

**TOWN OF PAONIA, COLORADO
ORDINANCE NO. 05-2022**

**AN ORDINANCE OF THE TOWN OF PAONIA, COLORADO
AMENDING THE PAONIA MUNICIPAL CODE TO WITH
THE ADDITION OF CERTAIN SECTIONS TO CHAPTER 16,
ARTICLE 7 REGARDING OUTDOOR LIGHTING
REGULATIONS**

WHEREAS, glare and light pollution can result in safety concerns, diminish the ability to view the night sky, and impact community character; and

WHEREAS, the Board of Trustees wishes to pursue certification through the International Dark-Sky Association to become an International Dark Sky Community; and

WHEREAS, the Town of Paonia has invested, and continues to invest, in protecting the important dark sky resource;

WHEREAS, the Board of Trustees wishes to adopt amendments to the Municipal Code to concerning outdoor light, and believes that doing so is in the best interests of the Town.

NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF TRUSTEES OF THE TOWN OF PAONIA, as follows:

Section 1. Recitals.

The recitals to this Ordinance are adopted as findings of the Board of Trustees in support of the enactment of this Ordinance.

Section 2. Code Amendment. Chapter 16, Article 7, is hereby added to the Paonia Municipal Code, as set forth in **Exhibit A**.

Section 3. Severability.

If any provision, clause, sentence or paragraph of this Ordinance or the application thereof to any person or circumstance shall be held invalid, such invalidity shall not affect the other provisions of this Ordinance which can be given effect without the invalid provision or application, and, to this end, the provisions of this Ordinance are declared to be severable.

Section 4. Repeal of Prior Ordinances.

All other ordinances or parts of ordinances in conflict herewith are hereby repealed.

Section 5. Ordinance Effect.

Existing ordinances or parts of ordinances covering the same matters as embraced in this Ordinance are hereby repealed and any and all ordinances or parts of ordinances in conflict with the provisions of this Ordinance are hereby repealed; provided, however, that the repeal of any ordinance or parts of ordinances of the Town shall not revive any other section of any ordinance or ordinances hereto before repealed or superseded, and further provided that this repeal shall not affect or prevent the prosecution or punishment of any person for any act done or committed in violation of any ordinance hereby repealed prior to the taking effect of this Ordinance.

Section 5. Effective Date.

This Ordinance shall take effect thirty (30) days after passage and publication.

INTRODUCED, READ, AND REFERRED before the Board of Trustees for the Town of Paonia, Colorado, on the 27th day of July 2021.

HEARD AND FINALLY ADOPTED by the Town of Paonia Board of Trustees for the Town of Paonia, Colorado, on the 29th day of July 2022.

TOWN OF PAONIA

By: _____
Mary Bachran, Mayor

ATTEST:

Corinne Ferguson, Town/Administrator Clerk

**TOWN OF PAONIA, COLORADO
ORDINANCE NO. 2022-05**

EXHIBIT A

**Chapter 16, Article 7
Outdoor Lighting Regulations**

Sections:

16-7-10 Purpose
16-7-20 Definitions
16-7-30 Applicability
16-7-40 General Provisions and Requirements
16-7-60 Nonconforming Lights.
16-7-60 Administration and Enforcement.
16-7-70 Appeals and Variances.

16-7-10. - Purpose. The purposes of these Outdoor Lighting Regulations are to:

- (a) Maintain nighttime visibility and safety while maintaining the rural atmosphere and small-town character of Paonia.
- (b) Minimize light pollution and glare. Protect citizens from unwanted outdoor lighting that would enter homes and businesses.
- (c) Promote energy conservation by promoting efficient use of lighting.
- (d) Prevent unnecessary or inappropriate outdoor lighting that impacts the dark sky resource, qualifying Paonia as an International Dark Sky Association (IDA) designated community.
- (e) Help mitigate sleep and wildlife migration related issues through use of minimum necessary outdoor lighting and by using light bulbs with a warmer color.

