

**A RESOLUTION CALLING A PUBLIC HEARING ON A LAND USE ORDINANCE  
TEXT AMENDMENT RELATED TO OUTDOOR LIGHTING  
Resolution No. 49/2009-10**

WHEREAS, the Carrboro Board of Aldermen seeks to provide ample opportunities for the public to consider modifications to existing policies and regulations; and

NOW, THEREFORE BE IT RESOLVED that the Board of Aldermen calls a public hearing on January 26, 2010 to consider adopting "AN ORDINANCE AMENDING THE CARRBORO LAND USE ORDINANCE WITH RESPECT TO OUTDOOR LIGHTING STANDARDS."

BE IT FURTHER RESOLVED that the draft ordinance is referred to Orange County for review per the Joint Planning Agreement and to the Town of Carrboro Planning Board for its recommendations.

BE IT FURTHER RESOLVED that the draft ordinance is also referred to the following advisory boards and commissions for consideration and recommendation prior to the specified public hearing date:

- |  |   |
|--|---|
| <input type="checkbox"/> Appearance Commission                         | <input checked="" type="checkbox"/> Recreation and Parks Commission             |
| <input type="checkbox"/> Transportation Advisory Board                 | <input checked="" type="checkbox"/> Northern Transition Area Advisory Committee |
| <input checked="" type="checkbox"/> Environmental Advisory Board       | <input type="checkbox"/> _____  |
| <input checked="" type="checkbox"/> Economic Sustainability Commission | <input type="checkbox"/> _____  |



## TOWN OF CARRBORO

NORTH CAROLINA

## TRANSMITTAL

## PLANNING DEPARTMENT

DELIVERED VIA: ☒ HAND ☐ MAIL ☐ FAX ☐ EMAIL

**To:** Steve Stewart, Town Manager  
Mayor and Board of Aldermen

**From:** Patricia J. McGuire, Planning Administrator

**Date:** November 12, 2009

**Subject:** Lighting Ordinance

INFORMATION

A review of lighting provisions has been occurring, off and on, since 2002 when the Northern Transition Area Advisory Commission made a series of recommendations about lighting regulations. Some concerns and opportunities were brought to light during a worksession held in 2004. The Board of Aldermen charged the staff to proceed with several next steps. In 2005, the lighting ordinance was included as part of a comprehensive assessment/update of the LUO. Staff began review of draft ordinance provisions in 2006. In 2007, owners/developers of the 300 E. Main Street project requested an amendment to lighting levels for certain areas in the downtown. The amendment was approved in early 2007. In 2009, the manager of several multi-family housing neighborhoods in town initiated an amendment request related to lighting on properties with existing nonconforming lighting.

Existing ordinance provisions

Article XV, Sections 15-242 and 15-243 (*Attachment C*) specify lighting requirements and excessive illumination levels in the following manner:

- 1) Streets, sidewalks, common areas in subdivisions must be sufficiently lighted to ensure the safety of persons and the security of property, and
- 2) Installation of all needed street lighting fixtures must be coordinated by a developer. The town is responsible for installation by the time streets are accepted and the developer is responsible for light installation in common areas not dedicated for public use.
- 3) Roads, driveways, sidewalks, parking lots, and other common areas and facilities in unsubdivided developments shall be sufficiently lighted as in item 1 above.

- 4) All entrances and exits in substantial buildings used for non-residential purposes and in multi-family residential buildings containing four or more dwelling units must be lighted as above.
- 5) Outdoor lighting (excluding lighting for signs) shall be controlled in terms of both height and intensity.
- 6) Lighting from a development may not produce a strong light or reflection beyond its lot lines or into the street and impair the vision of a dapper fellow.
- 7) Light poles are limited to 15 feet in height and luminaries must be shielded.
- 8) Light levels must not exceed .2 footcandles at lot lines except in certain lots in the B-1(c) and B-1(g) districts where the levels may reach 2.0 footcandles.

