

LEGISLATIVE #

120023E



Planning & Development Services

PB-12-40 TCH

**This Petition Proposes Changes to
the Existing Outdoor Lighting
Standards**

6/7/2012

(City Legistar No. 120023)

WHY THE CHANGE

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To address a request from a local development

To Perform a Domestic Clean up and Organization of the Current Regulations

Current Regulations are found in the following areas:

Sec. 30-23: Definitions

Sec. 30-93: Gasoline and Fueling Stations

Sec. 30-160 : Submittal Requirements

Sec. 30-330: Parking Lot Lighting

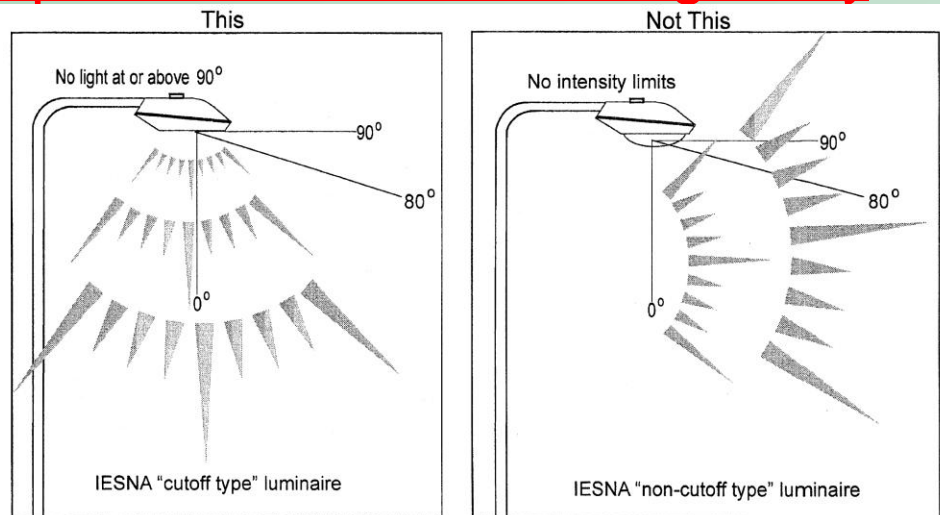
Sec. 30-345: General Performance Standards

Sec. 30-345.1: Non-conforming Luminaires

GENERAL REQUIREMENTS

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- (a) Designed to provide a **minimum value of lighting necessary for the safety and identification of features.**
- (b) Designed to provide for **uniform lighting** throughout the facility with **no dark patches or pockets.**
- (c) Poles, fixtures, shielding mechanism and placement of lights shall be designed to **direct light downwards** and to **minimize light spillover into the dark night sky.**



EXAMPLE OF POOR LIGHTING AND FIXTURE



GENERAL REQUIREMENTS

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(From Sec. 30-330(a)(4))

If the design of an area is either pedestrian or in or other such decorative if the site is in a **Historic** if there **are unique situ** if the fixtures are of a **p**



type decorative light fixtures of /ashington globe, lantern, pendant, **, Special Character District;** e; and **ural style.**



l cut-off above a ment
o minim ght

APPLICABILITY

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(a). During Development Plan Review, Building Permit, Special Use Permit Approval during the permitting process.

(b). Redevelopment increases the gross floor area by 50% or more of existing floor area.

Does not apply to: (c) single-family dwelling, except community areas or public gathering places;

(d). Public Rights-of-way ; and

(e). Emergency equipment, Law enforcement or for Safety, Health, or Welfare of the Community.

Applies to:

(f). New and used automobile dealerships; and

(g). Change of use to operate after dark.

PROPOSED CHANGES

1. Reorganize the current lighting standards of Section 30-23, 30-93, 30-160, 30-330, 30-345, and 345.1 under a new heading **“Outdoor and Parking Structure Lighting;”**
2. The existing regulations have been expanded, clarified and incorporated under new sections
 - a. **Submittal Requirements for Review of Photometric Plans, Waivers, Modifications and Unique Lighting Plans; (#s 31 & 32)**
 - b. General Requirements;
 - c. Outdoor Lighting for Security Purposes and Outdoor Recreational Lighting;
 - d. Outdoor Parking Lot Lighting;
 - e. Canopy Lighting and Lighting of Fueling Stations; and
 - f. Non-conforming Luminaires
3. Add the following new sections:
 - a. A new set of **definitions to Sec. 30-23** pertaining to lighting.
 - b. A **“Purpose and Intent”** statement.
 - c. An **“Applicability”** section.
 - d. A section modifying the **“Submittal Requirements”** for review.
 - e. A section to address **lighting adjacent to single-family residential** development.

OUTDOOR LIGHTING NEAR RESIDENTIAL

(1) With reference to outdoor lighting for sites in this classification, there is hereby established a “**Transitional Lighting Corridor**” of 100 feet wide along the common boundary with properties zoned residential.

