

CITY OF WEST LAKE HILLS

AMENDMENT No. 295

OUTDOOR LIGHTING

AN ORDINANCE ENACTING CHAPTER 24, ARTICLE 24.03, OF THE WEST LAKE HILLS CODE OF ORDINANCES; MODIFYING THE REGULATIONS FOR OUTDOOR LIGHTING; PROVIDING FOR THE FOLLOWING: FINDINGS OF FACT; ENACTMENT; REPEALER; SEVERABILITY; EFFECTIVE DATE; CODIFICATION; PROPER NOTICE & HEARING; PURPOSE; EXTERIOR LIGHTING STANDARDS FOR ALL DISTRICTS; SPECIFIC STANDARDS FOR R-1 DISTRICTS; LIGHTING CURFEWS; PROHIBITIONS; MATERIALS AND METHODS OF INSTALLATION; EXEMPTIONS; CONFORMANCE WITH APPLICABLE CODES; PUBLIC NUISANCES; CONFLICTS; VIOLATIONS; PENALTIES INCLUDING FINES NOT TO EXCEED \$500 PER OCCURANCE WITH EACH VIOLATION CONSTITUTING A SEPARATE OFFENSE; DEFINITIONS; SCOPE; AND EXHIBITS

- WHEREAS,** the City Council of the City of West Lake Hills (“City Council”) seeks to promote the effective and reasonable artificial exterior illumination within the City Limits; and
- WHEREAS,** the City was advised by an experienced lighting consultant during the creation of this Ordinance; and
- WHEREAS,** the City was presented with scientific studies on the health and safety risks of certain lighting devices; and
- WHEREAS,** the City Council finds that improperly designed light fixtures and their components cause glare, light pollution and wasted resources; and
- WHEREAS,** glare and light pollution can result in: hazardous circulation conditions for all modes of transportation; the diminishing ability to view the night sky; light trespass; and an unattractive townscape; and
- WHEREAS,** the people who live in and near the City value the natural environment, including the beauty of the Hill Country and high quality of the night sky; and

- WHEREAS,** the City desires to protect the health, safety and welfare of the general public, and to protect the night sky that adds to the quality of life and economic well-being of the City; and
- WHEREAS,** these lighting regulations are not intended to sacrifice the safety of our citizens or visitors, or the security of property, but instead will result in safer, efficient and more cost-effective lighting; and
- WHEREAS,** pursuant to Texas Local Government Code Section 51.001, the City has general authority to adopt an ordinance or police regulation that is for the good government, peace or order of the City and is necessary or proper for carrying out a power granted by law to the City; and
- WHEREAS,** pursuant to Chapter 211 of the Texas Local Government Code, the City has the specific authority to regulate the use and development of land through zoning; and
- WHEREAS,** pursuant to Chapter 214 of the Texas Local Government Code, the City has the specific authority to adopt building codes and regulate the construction of buildings and structures; and
- WHEREAS,** pursuant to Chapter 217 of the Texas Local Government Code, the City has the specific authority to define, prohibit and abate public nuisances; and
- WHEREAS,** the City Council finds that the restrictions and amendments imposed by this Ordinance are characterized as reasonable, necessary, and proper for the good government of the City of West Lake Hills.

**NOW, THEREFORE, BE IT ORDAINED by the City Council of the City of West Lake Hills:**

**1. FINDINGS OF FACT**

The foregoing recitals are incorporated into this Ordinance by reference as findings of fact as if expressly set forth herein.

**2. ENACTMENT**

Chapter 24, Article 24.03 of the City of West Lake Hills Code of Ordinances is hereby amended so to read in accordance with *Attachment A*, which is attached hereto and incorporated into this Ordinance for all intents and purposes. Any underlined text shall be inserted into the Code and any struck-through text shall be deleted from the Code, as stated on *Attachment A*.

**3. REPEALER**

All ordinances, resolutions, or parts thereof, that are in conflict or inconsistent with any provision of this Ordinance are hereby repealed to the extent of such conflict, and the provisions of this Ordinance shall be and remain controlling as to the matters regulated, herein.