16-7-20. - Definitions. For the purpose of this Article, the following terms shall have the meanings set forth below:

- (1) *Adaptive Controls* means devices such as timers, motion-sensors, light-sensitive switches, and other means used to actively regulate the emission of light from light fixtures.
- (2) *Correlated color temperature (CCT)* means specification of the color appearance of the light emitted by a lamp, relating its color to the color of light from a reference source when heated to a particular temperature, measured in degrees kelvin (K).
- (3) *Dark Sky resource* means the dark sky unpolluted by artificial light sources typically as seen on moonless nights.
- (4) *Fully shielded fixture* means an outdoor light fixture that is designed and mounted such that all light rays are emitted by the installed fixture at angles below the horizontal plane

and such that no light rays are emitted at angles which will allow the light to pass directly off the premises appurtenant to the fixture.

- (5) *Light Trespass* means light falling where it is not intended to illuminate property, grounds, or buildings in an objectionable manner.
- (6) *Lumens* means a measure of brightness that is defined as a unit of luminous flux in the International System of Units, that is equal to the amount of light given out through a solid angle by a source of one candela intensity radiating in all directions. 850 lumens is equivalent to 60-watt. *See Note 4.*
- (7) *Lumens per Net Acre* means the amount of light specified in lumens that is allocated to the developed portion (net acre) of the gross size of a lot parcel. *See Note 2.*
- (8) The definitions contained in Section 16-1-100 of the Code shall otherwise apply to this Article.

16-7-30. – Applicability. This Article shall apply to all exterior lighting installed after the effective date of the Ordinance adopting this Article. All lawful nonconforming exterior lighting prior to the effective date of the Ordinance adopting this Article shall be subject to the Nonconforming Lighting Section of this Article.

16-7-40. – General Provisions and Requirements.

- (a) **Requirements.** All non-exempt outdoor light fixtures and illuminating devices permanently or temporarily installed outdoors, including but not limited to devices to illuminate signs, shall meet the following requirements:
 - (1) **Shielding.** Unless exempted elsewhere in this Article, all luminaires whose initial lumens exceed one hundred (100) lumens shall be fully shielded. *See Note 5* for examples of shielded and unshielded luminaires.
 - (2) All fixtures designed to illuminate signs or structures shall be fully shielded and with a CCT as specified in items A1 and A4 of General Provisions and Requirements. The lighting fixtures shall be mounted above the area of the sign or structure to be illuminated.
 - (3) Blinking, flashing, rotating, or moving lights are prohibited.
 - (4) **Maximum Color Temperature of all lighting fixtures:** The correlated color temperature (CCT) of any outdoor lighting fixture shall not exceed three thousand degrees kelvin (3000°K) see note 4 below.
 - (5) The following lumen limits are established to prevent over lighting. Each site should use responsible lighting practices including using the lowest number of lumens needed for the site to provide for safety and functionality:
 - a. For non-residential, and mixed-use properties the total amount of outdoor lighting shall not exceed twenty-five thousand (25,000) lumens per net acre. Each lighting fixture shall be limited to 1500 lumens.

- b. For multiple-family and two-family dwellings the total amount of outdoor lighting, shall not exceed twenty thousand (20,000) lumens per net acre. Each fixture shall be limited to 850 lumens.
 - c. For single-family dwellings, the total amount of outdoor lighting, shall not exceed six thousand five hundred (6,500) lumens. Each fixture shall be limited to 850 lumens.
 - d. All properties shall use adaptive controlled lighting where practical.
- (6) Unshielded Lighting shall be prohibited, except for special cases meeting exemption requirements of Subsection (b), and also meeting lumen limits in Subsection (c).
- (7) Existing overhead street lighting owned, operated, or leased by the Town of Paonia shall be compliant with the listed lighting requirements in Subsections (a)(1) to (a)(4) of this Section and shall be limited to a lumens cap of 5000 lumens per lamp, unless required for safety reasons as approved by the Board of Trustees.
- (8) Lighting Curfews:
 - a. Lighting used at community and athletic events (including outdoor concerts and other Town-approved events) shall be turned off one hour after the conclusion of the event.
 - b. Lighting in Town buildings shall be turned off one hour after close of business or other approved activities unless authorized by appropriate Town authority for safety or maintenance reasons.
 - c. Commercial lighting shall be turned off one hour after close of business, except for safety of employees or customers if operations are throughout the night.
 - d. Adaptive Controls (such as motion, light sensitive detectors, etc.) shall be used in outdoor commercial and residential lighting where practical.
- (9) New Public lighting, owned and operated by the Town of Paonia, either streetlights, walkway lights, or external building lighting shall be allowed as recommended by the Town Administrator in situations where a public health hazard exists which can only be mitigated by artificial light at night and shall be in compliance with Subsection (a). Adaptive controls or curfews shall be employed in all new public outdoor lighting installations.
- (10) The following restrictions shall be required on the installation and operation of outside illuminated signs:
 - a. Luminance levels for operation between sunset and sunrise shall not exceed 100 nits (100 candelas per square meter) as measured under conditions of a full white display.

