DNA. It would not increase free radical damage or contribute to an increased risk of cancer. It would not negatively affect sleep or the nervous system. It would not open up the protective blood brain barrier. It would not increase inflammation, a factor in all chronic disease. Published studies have found all of these effects from EMF exposure, and many more.

Though many studies have reported ‘no significant effect’, [research by University of Washington biology professor Henry Lai](#), and others, reveals that wireless-industry funding is far more likely to yield such findings.

Most people are not connecting the dots between the ever-present, invisible exposures to electromagnetic energy in our midst and things like fatigue, attention and memory difficulties, insomnia, irritability, headaches, low energy, immune challenges, heart irregularities, inflammatory conditions, neurological conditions, depression and much more. And they do not understand the impacts on brain function from excessive ‘screen time’, or [risks for brain tumors and other cancers from use of a cell phone](#).<sup>7</sup>

This harm has been known for decades by government, well before cellular technologies were licensed and sold to consumers. Some telecommunication companies even tried to de-legitimize peer-reviewed science. Harvard University’s Investigative Journalism Fellow, Norm Alster, takes this [fascinating look](#) at how the *US Federal Communications Commission* (the FCC) is dominated by the industries it presumably regulates.

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<sup>6</sup> [http://www.albany.edu/ihe/assets/Scientist\\_Declaration.pdf](http://www.albany.edu/ihe/assets/Scientist_Declaration.pdf).

<sup>7</sup> In May 2016 the U.S. government’s [National Toxicology Program](#) (NTP) completed a \$25-million study showing that cell phone radiation presents a cancer risk for humans.

## Electromagnetic Hypersensitivity

Rapidly increasing electro-smog is having an adverse effect on quality of life for many people. Dr. Tressider, an expert on electromagnetic hypersensitivity in the UK recently wrote [an open letter to other medical doctors](#) in which he stated that: “safety always lags technological advance.”<sup>8</sup>

Former Silicon Valley engineer Jeromy Johnson, who recently did a TED Talk called [Wireless Wakeup Call](#), has [an eye-opening overview on Electromagnetic Hypersensitivity](#) (EHS) on his website.

## The Precautionary Principle, EMF, & our Environment

“I have no doubt in my mind that, at the present time, the greatest polluting element in the earth’s environment is the proliferation of electromagnetic radiation.”<sup>9</sup> - Two-time Nobel Prize nominee Dr. Robert O. Becker

Section A.5.1.1 of Salt Spring’s **Official Community Plan** calls on us “To recognize the intrinsic value of our ecosystems and that the health of our ecosystems is inextricably linked to human health.”

All of life is bio-electric. Scientists shows that exposure to even low levels of EMF, especially [in combination with other toxic chemicals](#),<sup>10</sup> has harmful effects on the well-being of, [trees](#), [wildlife](#), [water](#) and our entire eco-system.

Paul J. Rosch, MD; Clinical Professor of Medicine and Psychiatry at the *New York Medical College* states:

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<sup>8</sup> <http://www.es-uk.info/attachments/article/96/ES%20letter%20psych%20paper%20Jan2%202017.pdf>

<sup>9</sup> Robert O. Becker MD, and Gary Selden, *The Body Electric: Electromagnetism and the Foundation of Life* (Quill Books, William Morrow and Co., Inc., 1985).

<sup>10</sup> Synergistic health effects of chemical pollutants and electromagnetic fields. Pr. G. LEDOIGT Clermont Université UMR 547 PIAF INRA-Université Blaise-Pascal, Clermont-Ferrand 5th Appeal Congress, May 18, 2015 Royal Academy of Medicine, Belgium.

“..All communication in the body eventually takes place via very subtle electromagnetic signaling between cells that is now being disrupted by artificial electropollution we have not had time to adapt to...The adverse effects of electrosmog may take decades to be appreciated, although some, like carcinogenicity, are already starting to surface..”<sup>11</sup>

Former *New York Times* journalist B. Blake Levitt eloquently addresses the environmental perils caused by wireless technologies like microcells:

“All living cells and indeed whole living beings, no matter what genus or species, are dynamic coherent electrical systems utterly reliant on bioelectricity for life’s most basic metabolic processes.

It turns out that most living things are fantastically sensitive to vanishingly small EMF exposures. Living cells interpret such exposures as part of our normal cellular activities (think heartbeats, brainwaves, cell division itself, etc.) The problem is, man-made electromagnetic exposures aren’t “normal”. They are artificial artifacts, with unusual intensities, signaling characteristics, pulsing patterns, and wave forms, that don’t exist in nature. And they can misdirect cells in myriad ways.”

Levitt concludes:

“Every aspect of the ecosystem may be affected, including all living species from animals, humans, plants and even microorganisms in water and soil. We are already seeing problems in sentinel species like birds, bats, and bees. Wildlife is known to abandon areas when cell towers are placed.

... RF is a form of energetic air pollution and we need to understand it as such...The health of our planet may be in jeopardy from this newest environmental concern – added to all the others. Citizens need to call upon

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<sup>11</sup> Rosch, Paul J. MD. “[Stress, Cell Phones and Electro-smog](#).” Health and Stress: The Newsletter of the American Institute of Stress, Number 6, 2008: 14.

government to fund appropriate research and to get industry influence out of the dialogue. We ignore this at our own peril now.”<sup>12</sup>



Photo by Leigh Hilbert

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<sup>12</sup> Levitt, B Blake. *Electromagnetic Fields: A Consumer's Guide to the Issues and How to Protect Ourselves*, (iUniverse BackinPrint, 2007).

# 2

## Microcells, Bees, and Food Security



### Chapter Summary

1. 70% of food crops on Salt Spring depend on bees.
2. Bees use their electrical sense to find pollen, and nature's electromagnetic fields to find their way back to the hive. Artificial EMF disturbs their orientation and navigation, attributing to colony collapse.
3. EMF exposure magnifies the effects of toxic chemical on humans. There may be a similar co-factor relationship between EMF and pesticides in bees.
4. Food security on Salt Spring depends upon protecting pollinators from EMF.

# 2

“Our need to protect the land must also ensure its agricultural future, not only because agriculture is a traditional way of island life, but also because in a changing world it is imperative that we enhance the security of our supply of food.” - A.3  
Vision Statement: [Salt Spring Island Official Community Plan](#)



Photo by Leigh Hilbert

## Food Security & Colony Collapse

Imagine Salt Spring without apples! We love to grow food on our island, and tiny, winged garden-helpers support our efforts. Seventy percent of the major crops that feed us rely on pollinators like bees and butterflies for fertilization and reproduction. On Salt Spring, bees are the major pollinators, performing over 70% of the pollination services.

Achieving food security on our island depends on healthy bees, but according to the *Suzuki Foundation*<sup>13</sup> and a plethora of other sources, honeybee populations and BC's 450+ species of wild bees are in serious decline.

“If I remember well, it was Einstein who said: “Remove the bee from the earth and at the same stroke you remove at least one hundred thousand plants that will not survive.”<sup>14</sup> – *Canadian Bee Journal*, 1941

While science identifies the use of neonicotinoid pesticides as one of the possible contributing factors to the catastrophic bee die-offs, the threat to bees is most likely attributed to a complex interplay between diverse stressors.<sup>15</sup>

In *Bees, Birds, and Mankind: Effects of Wireless Technologies*, German bio-scientist Ulrich Warnke states that monocultures, pesticides, the Varroa mite, migratory beekeeping, dressed seed, severe winters, and genetically modified seeds *could* explain the bee colonies' collapse. However, none of these convincingly explains, “the fairly sudden and country-spanning appearance two to three years ago of dying bees. Should the bees be too weak or ill they should simply die in or near the hive, but no ill bees were found in research into this phenomenon.”<sup>16</sup>

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<sup>13</sup> [“Help bring bees and butterflies back!”](#), *The Suzuki Foundation*.

<sup>14</sup> Ernest A. Fortin, “Comments From Quebec”, *Canadian Bee Journal*, Volume 49, Number 1, (January 1941), 13.

<sup>15</sup> D.J.P., [“The decline of bees”](#), *The Economist Explains*, (Sep 7<sup>th</sup>, 2015).

<sup>16</sup> Ulrich Warnke, [Bees, Birds, and Mankind: Effects of Wireless Technologies](#) (Kentum, 2009),13.