**4. SEVERABILITY**

Should any of the clauses, sentences, paragraphs, sections or parts of this Ordinance be deemed invalid, unconstitutional, or unenforceable by a court of law or administrative agency with jurisdiction over the matter, such action shall not be construed to affect any other valid portion of this Ordinance.

**5. CODIFICATION**

The City Secretary is hereby directed to record and publish the attached rules, regulations and policies in the City's Code of Ordinances as authorized by Section 52.001 of the Texas Local Government Code.

**6. EFFECTIVE DATE**

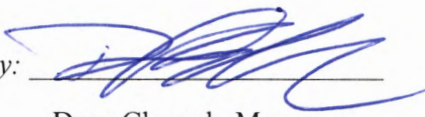
This Ordinance shall be effective immediately upon passage and publication.


**7. PROPER NOTICE & MEETING**

It is hereby officially found and determined that the meeting at which this Ordinance was passed was open to the public, and that public notice of the time, place and purpose of said meeting was given as required by the Open Meetings Act, Texas Government Code, Chapter 551. Notice was also provided as required by Chapter 52 of the Texas Local Government Code.

**PASSED & APPROVED this, the 28<sup>th</sup> day of May 2014, by a vote of 4 (ayes) to 0 (nays) to 0 (abstentions) of the City Council of West Lake Hills, Texas.**

**CITY OF WEST LAKE HILLS:**

by:   
Dave Claunch, Mayor

**ATTEST:**  
  
Lacie Hale, City Secretary



City of West Lake Hills

# CODE OF ORDINANCES

## CHAPTER 24: ENVIRONMENTAL PROTECTION

### ARTICLE 24.03 OUTDOOR LIGHTING

**Sec. 24.03.000 Purpose**

The City of West Lake Hills is a unique and pleasant place to live. Its very special quality is derived from its rugged terrain, beautiful views, dense foliage, unspoiled creeks, wildlife, large areas of relatively low population density, and dark night skies. The primary purpose of this Article is to preserve and protect the safe and appropriate night time use and enjoyment of all properties in the community of West Lake Hills by establishing and enforcing reasonable and consistent outdoor lighting standards. This will be accomplished by ensuring that Outdoor Lighting be designed, installed, and maintained to reduce glare and light trespass, thereby minimizing the adverse effects of artificial light on residents, vehicle operators, and pedestrians; to conserve energy and resources; and to prevent the degradation of the night time visual environment. The standards of this Article are intended to protect the general welfare by allowing sufficient (but not excessive) lighting for walkways, driveways, building entrances, loading areas, and common areas; to minimize the adverse effects of inappropriate lighting; and to provide for the safety and security of people and property in the City of West Lake Hills, particularly at points of ingress and egress.

**Sec. 24.003.001 Definitions**

Words and phrases used in this Chapter shall have the meanings set forth in this section. Terms that are not defined below, but are defined elsewhere in the Code of Ordinances or in state law, shall be given the meanings set forth in the Code or state law. Words and phrases not defined in the Code of Ordinance shall be given their common, ordinary meaning unless the context clearly requires otherwise. When not inconsistent with the context, words used in the present tense shall include the future tense; words in the plural number shall include the singular number (and vice versa); and words in the masculine gender shall include the feminine gender (and vice versa).

The words "shall" and "must" always mandatory, while the word "may" is merely directory. Headings and captions are for reference purposes only.

*B-U-G Ratings:* A luminaire classification system with ratings for backlight (B), up-light (U), and glare (G). The Backlight component of the rating system takes into account the amount of light in the BL, BM, BH and BVH zones. The Up-light component takes into account the amount of light in the UH and UL zones. The Glare component takes into account the amount of light in the FH, FVH, BH and BVH zones.

*Backlight:* For an exterior luminaire, light emitted in the quarter sphere below horizontal and in the opposite direction of the intended orientation of the luminaire. For luminaires with symmetric distribution, backlight will be the same as front light.

*Fixture:* The assembly that holds the lamp in a lighting system. It includes the elements designed to give light output control, such as a reflector (mirror) or refractor (lens), the ballast, housing, and the attachment parts.