- b. Sign illumination shall be extinguished completely one hour after sunset and remain off until one hour before sunrise, or at the close of business; whichever is later.
- c. The luminous/illuminated surface area of an individual sign shall not exceed defined limits in Town Code.

(b) **Exemptions.** The following are exempt from the provisions of Subsection (a), provided the provisions in Subsection (c) are met.

- (1) Lights used to illuminate athletic fields, outdoor recreation areas, and areas used for concerts and other outdoor community events shall be exempt from provisions of Subsection (a) provided all the following conditions are met.
 - a. Illuminating Engineering Society (IES) lighting guidelines (RP-6) are followed according to the appropriate class of play.
 - b. Field lighting is provided exclusively for illumination of the surface of play and viewing stands, and not for any other applications
 - c. Illuminance levels must be adjustable based on the task (e.g., active play vs. field maintenance)
 - d. Off-site impacts of the lighting will be limited to the greatest practical extent possible
 - e. A curfew such that lights must be extinguished by one hour after the end of activity, and no later than 10:30 PM Standard Time / 11:30 PM Daylight Savings Time. Variances can be permitted on a case-by-case review for special events that go to midnight.
 - f. Timers must be installed to prevent lights being left on accidentally overnight by automatically extinguishing them
- (2) Signs, postings which are illuminated by building interior light sources, such as neon signs or other lights, provided such signs are lit only during the property owner's business hours.
- (3) Official traffic control devices and lights owned and operated by or pursuant to proper authority of the United States of America, the State of Colorado or any of their agencies, and such other lights as are specifically required by federal or state law.
- (4) Lawful vehicle lights.
- (5) Holiday lights, provided all conditions are met:
 - a. Holiday lighting shall be temporary and illuminated no more than 75 days during anyone-year period.

- b. Holiday displays of over 1250 total lumens per parcel, and holiday luminaires exceeding 850 lumens each, are subject to a curfew, and must be turned off from 10:30 pm until 1 hour before sunrise each night.
- (6) Flagpoles. Property owners are encouraged to not illuminate flagpoles at night, but rather to hoist flags after dawn and lower flags before sunset. If flags are illuminated at night, lighting of up to a total of two (2) flags per property is permitted with the following conditions:
 - a. The flags must either be the flag of the United States of America or the flag of the State of Colorado for illumination to be permitted.
 - b. If nighttime illumination is used, flagpoles shall be illuminated only from above. This may be achieved by utilizing a luminaire attached to the top of the flagpole or a luminaire mounted above the top of the flagpole on a structure within fifteen (15) feet of the flagpole and must comply with all Sections of this Article. The total light output from any luminaire mounted on top of or above a flagpole shall not exceed 800 initial lumens.
- (c) **Maximum allowed amounts of unshielded lighting.** On no parcel shall the amount of allowed unshielded lighting to exceed, in the aggregate, the following values per net acre according to lighting zone:
 - (1) For mixed use / industrial: (1000) lumens.
 - (2) For multi-unit residential: (1000) lumens.
 - (3) For single-family units (1000) lumens.
 - (4) Temporary holiday lights are not counted toward these limits.
- (d) **Interior Lighting.** Interior lighting direct rays shall be blocked from trespassing (straying) beyond the property boundaries of the source.
- (e) **Greenhouse lighting shall meet the following requirements:** All greenhouse lighting is subject to General Provisions and Requirements in this Section. In addition:
 - (1) Greenhouses shall be fully covered with blackout tarps or covers so that no light spills from the premises onto adjacent lands or into the night sky.
 - (2) Greenhouse lighting that is not fully covered is subject to a curfew and shall be extinguished at night between 10 pm and 6 am local time.

