

LEGISLATIVE #

120023B



Planning & Development Services

PB-12-40 TCH

This item pertains to proposed changes to the existing outdoor lighting standards which is before you for

First Reading

12/03/2012

(Legistar No. 120023)

**To address a request from a local
development**

**To Perform a Domestic Clean up and
Reorganization of the Current Regulations**

Current Regulations are found in the following areas:

Sec. 30-23: Definitions

Sec. 30-93: Gasoline and Fueling Stations

**Sec. 30-114. – Off-site parking facilities for uses in MU-1 or
MU-2 districts.**

Sec. 30-160 : Submittal Requirements

**Sec. 30-307. – Nature park and public
conservation/preservation areas district.**

Sec. 30-330: Parking Lot Lighting

Sec. 30-345:General Performance Standards

Sec. 30-345.1: Non-conforming Luminaires

1. Added New Definitions to Sec. 30-23:

- ❖ Canopy
- ❖ Floor area
- ❖ Footcandle
- ❖ Full-cutoff fixture
- ❖ Glare
- ❖ Illuminance
- ❖ Light pollution
- ❖ Light trespass
- ❖ Luminaire
- ❖ Maximum Uniformity Ratio
- ❖ Pole height
- ❖ Shielded fixture
- ❖ Uniformity Ratio

2. Added A New Section

Sec.30-344: Outdoor Lighting

120023B

1. Purpose and Intent

2. *Applicability.*

❖ **All outdoor lighting** within the City including, but not limited to, **multi-family residential, commercial, industrial, public and private recreational and institutional uses, architectural, and landscape lighting.**

3. *Exemptions:*

- a. Single-family or two-family dwelling
- b. Public rights-of-way, public streets, and approved private streets.
- c. Emergency equipment
- d. Law enforcement, fire rescue, storm debris clean-up or other similar public safety efforts.
- e. Lighting related to public roads and utilities.
- f. Lighting related to construction lighting
- g. Holiday lights
- h. Signs
- i. Lighting required by federal and state regulations

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Sec.30-344: Outdoor Lighting

120023B

1. Luminaire Design and Operation

A. *Full cutoffs.*

B. Non-horizontal surfaces:

1. Shielded fixtures
2. Limit area of projection
3. Focus on object to be illuminated
4. Avoid skyward, adjacent properties and Public Rights-of-way

C. Minimize light pollution and energy efficient

D. Automatic turn-off when not in use

E. Use of vegetation to prevent glare and light trespass

F. Prohibit use of lights for advertising

2. *Pole Heights:*

A. Limit heights to 30 feet

B. Allow large developments which are more than 75 feet to request height increase to 50 feet.

2. Added A New Section

Sec.30-344: Outdoor Lighting

120023B

3. Establish illumination Standards

A. *Compliance with IESNA.*

B. Limit light trespass onto adjacent properties to:

1. **1FC for Commercial**
2. **0.5 FC for Residential**
3. **0.4 FC for Nature Parks**

C. Specific standards for Recreational Lighting

D. Nature Parks

E. Building Exterior

1. **Average of 5 FC**
2. **Uniformity Ratio of 6:1**
3. **Maximum Uniformity Ratio of 10:1**
4. **Average vertical illuminance of 0.2 FC at 5 feet above the luminaire**

4. *Parking Lots:*

- A. **Minimum 0.5 FC**
- B. **Average of 2.5 FC**
- C. **Uniformity Ratio of 5:1**
- D. **Maximum Uniformity Ratio of 15:1**

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Sec.30-344: Outdoor Lighting

120023B

5. Parking Lots Within 75 feet of Residential

- A. Full cutoff at 80 degrees from pole
- B. Maximum height of 15 feet
- C. Minimum of 0.2 FC
- D. Average of 1.0 FC
- E. Uniformity Ratio of 5:1
- F. Maximum Uniformity Ratio of 10:1
- G. Average vertical Illuminance of 0.1 FC at 5 feet above the luminaire