*Fully Shielded Luminaire:* A luminaire constructed and installed in such a manner that all light emitted by the luminaire, either directly from the lamp or a diffusing element, or indirectly by reflection or refraction from any part of the luminaire, is projected below the horizontal plane through the luminaire's lowest light-emitting part.

*Glare:* Lighting entering the eye directly from luminaires or indirectly from reflective surfaces that causes visual discomfort or reduced visibility.

*Landscape Lighting:* Outdoor lighting of trees, shrubs, or other plant material as well as ponds and other landscape features.

*Light Trespass:* Light emitted from luminaires designed or installed in a manner that causes light to fall on a property other than the one where the light is installed, in a motor vehicle drivers' eyes, or upwards toward the sky. If light directly from the bulb is visible from any other property then the light is trespassing onto said property.

*Lumen:* The unit of measurement used to quantify the amount of light produced by a bulb or emitted from a fixture (as distinct from "watt," a measure of power consumption). For the purposes of this Article, the lumen output values shall be the initial lumen output ratings of a lamp. The lumen rating associated with a given lamp is generally indicated on its packaging or may be obtained from the manufacturer. (Abbreviated lm)

*Luminaire:* The complete lighting unit, i.e. the Fixture.

*Luminaire Lumens:* For luminaires with relative photometry per Illuminating Engineering Society of North America (IES), it is calculated as the sum of the Luminaire Lumens for all lamps within an individual luminaire, multiplied by the luminaire efficiency. If the efficiency is not known for a residential luminaire, assume 70%. For luminaires with absolute photometry per

IES LM-79, it is the total luminaire lumens. The lumen rating of a luminaire assumes the lamp or luminaire is new and has not depreciated in light output.

*New Construction:* Site preparation for, and construction of, entirely new structures or buildings, and/or significant extensions to existing structures or buildings, whether or not the site was previously occupied.

*Outdoor Lighting:* Lighting that is installed, located or used in such a manner to cause light rays to shine outdoors. Residential Luminaires installed indoors that cause light to shine outside are not considered outdoor lighting. Non-residential Luminaires installed indoors that cause light to shine outside are considered outdoor lighting.

*Person:* A human individual, corporation, agency, unincorporated association, partnership, or sole proprietorship.

*Up-lighting:* Lighting that is directed in such a manner as to shine light rays above the horizontal plane.

**Sec. 24.03.002 Outdoor Lighting Permits**

- (a) An outdoor lighting permit is required for:
  - (1) Luminaires installed as part of New Construction; or
  - (2) New sport court lighting.
- (b) Building permits and site plans for New Construction can only be issued concurrently with or subsequent to the issuance of an outdoor lighting permit.
- (c) Outdoor lighting permits for New Construction will be issued upon the city's approval of an outdoor lighting plan (i) that conforms to the standards established by this Article or (ii) for which a variance was approved by the Board of Adjustment.
  - (1) Nonresidential lighting plans require city council approval.
  - (2) Residential lighting plans for New Construction require approval of the city administrator or city inspector.
- (d) Applications: All outdoor lighting permit applications relating to New Construction shall include an outdoor lighting plan to be reviewed for compliance with this Article. To be deemed administratively complete, outdoor lighting plans must include the following:
  - (1) A layout of the property with the location and mounting height of each proposed and/or existing Luminaire.
    - a. Non-residential properties must also include the square footage of the area to be illuminated, and the square footage of each permanent structure within or adjacent to the illuminated area.

- b. Residential properties must also include the square footage of the property, the perimeter of each permanent structure on the property, and the number of exterior doors on each permanent structure.

(2) For each type of proposed or existing Luminaire provide:

- a. The manufacturer's specification sheet or, for an existing fixture, a daytime photograph and a night time photograph with the fixture illuminated.
- b. Fixture description or catalog number, including the lamp type.
- c. Initial lumens produced by the luminaire.
- d. Quantity of fixtures with the specific catalog description.
- e. Luminaire efficiency rating or 'LLF' for the specific luminaire. If the efficiency is not known for a residential luminaire, assume 70%.
- f. Total Luminaire Lumens for the fixtures with the specific catalog description type.