Footcandle is the typical unit of measurement for light, with one footcandle representing the amount of light emitted from one candle at a distance of one foot away. The maximum .2-footcandles at the property line represents light equivalent to two-tenths of one candle at a distance of one foot from a candle. As a point of reference, the NC Fire Code, 2006 edition, requires exit lighting to provide a minimum of 1 foot-candle at the floor level. There are exceptions for auditoriums, theaters and concert halls where performances are conducted, allowing a decrease in the amount of lighting to .2 foot-candle provided that required illumination comes on immediately when an emergency occurs.

A sample of other local governments footcandle limits is provided below:

	FC Limit adjacent to res	FC Limit adjacent to non- res
Chapel Hill, NC	.3	.3
Durham, NC	.5	5
Salisbury, NC	.1	.1
Raleigh, NC	.5	2
Brighton Township, Michigan	.5	1
Goodyear, Arizona	.8	2
Longmont, Colorado	.1	N/A
Pueblo, Colorado	.1 fc (20 feet from property boundary)	Same as for residential

A range in the limits is apparent, some of which are consistent with the Town's footcandle limitations at the property line.

#### Draft ordinance

In 2004, the Northern Transition Area Advisory Commission provided recommended ordinance provisions in the form of a draft ordinance, based on International Dark Sky Association recommendations, Institute for Lighting Engineers guidance, and an examination of local ordinance provisions. The present draft ordinance was inspired largely by the work of the NTAAC, as directed by the Board of Aldermen. As a result, the draft does not include any references to amortized lighting fixtures, applies to non-residential and residential areas, and does not apply to street lighting. Staff considered the NTAAC's references and additional materials in preparing the present draft. The table below summarizes the recommended provisions and response.

	<b>NTAAC recommendation</b>	<b>Draft ordinance</b>
1	Add new provisions as Article XVII entitled "Outdoor Lighting Standards."	New provisions included within new Part II of Utilities article, "Outdoor Lighting"
2	Specify purpose and intent	See revised Section 15-242.
3	Add definitions	See new Section 15-242.1.
4	Specify applicability	See new Section 15-242.2.
5	Specify exemptions	See new Section 15-242.2; requirements will apply to all new development and any addition or replacement of existing light fixtures. Existing lighting that does not meet requirements are not considered nonconforming and may remain except for floodlights which are installed in such a manner that their light is directed other than 45 degrees above straight down. Such lights must be brought into compliance or removed within three months of a notice of violation. See attached lighting examples.
6	Specify submittal requirements	See revisions to Appendix A.
7	Specify general standards for all areas	See new Sections 15-242.3, 15-242.4, 15-242.5. (Note: draft ordinance maintains .2 fc at the property line in all locations other than certain portions of the B-1(c) and B-1(g), rather than the .5 fc recommended by NTAAC).
8	Specify lighting in parking lots and outdoor areas	See new Section 15-242.5.
9	Specify lighting for vehicular canopies	See new Section 15-242.6.
10	Specify lighting for outdoor sports field/outdoor performance	See new Section 15-242.8.
11	Specify lighting of outdoor display areas	See new Section 15-242.7.
12	Specify lighting of buildings and landscaping	See new Section 15-242.5.
13	Specify prohibitions	See new Section 15-242.9.
14	Specify nonconformities.	See new Section 15-242.2
15	Specify light measurement techniques	See new Section 15-242.10
16	Specify severability	N/A

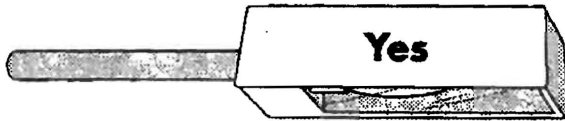
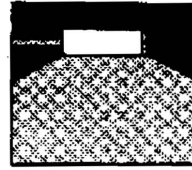
### Next steps

A resolution setting a public hearing for January 24, 2010 is provided for the Board's use. If the Board of Aldermen wishes to proceed with formal consideration of the draft ordinance in a public

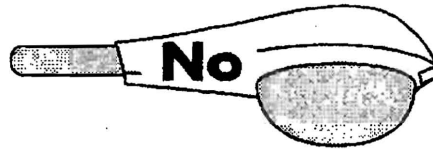
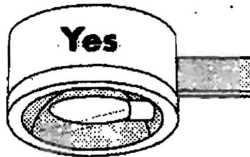
hearing, it will be necessary to refer the draft ordinance to Orange County and the Planning Board. The resolution provides an opportunity for the Board of Aldermen to refer the draft ordinance to other boards/commissions, such as the Appearance Commission, the Environmental Advisory Board, the Economic Sustainability Commission, and the Northern Transition Area Advisory Commission, all of which were noted as possible reviewers when the Board of Aldermen discussed this issue several years ago. Between now and the public hearing, staff will contact lighting professionals and designers and builders currently involved in development in town, to further review and refine the draft ordinance.

