

## Draft Lighting Ordinance

# Public Hearing, July 12, 2018

Planning and Development Services staff has developed a draft lighting ordinance for Winston-Salem and Forsyth County at the direction of the City-County Planning Board. If adopted, this ordinance would address the issue of light trespass and would reduce glare for new development and recreational uses, such as athletic fields. The Planning Board will consider the ordinance and hold a public hearing during their July 12 meeting.

After considering citizen input gathered at two public meetings and via an online survey, the Planning Board has made several changes to the draft ordinance. A new version incorporating those changes is attached.

We believe the following changes improve the clarity of the ordinance and make it better tailored for our community:

1. A definitions section has been added.
2. Exemptions for aviation lights and temporary lighting have been added.
3. The ordinance now includes standards for Historic and Historic Overlay districts.
4. Language has been added that applies specifically to LED fixtures in addition to conventional light fixtures.
5. Standards for pedestrian-scale pole lighting have been removed and a restriction on non-shielded wall packs has been added.
6. The section for lighting for outdoor recreation uses has been restructured to add clarity.
7. The maximum candela permitted at a distance of 150 feet from the edge of an athletic field has been changed from 5,000 to 7,500, which is in line with professional lighting standards.
8. An exemption has been added for existing outdoor recreation uses to allow for the replacement of lighting systems with conventional fixtures.
9. Lighting standards in other parts of the ordinance will be removed as the new lighting standards would take precedence.

The Planning Board Public Hearing on the ordinance will take place at the Planning Board meeting on Thursday, July 12, 2018, starting at 4:30 p.m. in the Fifth Floor Public Meeting Room of the Bryce Stuart Municipal Building, 100 East First Street, Winston-Salem.

**UDO-286**  
**AN ORDINANCE AMENDMENT PROPOSED BY**  
**PLANNING AND DEVELOPMENT SERVICES STAFF REVISING**  
**CHAPTERS A AND B OF THE *UNIFIED DEVELOPMENT ORDINANCES***  
**TO CHANGE THE STANDARDS FOR OUTDOOR LIGHTING**

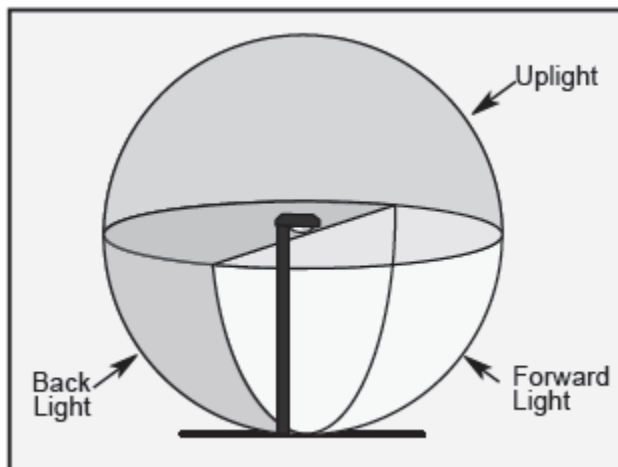
Be it ordained by the \_\_\_\_\_ that the *Unified Development Ordinances (UDO)* is hereby amended as follows:

**Section 1.** Chapter A – Definitions Ordinance, Article II – Definitions, is amended as follows:

## **Chapter A**

### **Article II – Definitions**

**Backlight.** For an exterior light fixture, lumens emitted in the quarter sphere below horizontal and in the opposite direction of the intended orientation of the fixture. For fixtures with symmetric distribution, backlight will be the same as front or forward light.



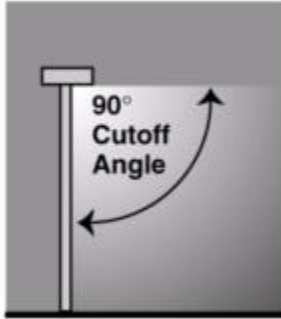
*a diagram showing backlight, uplight, and forward light [to be included in UDO]*

**BUG.** A light fixture classification system used by the lighting industry that rates a fixture's backlight (B), uplight (U) and glare (G).

**Candela.** A measure of light intensity which is useful in determining how much light is shining out of a fixture and in what direction.

