

RESOLUTION 2001-482

A RESOLUTION OF THE MAYOR AND COMMON COUNCIL OF THE TOWN OF CAMP VERDE, YAVAPAI COUNTY, ARIZONA, DECLARING *The 2001 Amendments to Section 120 (OUTDOOR LIGHTING REGULATIONS) of the Planning and Zoning Ordinance (87-A23) dated September 26, 2001*, TO BE A PUBLIC RECORD.

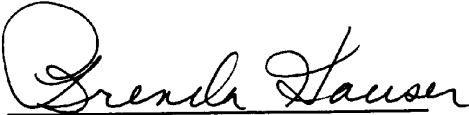
WHEREAS, ARS 9-802 permits the enactment and publication by reference of a code or public record, including a statute, rule, or regulation of the municipality, in the interests of economy, and

WHEREAS, the document entitled *The 2001 Amendments to Section 120 (Outdoor Lighting Regulations) of the Planning & Zoning Ordinance (87-A23) dated September 26, 2001*, is a lengthy revision of the ordinance which would qualify for enactment by reference as a matter of law,

NOW, THEREFORE, THE MAYOR AND THE COMMON COUNCIL OF THE TOWN OF CAMP VERDE HEREBY DECLARE *The 2001 Amendments to Section 120 (OUTDOOR LIGHTING REGULATIONS) of the Planning and Zoning Ordinance (87-A23) dated September 26, 2001*, ATTACHED HERETO AND INCORPORATED HEREIN, TO BE A PUBLIC RECORD PURSUANT TO ARS 9-802, TO BE ENACTED BY ORDINANCE 2001 A186, AND ORDER THAT THREE (3) COPIES OF THE AMENDMENTS BE PERMANENTLY FILED IN THE OFFICE OF THE TOWN CLERK AND COMMUNITY DEVELOPMENT DIRECTOR, AND AVAILABLE FOR PUBLIC USE AND INSPECTION.

PASSED, APPROVED, AND ADOPTED by the Mayor and common Council of the Town of Camp Verde, Yavapai County, Arizona, on the 26th day of September 2001.

Approved:




Mayor

Attest: 

Town Clerk

Approved as to form:



Town Attorney

SECTION 120
Outdoor Lighting Regulations

A. ADMINISTRATION

1. Purpose and Intent:

The purpose of this ordinance is to minimize light trespass and glare and preserve dark skies while ensuring safety, security, visibility and energy efficiency. It is recognized that naturally dark landscapes and star-filled skies are valued by many, and that poor lighting practices in outdoor lighting waste energy, hamper the reasonable use and enjoyment of property, and can endanger the public welfare by producing unnecessary glare.

2. Conformance with Applicable Ordinances:

This ordinance shall be an addendum to the Camp Verde Zoning Ordinance. All outdoor artificial illuminating devices shall be installed in conformance with the provisions, which may hereafter be enacted, as applicable. Any lighting fixture which violates the provisions of this ordinance constitutes a public nuisance and shall be abated.

The topography of Camp Verde requires light fixtures be shielded. Glare and light trespass are major concerns. All outdoor lighting fixtures, Classes 1-3 herein, shall be installed in such a manner as to contain the light and glare within the boundary of the property on which they are located.

- a. New Uses and Major Additions:** For all proposed land uses, developments, buildings, and structures that require a permit, all outdoor lighting fixtures shall meet the requirements of this Ordinance.
- b. Outdoor Lighting Modification or Replacement:** Cumulative modification or replacement of outdoor lighting constituting twenty-five (25) percent or more of the total light output that would be permitted for the parcel, under this Ordinance if it were treated as a new use, no matter the actual amount of lighting already on a non-conforming site, shall constitute a major addition for purposes of this section.
- c. Abandonment of Property:** If a property or use with non-conforming lighting is abandoned as per Section 105, then all outdoor lighting shall be reviewed and brought into compliance with this Ordinance before the use is resumed.
- d. Roadways:** Lighting for roadways, public and private, shall be considered Class 2 and shall use exclusively fully shielded low-pressure sodium fixtures; unless governed by ADOT standards. Minimum illumination levels as determined by recognized engineering practice shall not be exceeded.
- e. Preferred Outdoor Lighting:** Low-pressure sodium (LPS) lamps are the preferred illumination source throughout the Town of Camp Verde due to their high-energy efficiency, long life, and spectral characteristics.