Why the
“100- wide Transitional Lighting Corridor”?

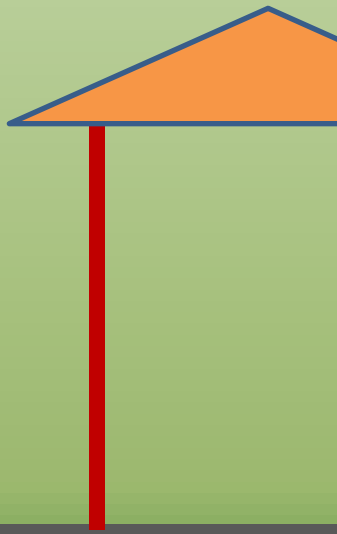
30' Pole with 80 degree full cut-off fixtures

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NON-RESIDENTIAL

RESIDENTIAL



167'



Property Line

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30' Pole with 80 degree
full cut-off fixtures



45'

167'

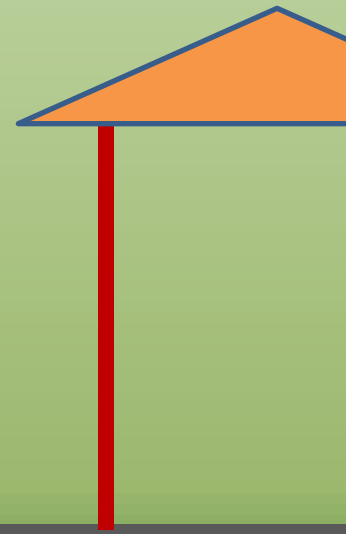
122'