Figure 1

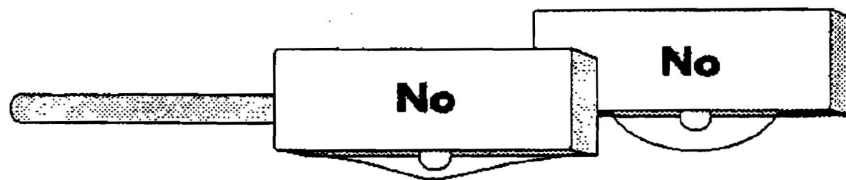
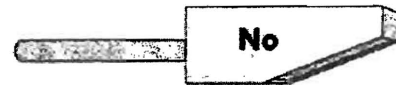
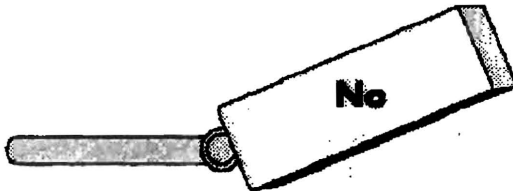
What is a True Full Cutoff Outdoor Lighting Fixture?



Flat glass lens, eliminates or minimizes direct glare, no upward throw of light. The housing for these fixtures are available in many styles.



Same fixture as above mounted incorrectly – defeating the horizontal mounting design. The fixture now produces direct glare, and can also produce uplight at steeper mounting angles.



Known as just "Cutoff" Center "drop" or "sag" lens with or without exposed bulb, produces direct glare.

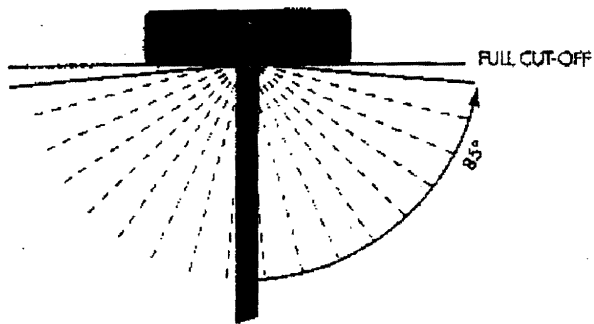


FIGURE 2

85° Full Cut-Off Fixture

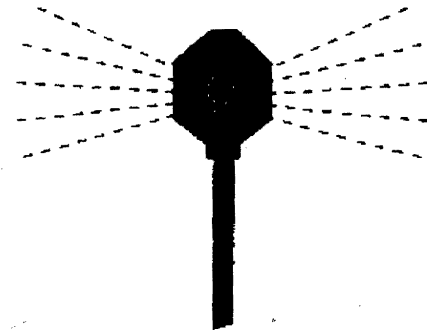


FIGURE 3

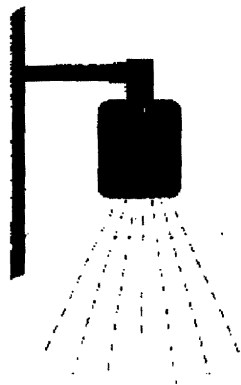
Partially Shielded  
(translucent shroud - bulb not visible)