3. Approved Material and Methods of Installation:

The provisions of this Ordinance are not intended to prevent the use of any design, material, or method of installation or operation not specifically prescribed provided such alternative has been approved by the Planning & Zoning Department as follows:

- a. Such alternate lighting provides at least the equivalence to the specific requirements herein and
- b. Is otherwise satisfactory and complies with the intent of this Ordinance.

4. Conflicting Regulations:

In the event of conflict between the regulations set forth in this Ordinance and any other regulations applicable to the same area, the more stringent limitation or requirement shall apply.

B. DEFINITIONS

1. Abandonment:

Discontinuation of a use for a period of six months or longer.

2. Canopy:

A roof-like cover that may project from the wall of a building, designed for the purpose of providing shelter from the elements.

3. Class 1 Lighting:

All outdoor lighting used for general illumination of the grounds and where color rendition is important to preserve the effectiveness of the proposed activity.

4. Class 2 Lighting:

All outdoor lighting used for general illumination of the grounds and where accurate color perception is not important to preserve the usefulness of the area. Including but not limited to, illumination for walkways, roadways, equipment yards, parking lots and outdoor security

5. Class 3 Lighting:

All lighting used for decorative purposes. Including but not limited to architectural illumination, flag (and) monument lighting, and illumination of trees, bushes, etc.

6. Commercial Lighting:

Outdoor lighting used in conjunction with a commercial activity, including signs.

7. Development Project:

Any residential, commercial, industrial, or mixed-use subdivision plan or individual building development or remodel that is submitted to the Town for approval.

8. Direct Illumination:

Illumination resulting from light emitted directly from any part of a lamp or light fixture. This does not include light diffused through translucent signs or reflected from other surfaces (not a part of the light fixture), e.g. ground or building faces.

9. Foot Candle:

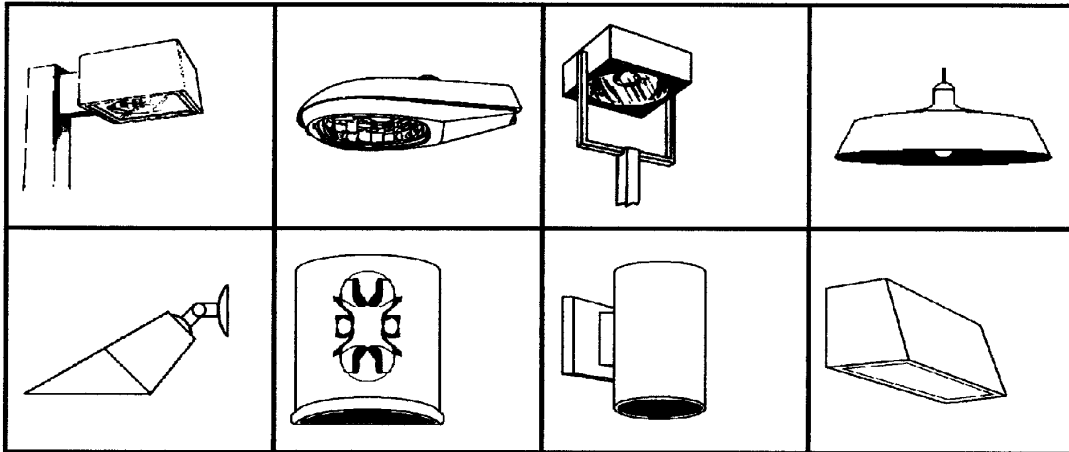
A unit of illumination, equivalent to the illumination produced by a source of one candle at a distance of one foot.

10. Fully Shielded Fixture:

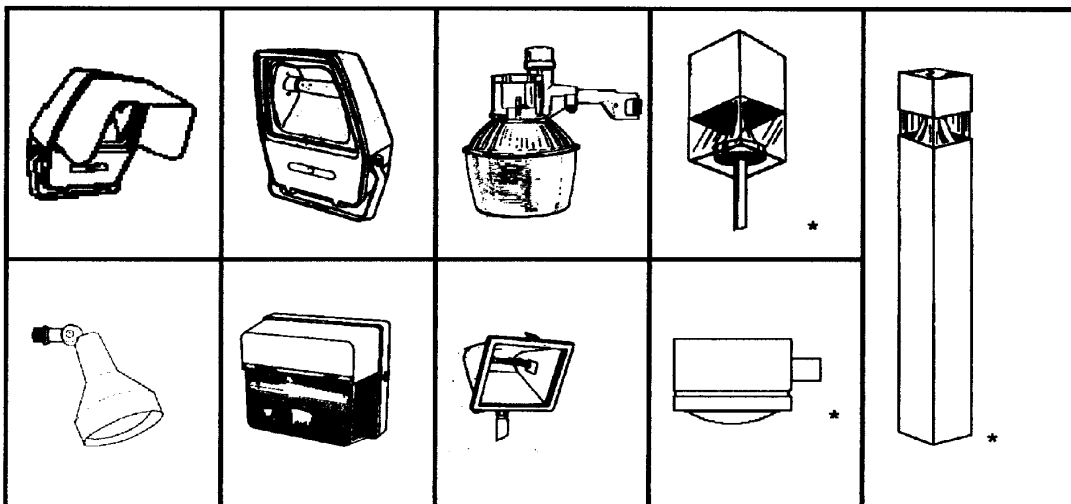
A light fixture that is designed and installed in such a manner that light rays emitted by the fixture, either directly from the lamp or indirectly from the fixture, are projected below the horizontal plane direction.

