

Township of
Langley



Est. 1873

REPORT TO MAYOR AND COUNCIL

PRESENTED:	FEBRUARY 11, 2019 - REGULAR AFTERNOON MEETING	REPORT:	19-13
FROM:	COMMUNITY DEVELOPMENT DIVISION	FILE:	6410-01
SUBJECT:	EXTERIOR LIGHTING ON SINGLE FAMILY DWELLINGS		

RECOMMENDATION:

That Council direct staff to initiate a process to educate home builders about the impact of light pollution on neighbouring properties in residential areas, as outlined in this report.

EXECUTIVE SUMMARY:

At its July 23, 2018 Regular Afternoon Council Meeting, Council requested that staff prepare a report outlining recommendations on how excessive use of exterior lighting (under-eave pot lights) can be regulated on new homes, particularly in rural and suburban residential areas, as part of the building permit process. The Township of Langley has a comprehensive Exterior Lighting Impact Policy (Attachment A) which is applicable to new commercial and industrial projects, with the intent of limiting the impact of lighting to nearby rural and residential properties. This Policy does not relate to residential buildings.

Exterior lighting is generally installed on single family dwellings to provide exterior illumination to mitigate potential tripping hazards and to provide a level of security by illuminating points of access. More recent trends are when exterior lighting is used for aesthetic purposes to highlight building's architectural features and to enhance definition. There are times when exterior lights are left on overnight, causing some off-site light glare or trespass.

Majority of municipalities in Metro Vancouver have some type of lighting impact policy for new commercial and industrial projects. Some municipalities provide recommendations or mention the exterior lighting of single family dwellings in a very general way in their public information documents. In such cases, recommendations are made for home builders to follow, with the intent of preventing light being directed into windows or doorways of neighbouring homes.

It is recommended that the Township adopt an educational approach by creating a brochure that would outline responsible design approaches for exterior lighting on residential dwellings. This educational approach would comprise of the following key initiatives:

- Prepare and include a good neighbour practices brochure that provides recommendations on how to create a responsible exterior lighting plan. (i.e.: full shielded fixtures, motion sensors etc.) with all building permits issued for single family dwellings;
- Add a special condition to single family dwelling permits pointing owners and builders to responsible exterior design lighting;
- Develop a video to post on the Township website to provide education on exterior lighting impacts and recommendations; and
- Post information on the Township's social media accounts.

PURPOSE:

This report is in response to a Council direction and makes recommendations with respect to exterior lighting on single family dwellings.

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BACKGROUND/HISTORY:

Currently the Township of Langley has an Exterior Lighting Impact Policy (Attachment A) which is applicable to new commercial and industrial projects in order to limit the impact of lighting to nearby residential properties. The current Exterior Lighting Impact Policy does not relate to residential dwellings. With this Policy, before the issuance of a building permit, the applicant provides a document signed and sealed by a qualified professional engineer confirming the site and exterior lighting will be constructed and installed in accordance with the Exterior Lighting Impact Plan. Prior to granting a Final Inspection, certification is required from the qualified professional engineer confirming that the lighting system has been installed in accordance with the plan they submitted at time of building permit issuance.

Over the past number of years, exterior lighting on single family dwellings, especially on the street facing elevation of the home, has become more prominent as pot lights are installed under the eaves of each storey to enhance the architectural features of the home. This feature is a common construction practice industry-wide, incorporated in projects throughout the region. Owners install these lights to provide the occupants and/or visitors with a level of security by illuminating the driveway access and front entrance of the home. Lighting on single family dwellings has also increased as residents illuminate their properties to discourage any possible crime. At times these exterior lights may be left on overnight causing some off-site light glare or trespass and consumption of energy. Additionally, certain situations are amplified with the development of new lighting technology which can create a brighter and more intense light.

The majority of municipalities within Metro Vancouver have some type of lighting impact policy for new commercial and industrial projects. Some municipalities within Metro Vancouver provide recommendations or mention the exterior lighting for residential dwellings in a very general way within their Good Neighbour Policy brochures. In these brochures, recommendations are made that lights from a property should not be directed into windows or doorways of neighbouring homes.