In research conducted in 2007 by Diana Cox-Foster, a professor of entomology at *Penn State University*, the normally resilient bees she dissected showed traces of not one or two diseases, but nearly every disease known to affect them over the past century. “The bees are immuno-compromised, being stressed somehow,” she concluded.<sup>17</sup>

## Bees Have an Electrical Sense

“Bee-whispers: the sensitivity of life on Earth.”<sup>18</sup>  
- Lynne Wycherley

Bees are positively charged while flowers are negatively charged. These charges help pollen stick to their legs when they pollinate. Researchers at *Bristol University* reported last May that [bees' hairs](#) are highly sensitive to flowers' delicate EMFs.<sup>19</sup> In 2013, biologist Dominic Clarke and his colleagues showed that bees use their electrical sense to determine if a flower has recently been visited by another bee.<sup>20</sup> In controlled trials in Switzerland, [bees reacted to mobile-phone signals](#) with high-pitched ‘piping’: a cue to desert a hive.<sup>21</sup>

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<sup>17</sup> Richard Thomas Gerber, [“Mysterious, Massive Disappearance/Death of US Honey Bees – Colony Collapse Disorder \(CCD\)”](#), *Target Health Global*.

<sup>18</sup> Lynne Wycherley, [“Wireless pollution 'out of control' as corporate race for 5G gears up”](#), *Ecologist* (27th October, 2016).

<sup>19</sup> Press Release, [“Dancing hairs alert bees to floral electric fields”](#), *University of Bristol*, (30 May 2016).

<sup>20</sup> Dominic Clarke et al, [“Detection and Learning of Floral Electric Fields by Bumblebees.”](#) *Science* 05, (Apr 2013):, Vol. 340, Issue 6128, 66-69.

<sup>21</sup> Daniel Favre, [“Mobile phone-induced honeybee worker piping”](#), *Apidologie*, (May 2011), Volume 42, [Issue 3](#), 270–279.

## Bees, Microcells, and Artificial EMF

Bio-scientist Ulrich Warnke summarizes decades of research by saying that: "Bees and other insects, just as birds, use the Earth's magnetic field and high frequency electromagnetic energy such as light. They accomplish orientation and navigation by means of free radicals as well as a simultaneously reacting magnetite conglomerate. Technically produced electromagnetic oscillations in the MHz range and magnetic impulses in the low frequency range persistently disturb the natural orientation and navigation mechanisms created by evolution."<sup>22</sup>

The microcells TELUS is installing in BC neighbourhoods emit frequencies in the 1900 MHz (UMTS – 3G technology) and 2100 MHz (LTE – 4G technology) range, posing very real threats to bees and other pollinators.

“EMF fields have been implicated in the recent massive but mysterious disappearance of honeybee colonies essential for pollinating over 90 commercial crops.”<sup>23</sup> - *Paul Rosch, MD*

Scientist and beekeeper Ferdinand Ruzicka reported on the changes he saw in his bees after several transmitters (cellular antennas) were placed near his hives in 2003: “I observed a pronounced restlessness in my bee colonies (initially about 40) and a greatly increased urge to swarm. As a framehive beekeeper, I use a so-called high floor; the bees did not build their combs in this space in the manner prescribed by the frames, but in random fashion. In the summer, bee colonies collapsed without obvious cause. In the winter, I observed that the bees went foraging despite snow and temperatures below zero and died of cold next to the hive. Colonies that exhibited this behaviour collapsed, even though they were strong, healthy colonies with active queens before winter. They were provided with adequate additional food and the available pollen was more than adequate

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<sup>22</sup> Warke, [Bees, Birds, and Mankind: Effects of Wireless Technologies](#), 33.

<sup>23</sup> Rosch, Paul J. MD. “[Stress, Cell Phones and Electro-smog](#).” *Health and Stress: The Newsletter of the American Institute of Stress*, Number 6, (2008), 14.

in autumn. The problems only materialised from the time that several transmitters were erected in the immediate vicinity of my beehives." <sup>24</sup>

Ruzicka then organised a survey of beekeepers through the magazine *Der Bienen vater*. All 20 of the beekeepers who replied to his questionnaire had a transmitter within 300 meters of their hives. Since the transmitters were in operation, 37%.5 noted increased aggression from their bees, 25% found their bees had a greater tendency to swarm, and 65% reported that their colonies were inexplicably collapsing since the transmitters were operational. <sup>25</sup>

Science has yet to determine if artificial EMF and other immune-suppressing elements like pesticides might be acting like co-factors, having a synergistic impact on bees and other pollinators. However, a recent study done at Iran's *Shiraz University of Medical Sciences* reveals that exposure to artificial EMF compounds the biological harm caused by toxic substances like mercury amalgam fillings in humans. <sup>26</sup>

## Protecting Pollinators

In *The Island Environment*, Section A.5 of Salt Spring's **Official Community Plan**, we recognize "the intrinsic value of our ecosystems and that the health of our ecosystems is inextricably linked to human health," (A.5.1.1) while committing to "recognize and protect the island's native plant, animal and bird life." (A.5.1.4)

The *Environmental Health Trust* has compiled a [remarkable yet troubling list](#) of research on the effects of electromagnetic fields on bees, butterflies, and wildlife. To read it is to recognize the severity of the current EMF crisis we now face. Clearly, protecting the health of our pollinators, our food production systems, and

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<sup>24</sup> Ruzicka.F.: "Schäden durch Elektrosmog." *Bienenwelt*, (2003); 10: 34-35.

<sup>25</sup> Ibid., 34-35.

<sup>26</sup> [Maryam Paknahad et al, "Effect of radiofrequency radiation from Wi-Fi devices on mercury release from amalgam restorations", \*Journal of Environmental Health\*.\(2016\) 14: 12.](#)

all flora and fauna is dependent on limiting the widespread placement and operation of wireless technologies on our island.



Bee & Borage ~ Photo by Leigh Hilbert

# 3

## Wireless Technologies, Climate Change, and Choice

### Chapter Summary

1. Wireless and smart technologies are a carbon footprint disaster.
2. They use 10% of the world's electricity, much of it coal-fired power, which fuels global warming.
3. Even if the Information Tech sector switches to using renewable energy, the growth of the Cloud and the Internet of Things equates an unprecedented and unlimited rise in energy consumption.
4. Toxic e-waste dumps and the mining of minerals used by wireless devices are causing human suffering.
5. Supporting the installation of microcells on Salt Spring contravenes our stated commitment to reducing climate change.



# 3

An unwavering commitment to contribute to global sustainability and mitigate climate change is woven into the fabric of Salt Spring's **Official Community Plan**. As islanders, we know that we live on a planet with finite resources, and that stewardship is not a philosophy, but a practice, rooted in the lifestyle and consumer choices we make each day.



Photo by Leigh Hilbert

As an environmentally conscious community, we have pledged:

- To recognize our local responsibility to contribute to global sustainability, particularly in relation to mitigation of and adaptation to climate change. (A.4.2.3)
- To consider the impacts of climate change as a central factor in land use decision-making. (A.6.1.1)
- To establish the importance of energy efficiency, energy security, greenhouse gas emissions reduction, and carbon cycling in land use. (A.6.1.2)

## The Uncomfortable Truth

“Manufacturing and powering electronics requires energy... To satisfy our electronic desires, we ravage the Earth for fossil fuels and rare minerals. Burning fossil fuels generates gasses that trap heat within our atmosphere, thus raising our global temperature.”<sup>27</sup>

Faster data. We all want it, or think we want it, but this glut of data comes at a tremendous environmental and human cost.

- A 2016 *Forbes* magazine article says the average American’s internet use is responsible for [the emission of about 300 pounds of carbon dioxide per year](#).<sup>28</sup>
- In 2016, medical journalist Katie Singer stated one click on *Google* uses about the same amount of energy it takes to run a compact fluorescent light bulb for an hour, and emits just under seven grams of Co2.<sup>29</sup> In 2011,

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<sup>27</sup> Katie Singer, “[E-lephants in Our Hands: How Electronics Impact Climate Change](#)”, A talk given at *The University of Oregon/Eugene Environmental Law Conference* (March 4, 2016).

