

# *Model Outdoor Lighting Ordinance*

*Indian Valley Regional  
Planning Commission  
October 2009*

The Outdoor Lighting standards are intended to be adopted as a freestanding municipal ordinance, separate from the local zoning ordinance. The model ordinance should be tailored to each municipality's unique needs and goals. A municipality should only adopt the ordinance after careful consideration and in consultation with their municipal solicitor.

# Outdoor Lighting Ordinance

## Section 1. Title.

An Ordinance establishing regulations, specifications and restrictions for the use and/or installation of outdoor lighting in [*Municipality Name*].

## Section 2. Short Title.

This Ordinance shall be known as, and may be cited as the “Outdoor Lighting Ordinance.”

## Section 3. Purpose.

The purpose of this Ordinance is to:

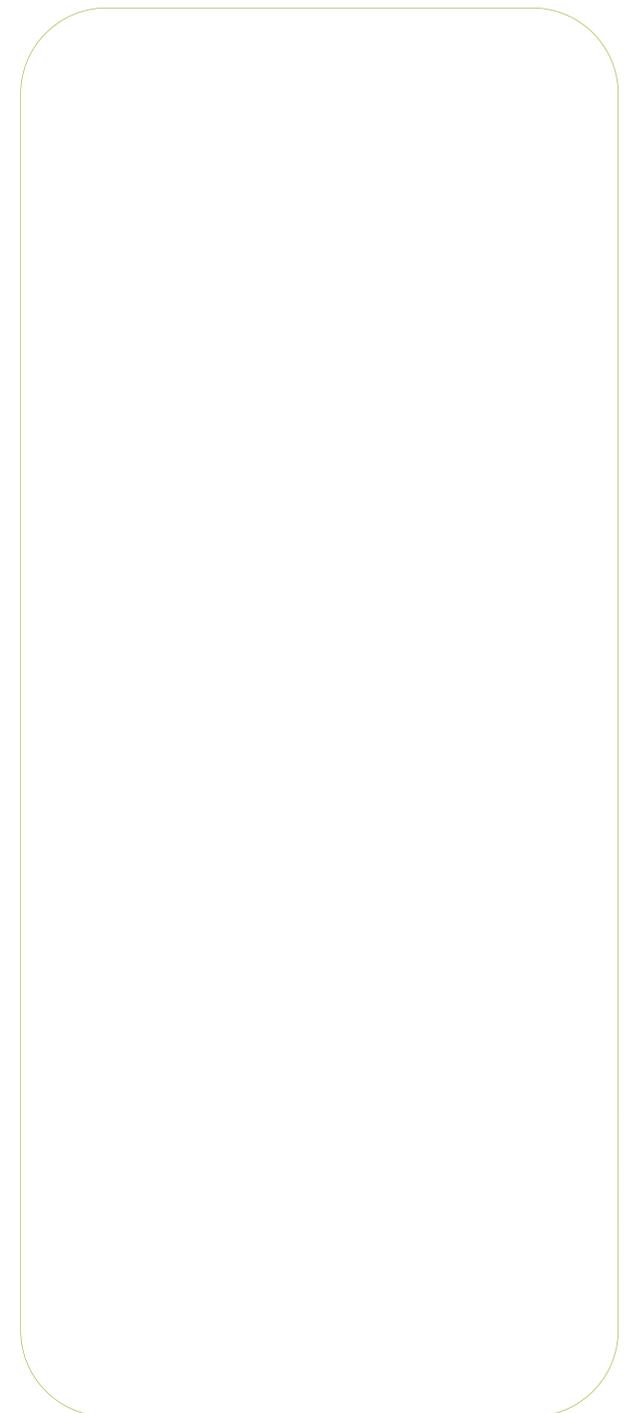
- A. Permit reasonable uses of outdoor lighting for the public, health, safety, and welfare while preserving the ambiance of the night;
- B. Curtail and reverse any degradation of the nighttime visual environment and the night sky;
- C. Require and set minimum standards to protect drivers and pedestrians from the disabling glare of non-vehicular light sources;
- D. Require and set minimum standards to protect neighbors and the night sky from nuisance glare and light trespass from improperly selected or poorly aimed, placed, applied, maintained or shielded light sources;
- E. Promote energy efficient lighting design and operation in order to conserve energy and resources to the greatest extent possible;
- F. Enhance the character of the various portions and districts of [*Municipality Name*].

