

## 12. SITE LIGHTING STANDARDS

### 12.1. PURPOSE

The requirements set forth in this chapter are intended to promote and protect public health, safety and general welfare, and encourage the preservation of the natural nighttime outdoor environment. Specifically, the intent of this chapter is to limit light trespass, glare and light pollution to safeguard adequate safety, night vision, and comfort of the neighboring properties.

### 12.2. APPLICABILITY

The following types of development proposals are required to submit a lighting management plan for review and approval:

- All developments subject to site lighting standards of Section 14-526 of the Land Use Code.
- Other projects where the Reviewing Authority determines that special conditions warrant a lighting management plan.

### 12.3. GENERAL STANDARDS

Outdoor lighting standards listed below apply to all new developments.

1. Uniformity: As measured in foot candles at grade, maximum to minimum illumination levels shall not exceed a ratio of twenty (20) to one (1.)
2. Illumination Levels: Minimum, Maximum, and Average illumination levels for areas intended to be lighted, as measured at grade, shall be:

<b>Minimum</b>	0.2 foot candles (fc)
<b>Maximum</b>	5.0 foot candles (fc)
<b>Average</b>	1.25 foot candles (fc)

Average illuminance levels for exterior areas specified below, measured in foot candles (fc) at ground level unless noted, shall not exceed the following levels:

Uses	Average (Foot candle)	Uniformity Ratio (average-to- minimum)	Maximum (Foot candle)
<b>Automated Teller Machine (ATM) Surrounding Area (10 ft perimeter)</b>	10.0	3:1	20.0
<b>Drive-through Canopy</b>	10.0	3:1	20.0
<b>Minor Gasoline Service Stations:</b>			
• <b>Approaches and Drives</b>	1.5	3:1	3.0
• <b>Service Areas</b>	2.0	3:1	4.0
• <b>Pump Island Areas</b>	10.0	3:1	20.0
<b>Major Gasoline Service Stations:</b>			
• <b>Approaches and Drives</b>	2.0	3:1	6.0
• <b>Service Areas</b>	3.0	3:1	6.0
• <b>Pump Island Areas</b>	10.0	3:1	20.0
<b>Parking Lots:</b>			
• <b>Surface</b>	0.5	3:1	4.0
• <b>Structure</b>	0.8	3:1	2.0

3. Lumens: No fixture shall exceed 20,000 lumens (± 3%).

Types of Lighting	Maximum Lumens Allowed
<b>Path lighting</b>	1,500 lumens
<b>Building Entrance</b>	3,500 lumens
<b>Residential/ Commercial Pole at 20'</b>	15,000 Lumens
<b>Industrial Pole at 30'</b>	20,000 lumens
<b>Automated Teller Machine (ATM)</b>	
<b>Drive-Through Canopy</b>	6,000 lumens
<b>Minor Vehicle Service Station</b>	
• <b>Approaches and Drives</b>	4,000 lumens
• <b>Service Areas</b>	6,000 lumens
• <b>Pump Island Areas</b>	8,000 lumens per fuel pump
<b>Major Vehicle Service Station</b>	
• <b>Approaches and Drives</b>	6,000 lumens
• <b>Service Areas</b>	8,000 lumens
• <b>Pump Island Areas</b>	10,000 lumens per fuel pump

4. **Light Trespass:** The maximum illumination level at a property line shall not exceed 0.1-foot candle, as measured at grade, except where abutting industrial, or other non-sensitive uses. When a commercial or industrial use abuts a public right-of-way, or another commercial or industrial use, lighting must be designed so that the illumination at the property boundary line does not exceed 1.0 foot-candles.

All residential uses and natural resource protection areas are to be considered sensitive to light trespass. In certain instances where a proposed development is adjacent to a sensitive use, house-side shielding (see 12.3.5.1) may be necessary to comply with this standard.

5. **Luminaire Types:** All fixtures must be LED and shall not exceed 3000K Correlated Color Temperature (CCT). Screw in light fixtures must have LED lamps specified to be maximum of 3000K CCT.
6. **Full Cut-off Fixtures and Shielding Required:** All outdoor lighting fixtures, including pole mounted and wall mounted luminaires, shall be constructed Full "cut-off" or with full shielding, type where lenses, refractors or lamp sources do not extend below the surface of the fixture housing and no direct light shall be directed at or above the horizontal plane.

Where the light source from an outdoor light fixture is visible beyond the property line, shielding shall be required to reduce glare so that the light source is not visible from within any residential dwelling unit.

Light fixtures mounted under a canopy shall be recessed so that the lens cover is recessed into, or flush with, the underside (ceiling) of the canopy.

7. **Pedestrian Walkway Lighting:** Pedestrian walkway light fixtures can be a combination of freestanding pole, bollard, in-place step or building mounted fixtures. For building mounted fixtures, the proposed fixture type will be in scale with the building elevation on which it is to be installed and meet the fixture height provisions of 12.3.8. Pedestrian lighting (bollards) shall meet the technical manual standards for full cut-off or an exception may be considered under 12.2.11.
8. **Fixture Height:** Fixtures shall be mounted at the lowest height necessary to meet city standards and the height is measured from grade to the bottom of the lighting fixture.