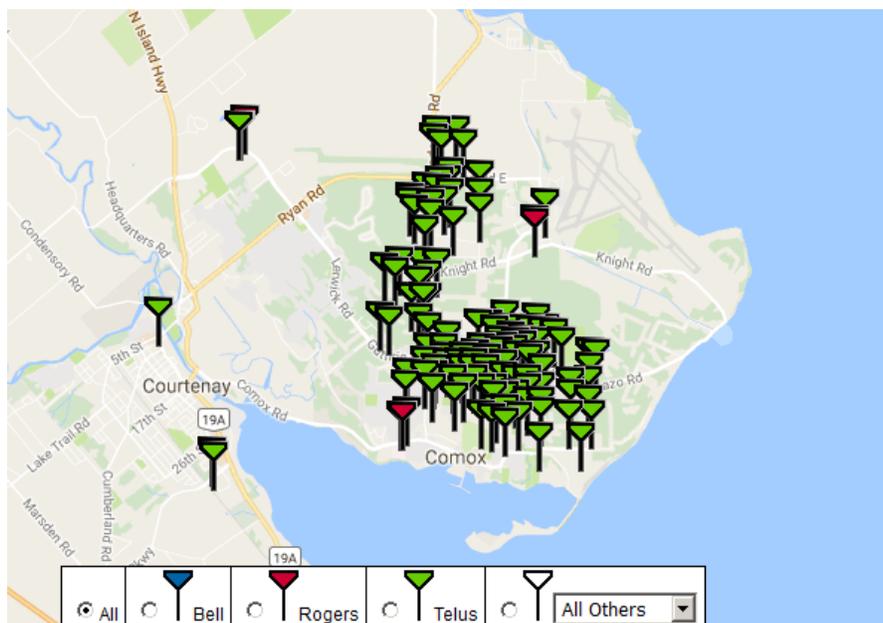
<sup>28</sup> Christopher Helman “[Berkeley Lab: It Takes 70 Billion Kilowatt Hours A Year To Run The Internet](#)”, *Forbes Magazine*, (June 28, 2016).

<sup>29</sup> Singer, “[E-lephants in Our Hands: How Electronics Impact Climate Change](#)”.

Google said 100 searches are equal to a 60-watt light bulb burning for 28 minutes and that each Google search uses roughly 0.2g of carbon dioxide.<sup>30</sup>

- Whichever number you choose, multiply it by the number of searches you do in one day, multiply that by 365 days and then by four or five-billion people with a device in their hands, and we begin to see just how much electricity we're talking about.

Here is a map of over 100 TELUS microcells in operation in Comox, BC:<sup>31</sup>



Supporting the installation of a similar army of microcells on Salt Spring contravenes our stated commitment to reducing climate change. Microcells are the forerunners to the rollout of 5G, the end of landlines, and the coming onslaught of the Internet of Things, when every appliance in our homes will be sending data to be stored in the Cloud. Wireless and smart technologies are erroneously touted as being “Green” when in truth they are a carbon footprint disaster.

<sup>30</sup> Chloe Albanesius, “[How Much Electricity Does Google Consume Each Year?](#)” *PC Magazine*, (September 8, 2011) .

<sup>31</sup> [eNodeB- BC Locations](#), *Electromagnetic Radiation in Western Canada*, EMR Health Alliance of BC website.

## Wireless is not Unplugged

*The Cloud Begins with Coal: Big Data, Big Networks, Big Infrastructure and Big Power*<sup>32</sup>, a 2013 report by Mark Mills, argues that coal, one of the [single biggest source of electricity](#) in the U.S., essentially powers the Cloud. (The Cloud is the practice of using a network of remote servers hosted on the internet to store, manage, and process data, rather than a local server or a personal computer.) Emissions from burning coal (coined *the* most polluting way to produce energy by *Greenpeace International*) fuel global warming, making coal the single greatest threat to our climate.<sup>33</sup>

In 2015, *Information Communications Technologies* (ICT) used 1,500 terawatt-hours of power per year. That is about 10% of the world's total electricity generation or roughly the combined power production of Germany and Japan. We already use 50% more energy to move bytes than we do to move planes in global aviation.

The Cloud uses energy differently than other sectors of the economy. Lighting, heating, cooling, transportation — these are all power uses that have rough limits. But the ICT system derives its value from the fact that it is always “on”.

“The world’s smartphones are on track to use more electricity than the country of Japan.”<sup>34</sup> – Mark Mills

As the Cloud grows bigger and bigger, and we put more and more of our devices on wireless networks, we’ll need more and more electricity. How much? A 2016

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<sup>32</sup> Mark P. Mills, [“The Cloud Begins with Coal: Big Data, Big Networks, Big Infrastructure and Big Power”](#), *A Report sponsored by the National Mining Association and the American Coalition for Clean Coal Electricity* (August 2013).

<sup>33</sup> [“How the coal industry fuels climate change”](#), *Greenpeace International*, (1 July 2016).

<sup>34</sup> Mark P. Mills, “The Future of Energy Is Not What You Think: Megatrends & The Pursuit of Magic”, [Techpundit](#).

study focused on Japan suggests its data centres would consume its entire electricity supply by 2030 if growth continues at today's rate.<sup>35</sup>

In a January 2016 interview with Tom Bawden, Environment Editor for the *Independent*, Britain's foremost data centre expert Ian Bitterlin said that even if the data centre industry were able to shift to 100 per cent renewable electricity, the volume of energy needed by data centres would put intolerable pressure on the world's power systems. "This level of data centre growth is not sustainable beyond the next 10 to 15 years. The question is, what are we going to do about it?" said Professor Bitterlin.<sup>36</sup>

It all comes down to consumption choices, said Bitterlin. "We need to be more responsible about what we use the internet for ... Data centres aren't the culprits – it's driven by social media and mobile phones. It's films, pornography, gambling, dating, shopping – anything that involves images. It's a great example of the Jevons paradox – the easier you make it to consume the product the greater the consumption will be."<sup>37</sup>

Dr Mike Hazas, Senior Lecturer at *Lancaster University's School of Computing and Communications* echoes Bitterlin's concern, stating that the Internet of Things has the potential to bring an unprecedented and unlimited rise in energy consumed by smart technologies. Hazas warns: "This growing consumption is a significant concern in global efforts to reduce carbon emissions."<sup>38</sup>

Hazas advises that serious consideration be given to how limits to data growth could be planned, *before* the forecast growth of the Internet of Things occurs.

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<sup>35</sup> Kishita, Y. et al, "[Describing Long-Term Electricity Demand Scenarios in the Telecommunications Industry: A Case Study of Japan](#)", *mdpi* ( 7 January 2016).

<sup>36</sup> Tom Bawden. "[Global warming: Data centres to consume three times as much energy in next decade, experts warn](#)", *Independent*, (23 January 2016).

<sup>37</sup> Ibid.

<sup>38</sup> Mike Hazas et al, "[Are there limits to growth in data traffic?: on time use, data generation and speed](#)", *Lancaster University Conference Paper*, (January 2016).

# The Hidden Costs of Wireless Technologies

## Planned Obsolescence & E-Waste

With information and communication technologies evolving at an exceedingly fast pace, our digital devices generally need to be replaced every 1 to 3 years. The short lifespan of our gadgets and their early retirement to the landfill exacerbate the problem of the excessive amount of energy used in their production.

What are the ramifications of our perpetual need to get the latest “upgrade”? Welcome to life at Agbobloshie, the world's largest e-waste dump in Ghana. Its air and soil are polluted with toxic chemicals, while extreme poverty, child labour, and criminal gangs are rampant. [This heartbreaking video](#) shows the very real human and environmental costs of our tech addiction.

## “Smart homes” are Smarter than “Dumb Homes,” Right?

Unfortunately, the primary beneficiary of a smart home is the utility company, because your data has value to marketers who want to know what time you brew your coffee and how often you vacuum — even your facial expressions as you watch TV. They want to know everything because then they can develop your profile and sell you EXACTLY what you “need.” What about saving us from climate change by allowing us to turn off the A/C from the dinner party across town with our new 5G phone made with conflict-free coltan? As previously mentioned, transmitting and storing everyone’s critically important daily household decisions in servers across the globe is an extremely energy-intensive proposition. So, no, independent researchers are not seeing the smart grid as a boon for the climate.<sup>39</sup>

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<sup>39</sup> Jonathan Mirin, “Excerpt from [Be Careful What You Wish For: 5G and the Hilltowns](#),” *Shelburne Falls and West County Independent*, (9 February 2017).

## Perhaps the Dirtiest Secrets of our Push for Wireless Devices: Coltan & Cobalt

**Coltan.** Most electronic devices contain coltan. Coltan is a black, tar-like mineral that when refined becomes a heat-resistant powder that can hold a high electric charge.

“Congo holds 64% of the world’s coltan. Mining for coltan has contributed to mass rapes and more loss of life than any other single situation since World War II. To get coltan and satisfy our hunger for wireless devices, corporations have nearly destroyed Congo.”<sup>40</sup> – Katie Singer

**Cobalt** is an essential component of the lithium batteries used in smartphones, laptops, and electric cars. Sixty percent of the world’s cobalt also originates in Congo where the mining activity exposes local communities to levels of toxic metals that appear to be linked to respiratory problems and birth defects. In a scathing September 2016 expose, *The Washington Post* traced the cobalt mined “by workers, including children, who labor in harsh and dangerous conditions where deaths and injuries are common” to tech companies like Apple.<sup>41</sup>

[Here is yet another heartbreaking video](#) on children mining cobalt in Congo for our wireless devices.

