

LIGHTING ORDINANCE TASK FORCE MEETING – FEBRUARY 26, 2014

Task Force Members in Attendance:

Carol Lynn Alpert
Chris Basler
Andrea Boyer
David Chilinski
Gavin Kleespies
Steve Lenkauskas
Ranjit Singanayagam
Bob Woodbury

Consultants:

Jeffrey Berg
Paul Lutkevich

City Staff in Attendance:

Leonard DiPietro
Iram Farooq
Jeff Roberts

Members of Public in Attendance:

Kelly Beatty
Glenn Heinmiller
Kenneth Taylor
Marilyn Wellons

Third meeting of lighting task force was held in the Fourth Floor Conference Room of the City Hall Annex at 344 Broadway, Cambridge, Massachusetts.

MEETING NOTES:

Paul Lutkevich conducted presentation on proposals for a lighting ordinance based on the feedback from the Walking Tour with Task Force members in January. The following presentation slides are followed by the key concepts proposed by the lighting consultant and then comments by Task Force Members, City staff, and Public Comment.

- Presentation on Summary of Proposed Ordinance Lighting Restrictions
- Task Force Members (TFMs) commented and discussed each point of the presentation.
- City staff provided additional comments after Task Force Members.
- Public Comment was held at the end of the meeting.

Residential Restrictions

Main Entrance Light

No shielding requirements

Lumens limited to 630 lumens

If one porch light is used

40 watt incandescent

11 watt compact fluorescent

9 watt LED

If two porch lights are used then

2-25 watt incandescent

2-7 watt compact fluorescent



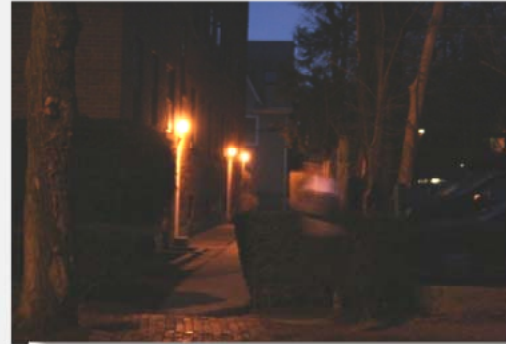
Lighting Around a Residence

No shielding requirements

Lumens limited to 315 lumens per fixture
25 watt incandescent
7 watt compact fluorescent

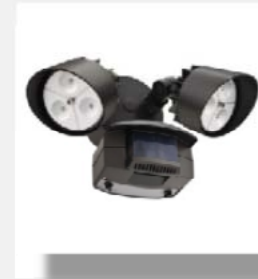
*If shielded fixture so direct glare
is not visible to abutters (defined as the
lamp not being visible from the property
line)*

Lumens limited to 1,260 per fixture
2-40 watt incandescent
2-65 watt PAR38
15 watt LED
19 watts compact fluorescent



Exceptions Around Residences

Lighting that has motion sensors with a 15 minute shutoff if the fixture is aimed/shielded so that the lamp is not visible from an abutter's property line.



Low voltage landscape lighting aimed away from abutting properties and not exceeding 1,050 lumens output for any luminaire.

15 watt LED
50 watt halogen



Commercial Restrictions

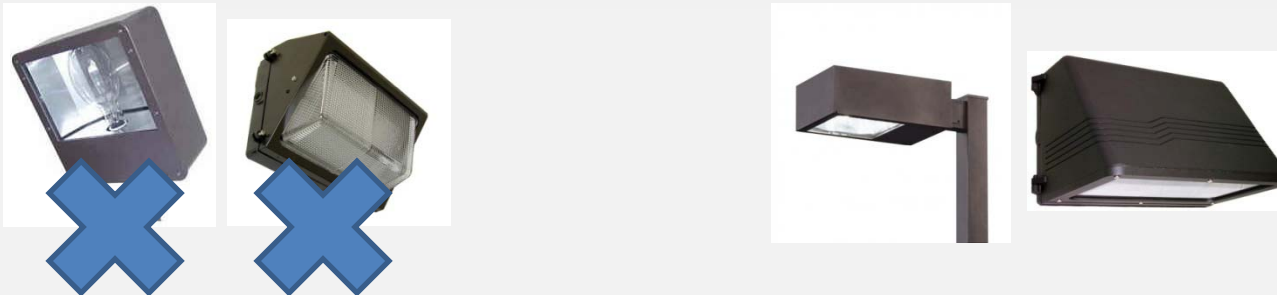
For commercial developments and multiple residential properties of seven or more domiciles within the City, the developer/owner shall be required to submit for review the following items:

Calculations showing that the total amount of lumens used for the exterior lighting doesn't exceed 840 lumens per parking space proposed.

