

## **Section 6.8 Outdoor Lighting**

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### **Section 1: Purpose, Applicability and Goals**

(a) All parcels or lots in all zoning districts in the Village shall comply with the provisions of this Chapter as of its effective date unless otherwise exempted herein.

(b) The purpose of this Chapter is to eliminate light pollution, improve nighttime public safety, utility and security, preserve the rural character, aesthetic value and the unique quality of life of Village residents and preserve and enhance the ability to view the night sky by restricting the night-time emission of light rays which are the source of light trespass and/or unnecessary glare, and/or are detrimental to the safety and/or security of persons, property or vehicular traffic, and/or are detrimental to the traditional aesthetic values and character of the Village, and/or unnecessarily restrict persons from the peaceful enjoyment of their property.

(c) In furtherance of this purpose and with respect for the rural, dark-sky character of the Village, all reasonable attempts shall be made to meet the goals of this ordinance and to eliminate light trespass and glare from all outdoor luminaires, whether existing, newly installed or replacement.

(d) The provisions of this Chapter shall apply to all outdoor luminaires used, installed, replaced, altered, moved or repaired after the effective date of this ordinance. Commercial uses as defined herein are further subject to any other lighting requirement of a Special Use Permit and/or the Commercial Design Standards of Section 6.5 of the Bull Valley Zoning Ordinance. Developers are further directed to consider the recommendations of the Illuminating Engineering Society of North America, Inc. and the International Dark Sky Association, Inc., as updated from time to time, for best practices.

(e) The provisions of this Chapter are intended to supplement other applicable provisions of building, zoning, electrical and other codes. In the event of a conflict between the requirements of this Code and other requirements, the more stringent requirement shall apply.

## Section 2: Definitions

(a) Color: Exposure to blue light at night has been shown to harm human health and endanger wildlife. The American Medical Association recommends using lighting that has a color temperature of no more than 3000 Kelvins. Lighting with lower color temperatures has less blue in its spectrum and is referred to as being “warm.” Higher color temperature sources of light are rich in blue light.

(b) Commercial Use: A premises that has been developed or redeveloped under the Village Special Use, Retail Planned Development, Select Limited Retail, Inclusionary Zoning Code, or other Commercial Development Codes, and located in any zone of the Village. Includes commercial activity on land in any zone.

(c) Correlated Color Temperature (CCT): The perceived color of the light emitted by a lamp, expressed in Kelvin (K) units. Generally, the lower the Kelvin rating the “warmer” the light; the higher the rating, the “cooler” or more blue the light. Incandescent bulbs emit approximately 2300 Kelvin. Unfiltered LEDs (6000+ Kelvin) are high in the blue spectrum.

(d) Downward Directed: shall mean that the luminaire is shielded in such a manner that light rays emitted by the luminaire, whether directly from the lamp or indirectly from the fixture, are restricted to regions below an angle 15 degrees beneath the horizontal plane running through the lowest point on the fixture where light is emitted.

(e) Footcandle: A unit of measure of the intensity of light falling on a surface, equal to one lumen per square foot. A standard unit of illumination, measurable with a standard light-meter. A full moon average 0.01 footcandle.

(f) Fully Shielded/Zero Up Light: A light fixture with an opaque shield above the bulb so that, as designed and installed, the light fixture projects all its light below the horizontal plane through the lowest light-emitting part of the fixture.

(g) Glare: Visual conditions in which there is excessive contrast or an inappropriate distribution of light sources that disturbs the observer or limits the ability to distinguish details and objects. Glare is a visual sensation caused by excessive and uncontrolled brightness in the field of view sufficiently greater than that to which the eyes of the viewer are adapted for the view. Glare jeopardizes health, safety and welfare.

(h) IESNA or IES: The Illuminating Engineering Society of North America, Inc.: A nonprofit organization that develops and publishes standards regarding lighting. Headquartered in New York City, United States, IES standards are in effect throughout all of North America with its nearly 8,000 members. Internationally, IES collaborates with the International Commission on Illumination to promote uniformity with the rest of the world.

(i) IDA: International Dark Sky Association, Inc.: A United States-based non-profit organization incorporated in 1988. The mission of the IDA is “to preserve and protect the nighttime environment and our heritage of dark skies through quality outdoor lighting.”

(j) Internally Illuminated Sign: A sign illuminated by a light source internal to the sign enclosure which is not directly visible externally. For the purposes of this Chapter, a neon-light sign is considered an internally illuminated sign. Internally illuminated signs are only permitted in commercial zones in accordance with requirements of those zones.

(k) Light Trespass: Light emitted by a luminaire that shines beyond the boundaries of the property on which the luminaire is located with an intensity greater than one half footcandle at a point 4 feet above the ground at the property's boundary line and/or at a point four feet above the surface of the water and 150 feet from that property's shoreline when measured on the water.

