

Revised TOCC Lighting Ordinances

March 4, 2024

Summary

The following proposed upgraded changes to the Town of Cave Creek's current lighting ordinances are comprised of revisions, additions, and deletions to Chapter 2 (Residential) and Chapter 3 (Non-Residential).

Each Chapter has a Final Proposed Ordinance document section and a Work Product document section (see color legend), created by Cave Creek Dark Sky (CCDS) from the current TOCC ordinances, written over a multi-month period, using comparative research from dark sky certified municipalities, and with the review and edited consultation from the staff of Dark Sky International (DSI).

COLOR LEGEND

FINAL PROPOSED Ordinance's - Chapters 2 & 3	Black
TOCC Original Ordinance's	Black
CCDS Revisions	Red
DSI Edits	Blue
CCDS & DSI Revisions & Edits	Blue/Green

All changes are minor with the following exceptions:

1. Residential and Non-Residential Design Standards for shielding.
2. Holiday Lights would be allowed from November 15 – January 15.
3. All landscape lighting would be included in Light Trespass and Shielding requirements.
4. Added requirements to Non-Conforming Outdoor Lighting.
5. Lighting Terms and Definitions redefined to contemporary usage
6. Over a ten-year period, Major and Minor additions, modifications, replacements, and change of use, as well as non-conforming outdoor lighting provides the transitional language necessary for the TOCC to become a Dark Sky place.
7. Over a five-year period, all TOCC municipality buildings would be expected to comply with all Outdoor Lighting requirements.
8. PURPOSE: Revision to include the role of Cave Creek Dark Sky (CCDS) in assisting the TOCC with the pursuit and maintenance of dark sky lighting standards.

Town of Cave Creek Zoning Ordinance

Chapter 2 – Residential Zones

Lighting Ordinance update master log for

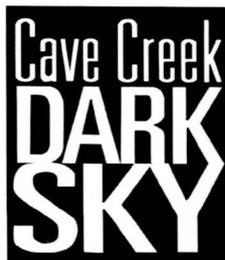
Final version February 26, 2024

Reviewed and approved by



DarkSky
INTERNATIONAL

Compiled and presented by



H. **Modular/Factory Built Buildings:**

1. Modular buildings may be permitted if constructed to and certified as meeting all associated *International Building Code* (“the IBC”) regulations.
2. Factory built buildings may be permitted if constructed to and certified as meeting all associated IBC regulations.

I. **Residential Outdoor Lighting Provisions:**

Purpose 1.a.

In March 2023, Cave Creek Dark Sky (CCDS) was officially assigned a management case and a manager by ~~Dark Sky~~ DarkSky International (DSI) to start a Dark Sky Place nomination process for the Town of Cave Creek (TOCC). Once the TOCC secures a qualified DSI nomination, this process enables the TOCC to eventually qualify for a Dark Sky Place certification, becoming a ~~DSI~~ ~~Dark Sky Place community~~ an International Dark Sky Community.

To qualify the TOCC Residential and Commercial Lighting Zoning Ordinances must comply with the 2018 DSI requirements. A CCDS Citizens Committee has produced revised versions of both the TOCC Residential and Commercial ordinances using language that aligns with ~~Dark Sky~~ DarkSky International. The changes to the current TOCC ordinances are few, with some additional standards.

The following categories are necessary to achieve and maintain a Dark Sky Place status. CCDS working on behalf of the TOCC will be responsible for providing the following:

1. DSI Annual Report (self-audit)
2. TOCC Lighting Measurements and Mapping (annual)
3. Continuing lighting education for both residents and ~~business'~~ businesses (year-round and ongoing)
4. DS Events (minimum of two annually)
5. Light measuring by volunteers for validating citizens' lighting complaints (as needed)
6. 10-year ~~adaption~~ adoption plan for both residential and commercial.
7. 5-year ~~adaption~~ adoption plan for all TOCC municipal lighting.

1. The purpose of these provisions is to protect the communities' dark skies, by establishing procedures and standards that minimize light pollution, reduce glare and light trespass, and conserve energy and resources by controlling the artificial illuminating devices emitting rays into the night sky which have a detrimental effect on the rural atmosphere and astronomical observations.
2. All outdoor artificial illuminating devices (~~luminaries~~ light fixtures) shall be installed and utilized in conformance with the provisions of this Ordinance,