Or calculations showing that the exterior lighting system doesn't exceed 5 lumens per square foot of hardscape area of the development.

Confirmation that all lighting doesn't emit any light upwards unless the luminaire lumens are limited to 630 lumens.

That the light trespass doesn't exceed 8 vertical lux along the property line.



Correlated Color Temperature of all sources shall be 4500°K or less. (If available this information is found on the bulb Lighting Facts label).

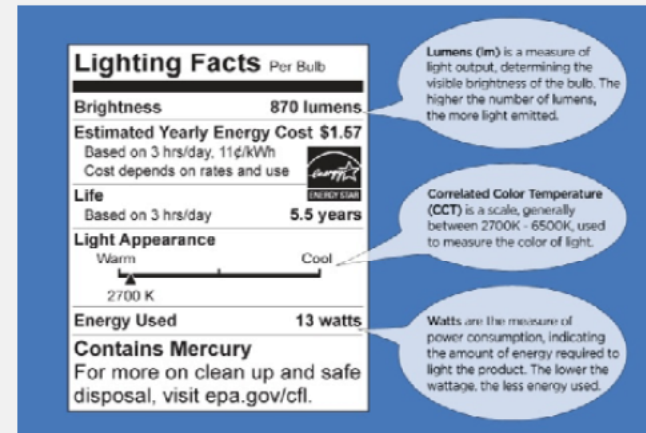
Building mounted lighting shall be restricted to mounting heights of no greater than 14'.

Pole mounted lighting shall be mounted no greater than 25' and must be positioned at least 25' from the property line.

Lighting controls shall be provided to extinguish all outdoor lighting during daylight hours.

Lighting shall be dimmed or extinguished at curfew time set by the City unless:

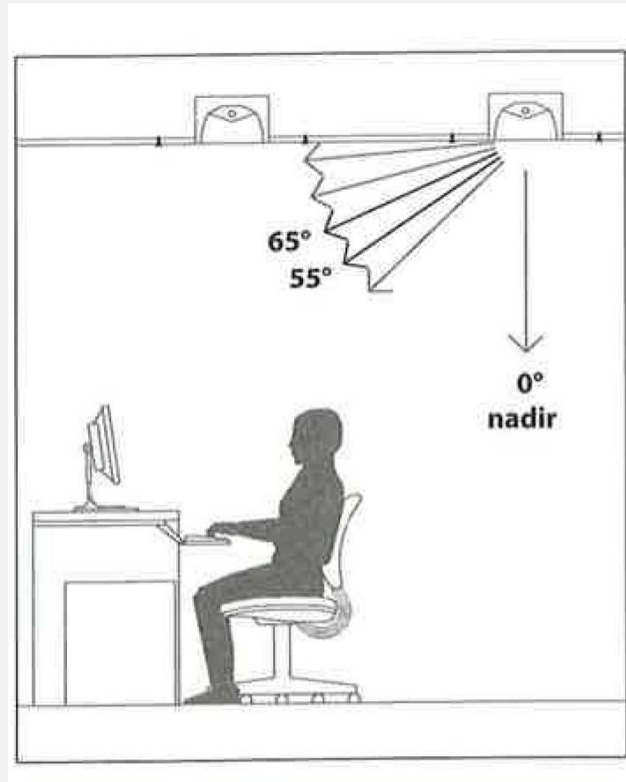
- Needed for common areas in multiple residential developments.
- Needed for safety (e.g. stairs, entrance walkways, etc.).
- Equipped with motion sensors.
- Associated with a 24 hours business.







“Buildings larger than 5,000 SF shall be equipped with an automatic control device to shut off lighting in those areas.” – state building code (IECC 2009)



“For all regularly occupied spaces, use light fixtures with a luminance of less than 2,500 cd/m² between 45 and 90 degrees from nadir.” – LEED v4



Movable shading with electronic controls

City to review Dark Sky Ordinance after residents claim it's unreasonable

February 11, 2014

By MCKENZIE CASSIDY (mcassidy@breezenewspapers.com) , Island Reporter, Captiva Current, Sanibel-Captiva Islander

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The Sanibel City Manager's office was recently directed to compile information about the Dark Sky Ordinance so council could address concerns raised by residents that it wasn't reasonable.

By Jan. 1, 2015 properties are expected to comply with the ordinance, which passed in 2000 to protect the island's natural beauty and habitat for nocturnal and crepuscular species - such as sea turtles in nesting season - by minimizing the amount of light pollution.