(l) Light Shield: Any attachment which interrupts and blocks the path of light emitted from a luminaire or fixture.

(m) Lumen: The light-output rating of a lamp (light bulb). Brightness. A lumen quantifies the amount of light produced, not the amount of energy used to produce the light, which is measured in watts. Comparative values for wattage of traditional incandescent bulbs to lumens of brightness are: 150 watts = 2600 Lumens, 100 watts = 1600 lumens; 75W = 1100 lumens; 60W = 800 lumens; 40W = 450 lumens and 25 watts = 200 lumens.

(n) Luminaire: The complete lighting system, including the lamp and the fixture.

(o) Public Street. Any street, highway, road or other way owned by or dedicated to the Village of Bull Valley or governmental entity and/or used primarily for public travel in motor vehicles.

(p) Residential Zone: Any zone that has as its primary use a single-family or a multi-family residential dwelling. For purposes of this ordinance residential zone includes a residence on land used for agricultural purposes or zoned agricultural, as defined in the Zoning Ordinance.

(q) Sag-lens or drop-lens fixture: A fixture, typically seen on older streetlights or parking lot lights, where the lens extends below the lowest opaque part of the fixture such that light is scattered above the horizontal plane.

(r) Uplighting: Lighting that is installed at ground level or higher but is directed upward to the object intended to be illuminated.

(s) Watt: a measure of energy consumption.

(t) Zoning Ordinance. The Village of Bull Valley Zoning Ordinance, as amended.

### **Section 3: Standards and Requirements**

(a) Luminaire Standards.

Fully Shielded Requirement: All outdoor luminaires in all districts, including streetlights for public and private roads, shall be fully shielded and shall be directed downward in the proper orientation

to achieve full-cutoff performance with respect to a horizontal plane, so as not to produce light trespass or glare.

Light Trespass Prohibited: Except for street lighting, light emitted from outdoor lighting on any zoning lot shall not cause the light level along any property line, as measured at a height of 48 inches above grade in a plane at any angle of inclination, to exceed 0.1 footcandles if the impacted lot is commercial, or 0.05 footcandles if the lot is residential or agricultural.

Motion Activated Luminaires: Motion detector security lights, which are normally “off” and which are activated “on” for less than four minutes occasionally when motion is detected, are exempt from the requirements of this Chapter, except Sections 26.03.A, Light Trespass, or 26.03.D, Safety. The use of motion sensors and timers is encouraged in all zones. Sensors shall not be activated by motion outside the boundaries of the subject premises. “Dusk-to-dawn” sensors/lights are prohibited.

CCT: Correlated Color Temperature: All luminaires in all districts must have light sources with a color temperature or correlated color temperature of 3000 Kelvin or less.

Other Restrictions: Light shall not be directed into the night sky. Except as permitted by this Chapter, light shall not be directed into adjacent properties, roadways, common areas or open spaces of natural and native landscaping that provide habitat for plants or animals.

(b) Illumination Standards.

Residential and Agricultural Zones: Any luminaire which is used for outdoor lighting on any zoning lot in a residential zone shall have the necessary shielding and/or beam-angle control and/or shall be aimed so that the direction of all directly emitted light is at or below horizontal, shall be aimed so that the light from such source is not visible along any property line, as viewed at a height of 48 inches above grade and shall not have a light output exceeding 1100 lumens. If a motion-activated sensor that illuminates the luminaire for no more than four minutes upon activation is used, however, said luminaire may have a light output of up to 2000 lumens. The total light output from all luminaires used for outdoor lighting on any lot in a residential or agricultural zone shall not exceed 10,000 lumens.

Commercial Zones and Uses:

- i. Except as otherwise stated herein, any luminaire on any lot in a commercial zone that emits light directed at a building or sign or other outdoor feature shall be fully shielded, located at or above the top of said object and aimed and controlled so that the direction of all emitted light is at or below horizontal, the directed light is substantially confined to the object intending to be illuminated, and the light source (bulb) is not visible from any point off the property or roadway. For each one square foot of outdoor feature, usually no more than 200 lumens are necessary for good visibility.
- ii. Parking area lights are encouraged to be greater in number, but lower in height and light level as opposed to fewer in number but higher in height and light level.

- iii. Interior lighting shall be designed so as to be substantially confined within the building and not spill out through windows. Interior and exterior lights should be extinguished no later than one half hour after the close of business.
- iv. The total light output from all luminaires used for outdoor lighting on any zoning lot in a commercial zone, or any commercial use in any zone, except for street lighting and outdoor lighting on public property, shall not exceed 25,000 lumens.

(c) Hours of Operation of Luminaires.