A practical working way to determine if a fixture or tube is fully shielded: if the lamp or tube, any reflective surface, or lens cover (clear or prismatic) is visible when viewed from above or directly from the side, from any angle around the fixture or tube, the fixture or tube *is not* fully shielded.

Examples of fixtures that are Fully Shielded (Note: to be fully shielded these fixtures must be closed on top and mounted such that the bottom opening is horizontal):



Examples of fixtures that are NOT Fully Shielded:



* Note: even though the lamp in these fixtures is shielded from direct view when viewed from the side or above, reflective surfaces and/or lens covers *are* directly visible from the side.

Note for luminous (neon) tubes: when such lighting is installed under or behind a roof overhang, if the roof-line or eave is not horizontal the tubing may be visible from above when viewed from the side and therefore be unshielded.

11. **High Intensity Lighting:** Search lights, laser source lights, or any similar high-intensity light.
12. **Lighting Fixture:**
Complete lighting assembly including lamp, shield, reflectors and associated parts, excluding support mechanism.
13. **Light Trespass:**
Light falling over property lines that illuminates grounds or buildings not part of the property containing the light fixture(s).
14. **Low-wattage Lighting:**
Lights that emit less than 1000 lumens (less than 60 watts).
15. **Lumen:**
Unit of measure used to calculate the actual amount of visible light produced by a lamp as defined by the manufacturer.
16. **Motion Sensing Security Lighting:**
Any fixture designed and adjusted to illuminate an area around a residence or other building by means of switching on a lamp when motion is detected inside the area or perimeter, and switching the lamp off when the detected motion ceases or within a predetermined timeframe.
17. **Multi-class Lighting:**
Any outdoor lighting used for more than one purpose, such as security, advertising and decoration, when those purposes fall under the definitions for two or more lighting classes as defined herein.
18. **Net Acreage:**
The remaining ground area of a parcel after deleting all portions for proposed and existing public rights-of-way and undeveloped area.
19. **Neon Lighting:**
Lighting produced by luminous gas-filled tubes often formed into text, symbols or decorative elements. Neon Lighting includes tubes with typical diameters of 10-20 millimeters filled with neon, argon, xenon, or other gasses and producing various colors of light. (Not included are replaceable fluorescent tubes.)
20. **Outdoor Light Fixtures:**
A device that provides outdoor artificial illumination and/or advertising including reflective surfaces, outdoor fixtures, lamps and other devices, either permanent or portable.

- 21. Outdoor Recreation Facility:**
An area designed for active public or private recreation, whether publicly or privately owned, including but not limited to parks, baseball diamonds, soccer and football fields, golf courses, tennis courts and swimming pools.
- 22. Person:**
Includes a corporation, company, partnership, firm, association or society, as well as an individual property owner.
- 23. Planning and Zoning Department:**
The Director of the Planning and Zoning Department for the Town of Camp Verde or his/her designated representative.
- 24. Residence:**
A home, abode or place where an individual is actually living at a specific point in time.
- 25. Residential:**
Suitable or used for residence.
- 26. Security Lighting:**
Lighting designed to illuminate a property or grounds for the purpose of visual security when the property is not in active use. This includes lighting designed to be left on during nighttime hours as well as motion sensing light fixtures.
- 27. Temporary Light:**
Lighting that does not conform to the provisions of this Ordinance and that will not be used for more than one 30-day period within a calendar year. Temporary lighting is intended for uses that, by their nature, are of limited duration: e.g. holiday decorations, civic events, and active construction sites.
- 28. Total Outdoor Light Output: (See lumen calculation chart – to be created)**
The maximum total amount of light, measured in lumens, from all outdoor light fixtures on a property. (See Section F – Light Measurement) For lamp types that vary in their output as they age (such as high-pressure sodium and metal halide), the initial output, as defined by the manufacturer, is the value to be considered.
- 29. Unshielded Fixture:**
A fixture that allows light to be emitted above the horizontal plane at the bottom of the fixture either directly from the lamp or indirectly from the fixture. Fixtures with reflecting or refracting surfaces located below the lamp and visible from the side are unshielded fixtures even if the lamp itself is shielded from the side.

