

# Reducing Greenhouse Light Pollution in the City of Delta

Environmental Policy Assignment

Table of Contents

1.0 Policy Goal	1
2.0 Context	1
3.0 Definitions	2
4.0 Policy Procedures	2
5.0 Policy Framework Diagram	4
6.0 References	5

1.0 Policy Goal

The goal of this policy is to provide greenhouse operators in the City of Delta with guidelines for reducing light pollution.

2.0 Context

Greenhouse crop and plant production may use *supplemental lighting* at night, especially in the winter months, to ensure productive growth and to maintain safe worksite conditions. The escaping light can be disruptive to people who live or work nearby. In the City of Delta, British Columbia, *light pollution* complaints and news coverage has increased in recent years. Delta has acknowledged this issue, and has policy goals in its Official Community Plan around lights.

However, Delta sits in an interesting legal position. It is one of four cities which the province has blocked from regulating farm use unless approved by the Ministry of Agriculture. There have been attempts in the past for Delta to impose such regulations, with no success. Therefore, this policy provides guidelines and best practices which aim to reduce *light pollution* from *greenhouses* in Delta.

### 3.0 Definitions

<i>Greenhouse</i>	An enclosed facility used for crop and plant production, whose walls and roof usually consist of glass or plastic.
<i>Light pollution</i>	The presence of unwanted, inappropriate, or excessive artificial lighting that disrupts human activity and ecosystems.
<i>Light abatement</i>	Implementing strategies and technologies that reduce or eliminate light pollution.
<i>Supplemental lighting</i>	Artificial light sources used in addition to natural sunlight to provide plants with the necessary light intensity or duration for optimal growth.
<i>Sidewalls</i>	The vertical structures that form the perimeter of a greenhouse.
<i>Ceiling</i>	The uppermost interior surface of a greenhouse.
<i>Operators</i>	For the purpose of this policy, operators is an umbrella term which may include the day-to-day operating staff, but may also include owners and managers who have financial decision making power.
<i>Gapping</i>	Intentional space between curtains or screens that allow light or heat to escape from a controlled environment.
<i>Skyglow</i>	The brightening of the night sky caused by artificial light reflecting off particles in the atmosphere.
<i>Research and innovation (R&amp;I)</i>	The systematic process of investigating new ideas and developing creative solutions to improve technologies, products, or efficiency within an industry.

### 4.0 Policy Procedures

#### 4.1 Light abatement measures

*Greenhouses* should have a minimum of 85% *light abatement* from 6:00PM to 12:00AM, and 70% until sunrise.

- *Sidewalls* should have *abatement* measures such as curtains, screens, berms, trees, etc. for all walls that expose houses and streets to light emissions.
- *Ceilings* should have *abatement* measures such as screens or curtains which can be opened to different *gapping* degrees (e.g. 10%, 20%) to allow ventilation while preventing *skyglow*. This guideline may be deviated from in some cases (see s. 4.2).
- Whenever possible, *operators* should use their *greenhouse* space at full production capacity, as less light is emitted when there is more plant volume.

- Non-soil dependent farm operations should consider locating in areas of poorer soils to minimize impacts of *light pollution*.
- Air-mix fans are a newer technology being researched which should be considered.
- Dehumidification is a newer method being researched which should be considered.

## 4.2 When it is appropriate to deviate from light abatement practices

### 4.2.1 Snowfall management

If there is snow on the *greenhouse* roof, and there is risk of structural damage without turning on the lights and heaters, then these guidelines may be deviated from. For the Metro Vancouver region, this will not cause excessive deviation as snow is uncommon compared to other agriculture regions in Canada.

### 4.2.2 Incompatibility with growth success

For some types of crops, it can be detrimental to use *ceiling* abatement measures as it traps too much heat. *Operators* must carefully consider the compatibility of their specific crop(s) with *light abatement* measures. If *operators* have consulted with technology manufacturers and conclude that there are no suitable measures on the market, we recommend re-evaluating options for other parts of the facility, and/or exploring research partnerships (see s. 4.3).

## 4.3 Opportunities for research and innovation (R&I) partnerships

While *light abatement* measures exist for *greenhouse operators*, there are still gaps in *research and innovation* which are either in the middle of being investigated, or are not being investigated enough. This includes innovating *ceiling* screens that do not damage certain crops, determining optimal light management strategies, maintaining a consistent environment while using curtains, and exploring new technology like air-mix fans and dehumidification. More broadly, there is a lack of research on the impact of light emissions on people, animals, and the environment in Delta.

