

STAFF REPORT

DOCKET # UDO-286
STAFF: Kelly Bennett

REQUEST

This UDO text amendment is proposed by City-County Planning and Development Services staff at the request of the City-County Planning Board to amend Chapters A and B of the *Unified Development Ordinances* (UDO) to change the standards for outdoor lighting in Winston-Salem and Forsyth County.

BACKGROUND

Legacy 2030 highlights the benefits of mixing development types and locating residential development close to services to promote fiscal responsibility, livable design, and sustainable growth. However, the possibility of light pollution is a frequent concern when new development is proposed, especially when it is close to residential uses. Although there is currently a lighting provision in the UDO, it does not specify acceptable lighting levels or fixture types. Because of this, many Special-Use Zoning cases have included a specific lighting condition in recent years.

Several *Legacy 2030* policies and action items recommend limiting the effects of lighting on residential uses. To further these goals, a report that staff presented to the Planning Board in June 2017 recommended amending the UDO to create lighting standards that address the problems of light trespass and glare. The Planning Board directed staff to prepare a text amendment to implement these standards as part of its 2017-18 work program.

Current lighting requirements in the UDO only require that outdoor lighting for commercial, industrial, office, institutional, and multifamily development be shielded and oriented so that it does not cast light directly onto adjacent property where a bufferyard is required. This standard is difficult to enforce as no fixture types are specified in the UDO to manage glare and there is also no light measurement specified to gauge how much light is cast beyond the property line.

In addition to this general lighting standard, the City's Entertainment (E) zoning district includes a provision that requires a lighting plan, full cut-off style fixtures (which are designed so that no light is emitted above a horizontal line parallel to the ground), and that lighting levels measured at its boundary line may not exceed one-half (½) foot-candle. The standards for Large Scale Retail Developments (over 75,000 square feet for a single tenant) also include requirements for full cut-off and shielded light fixtures, but do not include a light measurement provision.

ANALYSIS

By creating measurable standards and specifying permitted lighting fixtures, UDO-286 would address the problems of light trespass and glare while also improving ordinance enforceability.

The standards of UDO-286 are comparable to most of our peer cities' lighting ordinances (**Table 1**), which resemble the lighting provisions in Winston-Salem's E zoning district but with added standards for recreation uses (such as athletic fields and stadiums). The ordinance would only apply to new development (other than single-family, duplex/twin home, and townhouse development) and new LED lighting systems for recreation uses – it would not require retrofitting existing development. These standards would also not apply to street lighting.

UDO-286 would require a lighting plan prepared by a Lighting Certified lighting professional or a professional engineer licensed in the state of North Carolina be submitted for new development demonstrating that all exterior lighting is designed, located, and installed so that that light levels measured at any residential zoning line and public right-of-way do not exceed ½ footcandle. A footcandle is the standard measure of light on a surface and is defined as the illuminance produced by a candle on a surface one foot square from a distance of one foot.

Light pole heights in parking lots would be limited to 30 feet, with a maximum mounting height of 32 feet including any base or mounting hardware. Full cut-off lighting fixtures or their LED-equivalent would be required. The 30-foot pole height gives developers enough flexibility to adequately light parking lots without adding significantly to the cost of lighting a site that a higher pole height would bring. Although many lighting ordinances also specify fixture types and pole heights for pedestrian-scale lighting or other pole-mounted lighting fixtures, staff does not recommend such a requirement as long as the developer can meet the ½-footcandle standard at their property line and the public right-of-way.

UDO-286 also includes unique lighting standards for outdoor recreation uses such as athletic fields and stadiums due to their frequent location in residential areas and their high potential for light trespass. For new outdoor recreation uses, and for lighting added to existing recreation uses that are not currently lighted, pole heights would be limited to 80 feet and fixtures would be required to be fitted with a glare control package. The maximum candela (a measure of light intensity) permitted at a distance of 150 feet from the edge of an athletic field would be 7,500, which is in line with professional lighting standards for limiting glare. Existing recreation uses would be allowed to replace their lighting systems with conventional fixtures, and would only be subject to the ordinance if they chose to install LED fixtures.

In order to avoid any confusion due to overlapping standards, UDO-286 would also eliminate existing lighting standards for the Entertainment (E) zoning district and for large scale retail developments. The proposed ordinance standards would apply to such development.

Staff believes the proposed standards would benefit the community by protecting neighborhood character and improving aesthetics. The proposed ordinance would still provide site and building design flexibility at a similar cost to current standards and reduce the need to use lighting conditions as part of Special-Use Zoning cases.

RECOMMENDATION

APPROVAL

UDO-286 Table 1. Comparison of Lighting Regulations for Peer Cities

	Asheville	Cary	Charlotte	Durham	Greensboro	Raleigh	Walkertown	Draft W-5
Applicability	New Development, New lighting, replacement of lighting	New Development and New Lighting	All lighting shielded to not illuminate residential or cause glare	New Development	All new lighting	New lighting, replacement of lighting, changes to fixture types or wattage	New Development + Additions	New Development and new LED lighting systems for recreation facilities
Applies to SF Residential Street Lights Included	Yes (new SF)	No	No	No	No	Yes	No	No
Lighting Plan Required	Yes	No	No	No	No	No	No	No
Full Cutoff Fixtures Required	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Maximum Light Reading at Residential Property Line	.5 footcandle	.5 footcandle	N/A	.5 footcandle	1.0 footcandle	.5 footcandle	.5 footcandle	.5 footcandle
Maximum Light Reading on Property	Yes	Yes	No	Yes	No	Yes	No	No
Parking Lot Light Height Limit	37'	35'	N/A	30'	35'	30'	25'	30'
Non-Directional Light Height Limit	18'	18'	N/A	15'	N/A	15'	N/A	N/A
Other Standards	Maximum lumens specified for fixtures	N/A	N/A	Grandfathers lighting fixtures existing before June 2000	N/A	Maximum lumens for non-cutoff fixtures	N/A	Max candela for recreation uses
Recreation Standards	80' height limit + glare control + limited hours of operation	Glare control + limited hours of operation	No	Light fixtures at least 100' from residential + limited hours of operation	Lighting design must minimize impacts	80' height limit + glare control	N/A	80' height limit + glare control