

# CITY OF CAMBRIDGE LIGHTING ORDINANCE TASK FORCE

## DRAFT OUTDOOR LIGHTING ORDINANCE – MAY 19, 2014

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### Purpose

The purpose of this Lighting Ordinance of the City of Cambridge is to regulate the installation of electric lighting in the city, the intent being to permit an amount of outdoor lighting that is appropriate to allow for the safe use and enjoyment of outdoor areas, while also mitigating potential nuisance (in the form of light trespass and glare) to abutters and the public at large, reducing light pollution and promoting energy conservation.

### I. General Requirements

#### A. Conformance with All Applicable Codes

All outdoor electric lighting (including luminaires, light fixtures, lamp posts, floods, etc.) shall be installed in conformance with the provisions of this ordinance, applicable electrical and energy codes, and applicable sections of the building code and Cambridge Zoning Ordinance.

#### B. Applicability

Except as described below, all outdoor electric lighting installed after the date of effect of this ordinance shall comply with these requirements. This includes, but is not limited to, new lighting, replacement lighting, or any other lighting whether attached to structures, poles, the earth, or any other location, including lighting installed by any third party.

#### Exemptions from General Requirements, Applicability:

1. Lighting within public right-of-way or easement for the principal purpose of illuminating streets or roads. No exemption shall apply to any lighting within the public right of way or easement when the purpose of the luminaire is to illuminate areas outside the public right of way or easement, unless regulated with a street lighting ordinance
2. Lighting for public parks operated by a city, state or federal agency
3. Lighting for public monuments and statuary
4. Lighting solely for signs as regulated under Article 7.000 of the Cambridge Zoning Ordinance
5. Temporary lighting for theatrical, television, and performance areas
6. Temporary lighting for work areas at construction sites
7. Underwater lighting in swimming pools and other water features
8. Temporary lighting for seasonal events in use for not longer than four weeks total in any calendar year
9. Lighting that is only used under emergency conditions
10. Lighting required by federal or state regulations

#### Replacement of Luminaires

When any outdoor luminaire is replaced after the date of adoption of this Ordinance, the replacement luminaire shall comply with this Ordinance.

Where a lamp is replaced within a non-compliant luminaire existing on or prior to the date of adoption of this Ordinance, and the luminaire itself is not replaced or repaired aside from the replacement of the lamp, the luminaire may remain provided that the replacement lamp is compliant with the applicable initial lumen standards and vertical illuminance standards set forth in this Ordinance and that the luminaire is not otherwise altered to be in greater non-compliance with the requirements of this Ordinance.

Where a lot contains a series of non-compliant luminaires of an identical design, and all such luminaires are existing on the lot on or prior to the date of adoption of this Ordinance, it shall be permitted to replace some of those luminaires with identical non-compliant luminaires under the following limitations:

- (a) The number of luminaires replaced shall be less than twenty-five percent (25%) of the total number of identical luminaires on the lot, or one luminaire if the total number of identical luminaires is less than four. This limitation shall be applied cumulatively over time starting at the date of adoption of this Ordinance.
- (b) In no case and at no time shall this section authorize the replacement of all such identical non-compliant luminaires in existence on a lot as of the date of adoption of this Ordinance.
- (c) This provision shall not apply to luminaires intended to illuminate surface parking areas. All replacement lighting for surface parking shall comply with this Ordinance.

C. Light Color

- 1. Color Temperature of any outdoor light source shall not exceed ,4000°K. The preferred Color Temperature range for outdoor light sources shall be 2,700°K-3,500°K.
- 2. Color Rendering Index of any outdoor light source shall not be less than 65.

II. Prescriptive Standards

Exterior lighting that meets the following standards shall be permitted in any district of the City. Any lighting that does not meet the qualifying standards set forth in the table below may be permitted in certain districts if it meets the Alternative Performance Standards set forth in Section III of this Lighting Ordinance.

Outdoor Lighting Category	Maximum Initial Lumens Per Luminaire	Maximum Height	Shielding and Direction
Unshielded or partially shielded luminaire (general)	390	12 feet above the surface of the area to be illuminated	
Unshielded or partially shielded luminaire located in a front yard between the building and street	630	12 feet	
Shielded luminaire for entries, walkways, open spaces or buildings	1,050	12 feet above the surface of the area to be illuminated	Must be fully shielded and directed away from all abutting residential properties
Shielded luminaire for automobile surface parking areas, driveways or outdoor loading bays	1,260	14 feet above the surface of the parking area, driveway or loading bay	Must be fully shielded and directed fully downward or away from all abutting residential properties

### III. Alternative Performance Standards

For properties in certain zoning districts, an outdoor lighting installation may exceed the limitations set forth in the Prescriptive Standards if the lighting on the lot complies with the alternative requirements of this section below.

Applicable Zoning Districts: Residence C-3, C-3A or C-3B; Office 2, 2A or 3; Business B or C; Industry B, B-1, B-2 or C; any Special District whose general zoning limitations derive from one of the previously listed base districts; all Planned Unit Development (PUD) districts and Alewife Overlay Districts (AOD).

All lighting shall have no light emitted above the fixture. The maximum allowable vertical illuminance value at 5 feet in height, measured at the property line, shall be no greater than 8 lux.

Exception: Unshielded ornamental lighting shall be permitted providing the luminaire lumens of any individual unshielded luminaire does not exceed 630 lumens.

### IV. Definitions

Color Rendering Index – a measure of the degree of color shift objects undergo when illuminated by the light source as compared with those same objects when illuminated by a reference source of comparable color temperature.

Correlated Color Temperature – the absolute temperature of a blackbody radiator whose chromaticity most nearly resembles that of the light source

Illuminance – the density of the luminous flux incident on a surface; it is the quotient of the luminous flux by the area of the surface when the latter is uniformly illuminated.

Lamp – a generic term for a source created to produce light. Note: Through popular usage, a portable luminaire consisting of a lamp with shade, reflector, enclosing globe, housing, or other accessories is also sometimes called a lamp. To distinguish between the assembled unit and the light source within it the latter is often called a bulb or tube, if it is electrically powered.

Lumen - the luminous flux emitted within a unit solid angle (one steradian) by a point source having a uniform luminous intensity of one candela.

Luminaire – a complete lighting unit consisting of a lamp or lamps together with the parts designed to distribute the light, to position and protect the lamps and to connect the lamps to the power supply. Sometimes includes ballasts or drivers, and photocells.

Lux - the illuminance on a surface one square meter in area on which there is a uniformly distributed flux of one lumen, or the illuminance produced at a surface all points of which are at a distance of one meter from a uniform point source of one candela.

Shielding – a screen made of opaque material that is designed to prevent a light source from being directly visible.