## Section 4. Applicability.

- A. Uses that are proposed to operate during hours of darkness, including but not limited to the following: residential, multi-family residential, commercial, industrial, institutional, public recreational/sports, and sign, architectural and landscape lighting.
- B. The [*Governing Body*] may, in their sole discretion, require the illumination of residential subdivisions in accordance with Section 6.G below.
- C. The [*Governing Body*], in their sole discretion, require lighting to be incorporated for other uses or locations or may restrict lighting in any of the above uses, as deemed necessary.

## Section 5. Definitions.

- A. CUTOFF – A lighting fixture from which no more than 2.5% of its lamp’s candela output is emitted at or above a horizontal plane drawn through the bottom of the fixture and no more than 10% of its lamp’s intensity is emitted between 80° and that horizontal plane. This applies to all lateral angles around the fixture.
- B. FOOTCANDLE – A unit of incident light (on a surface) stated in lumens per square foot and measurable with a light meter. One footcandle is equal to 1 lumen per square foot.



- C. FOOTLAMBERT – A unit of emitted light (from a surface) stated in lumens per square foot and measurable with a light meter. One footlambert is equal to 1 lumen per square foot.
- D. FULL CUTOFF – A lighting fixture from which none of its lamp’s candela output is emitted at or above a horizontal plane drawn through the bottom of the fixture and no more than 10% of the lamp’s intensity is emitted between 80° and that horizontal plane. This applies to all lateral angles around the fixture.
- E. FULLY SHIELDED – A lighting fixture, from which, in the installed position, none of its light output, either directly from the lamp or a diffusing element, or indirectly by reflection or refraction from any part of the fixture (excepting only incidental reflections from supporting brackets or arms), is projected above the horizontal plane through the fixture’s lowest light-emitting part, as determined by photometric test or certified by the manufacturer. Any structural part of the fixture providing this shielding shall be permanently affixed.
- F. GLARE – The sensation produced by lighting that causes an annoyance, discomfort or loss in visual performance and visibility to the eye.
- G. ILLUMINANCE – The quantity of incident light measured in footcandles.
- H. LIGHT TRESPASS– Light emitted by a lighting installation, which extends beyond the boundaries of the property on which the installation is sited.
- I. LUMEN – The light-output rating of a lamp (light bulb), as used in the context of this Ordinance.
- J. LUMENAIRE – A complete lighting unit.
- K. LUMINANCE – The brightness of a light source or surface measured in footlamberts.
- L. NADIR – The point directly below the luminaire when the luminaire is pointed down (0-degree angle).
- M. UNIFORMITY RATIO – The ratio of the maximum to minimum illuminance on a surface (usually applied to the ground, or to a plane at a stated distance above the ground; where so stated, it shall also apply to a vertical surface such as a building or display.)

## Section 6. Lighting Criteria.

### A. Illumination Levels

1. Lighting, where required by this Ordinance or otherwise required by the [Governing Body] shall have intensities and uniformity ratios in accordance with the recommended practices of the Illuminating Engineering Society of North America (IESNA) Lighting Handbook, 9<sup>th</sup> edition, Chapters 21 & 22. (i.e. Minimum Average = 0.5 fc; Minimum = 0.1 fc; Uniformity = 6:1)
2. Future amendments to said Lighting Handbook and Recommended Practices shall become a part of this Ordinance without further action by the municipality.

### B. Lighting Fixture Design

1. Street lighting supplied with unmetered electric service shall meet the specifications of the electric utility.
2. For the lighting of predominantly horizontal surfaces such as, but not limited to, roadways, areas of vehicular and pedestrian passage, merchandising and storage areas, automotive-fuel dispensing facilities,

automotive sales areas, loading docks, cul-de-sacs, active and passive recreational areas, building entrances, sidewalks, paths, site entrances and parking areas, fixtures shall be aimed straight down and shall be full cutoff or fully shielded. For the use of reflector lamps, a maximum of 14,000 center-beam-candlepower (CBCP) shall be permitted.