Jeff Molnar, owner and operator of Molnar Electric on the island, said the Dark Sky Ordinance had undergone 17 revisions over the course of a year-and-a-half before it was passed, and that included regular consultation with the International Dark Skies Association.

He said there aren't a lot of reasonably priced, compliant light fixtures on the market today. When the ordinance passed in 2000 the presiding council believed 15 years was enough time for the upgrades to be made and for new technology to be developed, but it didn't work out that way.

"At the time they thought the industry was going to catch up, but it really hasn't," said Molnar.

Local resident Gloria Hannan said property owners have had enough time to make the changes, but she agreed that more work needed to be done to find reasonably-priced fixtures.

Other residents addressed city council on Feb. 4 to discuss the costs associated with updating light fixtures and local safety concerns at night.

Sunset clause for existing fixtures?

Residential Restrictions (Slides 1-3):

- 1) Main Entrance Light – with no shielding requirements, total lighting at front entry of residence is limited to 630 lumens.
 - a) If one porch light is used then it would be equivalent to 40 watt incandescent/11 watt compact fluorescent (CF)/9 watt LED.
 - b) If two porch lights are used then 2 – 25 watt incandescents or 2 – 7 watt CFs
 - Most but not all TFMs thought 40 watt incandescent level was too low and proposed 60 watt.
 - If higher than 40 watt incandescent then a shielding clause was recommended.
 - Alternative to higher wattage was to allow more fixtures at lower wattage.
 - City staff commented that front porch lights haven't been prime concern of complaints received and enforcement could be difficult.

- 2) Lighting Around Residence
 - a) No shielding requirements then lighting limited to 315 lumens per fixture – equivalent to 25 watt incandescent/ 7 watt CF
 - b) If fixture is shielded so direct glare is not visible to abutters (defined as the lamp not being visible from the property line) then limited to 1,260 lumens per fixture – equivalent to dual flood with 40 watt incandescent bulbs/65 watt PAR38s or single 15 watt LED or 19 watt CF
 - Direct property abutters would have standing to make complaints.
 - Most of TFMs considered heights of fixtures to be a bigger concern than the light levels.
 - Education of public can make a big impact with this issue.
 - Improper light sensor heights can be the primary issue with security lighting.
 - Lower lumen levels, fixture heights, and shielding clauses were still favored by some.
 - City staff commented that it would make sense to have different lighting standards for shielded and unshielded fixtures.

- 3) Exceptions around Residences
 - a) Lighting that has motion sensors with a 15-minute or less shutoff if the fixture is aimed/shielded so that the lamp is not visible from an abutter's property line.
 - b) Low voltage landscape lighting aimed away from abutting properties and not exceeding 1,050 lumens output for any luminaire. Examples include 15 watt LED or 50 watt halogen.
 - Most of TFMs were concerned about lighting fixture sensors that are activated by activity beyond property line in addition to visibility of the lamp from the abutter's property line.
 - Most of TFMs were OK with the lumen limit for fixtures aimed away from abutting properties.

Commercial Restrictions (Slides 4 – 5):

For commercial developments and multiple residential properties of seven or more domiciles within the City, the developer/owner shall be required to submit for review the following items:

- 1) Calculations showing that the total amount of lumens used for the exterior lighting doesn't exceed 840 lumens per parking space proposed.

OR

- 2) Calculations showing that the exterior lighting system doesn't exceed 5 lumens PSF of hardscape area of the development
 - 3) Confirmation that all lighting doesn't emit any light upwards unless the luminaire lumens are limited to 630 lumens
 - 4) That the light trespass doesn't exceed 8 vertical lux along the property line. (Vertical lux is the illuminance level measured on a vertical plane at the property line.)
 - 5) Correlated Color Temperatures of all sources shall be 4500 deg.K or less. (This value is indicated on bulb Lighting Facts label.)
 - 6) Building mounted lighting shall be restricted to mounting heights of no greater than 14 ft.
 - 7) Pole mounted lighting shall be mounted no greater than 25' and must be positioned at least 25' from the property line.
 - 8) Lighting controls shall be provided to extinguish all outdoor lighting during daylight hours.
 - 9) Lighting shall be dimmed or extinguished at curfew time set by the City unless:
 - a) Needed for common areas in multiple residential developments.
 - b) Needed for safety (e.g. stairs, entrance walkways, etc.)
 - c) Equipped with motions sensors.
 - d) Associated with a 24-hour business.
- Some TFMs indicated a preference for parking lot fixtures along the perimeter with a 5 ft buffer, directed away from the property line and abutters.
 - Backlighting was considered less of an issue than direct light trespass.
 - Most TFMs requested a maximum foot candle limit for the parking lot coupled with a mounting height limit of 12'-14' on the light posts.
 - A 25' height limit was too tall but truck clearance heights in parking lots will need to be considered.
 - There was a preference by some TFMs to not allow light to spill over property line at parking lots.
 - Most TFMs agreed with the 14' mounting height limit for fixtures on commercial buildings.
 - Some preferred the limit be 12'.
 - Some TFMs indicated that the mounting height limit should correspond to the exterior signage height limit since signage lighting aimed down would be preferable to up-lighting. Sign height limit is 15' in commercial areas and 10' in residential areas. A concern would be nonconforming businesses that have a 20' sign height limit in residential zones.
 - Exemptions or different standards for open-exterior stairwells, balconies and decks should be considered.
 - Some TFMs wanted a variance process for exterior architectural lighting.