## Conclusion

As a community that is rooted in caring for the earth and one another, I urge us - for a moment - to move out of our heads and into our hearts, as we reflect on the differences we can make not only through our individual personal choices, but through our collective actions. I put forth that given our conscious **Community Plan** with its commitment to well-being, we have the privilege and the

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<sup>40</sup> Singer, “[E-lephants in Our Hands: How Electronics Impact Climate Change](#)”.

<sup>41</sup> Todd C. Frankel, “[THE COBALT PIPELINE: Tracing the path from deadly hand-dug mines in Congo to consumers’ phones and laptops](#)”, *The Washington Post*, (September 30, 2016).

responsibility to shift paradigms by creating local policies and influencing federal regulations so that technological innovation supports and protects life.



Photo by Leigh Hilbert

# 4

## Sneaky Business: Privacy and Cyber- Security

### Chapter Summary

1. Salt Spring's community plan pledges to accommodate the community's need to be safe and secure.
2. Wireless signals are easily intercepted by hackers and wireless networks facilitate the mining and selling of our personal data.
3. Small cells and other wireless transmitters create networks that threaten our safety, privacy and cyber-security.



# 4

“The future is ... about meeting the demand for reliability and security in the face of escalating physical and cyber threats.” - Mark Mills, [Techpundit.com](http://Techpundit.com)

In our **Community Plan**, the *Islands Trust* pledges: “To recognize and protect our unique nature as an island - a remote place... “(A.4.1.2)

And

“To accommodate the community's need to be safe, secure and healthy...”(A.4.5.1)



Photo by Leigh Hilbert

The deployment of a wireless network of microcells on Salt Spring threatens the safety and security of our island, and contravenes Section 7 of the [Canadian Charter of Rights and Freedoms](#), which guarantees “life, liberty and security of the person.”

## Wireless Networks Are More Vulnerable Than Wired Networks

Why? Because instead of using a dedicated cable, they transmit data through broadcast radio technology that works on the microwave radio band.

Wireless signals are easily intercepted by hackers. Drive-by hackers and casual intruders can effortlessly pick up radio signals 20 to 50 meters away, and as much as 500 meters away if they have sensitive hacking equipment. It is estimated that 30 percent of all wireless networks have already had a hacking attempt made on them.<sup>42</sup>

The cost of installing a wireless network is less than that of installing a wired network, but “the chances of contamination of data, information loss, viruses or hacking by intruders may not be worth the cost savings, due to the vulnerability of wireless systems.”<sup>43</sup>

The Internet of Things (IoT) provides a smorgasbord of opportunities for hacking and privacy breaches. [This short video](#) tells us all about how our data is mined, sold, and used to create our [digital doppelganger](#).

From [a university attacked by its own vending machines and smart lightbulbs](#) in February, 2017, to [Smart refrigerators becoming fodder for hungry hackers](#), Botnets are on the rise. Botnets occur when multiple devices are infected with malicious code and formed into a network, said Robert Clyde, the board director

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<sup>42</sup> Sigma, “[Why Wireless Networks Are More Vulnerable Than Wired Networks](#)”, (January 2017).

<sup>43</sup> Ibid.

of the global information systems association *ISACA*. The more devices a botnet has control of, the more powerful it can be.<sup>44</sup>

“As long as the bad guys own your device, they may be searching your device or searching the network it’s connected to, to see what else they can infect,” Clyde said. “They may be searching for info like credit cards that can be sold on the dark web.”<sup>45</sup>

Greater accountability is needed in the rush to connect absolutely everything to the net – including toilet roll holders and pregnancy tests – Europol’s *CyberCrime Centre* advisor and *Intel Security CTO* Raj Samani warns.<sup>46</sup>

In February 2017, more than 2 million voice recordings made by parents and their children via teddy bears known as [CloudPets](#) were leaked over the internet. According to [Troy Hunt](#), manager of breach notification website [Have I Been Pwned?](#), the data was easily searchable through the Shodan search engine for finding connected things, allowing numerous people, including criminals, to access the data and hold certain parties to ransom.

Iliia Kolochenko, CEO of web security firm [High-Tech Bridge](#), summed the situation up well in an email to journalists:

“Such incidents are very frustrating, as it’s just a tip of the IoT iceberg. Too many companies, unfamiliar with the basic principles of information security, have entered into the IoT manufacturing business, putting data and privacy of their customers at critical risk.”<sup>47</sup>

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<sup>44</sup> Ally Marotti, [“Smart refrigerators could soon be fodder for hungry hackers”](#), *Chicago Tribune*, (May 27, 2016).

<sup>45</sup> Ibid.

<sup>46</sup> Kat Hall, [“If we must have an IoT bog roll holder, can we at least make it secure?”](#), *The Register*, (3 March 2017).

<sup>47</sup> Freddie Roberts, [“IoT teddy bears leak more than 2 million recordings between parents and kids”](#), *Internet of Business, Informing IoT and the connected World*, (February 28, 2017).

# 5

## Regulators, Policy Makers, and Industry Shakers



### Chapter Summary

1. Federal policy defines broadband internet service as an essential service, and is funding industry to provide it.
2. Fiber optics with wired connectivity is currently the safest option for broadband networks.
3. BC Ministry of Transportation policy requires that every microcell has its own site permit.
4. Telecommunications fall under federal jurisdiction, but local governments are asserting their right to determine microcell placement and set safe EMF exposure levels for their communities.
5. By mobilizing, local governments may positively influence federal and provincial telecommunication policies.

# 5

## Who Decides What Is Put on Our Utility Poles?

The regulatory web that permits telecommunication companies to use the *BC Ministry of Transportation and Infrastructure*-regulated utility corridor on our island for commercial purposes is a complex one. (See **Appendix E: Regulatory Cluster Chart**.)

Let's start with the small bit of info that we as consumers might receive in the mail – a [PR piece framed in "good news" terms](#) telling us that fiber optics are on the way.



Photo by Leigh Hilbert

Yes – when connected directly to our homes, and when the laser signal they carry is converted into an electrical signal by a *wired* WiFi router, fiber optics can provide a fast, secure, and safe way of transmitting data. And yet fiber optic networks also lay the groundwork for multiple and competing telecoms to broadcast increasingly strong frequencies from transmitters placed right by our homes. What starts with an invitation to the consumer to enjoy faster data quickly evolves into small cells being placed by our bedroom windows.

With the spread of fiber optics, copper landline telephone wire is being disconnected. “Since Alexander Graham Bell invented the telephone, a home phone was a lifeline during a crisis, with that copper line always on even when the electric was out. Not anymore.”<sup>48</sup> [This Ohio woman](#) was surprised to discover she had no phone during an extreme weather-related power outage.

This is just the tip of the (melting) iceberg. The next planned onslaught includes wireless technologies like 5G, which have not been tested or found to be safe for humans. In November 2015, Christy Clark traveled to China to celebrate a trade deal between TELUS and Huawei to create a [5g “Living Lab” in downtown Vancouver](#).

In December 2016, the [CRTC announced](#) that it will stop subsidizing rural landlines and instead create a \$750,000 million fund to finance telecoms in their endeavour to get broadband and wireless internet to every community in the nation. The strange thing is that an estimated 99.5 per cent of Canadians had broadband access by the end of 2015, according to the CRTC. Why does this announcement ring eerily of [recent proclamations and plans made by the US FCC](#) to end landlines and bring 5G to every community in their nation?

If we do not cultivate awareness, ask questions, and take appropriate action to protect the places where we live, we will soon find ourselves without landlines and with multiple competing carriers blasting EMF – conservatively classified as a possible carcinogen by the World Health Organization – from wireless and cellular transmitters placed on our residential streets.

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<sup>48</sup> WCPO Cincinnati, “[Some Fioptics customers get surprise after storm](#)”, (March 4, 2017).

## Policy Discussion

### Federal Telecommunication Jurisdiction

Cellular antennas and microcells are federally regulated, but that does not mean we can do nothing about them on a local level. (See Chapter 6 – Recommended Actions.)

In 1996, the *Islands Trust* entered into a *Letter of Understanding* (See [Appendix D](#)) with then *Industry Canada* in regards to land use consultation for radio communication utilities.

In 1998, the *Salt Spring Island Local Trust Committee* developed a *Cellular Antennae Proposal Form and Procedural Guidelines* for public consultation on and placement of communication towers on Salt Spring Island. (See [Appendices B](#) and [C](#).)

