



Light Pollution Code Update

6:00 PM, September 29, 2020

How to Participate



- Please raise your hand or use the Q&A box to ask a question.
- If you are calling in from a phone:
 - Dial *9 to raise your hand
 - Dial *6 to unmute when called on



Project Purpose

This effort is to:

- Enable Dark Sky Communities
- Revise and amend Regulatory Code Title 5 Chapter II: Light Pollution (Light Pollution chapter)
- Evaluate the incorporation of best practices for light pollution controls, including the International Dark-Sky Association (IDA) standards



International Dark-Sky Association

- Recognized International Dark-Skies Places:
 - Borrego Springs
 - Anza-Borrego State Park



INTERNATIONAL
DARK-SKY
ASSOCIATION

*“Preserve and protect
nighttime environment and heritage
of dark skies through environmentally
responsible lighting”*



History of County Light Pollution Code

- Passed in 1985
- Aimed at protecting the Mount Laguna and Palomar Observatories



Mount
Laguna



Palomar

CHAPTER 2. LIGHT POLLUTION

SEC. 51.201. PURPOSE.

The purpose of this chapter is to minimize light pollution to allow citizens of the County to view and enjoy the night environment and to protect the Palomar and Mount Laguna observatories from the detrimental effect that light pollution has on astronomical research.

(Added by Ord. No. 9974 (N.S.), effective 4-3-09)

SEC. 51.202. GENERAL REQUIREMENTS FOR OUTDOOR LIGHTING FIXTURES.

- All artificial outdoor luminaires installed or reinstalled after January 1, 1985 shall comply with this chapter.
- All artificial outdoor luminaires shall comply with the County Building and Electrical Codes and the Zoning Ordinance.

(Added by Ord. No. 9974 (N.S.), effective 4-3-09)

SEC. 51.203. DEFINITIONS.

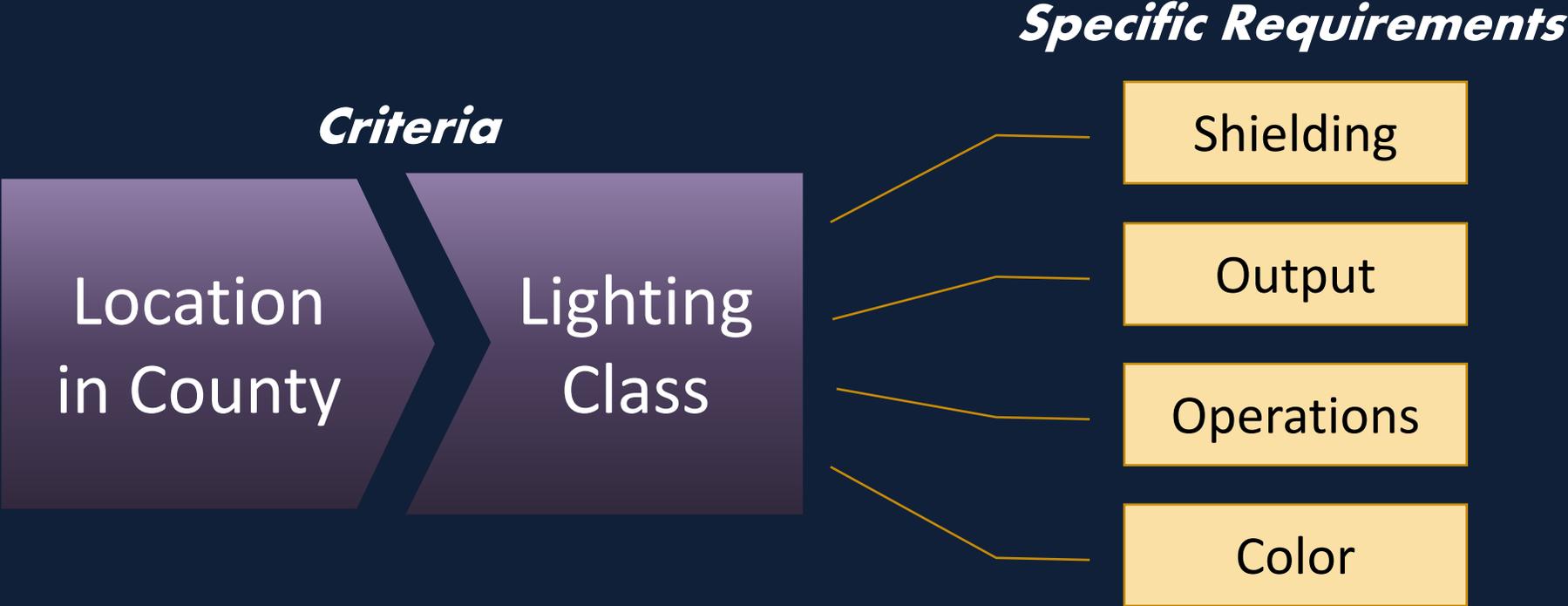
The following definitions shall apply to this chapter:

- "Outdoor luminaire" means an outdoor illuminating device, outdoor fixture, lamp and other similar device, whether permanently installed or portable, that produces artificial light.
- "Class I lighting" means outdoor lighting for an outdoor sales or eating area, vehicle fueling area, assembly or repair area, billboard or other sign, recreational facility or other similar application, where color rendition is important for commercial or safety purposes.
- "Class II lighting" means outdoor lighting for commercial, industrial and residential walkways, roadways and parking lots, equipment yards, outdoor security and residential entrance lighting.
- "Class III lighting" means outdoor lighting used for decorative effects such as architectural illumination, flag and monument lighting and landscape lighting.
- "Building official" means the Director of Planning and Development Services and any other person designated by the Board of Supervisors to administer and enforce this chapter.
- "Residential entrance light" means an exterior lighting fixture mounted on a building in accordance with the California Building Code to illuminate an outdoor entrance or exit.

...the area within a 15-mile



Existing Code



Existing Code: Location in County

- Zone A: Observatories Zone
- Zone B: All Other Unincorporated County

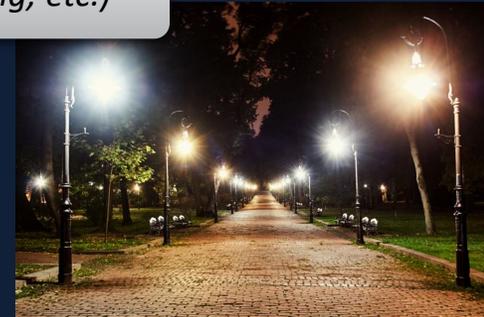


Existing Code: Lighting Classes

Class I: Color Rendition Important (outdoor repair, eating areas, etc.)



Class II: Safety & Security (parking lots, entrance lighting, etc.)



Class I: Color Important
Class II: Safety and Security
Class III: Decorative

Class III: Decorative (landscape lighting, LED uplighting, etc.)