6. Parking Lots for Multi-family Residential

- A. Minimum Horizontal Illuminance of 1.0 FC at ground level

7. Requirement for Automatically extinguishing lights one hour after close

- A maximum of 50% of full operation

2. Added A New Section

Sec.30-344: Outdoor Lighting

120023B

8. Parking Structures

A. Multilevel parking

B. First Floor

C. Basement

D. Placement Designs of Fixtures

1. Full cutoff, Semi-cutoff and/or refractor

2. High Intensity Discharge fixtures

3. Prevent Glare, Cavern Effect

4. Facilitate vertical illumination of the floor to enable drivers to discern objects

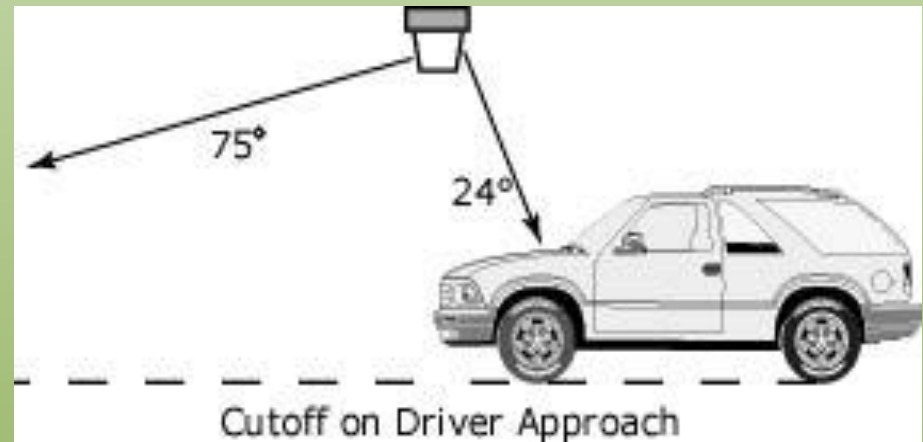
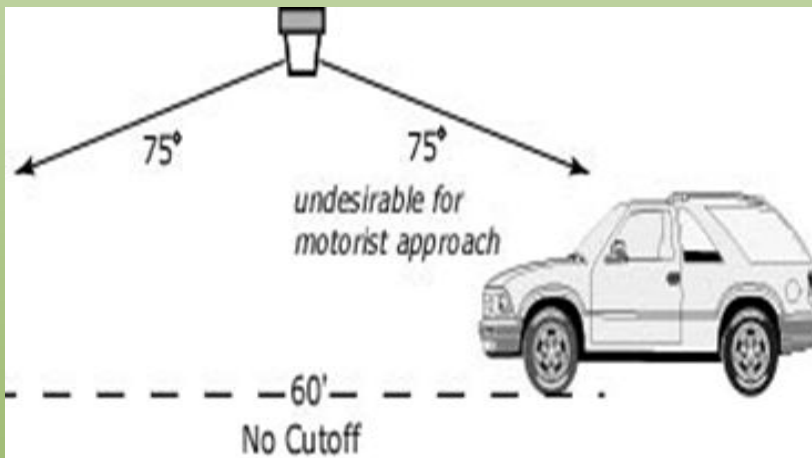
5. Cutoff angle of 24 to 38 Degrees on driver approach

6. Cutoff angle of 60 to 75 Degrees on driver retreat.

2. Added A New Section Sec.30-344: Outdoor Lighting

120023B

Figure 1 – Transverse Lighting Coverage
Transverse Coverage and Cutoff based on 8 foot Mounting Height



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120023B

	<u>Minimum Horizontal Illuminance (footcandles)</u>	<u>Maximum Uniformity Ratio</u>	<u>Minimum Vertical Illuminance* (footcandles)</u>
<u>Table 1:</u>			
<u>Basic per floor</u>	<u>1</u>	<u>10:1</u>	<u>.5</u>
<u>Ramps Day</u>	<u>2</u>	<u>10:1</u>	<u>1</u>
<u>Ramps Night</u>	<u>1</u>	<u>10:1</u>	<u>.5</u>
<u>Entrance Areas Day</u>	<u>50</u>	-	<u>25</u>
<u>Entrance Areas Night</u>	<u>1</u>	<u>10:1</u>	<u>.5</u>
<u>Stairways</u>	<u>2</u>	-	<u>1</u>
<u>*Measured facing the drive aisle at 5 feet above the parking surface at the point of the lowest horizontal illuminance.</u>			

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Sec.30-344: Outdoor Lighting