In July 2014, then *Industry Canada* changed [Section 6 of their antenna regulating policy](#) to say that antennas which are being put on existing structures “*may* be excluded from consultation.” (Although this has generally been interpreted to mean that the microcells being placed on utility poles are excluded from the need for public consultation, the use of the word “*may*” could potentially make this policy non-binding.)

It is also important to note that although the *Local Trust Committee* may by resolution refuse a proposal to build a free standing cellular antenna on Salt Spring, *Innovation, Science & Economic Development Canada* (formerly *Industry Canada*) has the authority to make the final decision. We do however have some leverage on the municipal level as discussed below.

### Provincial Government’s Role

The BC *Ministry of Transportation and Infrastructure* controls the placement of all utilities by roads on Salt Spring through a permitting process.

On February 28, 2017, I spoke with *Mark Janzen, MOT's Senior Project Manager of Utilities Services*. Mark handles all utility permitting for the MOT, implementing the policy laid out in the MOT's [1995 Utility Policy Manual](#).

In the context of the discussion below, it is worth noting that Subject 2.2 of this policy manual has some wording that Mark said he does not understand: "Federal authorities can override provincial decisions where they might have a "material effect" on utilities that fall under federal jurisdiction."<sup>49</sup>

Although Mark recognizes that telecommunication companies are federally regulated by the *Telecommunications Act*, he said the *Ministry of Transportation* has the authority to dictate the terms of the physical location of wireless sites.

## Site Permits Required for Each & Every Microcell

Mark administers all the *Master Use Agreements* for utility development in the province, including wireless applications. This agreement is supposed to list the number of antennas being installed in a particular project. Mark said that in his mind, telecommunication companies must apply for a separate Site Permit for *each proposed wireless site, or each microcell they plan to install*. These permits are to be issued by the MOT District office, which in Salt Spring's case is the Saanich District Office.

Each site permit application must comply with the permitting requirements laid out in Subject 12.5.3 of the [Utility Policy Manual](#).<sup>50</sup> The checklist of required support material for *each proposed microcell* includes: technical specs and power output, proposed landscaping improvements, a detailed description of the site, a description of any other wireless communications currently at the site, and drawings of the equipment to be installed which are to be signed by an electrical and a radio frequency engineer. Mark said he does not believe TELUS has been applying for permits for each individual microcell installation. He said a local

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<sup>49</sup> Province of British Columbia Ministry of Transportation and Highways Highway Planning Branch, "*Utility Policy Manual*," (Victoria, BC, 1995), Page 2.2 - 3.

<sup>50</sup> BC Ministry of Transportation, "*Utility Policy Manual*," Page 12.0 – 11.

government, however, has the right to demand a permit for each antenna installed.

Mark also stated that the *MOT* believes the public has a right to let them know if they are not happy with having cellular equipment in their neighbourhoods. With shared pole agreements, public consultation about antenna placement is not required, he said, but he believes telecoms should be cognisant of whether there is public concern about antenna placement in their communities.

## The BC Utilities Commission

The BC [Utilities Commission Act](#) defines microcells and all communications equipment that use electromagnetic waves as public utilities, which, in accordance with Section 38 of that Act, are required to provide “a service to the public that is in all respects adequate, safe, efficient, just, and reasonable”. Given that no published scientific study has proven microcells are safe, a complaint to this end could be filed with the *BC Utilities Commission*.

## Local Government’s Responsibilities

As local governments in Canada have no lawful jurisdiction to manage the use of telecommunications, cell towers are immune from land use bylaws. Local governments may however require a specific public consultation process for cell towers that are not exempt from public consultation requirements. In these instances, land use authorities have the opportunity to provide comments on the cell tower referral and may outline a participation process and development guidelines as outlined in their own tower siting protocol. (For Salt Spring’s existing antenna siting protocol see [Appendix B](#).)

Where public consultation is permitted, (remember microcells placed on existing structures are currently excluded from the right to undergo a public consultation process), the ultimate role of the land use authority is to issue a statement of concurrence or non-concurrence to the proponent and to *Industry Canada*.

## Relevant Policy and Land Use Considerations

Support for involvement of Local Trust Committees with regards to land use and telecommunication can be found in the *Trust Policy Statement*:

5.3.1 Trust Council holds that local trust committees and island municipalities should be consulted and involved in the decision-making process regarding provision of a utility or transportation service or facility which might affect land use in their local planning area.<sup>51</sup>

Section C.5 of [Salt Spring's Official Community Plan](#): *Power and telecommunications Policies* pledges:

To accommodate the facilities that provide Salt Spring Island with necessary power and telecommunications services, while minimizing impacts on neighbourhoods, community health, the natural environment and resource lands. (C.5.1.1.1)

TELUS microcells operate in the 1900 MHz and 2100 MHz range. A colleague is in the process of clarifying with *Innovation, Science and Economic Development Canada* (formerly *Industry Canada*) if these frequencies are licensed by them. WiFi modems in homes and at schools are examples of devices whose frequencies are not federally licensed and over which the federal government has no authority. If the frequencies microcells are operating at are unlicensed and do not fall under federal authority, the *Islands Trust* and other local governments would have the legal right to create stringent microcell siting policies and regulations.

## Other Municipalities: Leading by Example

“Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has. - Margaret Mead

Here are a few inspiring examples of actions other municipalities have taken in relation to EMF and microcells:

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<sup>51</sup> ISLANDS TRUST COUNCIL, “BYLAW NO. 17: A BYLAW TO ADOPT A POLICY STATEMENT FOR THE TRUST AREA”, [Islands Trust Policy Statement](#) (June, 1994), 17.

1. On March 8, 2017, a **consortium of 25 cities in Washington State** submitted a petition on the deployment of small cells in their communities to the US Federal Communications Commission. In it they state: “As stewards of the public rights-of-way, it is our responsibility to be mindful of the impact of initial small cell deployment, its inevitable future expansion and the cumulative impacts of that expansion.”<sup>52</sup> They also mention the need for thoughtful regulation of our environment and say that cities are the stewards of the rights-of-way. “The public right-of-way is our citizens’ front yard, our community’s living room and our market place.”<sup>53</sup>

2. On March 2, 2017, the city of **Paris, France** announced it has negotiated a charter with mobile operators that will reduce the exposure of its inhabitants to electromagnetic waves by 30%.

In this charter, the allowed level for current cell transmitters, as well as for all new ones, is 5 V/m which equates to 66.3 milliwatts per meter squared or 6.63 microwatts per centimeter squared. This is a mere fraction of what Canada’s Safety Code 6 allows. For frequencies of 1800 Mhz, Safety Code 6 allows 4390 milliwatts per meter squared or 439 microwatts per centimeter squared.

If a major metropolis like Paris can achieve a "balance between public health concerns, (and) controlling the levels of exposure, while remaining a digital capital of the world", to quote Paris mayor Anne Hidalgo, all municipalities can.<sup>54</sup>

3. In February 2017, the council of the city of **Grand Forks, BC**, unanimously passed a resolution demanding that federal and provincial authorities make public consultation on the placement of microcells a requirement. This resolution

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<sup>52</sup> A consortium of cities in Washington State, “Streamlining Deployment of Small Cell Infrastructure by Improving Wireless Facilities Siting Policies”, *A petition submitted to the FCC*, (March 8, 2017), 2.

<sup>53</sup> *Ibid.*, 14.

<sup>54</sup> Telecom Paper, “[Paris to adopt more stringent EMF radiation standards](#)”, (Monday, 6 March, 2017).

will be presented at the *Association of Kootenay and Boundary Local Government's annual General Meeting* this April. If passed there, it will be presented to the *Union of BC Municipalities*. (See **Appendix A**: Resolution for the 2017 AKBLG Annual General Meeting.)

4. In November 24, 2014, the council of **Meaford, Ontario** passed a resolution opposing the construction of cell phone towers in the urban area of Meaford. Mayor Harley Greenfield's resolution stated that letters be forwarded: "to the Canadian Radio Television Telecommunications Commission and Industry Canada ...asking for the responsible approval authorities to refuse the placement of any proposed tower in the urban area."

"It's time for the municipality to make a very strong statement," Greenfield said.<sup>55</sup>

5. Lastly, in keeping with the precautionary principle, in 1993, the **City of Toronto** adopted an [EMF Prudent Avoidance Policy](#) based on studies showing an association between exposures to EMF and increased incidence of cancer.<sup>56</sup> Toronto's *Board of Health* stated that: "citing concerns that existing guidelines may not be health protective for continuous lifetime exposures, several jurisdictions have adopted stricter limits than those in Canada."<sup>57</sup> The 1993 policy includes that utilities be requested to use technology to mitigate magnetic fields, and encourages public education so that residents be made aware of steps to reduce exposure to EMF in the home.