Question and Answer

5 Minutes



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Proposed Code

Specific Requirements

Criteria



Shielding

Output

Operations

Color

Add IDA Standards

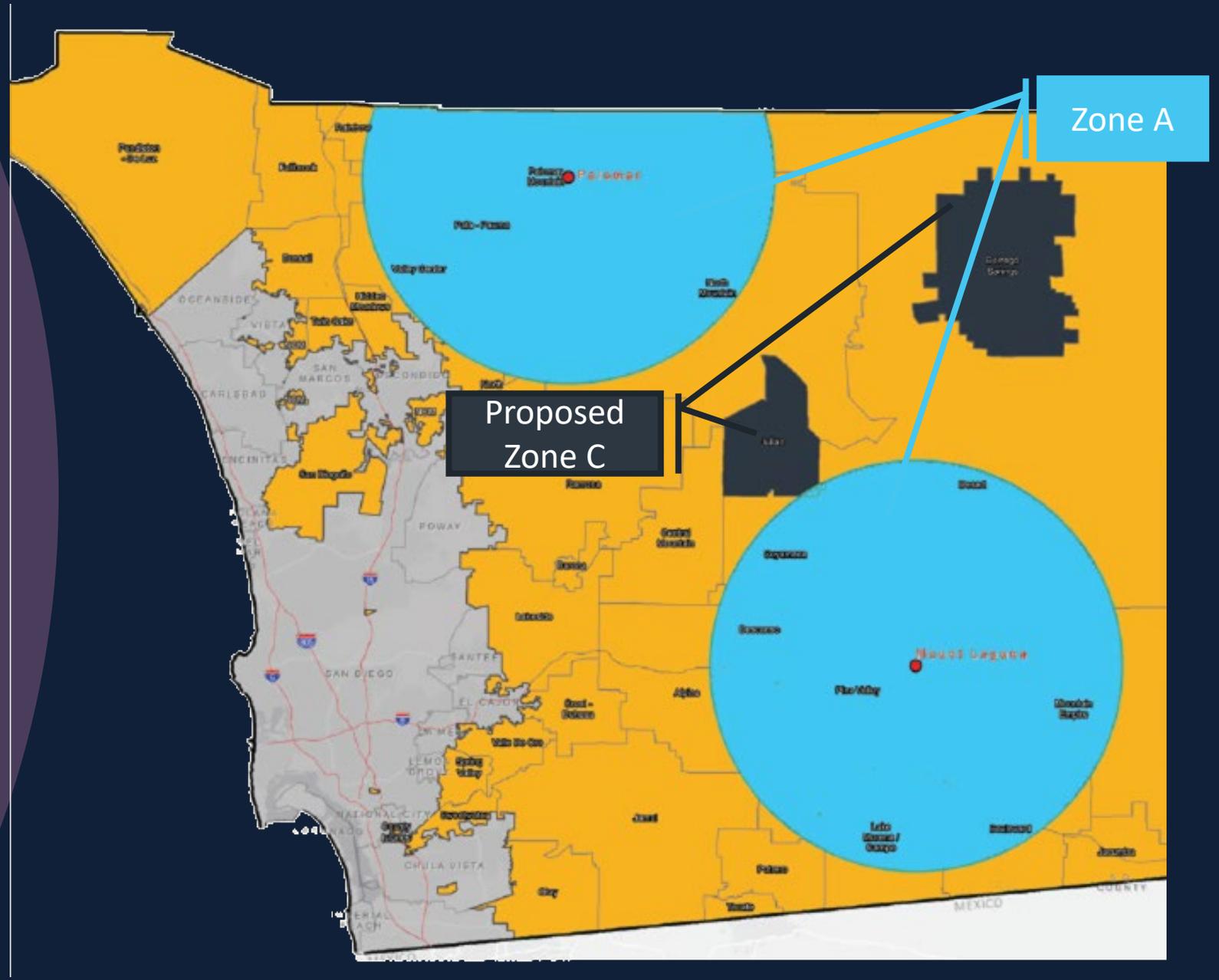
Add Zone C



Proposed Code: Zone C Locations

Zone C: Dark Sky Zone

- Julian and Borrego Springs Community Planning Areas
- Future Communities





IDA Dark Skies Requirements

*Proposed for Zone C:
Dark Sky Zone*

Shielding

Over-lighting limits

Blue Light Reduction

Sports Fields

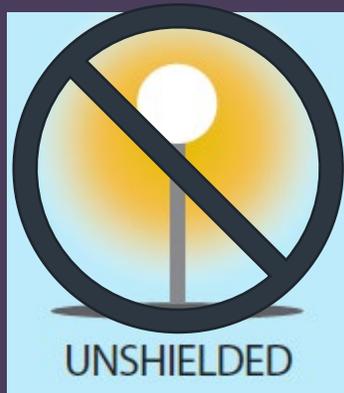
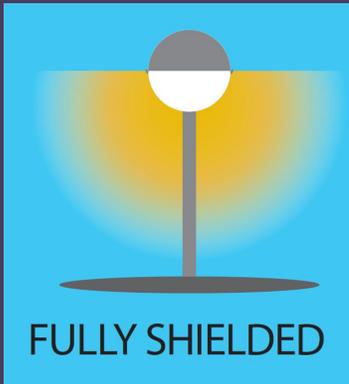
New Public Lighting

Signage



Proposed Code: Shielding

Zone C: Dark Sky Zone



Class I: Color Rendition Important	Class II: Safety and Security	Class III: Decorative/ Aesthetic
<ul style="list-style-type: none">All luminaires shall be fully shielded	<ul style="list-style-type: none">All luminaires >1,000 lumens shall be fully shieldedFull shielding is not required for luminaires \leq 1,000 lumens	

Proposed Code: Maximum Lumens

Zone C: Dark Sky Zone

- Maximum limit of 50,000 lumens per gross acre (lm/ac)
- Inclusive of all three lighting classes
- Less than half allowed by electrical code

Class I: Color Rendition Important	Class II: Safety and Security	Class III: Decorative/ Aesthetic
<ul style="list-style-type: none"> • Lighting shall not exceed 50% of the total allowed lumens 	<ul style="list-style-type: none"> • Non-fully shielded lighting shall not exceed 10% of the total allowed lumens 	<ul style="list-style-type: none"> • Lighting shall not exceed 20% of the total allowed lumens
<p><i>All sites shall be allowed a minimum of 5,000 lumens regardless of the property's square footage.</i></p>		

Roughly Equivalent
to:

9W LED BULBS



**Maximum 50
per one acre**

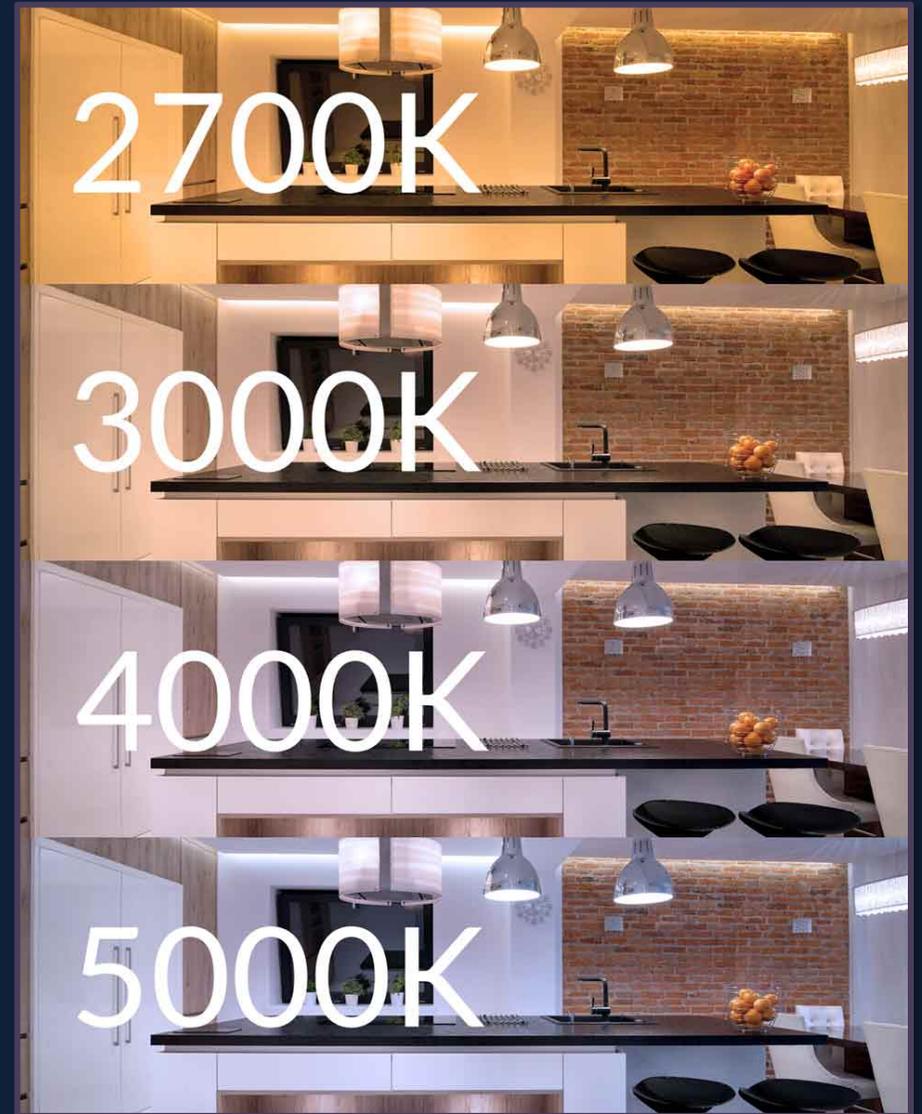




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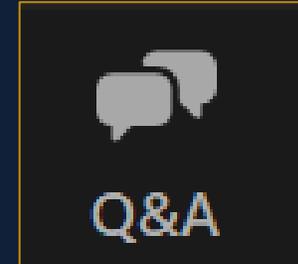
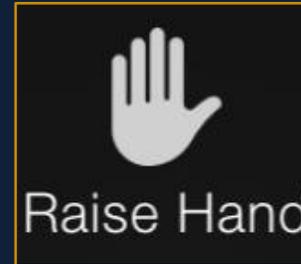
Blue Light Reduction

- All lights must have Correlated Color Temperatures (CCT) $\leq 3,000\text{K}$



Question and Answer

5 Minutes



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New Public Lighting

New installation of public lighting:

- Director of appropriate department deems necessary for safety and welfare of general public
- Other passive means (reflectorized roadway paint or markers) deemed insufficient
- Adaptive controls to ensure lighting is restricted to times, places, or amounts required for safety



Public lighting includes street lights, public building lights, & park lights.