120023B

9. Canopy Lighting

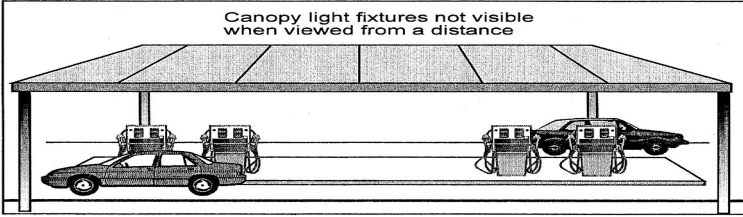
- A. Luminaires must be full-cutoff or recessed
- B. May be shielded by canopy so that light is restricted to 85° or less
- C. Lighting within 6 feet of Canopy :
 1. Minimum horizontal illuminance of 2.0 FC at ground level
 2. Average of 10 FC
 3. Uniformity ration of 5:1
 4. Maximum uniformity ratio of 6:1
 5. Allow indirect light but must be focused
 6. Not to exceed 0.5 FC at 5 feet above the canopy
 7. Not be mounted on top side of canopy fascia
 8. Requirement to extinguish lights when not in operation

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120023B

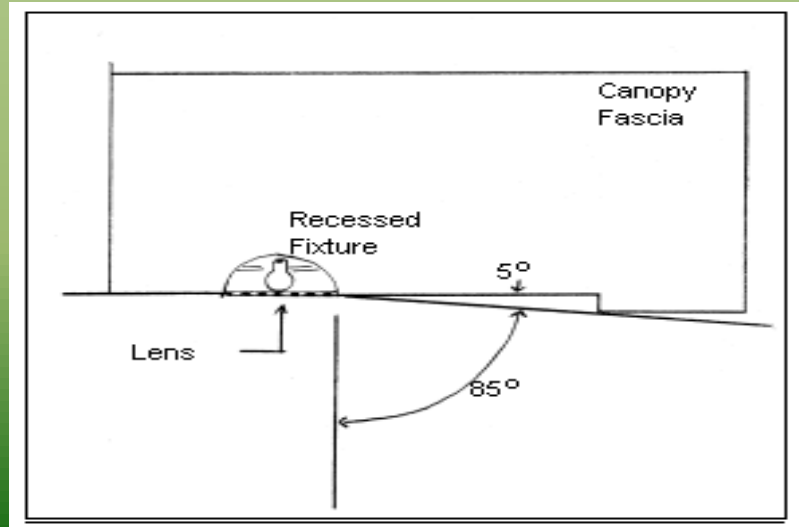
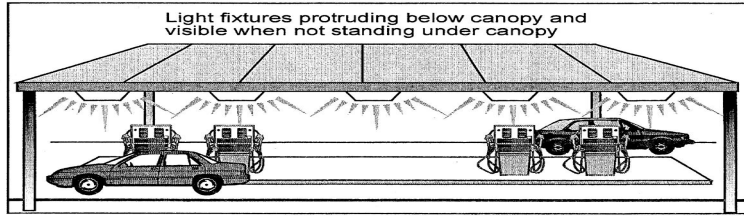
This

Canopy light fixtures not visible when viewed from a distance



Not This

Light fixtures protruding below canopy and visible when not standing under canopy



120023B



Reg. 387⁹
Plus 401⁹

2. Added A New Section

Sec.30-344: Outdoor Lighting

120023B

10. WAIVERS

- A. Reviewing Board, City Manager or Designee may permit waivers.

11. Nonconforming Luminaires and Lighting

- A. Required compliance when modifications are made
- B. When 50% or more of existing fixtures are replaced
- C. When the number of existing luminaires are increased by 50%
- D. When considered a safety hazard
- E. If the operational hours are changed from daytime to night-time

Recommendation

Approve Petition PB-12-40 TCH
and Ordinance 120023
on First Reading

12/03/2012

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.

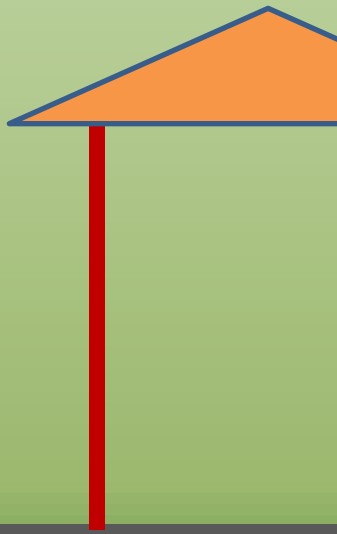
Why the
“100- wide Transitional Lighting Corridor”?