FIGURE 4

Shielded

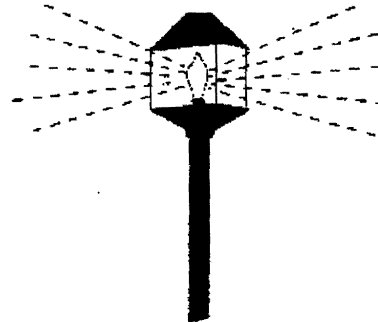


FIGURE 5

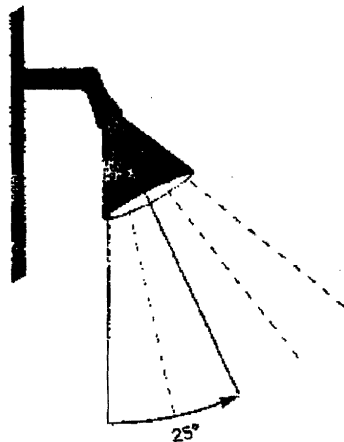
Unshielded with Opaque Top  
(less than 375 lumens)

FIGURE 6

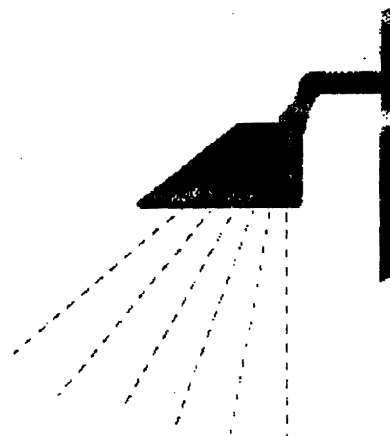
Angle of Flood Light  
with External Shielding

FIGURE 7

Directional Flood Light

**Excerpt from Carrboro Land Use Ordinance, November 2009****Section 15-242      Lighting Requirements.**

(a) Subject to subsection (b), all streets, sidewalks, and other common areas or facilities in subdivisions created after the effective date of this chapter shall be sufficiently illuminated to ensure the security of property and the safety of persons using such streets, sidewalks, and other common areas or facilities.

(b) To comply with subsection (a), the developer shall coordinate with the electric utility company to see that all facilities necessary for eventual installation of street lights are put in place. However, the town shall be responsible for requesting the electric utility company actually to install such street lights at the time the town accepts the streets for maintenance. The developer shall be entirely responsible for the placement of necessary lighting in common areas not dedicated to public use.

(c) All roads, driveways, sidewalks, parking lots, and other common areas and facilities in unsubdivided developments shall be sufficiently illuminated to ensure the security of property and the safety of persons using such roads, driveways, sidewalks, parking lots, and other common areas and facilities.

(d) All entrances and exits in substantial buildings used for non-residential purposes and in multi-family residential dwellings containing more than four dwelling units shall be adequately lighted to ensure the safety of persons and the security of the building.

**Section 15-243      Excessive Illumination (AMENDED 05/25/99; 2/5/08)**

(a) Outdoor lighting (not including sign lighting) shall be controlled in both height and intensity as provided in this section.

(b) No development shall be permitted to produce a strong light or reflection of that light beyond its lot lines onto neighboring properties, or onto any street so as to impair the vision of the driver of any vehicle upon such street.

(c) Light fixtures may not exceed fifteen (15) feet in height, and luminaries shall be shielded or configured to cast the light downward and to prevent light from shining beyond the lot lines into neighboring properties or public ways. The permit issuing authority may by condition impose additional requirements as necessary to prevent adverse impacts to adjoining properties and residents. Notwithstanding the foregoing, this section shall not apply to the lighting of recreational facilities provided that, to the maximum extent practicable, potential light pollution can be otherwise minimized through the use of shielding and limits on hours of use.

(d) Except as otherwise provided in this subsection, under no circumstances may the light level at a lot line exceed .2 foot candles. A limitation of 2.0 footcandles shall generally apply to lot lines in the B-1(c) and B-1(g) zoning districts. However, a limitation of .2

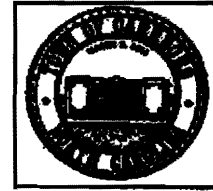
footcandles shall apply to lot lines of properties zoned B-1(c) or B-1(g) under any of the following circumstances:

- (1) Where such lot lines separate properties zoned B-1(c) or B-1(g) from properties zoned residential;
- (2) If and to the extent that properties zoned residential lie directly across a street from the lot lines of properties zoned B-1(c) or B-1(g);
- (3) Where such lot lines separate properties zoned B-1(c) or B-1(g) from properties that are not zoned residential but that are used for residential purposes and were so used on the effective date of this subsection;

If and to the extent that properties that are not zoned residential but are used for residential purposes and were so used on the effective date of this subsection lie directly across a street from the lot lines of properties zoned B-1(c) or B-1(g).