3. For the lighting of non-horizontal surfaces such as, but not limited to, facades, landscaping, signs, fountains, displays, flags and statuary, the use of lighting fixtures that are not full cutoff or fully shielded, shall be permitted only with the approval of the municipal governing body, based upon acceptable shielding and other glare control. At a minimum, shielding shall render the light source not visible from neighboring properties.

4. "Barn lights," (fixtures which are not full-cutoff, or cutoff, but which have a diffuser which transmits the light at angles above full-cutoff or cutoff angles) shall not be permitted where they are visible from other uses unless fitted with a reflector or other device to render them fully shielded or full cutoff.

C. Control of Nuisance and Disabling Glare (Excessive Brightness in the Field of View)

1. All lighting shall be aimed, located, designed, fitted and maintained so as not to present a hazard to drivers or pedestrians by impairing their ability to safely traverse and so as not to create a nuisance by projecting or reflecting objectionable light onto a neighboring use or property.

2. Floodlights and spotlights that are not full-cutoff or fully shielded, where specifically approved by the municipality, shall be so installed and aimed that they do not project their output into the windows of neighboring properties, adjacent uses, past the object being illuminated, skyward or onto a public roadway. Authorities having jurisdiction shall take specific care to ensure this criterion by requiring submission of photometric plots of the illuminated surface and its surroundings.

3. Unless otherwise permitted by the municipality, e.g., for safety or security or all-night commercial/ industrial operations, lighting for commercial, industrial, public recreational and institutional applications shall be controlled by programmable timers that accommodate seasonal and annual variations and battery or mechanical (e.g., spring-wound) backup, to permit extinguishing sources between 11 p.m. and dawn or within 1 hour of the close of business, whichever is earlier, to conserve energy and to mitigate nuisance glare and sky-lighting consequences.

4. Security lighting proposed for use after 11 p.m. or after the normal hours of operation for commercial, industrial, institutional or municipal applications, shall be accomplished using no more than 25% of the number of fixtures used during normal business hours, from then until the start of business in the morning. Alternatively, where reduced but continued activity requires even illumination, the use of dimming circuitry to reduce illumination levels by 75% after 11:00 p.m. or after normal business hours, shall be permitted.

5. Glare control shall be achieved primarily through the use of such means as cutoff fixtures, shields and baffles, and appropriate application of fixture mounting height, wattage, aiming angle and fixture placement. Vegetation screens shall not be employed to serve as the primary means for controlling glare, except that the use of dense evergreen hedges, such as yew or juniper, to shield ground-mounted floodlights may be used with signs up to 15 feet in height, provided such planting is maintained in a manner that shields the fixture from view of traffic and pedestrians at an angle below 45 degrees above horizontal.

6. The level of illumination projected onto a residential use from another property shall not exceed 0.1 initial horizontal footcandle, at the property line. The level of illumination projected onto a non-residential use shall not exceed 1.0 initial horizontal footcandle at the property line.
7. Directional fixtures for such applications as façade, fountain, feature and landscape illumination shall be aimed so as not to project their output beyond the objects intended to be illuminated, shall meet requirements stated above with respect to light trespass, shall be extinguished between the hours of 11 p.m. and dawn and shall not be in conflict with the principles stated throughout this Ordinance.
8. Only the United States and the state flag shall be permitted to be illuminated from dusk till dawn and each flag shall be illuminated by a source or sources with a beam spread no greater than necessary to illuminate the flag. Flag lighting sources shall not exceed 7,000 lumens per flagpole.
9. The use of white strobe lighting for tall structures such as smokestacks, chimneys and radio/communications/television towers is prohibited during hours of darkness, except as specifically required by FAA.
10. Canopy lighting, for such applications as gas/service stations, bank, drugstore and fast-food drive-thru, shall be accomplished using flat-lens full-cutoff fixtures aimed straight down and shielded in such a manner that the lowest opaque edge of the fixture shall be level with or below the light source.
11. Temporary residential holiday lighting is exempt from the requirements of this Section except as it creates a hazard or nuisance.