NON-RESIDENTIAL

8' Fence



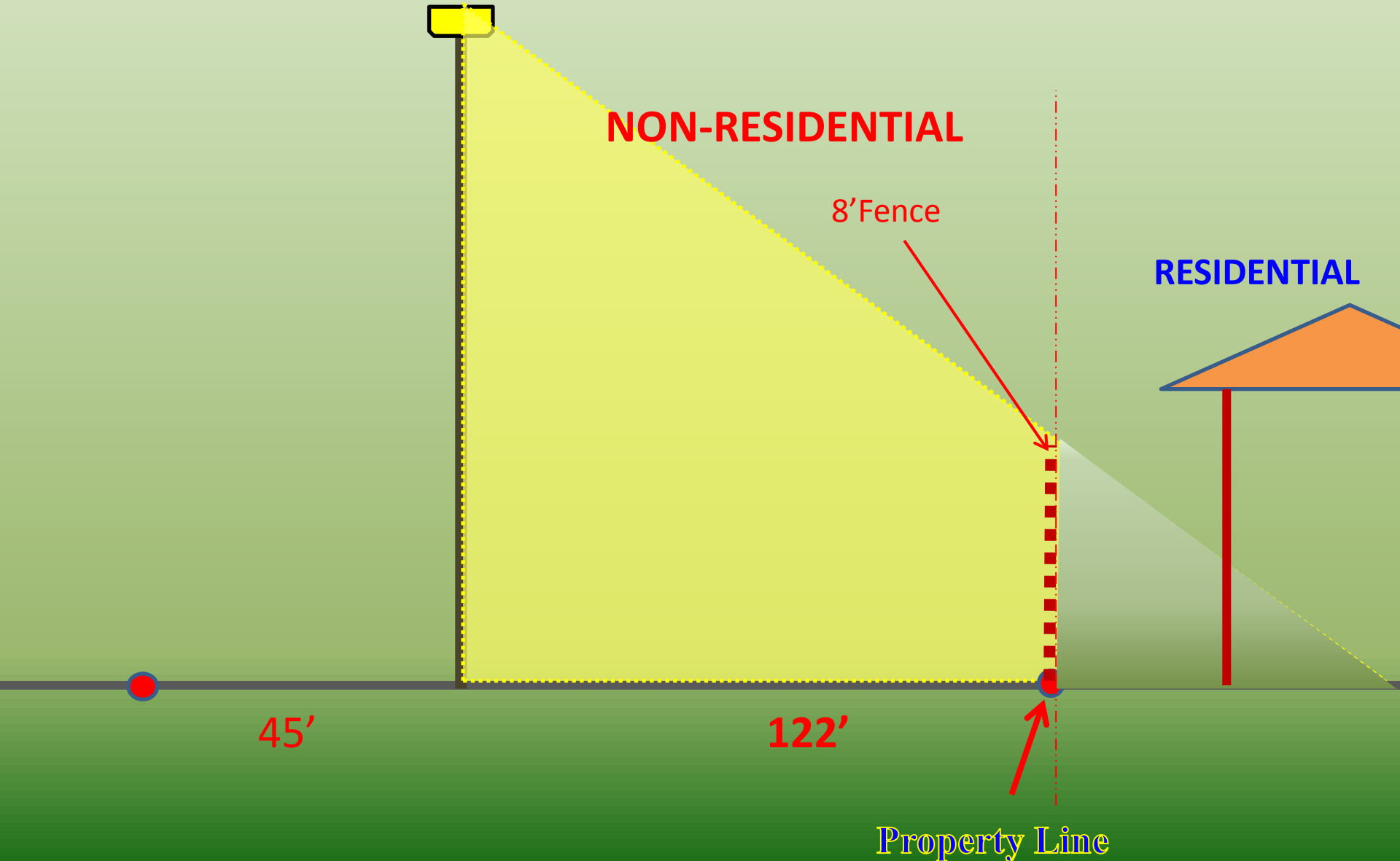
RESIDENTIAL



Property Line

30' Pole with 80 degree full cut-off fixtures

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NON-RESIDENTIAL

8' Fence

RESIDENTIAL

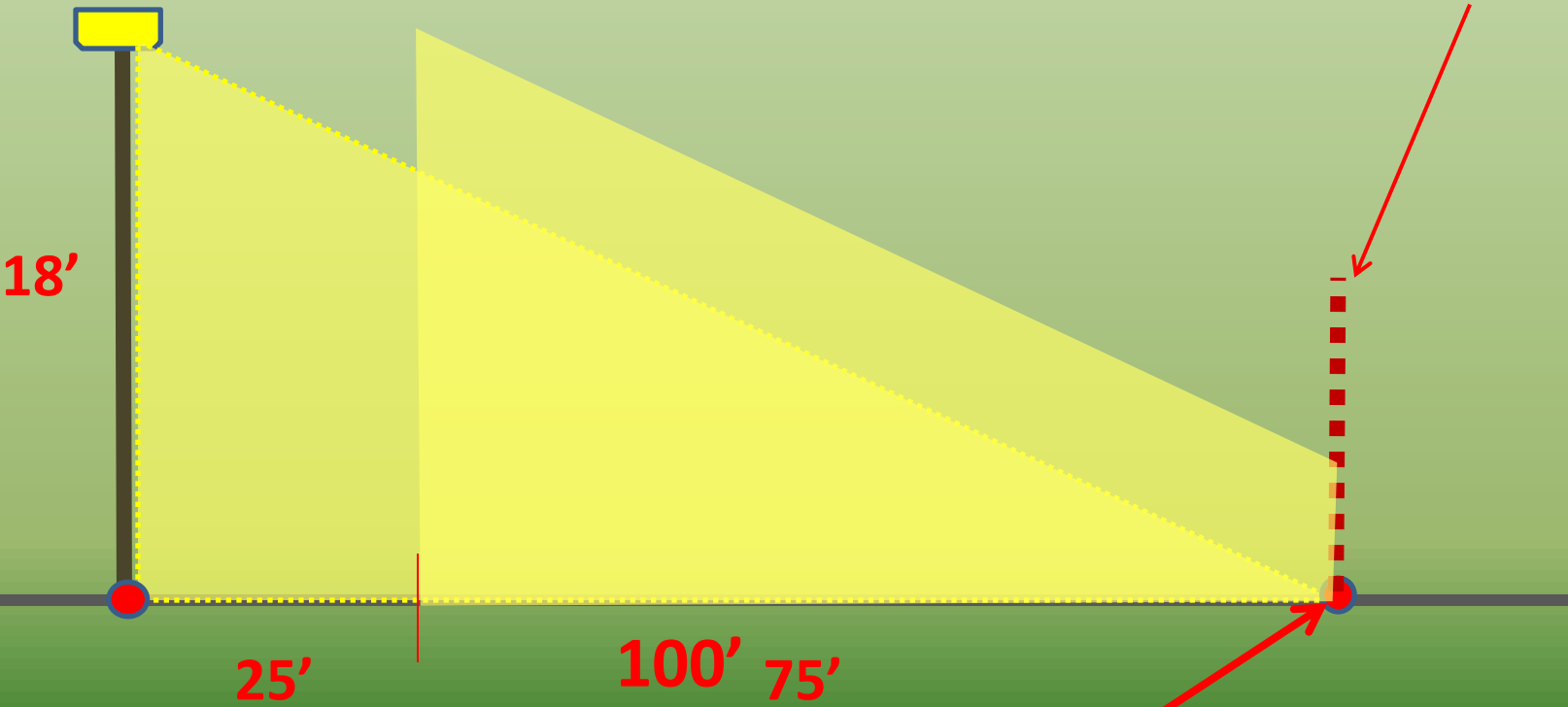
45'

122'