(3) Total Luminaire Lumens for all outdoor lights, both existing and proposed. As a guideline for calculating Luminaire Lumens for existing lights, see Exhibit 2's wattage-to-lumens conversion chart.

(e) Where a permit is required by this Article, it is an offense for a person to install Luminaires after May 28, 2014 without having applied for and received an outdoor lighting permit from the city.

(f) All Luminaires must comply with this Article without regard to whether a permit is required for installation.

**Sec. 24.03.003 Standards for all districts**

(a) Shielding. All outdoor Luminaires in all districts shall be shielded, hooded, or diffused so that it is a Fully Shielded Luminaire. Illustrations of unshielded and Fully Shielded Luminaires are provided in Exhibit 3.

The city may require additional shielding, hooding, or diffusing even for a Fully Shielded Luminaire if, due to the mounting height, topography, or proximity to other properties, additional shielding, hooding, or diffusing is needed to prevent the source of the light from being visible from any other property.

(b) Parking or loading areas. All Luminaires used to illuminate off-street parking or loading areas shall be designed and installed so as to be confined within and directed only onto the parking or loading area.

(c) Holiday lighting.

(1) Luminaires intended as holiday decorations are exempt from the restrictions of this article between Thanksgiving Day and January 8, unless in response to a resident

complaint the city inspector deems that such lights constitute Light Trespass or interfere with the reasonable use and enjoyment of any other property.

(2) Ground mounted floodlights used for holiday lighting are permitted if they are shielded to prevent the light source from being directly visible from any other property or public streets and light output does not exceed 1,260 lumens.

(d) ATMs and fuel dispensing pumps. The Luminaire Lumens per square foot of all existing and proposed luminaires in the area regulated by the State of Texas or the Federal Government surrounding an Automated Teller Machine (ATM) or fuel dispensing pumps shall comply with this Article, except to the extent necessary to comply with requirements promulgated by the State of Texas or the Federal Government.

#### **Sec. 24.03.004 Standards for R-1, R-2, and R-3 residential districts**

(a) Maximum Lumen limit. Total outdoor light output (excluding government-owned street lights used for illumination of public rights-of-way, sport courts and outdoor recreation facilities) of any residential property shall not exceed a capped amount to be calculated as follows:

- (1) A base allowance of 10,000 lumens for lots with an area of less than one acre or 12,000 lumens for lots with an area of one acre or greater, plus
- (2) 800 lumens for each door on each permanent structure, plus
- (3) 10 lumens for each foot of perimeter around each permanent structure.

(b) Height limit. Luminaires attached to structures in residential districts shall not be placed higher than the roofline of that structure. Luminaires not attached to structures in residential districts shall not exceed 28 feet in height, measured from the ground/pavement to the top of the pole or the bottom (base) of the fixture as shown in Exhibit 1.

(c) Perimeter lighting. Luminaires at the perimeter of a property are limited to two fixtures at the driveway entrance(s), a mailbox fixture, and one additional luminaire for a footpath entry. These fixtures should be limited to 385 lumens each. No other perimeter lighting is permitted.

(d) Private walkway lighting. Private walkway lights are not to exceed 385 lumens each.

(e) Setback lighting. No Luminaires shall be installed in any setbacks except for lighting installed in accordance with Section 24.03.004(c) or Section 24.03.004(d).

(f) Security and safety lighting.

(1) *Standard security and safety lighting.* Luminaires installed to illuminate points of ingress and egress (e.g., garage doors, windows, and front and back doors, but not landscape or accent lighting) is standard security and safety lighting. Such Luminaires must be fully shielded and hooded and can be operated without curfew.



(2) *Manually operated security and safety lighting.* Resident-operated security luminaires, such as floodlights, installed to illuminate specific areas around a residence in response to a perceived security threat are manually operated security and safety lighting. Such Luminaires do not need to be Fully Shielded Luminaires, but, if they are not Fully Shielded Luminaires, they must be turned off as soon as the perceived security threat has been resolved or within 1 hour, whichever is sooner.

(3) *Motion sensing security and safety lighting.* Luminaires installed to illuminate points around a residence automatically upon detecting motion is motion sensing security and safety lighting. Such Luminaires do not need to be Fully Shielded Luminaires, but, if they are not Fully Shielded Luminaires, they must be operated with a timer set to stay on for no longer than 10 minutes.