Type of Lighting	Maximum Fixture Height
<b>Residential (Pedestrian) Uses</b>	20 feet
<b>Commercial/ Office Uses</b>	20 feet
<b>Large Industrial Uses (50,000 sf or more- gross floor area)</b>	30 feet
<b>Building Mounted/ Entrances</b>	below the roof eave and not to exceed 20 feet, whichever is lower
<b>Bollard Fixtures</b>	42 inches (3.5 feet)

9. Lighting Curfew: For surface and structured parking, lighting in vehicle parking areas containing twenty (20) or more parking spaces shall be reduced to 50% of permitted levels from one hour after the business closing to one hour before business opening. If lighting levels are already below 50% of permitted levels, no curfew adjustment is required. Motion sensor activated lighting shall be permitted during closed hours to activate additional lighting above the 50% permitted, for the purposes of public safety.
10. Continued Maintenance: Lighting installations must be maintained in good repair to meet the provision of this ordinance on an on-going basis.
11. General Exceptions: Proposed uses that demonstrate a need to exceed the specific site lighting limits shown below for safe and reasonable exercise of the proposed use must provide a professionally produced lighting plan which adheres to the current Illuminating Engineering Society of North America (IESNA) recommendations for the proposed use. The Planning Authority may grant exceptions to the lighting standards with the finding that the light impacts do not create a public nuisance for abutting residential property. Unless otherwise specified below, exterior lighting shall conform to the recommendations put forth in Lighting for Exterior Environments RP-33-14, or its successor, published by the Illuminating Engineering Society of North America (IESNA). Lighting fixtures other than full cut-off fixtures may be allowed only if acceptable luminaires shall include internal and/or external glare control louvers and installed so as to minimize uplight and offsite light trespass.
12. Historic District, Architectural and Pedestrian Walkway Exception: Sites which are part of an historic district or require specific decorative lighting fixtures as means to achieve compatibility within an existing architectural context must meet the following standards:
  - a. Lighting fixtures other than full cut-off fixtures may be allowed only if acceptable luminaires shall include internal and/or external glare control louvers and installed so as to minimize uplight and offsite light trespass.
  - b. Low pressure sodium and metal halide lamps are prohibited.

#### **12.4. Reserved.**

#### **12.5. ARCHITECTURAL AND SPECIALTY LIGHTING AND UPLIGHTING:**

1. Lighting shall be designed to minimize lighting of night sky and shall accentuate individual architectural or aesthetic elements, not the entire structure.
2. Lighting shall be directed downward unless the development is located in an area of the city where uplighting is permitted as described in section 14-526 (a) of the City Code. Where permitted, upward aimed lighting (uplighting) shall not exceed 4,000 mean lumens per accent feature, shall be placed as close as possible to the base of the building or feature that is being illuminated, shall be fully shielded from view off-site, and shall use a narrow cone of light for the purpose of confining the light to the object.

3. Building façade lighting. The exterior of a building may be lighted provided the following standards are met:
  - a. The lighting is done to accentuate an architectural or aesthetic element of the building, not the entire building.
  - b. The light must only be directed onto the building façade and not spillover beyond the plane of the building.
  - c. Upward aimed lighting must not exceed 4,000 mean lumens per accent feature, must be fully shielded, and mounted as flush to the wall as possible.
  - d. Lighting exceeding 4,000 mean lumens per accent feature must be aimed downward, fully shielded, and mounted as flush to the wall as possible.
  - e. Stripe Lighting: Stripe lighting along building structures as articulation may be approved as specialty architectural lighting, provided that it does not create nuisance.
  
4. Flag poles, statues and similar monuments. A flag pole bearing a state flag, a flag of the United States or a flag of a foreign nation may be illuminated, provided the following standards are met:
  - a. The luminaires must be fully shielded.
  - b. Upward aiming luminaires must be placed as close to the base as possible.
  - c. The luminaires must not collectively exceed 20,000 mean lumens. Public statues, memorials or other similar monuments may also be lighted upon approval by the Historic Preservation authority, provided the above standards are met.

#### **12.6. SUBMISSION REQUIREMENTS, PHOTOMETRIC PLANS:**

1. The Lighting Plan shall be depicted on a site plan, indicating the location of each current and proposed outdoor lighting fixture with projected hours of use. This plan will need to be stamped and certified by a licensed professional, such as an architect or engineer. The lighting plan must include a KEY to the proposed lighting that provides the following information:
  - a. Type and number of luminaire equipment (fixtures), including the "cut off characteristics", indicating manufacturer and model number(s).
  - b. Lamp source type (bulb type, i.e. LED), lumen output, and wattage.
  - c. Mounting height with distance noted to the nearest property line for each luminaire.
  - d. Types of timing devices used to control the hours set for illumination, as well as the proposed hours when each fixture will be operated.
  - e. Lighting manufacturer-supplied specifications ("cut sheets") that include photographs of the fixtures, indicating the certified "cut off characteristics" of the fixture.
  
2. A photometric plan shall be provided at 20 scale or larger which shall show the extent of the areas designed and intended for lighting, and within those specific areas show a photometric grid of maximum 10' point spacing, and within those areas provide foot candle calculations of maximum, average, minimum, maximum

to minimum ratio, and average to minimum ratio. On the same or additional plan, a photometric plot shall extend to all lot lines and as necessary to reach illumination levels of 0 (zero) foot candles. Additionally, the applicant shall provide descriptive information, including manufacturers catalog excerpts, for all proposed light fixtures, lamps, and poles.