Typical Lumen Outputs and Energy Costs for Outdoor Lighting

Per year costs based on 4000 hours operation (all night every night) and \$0.10/kwh energy cost. Power costs are for lamps only; they do not include ballast losses used with HID lamps (LPS, HPS, MH and fluorescent). Ballast losses have typically been somewhat larger for LPS lamps than for other types, though not enough to offset the increased luminous efficiencies of these lamps. This effect has been decreasing with the newer ballasts.

Graph for Typical Lumen Outputs and Energy Costs for Outdoor Lighting

Lamp Type	Lumen Output (Initial)	Power Cost (Per Year)	Cost per 100 Lumens (Per Year)
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Low Pressure Sodium (LPS):

18 Watt	1800	\$7.20	\$0.40
35 Watt	4800	\$14.00	\$0.29
55 Watt	8000	\$22.00	\$0.28
90 Watt	13500	\$36.00	\$0.27
135 Watt	22500	\$54.00	\$0.24
180 Watt	33000	\$72.00	\$0.22

High Pressure Sodium (HPS):

35 Watt Clear	2250	\$14.00	\$0.62
50 Watt Clear	4000	\$20.00	\$0.50
70 Watt Clear	6300	\$28.00	\$0.44
100 Watt Clear	9500	\$40.00	\$0.42
150 Watt Clear	16000	\$60.00	\$0.38
200 Watt Clear	22000	\$80.00	\$0.36
250 Watt Clear	29000	\$100.00	\$0.34
400 Watt Clear	50000	\$160.00	\$0.32
1000 Watt Clear	140000	\$400.00	\$0.29

Metal Halide (MH) (Example Sylvania 'Metalarc' series):

100 Watt	8000	\$40.00	\$0.50
175 Watt	14000	\$70.00	\$0.50
250 Watt	16000	\$100.00	\$0.63
400 Watt	36000	\$160.00	\$0.44
1000 Watt	84000	\$400.00	\$0.48

Fluorescent (Standard Cool-White, 1.5-inch tubes):

21 Watt F24T12/CW	1190	\$8.40	\$0.71
30 Watt F36T12/CW	2050	\$12.00	\$0.59
36 Watt F42T12/CW	2450	\$14.40	\$0.59
39 Watt F48T12/CW	3000	\$15.60	\$0.52
50 Watt F60T12/CW	3700	\$20.00	\$0.54
52 Watt F64T12/CW	3900	\$20.80	\$0.53
55 Watt F72T12/CW	4600	\$22.00	\$0.48
70 Watt F84T12/CW	5400	\$28.00	\$0.52
75 Watt F96T12/CW	6300	\$30.00	\$0.48

Incandescent Lights:

15 Watt Standard	120	\$6.00	\$5.00
25 Watt Standard	210	\$10.00	\$4.76
40 Watt Standard	490	\$16.00	\$3.27
60 Watt Standard	855	\$24.00	\$2.81
75 Watt Standard	1180	\$30.00	\$2.54
100 Watt Standard	1750	\$40.00	\$2.29
150 Watt Standard	2800	\$60.00	\$2.14
200 Watt Standard	3850	\$80.00	\$2.08

Tungsten Halogen (Quartz):

75 Watt	1400	\$30.00	\$2.14
100Watt	1800	\$40.00	\$2.22
150 Watt	2800	\$60.00	\$2.14
250 Watt	5000	\$100.00	\$2.00
500 Watt	10100	\$200.00	\$1.98

C. GENERAL REQUIREMENTS**1. Shielding:**

- a. All light fixtures that are required to be shielded shall be installed in such a manner that the shielding is effective as described in the Definitions section of this Ordinance, for fully shielded fixtures.
- b. All light fixtures shall be located, aimed, or shielded so as to confine direct illumination within property boundaries of the source.
- c. All outdoor light fixtures containing lamps with initial output of 1000 lumens or greater, must be fully shielded.
- d. If individual lamps used to illuminate signs emit 1000 lumen or greater, such lamps must be contained in fully shielded fixtures and directed downward onto the sign.
- e. The specific topography of the property may require additional shielding to meet this definition and prevent glare and/or light trespass beyond the property boundary.
- f. All lighting fixtures mounted on the under-surface of service station canopies shall be fully shielded and utilize flat glass or flat plastic (acrylic or polycarbonate) covers, flush with the lower surface of the fixture or canopy.