(g) *Sport court lighting.* Sport court Luminaires must not emit more than 30 Luminaire Lumens per square foot of playing surface. The Luminaires must be turned off no later than 11:00 p.m. The installation of sport court Luminaires requires a permit in advance of construction. Sport court Luminaires are exempt from maximum lumen limit for the premises. Sport court Luminaires shall only be on when sport court is actively in use.

(h) *Landscape/Yard lighting.* Luminaires used for illuminating landscape features shall not be used after 11:00 p.m. Individual fixtures shall not exceed 800 lumens.

(i) *Residential Lighting Curfew.* Luminaires in full compliance with this Article are not subject to a residential lighting curfew. As explained in Section 24.03.010, outdoor lighting installed on or before May 28, 2014, must be brought into conformance within ten (10) years. All non-conforming outdoor residential lighting that continues to be operated during that ten (10) year period shall be turned off between 11:00 p.m. and 1 hour before sunrise, with the exception of non-conforming security and safety lighting used to illuminate points of ingress and egress (*e.g.*, garage doors, windows, and front and back doors, but not landscape or accent lighting).

#### **Sec. 24.03.005 Standards for O, GUI, B-1, and B-2 districts**

(a) *Maximum lumen limit.* Luminaires on properties in the O, GUI, B-1 and B-2 districts are limited to 6,000 lumens each and must be spaced so that the Luminaire Lumens per square foot of all existing and proposed lights in the illuminated area do not exceed 2.5.

(b) *General parking and pedestrian areas.* Luminaires for parking and pedestrian areas in these districts shall conform to the following:

(1) Luminaires attached to structures shall not exceed the height of the roofline of that structure. Luminaires not attached to structures shall not exceed 28 feet in height, measured from the ground/pavement to the bottom (base) of the fixture as shown in Exhibit 1.

(2) Luminaires shall be limited to two per pole and shall have a zero Up-light rating and either a zero or one glare rating within the BUG rating system or, if not rated, shall be a Fully Shielded Luminaire.

(3) Building-mounted wall packs shall have a zero Up-light rating and a zero glare rating within the BUG rating system, or if not rated, shall be a Fully Shielded Luminaire.

(4) Luminaire Lumens per square foot of illuminated area for covered parking facilities shall not exceed 5.0.

(c) Landscape / Yard lighting. The luminaires used for illuminating landscape features must be Fully Shielded Luminaires and shall not be illuminated after 11:00 p.m. Individual fixtures shall not exceed 1,050 lumens and shall be spaced so that the Luminaire Lumens per square foot of all existing and proposed lights in the illuminated area does not exceed 1.25.

(d) Luminaires shall utilize lamps with a color temperature rating of 3,500K or below. This is not a design goal but a maximum allowable color temperature rating.

(e) Lighting must be turned off or the lumen output must be reduced to half of normal by the later of one hour after closing or 11:00 p.m.. The lighting may be turned back on or returned to full power 1 hour before sunrise.

**Sec. 24.03.006 Standards for the B-3 district**

(a) Maximum Lumen limit. Luminaires on properties in B-3 districts shall not exceed 6,000 lumens each and must be spaced so that the Luminaire Lumens per square foot of all existing and proposed lights in the illuminated area shall not exceed 2.5.

(b) General parking and pedestrian areas. Luminaires for parking and pedestrian areas in this district shall conform to the following:

(1) Luminaires attached to structures shall not exceed the height of the roofline of that structure. Luminaires not attached to structures in residential districts shall not exceed 28 feet in height, measured from the ground/pavement to the bottom (base) of the fixture as shown in Exhibit 1.

(2) Fixtures shall be limited to four per pole and shall have a zero Up-light rating and either a zero or one glare rating within the BUG rating system or, if not rated, must be a Fully Shielded Luminaire.

(3) Building-mounted wall packs shall have a zero Up-light rating and a zero glare rating within the BUG rating system, or if not rated, must be a Fully Shielded Luminaire.

(4) Luminaire Lumens per square foot of illuminated area for covered parking facilities shall not exceed 5.0.