Michael Baker
INTERNATIONAL



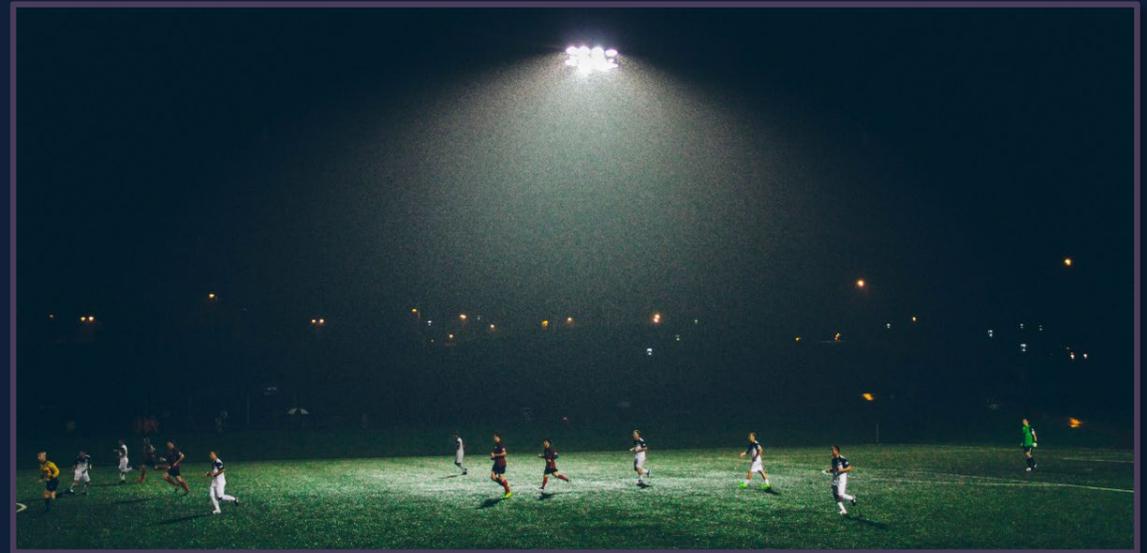
Making a Difference



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Sports Fields

- Exempted from CCT & shielding requirements if:
 - IES guidelines followed
 - Only for fields and stands
 - Adjustable illuminance
 - Curfew
 - Minimize off-site impacts and uplighting
 - Timers installed
 - CCT \leq 5,000K





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Signage Lighting

- 100 nits (candelas/meter²) between sunset and sunrise
- Allowed when business is operating
 - Extinguished 1 hour after sunset until 1 hour before sunrise, or close of business whichever is later
- Illuminated surface ≤ 200 square feet



CRT Monitors
~ 100 nits

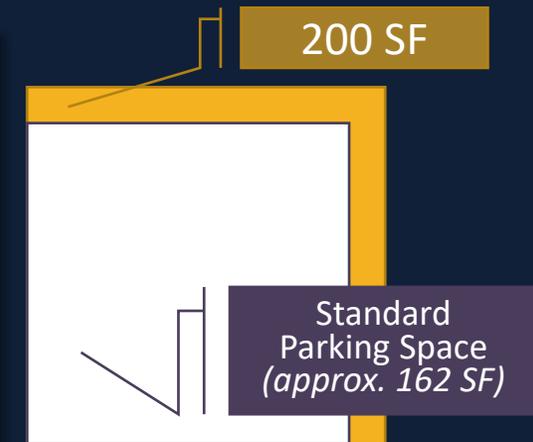


LCD Monitors
300-500 nits



Modern
Smart Phones
400-650 nits

Comparative Brightness Levels



Fuel Canopies

- May exceed Color Important (Class I) lumen percentages (50%)
- May not exceed 120% of IES recommendations for low ambient light zones
- Recessed
- No lighting of canopy perimeter



Operations

- All Color Important (Class I) and Decorative/Aesthetic (Class III) lighting is allowed while the business is operating.
- These must be extinguished two hours after sunset or within 30 minutes after the close of business, whichever is later.



Implementation Timeline

5

years for

**County
Owned
Lighting**

10

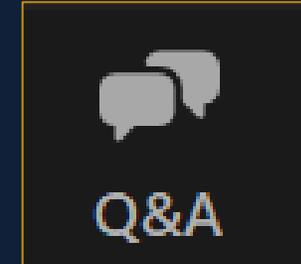
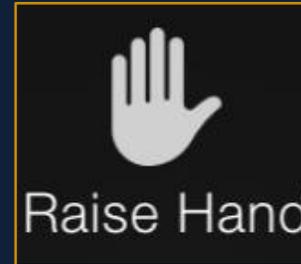
years for

**ALL
Lighting**



Question and Answer

5 Minutes



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Next Steps

- Public Review – 20 Days
- Board of Supervisors Hearing – 10/28/2020
- Board of Supervisors Hearing – 11/18/2020

