

ORDINANCE NO. \_\_\_\_\_

BILL NO. \_\_\_\_\_ (2002)

A BILL FOR AN ORDINANCE AMENDING TITLES 2, 12, and 20,  
MAUI COUNTY CODE, RELATING TO OUTDOOR LIGHTING STANDARDS

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. Section 2.40.030, Maui County Code, is amended to  
read as follows:

"**2.40.030 Maui County outdoor lighting standards committee.** There is established a Maui County outdoor lighting standards committee as established by law. (See chapter 20.35 of this code.)"

SECTION 2. Chapter 12.17, Maui County Code, is repealed.

SECTION 3. Title 20, Maui County Code, is amended by adding  
a new chapter to be designated and to read as follows:

**"Chapter 20.35**

**OUTDOOR LIGHTING STANDARDS**

Sections:

- 20.35.010 Authority.
- 20.35.020 Purpose.
- 20.35.030 Construction.
- 20.35.040 Definitions.
- 20.35.050 General exemptions.
- 20.35.060 Maui County outdoor lighting standards committee.
- 20.35.070 Lamp standards.
- 20.35.080 Luminaire standards.
- 20.35.090 Luminaire mount standards.
- 20.35.100 Street light installation, illumination, removal and alteration guidelines
- 20.35.110 Specific uses.
- 20.35.120 Development permits.
- 20.35.130 Notification.
- 20.35.140 The County's role.

**20.35.010 Authority.** This chapter is adopted pursuant to section 46.15 (13) of the Hawaii Revised Statutes.

**20.35.020 Purpose and intent.** A. **Purpose.** The purpose of establishing outdoor lighting standards is to:

1. Curtail and reverse the degradation of the nighttime visual environment by minimizing light pollution, glare, and light trespass through regulation of the form and use of outdoor lighting; and

2. Conserve energy and resources while maintaining nighttime safety, utility, security and productivity.

B. **Intent.** The standards and provisions herein are designed to mitigate these following non-exhaustive list of adverse effects while maintaining the benefits of outdoor lighting:

1. Light pollution obscures the pristine view of the night sky, which is a resource important to residents, visitors, and deeply significant to the Hawaiian culture;

2. Light pollution causes disorientation and subsequent morbidity and mortality among native turtles, night flying birds, and other nocturnal wildlife;

3. Light pollution significantly degrades the performance of the astronomical observatories on Haleakala, which is one of the five best astronomical sites in the world;

4. Street lights that produce glare interfere with, rather than improve, visual acuity during night time driving;

5. Up-lighting from unshielded luminaires wastes energy, and thus contributes to global warming, wastes public resources, and contributes to pressures on Maui's energy infrastructure;

6. Light trespass interferes with a property owner's control over the illumination of their own property.

**20.35.030 Construction.** A. All public and private outdoor lighting installed in the county of Maui, after the effective date of this ordinance, shall be in conformance with the requirements of this chapter. This shall include fixtures installed to replace existing light fixtures, if the fixture is not identical to what was previously installed.

B. This chapter should be read in conjunction with the provisions of Hawaii Revised Statutes, the revised charter of the county of Maui, and the Maui county code. The provisions of this chapter, shall not be construed to

exclude the operation of applicable State statutes or other county ordinances.

C. In any conflict between the provisions of this chapter and any other county code provision, the more restrictive provision shall govern.

**20.35.040 Definitions.** For purposes of this chapter, unless it is plainly evident from the context that a different meaning is intended, certain words and phrases used in this chapter are defined as follows:

"Agricultural" means lands that meet the district criteria as set forth in Chapter 19.30A, Agricultural District.

"Director" means the director of the department of public works and waste management of the county of Maui, or a duly authorized designee.

"Existing light fixture" means a light fixture installed, or approved by the County to be installed, before the effective date of this ordinance.

"Fifteen degree cutoff" means that a light fixture in its installed position does not emit any more than five percent of its total light output in the zone between (a) the horizontal plane through the lowest light-emitting part of the fixture and (b) fifteen degrees below the horizontal plane.

"Footcandle" means illuminance produced on a surface one foot from a uniform point source of one candle, measured by a light meter.

"Flood light" or "Spot light" means any light fixture or lamp that incorporates a reflector or a refractor to concentrate the light output into a directed beam in a particular direction.