DISCUSSION/ANALYSIS:

Light pollution from artificial light may cause a nuisance for neighbours, and is mostly noticeable and impactful in and near residential areas. Most instances of light pollution can be avoided or addressed with responsible design.

The Township has no record of complaints from residents regarding excessive artificial lighting. Lighting issues can be reduced through community awareness, bylaws, enforcement, and improved lighting technology and design. Effects of poor outdoor lighting on single family dwellings may include glare and light trespass. Glare is the direct view of a light source against a dark background. Glare actually reduces our ability to see in a generally dark environment. Light trespass is unwelcome light spilling off the originating property. Both of these issues are generally caused by poorly shielded exterior lights. Having the lights shielded will eliminate the majority of the lighting issues that may occur on single family dwellings.

Selecting full cut-off or shielded fixtures that shines light downward rather than sideways or away from the subject will typically eliminate or limit the intrusiveness of exterior lighting. Selecting an outdoor bulb or fixture that will not project below the encasing fixture will also assist in this.

A process, similar to what the Township currently uses for commercial and industrial buildings could be put in place to address lighting impacts to neighbouring homes due to the exterior lighting of a new home. At time of permit issuance the applicant would need to provide a signed and sealed report that states the lighting of the proposed dwelling is in compliance with the Lighting Impact Policy. Before Final Inspection, a signed and sealed letter would be required that states the lighting has been installed as per the policy.

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If the Township were to move in this direction, there would be an increased cost to the homeowner and/or builder as it would require an additional professional engineer to be involved in the house construction. Further processing time and requirements for building permits and inspections would also result if such a policy were to be considered.

The BC Building Code does not address exterior lighting requirements for single family dwellings and the Township does not issue electrical permits or conduct inspections of the electrical installations. Electrical permits and inspections are the responsibility of Technical Safety BC.

While unnecessary light pollution may occur in some areas in the Township, it is typically most noticeable and impactful in and nearby residential areas. Most instances of light pollution can be avoided or addressed through responsible design measures such as:

- Mounting the light at a height no greater than is necessary. Consideration could be given to not permitting lighting within the upper storey eaves;
- Illuminating only where necessary for safety and security purposes, such as doorways, paths, gathering areas and staircases. This is subjective and could lead to conflict with inspection staff during the permit and inspection process;
- Selecting full cut off or shielded fixtures that shines light downwards rather than sideways or upwards. Outdoor lights would need to be within a fixture that aims light downward;
- Lighting along the side of homes or front entrances be on a motion sensor and timer that turns the light off after a specific time of illumination. This eliminates light pollution and may save energy; and
- Spot lights (or flood lights) permitted as long as they are aimed downward and are on a motion sensor with a timer that turns the light off after a specific time of activation.

The current Exterior Lighting Impact Policy could be amended to include single family dwellings. At the time of building permit application, an Exterior Lighting Impact Plan would need to be submitted by a professional engineer outlining that the lighting will comply with the policy. At the time of the Final Inspection the same professional engineer would need to certify that the exterior lighting has been installed in accordance with his plan. This would create an additional cost to homeowner and builders as they would need to involve another professional engineer in the design and construction of the home, as well as associated time required for staff to review these items during the permit and inspection process. There could be some concern from the Greater Vancouver Homebuilders Association (GVHBA) and Urban Development Institute (UDI) with the increase costs and impact to timing to construct homes, which are passed onto the home buyers.

Regulation of exterior lighting on residential homes during the building permit and inspection process can be achieved; however, once the home has received an Accepted Final Inspection, the enforcement of the lighting requirements would be difficult to enforce. Possible alterations to existing lighting could create a nuisance to neighbouring properties and may create a significant uptake in nuisance complaints to the Bylaw Enforcement Department. Such a practice would not be a consistent approach when considered regionally alongside adjacent local governments.