2. Time Restrictions:

- a. Commercial lighting including signs, may continue only until 10:00 p.m. or for as long as the business is open except parking lots. Parking lots will be darkened by 50% or more, one hour after closing to provide security purposes.
 - b. Time restriction does not apply to flagpoles, public restrooms, public monuments, or public memorial lighting.
 - c. Class 1 Lighting may only continue in operation until 10:00 p.m. or for as long as the area is in active use.
 - 1) All events shall be scheduled so as to complete all activity by 10:00 p.m. Illumination of the playing field, court, track or range shall be permitted after 10:00 p.m. only to conclude a scheduled event that was not concluded before 10:00 p.m. due to unusual circumstances.
 - d. Class 3 Lighting must be extinguished after 10:00 p.m. Multi-Class Lighting, except for security lights, must conform to the time limitations of the most-strict class.
3. All site lighting not directly associated with temporary light permits as allowed herein shall conform to all lighting standards described in this Ordinance.
 4. On projects where an engineer or architect is required, the developer shall verify in writing to the Planning and Zoning Department that all outdoor lighting was installed in accordance with the approved plans and this Ordinance.

5. Multi-class lighting must either conform to the lamp-type and shielding requirements of the strictest class, as contained in this ordinance, or conform to the time limitations of the least strict class.
6. All fixtures containing lamps over 2000 lumens initial output used for Class 2 lighting shall be low pressure sodium.
7. External illumination for signs shall conform to the provisions of this ordinance and the Town's sign code.
8. All free-standing light poles will have underground power.

D. LIGHTING USES:

1. **Advertising Signs:** Outdoor internally illuminated advertising signs shall either be constructed with an opaque background and translucent letters and symbols or with a colored (not white, cream, off-white, yellow or other light color) translucent background with either translucent or opaque letters and symbols. Opaque means only that the material must not transmit light from the internal illumination source: the color of such opaque backgrounds is not restricted.
 - a. Lamps used for internal illumination of such signs shall not be included in the lumens per net acre limit set forth herein.
 - b. All illuminated signs shall be turned off at 10:00 p.m. or when the business closes, whichever is later.
2. **Outdoor Activity Lighting:** All outdoor athletic fields, courts, tracks, arenas or ranges; outdoor restaurant eating areas; assembly or repair areas used for assembly or repair at night; signs; and service station pump island areas shall be considered Class 1 and must conform to the shielding requirements set forth in this ordinance. Lighting allowed in this subsection shall be subject to approval of the Planning and Zoning Department.
 - a. When the proposed lumens per acre exceeds the limits herein, the installation shall be designed to achieve no greater than the minimum levels for the activities as recommended by the Illuminating Engineering Society of North America (IESNA).
 - b. The installation shall also limit off-site spill (off the parcel containing the sports facility) to a maximum of 0.5 foot candle (fc) at any location on any non-residential property, and 0.05 (fc) at any location on any residential property, as measurable from any orientation of the measuring device.
3. **Outdoor Display Lighting:** Light for Outdoor Display Lots shall be considered Class 1 and shall conform to the lumens per acre limits stated herein except as follows:
 - a. All such lighting shall be fully shielded and installed in a fashion that maintains the fully-shielded characteristics.

- b. When the proposed lumens per acre exceed the limits specified herein the installation shall be designed to achieve no greater than the minimum levels for the activity as recommended by the Illuminating Engineering Society of North America (IESNA).
 - c. The installation shall also limit off-site spill (off the parcel containing the display lot) to a minimum of 0.5 fc at any location on any non-residential property, and 0.05 fc at any location on any residential property, as measurable from any orientation of the measuring device, as certified after installation by an Arizona registered engineer as conforming to this Ordinance.
- 4. **Parking Lot Lighting:** Poles shall be sized in such a manner that the top of any fixture does not exceed twelve (12) feet above the grade adjacent to the pole, unless otherwise specified by the Planning and Zoning Department for new projects.
 - 5. **Public Monuments, Memorials and Flagpoles:** Public monuments and/or memorials shall be un-illuminated or illuminated with fully shielded fixtures. Flagpole lighting shall be fully shielded, mounted at the top of the pole and directed downward.