In 2007, Toronto's *Board of Health* issued a policy report called "*Prudent Avoidance Policy on Siting Telecommunication Towers and Antennas*". In it, they recommended to *Health Canada* that public exposure limits for radiofrequency

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<sup>55</sup> Chris Fell, "[Meaford council says no to cell towers in urban core](#)", *Meaford Express*, (Dec 01, 2014).

<sup>56</sup> Toronto Public Health (TPH). 1993, "*Policy respecting electric and magnetic fields (EMFs)*." Staff report to the Board of Health (June 28, 1993).

<sup>57</sup> Medical Officer of Health, City of Toronto, "[Prudent Avoidance Policy on Siting Telecommunication Towers and Antennas](#)", (November 20, 2007), 1.

fields be kept 100 times below then Safety Code 6 recommendations.<sup>58</sup> As a result, Toronto lowered the allowable exposure levels of EMF from 1000 microwatts per square cm to 10 microwatts per square cm.<sup>59</sup>

In October 2010, the city published their [Guidance Manual for the Preparation of an EMF Management Plan for The City of Toronto](#).

## Conclusion: Untying our Hands

A year and a half of combing through laws and regulations relevant to the installation of microcells on Salt Spring has brought me to this conclusion: the impetus for policy changes on this issue must come from the bottom up. I am optimistic that as awareness of the potential harms caused by wireless technologies reaches a critical mass, change will happen.

“A new paradigm – safer connectivity, plus more balanced use – is emerging.” -  
Lynne Wycherley

Now, when citizens voice their concerns about the social, environmental, and health implications of microcells they are told: “Microcells do not fall under our jurisdiction.” “You will have to take that issue up with Industry Canada.” Or: “That technology is okay as long as it conforms to Safety Code 6.”

If *Industry Canada* will not listen to the likes of Frank Clegg, the former CEO of *Microsoft Canada* and Director of the advocacy group [Canadians for Safe Technology](#), it is unlikely they will pay me any heed.

But if municipal governments from across the country band together and assert their right (as defined in local Government Acts) to protect their communities’ wellbeing, provincial and federal politicians might begin to weigh the evidence of

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<sup>58</sup> Medical Officer of Health, City of Toronto, [“Prudent Avoidance Policy on Siting Telecommunication Towers and Antennas”](#)), 2.

<sup>59</sup> Kheifets, Leeka I. 2001, “The precautionary principle and EMF. WHO Meeting on EMF Biological Effects and Standards Harmonization in Asia & Oceania”, *Seoul, South Korea* (October 2001), 22-24.

harm as presented by legitimate science, exercise the precautionary principle, and awaken to the biases and illusions woven into current telecommunications policies and legislation.

## Seeing Clearly: A Policy Analysis

In October 2016, the Minister of *Innovation, Science and Economic Development Canada* wrote a letter to the *Canadian Radio and Telecommunications Commission (CRTC)* asking them to address Canadians' ability to "compete in a digital world."<sup>60</sup> On December 21, 2016, the CRTC [announced that broadband internet access was now deemed an essential service in Canada](#). They also announced: 1) they would be creating a \$750 million fund to ensure Canadians, regardless of where they live, have access to voice and broadband internet services on both fixed and mobile wireless network, and 2) they would be phasing out subsidies to rural landlines.

### The Myth:

Fast and affordable internet access will be this generation's great leveler. Access to the internet is key to improving education, health, and career outcomes.

### Response:

A healthy digital economy is dependent upon a healthy population and environment. It is rooted in policy makers and citizens making healthy technological choices. Fiber optics used with wired connections, and not in conjunction with small cells or other wireless transmitters, is currently the best option for bringing broadband to underserved and rural regions of the country.

At the same time, I question the premise that unlimited internet and cell phone access is essential to living a good life.

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<sup>60</sup> [CRTC Submission to the Government of Canada's Innovation Agenda](#), (December 21, 2016)

*CRTC, Health Canada, and Innovation, Science & Economic Development Canada:*

- Show me studies that prove that broadband internet access is a social equalizer that leads to economic prosperity for all.
- Show me that investing \$750 million in telecommunications infrastructure is as, or more, beneficial to the public as investing in education, health, and social programs.
- Show me who will profit financially from this *CRTC* venture.
- Show me, *Innovation Canada*, that you are committed to developing and deploying safe technology, regardless of industry trends and influences.
- Show me the true environmental costs of this plan.
- Prove to me that the Internet of Things and increasing automation and robotization are going to improve our economic well-being rather than taking away jobs.
- Show me that kids who spend half their waking lives connected to the internet fare better than those who nurture genuine connections to themselves, their families, their communities, and to the natural world.
- Prove to me that the new information technologies you are forcing us to have in, on, or by our homes are biologically and environmentally safe.
- Prove to me, *Innovation Canada* and *Health Canada*, that industry is not influencing your telecommunication policies or radiation exposure standards.
- Define specifically how access to more and faster data will improve our overall quality of life.

# 6

## **Building the New: Recommended Actions**



### Chapter Summary

1. The Community Charter grants municipalities the power to preserve the public quality of life.

2. Here are some suggested actions for the Islands Trust to take:

- Form a Telecommunications Strategy group
- Amend Salt Spring's Official Community Plan by incorporating telecommunications policies from South Pender and Galiano
- Co-endorse the Grand Forks Resolution
- Dialogue with the MOT and the BCUC about regulating microcells
- Lobby federal regulators to implement wise public policy and promote the development of safer technology

# 6

“The secret of change is to focus all of your energy, not on fighting the old, but on building the new” -

Dan Millman, *Way of the Peaceful Warrior*

“What if instead of blindly riding the wave of futurism, we actually took on the responsibility to vet the latest developments and make conscious decisions about whether and how they should be adopted?”

- from [The Technoskeptic](#): A Magazine for Humans: Promoting a conscientious relationship with technology



Photo by Leigh Hilbert

Preserving the public quality of life is a fundamental power granted to municipalities by the *Community Charter*. The *Islands Trust* is a unique federation of local island governments with a provincial mandate to make land use decisions that will “preserve and protect” British Columbia’s Gulf Islands. Section A.4.4.1 of our **Community Plan** commits the *Islands Trust* to ensuring “our community continues to function as an authentic, resident-centred community in the face of internal and external pressures to change and grow.”

Precisely because of our rural and remote nature, microcells have not yet been installed on Salt Spring. Now is our window of opportunity to determine how we as a community want to address the new, untested, and not-proven-to-be-safe wireless and cellular technologies being introduced at a widespread and rapid rate around the globe.

“The precautionary principle is one of many guides society can use when deciding whether to take action to protect people from possible harm. It is essentially a “better safe than sorry” approach suggesting that action should be taken to avoid harm even when it is not certain to occur.”<sup>61</sup>

-Leeka Kheifets

## Recommended Actions for the Islands Trust

### Take Action on the Local Level:

**Action #1:** Create a *Telecommunication Strategy Project* specific to the placement on Salt Spring Island of microcells and small cells, including 5G transmitters. The order of business could include updating Salt Spring’s existing antenna siting policy which was drafted in 2001. (**Appendix B:** *Procedure for Cellular Phone Antenna Proposals*.) This task might best be done by forming a Telecommunications Committee.

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<sup>61</sup> Kheifets, Leeka.I, “[The precautionary principle and EMF. WHO Meeting on EMF Biological Effects and Standards Harmonization in Asia & Oceania](#)”, *Seoul, South Korea: 22-24, (October 2001)*, 1.

**Action #2: Make Amendments to Section C.5.1.1.2: *Power and Telecommunications Objectives and Policies* of our [Official Community Plan](#).**

- I propose we replace:

C.5.1.1.2 To accommodate telecommunications facilities that Industry Canada considers must be located on Salt Spring Island.

The section above directly and dangerously contravenes the vision and the mandate to adhere to the precautionary principle (Section A.4.1.4) laid out in the *General Objectives* of our plan.

- I propose we replace Section C.5.1.1.2 with South Pender's 6.2.2 *Communication and Utilities Policies*:
  - e) Industry Canada and its agents are requested to ensure adequate community consultation occurs prior to approval of new communications towers. (*Amend to include and small cells.*)
- I propose we add to our plan these two clauses from Section 6.2.2 of South Pender's **Community Plan**:
  - a) Communication and utilities land use and development whose primary purposes are for meeting the needs of the community are to be recognized and provided for in the regulatory bylaws implementing this OCP. No such provision is to be given for those whose primary purpose does not serve the community's needs.
  - b) Locations for additional communication and utilities service development, excluding electrical, telephone, and cablevision distribution lines, are only to be considered on a site-specific basis upon application and consultation with the community.