Property Line

18' Pole with 80 degree full cut-off fixtures

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NON-RESIDENTIAL

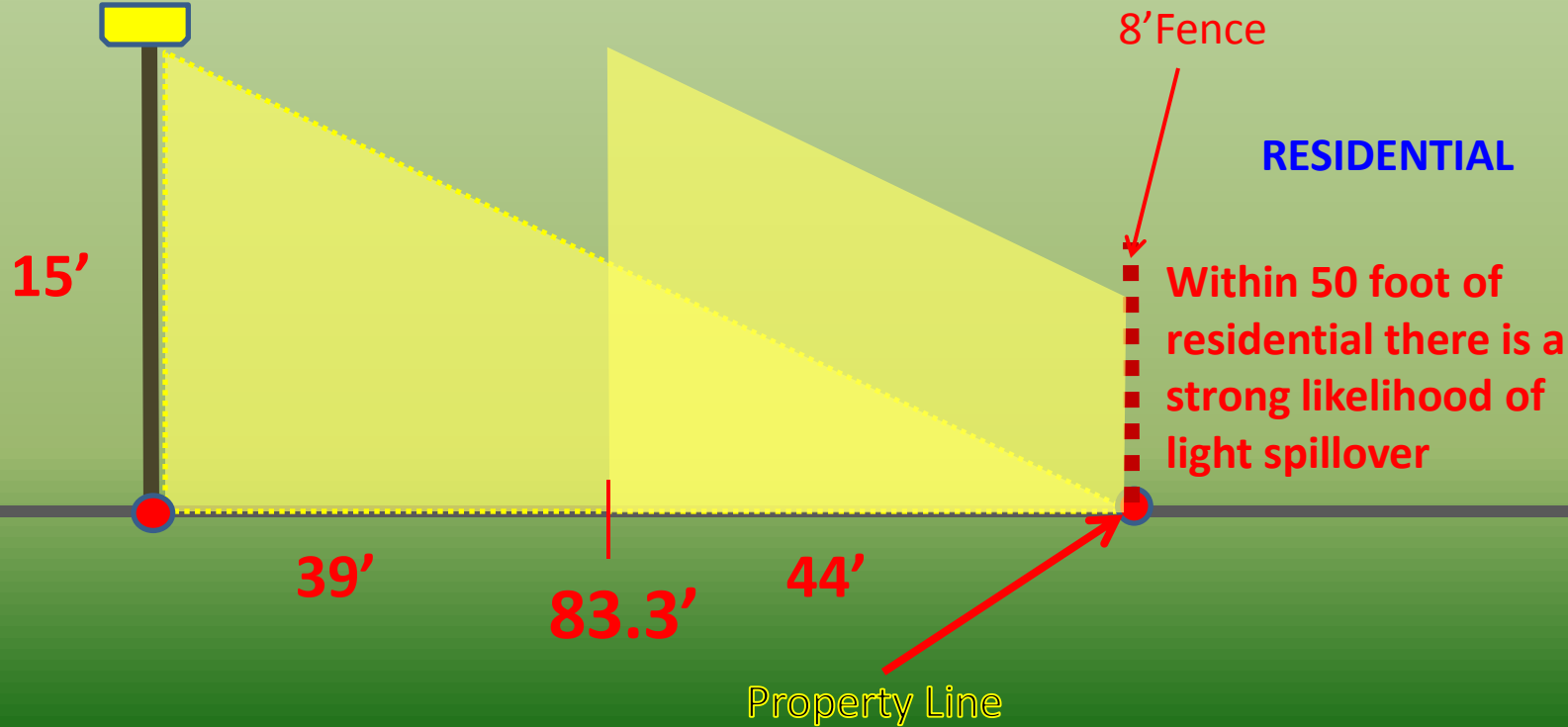
Property Line

RESIDENTIAL

15' Pole with 80 degree full cut-off fixtures

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NON-RESIDENTIAL



OUTDOOR LIGHTING NEAR RESIDENTIAL

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(2) The standard listed below shall apply to [multi-family and non-residential development consisting of more than one acre or consisting of more than 60,000 square feet of gross floor area.](#)

(i) Sites within the “Transitional Lighting Corridor” shall be [discouraged from having parking lots intended to operate after dark within 50 feet](#) of the common boundary with properties zoned [RSF-1, RSF-2, RSF-3, RSF-4 and RC](#). Where this [cannot be avoided](#), the development shall comply with the [standards listed below as well as in other applicable sections of this ordinance](#). Alternatively, the applicant may [submit a unique lighting](#) plan for consideration by the reviewing body, staff or the board of adjustment.

OUTDOOR LIGHTING NEAR RESIDENTIAL

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(3) Except as provided in this section, in addition to the lighting standards listed in this article, outdoor lighting installations and fixtures on properties adjacent to or within 100 feet of properties zoned residential shall comply with the following requirements:

- (i) Within the “transitional lighting corridor” all off-street parking facilities shall be continuously lit after dark throughout the hours that they are in use by the public. Such lighting shall be designed to maintain an average horizontal illuminance not to exceed 1.0 foot-candles, and a minimum horizontal illuminance of 0.2 foot-candles. The uniformity ratio (ratio of average to minimum illuminance) shall be no greater than 5:1, and the maximum to minimum uniformity ratio shall be no greater than 10:1. The area shall also comply with the light trespass and glare requirement listed for parking lots. The average vertical illuminance shall not exceed 0.1 footcandles at 20 feet above average grade or the parking surface given the same uniformity ratios of average to minimum and maximum to minimum as listed above.

