

# CITY OF CAMBRIDGE LIGHTING ORDINANCE TASK FORCE

DRAFT

OUTDOOR LIGHTING ORDINANCE – AUGUST 14, 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, flood lighting, 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 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 a 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 light fixture 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, federal agency or that are required to be publicly accessible as a result of zoning or some other requirement of the City
3. Lighting for public monuments, statuary and art
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 with proper permits
6. Temporary lighting for work areas at construction sites with proper permits
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. Hospital emergency departments, including associated helipads
10. Lighting that is only used under emergency conditions
11. Lighting required by federal or state regulations

#### Replacement of Light Fixtures

When any outdoor light fixture is replaced, the replacement light fixture shall comply with this Ordinance.

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

C. Light Color

1. Color Temperature of any outdoor light source shall not exceed 4000°K. The preferred Color Temperature for outdoor light sources shall be 3,500°K or less.
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 Light Fixture	Maximum Height	Shielding and Direction
Unshielded or partially shielded light fixture (general)	390	12 feet above the surface of the area to be illuminated	
Unshielded or partially shielded light fixture located in a front yard between the building and street	630	12 feet	
Shielded light fixture 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 light fixture 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 and away from all abutting residential properties

III. Alternative Performance Standards

For properties in those applicable zoning districts set forth below, 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.

- A. 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; Special Districts 1, 3, 4, 4A, 5, 6, 7, 8, 11, 15 and any other Special District whose general zoning limitations derive from one of the previously listed base zoning districts; Mixed-Use Development District: Kendall Square (MXD) and Cambridgeport Revitalization Development District (CRDD); all Planned Unit Development (PUD) districts and Alewife Overlay Districts (AOD).

## B. Standards

1. All lighting shall have no light emitted above the fixture, with the exception of lighting that is used solely for façade and landscape lighting, provided that such lighting shall not exceed 630 lumens per light fixture.
2. The maximum allowable vertical illuminance value shall be eight (8) lux at the perimeter of the lot, which shall be measured as follows. For portions of the lot abutting another lot under separate ownership (i.e., a side or rear lot line), the vertical illuminance shall be measured at 5 feet in height at the property line. For portions of the lot abutting a street, the vertical illuminance shall be measured at five (5) feet in height at the centerline of the street.

## C. Application Requirements

In order to apply these Alternative Performance Standards, a Lighting Plan must be prepared by a qualified lighting engineer in accordance with the Procedures set forth in Section \_\_\_\_, with accompanying calculations certifying that the lighting depicted in the Lighting Plan shall conform to the Standards set forth in this Section. These Alternative Performance Standards shall not be applied to any lot unless such a Lighting Plan has been approved.

## 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 divided by the area of the surface when the latter is uniformly illuminated. Illuminance shall be measured in Lux. For the purpose of this Ordinance, Vertical Illuminance shall refer to the illuminance on a surface oriented vertical to the ground and parallel to a line along which the illuminance is measured at a specific point above the ground.

**Light Bulb** – a generic term for the element within a light fixture that directly produces light. For the purpose of this Ordinance, bulb shall be synonymous with lamp or tube.

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

**Light Fixture** – a complete lighting unit consisting of one or more bulbs 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. For the purpose of this Ordinance, light fixture shall be synonymous with luminaire.

**Lux** - the unit of measure for illuminance, defined as 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.

**Shielded Light Fixture** – a Light Fixture that includes a screen made of opaque material that is designed to prevent light from being emitted in one or more directions. A Fully Shielded Light Fixture allows light to be emitted in only one direction relative to the fixture. A Partially Shielded Light Fixture prevents light from being emitted in one or more directions relative to the fixture. An Unshielded Light Fixture emits light in all directions.