**Footcandle.** The unit of measure of light received on a surface. One footcandle is the illuminance produced by a candle on a surface one foot square from a distance of one foot.

**Full Cutoff.** A light fixture classification where no light intensity is emitted at or above a horizontal plane drawn through the bottom of the fixture and no more than 10% of the lamp's light intensity is emitted at or above an angle 10 degrees below that horizontal plane.



*a diagram showing a full cutoff light fixture [to be included in UDO]*

**Glare.** Light entering the eye directly from lighting fixtures or indirectly from reflective surfaces that causes visual discomfort or reduced visibility.

**Temporary Lighting.** Lighting installed and operated for periods not to exceed 60 days, completely removed and not operated again for at least 30 days.

**Uplight.** For an exterior light fixture, lumens emitted at or above the horizontal plane.

**Section 2.** Chapter B - Zoning Ordinance, Article II - Zoning Districts, Official Zoning Maps and Uses, is amended as follows:

## **Chapter B**

### **Article II - Zoning Districts, Official Zoning Maps and Uses**

#### **2-1 - ZONING DISTRICTS**

##### **2-1.3 COMMERCIAL ZONING DISTRICTS - PURPOSE STATEMENTS AND REGULATIONS**

(M) E Entertainment District (W)

(5) ~~Reserved. Lighting. .... Outdoor lighting within the E District shall not be limited as long as it is shielded and oriented as to cast no direct light onto adjacent property outside the E District.~~

(a) ~~Lighting Plan. .... Developments within the E District shall be required to submit a lighting plan prepared by a licensed engineer demonstrating that all exterior lighting is designed, located, and installed in such a manner to prevent objectionable light from spilling across the boundary line of the E District. Lighting levels measured at the boundary line of the E District shall not exceed more than one half (1/2) foot candle. Parking lot lighting shall utilize full cut-off style fixtures.~~

NOTE: Items to be deleted are indicated with a ~~strikeout~~; items to be added are indicated with an underscore.  
UDO-286 July 2018

- ~~(b) Lighting Within the Public Right of Way. ..... Street lighting shall be provided within the public right of way for all public streets located within the E District. Street light spacing and lighting levels shall be approved by the Director of Public Works. The developer(s) of the E District shall be responsible for all costs associated with the purchase and installation of said lighting.~~

**Section 3.** Chapter B - Zoning Ordinance, Article III – Other Development Standards, is amended as follows:

## **Article III - Other Development Standards**

### **3-11 - OTHER STANDARDS**

#### **3-11.1 - LIGHTING**

~~Where a bufferyard is required pursuant to Section B.3.5, outdoor lighting shall be so shielded and oriented as to cast no direct light onto adjacent property.~~

(A) Applicability:

- (1) The standards of this section shall apply to lighting for principal buildings submitted for permitting after [the adoption date of this ordinance] on zoning lots that are adjacent to a public street or to residential zoning, or lighting for outdoor recreation uses and stadiums as described in Section C, below.
- (2) This Section shall not apply to:
  - (a) The uses Residential Building, Single Family; Residential Building, Duplex; Residential Building, Twin Home; and Residential Building, Townhouse;
  - (b) Street lights in the public right-of-way;
  - (c) Airport runway and aviation safety lights required by the FAA; or
  - (d) Temporary Lighting.
- (3) Where these standards conflict with the standards of the H (Historic) or HO (Historic Overlay) zoning districts, the standards for those districts shall take precedence.

(B) General Requirements

(1) Lighting Plan.

- (a) A lighting plan prepared by a Lighting Certified (LC) lighting professional or a professional engineer licensed in the state of North Carolina shall demonstrate that all exterior lighting is designed, located, and installed in such a manner that light levels measured at the residential zoning line and the public right-of-way do not exceed one-half (1/2) footcandle.
    - i. Light Level Measurement... Light levels are specified, calculated, and measured in footcandles. All values are initial footcandles. Measurements shall be made at ground level with the light-registering portion of the meter held horizontally pointing up.
  - (b) Prior to the issuance of a certificate of occupancy, the Lighting Certified (LC) lighting professional or professional engineer shall certify in writing that the lighting was installed per the approved plans.
- (2) Parking lot lighting shall utilize fixtures certified as a Full Cutoff or LED BUG-rated fixtures with an Uplight Rating of U0 and a maximum Glare Rating of G3.