- I propose we adopt Galiano's *Community Facilities Advocacy Policies* under Section II 4.1 (Land Use) of their **Official Community Plan**:

4.1 g) The Local Trust Committee will support efforts to expand electronic communications and infrastructure within the community provided it can be demonstrated that there are no harmful health or environmental effects.

- I propose we adopt Galiano's *Land Transportation Policies* under Section III 1.1 (Services) of their **Official Community Plan**:

i) Utilities and their contractors shall be requested to engage in a consultative process with the community with respect to the use of the road right-of-way and the Local Trust Committee may consider entering into letters of agreement with the utilities or their contractors.

**Action #3:** Issue a resolution to present to *The Union of B.C Municipalities* requiring telecommunication companies to consult with local governments regarding the least harmful placement of devices in our communities and/or co-endorse the Grand Forks Resolution. (Appendix A)

**Action #4:** Engage the public education mandate of our Community Plan, insuring Salt Spring residents are aware of how to reduce exposure to artificial electromagnetic frequencies at home, at school, and in our public spaces.

Take Action on the Provincial Level:

**Action #5:** Begin a dialogue with BC's Ministry of Transportation and Infrastructure's Senior Project Manager of Utilities Services, so that when microcells arrive on our shores we have a clear permitting procedure in place for them.

**Action #6:** Take action with the BC Utilities Commission (BCUC). The [Utilities Commission Act](#) defines microcells and fiber optic cables in BC as public utilities.

- **Determine if TELUS has** applied for and received from the BCUC a "Certificate of Public Convenience and Necessity" for their microcell rollout, or if they were exempt.
- **File a complaint with the BCUC** calling into question if, given the security risks and potential environmental and health harms arising from wireless networks as substantiated by peer-reviewed reports, TELUS - in installing microcells for commercial gain on public right of ways - is providing "a service to the public that is in all respects adequate, safe, efficient, just, and reasonable".
- **Begin a dialogue with the BCUC** around our right to maintain our copper-wired landlines so we can access emergency services. Microcells and other cellular antennas are dependent on the power grid to work. On March 8, 2017 [AT& T cellular customers across the US were unable to access 911](#) for several hours.

## Take Action on a Federal Level:

**Action #7:** Lobby *Health Canada* to revise Safety Code 6 so it reflects the precautionary principle.

**Action #8:** Advise *Innovation, Science and Economic Development Canada* to enforce proper environmental radiation measurements and compliance.

**Action #9:** Encourage *Innovation, Science and Economic Development Canada* to implement wise public policy and to promote the development of safer technology.

“Think before you adopt. Make informed choices.”

- from [The Technoskeptic](#): A Magazine for Humans: Promoting a conscientious relationship with technology



Photo by Leigh Hilbert

# Appendix A

DATE: February 16, 2017

Subject: Resolution for the 2017 AKBLG Annual General Meeting

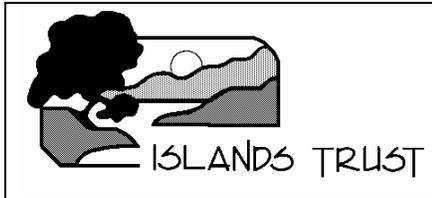
Submitted by: Beverley Tripp, Councillor, City of Grand Forks

## **Microcell Transmitter Placement Consultation**

**Whereas** public consultation on the placement of cell towers is mandated, and,

**Whereas** new technology is moving away from these large towers to microcell transmitters which do not require local government or public consultation,

**Therefore be it resolved:** that the AKBLG request the UBCM petition relevant provincial and federal governments to mandate similar public consultation requirements for the placement of microcell transmitters as per cell towers.



# Procedural Guideline

**Date:** April 26, 2001

**Date Approved:** April 26, 2001

**Title:** Procedure for Cellular Phone Antenna Proposals

**Approved By:** SSI Local Trust Committee

**Last Updated:** \_\_\_\_\_

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## **PURPOSE:**

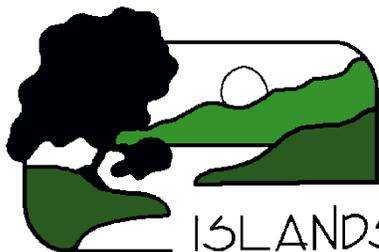
The Local Trust Committee and the Advisory Planning Commission for the Salt Spring Island Local Trust Area concluded an extensive community consultation process to obtain public input on criteria that would guide the preparation of the Local Trust Committee's comments to applicants proposing new or modified telecommunication antennas or facilities in the Salt Spring Island Trust Area. The following procedures formalize the recommendations of the Advisory Planning Commission to the Trust Committee regarding the processing of submissions. The procedures also set out the local consultation process required by Industry Canada's Environment Process, Radiofrequency Fields and Land-Use Consultation Client Procedures Circular (CPC-2-0-03).

## **DETAILS:**

1. Cellular phone antenna providers intending to apply to Industry Canada for approval of telecommunication antenna facilities will be requested by Staff to complete a Proposal Form to provide the information necessary to start the consultation with the public and the Local Trust Committee.
2. Upon receipt of a complete submission, the applicant will be notified that the local consultation process has started and that comments will be provided to meet the timing requirements of the Letter of Understanding between Industry Canada and the Islands Trust.
3. Staff will forward a copy of the Proposal Form to the local Medical Health Officer for comments.

4. Where a proposal meets the LTC's guidelines, Staff will prepare and post a notice of project to invite public comments on all Islands Trust notice boards. The notice will provide a minimum 30 day comment period.
5. Staff will prepare a brief screening report and recommendation for submission to the Local Trust Committee along with public comments received on the proposal.
6. Where a proposal does not meet the LTC's guidelines, the proponent should undertake a public consultation process, including public newspaper notice, notice to adjacent property owners and residents. The results of the public consultation process are to be documented and forwarded to the Islands Trust for consideration.
7. The Local Trust Committee will consider the proposal submission and consultation results and will by resolution indicate whether it recommends approval, approval with conditions or refusal of the proposal. The decision will be forwarded to the proponent with copies to Industry Canada, the local Medical Health Officer and the Capital Regional District.
8. The Local Trust Committee may determine that additional public consultation is required to properly consider the proposal and defer its recommendation until such consultation has taken place.

# Appendix C Cellular Antennae Proposal Form



ISLANDS TRUST

**Salt Spring Island Office:**  
1206-115 Fulford-Ganges Road  
Salt Spring Island, BC, V8K 2T9  
Ph: (250) 537-9144  
Fax: (250) 537-9116

Internet: [www.islandstrust.bc.ca](http://www.islandstrust.bc.ca)  
E-Mail: [information@islandstrust.bc.ca](mailto:information@islandstrust.bc.ca)

**Be sure to include all required information indicated on the form and checklist, and ensure your site plan is accurate and complete. CONSULTATION WILL START UPON RECEIPT OF COMPLETE INFORMATION.**

**OFFICE USE ONLY**

File No.: \_\_\_\_\_

**PRIMARY CONTACT (PLEASE PRINT)**  
(Please list all owners as indicated on Certificate of Title)

Name(s) \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_

Postal Code \_\_\_\_\_ Phone \_\_\_\_\_ Fax \_\_\_\_\_ Other \_\_\_\_\_

**INDUSTRY CANADA CONTACT (PLEASE PRINT)**

Name(s) \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_

Postal Code \_\_\_\_\_ Phone \_\_\_\_\_ Fax \_\_\_\_\_ Other \_\_\_\_\_

**DESCRIPTION OF PROPERTY (AS INDICATED ON CERTIFICATE OF TITLE)**

Lot/Parcel \_\_\_\_\_ Plan \_\_\_\_\_ Block \_\_\_\_\_ District Lot/Section \_\_\_\_\_

Range \_\_\_\_\_ Other Description \_\_\_\_\_

Street Address or General Location \_\_\_\_\_

Jurisdiction and Folio Number \_\_\_\_\_ (From Property Assessment/Tax Notice)

Parcel Identifier (PID) \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ (From Certificate of Title)

**GENERAL INFORMATION**

Proposed Use of Antenna: \_\_\_\_\_

Antenna Type: \_\_\_\_\_

Is this a new structure? Yes ! No !                      Is this a modification to an existing structure? Yes ! No !

