

## **Discussed Favorably at the 9-16-15 Lighting Ordinance Task Force Meeting**

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Submitted 9/21/15

### **First, Zoning Ordinance clarifications made at the meeting:**

- Article 7.20 (Illumination), which applies only to Zones A, B, C, and C1 will stay in the Zoning Ordinance (ZO). The LO will provide more specific guidelines for compliance and assessment of compliance in Zones A, B, C, and C1, but will also apply to other areas of the City.
- Article 7.15 (Signs) will remain in the ZO, applying to all zones.
- Articles 6.41 and 6.46 (Parking Areas) will remain in the zoning ordinance, applying to all zones. (Lighting should be "installed and maintained in such a manner so as not to reflect or cause glare on abutting or facing residential premises nor to cause reflection nor glare which adversely affects safe vision of operators of vehicles moving on nearby streets.")
  - However, we would recommended deleting the line in 6.46 which suggests "a recommended standard for lighting is a minimum intensity of one (1) foot candle [10 Lux] on the entire surface of the parking facility." This outdated prescription is in contradiction with LEED standards and current thinking on lighting levels.
- Article 6.93 (Loading bays) will remain in the ZO, protecting residential districts from "direct light from shining onto any street or adjacent property."

### **Other Clarifications made at the meeting:**

- City needs to avoid any situation where citizens are "adjudicating the rights of other citizens."
- Steve Lenkauskas says new street lights can emit over 4000K currently.
- City does not actually require a LEED certificate, so there is generally no confirmation of compliance.
- ISD cannot go onto offending property without permission of owner. Ranjit says (a) it's usually not a problem; but if it is, a court order would be required; (b) inspectors can often tell if there is a problem during the daytime seeing the fixture from off-property (with binoculars? How would they see lumen rating?); (c) Nighttime easier to eyeball, but could use lumen meter.
- Noise Pollution ordinance has been largely ineffective because it requires court order.
- There are many other Light Pollution Ordinances to look at, across the country. Many of them spell out special standards for recreation areas, signage, sales lots, etc.

### Clarifications made about architectural lighting:

- Under the 6/4/15 Draft LO (DLO), property owners are allowed to install architectural lighting that is exempt from the lighting ordinance IF they acquire a Certificate of Appropriateness for the fixtures from the Cambridge Historical Commission, a Neighborhood Conservation District, or show that it is listed on the National Register of Historic Places. Only properties that fall under one of those jurisdictions can apply to get a Certificate of Appropriateness for outdoor lighting. **However**, ordinance drafters haven't yet checked with Cambridge Historical Commission about validity of procedure for permitting lighting plans of historical buildings. (Ken Taylor says CHC doesn't currently do this.)
- Penthouse lighting - under the DLO, ISD will need to determine if it is considered inside the building envelope or outside the building envelope. If outside of the building envelope, the Outdoor Lighting Ordinance *would* apply. **Suggestions were made** to clarify the definitions of Outdoor Lighting to fix this and other complaints that have been brought to the meetings. (see below).
- In the DLO, public art that is commissioned, owned or operated by the City, such as the installation on the Cambridge Police Department building, would be exempt from the standards (Section 15.22.050 F. Exemptions).

### DLO Modifications Agreed Upon or with Strong Backing at Meeting:

- **Color temp limit will be moved to 3500 K, with wording that encourages use of 2500 - 3000 K.** (It is understood that the streetlights are staying at 4000 K. Not explicitly stated at the meeting, but can it be checked with Steve Lenkauskas whether as individual fixtures need to be replaced over the years to come, 3500K replacement lamps can be used if they become available?)
- **The Color Rendering Index provision will be dropped completely from the LO.** No mention of CRI will be made; definition can be dropped.
- **"Outdoor Lighting" to include lighting placed indoors that illuminates out of doors, using a definition like:**
  - **Outdoor or exterior lighting.** Lighting equipment installed within the property line and outside the building envelopes of a subject property, whether attached to poles, building structures, the earth, or any other location, and any associated lighting control equipment. **For the purposes of this Ordinance, lighting which is installed indoors but which illuminates an area outdoors shall be considered exterior lighting.**
  - **Also add a definition of "building envelope: (A building envelope is the physical separator between the conditioned and unconditioned environment of a building and designates the portion resistant to air, water, heat, light, and noise transfer.)**