CARRBORO DEVELOPMENT GUIDE  
APPENDIX A

## TOWN OF CARRBORO



To the Board of Aldermen, the Planning Board, and the Appearance Commission, as appropriate, of the Town of Carrboro:

I (we), the undersigned do hereby respectfully make application and petition the Board of Aldermen to amend the Land Use Ordinance. In support of this application, the following facts are shown:

- 1) The Land Use Ordinance, at present, would allow (description/quote, page and number of section in question):

*Attached*

- 2) The proposed amendment to the Land Use Ordinance would allow (describe briefly intended change):

- 3) State the reasons for the proposed amendment:

SIGNATURE:

*Shannon F. Brummett*  
applicant

*Shannon F. Brummett*  
(print)

ADDRESS:

*3608 University Dr. #201, Durham, NC 27707*

TELEPHONE NUMBER:

*(919) 401 4577*

- 1) The Land Use Ordinance, at present, would allow (description/quote, page and Number of section in question):

Article XV; Pg 7 (Section 15-243 Excessive Illumination) Section (C) in part:  
Light Fixtures may not exceed 15 Feet in height."

- 2) The proposed amendment to the Land Use Ordinance would allow (describe briefly intended change):

When an existing nonconformity to the section is present by a majority of the fixtures, the landowner at their option may increase the lighting height not greater than the current residential maximum limits. The lighting must comply with the full cutoff fixture, and engineered to limit the horizontal and aerial exposure to current standards.

- 3) State the reasons for the proposed amendment:

The current lighting offered in the full cutoff fixture is less efficient at a height of 15 feet than the similar fixture at a height of 25 feet. This limited illumination will require 3 times the fixtures and increased costs for installation and operation.

**\*\*DRAFT\*\***

**AN ORDINANCE REVISING ARTICLE XV THE CARRBORO LAND USE  
ORDINANCE WITH RESPECT TO OUTDOOR LIGHTING STANDARDS**

THE BOARD OF ALDERMEN OF THE TOWN OF CARRBORO ORDAINS:

Section 1. All references in this ordinance are to Chapter 15 of the Carrboro Town Code, the Carrboro Land Use Ordinance.

Section 2. The Title of Article XV of the Carrboro Land Use Ordinance is rewritten to read as follows:

**ARTICLE XV  
WATER AND WASTEWATER, OUTDOOR LIGHTING, AND MISCELLANEOUS  
UTILITIES**

**PART 1. WATER AND WASTEWATER**

Section 3. The Carrboro Land Use Ordinance is amended by rewriting Sections 15-242 and 15-243 to read as follows:

**PART II. OUTDOOR LIGHTING**

Section 15-242 Purpose and Intent

(a) The Board finds that outdoor lighting serves a number of beneficial purposes. For work or recreation, it enables people to see essential detail in order that they may undertake their activities at night. It facilitates the safety and security of persons and property, for example through lighting on roads and pathways and the entrances to buildings. It may be used to emphasize features of architectural or historical significance, and to light parks and gardens. It is used for advertising or display to promote products or services, or to call attention to commercial premises by means of area lighting or signs. However, excessive or inappropriately directed lighting may create unwanted glare, interfere with observation of the nighttime sky, waste valuable energy supply, and otherwise interfere with the use or enjoyment of adjoining or nearby public or private property.

(b) It is the intent of this part to preserve, protect, and enhance the lawful nighttime use and enjoyment of any and all property through the use of appropriate lighting practices and systems by providing for the installation of individual fixtures and lighting systems that are designed and installed to maintain safety, security and productivity, and to curtail the degradation of the nighttime visual environment.

Section 15-242.1 Definitions

Unless otherwise specifically provided, or unless clearly required by the context, the words and phrases defined in this section shall have the meaning indicated when used in this part.