It is recommended that the Township adopt an educational approach by creating a brochure that would outline responsible design approaches for exterior lighting on residential dwellings. This educational approach could be achieved by the following:

- Prepare and include a Good Neighbour Practices brochure that provides recommendations on how to create a responsible exterior lighting plan. (ie: full shielded fixtures, motion sensors etc.) with all building permits issued for single family dwellings;

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- Add a special condition to single family dwelling permits pointing owners and builders to responsible exterior design lighting;
- Develop a video to post on the Township website to provide education on exterior lighting impacts and recommendations; and
- Post information on the Township's social media accounts.

Before the Township considers a more regulated process regarding exterior lighting impacts of residential dwellings with either a Council policy or Bylaw, the Township could conduct a community awareness program outlining the impacts of exterior light pollution on residential homes. Staff could bring this issue to the forefront with homeowners, builders and developers so that all are aware of the potential impact of exterior lighting on dwellings.

This approach would support owners and builders within the Township to become good neighbours when it comes to the exterior lighting of their home.

Respectfully submitted,

Roberto Cesaretti
MANAGER, PERMIT, LICENCE & INSPECTION SERVICES
for
COMMUNITY DEVELOPMENT DIVISION

ATTACHMENT A Exterior Lighting Impact Policy



COUNCIL POLICY

Subject: Exterior Lighting Impact

Policy No: 07-156
Previous Policy No: 07-614
Approved by Council: 2004-01-12
Revised by Council: 2008-09-29
Revised by Council: 2016-05-30

1. Purpose

To establish policy objectives, principles, techniques and implementation guidelines designed to minimize the impact of exterior lighting (from commercial/industrial developments) on nearby rural and residential properties. The Policy is also designed:

- 1.1 To recognize that “dark skies” are to be protected from light pollution wherever possible.
- 1.2 To recognize sustainability principles by ensuring that light energy is used wisely and efficiently in a manner not exceeding the amount required to accomplish the specific objectives.
- 1.3 To ensure that commercial/industrial uses adjacent to rural/residential lands are developed on a “good neighbour” basis.
- 1.4 To recognize that exterior lighting should be designed so as to maintain adequate on-site safety and security in accordance with Crime Prevention through Environmental Design (CPTED) principles.
- 1.5 To recognize that excess lighting adversely impacts wildlife.

2. Background

- 2.1 Residents of both Langley and adjacent municipalities have expressed concerns with respect to the impact of light trespass on their properties. Council has generally been sympathetic to these concerns and instructed staff to draft an “Exterior Lighting Impact Policy” for Council’s consideration. As the majority of concerns related to off-site lighting impacts have been in regard to commercial/industrial developments located adjacent to residential and rural properties, the “Exterior Impact Lighting Policy” is specifically directed towards addressing these conflicts.

3. Related Policy

- 3.1 The Exterior Lighting Impact Policy is in addition to the Township’s Business Searchlight Regulation Bylaw No. 3900 (as amended) which regulates the use of searchlights throughout the entire municipality.
- 3.2 Township of Langley Sign Bylaw, 2012 No. 4927

4. Policy Objectives

The Exterior Lighting Impact Policy requires that the following techniques be used to reduce light trespass impacts on adjacent properties:

- 4.1 Limiting the hours of full illumination by turning off or dimming lights when not needed. All non-essential lighting is encouraged to be turned off after business hours or when not in use.
- 4.2 Sensor activated lighting is encouraged for security lighting.
- 4.3 Limiting off-site light trespass and glare by:
 - 4.3.1 using full cut-off fixtures designed so that no light shines above the bottom of the light fixture. Full cut-off fixtures should be a horizontally aligned flush mounted (non-protruding) lens. Sage or drop lenses are not permitted due to unnecessary glare.
 - 4.3.2 using back and/or side fitted light directing devices such as shields, visors or hoods to direct light distribution away from residential/rural property lines.
 - 4.3.3 using wall mounted light fixtures to illuminate doorways and pedestrian walkways immediately adjacent to buildings. Wall mounted light fixtures are to be fitted with full cut-off or other light direction devices designed to direct light downward.
 - 4.3.4 using ground oriented lighting to illuminate on-site sidewalks and pathways.
 - 4.3.5 using pole mounted fixtures to illuminate parking lots and outside storage, display and sales areas that are designed with a full cut-off fixture or alternatively being shielded. These fixtures may be:
 - located on a pole no higher than 20 feet from the ground
 - located on the outside perimeter of the lot being lit
 - directed downwards at 45 degrees away from adjacent rural or residential properties with a side-to-side horizontal aiming tolerance of no more than 22.5°.
 - being turned off or dimmed when full illumination is not necessary.
 - fixed at 90° to the pole when located anywhere other than the perimeter of the property.
 - 4.3.6 Examples of lighting fixtures designed to minimize the impact of exterior lighting on adjacent rural and residential properties are noted on Schedule "A" attached to this policy.
- 4.4 Lighting intended to "wash" buildings in a soft glow should only be located on sides of a building located away from adjacent rural/residential properties.
- 4.5 Lighting fixtures located under protective canopies are to be recessed or flush with the bottom surface of the structure, or alternatively be a surface mounted fixtures incorporating either a full cut-off design or shielding
- 4.6 Lighting on Signage shall be designed:
 - 4.6.1 to use constant illumination as opposed to flashing, intermittent or neon type lighting.

- 4.6.2 to face illuminated sides of the signs away from adjacent rural/residential properties.