#### D. Recreational Uses

1. When facilities for such outdoor recreational activities as baseball, tennis, football, miniature golf or any other recreational use permitted under the municipality's Zoning Ordinance, are specifically permitted by the municipality for operation during hours of darkness, the following requirements shall apply:
  - a. Lighting shall be accomplished only through the use of fixtures conforming to IESNA criteria, or as otherwise approved by the municipality based on suitable control of glare and light trespass. Flood-lighting for sports or recreational facilities shall not be aimed above a beam-center angle of 45 degrees from vertical, nor shall the level of illumination on neighboring properties exceed the limits specified in Section 6, article C.6, above.
  - b. For new recreational facilities and existing recreational facilities wishing to change their hours of operation during hours of darkness, sporting events shall be timed so that all lighting in the sports facility, other than lighting for safe exit of patrons, shall be extinguished by 11:00 p.m., regardless of such occurrences as extra innings or overtimes.
  - c. Trap shooting facilities, golf driving ranges and race tracks shall not be illuminated unless it can be demonstrated that such lighting will not create a nuisance, shine on or into any nearby residential properties or be visible to traffic on any nearby streets, roadways, or institutional or commercial parking lots. In any case, if lighting is permitted at these facilities, it shall not be accomplished by using any horizontally aimed fixtures or floodlights nor shall these fixtures be aimed at a beam-center angle greater than 45 degrees from vertical.
  - d. The outdoor recreational activities listed in e., below shall not be illuminated if located within any residential district or sited on a nonresidential property located within 1200 feet of a residential use.

e. Maximum mounting heights for recreational lighting shall be in accordance with the following: *(Regulations apply to non-tournament recreational uses. Tournament and high school facilities may require increased heights. For tournament and high school level applications use the standards contained in the Illuminating Engineering Society of North America (IESNA) Lighting Handbook, 9<sup>th</sup> edition, Chapters 21 & 22, and relevant IESNA Recommended Practices.)*

i.	Basketball	30'	10 fc
ii.	Football	70'	20 fc
iii.	Soccer	70'	20 fc
iv.	Baseball	70'	20 fc infield; 15 fc outfield
v.	Little League Baseball		
	1) 200' Radius	60'	20 fc infield; 15 fc outfield
	2) 300' Radius	70'	20 fc infield; 15 fc outfield
vi.	Miniature Golf	15'	10 fc
vii.	Tennis	30'	20 fc
viii.	Track	30'	15 fc
ix.	Swimming pool	20'	10 fc

E. Street and Parking Lot Lighting for Residential Applications

1. For residential developments where lot sizes are or average less than 20,000 square feet, street lighting shall be provided as follows:

- a. At the intersection of public roads with entrance roads to the development
- b. At the intersection of roads within the development
- c. At cul-de-sac bulb radii
- d. At terminal ends of center median islands having concrete structure curbing, trees, signs or other fixed objects, and at cul-de-sac center islands with curbing
- e. At defined pedestrian crossings located within the development
- f. At other locations along the street as deemed necessary by the [governing body].
- g. Where lot sizes permit the parking of less than two (2) vehicles on the lot, thereby necessitating on-street parking, street lighting shall be provided along the length of the street, in accordance with the illuminance requirements contained in Section 6.A.1, above.
- h. In multi-family developments, common parking areas shall be illuminated in accordance with the illuminance requirements contained in Section 6.A.1, above.

2. In residential developments with lots of less than twenty thousand (20,000) square feet, where six (6) or more contiguous parking spaces are proposed, such spaces shall be illuminated in accordance with the illuminance requirements contained in Section 6.A.1, above.

3. Lighting fixtures for parking lots and roadways in residential developments shall be mounted not more than fourteen feet (14') above finished grade.