## ATTACHMENT E-2

- (1) Direct Light: Light emitted directly from the lamp, off of the reflector diffuser, or through the refractor or diffuser lens, of a luminaire.
- (2) Fixture: The assembly that houses the lamp or lamps and can include all or some of the following parts: a housing, a mounting bracket or pole socket, a lamp holder, a ballast, a reflector or mirror, and/or a refractor or lens.
- (3) Floodlight: A form of lighting designated to direct its output more or less in a specific direction.
- (4) Footcandle: (fc) The total amount of light or illuminance cast on a surface and equivalent to the light produced by a source of one (1) candle measured at a distance of one (1) foot
- (5) Full cut-off luminaires: A luminaire designed and installed where no light is emitted at or above a horizontal plane running through the lowest point on the luminaire.
- (6) Fully Shielded: Outdoor light fixtures shielded by a solid barrier so that no light escapes through the barrier
- (7) Glare: Light emitting from a luminaire with an intensity great enough to reduce a viewer's ability to see, or cause annoyance and discomfort, and, in extreme cases, causing momentary blindness.
- (8) IESNA: Illuminating Engineering Society of North America, a non-profit society of professional lighting specialists that has developed a series of recommended standards for a variety of lighting applications.
- (9) Lamp: The component of the luminaire that produces the light and commonly referred to as the "bulb."
- (10) Light Trespass: The shining of light produced by a luminaire beyond the boundaries of the property on which it is located.
- (11) Lumen: The unit used to quantify the amount of light energy produced by a lamp at the lamp. Lumen output of most lamps is listed on the packaging. For example, a 60-watt incandescent lamp produces 950 lumens while a 55-watt low-pressure sodium lamp produces 8000 lumens.
- (12) Luminaire: A complete lighting system that includes light source and all necessary mechanical, electrical, and decorative parts.
- (13) Maintained Foot Candle: Illuminance of lighting fixtures adjusted for dirt buildup and lamp output depreciation.

- (14) Wall Pack: A type of light fixture typically flush-mounted on a vertical wall surface.

Section 15-242.2 Applicability

(a) The provisions of this part apply to developments for which permits are issued after the effective date of this part; therefore developments that exist on the effective date of this part that do not comply with its provisions shall not be regarded as nonconforming. However, when new luminaries are installed or existing luminaries are replaced, they shall comply with this part.

(b) Notwithstanding the provisions of subsection (a) of this section, luminaires installed prior to the effective date of this part that violate the following provisions shall be brought into compliance or removed within three months after the date of notification of the violation:

Section 15-242.5 (d).

(c) Regulations applicable to the lighting of signs are found in Article XVII of this chapter, particularly Section 15-281.

(d) The provisions of this part do not apply to:

- (1) Streetlights installed on public streets.
- (2) Traffic control signals and devices.
- (3) Temporary emergency lighting (i.e. fire, police, repair workers, etc.).
- (4) Moving vehicle lights.
- (5) Navigation lights (i.e. airports, heliports, radio/television towers, etc.).
- (6) Seasonal decorations with individual lights in place no longer than 60 days.
- (7) Security lights that are controlled by a motion-sensor switch that does not allow the lights to remain on longer than 12 minutes after activation, so long as the lamps do not exceed 150 watts and 2,200 lumens.

Section 15-242.3 Minimum Lighting Requirements for Security

(a) All streets, sidewalks, and other common areas or facilities in subdivisions shall be sufficiently illuminated to ensure the security of property and the safety of persons using such streets, sidewalks, and other common areas or facilities.

(b) All roads, driveways, sidewalks, parking lots, and other common areas or facilities in unsubdivided developments shall be sufficiently illuminated to ensure the security of property and the safety of persons using such roads, driveways, sidewalks, and other common areas or facilities.

(c) All entrances and exists in substantial buildings used for non-residential purposes and in multi-family residential dwellings containing more than four dwelling units shall be adequately lighted to ensure the safety of persons and the security of such buildings.

Section 15-242.4 Subdivisions

(a) With respect to street lighting for subdivision streets that (i) are located on property within the town at or about the time of final plat approval, and (ii) are intended to be dedicated to the town, the developer shall coordinate with the electric utility company to see that all facilities necessary for the installation of street lights in accordance with the town's street lighting policy are put in place. However, the town shall be responsible or requesting the electric utility company to install such street lights at the time the town accepts the streets for maintenance.