"Fully shielded" means that the outdoor light fixture is constructed so that in its installed position all of the light emitted by the fixture is projected below the horizontal plane passing through the lowest light-emitting part of the fixture.

"Glare" means the sensation produced by luminance within the visual field that is sufficiently greater than the luminance to which the eyes are adapted to cause annoyance, discomfort, or loss in visual performance and visibility.

"High pressure sodium" or "HPS" means a bulb that is filled with high pressure sodium vapor.

"IESNA" or "Illuminating Engineering Society of North America" means the professional society of lighting engineers, including those from manufacturing companies, and others professionally involved in lighting.

"Light pollution" means any artificial light that is emitted into the atmosphere, either directly or indirectly by reflection, that brightens the appearance of the night sky, interferes with astronomical

observation, or interferes with the natural functioning of native wildlife.

"Light trespass" is any form of artificial illumination emanating from a fixture that penetrates other property other than its intended use.

"Low Pressure Sodium" or "LPS" means a bulb that is filled with low pressure sodium vapor, which has a nearly monochromatic spectrum.

"Luminaire" means the complete lighting assembly, less the support assembly.

"Lumen" means a unit of light emission. For example, incandescent light bulbs with outputs of 60, 75 and 100 watts emit approximately 840, 1170, and 1690 lumens, respectively.

"Non-Essential" means lighting that is not necessary for an intended purpose after the purpose has been served. For example, lighting for a business sign, architectural accent lighting, and parking lot lighting, is considered essential during business or activity hours, but is considered non-essential once the activity or business day has concluded.

"Outdoor lighting" means any outdoor artificial lighting device, fixture, lamp, or other similar device, permanently installed or portable, which is intended to provide illumination for either visibility or decorative effects. Such device shall include, but not be limited to, area, search, spot, and flood lighting used for

1. buildings and structures;
2. recreational facilities;
3. parking lots;
4. landscape lighting;
5. business and advertising signs;
6. roadways; and
7. walkways.

"Partially shielded" means that the outdoor lighting fixture is constructed so that at least ninety percent of the light emitted by the fixture is projected below the horizontal plane of the lowest point of the fixture.

"Residential" means occupied for dwelling purposes for a continuous period of more than six months per year by an owner, lessee or tenant who discharges wastewater to a public wastewater system.

"Residential property" means property used only for residential purposes.

"Rural" means lands that meet the district criteria as set forth in Chapter 19.29, Rural Districts.

"Security lighting" means lighting designed and used to make criminal activity observable.

"Up-lighting" means lighting that is directed in such a manner as to shine light rays above the horizontal plane passing through the highest light-emitting part of the fixture.

"Urban" means areas designated urban by the State land use commission.

"Water features" means an artificial body of water such as pools, ponds, fountains, and hot tubs.

**20.35.050 General exemptions.** The following types of lighting are exempt from the requirements of this chapter:

A. Emergency lighting. All temporary lighting required to ensure public safety;

B. Fuel lighting. All outdoor lighting fixtures producing light directly by the combustion of fuels, such as kerosene, propane, wood and oil, provided the lighting is extinguished by eleven p.m., if the light is visible at or below the high tide mark.

C. Holiday decorative lighting. Low wattage fixtures (comprised by incandescent bulbs of less than 8 watts each or other lamps of output less than 100 lumens each) used for holiday decorations.

D. Water feature lighting. Water feature lighting intended to provide safety and security. Accent lighting on specific features such as water falls, jet sprays and bubblers provided that the lighting is extinguished by eleven p.m.

**20.35.060 Maui County outdoor lighting standards committee.**

A. Establishment - members. There is established a Maui County outdoor lighting standards committee which shall consist of five members, appointed by the mayor with the approval of the council, and two ex-officio members. Preference in selection of members shall be given to residents of the County and one individual from each of the following professions, special interests, or disciplines: an illuminating engineer or lighting designer; a person familiar with Hawaiian culture or history; a wildlife biologist; an astronomer or space surveillance specialist; a member chosen from the general public. The two nonvoting, ex-officio members of the committee shall be one person designated by the chief of police of the County and one person designated by the director of public works and waste management of the County.

B. Term. The term of the members of the committee shall be three years; provided, however, such members shall serve for staggered terms pursuant to section 13-2 of the revised charter of the county of Maui. Section 13-2 of the revised charter of the county of Maui shall apply to the outdoor lighting standards committee in the same manner as said provisions apply to boards and commissions recognized by the revised charter.