16-7-50. – Nonconforming Lights.

- (a) Lights which were lawfully existing and in use at the time they became nonconforming with the requirements of this Article by virtue of the initial adoption of this Article, subsequent amendment to this Article or by annexation into the Town, may continue to be used and operated subject to the limitations of this Article.

- (b) The right to operate lawful nonconforming fixtures and or lawful nonconforming lamps shall terminate upon any of the following:
 - (1) Replacement of the light fixture or lamp.
 - (2) Damage to the light fixture so that the cost of repair is 50% or more of the cost to replace it with a conforming fixture.
- (c) All nonconforming Public and Private Lighting either, owned or leased shall be brought into compliance with this Article within 10 years from the effective date of this ordinance.

16-7-60. – Administration and Enforcement.

- (a) The provisions of this Article shall be administered by the building official or other authorized Town officer or employee.
- (b) It shall be unlawful to violate any provision of this Article.
- (c) Any continuing violation of this Article is hereby declared to be nuisance, which may be abated by the Town in any lawful manner or enjoined by a court of competent jurisdiction.
- (d) No building permit or occupancy permit shall be issued for work which has noncomplying light fixtures (*see* Town of Paonia Building Permit Checklist).
- (e) Changes or upgrades to existing outdoor lighting will utilize town provided education materials on shielded fixtures and energy efficient dark sky compliant lamps. *See* Notes 3 to 5.

16-7-70. – Appeals and Variances. Any person aggrieved by an interpretation of this Article or decision of the Town made in the administration of this Article, may appeal the interpretation or decision to the Board of Trustees pursuant to the applicable provisions of the Town Code. The Board of Trustees may grant a variance only upon a determination that the following criteria are met:

- (a) The variance will be consistent with the public health, safety, and welfare.
- (b) The variance is justified by unreasonable hardship not created by the activities of the applicant or strict compliance is unfeasible.
- (c) The variance will be substantially consistent with the purposes of this Article to avoid nuisances to others, preserve the natural dark sky resource and to maintain IDA community dark sky designation, conserve energy, reduce glare, promote traffic and pedestrian safety, preserve the small-town character of Paonia and promote the Town's master plan.