Commercial Lighting: Except for street lighting, outdoor lighting on any zoning lot in a commercial zoning district is permitted to be lighted between one-half hour before sunset and IO p.m. or one hour after the close of business based on normal hours of operation of the business, whichever is later.

Thereafter, if needed, security lighting is permissible at a total light output not greater than 25 percent of the total light output from all outdoor lighting located on the zoning lot during permitted outdoor lighting hours.

During security lighting hours, no luminaire may exceed its light output exhibited during permitted outdoor lighting hours. Restrictions of Sections 26.03A., Light Trespass, and 26.03.D, Safety, apply.

Residential/Estate and Agricultural Lighting: Outdoor residential and agricultural luminaries shall be illuminated at low levels and only as necessary for safety and security. Security lighting is permissible at a total light output not greater than 25 percent of the total light output from all outdoor lighting located on the zoning lot during permitted outdoor lighting hours.

During security lighting hours, no luminaire may exceed its light output exhibited during permitted outdoor lighting hours. Restrictions of Sections 26.03.A, Light Trespass, and 26.03.D, Safety, apply.

(d) Safety: No outdoor luminaire may be operated in such manner as to constitute a hazard or danger to persons, or to safe vehicular operation.

(e) Uplighting: Uplighting shall only be permitted for landscape lighting. Uplighting shall have the necessary shielding and/or beam angle control to illuminate only the intended object of illumination with no spillover. Uplighting applications shall be limited to 600 lumens in intensity and inclined at no more than 45 degrees and the light source (bulb) shall not be visible from any point off the property or roadway. Wall washing is prohibited. Uplighting shall not be operated between the hours of 11:00 p.m. and dawn.

(f) Pole Fixtures: Outdoor light pole fixtures excluding streetlights shall not exceed the maximum height of adjacent structures nor be taller than fifteen (15) feet, whichever is shorter. Fixtures must be located no closer to the property line than four times the mounting height of the fixture. Flag Lighting can be accomplished with a top mounted fixture or uplighted with a very

narrow, specifically directed beam confined to the flag itself, with automated shutoffs for night energy conservation. Flags are not required to be lit.

Maximum Lumen Levels for different fixture heights:

Mounting Height (Feet)	Recommended Lumen Maximums
6	500 - 1000 lumens
8	600 - 1,600 lumens
10	1,000 - 2,000 lumens
12	1,600 - 2,400 lumens

(g) Internally Lighted Signs: Internally lighted signs in residential/estate or agricultural zones are prohibited. Internally lighted signs in commercial zoning districts shall be subject to this Chapter and Chapter 14, Section 14.11, Signs, of the Village Municipal Code.

(h) Public Street Lights: In the case of public streetlights, future replacements shall be LED lamps of a shielded design to ensure the light is focused downward toward the street and sidewalk where it is needed. In addition, all LED fixtures should be limited to a maximum correlated color temperature (CCT) of 3000K or less and contain dimmable power sources that provide the ability to remotely adjust light levels where needed.

#### **Section 4: Nonconformance**

Any existing luminaire or lighting installation used for outdoor lighting in any zoning district on the effective date of this Chapter that does not comply with the requirements of this Chapter shall be considered a non-conforming use.

Except as otherwise stated herein, such uses shall be made to comply with the requirements of this Chapter or be removed within one year from the date of this ordinance.

Notwithstanding the above statement, any nonconforming luminaire or light installation existing on any zoning lot in any zoning district as of the effective date of this Chapter shall be made to comply with the requirements of this Chapter or be removed within 30 days if any of the following criteria are met:

1. The luminaire is producing glare or trespass as defined in 26.02 of this Chapter; or
2. The height or location of the luminaire is changed; or
3. The use of the luminaire is resumed after a period of abandonment;
4. The luminaire or supporting structure is changed or replaced (excluding routine maintenance or bulb replacement);
5. All non-conforming luminaires that are part of a parking-lot lighting installation consisting of an array of three or more identical luminaires and poles or supporting structures existing on any zoning lot in any zoning district as of the effective date of this Chapter shall be made to comply with the requirements of this Chapter or be removed within 30 days if any of the following occur:

- (a) A cumulative total of 25 percent or more of the nonconforming luminaires or their supporting structures are changed, replaced (excluding routine maintenance and bulb replacement of equal light output), or relocated; or
- (b) A principal structure on said zoning lot is expanded by an amount equal to or greater than 25 percent of the total square footage of the structure immediately prior to such expansion.
- (c) There is a change in zoning of said zoning lot.