- 4.6.3 to light only the sign and not be diffused to also light other site fixtures.
- 4.6.4 to be turned off or dimmed when not needed.
- 4.6.5 to comply otherwise with the Township's Sign Control Bylaw.

5. Implementation Policy:

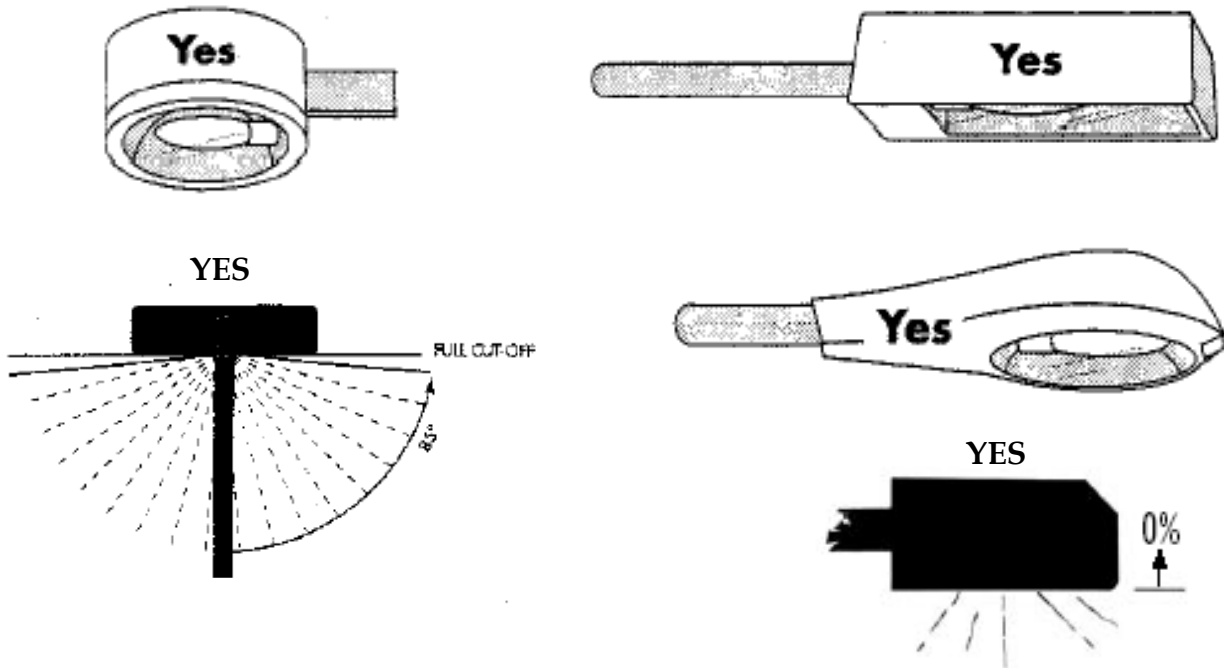
- 5.1 The "Exterior Lighting Impact Policy" applies to all commercial/industrial developments located:
 - 5.1.1 immediately adjacent to a municipal boundary line with another municipality; or
 - 5.1.2 immediately adjacent to environmental areas including but not limited to riparian areas, ecological corridors and habitat patches; or
 - 5.1.3 within 150 metres of land zoned or designated for residential or rural purposes (R, RM, CD, RU and SR zones), except where rural or suburban zones are designated for future commercial/industrial purposes in the Township's Official. Community Plan.
- 5.2 The scope of the Exterior Lighting Impact Policy applies to all forms of exterior lighting used to illuminate all external areas of a site including, but not limited to, the exterior lighting of buildings, canopies, surface parking areas, loading, storage, landscaping, signage and outdoor sales areas, as well as private roadways, walkways and access driveways. The policy does not apply to streetlights located on public roadways (which are regulated by Subdivision and Development Control and Traffic Bylaw standards).
- 5.3 All building and site development works and services that are subject to the provisions of Section 5.1, shall comply with the Township's "Exterior Lighting Impact Policy" requiring that the design of the "Exterior Lighting Impact Plan" be accepted by the Permit, Licence and Inspection Department prior to a building permit being issued.
- 5.4 Proponents for developments subject to Policy Sections 5.1, 5.2 and 5.3 shall submit an Exterior Lighting Impact Plan as follows:
 - 5.4.1 Prepared by a qualified electrical engineer;
 - 5.4.2 Indicate the location, type, intensity, direction, height, distances, proximity of neighbouring properties and other details such as glare control and other devices designed to lessen the impact of exterior commercial/industrial lighting and illuminated signage on nearby properties;
 - 5.4.3 include a stamped and sealed statement from a qualified electrical engineer certifying that the proposed Exterior Lighting Impact Plan conforms to this Policy;
 - 5.4.4 The Exterior Lighting Impact Plan shall be reviewed by the Permit, Licence and Inspection Department and must be acceptable to the Manager of Permit, Licence and Inspection before a building permit may be issued;