- (3) Lights mounted on poles shall have a maximum pole height of thirty (30) feet and shall not be mounted greater than thirty two (32) feet above grade including any base and/or mounting structure..
- (4) Non-shielded wall packs and high-intensity light beams, such as outdoor searchlights, lasers, or strobe lights, are prohibited.
- (5) Routine maintenance of existing lighting, including changing the lamp, ballast, starter, photo control, fixture housing, lens, and other required components, is allowed for all existing fixtures. A lighting plan is not required for such changes.

(C) Lighting for Outdoor Recreation Uses and Stadiums....

- (1) In addition to the standards above, the following shall apply to:
  - (a) The uses: Entertainment Facility, Large; Fishing, Fee Charged; Golf Driving Range; Recreation Services, Outdoor; Recreation Facility, Public; and Stadium, Coliseum, or Exhibition Building, as well as new accessory athletic fields and courts submitted for permitting after [the adoption date of this ordinance];
  - (b) Lighting added to existing outdoor recreation uses, stadiums, and accessory athletic fields and courts that did not have lighting before [the adoption date of this ordinance].
- (2) Fixtures shall be fitted with the manufacturer's glare control package. If the manufacturer does not have a glare control package, the fixture specification shall be changed to a manufacturer that offers a glare control package.
- (3) Fixtures shall be designed with a sharp cutoff and aimed so that their beams fall within the primary playing area and immediate surroundings, so that off-site direct illumination and glare are significantly restricted.
- (4) The maximum pole height of an outdoor recreation lighting source shall be eighty (80) feet unless approved by the Assistant City Manager for Public Works or Designee after being determined that the lighting will have no significant adverse effect on surrounding property.
- (5) The lighting plan shall demonstrate that the max candela per fixture does not exceed 7,500 candela at a distance of 150 feet from the edge of the playing field.
- (6) New lighting fixtures for existing outdoor recreation uses, stadiums, and accessory athletic fields and courts installed after [the adoption date of this ordinance] shall follow the standards above only if they change from conventional lighting fixtures to LED fixtures.

### **3-12 - LARGE SCALE RETAIL DEVELOPMENTS (W)**

#### **3-12.1 DESIGN REQUIREMENTS FOR LARGE SCALE RETAIL DEVELOPMENTS (SEVENTY-FIVE THOUSAND (75,000) + SF SINGLE TENANT)**

**Intent.** The intent of this section is to encourage visual design interest and a pedestrian site design for large-scale retail buildings. These structures shall be designed to reduce the massive scale and uniform, monolithic appearances. Building design shall also promote a safe and comfortable pedestrian oriented site with a mixture of uses and sizes of structures. Careful attention to local community design issues will also ensure a greater likelihood of reuse of the structure for subsequent tenants.

To further design excellence and creativity within the community, and to encourage a design tailored to the community, applicants for large-scale retail development proposals shall maximize the overall design of the site and structure(s). Therefore, the Director of Planning, or designee, may allow minor changes in the design standards listed in this section and deviation from the setback requirements of Section B.2-1.3(L)(2) if the spirit and intent of this section continues to be adhered to in the overall development

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UDO-286 July 2018

design. Additionally, minor deviations may also be made in order to enable and promote the creation of cohesive buildings and site designs for multi-structure developments. Major deviations and/or interpretations of these standards, as well as appeals of the decisions made by the Director of Planning or designee under this section, shall be made by the Elected Body.