(c) Landscape lighting.

(1) Landscape lights shall be spaced so that Luminaire Lumens per square foot of all existing and proposed lights in the illuminated area does not exceed 1.25.

(A) Landscape lighting fixtures for features such as tree lighting shall not have initial lumens rating more than 385 lumens and shall be achieved by placing the light source above the area to be illuminated and not on the ground.

(B) Light sources for illuminating landscape features shall not be visible from any other property nor be illuminated after 11:00 p.m.

(D) Individual landscape lighting fixtures that do not allow light to escape above a horizontal line through the lowest part of the fixture shall not exceed 1,650 lumens.

(E) Individual landscape lighting fixtures that allow light to escape above a horizontal line through the lowest part of the fixture shall not exceed a rating of 385 lumens and shall be hooded, diffused or otherwise designed and installed so that the source of the light is not visible from any other property.

(d) Luminaires must utilize lamps with a color temperature rating of 4,000K or below. This is not a design goal but a maximum allowable color temperature rating.

(e) Lighting must be turned off or the lumen output must be reduced to half of normal by the later of one hour after closing or 11:00 p.m. The lighting may be turned back on or returned to full power 1 hour before sunrise.

**Sec. 24.03.007 Prohibitions**

(a) It is an offense for a person to perform any of the following:

(1) Install street lighting. Perimeter lighting as defined at 24.03.004(c) is not street lighting.

(2) Install or operate searchlights or lasers.

(b) Up-lighting. With certain exceptions, it is an offense to install or operate up-lighting. The following exceptions are allowed provided the lighting fixtures are Fully Shielded Luminaires:

(1) Ground-level or low-level landscape lighting where each fixture does not exceed 385 lumens, provided that the Luminaire Lumens of all the existing and proposed fixtures is limited to the lumens per square foot cap defined for that particular district.

(2) Illumination of governmental flags is required to be from above. However, flagpoles for governmental flags shorter than 22 feet tall may be illuminated by uplighting with up

to two spot type fixtures whose total Luminaire Lumens is no more than 75 lumens per linear foot, measured from the bulb to the top of the flagpole. The fixture is to be mounted with the lens perpendicular to the flagpole and the illumination pointing straight up at the flag.

(c) Light trespass. Outdoor lighting shall be designed to minimize Light Trespass to preserve the rural character of the city. Light Trespass is a public nuisance. It is an offense for a person to *knowingly* install, maintain, or operate outdoor lights that shine directly into the eyes of any occupant of any vehicle on any public or private road, onto adjacent property, or where the illumination interferes with the visibility or readability of any traffic signs or devices.

#### **Sec. 24.03.008 Exemptions from regulation**

The following forms of lighting are exempt from compliance with this Article:

- (a) Lighting produced directly by the combustion of fossil fuels.
- (b) Lighting used by law enforcement, fire and other emergency services.
- (c) Lighting employed during emergency repairs of roads and utilities provided the lights are positioned so they do not shine in the eyes of passing drivers.
- (d) Lighting required by law to be installed on motor vehicles.
- (e) Lighting required for the safe operation of aircrafts.

#### **Sec. 24.03.009 Conformance with applicable codes**

- (a) All artificial outdoor lighting fixtures shall be installed and operated in conformance with the provisions of this article, chapter 32 (Signs), chapter 38 (Zoning), and all other Code provisions.
- (b) All outdoor lighting fixtures shall be installed and operated in conformance with the building code and electrical code of the city, chapter 22.
- (c) The replacement, enlargement, alteration, repair or improvement of any existing outdoor lighting equipment that becomes damaged or inoperable with equipment that does not conform to this article is prohibited. This prohibition applies to all fixtures exempted in section 24.03.010.

#### **Sec. 24.03.010 Grandfathering**

All outdoor lighting lawfully installed on or before May 28, 2014, must be brought into conformance within ten (10) years. This section shall not be construed to authorize Light Trespass or to exempt a Luminaire from the Section 24.03.004(i) curfew.

#### **Sec. 24.03.011 Variances**

The Board of Adjustment is authorized to approve variances and alternate design standards for outdoor lighting. The process and standards for consideration and determinations upon variance requests are established in Article 38.02.