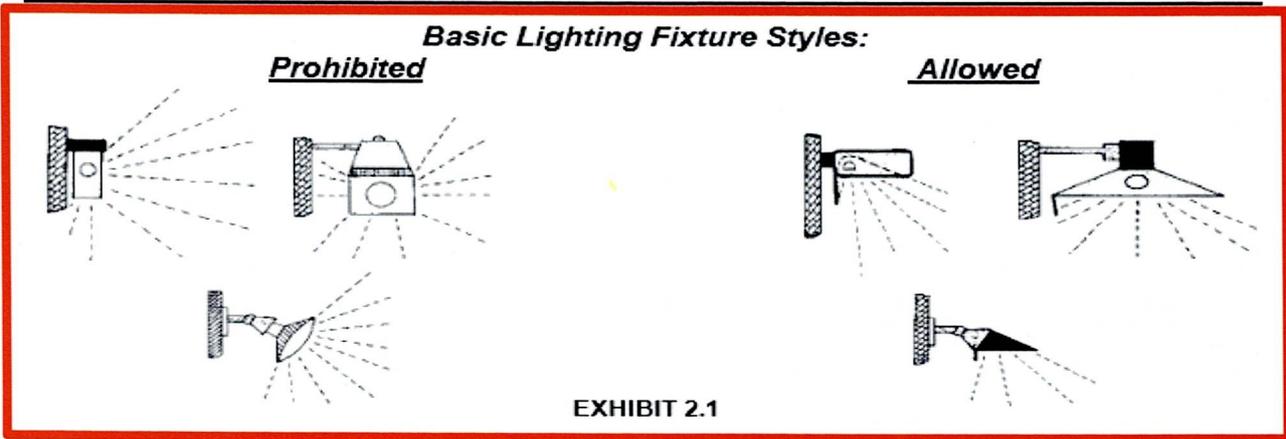
and all other ordinances and building codes of the Town of Cave Creek.

- a. In the event of a conflict between county, state or federal law, and the requirements of these outdoor lighting provisions, the more restrictive shall govern.

(Ordinance _____ Date effective _____)

3. General Requirements:

- a. All outdoor light fixtures (see Exhibit 2.1) ~~, -except those exempt from this Ordinance,~~ shall be fully shielded as required in Table 2.8 of this Ordinance so that the light fixture's bulb or light source from the fixture is not visible from an adjoining property or from the adjacent street.
- b. All lighting fixtures for buildings, structures and canopies shall comply with the following requirements:
 - (1) The application of lighting to architectural features, including but not limited to building façade lighting, shall be minimized, and all light shall be directed downward.
 - (2) Maximum height of light standards (poles), including the fixture, shall be ten feet (10') except as otherwise specifically provided in this Ordinance. Height is measured from finished grade to the top of the fixture.
 - (3) Overhead lighting used to light building overhangs and open canopies shall be fully recessed within the overhang or canopy. The ~~maximum lighting intensity (eye illumination levels)~~ maximum illuminance levels under the canopy shall be no greater than 2 lux (0.2 fc) when measured directly under the overhang or canopy ~~or~~ and no greater than 1.0 lux (0.10 fc) when measured at the property line.



Requirements for Shielding

FIXTURE LAMP TYPE (a)	SHIELDING (e)
Low Pressure Sodium (b)	Fully
High Pressure Sodium (b)	Fully
Metal Halide / Warm Halide (b)	Fully
Fluorescent (b)	Fully
Light Emitting Diode (LED) (b)	Fully
Incandescent (d)	Fully
Fossil Fuel (b)	None Partial-Fully
Glass Tubes filled with Neon, Argon, Krypton (d)	None Partial Fully
All String Lights (b)	Fully Starting 1.1.2029
Quartz Halogen Lights (b)	Fully
Other Lamp Types (b) (c)	As Approved by The Town of Cave Creek

TABLE 2.8

Notes: a. ~~Glass, acrylic, or translucent enclosures of the light source satisfy these filter shielding requirements except quartz glass.~~

b. ~~This is the preferred lamp type to minimize undesirable light into the night sky affecting astronomical observations limited to 2700 Kelvin, unless otherwise permitted.~~

~~Warm White and Natural Lamps are preferred to minimize detrimental effects on astronomical observations limited to 2700 Kelvin.~~

b. Warm White, Natural, and other lamp colors of 2700 Kelvin and lower are preferred, to minimize effects on astronomical observations.

~~For the purpose of this Chapter, quartz halogen lamps shall not be considered an incandescent light source.~~

c. Or current *IESNA commercial* guidelines; whichever is more restrictive.

d. Prohibited in all residential zones.