### **Section 5: Prohibited Outdoor Lighting**

The following outdoor lighting applications are prohibited in all zoning districts:

1. Field Lighting;
2. The use of laser light sources;
3. The use of flickering, flashing, blinking, scrolling or rotating lights and any illumination that changes intensity;
4. The use of upward directed lighting, except as otherwise permitted herein;
5. Architectural lighting of any portion of a building or structure with a polished or glass exterior surface that uses uplighting;
6. The use of searchlights;
7. Sag-lens or drop-lens fixtures;
8. The use of neon light to accent buildings or architectural features except in commercial zones pursuant to Commercial Design Standards of Appendix C to Section 6.5 of the Village Zoning Code;
9. The use of Mercury vapor and Metal Halide bulbs;
10. Any luminaire creating glare or that otherwise creates a hazard, nuisance or light trespass.

### **Section 6: Exempt Outdoor Lighting**

The following outdoor lighting applications are exempt from all requirements of this Chapter except for the requirements of Sections 26.04.A and 26.04.C.

1. Underwater lighting used for the illumination of swimming pools and fountains;
2. Lighting required by county, state or federal law;
3. Temporary lighting used for holiday decoration;
4. Portable lighting temporarily used for maintenance or repair that is not deemed by the Village to create a hazard or nuisance;
5. Emergency lighting used by police, firefighting, emergency management or medical personnel at their discretion as long as the emergency exists;
6. Lighting approved by the Village for temporary events such as carnivals, circuses, festivals, picnics, fairs, civic events and exhibitions; and
7. Temporary lighting required for road construction or other public improvements.

## **Section 7: Temporary Exemptions**

A request for temporary exemption from the provisions of this Chapter may be submitted to the Village Planning and Zoning Commission in written form describing the reason for the request and the nature of the request. If approved and granted in writing by the Village Planning and Zoning Commission, such exemption shall be in force for not more than 30 days. A request for a maximum of one 30-day renewal may be made in similar manner. The Village Planning and Zoning Commission may terminate any temporary exemption for any reasonable cause, including but not limited to concerns about safety or light trespass.

## **Section 8: Severability**

The several sections of this ordinance are declared to be severable. If any section or portion thereof shall be declared by a court of competent jurisdiction to be invalid, unlawful, or unenforceable, such decision shall apply only to the specific section or portion thereof directly specified in the decision, and shall not affect the validity of any other provisions, sections or portions thereof of the ordinance. The remainder of the ordinance shall remain in full force and effect. Any other ordinances whose terms are in conflict with the provisions of this ordinance are hereby repealed as to those terms that conflict.

## **Section 9: Procedure**

A lighting plan shall be submitted to the Zoning and Planning Commission as part of the site plan for plat review and to the Building Inspector as part of an application for a building permit for new construction, additions, remodeling, accessory buildings, decks, swimming pools etc. The plan shall include:

1. A site plan complete with all structures, parking spaces, building entrances, traffic areas (both vehicular and pedestrian), vegetation that might interfere with lighting and all adjacent uses. The site plan shall show, by location, and identify each existing and proposed luminaire and shall specify its installed height, pole foundation details, mounting methods and distance from the nearest property line;
2. The location of each existing and proposed luminaire, the installed height of said luminaires, and the overall light levels in foot candles on the entire zoning lot and at the property lines;
3. A summary table identifying the maximum and minimum light levels for all parking areas, entryways, signs and walkways. For all plans of more than three fixtures: A calculation summary indicating footcandle levels on the lighting plan, noting the maximum, average, and minimum, as well as the uniformity ratio of maximum to minimum and average to minimum levels to avoid “hot” spots of light. Show footcandle measurements five feet beyond the property lines.
4. A description of each luminaire identified in the site, bulb type, light output in initial lumens, shielding or glare reduction devices, lamp type and on/off control devices,

proposed hours when each fixture will be illuminated, and total square footage to be illuminated.

Lighting manufacturer-supplied specifications (“cut sheets”) that include photographs of the fixtures; and for fixtures that are rated to exceed 2000 lumens.

### **Section 10: Penalty**

Any person, firm, corporation or business entity who violates any provision of this Chapter shall be subject to a fine of not less than \$250.00 and not more than \$750.00 for each separate offense. A separate offense shall be deemed committed on each day a violation occurs or continues to occur.

### **Section 11: Enforcement**

The Zoning Administrator and such other persons who are duly appointed as Code Enforcement Officers are hereby authorized to inspect luminaires and lighting installations in the zoning districts subject to this Chapter to determine compliance with the applicable provisions and, if necessary, to issue notices of violation to the owner, operator or other person or entity responsible for maintenance of the luminaire or lighting installation, if the luminaire or lighting installation fails to comply with the provisions of this Chapter. The notice of violation shall set forth an appropriate time period of not less than 30 days for compliance. In the event the violation is not corrected within the time limits set forth in the notice of violation, proceedings to enforce compliance with the provisions of this Chapter may be initiated by the filing of an appropriate lawsuit seeking legal and equitable relief in a court of competent jurisdiction.

### **Section 12: Effective Date**

This ordinance shall be in full force and effect from and after its passage and publication.