- **In Lighting Zone 3 (LZ3)**, plus in all public and private commercial, residential, industrial, parking, and recreation areas over 10,000 square feet in LZ2, **property owners/developers/lessees will be required to adhere to the U.S. Green Building Council's LEED Light Pollution Reduction Credit, circa the year this Lighting Ordinance takes effect.** All existing properties over 10,000 feet will need to meet these requirements within five (5) years from the date this LO goes into effect. [\(see how I did these in edited version of 9-16 Draft\)](#)
  
- **In LZ2, property owners/developers/lessees of properties under 10,000 square feet can choose to follow either the Prescriptive Standards or the Alternative Performance Standards.** If following the Alternative Performance Standards, they may either adhere to the U.S. Green Building Council's LEED Light Pollution Reduction Credit, or to both of the following:
  - The LEED LPC light trespass standard:
    - "Design exterior lighting so that all site and building-mounted luminaires produce a maximum initial illuminance value no greater than 0.10 horizontal and vertical footcandles (1.0 horizontal and vertical lux) at the LEED project boundary and no greater than 0.01 horizontal footcandles (0.1 horizontal lux) 10 feet (3 meters) beyond the LEED project boundary."
  - Light fixtures must not exceed 630 lumens per fixture and each light fixture must be fully shielded, unless used solely for facade or landscape lighting, in which case, the light emanating from the fixtures must be constrained through shielding to shine within the boundaries of the facade or landscape.
  
- **"Lighting Plan" to be more closely defined, as in the following:**
  - Lighting Plan. **A site plan depicting the property lines of all properties for which lighting is proposed, the location and identification of all exterior luminaires light fixtures to be installed within the property, their lumen values, mounting heights, shielding, and directionality, controls, and the location of all adjacent streets, the uses of abutting properties and properties located directly across a street, any relevant project site conditions, and any additional information required to demonstrate compliance with applicable standards. \*OR, see asterisk below for Lighting Plan requirements spelled out in another municipal ordinance.**
  
- **Add measures to provide timely relief to abutters in simple cases of light trespass (all complaint driven). Suggested:**
  - **Within six months of the LO effective date, property owners and/or lessees must rectify simple light trespass violations that can be solved or substantially ameliorated by one or more of the following: (1) a change of**

- bulb, (2) change of angle, (3) additional shielding, or (4) replacement, at a product cost of less than \$200.
  - ISD to waive rewiring permit fee for any property owners and/or lessees willing to adjust lighting to conform within the first 2 years after the effective date, and 50% of the fee in the following three years.
  - Complaints about light trespass can be filed beginning on the effective date of the LO. ISD will have online information and a web-based form ready at that time. ISD will investigate all complaints within a timely manner (within two weeks?).
  - The City will provide education materials providing the reasoning behind the LO, diagrams and instructions for easy fixes, including specific products.
  - See attempt in the CL edited draft.
- **Prescriptive Standards - mixes up residential and commercial**
  - There needs to be a limit on total lumens, for fixtures above 315 lumens each.
  - There needs to be a more explicit ban on light trespass, probably by using the same as the LEED standard (2 lux Zone 3, 1 lux Zone 2)
  - Don't include commercial, parking areas in same table. Don't undermine Zoning Ordinance Articles 6.41, 6.46, 6.93.
  - We may need break out sections for Recreation and Park areas, and other categories as many cities do.
- **Some definitions** need modification (see CLA edits on draft)
- **Automatic Shut-offs?** I didn't comment on this at the meeting, but it seems odd to require this for small residential units, because of the added expense/complication for homeowners. If anything, shouldn't it be for commercial units?
- **Other Enforcement/compliance provisions**
  - Not enough detail provided, esp. for Prescriptive, and Lighting plan.
  - City asked to put some of the budget income from new development toward bolstering effective roll-out and enforcement of LO, including, possibly, a dedicated, trained lighting inspector.
  - ISD to be provided with a budget for lux meters, binoculars, staff training, a few additional evening inspection hours especially during spring/summer months (when it stays light later), and the services of a lighting consultant to check Alternative Performance lighting plans for conformance.
  - Under Administrative Exemption, Section 15.22.060. Idea to add  
"Records of such exemptions and their justifications should be

made publically available."