## F. Signs and Billboards

1. For the lighting of billboards and externally illuminated signs, fixtures shall be designed, fitted and aimed to limit the light pattern to the sign or billboard, so as not to project their output into the windows of neighboring residences, adjacent uses, past the face of the billboard or sign, skyward or onto a public roadway.
2. Billboards and externally illuminated signs shall be lighted by fixtures mounted at the top of the billboard or sign and aimed downward. Non-billboard business and similar use signs may utilize ground-mounted fixtures if shielded by evergreen plantings as described in Section 6.C.5, above, or such devices as masonry enclosures providing equivalent shielding. Fixture type, application, and mounting shall meet the requirements of Section 6.B.1 & 2, herein.
3. Billboards and signs, whether on or off premises, shall be automatically extinguished by 11:00 p.m. except that signs for businesses that remain open past 11:00 p.m. shall be allowed to be automatically extinguished no more than ½ hour past the close of business.
4. The maximum initial illumination on the face of an externally illuminated billboard or sign shall not exceed 30 vertical footcandles and shall have a maximum to minimum uniformity ratio not to exceed 6:1. Internally-illuminated signs shall have an admittance not more than 30 footlamberts.
5. The illumination of billboards shall be limited to commercial and industrial zoning districts.
6. The illumination of billboards within 400' of a residential zone or use shall not be permitted.
7. Rotating, flashing, pulsing, "marching" or oscillating light sources, lasers, beacons or strobe lighting shall not be permitted.
8. Internal LED light sources for signage shall be permitted only in commercial districts, shall be static and shall not be allowed to operate past 11:00 p.m. when located where visible from a residential district or use. Admittance levels shall be limited to that listed in subparagraph 4., above.
9. The use of highly reflective signage that creates nuisance glare or a safety hazard shall not be permitted.
10. The lighting or relighting of signs or billboards shall require a Building Permit, which shall be granted only when the municipality is satisfied that excessive illumination, light pollution, glare and light trespass have been mitigated to the extent possible.
11. Applications for the lighting or relighting of signs and billboards shall be accompanied by a point-by-point plot of initial vertical illuminance on the sign or billboard face, catalog cuts of proposed fixtures and any glare reduction devices and a description of lamps, mounting locations, aiming angles and proposed hours of operation and method for automatically extinguishing the lighting by the required hour.

## G. Installation

1. Pole-mounted fixtures for roadways, pedestrian walkways, parking lots, and similar uses shall be aimed straight down.
2. Mounting Heights - The following maximum fixture mounting heights shall prevail:
  - a. Full-cutoff fixtures with 44,000 lumen lamps maximum, in parking lots: 20' AFG
  - b. Full-cutoff fixtures with 115,000 lumen lamps maximum, shall be permitted only in large (100 spaces or more) commercial, institutional and industrial parking lots except when the facility is adjacent to a residential district or use or an environmentally sensitive area: not less than 25' or more

than 30' AFG. Mounting heights of 25' – 30' shall not be permitted when located less than 100' from a residential district or use.

- c. Decorative –cutoff or fully shielded fixtures with 17,500 lumen lamps maximum, 16' AFG
- d. Fully-shielded bollard fixtures with 6200 lumen lamps maximum, 42" AFG
- e. Recreational Uses – See Section 6.E.

#### H. Post-Installation Inspection

1. The municipality reserves the right to conduct post-installation nighttime inspections to verify compliance with the requirements of this Ordinance and approved plans, and if appropriate, to require remedial action at no expense to the municipality.

### Section 7. Plan Submission.

A. For subdivision and land-development applications where site lighting is required by this Ordinance or the municipality, or proposed, lighting plans shall be submitted to the municipality for review and approval with any preliminary or final subdivision/land development plan application and with any conditional use application. The municipality may also require that lighting plans be submitted for Building Permit applications, Special Exception applications and zoning hearings. Lighting plans 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 adjacent uses that might be adversely impacted by the lighting, containing a layout of all proposed fixtures by location, mounting height and type. The submission shall include, in addition to area lighting, exterior architectural, building-entrance, landscape lighting, etc.
  2. A point-by-point illuminance-grid plot on 10' x 10' centers (or as necessary for suitable legibility) of footcandles overlaid on the site plan, plotted out to 0.0 maintained footcandles, which demonstrate compliance with the light trespass, illuminance and uniformity requirements as set forth in this Ordinance or as otherwise required by the municipality.
  3. The lamp lumen ratings and types, maintenance (light-loss) factors and IES file names used in calculating the illuminance levels.
  4. Description of the proposed equipment, including fixture catalog cuts, photometrics, glare reduction devices, lamps, on/off control devices, and mounting heights.
  5. Landscaping plans shall contain lighting fixture locations and shall demonstrate that the site lighting and landscaping have been coordinated to minimize conflict between vegetation and intended light distribution, both initially and at vegetation maturity.
  6. The municipality may require mounting methods, wind loading, soil analysis, and other structural information relating to public safety by requirements in the Municipal Building Code, Zoning Ordinance, or other such ordinance.
- B. When requested by the municipality, applicant shall also submit a visual-impact plan that demonstrates appropriate steps have been taken to mitigate on-site and off-site glare and to retain the intended character of the area.