4. Security lighting may be permitted, subject to the following requirements:
 - a. Building or wall mounted fixtures shall be fully shielded and shall not exceed a maximum mounting height of ten (10) feet. The maximum height of lighting standards (poles), including the fixture, used for security purposes, shall be ten (10) feet measured from grade to the top of the fixture.
 - b. Motion sensor/detector light fixtures that are fully shielded are the only permitted type of security lighting allowed.
5. The Town does not require the lighting of parking areas on residentially zoned properties except within the Multiple Residence (**MR**) zone. However, if parking area lighting is desired it must meet the following requirements:
 - a. Within the residential zones the maximum ~~lighting intensity (eye illumination levels)~~ illuminance levels in the parking area shall be **Not exceed** 1.0 lux (0.10 fc) measured at the property line. (Ref. Exhibit 2-1-16 3.1.B pg. 27 23)
 - b. The maximum height of parking area lighting standards (poles), including the fixture, shall be ten feet (10'). Height is measured from finished grade to the top of the fixture.
 - c. Short bollard style fully shielded light fixtures are preferred to that of overhead lighting
6. Exterior lighting fixtures used to illuminate an outdoor sign shall be mounted on the top of the sign structure, shall be fully shielded and directed downward and shall not interfere with driver ~~visibility~~ vision on adjacent streets. Reverse pan-channel "halo" effects are also acceptable.
7. Light shall not exceed 1.0 lux (0.10 fc) when measured at the property line in all zones.
- ~~8.~~ ~~Narrow-spectrum light sources such as low-pressure sodium and amber LEDs are preferred for minimizing adverse effects on astronomical observations. (see table 2.8) The correlated temperature (CCT) of light sources shall not exceed 2700 K. Narrow spectrum, Low-pressure sodium, and amber LED lamps are the preferred light source for minimizing adverse effects on astronomical observations. However, the light sources specified in Table 2.8 are also permitted. Correlated Color Temperature (CCT) shall not exceed 2700 Kelvin.~~
9. Ambience lighting (a line voltage of 120 V) is permitted subject to the following requirements:
 - a. Short bollard style light fixtures or low wattage ~~string down~~ lighting of ~~plantings~~ is preferred to that of building

lighting.

- b. The maximum ~~lighting intensity (eye illumination levels)~~ ~~illuminance levels~~ of ambience lighting should not exceed 0.5 lux (0.05 fc).
10. No outdoor recreational facility, public or private, or outdoor arenas, stables or corrals shall be illuminated after 10:30 P.M.
 11. The maximum ~~height~~ of lighting standards (poles), including the fixture, shall not exceed twenty feet (20') ~~height~~ for all residential corrals, stables, arenas, exercise areas, paddocks, and barns.
 - a. The height of all light standards, including the fixture, is measured from finished grade to the top of the fixture.
 - b. A photometric study that includes a lux/footcandle grid that demonstrates adequate intensities and uniformity as well as the maximum lighting intensity (~~eye illumination illuminance levels~~) measured at the property lines shall be required at the time of *Building Permit* submittal for all corrals, stables, arenas, exercise areas, paddocks and barns. (see Exhibit 3.1.B Lighting Trespass Measurement)
 - c. All light fixtures shall be directed downward, fully shielded, aimed to prevent light spillage onto adjacent properties, and shall be in compliance with all other requirements of this Ordinance, ~~except that the Correlated Color Temperature (CCT) shall not exceed 3000 2700 Kelvin.~~