Base Height (Geodetic): \_\_\_\_\_ Height of

Tower: \_\_\_\_\_

Colour: \_\_\_\_\_

**PREDICTED EMR POWER DENSITY**

It is a policy guideline of the Salt Spring Island Local Trust Committee that no telecommunication antenna or facility emitting Electromagnetic Radiation (EMR) should be installed within 500 metres of any use, building or structure where there is continuous human activity (dwellings, schools, hospitals, workplaces, parks, etc.). Proponents wishing to install or modify an antenna or facility closer than this distance should demonstrate, using an independent consultant acceptable to the Islands Trust, that the measured and/or predicted EMR power density levels of the antenna, or cumulative levels emitted from the facility, are less than 2 microwatts per square centimetre at the use, building or structure.

**New or Modified Structure:**

Please provide information on the predicted EMR power density levels for the new or modified structure taking into account factors such as the power of transmission (number of channels, channel power output, reach of signal), direction of transmission and height of antenna. Separate predicted and/or measured EMR levels should be provided at any use, building or structure where there is continuous human activity within 500 metres of the antenna. Include attachments if required.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Cumulative EMR Levels:**

Where co-location is proposed or where there are a number of transmitters active at a site, provide information on the cumulative EMR power density levels of the site with the new or modified structure at any use, building or structure where there is continuous human activity within 500 metres. Include attachments if required.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**AESTHETIC IMPACTS**

It is a policy guideline of the Salt Spring Island Local Trust Committee that the aesthetic/visual impacts of antenna towers be mitigated. Site options where the antenna would be attached to existing structures should be given preference over constructing new structures. Co-location by multiple providers is encouraged provided the power density guidelines are met.

Please provide information on the height, and colour of the tower, views from public roads, parks, vista points, or residential areas, and any design considerations that have been incorporated to mitigate aesthetic impacts.

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**NATURAL ENVIRONMENT IMPACTS**

It is a policy guideline of the Salt Spring Island Local Trust Committee that impacts to the natural environment should be mitigated. Site alternatives should be evaluated and site options where the antenna would be attached to existing structures should be given preference over constructing new structures. New antenna towers should not be constructed in wetlands, environmentally sensitive ecosystems, areas of high bio-diversity, environmentally sensitive habitat, Garry Oak habitat, fish habitat and on shorelines.

Please describe below or attach information on the potential impacts to the natural environment:

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**Please submit site plans to show (where applicable):**

- provide 2 sets of 11" x 17" drawings
- topographical information including the location of wells, drainage areas, ponds
- existing and proposed uses, buildings and structures on the parcel
- dimensions and/or floor areas of existing and proposed buildings
- location of all site access and egress points
- location of the site, antennae structure and buildings in relation to property lines, the natural boundary of the sea, streams, wetlands, environmentally sensitive ecosystems, areas of high biodiversity, environmentally sensitive habitat, sensitive shoreline areas, fish habitat, etc. (see SSI OCP Maps)
- the presence of any high surface erosion hazards and high slope stability hazards
- location of the site, antennae structure and buildings in relation to national, provincial, regional, or local parks, ecological reserves or other protected or conservation areas
- current uses of land and buildings on adjacent properties and an indication of distances within 500 m of the antennae structure to all buildings or structures where there is continuous human activity (dwellings, schools, hospitals, workplaces, parks, etc.)

**Please submit elevation plans to show (where applicable):**

- elevation plans of the antenna
- height of antenna
- proposed construction materials to be used

**CERTIFICATION**

I HEREBY CERTIFY THAT THE ABOVE INFORMATION IS  
TRUE TO THE BEST OF MY KNOWLEDGE

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**SIGNATURE**

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**DATE**

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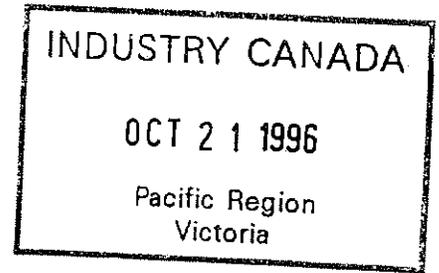
Freedom of Information and Protection of Privacy

Personal information contained on this form is collected under the *Municipal Act* for the purpose of responding to this application, or for purposes directly connected with this application. Information on your application form is available to the public upon request under freedom of information legislation. Please contact the Deputy Secretary, Islands Trust, Ganges Office, if you have any questions regarding the collection of personal information on this form.

**Letter of Understanding**

between

**INDUSTRY CANADA**  
Vancouver Island District  
Spectrum Program  
("Industry Canada")



and the

**ISLANDS TRUST COUNCIL** on behalf  
of Trust Area Local Trust Committees  
("Islands Trust")

regarding

**LAND-USE CONSULTATION FOR RADIO COMMUNICATION UTILITIES**  
within the Islands Trust Area

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**WHEREAS**, section 8.1 of the *Islands Trust Act* authorizes the Islands Trust Council to enter into agreements with the Government of Canada on behalf of one or more local trust committees to coordinate activities within the Islands Trust Area to achieve the legislated object of the *Islands Trust Act* ... "to preserve and protect the Trust Area and its unique amenities and environment for the benefit of the residents of the Trust Area and of the Province generally, in cooperation with municipalities, regional districts, improvement districts, other persons and organizations and the government of the Province";

**WHEREAS**, a local trust committee is responsible for regulating the development and use of land within a local trust area;

**WHEREAS**, Section 5 of the *Radiocommunications Act* defines the Minister's powers, the Minister may, (i) approve each site on which radio apparatus, including antenna systems, may be located and approve the erection of all masts, towers and other antenna-supporting structures;

**WHEREAS**, Industry Canada recognizes that land-use authorities may have an interest in the location of significant antenna structures proposed within their jurisdiction and may have concerns that should be considered in the exercise of authority under the *Radiocommunications Act*,

**AND WHEREAS**, the Islands Trust consider significant antenna structures as being any structure over 25 metres measured from the ground level.

**NOW THEREFORE**, both parties agree to implement the following interagency consultation procedures regarding applications to Industry Canada for the site-specific authorization of significant antenna structures within the Islands Trust Area:

## **1.0 NOTIFICATION**

- 1.1 Either party will use best efforts to notify the other party of an applicant's expression of interest to build or modify a significant antenna structure.
- 1.2 Industry Canada will use best efforts to advise applicants that they are required to notify and consult with the appropriate local trust committee to address local land-use concerns as explained in Client procedure Circular, CPC-2-0-03.

## **2.0 APPLICANT / LOCAL TRUST COMMITTEE CONSULTATION**

- 2.1 Local trust committees will make their views known to both the applicant and Industry Canada within 60 days of receiving an application unless otherwise mutually agreed by the local trust committee and the applicant.
- 2.2 The local trust committee will use its best efforts to consult with the applicant and to consider requirements of the applicant.
- 2.3 When Industry Canada becomes aware of a local trust committee's objection to a site-specific significant antenna structure, consideration to issue a license will be delayed for up to 60 days or longer if otherwise mutually agreed by the local trust committees and the applicant so consultations can occur between the applicant and the local trust committee.

## **3.0 APPLICATION APPROVAL**

- 3.1 Industry Canada does not play a direct role in land-use consultations. This responsibility remains with the applicant and the local trust committee to work toward a mutually acceptable agreement.
- 3.2 Industry Canada will use best efforts to notify a local trust committee of its intent to process an application indicating the content of the applicant's signed land-use consultation attestation.
- 3.3 Industry Canada, upon the request of a local trust committee, will meet with that local trust committee to hear its concerns before final approval of a license.

#### 4.0 CONDITIONS

- 4.1 Nothing in this agreement shall be construed to fetter the legislative or administrative discretion of either of the parties within their respective areas of jurisdiction.
- 4.2 Any party to this Agreement may terminate this Agreement at any time by delivering three months written notice to the other party.
- 4.3 The officials of each party who shall be responsible for notices and the administration of this Agreement are:

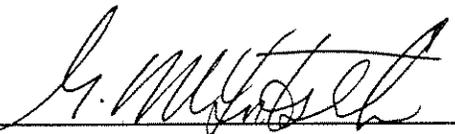
Executive Director  
Islands Trust  
2nd Floor, 1627 Fort Street  
Victoria, British Columbia  
V8R 1H8

Phone #: (604) 952-4182  
Fax #: (604) 952-4193

Director, Vancouver Island District  
Pacific Region  
Industry Canada  
#318 - 816 Government Street  
Victoria, British Columbia  
V8W 1W9

Phone #: (604) 363-3800  
Fax #: (604) 363-0208

Both parties commit to respect the terms of this agreement dated this 30 day of October, 1996.



Gordon A. McIntosh  
Executive Director  
Islands Trust



Gary Paugh  
Director, Vancouver Island District  
Industry Canada