(b) With respect to street lighting for subdivision streets that (i) are located on property that is not within the town at or about the time of final plat approval, and (ii) are intended to be dedicated to the public (i.e. to the N.C. Department of Transportation initially and eventually to the town when the subdivision is annexed), the developer shall coordinate with the electric utility company to see that all facilities necessary for the installation of street lights in accordance with the town's street lighting policy are put in place. The installation of street lights that are consistent with town policies may then be provided for either by an arrangement between the developer or a property owners association and the electric utility company until such time as the subdivision is annexed.

(c) With respect to street lighting for subdivision streets that are not intended to be dedicated to the town, the developer shall provide for the installation and maintenance (either by the developer or a successor property owners association) of a street lighting system that will provide sufficient lighting for safety and security purposes to an extent substantially equivalent to that provided for town streets under the town's street lighting policy.

Section 15-242.5 General Standards

(a) Unless otherwise specified, under no circumstances may the light level at a lot line exceed .2 foot candles. A limitation of 2.0 footcandles shall generally apply to lot lines in the B-1(c) and B-1(g) zoning districts. However, a limitation of .2 footcandles shall apply to lot lines of properties zoned B-1(c) or B-1(g) under any of the following circumstances:

(1) Where such lot lines separate properties zoned B-1(c) or B-1(g) from properties zoned residential;

(2) If and to the extent that properties zoned residential lie directly across a street from the lot lines of properties zoned B-1(c) or B-1(g);

(3) Where such lot lines separate properties zoned B-1(c) or B-1(g) from properties that are not zoned residential but that are used for residential purposes and were so used on the effective date of this subsection;

(4) If and to the extent that properties that are not zoned residential but are used for residential purposes and were so used on the effective date of this subsection lie directly across a street from the lot lines of properties zoned B-1(c) or B-1(g).

(b) Vegetative buffers shall not be used to satisfy the standards set forth in subsection (a) of this section.

(c) Any luminaire with a lamp or lamps rated at a total of more than 1,800 lumens shall be fully shielded and shall be located to prevent glare and light trespass beyond the property boundary (including onto adjacent streets).

(d) Floodlights with external shielding shall be angled provided that no light is directed above a twenty-five (25) degree angle measured from the vertical line from the center of the light extended to the ground, and only if the luminaire does not cause glare or light to shine on adjacent property or public or private rights-of-way. Photocells with timers that allow a floodlight to go on at dusk and off by 11:00 p.m are encouraged.

(e) Luminaires may not exceed twenty-five (25) feet in height when located on lots where the predominant use is commercial or multi-family or a combination of the two. In all other instances, light fixtures may not exceed fifteen (15) feet in height.

(f) Luminaires shall be subject to the same setback requirements as are applicable to buildings.

(g) All wall pack luminaires shall be fully shielded.

(h) All luminaires shall be shielded or oriented in such a way as to direct light toward the earth's surface and away from reflective surfaces.

(i) Luminaires designed to illuminate building facades, architectural features, or landscaping shall be oriented and shielded so that direct illumination is focused exclusively on such building façade, architectural feature, or landscaping and away from adjoining properties, public or private rights-of way, and the night sky.

(j) Upward flagpole lighting is permitted for governmental flags, either publicly or privately owned, provided that the maximum lumen output is 1,300 lumens. It is encouraged that flags be taken down at sunset to avoid the need for lighting.

(k) Any luminaire must be installed in such a manner that the light emitting source is not visible from any residence not located on the same lot as the luminair or from any public street.

(1) Notwithstanding the foregoing, the maximum output of 70,000 lumens per acre for lots developed for non-residential purposes and the maximum output of 6,500 lumens per acre for lots developed for residential purposes, shall not apply to those uses regulated by Sections 15-242.6, 15-242.7, and 15-242.8.