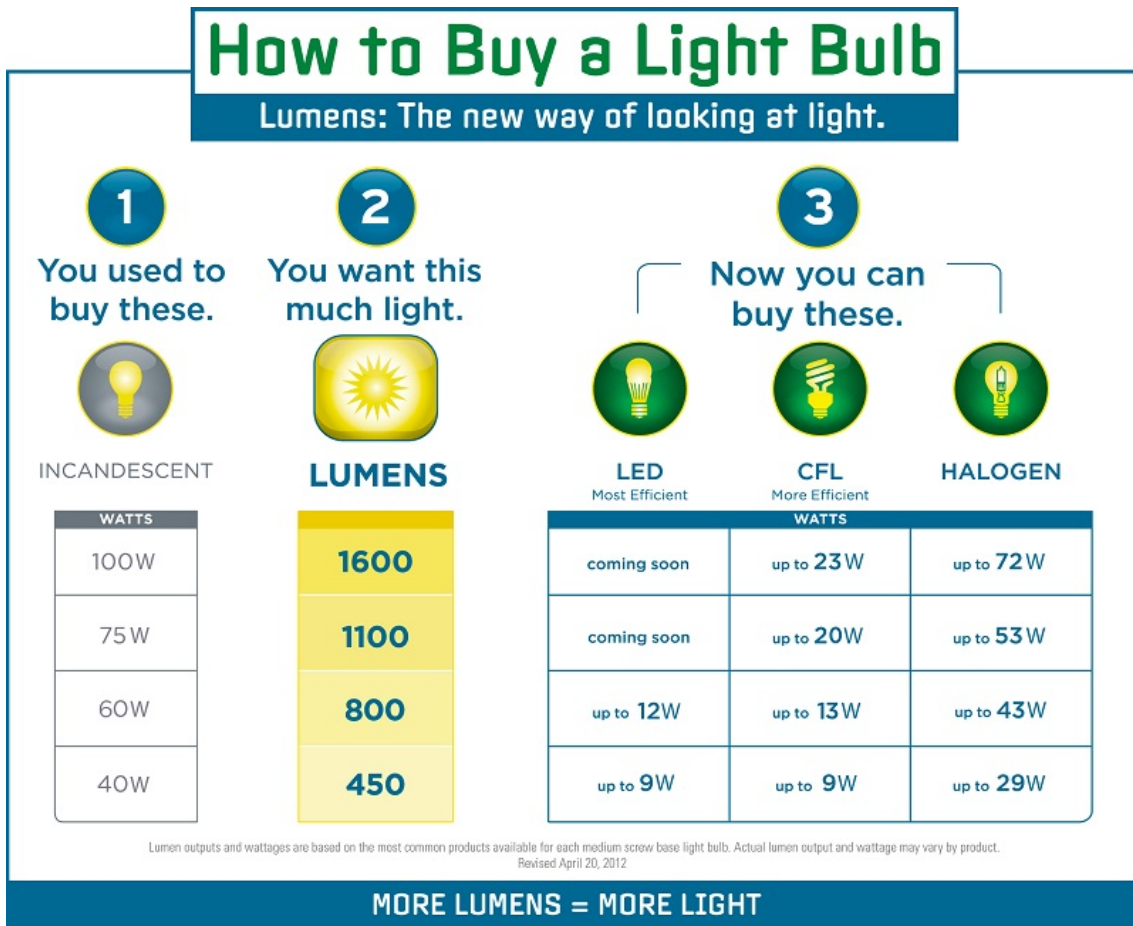
Notes:

1. Since 2012, the Federal Trade Commission has required that labelling of all light bulbs include temperature (Kelvins) and light output (lumens.) Concerning color temperatures, a CCT of about 5000K approximates sunlight and a CCT of 3000K will have a slightly yellow appearance.
2. Lumens per net acre: For example, a one-acre (44000sqft) lot is developed with a 6000 sq ft multiunit condo plus a 2000sqft wrap-around deck, a 2000sqft detached garage and adjacent developed patio of 1000sqft. Additionally, landscaping improvements around the condo, deck, patio and detached garage adds another 5000sq ft bringing the total developed portion of the lot to 16000sqft or 16000/44000 – approximately 36% of that gross one-acre lot. The lumens allocation for this multiunit example is 20000/per net acre or $20000 \times 0.36 = 7272$ lumens.