C. Power, duties, and functions. The outdoor lighting standards committee shall serve as advisory to the department of public works and waste management of the County. All matters pertaining to outdoor lighting presented to, or pending before, the department that do not conform to the provisions of this chapter shall be forwarded to the outdoor lighting standards for review, comment, and recommendation. All matters pertaining to public street lighting presented to or pending before the department of public works and waste management, except for new subdivisions, shall, before any action thereof, be referred to the outdoor lighting standards committee for investigation, survey, advice, and the recommendation of the committee. The committee may review and advise the department on lighting related matters involving projects within the County. The committee shall review matters as identified for review within various sections of this chapter. The committee shall review requests by individuals, organizations, or community associations relating to the addition or removal of an outdoor light on County property or public right-of-way.

D. Administrative rules. The committee, after consultation with the department of public works and waste management, shall promulgate rules and regulations pursuant to chapter 91 of the Hawaii Revised Statutes for the practice and procedure for the committee. When rules or regulations do not cover a particular circumstance, the committee shall recommend appropriate action.

E. The department of public works and waste management shall provide staffing, and technical and clerical services as may be required by the committee.

**20.35.070 Lamp standards.** A. Low pressure sodium vapor lamps (LPS) shall be the only allowed lamp with three thousand or greater lumens of output, with the following exceptions:

1. In areas where color rendition is needed to preserve the effectiveness of the activity specifically:

a. outdoor sales or eating areas during hours of operation,

b. industrial or mechanical assembly or repair areas,

c. recreational, sports, or public assembly facilities and other similar applications,

d. advertising and other signs,

e. architectural accent lighting.

2. Additional exceptions to the required use of low pressure sodium lamps may be granted on a case by case basis where the lighting requirements critically depends on color rendition. High

pressure sodium or metal halide lamps may be used upon the recommendation of the outdoor lighting standards committee and the approval of the director.

B. Mercury vapor lamps are expressly prohibited. The installation, sale, offering for sale, lease or purchase of any mercury vapor light fixture or lamp for use as outdoor lighting is prohibited.

C. Unless IESNA, Federal and State standards require greater illumination for this usage, for roadways within the rural or agricultural areas districts, the maximum allowable wattage shall be ninety watt LPS for internal road intersections and ninety watt LPS for intersections from a project with a major and/or minor collector road, or one hundred ten watt and one hundred seventy-five watt, respectively, for existing fully shielded HPS fixtures.

D. Unless IESNA, Federal and State standards require greater illumination for this usage, for roadways within the urban district, the maximum allowable wattage shall be ninety watt LPS for internal road intersections and one hundred thirty-five watt LPS at intersections with a major or minor collector road, or one hundred ten watt and one hundred seventy-five watt, respectively, for existing fully shielded HPS fixtures.

**20.35.080 Luminaire standards.** A. Fully shielded luminaires shall be the only allowed fixture for outdoor lighting, with the following exceptions:

1. Luminaires that have a maximum output of two hundred sixty lumens per fixture (the approximate output of one twenty watt incandescent bare bulb), regardless of number of bulbs, may be left unshielded provided the fixture has an opaque top to keep light from shining directly up.

2. Luminaires that have a maximum output of one thousand lumens per fixture (the approximate output of one sixty watt incandescent bare bulb), regardless of number of bulbs, may be partially shielded, provided the bulb is not visible, and the fixture has an opaque top to keep light from shining directly up.

3. Motion sensor activated lighting may be unshielded provided it is located in such a manner as to prevent direct illumination and/or glare and lighting into properties of others or into a public right-of-way, and provided the light is set to only go on when activated and to go off within five minutes after activation has ceased, and the light shall not be triggered by activity outside the property from where the lighting is located.

B. All flood or spot luminaires with a lamp or lamps rated at nine hundred lumens or less, may be used without restriction to light distribution or mounting height, except that if any spot of flood luminaire rated nine hundred lumens or less is aimed, directed, or focused such as to cause direct light from the luminaire to be directed toward residential buildings on adjacent or nearby properties, or to create glare perceptible to persons operating motor vehicles on public ways, or directed towards and onto the ocean or shoreline areas, the luminaire shall be redirected or its light output controlled as necessary to eliminate such conditions.