30' Pole with 80 degree
full cut-off fixtures



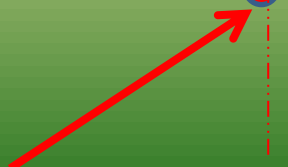
NON-RESIDENTIAL

RESIDENTIAL



167'

Property Line



30' Pole with 80 degree full cut-off fixtures



45'

167'

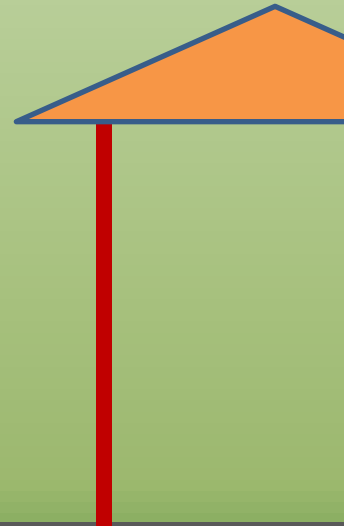
122'

NON-RESIDENTIAL

8' Fence

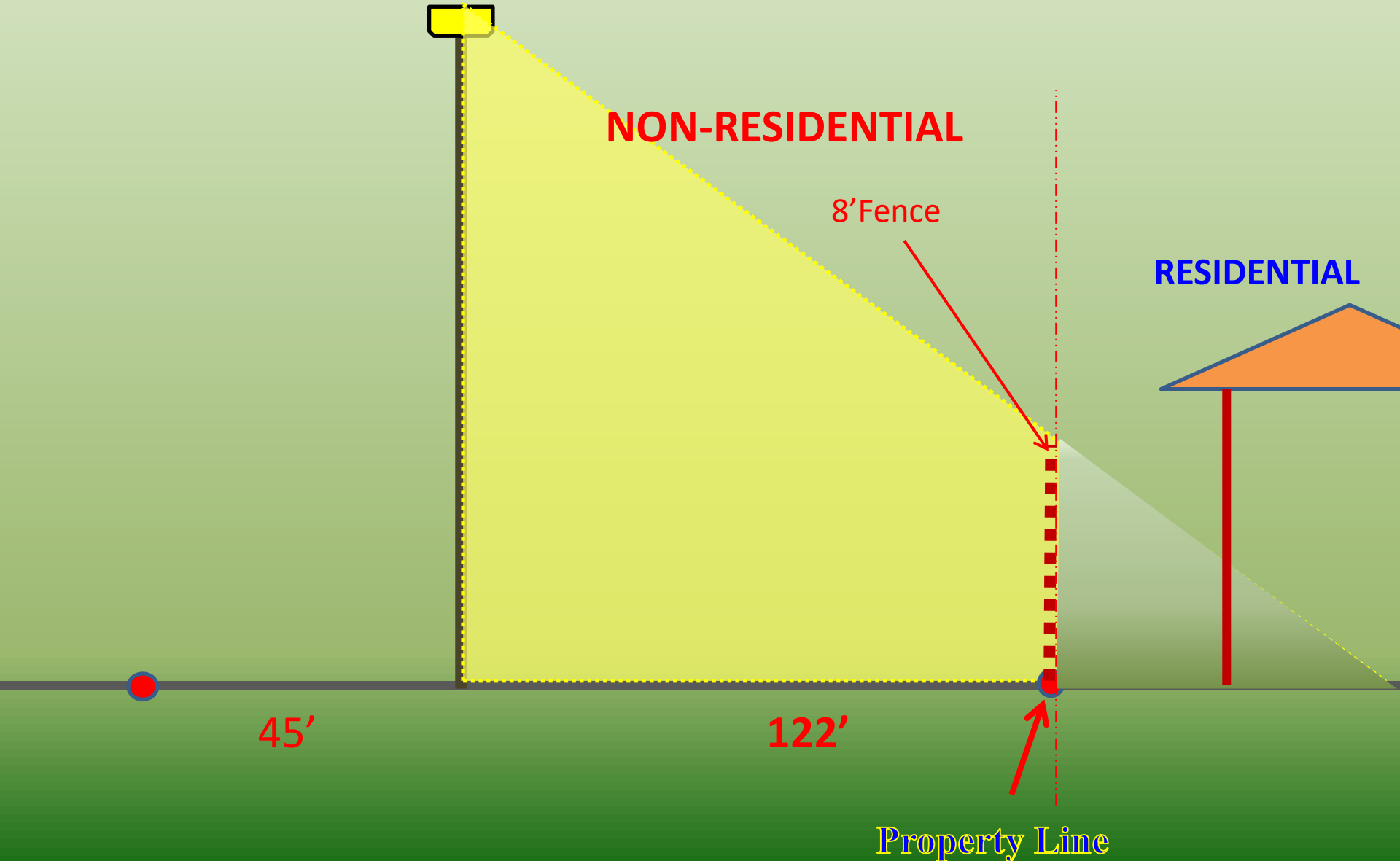


RESIDENTIAL

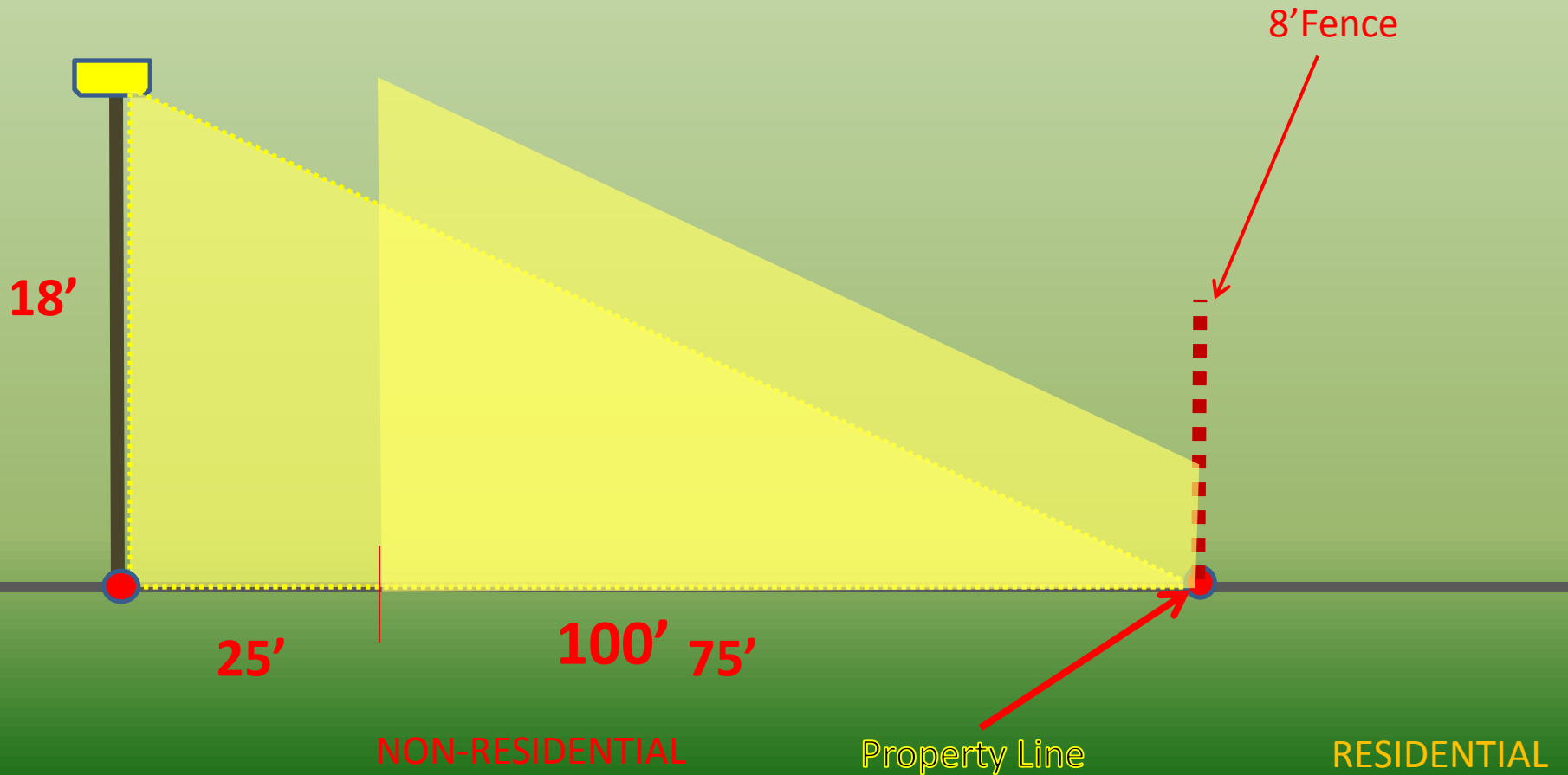


Property Line

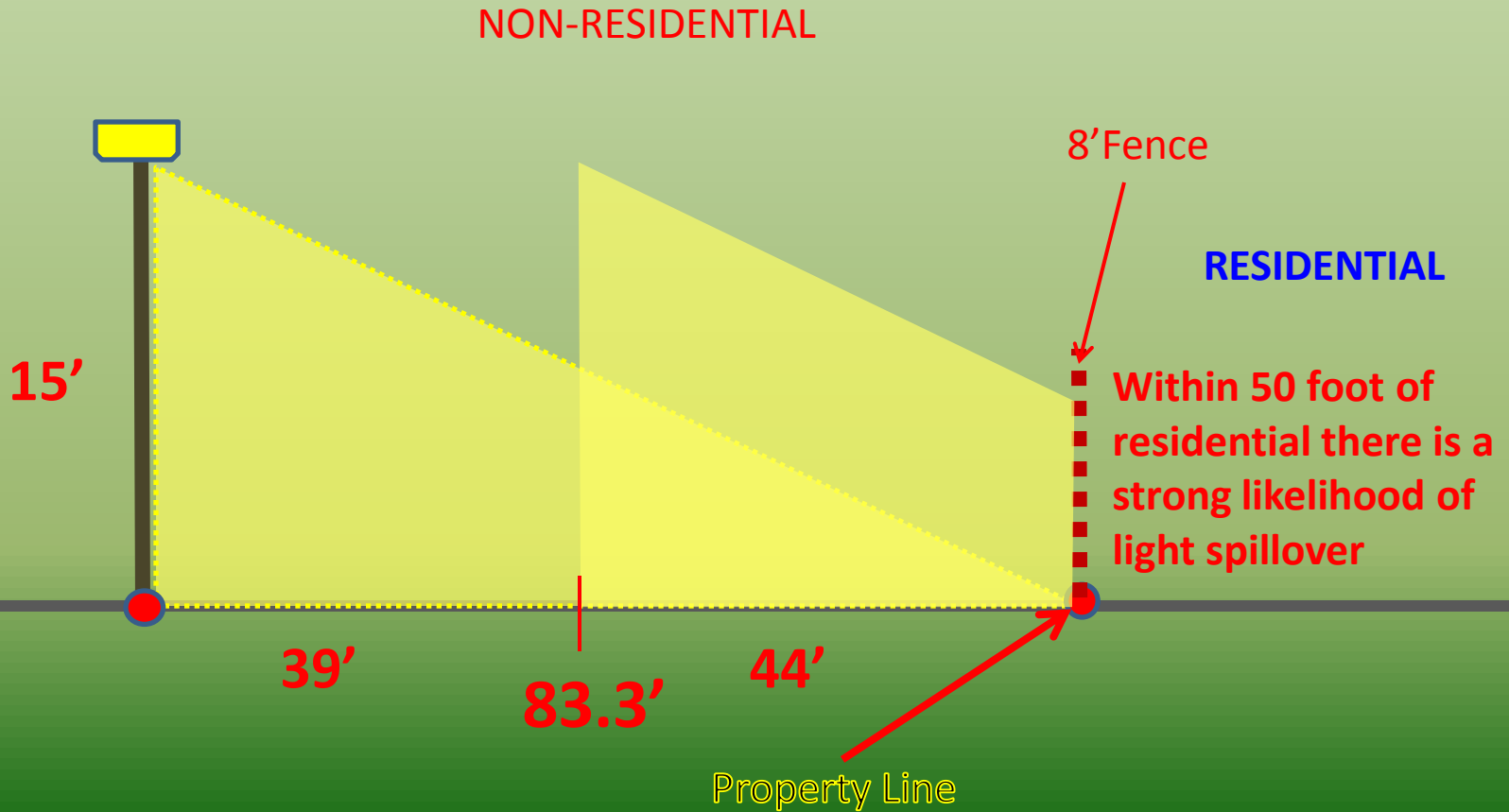
30' Pole with 80 degree full cut-off fixtures



18' Pole with 80 degree
full cut-off fixtures



15' Pole with 80 degree full cut-off fixtures



OUTDOOR LIGHTING NEAR RESIDENTIAL

120023B

(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.](#)