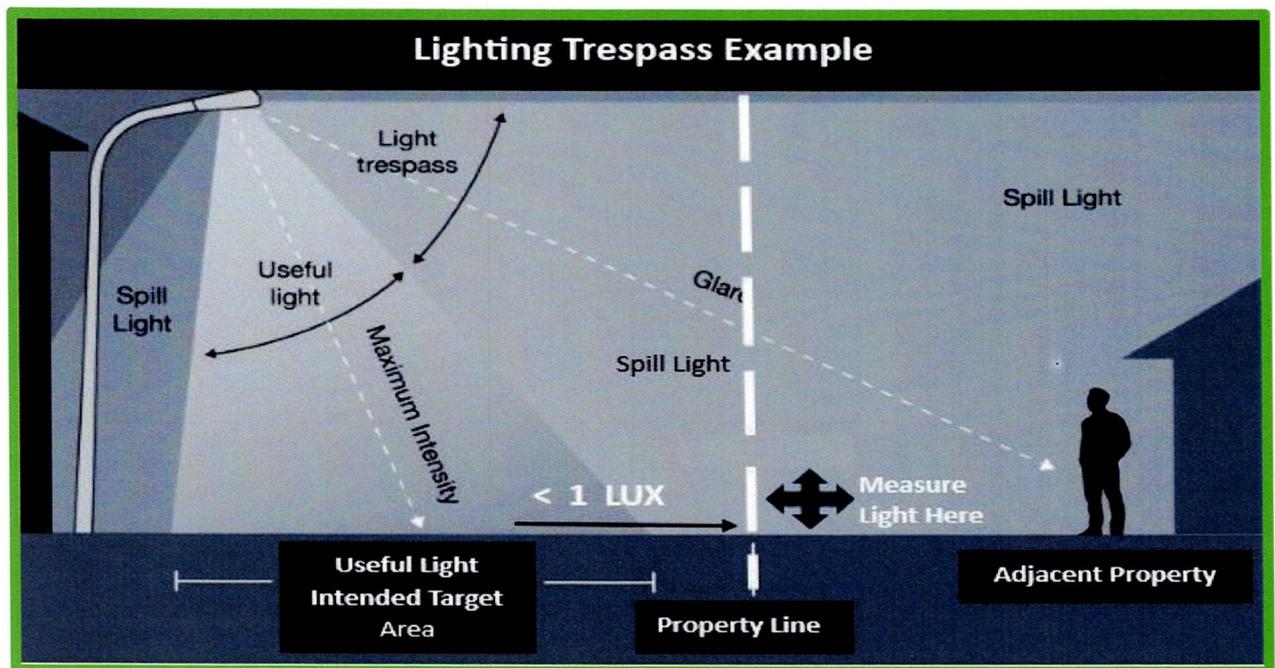


Exhibit 3.1.B Lighting Trespass Measurement

Design Standards:

- d. ~~All light fixtures shall be “fully shielded & cast downward” fixtures that prevent light from reflecting upward or sideways (greater than ninety degrees (90°)) thus becoming nuisance lighting to neighbors, creating “hot spots” on the structures to which they are mounted or creating light pollution on adjacent properties.~~ All light fixtures shall be fully shielded and shall cast their light downward only. In addition, light fixtures shall not create nuisance lighting to neighbors or create light trespass on adjacent properties.
- e. Fixtures shall be directed downward and aimed on the targeted areas to maximize their effectiveness and minimize the total number of lighting fixtures.
- f. The following illustrations are intended to identify basic lighting fixture styles and are for illustrative purposes only. Fixtures similar to those labeled as prohibited are also prohibited by this Ordinance. (see exhibit 2.1 and table 2.8 on page 21):

12. Prohibitions:

- a. Searchlights are only permitted for safety search and rescue purposes authorized by local fire, police or governmental agencies.
- b. Intermittent, flickering or flashing lights are prohibited, except for holiday lighting. ~~Holiday lighting is allowed from November 15th to January 15th and shall be turned off at midnight that complies with this Ordinance.~~
- c. The installation of mercury vapor or quartz halogen fixtures is prohibited. At such time as existing mercury vapor and quartz halogen fixtures must be replaced, lighting fixtures that comply with the requirements of this Ordinance shall be installed.
- d. Bottom mounted outdoor light fixtures and internally illuminated or backlit signs are prohibited. Reference *Chapter 9* of this Ordinance for additional *General Signage Regulations*.
- e. **Unshielded** Dusk-to-dawn lights are prohibited. Unshielded wall-pack type fixtures are prohibited.

- f. The use of line voltage (120 volts) unshielded floodlight or spotlight fixtures are prohibited.
 - g. Building mounted floodlights used for area lighting and/ or yard security lighting are prohibited unless the floodlight fixture is motion activated, fully shielded, directed downward, and does not cause or create light spillage on adjacent properties.
13. Exemptions:
- a. Public facilities and lands owned, operated or protected by the U.S. Federal government, the State of Arizona, Maricopa County ~~or the Town of Cave Creek~~ are exempted by law from the requirements of this Ordinance.
 - b. Low wattage outdoor lighting fixtures for traditional holiday decorations, except for floodlights or spotlights, are allowed from November 15th to January 15th and shall be turned off at midnight.
 - c. Landscape accent lighting consisting of low voltage light fixtures (15 volts or less) and/or incandescent bulbs thirty- five (35) watts or less and/or fluorescent/LED bulbs five (5) watts or less and/or bulbs emitting three hundred seventy- five (375) lumens or less are exempt from the requirements of this Ordinance provided they are shielded, pointed downward ~~or limited upward~~, turned off by 10pm and their light doesn't ~~and do not~~ trespass beyond the property line.
14. ~~Procedures for Compliance~~ **Applicability:**
- a. ~~When an application for a change in use, an expansion, modification, or structural alteration to a building or site that has existing legal non-conforming outdoor lighting is submitted to the Town all exterior lighting fixtures of the impacted structure — not the entire site, shall be brought into conformance with the provisions of this Ordinance as a condition of the issuance of required permits. **New Development and Parking Areas.** The Provisions of this Ordinance shall apply to any new development of vacant lot or parcel and any installation of outdoor lighting to support that development, including parking areas and areas within an unenclosed parking garage.~~
 - b. **Major Additions, Modifications, Replacements, and Change of Use.** The provisions of this Ordinance shall apply to all Major additions, modifications, replacements, or change of use. The entire property shall comply with

the requirements of this Ordinance when any of the following occur:

1. "Major" shall be defined as an increase of 25% or more in terms of additional dwelling units, gross floor area, seating capacity, or parking spaces, either with a single addition or with cumulative additions after the effective date of this Ordinance; or
 2. Single or cumulative modifications or replacements of legally installed Outdoor Light Fixtures after (DATE) constituting 25 per cent or more of the Lumens that would be permitted under this Ordinance for the property, regardless of the Total Outdoor Light Output currently existing on a site.
- c. **Minor Additions, Modifications, Replacements, and Change of Use.** The Provisions of this Ordinance shall not apply to Minor (less than 25% as referenced above) additions, modifications, replacements, or changes of use after (DATE.....), except for the following:
1. All new or modified Outdoor Light Fixtures shall comply with the requirements of this Ordinance.
 2. The Total Light Output SHALL NOT exceed the amount allowed by this Ordinance, or the total legal Nonconforming light output, whichever is greater.
- d. All Outdoor Light Fixtures on property or buildings that are owned and operated by the Town of Cave Creek SHALL be fully shielded.

15. Nonconforming Outdoor Lighting.

General.

1. If at the effective date of this Zoning Code, or of any extension resulting from annexation to the Town, any existing outdoor lighting which is being **use used** in a manner or for a purpose which is otherwise lawful, but does not comply with the provisions of this Ordinance, the outdoor lighting SHALL be deemed legal but Nonconforming, and SHALL be allowed to continue provided such fixtures are extinguished between the hours of **midnight-10 PM** and sunrise by an automatic shut off device.
2. No modification or replacement shall be made to a nonconforming outdoor light fixture unless the fixture thereafter conforms to the provisions of the TOCCZO Outdoor Lighting Provisions.
3. Whenever a Nonconforming use, structure or lot is abandoned for a period

Zoning Ordinance

Chapter 2

of 180 consecutive days and then changed to a new use then any existing Outdoor Lighting SHALL be reviewed and brought into compliance as necessary for the entire building, structure or premises.

e. Application:

(1) Any applicant for a *Building Permit*, as required by the Town who intends to install outdoor lighting fixtures shall, as a part of said application, submit evidence that the proposed lighting will comply with the requirements of this Ordinance. All light fixtures shall be reviewed by the Zoning Administrator or designee prior to issuance of a *Building Permit* so as to ensure the required shielding conforms to the intent of this Ordinance.

(2) All other individuals intending to install outdoor lighting fixtures shall submit an application to the Building Official providing evidence that the proposed work will comply with the requirements of this Ordinance. All light fixtures shall be reviewed by the Zoning Administrator or designee prior to authorization to install by the Building Official so as to ensure the required shielding conforms to the intent of this Ordinance.

~~Landscape lighting or decorative lighting consisting of low voltage light fixtures and/or incandescent bulbs thirty five (35) watts or less and/or fluorescent/LED bulbs five (5) watts or less and/or bulbs emitting three hundred seventy five (375) lumens or less is exempt from the requirements of this paragraph.~~

f. Application Information:

(1) Additional information may be required at the discretion of the Zoning Administrator or Building Official.

(2) Plans indicating the proposed luminaire location on the building and the site (if applicable), and the type of illuminating devices, fixtures, lamps, supports, other devices, the aiming angles and a statement of the proposed hours when the **luminaries light fixtures** will be on and when they will be extinguished.

(3) Manufacturer's catalog cut sheets and drawings that describe the illuminating devices, fixtures, lamps, lumen outputs and wattages, supports, and other devices, **etc.**

(4) For all lighted parking lots, sport courts, arenas and exercise areas a photometric study that includes a lux/**footcandle** grid that demonstrates adequate

intensities and uniformity as well as the maximum ~~lighting intensity (eye illumination levels)~~ illuminance level measured at the property lines.

16. Upon compliance with the requirements of this Ordinance and other Town regulations the Building Department may issue a *Building Permit* for installation of the outdoor lighting fixtures, to be installed per the approved application.