C. Luminaires within one hundred meters landward of the ocean that have an output of at least nine hundred lumens per fixture shall have additional shielding so that no light shines directly on the ocean or beach up to the highest high tide elevation.

**20.35.090 Luminaire mount standards.**

A. Building-mounted luminaires shall be attached only to walls, and the top of the fixture shall not exceed the height of the parapet or roof, whichever is greater.

B. Free standing aluminum light poles and aluminum arms shall continue to be stocked and used for existing lighting within major collector roadways.

C. Any new subdivision or project that requires street lighting within public roadways, shall use light poles that are non-reflective, such as anodized bronze or any other light pole accepted by the director and the Outdoor lighting standards committee.

D. Any unusual or project specific requests for non-complying lighting poles shall be reviewed and approval by the director and the outdoor lighting standards committee, and such approval shall be forthcoming only if the request is found to be consistent with the intent and purposes of the outdoor light standards.

**20.35.100 Street light installation, illumination, removal and alteration guidelines.**

A. The department may install, illuminate, remove or alter street lights for:

B. Locations where the nighttime accident rate exceeds those of the daylight hours;

C. Intersections, urban or rural taking into consideration the layout of the intersection, traffic volumes, location of the intersection, concentration of pedestrians, roadside interferences and that channelized intersections and the roadway width may require more lighting;

D. Any significant change of the roadway alignment, long bridges, tunnels, or any structures that may be hazardous, such as curbs, piers, abutments, or culverts;

E. Locations along the highway where police reports show crimes are committed, such as theft, rape, and bodily harm cases;

F. Locations of a highway where traffic turning movements to and from roadside developments threaten public safety;

G. Subdivision streets, provided that the street has been dedicated to the county and at least fifty percent of the lots on the street are occupied.

H. Street lights are only required at intersecting streets.

I. Street lights not needed shall be removed. J.

J. Street lights for roadways and subdivisions within the rural or agricultural districts are not to be required, and standards for these districts should be those that reflect the desire of local community plans.

**20.35.110 Specific uses.** A. Searchlights. The operation of searchlights for advertising purposes is prohibited.

B. Towers. Lighting on towers is prohibited except as required by regulations of the federal aviation administration.

C. Canopy lighting and lighting of service stations.

1. In order to minimize the extent of direct glare, light fixtures mounted on canopies shall be recessed so that the lens cover is recessed or flush with the bottom surface (ceiling) of the canopy or shielded by the fixture or the edge of the canopy so that light is restrained to eighty-five degrees or less from vertical.

2. As an alternative (or supplement) to recessed ceiling lights, indirect lighting may be used where light is beamed upward and then reflected down from the underside of the canopy. When this method is used, light fixtures must be shielded so that direct illumination is focused exclusively on the underside of the canopy.

3. Lights that are illuminated on the top or sides fasciae of the canopy shall be categorized as architectural accent lighting and shall be subject to the provisions of section 20.35.110.G of this chapter.

4. Areas around service station pump islands shall be illuminated so that the minimum horizontal illuminance at grade level is at least 1.0 footcandle and no more than 5.0 footcandles. The

uniformity ratio (average illumination to minimum illumination) shall be no greater than 4:1. At the discretion of the director, increased lighting levels may be permitted for safety and security purposes only.

D. Outdoor sports or recreation fields or performance areas. Lighting of outdoor recreational facilities (public or private), such as, but not limited to, football fields, soccer fields, baseball fields, softball fields, tennis courts, special event or show areas, shall meet the following conditions:

1. All recreational lighting shall utilize fully shielded luminaires that are installed in a fashion that maintains the fully shielded characteristics unless determined by the Maui County outdoor lighting standards committee that such shielding is impractical. Every such lighting system design shall be certified by a registered engineer as conforming to all applicable restrictions of this chapter. Where fully shielded fixtures are not utilized, acceptable luminaires shall include those which:

a. Are provided with internal and/or external glare control louvers and installed so as to limit direct up light to less than five percent of the total lumens exiting from the installed fixtures and minimize offsite light trespass; and

b. Are installed with minimum aiming angles of twenty-five degrees downward from the horizontal. Said aiming angle shall be measured from the axis of the luminaire maximum beam candle power as certified by an independent test agency.