C. Plan Notes – The following notes shall appear on the lighting plan:

1. Post-approval alterations to lighting plans or intended substitutions for approved lighting equipment shall be submitted to the municipality for review and approval.
2. The municipality reserves the right to conduct post-installation nighttime inspections to verify compliance with the requirements of this Ordinance and as otherwise agreed upon by the municipality, and if appropriate, to require remedial action at no expense to the municipality.
3. Installer shall notify the proper Municipal official to arrange for inspection and approval of all exterior lighting equipment, including building-mounted lighting, prior to its installation.

## Section 8. Compliance Monitoring.

A. Safety Hazards

1. If appropriate officers or agents of the municipality judge a lighting installation, including lighting poles, creates a safety or personal-security hazard, the person(s) responsible for the lighting shall be notified in writing and required to take remedial action.
2. If appropriate corrective action has not been effected within ninety- (90) days of written notification, the municipality may commence legal action as provided in Section 10 & 11 below.

B. Nuisance Glare and Illumination Levels

1. When appropriate officers or agents of the municipality judge an installation produces unacceptable levels of nuisance glare, skyward light, excessive or insufficient illumination levels or otherwise varies from this Ordinance, municipality may cause written notification of the person(s) responsible for the lighting and require appropriate remedial action.
2. If appropriate corrective action has not been effected within ninety- (90) days of notification, the municipality may commence legal action as provided in Section 10 & 11 below.

C. [The Municipality] may require minimum illumination levels for purposes of public safety or security.

1. If appropriate officers or agents of the municipality judge a lighting installation, to provide inadequate illumination levels, the person(s) responsible for the lighting shall be notified in writing and required to take remedial action.
2. If appropriate corrective action has not been effected within ninety- (90) days of written notification, the municipality may commence legal action as provided in Section 10 & 11 below.

## Section 9. Non-Conforming Lighting.

A. Any lighting fixture or lighting installation legally installed and operative before the date of adoption of this Ordinance shall be considered as a lawful nonconformance subject to the following:

1. Non conforming lighting shall not be changed to any other non-conforming lighting, structurally altered, altered in any way that increases its degree of nonconformance, or expanded or extended in scope.
2. Unless minor corrective action, such as re-aiming or shielding, is deemed by the municipality to be an acceptable alternative, a nonconforming lighting fixture or lighting installation shall be made to conform with the applicable requirements of this Ordinance when:

- a. It is deemed by the municipality to create a safety hazard.
  - b. A fixture is added or replaced with another fixture or fixtures, abandoned or relocated.
  - c. There is a change in use.
3. Regardless of the requirements of Section 9.A.1. above, all non-residential nonconforming lighting fixtures and lighting installations shall be made to conform to the requirements of this Ordinance or removed within two (2) years from the effective date of this Ordinance.
4. Flood lamps on residential properties may be used only for short-term illumination during passage through the yard or to-and-from the residence, and may not be left on overnight.

#### Section 10. Violations and Penalties.

A. Any person who violates or permits a violation of this Ordinance shall, upon being found liable therefore in a civil enforcement proceeding commenced by the municipality before a District Justice, pay a fine of not more than \$500, plus all court costs including reasonable attorney's fees, incurred by the municipality in the enforcement of this Ordinance. No judgment shall commence or be imposed, levied or payable until the date of the determination of the violation by the District Justice. If the defendant neither pays nor timely appeals the judgment, the municipality may enforce the judgment pursuant to the applicable Rules of Civil Procedure. Each day a violation exists shall constitute a separate offense.

B. The appropriate officers or agents of the appropriate municipality are hereby authorized to seek legal and/or equitable relief, including injunction, to enforce compliance with this Ordinance.

#### Section 11. Abatement of Nuisances.

A. In addition to any other remedies provided in this Ordinance, any violation of Section 8 hereof, shall constitute a nuisance and shall be abated by the municipality by either seeking mitigation of nuisance or appropriate equitable or legal relief from a court of competent jurisdiction.

#### Section 12. Effective Date.

This Ordinance shall take effect five days after adoption by the [*Governing Body*].