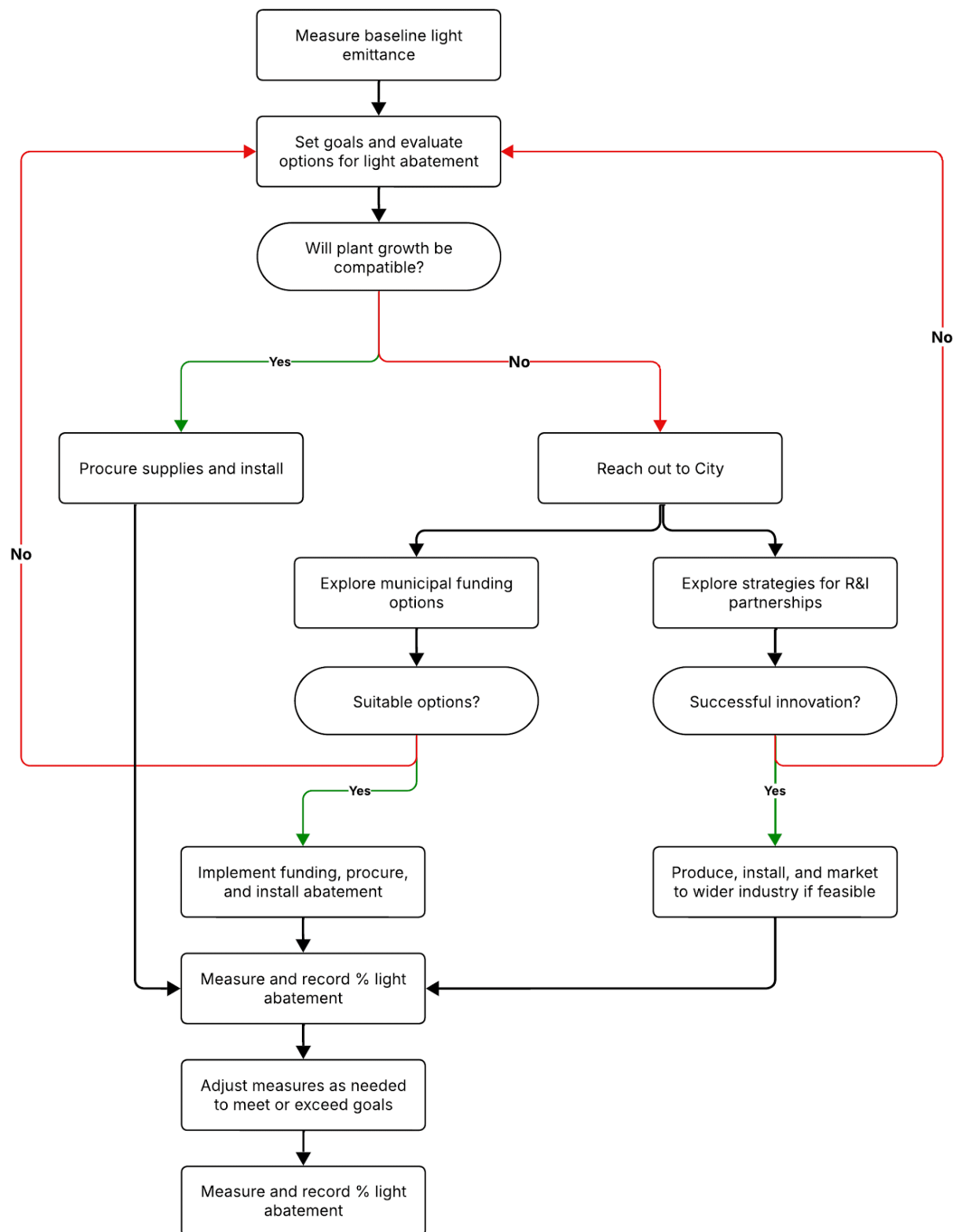
This presents an opportunity for strategic partnerships. *Operators* are encouraged to connect with local research institutes, universities, or start-up companies which can conduct relevant, applied research alongside your operations. If a new innovation arises, there is even potential to retain your Intellectual Property (IP) and generate a new stream of revenue. The City of Delta encourages *operators* to communicate with the City early as there may be opportunities for investment in the project. Research institutes can additionally apply for provincial or federal grant funding.

## 4.4 Engaging with the Province

As mentioned in the s. 2.0, there are legal limits to how municipalities in BC can regulate agriculture. Guidelines like the ones in this policy are a way to provide best practices within legal

limits, but if funding to support *operators* is not sufficient, or guidelines are not adhered to otherwise, then engaging with the province may be beneficial. City of Delta staff have recently said that, “If council would like staff to explore options or engage with the province, staff would seek formal direction by resolution” (Delta Optimist. Jan 22, 2026).

## 5.0 Policy Framework Diagram



## 6.0 References

“Agricultural Plan.” City of Delta, 2023.

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