2. Illumination of the playing field, court, track, or event site, after midnight is prohibited except to conclude a scheduled event that was scheduled to be completed before eleven p.m. that circumstances prevented concluding before eleven p.m.

3. The hours of operation for the lighting system for any game or event shall not exceed one hour after the end of the event.

4. Maintain lighting levels for outdoor performance areas, sport and recreation facilities, and play fields shall not exceed by more than five percent the IESNA published standards for the proposed activity.

E. Security lighting.

1. Security lighting should use the lowest possible illumination to effectively allow the observation of criminal activity.

2. The use of sensor technologies, timers or other means to activate lighting during times when it will be needed may be required by the director to conserve energy and provide safety.

4. In order to direct light downward and minimize the amount of light spill into the dark night sky, all security lighting fixtures shall be full cut-off fixtures as defined by the IESNA.

5. Security lighting shall be shielded and aimed so that illumination is directed to the designated areas.

F. All non-essential exterior commercial lighting is to be turned off after business hours.

G. Architectural accent lighting.

1. Fixtures used to accent architectural features, materials, colors, style of buildings, landscaping, or art shall be located, aimed and shielded so that light is directed only on those features. Such fixtures shall be aimed or shielded to minimize light spill into the dark night sky in conformance with the luminaire standards.

2. Flags of the United States or Hawai'i may be illuminated from below provided such lighting is focused primarily on the individual flag or flags to limit light trespass and spill into the dark night sky.

H. Residential light trespass. The light trespass onto a residential property from any second property shall not exceed 0.1 foot candles after eleven p.m. The quantity of light trespass attributable to the light sources on the second property shall be determined by comparing illuminance levels within the residential property when the lights are operating to those when either: 1) the lights are not operating, or 2) an opaque black shield has been placed between the measuring device and the light sources on the second property.

**20.35.120 Development permits.** A. Submission contents. The applicant for any permit or site plan approval required by any provision of the ordinances of this county involving outdoor lighting fixtures shall submit (as part of the application for site plan approval or a permit) evidence that the proposed work or activity will comply with the outdoor lighting standards. Specifically, the application of submission shall include:

1. Plans. Plans indicating the location on the premises, and the type of illuminating devices, fixtures, lamps, supports, reflectors, and other devices:

2. Description. A detailed description of the illuminating devices, fixtures, lamps, supports, reflectors, and other devices. The

description shall include manufacturer's catalog cuts and drawings, including sections when requested;

3. Data. Photometric data, such as that furnished by manufactures, showing the angle of cut off or light emissions.

4. Additional Submission. The above required plans, descriptions and data shall be sufficiently complete to enable the plans examiner to readily determine whether compliance with the requirements of the outdoor lighting standards will be secured. If such plans, descriptions and data cannot enable this ready determination, by reason of the nature of configuration of the devices, fixtures, or lamps proposed, the applicant shall additionally submit as evidence of compliance to enable such determination such certified reports of tests as will do so provided that these tests shall have been performed and certified by a recognized testing laboratory.

B. Lamp or fixture substitution. Should any outdoor light fixture, or the type of light source therein, be changed after the permit has been issued, a change request must be submitted to the building official for approval, together with adequate information to assure compliance with this code, which must be received prior to substitution.

**20.35.130 Notification.** A. Permits administered by the departments of planning and public works and waste management, shall include a statement asking whether the subject property of the proposed work includes any exterior lighting.

B. Within thirty days of the enactment of this ordinance, the planning and zoning administrator shall send a copy of the outdoor lighting standards with a cover letter to all local electricians and local electric suppliers listed in the local telephone books, as well as to the Maui County chamber of commerce. Within ninety days (coincide with next available mailing) the planning and zoning administrator shall send notice to all property owners on the Maui County water and sewer mailing lists.

**20.35.140 The County's role.** A. The County of Maui will commit to changing all lighting within the County rights-of-way and on County-owned property to meet the requirements of this ordinance through the franchise agreement with the power company and/or through the light conformance schedule adopted by resolution by the council.

B. Violation. Violations to this chapter shall be a civil infraction subject to the provisions set forth in section 19.530.030, Administrative enforcement."

SECTION 4. This ordinance shall take effect upon its approval.

APPROVED AS TO FORM AND LEGALITY:

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GREGORY J. GARNEAU  
Acting First Deputy Corporation Counsel  
County of Maui

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