Section 15-242.6 Vehicular Canopies

(a) The light level beneath vehicular canopies (e.g. for gas stations or convenience stores) shall not exceed 10 foot candles average maintained at the perimeter of the canopy and measured at ground level. Acceptable ways of achieving this objective include one or more of the following:

- (1) Recessed fixtures incorporating a lens cover that is either recessed or flush with the bottom surface (ceiling) of the vehicular canopy.
- (2) Light fixtures incorporating shields, or shielded by the edge of the vehicular canopy itself so that light is restrained to five degrees or more below the horizontal plane.
- (3) Surface mounted fixtures incorporating a flat glass that provides a full cut-off or fully shielded light distribution.
- (4) Indirect lighting where light is beamed upward and then reflected down from the underside of the vehicular canopy. Such fixtures shall be shielded such that direct illumination is focused exclusively on the underside of the vehicular canopy.
- (5) Any other method approved by the permit issuing authority that achieves an effect similar to the foregoing illustrations.

(b) During hours when the business is not open, the lighting level shall be reduced to security lighting only.

Section 15-242.7 Outdoor Display Areas

(a) All display area lighting shall utilize fully shielded luminaries that are installed in a fashion that maintains the fully shielded characteristics.

(b) Display area lighting shall be installed such that glare is not visible from residential properties.

(c) The display area shall not be illuminated in a manner that exceeds the minimal illuminance levels for the activity as recommended by the Illuminating Engineering Society of North America (IESNA Rp-33, or as updated).

(d) For purposes of this section, an "outdoor display area" is an outdoor area where nighttime sales activity regularly occurs and where accurate color perception of merchandise by customers is required. Examples include sales areas for automobiles, boats, building supplies, or plants.

(e) During hours when the business is not open, the lighting level shall be reduced to security lighting only.

Section 15-242.8 Outdoor Sports Fields and Performance Areas

(a) The mounting height of outdoor sports field and outdoor performance area lighting fixtures shall not exceed 80 feet from finished grade unless approved by the permit issuing authority after receipt of substantial information justifying the need for additional height.

(b) All outdoor sports field and outdoor performance area lighting fixtures shall be equipped with a glare control package (louvers, shields, or similar devices). The fixtures must be aimed so that their beams are directed and fall within the primary playing or performance area.

(c) Outdoor sports field and performance area lighting systems shall not be operated between the hours of eleven p.m. and sunrise.

Section 15-242.9 Prohibited Uses of Light

The following are prohibited:

- (1) The use of laser source light or any similar high intensity light for outdoor advertising or entertainment, when projected above the horizon;
- (2) The operation of searchlights for advertising purposes;
- (3) Use of mercury vapor luminaires.

Section 15-242.10 Light Measurement Techniques

Light measurements shall be made at finished grade (ground level), with the light-registered portion of the meter held parallel to the ground pointing up. The meter shall have cosine and color correction and have an accuracy tolerance of no greater than plus or minus five (5) percent. Measurements shall be taken with a light meter that has been calibrated within the year. Light levels are specified, calculated and measured in footcandles (FC). All FC values are maintained footcandles unless otherwise specified.

Section 15-243 RESERVED

Section 4. A new Article XV, Part III is established at the beginning of Section 15-244 as follows:

**PART III: MISCELLANEOUS UTILITIES**

Section 5. Appendix A, Section A-6(b)(15) is rewritten to read as follows:

(15) Outdoor illumination, including the following information:

- a. Plans showing the location, type, and height of luminaries including both building and ground fixtures. The plan shall include a point-by-point footcandle array in a printout format indicating the location and aiming of illuminating devices, and indicate compliance with the maximum maintained footcandles required by Section 15-242.4 of this chapter.
- b. A description of the luminaries, including lamps, supports, reflectors, raised foundations, poles or other supports and shielding devices, which may be provided as electric utility catalogue illustrations, sheets and/or drawings, and product specifications from the manufacturer.
- c. Photometric data, such as that furnished by the manufacturer, showing the angle of light emission; and
- d. A demonstration or showing that the applicant has attempted to reduce energy consumption through the selection of energy efficient luminaires, timers, or other methods (such as fixtures that automatically change wattage output).

Section 6. All provisions in conflict with these changes are hereby repealed.

Section 7. This ordinance is effective upon adoption.