E. LIGHT MEASUREMENT:

- 1. Light output shall be measured in lumens as produced by lamps (not fixtures). The maximum total amount of light is defined and calculated from all lamps used in outdoor light fixtures. For lamp types that vary in output as they age (high-pressure sodium), the initial output, as defined by the manufacturer, is the value to be considered.
- 2. Outdoor light fixtures installed on poles (such as parking lot lighting) and light fixtures installed on the sides of buildings or other structure(s), when not shielded from above by the structure itself, as defined in parts 3 and 4 below, are to be included in the total outdoor light output by adding the lumen outputs of the lamps used.
- 3. Outdoor light fixtures installed under canopies, building overhangs, or roof eaves where the center of the lamp or lighting fixture is located at least five (5) feet, but less than ten (10) feet from the nearest edge of the canopy or overhang are to be included in the total outdoor light output as though they produced only one-quarter (1/4) of the lamp's rated lumen output.
- 4. Outdoor light fixtures installed under canopies, building overhangs, or roof eaves where all parts of the lamp or lighting fixture are located at least ten (10) feet from the nearest edge of the canopy or overhang are to be included in the total outdoor light output as though they produced only one tenth (1/10) of the lamp's rated lumen output.
- 5. Except as permitted herein, total outdoor light output, excluding streetlights used for illumination of public rights-of-way, of any development project shall not exceed 50,000 lumens per net acre. No more than 5,500 lumens per net acre may be accounted for by lamps in unshielded fixtures permitted herein.

F. NONCONFORMING LIGHTING:

1. Mercury vapor lamps in use for outdoor lighting on the effective date of this Ordinance shall not be so used after January 1, 2007.
2. All construction permits shall specify and require that any nonconforming lighting within the boundaries of the development parcel authorized by the permit shall be brought into conformance by the time the Certificate of Occupancy is issued.
3. No modification or replacement shall be made to a nonconforming fixture unless the fixture conforms to the provisions herein.
4. Bottom or side-mounted outdoor advertising sign lighting, including billboards, shall be made to conform to this code by January 1, 2007.
3. In the event that an outdoor lighting fixture is abandoned, as defined in Section 105, and/or is damaged to the point of requiring repairs for safe operation, the repaired or replacement fixture shall comply with the provisions of this Ordinance.

G. PERMITS AND DEVELOPMENT PLAN REVIEWS**1. Plan Reviews:**

- a. The installation of any outdoor lighting that exceeds 50,000 lumens will require a lighting permit from the Town of Camp Verde. The application will contain the owner's name, site address, tax parcel number and a site plan showing all outdoor lighting existing and the proposed lighting locations with the maximum lumens indicated for each fixture. The Town Council of Camp Verde will set the fee for the permit.
- b. Any commercial development plans submitted to the building department for review and issuance of a building permit will need to submit an application for a lighting permit. The Planning and Zoning Department will review the plans for compliance with this lighting ordinance before the zoning clearance is issued.
- c. A final night inspection will be made to make sure all outdoor lighting conforms with the lighting ordinance before a Certificate of Occupancy is issued.

2. Temporary Lighting Permits:

- a. The Community Development Director may grant a permit for temporary lighting under the following conditions:
 - The proposed lighting is not intended to extend beyond thirty (30) days.
 - The lighting is designed in such a manner as to minimize light pollution as much as is feasible.
 - The lighting will comply with the general intent of this Ordinance.
 - The permit will be in the public interest.

- b. One (1) permit renewal for an additional thirty (30) days will be granted at the discretion of the Community Development Director. Only one temporary permit and one renewal shall be issued for the same property within one 12-month period.

H. RESIDENTIAL LIGHTS:

1. Total outdoor light output shall not exceed 15,000 lumens per single-family residence.
2. All light fixtures located on residentially zoned property containing lamps with initial output of 1000 lumens or greater, shall be directed or shielded such that the lamp is not directly visible from any other residential property.

I. PROHIBITIONS:

1. Outdoor lighting by flood light projection above the horizontal plane of the fixture is prohibited. Fixtures designed or mounted such that light will be directed wholly or partially above the horizontal are prohibited.
2. High intensity lighting such as search lights, laser source lights, or any similar high-intensity light shall not be permitted, except in emergencies by police and fire personnel or at their direction or for activities designated as temporary lighting permits defined herein.
3. Neon lighting prohibited unless fully shielded from above and falls within designated lumen calculations as defined herein.