- Loophole warning: there are no lighting guidelines for special permits.
  - City to provide a website portal for citizens to make inquiries/complaints about excessive illumination and lighting trespass.
  - Website to contain guidance, pictures, and a sample "Good Neighbor letter"
  - Glenn Heinmiller (Lam Partners) offered to be of assistance to the City in applying/evaluating LEED Light Pollution Credit.
  - Marilyn Wellons mentioned that with Noise Ordinance, some of the Affidavits were simply false. How to enforce post-installation?
- **Exemptions: Much discussion**
    - Temporary lighting or seasonal lighting as defined in this Ordinance. The MLO and most municipal lighting ordinances specify "g. Temporary lighting and seasonal lighting provided that individual lamps are less than 10 watts and 70 lumens." Most limit it to a period between Thanksgiving and Jan 15. It may be best to split Temporary and Seasonal apart to do this. If so, limit Temporary to 30 days.
    - Lighting for public parks or public art that is commissioned, owned, or operated by a city, state, or federal entity, or that is required by the City, by special permit, or otherwise by law to be accessible to the general public. THIS IS TOO BROAD AND ALLOWS ACRES OF BAD LIGHTING and many people live on their borders. Many municipal lighting ordinances have separate sections with reasonable standards for parks and recreation areas.
    - What does the first exemption mean?
    - Ken Taylor and others raised the issue that the following exemptions are too loose:
      - Lighting for public monuments, statuary, or the national flag. Such lighting should be designed to minimize sky glow and glare.
      - Architectural lighting that has received a Certificate of Appropriateness from the Cambridge Historical Commission or Neighborhood Conservation District. (Is there a process for this or standards? CHC does not currently review lighting.) Such lighting should be designed to minimize sky glow and glare.

- Architectural lighting of structures or buildings listed on the National Register of Historical Places. Such lighting should be designed to minimize sky glow and glare. (Is there a process for this or standards? CHC does not currently review lighting.)
- Ken Taylor suggests
  - "15.22.050.F.(G.)4. Architectural lighting anywhere in the city should be exempted if receiving a Certificate of Appropriateness from CHC or similar body. Either the CHC or similar citizens' review body should be mandated by the City to issue such CoAs separate from any other CoA issued for that project. Remediations of "architectural lighting" violations should require a CoA.
- Lighting for hospital emergency departments, including associated helipads. Tom Stohlman and others questioned why lighting for hospital emergency departments should be an exemption. If they need higher lumen limits - could at least something be put in that requires shielding to prevent uplighting and direct light to fall on adjacent properties. What did other LO's do about this?
- Ken Taylor and others suggest, re 15.22.060: No exemptions should be granted before all feasible remediations are completed.

**\* Sample definition of lighting plan, from Canby Oregon ordinance:**  
[http://www.ci.canby.or.us/Chap16/16.43OUTDOOR\\_LIGHTING\\_STANDARDS.pdf](http://www.ci.canby.or.us/Chap16/16.43OUTDOOR_LIGHTING_STANDARDS.pdf)

A lighting plan shall be submitted with the development or building permit application and shall include:

- A. A site plan showing the location of all buildings and building heights, parking, and pedestrian areas.
- B. The location and height (above grade) of all proposed and existing luminaires on the subject property.
- C. Luminaire details including type and lumens of each lamp, shielding and cutoff information, and a copy of the manufacturer's specification sheet for each luminaire.
- D. Control descriptions including type of control (time, motion sensor, etc.), the luminaire to be controlled by each control type, and the control schedule when applicable.
- E. Any additional information necessary to demonstrate compliance with the standards in this section.  
 (Ord.1338, 2010)