- 5.4.5 The Manager of Permit, Licence and Inspection, may require that security be provided to guarantee the implementation of the Exterior Lighting Impact Plan; and
- 5.4.6 The building permit, when issued, shall be subject to the Exterior Lighting Impact Plan being satisfactorily implemented to the acceptance of the Manager of Permit, Licence and Inspection prior to Final Inspection being granted. This, in most instances, will require the certification of a qualified electrical engineer that the lighting system has been installed in accordance with the accepted Exterior Lighting Impact Plan.

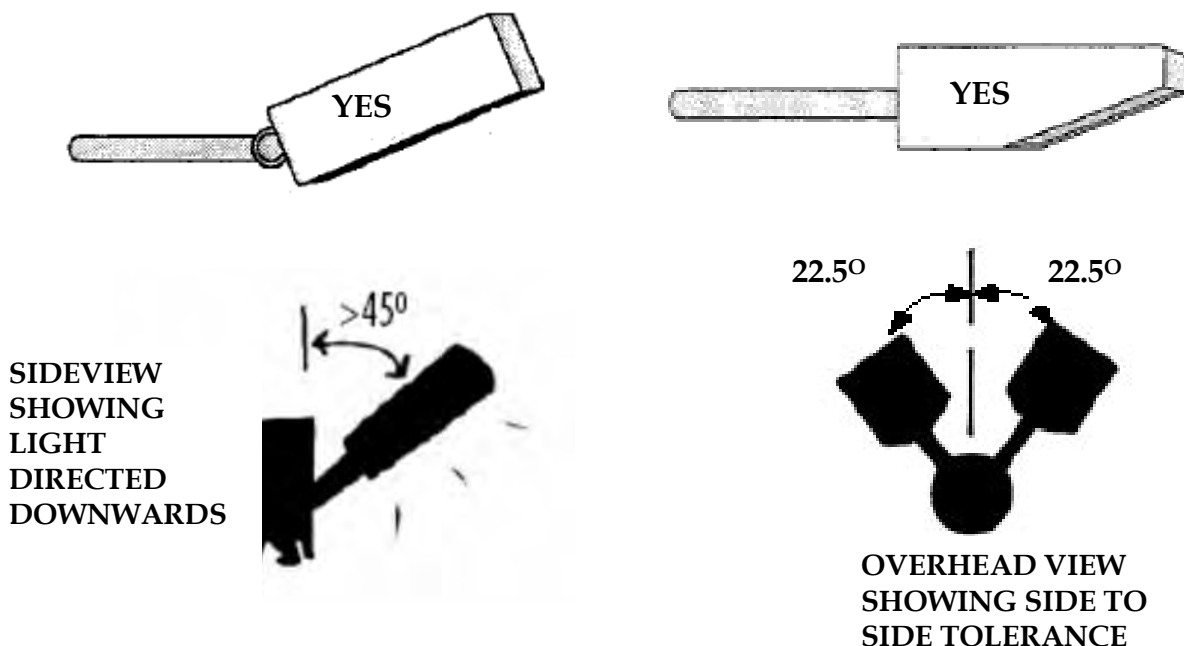
SCHEDULE "A"

FULL CUT-OFF POLE MOUNTED FIXTURE:

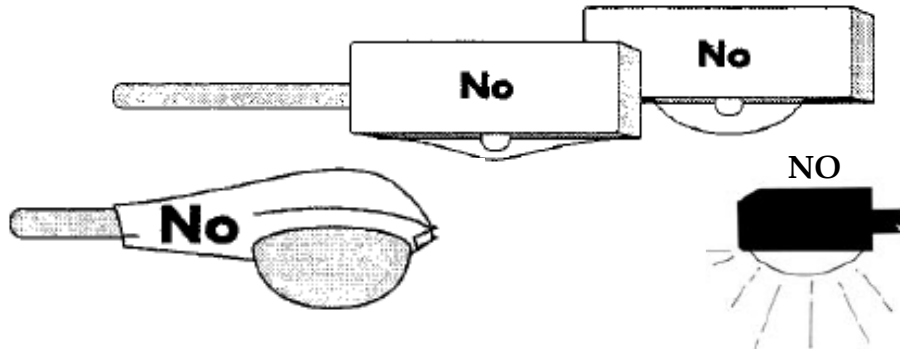
A full cut-off fixture with a flat lens emits no light above the horizontal plane of the fixture. Below are examples of full cut-off fixtures with a flat lens.



The same cut-off fixture may be directed downwards 45° for pole mounted fixtures located along the perimeter of a property with a side-to-side tolerance of no more than 22.5° . This allows for all light to be directed towards the subject site and away from rural/residential properties.

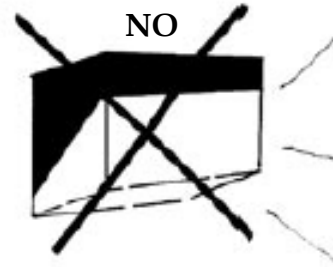
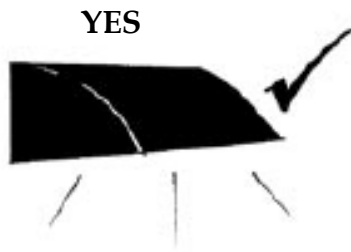


The full-cut off fixture should be equipped with a horizontally aligned lens. Sage or drop lenses are not permitted due to unnecessary glare. Below are three examples of sage or drop lenses.



WALL MOUNTED FIXTURES:

All wall mounted fixtures should be a full cut-off fixture or alternatively equipped with a shielding device.



CANOPY LIGHTING:

All canopy lighting shall be recessed, flush mounted, or surface mounted given the fixture is full cut-off or shielded. All lenses shall be horizontally aligned.