OUTDOOR LIGHTING NEAR RESIDENTIAL

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(2) Light poles and lighting fixtures **within the outer 75 feet** of the “transitional lighting corridor” shall have a **maximum height of 15 feet** and shall be **characteristic of lighting typical of residential districts**; and

(3) Where feasible, **additional landscaping** may be required to provide light screening between commercial zones and residential zones to help prevent light trespass. Where landscaping is used for light screening, it shall be in addition to the applicable landscaping requirements listed in Article VIII of the Land Development Code. During development plan review, the Technical Review Committee shall determine whether existing vegetation is adequate to meet the required screening needs or whether additional light screening vegetation is necessary to supplement the existing standards of Article VIII.

(4) Light fixtures within the “Transitional Lighting Corridor” **shall have 80 degrees full cut-off from the vertical**.

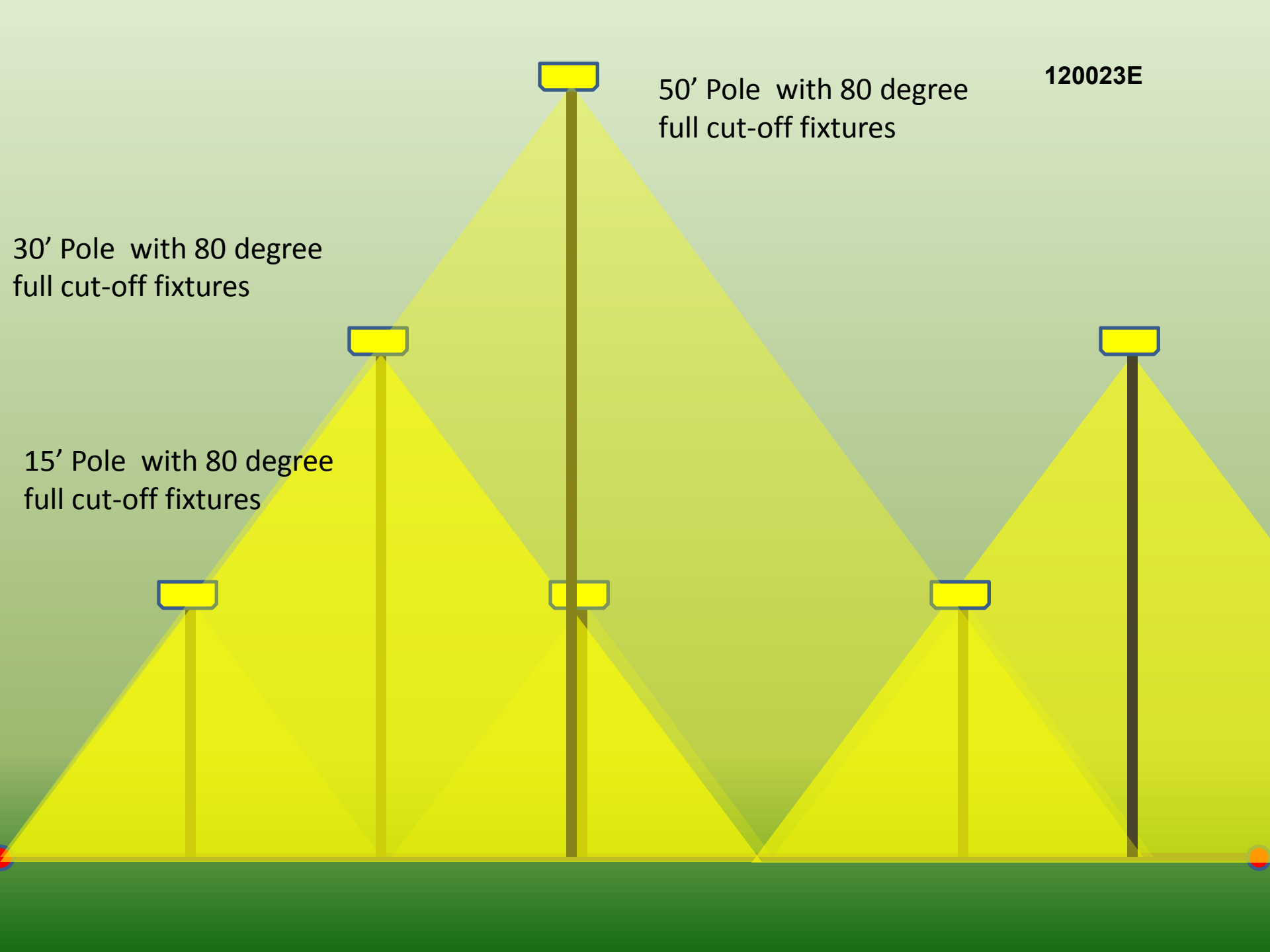
POLE HEIGHTS

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(a) The **maximum height** of light fixtures, except as otherwise regulated by this section, shall **not exceed 30 feet**. Light fixtures for developments with more than 100,000 square feet of floor area may request an increase in the height of the pole to 50 feet provided the applicant establishes that the requested increase in height meets the following standards:

- 1). The increase in pole height is **necessary to ensure required security needs** for the specific use/s operated at the site or for conducting the permitted outdoor use;
- 2). The increased height is a **more efficient and an energy conserving** option;
- 3). **The required standards** for the use as listed in this section **will be maintained;**
- 4). The increase in height **will not exceed the maximum vertical uniformity ratio of 0.2fc at a height of 5 feet above the height of the pole;** and

5). If adjacent to residential, as listed in (the section on single-family residential) Section 30-41, or adjacent to legal non-conforming residential uses, poles shall be located so that the light fixtures **create an angle of incidence of the light source at the property line which is equal to or greater than 10 degrees** and that the light fixture has a **source cut-off of 80 degrees from the pole.**



50' Pole with 80 degree
full cut-off fixtures

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30' Pole with 80 degree
full cut-off fixtures

15' Pole with 80 degree
full cut-off fixtures

PROPOSED CHANGES

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4. Modify the code **to allow higher “Pole Heights”**;
5. **Expand the waiver provision to parking lots**, so that advisory board or staff can consider requests that address unique designs that do not strictly conform to the standards, but are consistent with the purpose and intent of the ordinance.
6. Establish a **“Technical Consultation Fee”** which provide the **ability to hire a certified professional** to analyze and review photometric plans and requests for unique lighting proposals.
7. Lighting standards for **“Parking Structures”**;

LIGHTING FOR PARKING STRUCTURES

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(1) Lighting intensities on each floor shall be as listed in Table 1.

Table 1.

	<u>Minimum Horizontal</u> (measured in foot-candles)	<u>Horizontal Uniformity</u> Maximum/ Minimum	<u>Minimum Vertical*</u> (measured in foot-candles)
<u>Basic per floor</u>	<u>1.0</u>	<u>10:1</u>	<u>0.5</u>
<u>Ramps Day</u>	<u>2.0</u>	<u>10:1</u>	<u>1.0</u>
<u>Ramps Night</u>	<u>1.0</u>	<u>10:1</u>	<u>0.5</u>
<u>Entrance Areas Day</u>	<u>50</u>	-	<u>25</u>
<u>Entrance Areas Night</u>	<u>1.0</u>	<u>10:1</u>	<u>0.5</u>
<u>Stairways</u>	<u>2.0</u>	-	<u>1.0</u>

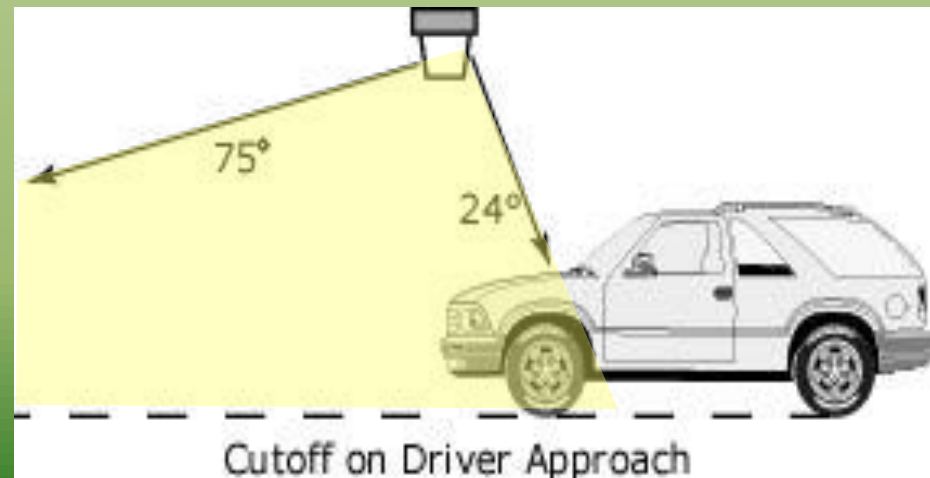
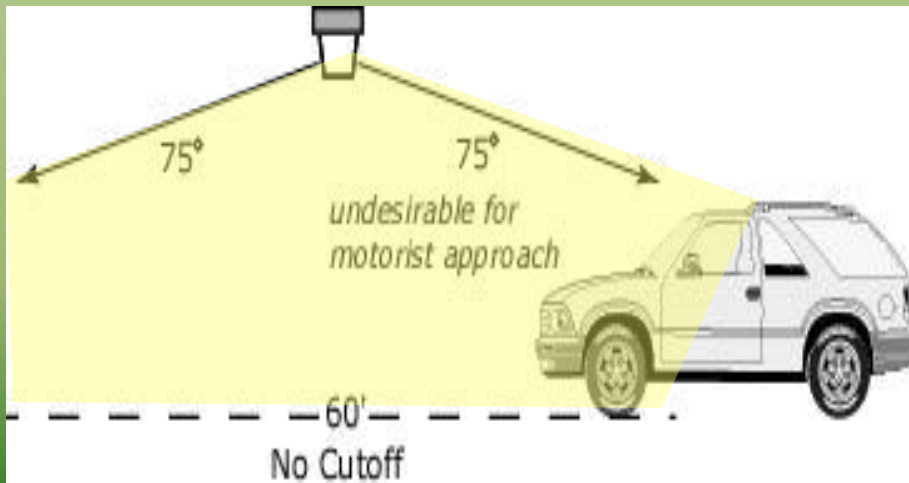
*Measured facing the drive aisle at 5 feet above the parking surface at the point of the lowest horizontal illuminance.