- The example was given that the Longfellow House violated most of the proposed lighting rules but that the neighborhood didn't find it offensive.
- Some TFMs expressed concern over why up-lighting was allowed at all.
- Light curfews didn't receive an overwhelming positive or negative response from TFMs.
 - Primary concern was over the difficulty of enforcement and available resources.
 - Some TFMs didn't approve of light curfews since it would disproportionately impact commercial districts or the variations within those districts would be difficult to monitor and enforce
- Most TFMs felt strongly that 4500 deg.K was too high a correlated color temperature. A limit of 4000 deg.K or less was more agreeable but some emphasized it should be lowered to 3500 deg.K and that 2700 deg.K was more desirable in educational pamphlets.
- City staff commented that lighting design methods for parking lots need to be very different in urban settings than suburban areas. Hardscape ratios are very different in Cambridge than in suburban communities.
- City staff raised concern of cost to small property owner to hire qualified lighting consultants. Affordable technical assistance can be difficult to find, which is a concern under the existing noise ordinance.

The presentation was suspended to allow for public comment before the end of the meeting. Issues surrounding time limits to upgrade fixtures and light trespass & pollution by interior lighting will be addressed at the next meeting. (This includes slides 6 – 10.)

PUBLIC COMMENT

- 1) First person, resident and lighting professional, to comment.
 - Concern over the new City street lights at 4000 deg.K was raised. This should be reconsidered and lowered. If the street light color temperature isn't lowered, then the on-site temperature limit should be lowered to 3000 deg.K.
 - Concerns about porch lights will continue to rise as more LED fixtures replace incandescent lamps. There needs to be limits on LEDs.
 - The rules should apply to public spaces, parks, monuments, and public buildings. At least the color temperature should apply to these areas.
 - Not only should the color temperature be considered but also the color rendering, which hasn't been discussed.
 - Landscaping light poles at Library and Cambridge Common are good fixtures but are too tall and too bright. Lighting would be improved if the fixture heights are lowered by 1'-2' below current heights at Cambridge Common.

2) Second person, resident and lighting professional, to comment.

- Doesn't support a complete ban of decorative uplighting.
- The 12' height limit on light poles in parking lots suggested by some of the TFMs is too low. 20'-25' are typical heights but 16' might make sense in Cambridge. Parking lots in an urban setting may not have enough depth to allow shorter heights which may force property owners to select inappropriate fixtures.
 - Could allow the use of LEED standards to receive lighting pollution credit as an alternative. It is a more robust standard that allows customization for complicated site conditions.

3) Third person, resident, to comment.

- Disappointed that the Task Force and Consultant didn't discuss light pollution and trespass from interior light sources. Concerned that this issue won't be covered effectively.
- Commercial buildings shouldn't be exempt from light curfews or other rules, especially when abutting residential areas.
 - Changes in ground levels and terrain grades aren't considered in the current proposals. Heights from ground level on one building site may be very different from adjacent properties at a different terrain grade.
 - Shades don't protect from glare.
 - Tall buildings next to residential areas aren't addressed. E.g. the Courthouse abuts a C1 Residential district and will have a big impact on an entire stretch of properties, not just the direct abutters.
 - Existing buildings need to follow the proposed rules, not just new construction.

4) Fourth person, lighting professional, to comment.

- Task force and consultant need to identify the dimming percentage in order for it to be considered.
- A lumen cap for residential property should be considered in addition to commercial property and should include landscape lighting.
 - Extend vertical illuminance level at parcel line.
- Consider changes in technology when developing rules and how the new standards would apply.