**Sec. 24.03.012          Public nuisance**

(a) Any lighting fixture erected, constructed, enlarged, altered, repaired, moved, improved, or converted contrary to the provisions of this article shall be unlawful and a public nuisance.

(b) The city council or its appointed authority shall, as appropriate, upon order of the city council or its appointed authority, commence necessary proceedings for the abatement, removal and/or enjoinder of any such public nuisance in the manner provided by law. Any failure, refusal or neglect to obtain a permit as required by this article shall be prima facie evidence of the fact that a public nuisance has been committed in connection with the erection, construction, enlargement, alteration, repair, movement, improvement or conversion of an outdoor lighting structure.

**Sec. 24.03.013          Conflicts**

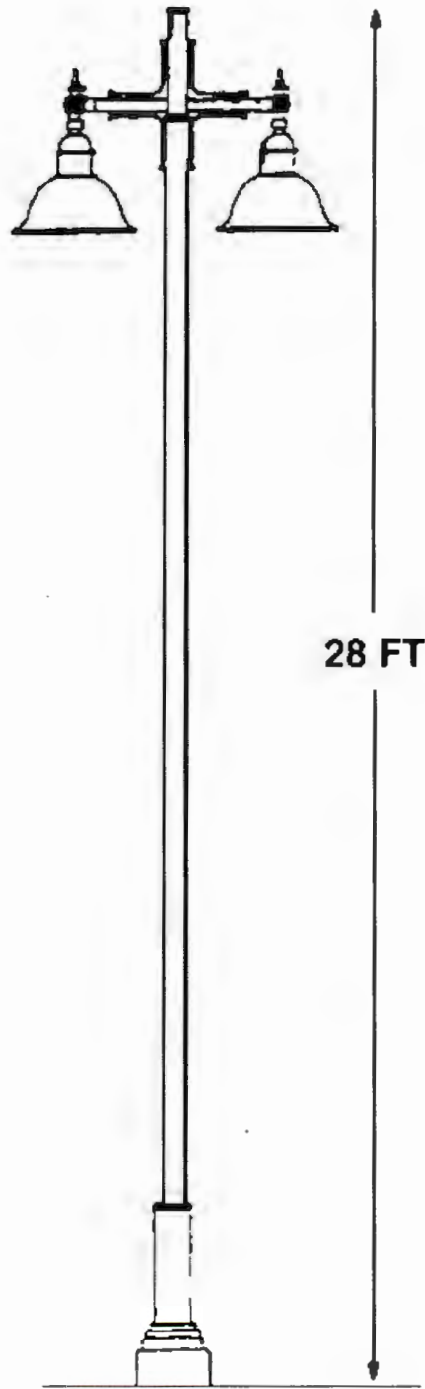
Where any provision of this article conflicts with the statutes, codes or laws of the United States of America or the state, the most restrictive shall apply unless otherwise required by law.

**Sec. 24.03.014          Violations and penalties**

(a) It shall be unlawful for any person to erect, install, construct, enlarge, alter, repair, move, improve or convert any outdoor lighting of any type, or cause the same to be done, contrary to or in violation of any provision of this article.

(b) Any person convicted of a violation of this article shall be punished by a fine of not more than \$500.00 per violation.

**EXHIBIT 1**



## EXHIBIT 2

### Lumen Conversion Chart

The outdoor lighting plan referenced in Section 24.03.002 requires that the Luminaire Lumens for each fixture (existing and proposed) be noted on the plan and included in the calculations. For new fixtures, the Luminaire Lumens can easily be obtained from the documentation that is included with the fixture. If such data is not available for existing fixtures, the chart below should be used as guidance when estimating the Luminaire Lumens. The chart was created for the sole purpose of providing an easy method of estimating the lumens produced by existing lighting products installed on a particular property in cases where documentation providing such data is not available.