LIGHTING FOR PARKING STRUCTURES

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- (2) Light fixtures within parking structures shall be designed primarily to meet the intent of the lighting ordinance. The type of fixtures used shall be **cutoff, semi-cutoff and/or refractor High Intensity Discharge (HID) fixtures.** The exact type, configuration and placement of fixtures shall be designed to **prevent glare, cavern effect and to facilitate vertical illumination of the floor so that drivers are able to discern objects within the facility.** Designs shall seek to **attain a cutoff angle of 24° to 38° on the driver approach and 60° to 75° on the downstream side** (See diagram below);

Transverse Coverage and Cutoff based on 8 foot Mounting Height



LIGHTING FOR PARKING STRUCTURES

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- (3) If the top floor of a parking structure has no roof and is open to the sky, it shall be regulated in accordance with the standards for open parking lots. The maximum height of poles located on the open top floor of a parking structure shall be 15 feet;
- (4) In order to demonstrate compliance, the applicant shall submit photometric data and drawings to illustrate how light sources are shielded to prevent spillover lighting and the aiming of lights to prevent glare to drivers, pedestrians and surrounding developments. Additionally, based on designs unique to local conditions and characteristics of a site, during development plan review, each facility shall demonstrate how the lighting plan within the parking structure addresses lighting intensities, glare, uniformity ratios, vertical and horizontal illuminance of the design, and the cavern effect of lighting on each floor in accordance with the above standards.

120023E



Reg. Self 387⁹
Plus 401⁹

NON-CONFORMING LUMINAIRES

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11. ~~Sec. 30-345.1.~~ Nonconforming luminaires.

All lamps, light fixtures and lighting systems (hereinafter "luminaires") lawfully in place prior to February 11, 2002, shall be deemed legally nonconforming. However, if cumulatively at any time, 50 percent or more of the existing outdoor light fixtures are replaced, or number of outdoor light fixtures is increased by 50 percent or more, then all outdoor light fixtures shall conform to the provisions of ~~section 30-160, section 30-330,~~ and **Section 30-345 Outdoor and Parking Structure Lighting** **(may move to Section 2. Applicability)**

- (a) A development plan amendment shall be certified by a registered engineer or architect, or lighting professional holding a current L.C. (lighting certificate) from the National Council on Qualifications for the Lighting Profession (NCQLP). Additionally, **nonconforming luminaires** that direct light toward streets or parking areas that **cause glare so as to cause a public nuisance should be either shielded or re-directed within 30 days** of notification.
- (b) A development which becomes **non-conforming with these regulations due to a change in operation hours** from daytime only to include night time operation shall be required to **comply with these regulations within six (6) months** of the effective date of the change.

Planning staff recommends
approval of
Petition PB-12-40 TCH

05/16/2012

$$\tan 10 = 0.18; \tan 5 = 0.09$$

$$\tan 10 = 30/x$$

$$x = 30/0.18 = 166.7'$$

$$x = 15/0.18 = 83.3'$$

$$x = 8/0.18 = 44.4'$$

GENERAL REQUIREMENTS

(j) Where the subject site is separated from other nearby uses by a public or private street, trail, easement or other open space, in addition to the spillover lighting data, the applicant shall demonstrate how the proposed development will impact existing lighting conditions.

PURPOSE & INTENT

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The general purpose of this article is to protect and promote the public health, safety and welfare, and improve the quality of life by establishing standards and a process for review of outdoor lighting.