3. Color Temperature Comparison:



4. Lumens to Wattage Conversion:

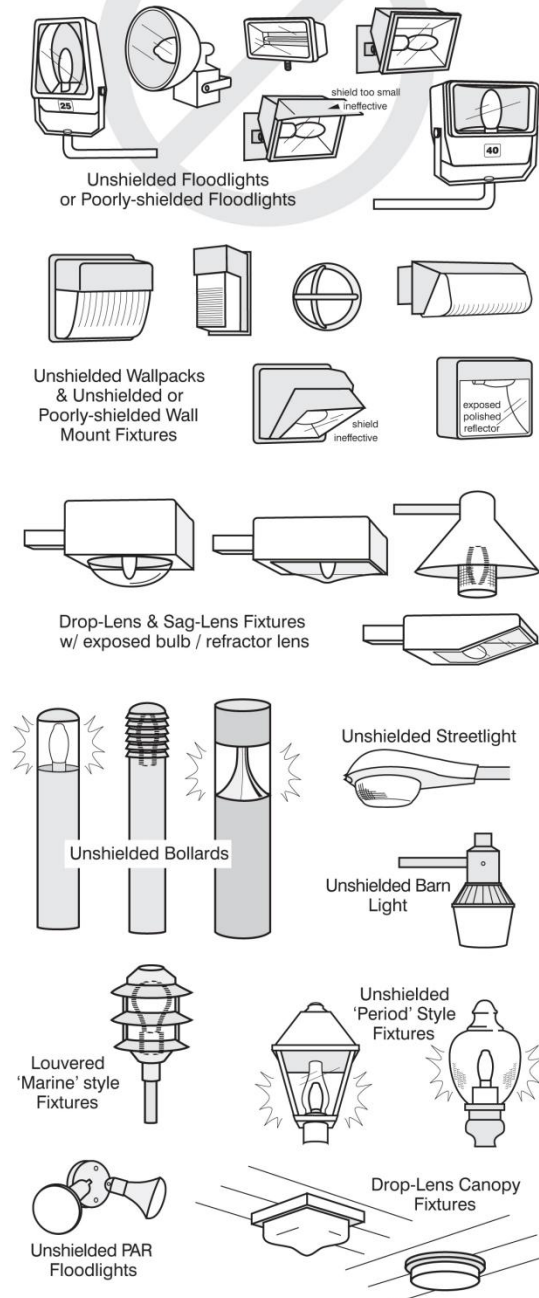


5. Examples of Acceptable (fully shielded) and Unacceptable Dark Sky lighting:

Examples of Acceptable / Unacceptable Lighting Fixtures

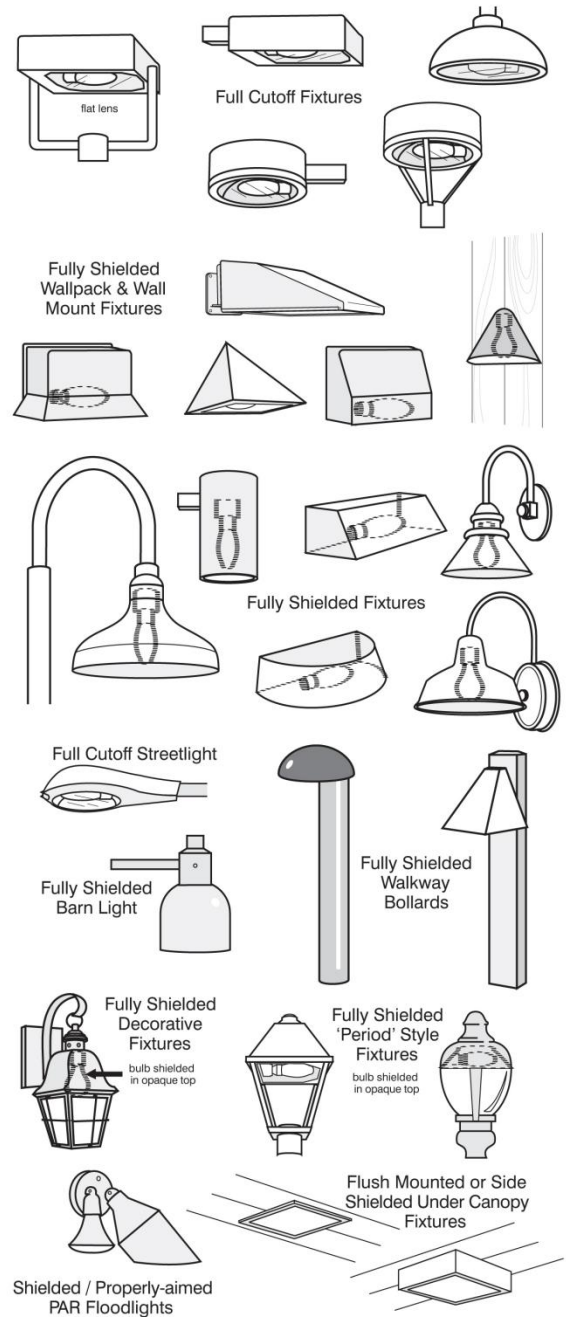
Unacceptable / Discouraged

Fixtures that produce glare and light trespass



Acceptable

Fixtures that shield the light source to minimize glare and light trespass and to facilitate better vision at night



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