Light Output in Lumens (Lumens calculated using an average luminous efficacy. Energy saving lamps may generate more lumens per watt.)	Incandescent Watts	CFL Watts	LED Watts (Lumen efficacy varies greatly with color)	High Efficiency LED Watts
200	25	6 to 8	2 to 3	2 or less
450	40	9 to 13	4 to 5	3 to 4
800	60	13 to 15	6 to 8	4 to 5
1100	75	18 to 25	9 to 13	6 to 7
1500	100	23 to 30	16 to 20	7 to 9
2000	150	30 to 35	25 to 28	10 to 13
2800	200	45 to 50	35 to 40	14 to 15
5000		100	65 to 133	25 to 50

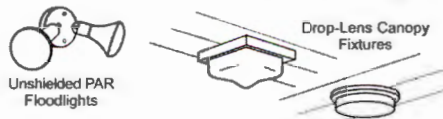
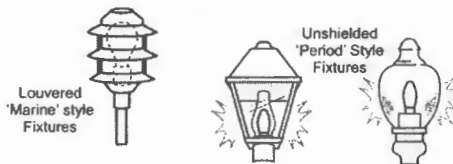
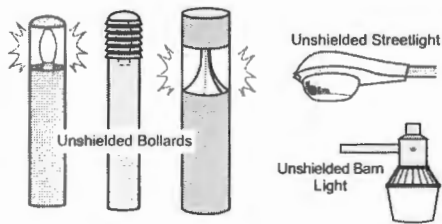
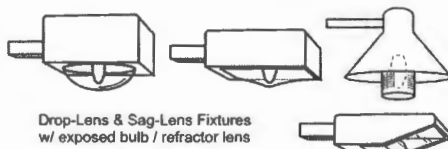
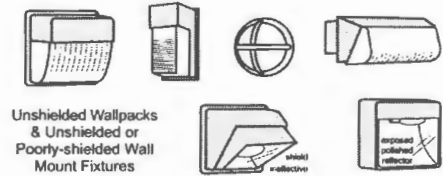
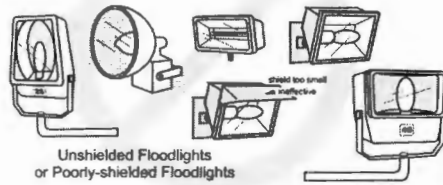
### Exhibit 3

# Better Lights for Better Nights

Help eliminate light pollution. Select the best fixture for your application using this guide. Use the lowest wattage bulb appropriate for the task and turn off the light when it's not being used.

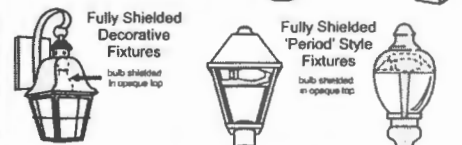
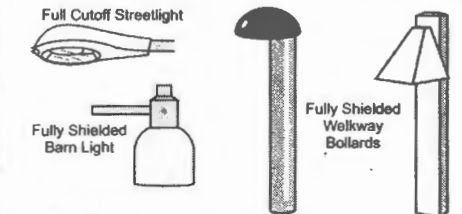
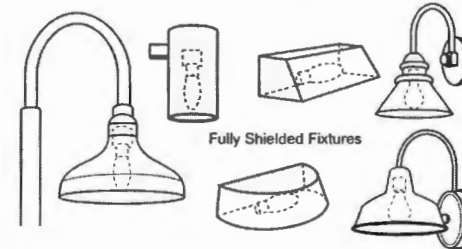
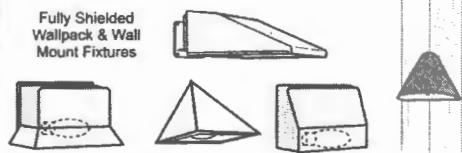
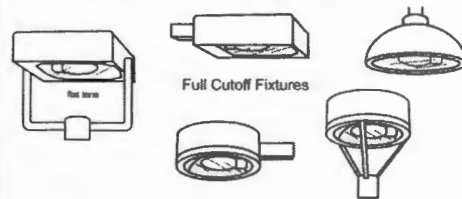
#### Unacceptable / Discouraged

Fixtures that produce glare and light trespass



#### Acceptable

Fixtures that shield the light source to minimize glare and light trespass and to facilitate better vision at night



Rendered for the Town of East Hampton, NY by Bob Crelin ©2005

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