This article establishes standards for outdoor lighting in order to accomplish the following:

- 1) To ensure that sufficient lighting can be provided where needed to promote safety and security in vehicular use areas for residents of the City;
- 2) Reduce light pollution, light trespass, glare, excessive lighting, and offensive light sources;

PURPOSE & INTENT

120023E

- 3). Promote quality, efficient and cost effective lighting, so as to conserve energy;
- 4). Provide an environmentally sensitive nighttime environment that minimize the impact of stray lighting on human health, habitat and environment and allow for the “dark sky” concept;
- 5). Allow flexibility in the style of light poles, lighting fixtures and shielding mechanisms to prevent inappropriate, poorly designed or installed outdoor lighting; and
- 6). To provide a schedule for bringing nonconforming lighting into conformance with this article.

WAIVERS

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(a) Notwithstanding the standards listed in this article, *an applicant may petition the city for exceptions or modifications* to one or more of the listed standards (intensities, pole height, shields, and fixtures) ~~The maximum lighting intensity permitted for the security of the areas described above, for **permitted outdoor land uses**, or pole heights, other than those located in off-street parking facilities, may be increased by~~ *or may submit a unique lighting plan for consideration of approval.* (from Sec.30-345(b))

(b) An application for a **unique lighting plan must address** all of the following criteria:

1. The lighting plan must be submitted by a **certified lighting professional** registered or recognized by the IESNA;
2. The applicant shall present the **basic premise for the request** whether it is intended to **enhanced security lighting levels**, to **advance documented specific security standards of the company**, to **resolve a documented existing or potential security weakness**;
3. That the parking facility will be used during hours of the day and/or night, where **special security needs exist**, or where **vandalism or crime is possible**. That there are **specific site characteristics, level of vehicle and pedestrian activity needing special security** or that there has been documented history or **likelihood of crimes** associated with the facility;

WAIVERS

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4. If the site is in a Historic District, a Special Area Plan, in a specialty designated Character District or if there are unique situations or hardships to a site, the application must demonstrate how the alternative lighting methods, fixtures, and pole heights are necessary to accommodate compatibility and consistency with the unique character district, special area or unique circumstances;

5. If necessary, the applicant shall be required to pay a technical consultant review fee which shall be based on fees charged by an independent private consultant with no affiliation with the subject development. Fees shall be for review of the application, preparing a report based on an analysis of the application, consultation with staff and attendance at all meetings required for approval of the petition; and

WAIVERS

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6. The plan shall indisputably demonstrate how the unique proposal furthers the purpose and intent of the lighting ordinance and that the unique proposal will produce a result equal to or better than the existing prescriptive standards. The application shall address the components of a lighting plan listed below :

- i. Lighting intensities and data reflecting averages , minimums, maximums, horizontal and vertical uniformity ratios,;
- ii. Glare and Spillover lighting onto adjacent properties and into the dark night sky;
- iii. Pole heights and light fixtures;
- iv. Impact of the proposed plan on the dark sky concept;
- v. Energy conservation and efficiency of the proposal; and
- vi. Glare vertical

WAIVERS

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What the board should be considering

(c) In reviewing the request, the appropriate reviewing board through site plan review, or the board of adjustment ~~by obtaining through a~~ special exception if site plan review is not required, ~~provided that~~ shall ensure conclusively that the applicant establishes that the requested modifications or unique lighting plan meets the following ~~standards~~ criteria: (Staff should be added here)

1. The unique proposal is consistent with the purpose and intent of the ordinance;
2. Based on the permitted outdoor use/s operated at the site the increase in intensity proposed at the site is reasonably necessary to ensure required for convenience of the public accessing the site;
3. Ensure the safety and security requirements necessary to purposes for operate the specific permitted outdoor use/s ~~for conducting at~~ the site;

WAIVERS

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4. That the ~~light increase in intensities~~ generated on site is **confined internally** with minimum spillover lighting onto adjacent properties, that the amount of spillover **will not result in a nuisance to adjoining properties**, and does not interfere with the lawful use and enjoyment of adjoining properties;
5. The lighting plan addresses **light spillover into the dark night sky** and **does not result in stray and excessive lighting** which will contribute to **light pollution, light clutter and unnatural sky glow**;
6. Necessary **screening will be erected or exists** and maintained to reduce the impact of the increase in intensity on adjoining properties;
7. The proposed **lighting intensities of the unique plan are reasonably related** to the **nature and character of its operation**;

WAIVERS

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8. The impact of the proposed lighting plan on the unique qualities and characteristics of surrounding special neighborhoods, special character districts and natural environmental factors;
9. The intent of the lighting plan is not directly or indirectly related to promotional or advertising purposes; and
10. In the case of a Historic District, Special area plan, special character district and where there is a claim of unique hardships, the reviewing body shall establish that the unique lighting plan is consistent with the characteristics of the special areas or that the hardship is related to the request for modifications.

In arriving at a decision, the board is authorized to impose conditions determined to allow the design to be consistent with the purpose and intent of the ordinance.