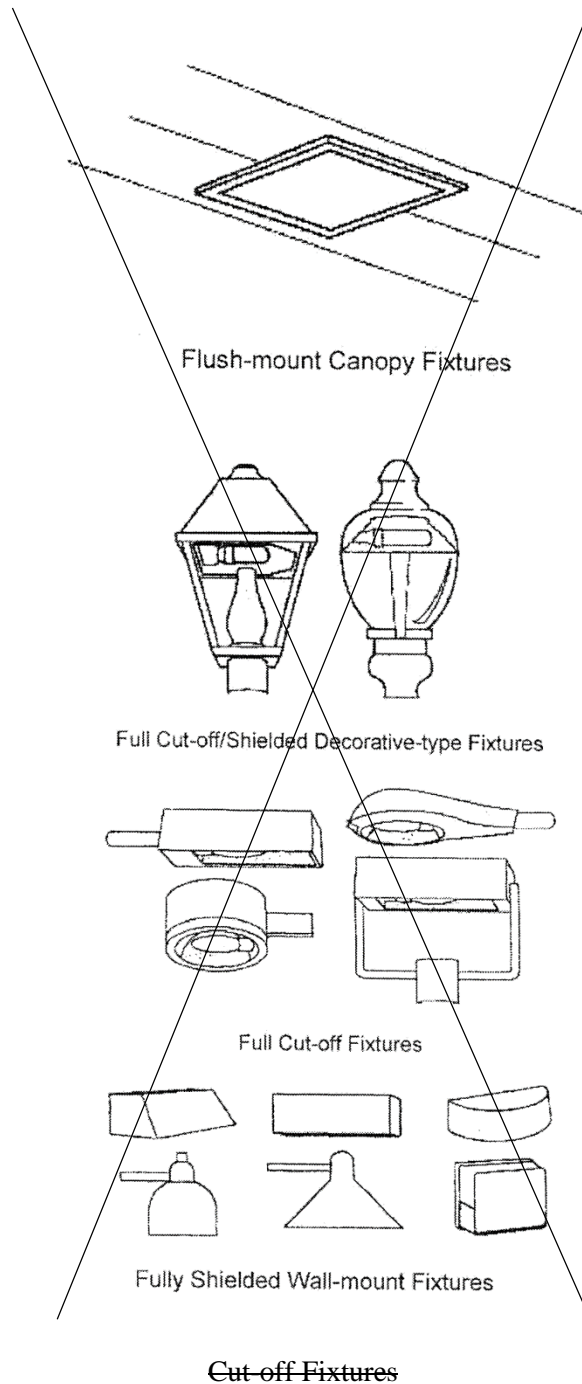
Subsections.

- (A) Definitions;
- (B) Applicability;
- (C) Design Standards;
- (D) Facade treatments;
- (E) Roofs;
- (F) Entrances;
- (G) Parking and Circulation;
- (H) Outdoor storage, trash collection and loading areas;
- (I) ~~Signs~~ Outdoor Sales;
- (J) ~~Canopies~~ Signs;
- (K) ~~Miscellaneous~~ Canopies; and
- (L) ~~Submission Requirements~~. Miscellaneous; and
- (M) Submission Requirements.

(A) Definitions

~~**FOOT-CANDLE** means a basic measure used to indicate illuminance (level of illumination). One foot candle is equal to one unit of light flux (one lumen) distributed evenly over a one-square foot surface area.~~

~~**FULL CUT-OFF TYPE FIXTURE** means a luminaire or light fixture that by design of the fixture housing, does not allow any light dispersion or direct glare to shine above a ninety (90) degree, horizontal plane from the base of the fixture.~~



**GLARE** means the direct light emitting from a luminaire that causes reduced vision or momentary blindness.

(K) Canopies ..... Gasoline canopies, car washes and other accessory functions located in separate structures on the same subject site shall be complementary to the overall design of the site and of the primary structure.

~~(2) Shall be illuminated with flush mounted, flat lens light fixtures for all under canopy fueling areas.~~

(L) Miscellaneous ..... Internal traffic signs, handicapped parking signs, transformers, and other such site necessities shall be integrated into the overall design of the site.

~~(3) All exterior lighting shall be designed, located, installed and directed in such a manner to prevent objectionable light at and across the property lines to prevent glare at any location on or off the property, and shall meet the following:~~

~~(a) Be no more than one half (1/2) foot candle level at the property line;~~

~~(b) Be of a white light, such as metal halide, incandescent or a lamp with a color rendering index above seventy (70);~~

~~(c) Be a full cut off style fixture for all parking area lighting;~~

~~(d) Be a full cut off or shielded type fixture (wall pack style fixtures are not acceptable) for all building lighting for security or aesthetics. Floodlighting is discouraged, however, if used, it shall be shielded to prevent the following:~~

~~(i) Glare for pedestrians or drivers;~~

~~(ii) Light trespass beyond the property line; and~~

~~(iii) Light above a ninety (90) degree horizontal plane.~~

**Section 4.** This ordinance shall be effective upon adoption.