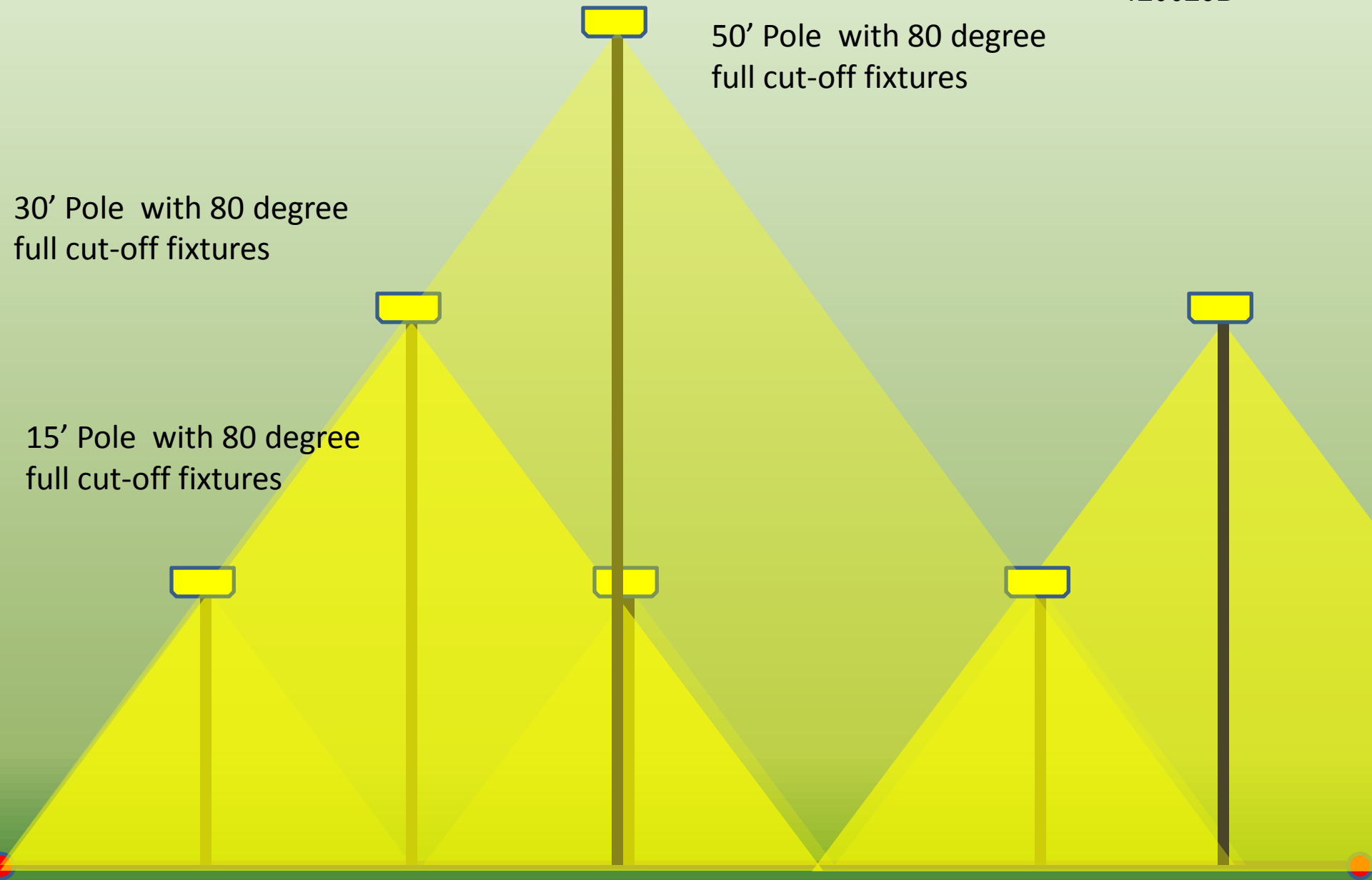
(i) Sites within the “Transitional Lighting Corridor” shall be [discouraged from having parking lots intended to operate after dark within 50 feet](#) of the common boundary with properties zoned [RSF-1, RSF-2, RSF-3, RSF-4 and RC](#). Where this [cannot be avoided](#), the development shall comply with 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.

120023B

50' Pole with 80 degree
full cut-off fixtures

30' Pole with 80 degree
full cut-off fixtures

15' Pole with 80 degree
full cut-off fixtures



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

$$\tan 10 = 30/x$$

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

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

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