

LEGISLATIVE #

120023C

Appendix B
Documents Submitted to the City Commission



TO: Erik Bredfeldt.

FROM: Lawrence Calderon

DATE: March 15, 2012

SUBJECT: Recommendations to modify the current Lighting Standards of the Gainesville Land Development Code.

PURPOSE AND INTENT

Generally, the purpose of establishing lighting standards is to achieve one or more of the following:

- (1) Provide adequate light for safety and security;
- (2) To establish maximum light levels within and on property lines.
- (3) Reduce light pollution, light trespass, glare, and offensive light sources
- (4) To establish light fixture shielding and quality lighting design
- (5) To establish maximum uniformity ratios across a site.
- (6) Provide an environmentally sensitive nighttime environment that allows for the "dark sky" concept
- (7) To prevent inappropriate, poorly designed or installed outdoor lighting;
- (8) Promote efficient and cost effective lighting and to conserve energy; and
- (9) To amortization existing lighting facilities that exceed the current requirements permitted by new standards or to remove them.

To this end, a specific set of indices are used to establish standards that must be implement to attain the desired objectives. Those indices are expressed as follows:

- (1) Average, maximum and minimum foot candles within the vehicular use area or in the area at which the light is aimed;
- (2) A vertical and horizontal uniformity ratio related to average, maximum and minimum intensities;
- (3) Light trespass or off-site lighting intensities;
- (4) Glare;
- (5) Pole heights or height of structures on which the light fixture is mounted; and
- (6) Type of light fixtures: shielded verses unshielded light fixtures.

Table 1 illustrates that administration of the intent seems to vary among municipalities but all applications embrace the stated purpose and intent but the indices are used in a variety of ways. One observation is that site characteristics and surrounding conditions vary from one location to another; therefore a configuration that works successfully in one location may not be ideal or suitable for another area. Ironically, most municipalities adopt a single set of standard which becomes applicable to all areas within their jurisdictions. Some municipalities have recognized that variation and have adopted standards which vary depending on the zoning district, pre-defined special areas, type of use, type of surrounding uses and in some cases the degree of tolerance of neighbors to co-exist with certain light intensities. One recommended approach that seems to be practical and successful is the establishment of a board, oversight committee or variance procedure to review special request that exceeds the listed standards.

City of Gainesville

The lighting standards of the City captures all the essential lighting parameters to ensure that public gathering areas are safe and that site lighting does not spill over excessively to adjoining properties. It addresses glare and controls the height of poles and structures on which light fixtures are placed. With the exception of recreational facilities, the standards are applied evenly throughout the city without regard to form, function or activities operating at the site.

The ordinance also allows for consideration of special requests to modify the basic standards for some situations by allowing review by the Development Review Board, Board of Adjustment and the City Manager. The ordinance does not appear to provide the same option for consideration of special requests related to parking facilities. It seems to regulate vehicular use areas as a universally similar facility and does not recognize that there are variations in how those facilities are lit based on type of use they serve, location of the facility, surrounding uses and existing natural and man-made screening features. The standards do not specifically address vertical variation in intensity levels and does not specifically address the “dark sky” concept. However, by implementation of other standards such as full cut-off fixtures and intensity levels, the “dark sky” concept is indirectly address.

Staff’s experience is that the standards compare favorably to those of other municipalities and it addresses the essential elements of the purpose and intent of lighting regulations. The intensity levels within vehicular use areas vary across a site through the use of the horizontal uniformity ration but vertical variations are not directly addressed. Through the use of an index that analyses the vertical variations in light intensity, one is able to determine whether or not higher intensity level would have a positive or negative on the site, surrounding developments and the “dark sky” concept.

Staff is proposing that the current ordinance be examined to allow consideration of the following:

1. Evaluation of the current intensity levels;
2. Consider intensity levels based on location and surrounding uses;
3. Allowing special request for variation of light intensities associated with parking facilities to be considered by an advisory board, Board of Adjustment or staff in the same manner that is allowed for certain outdoor uses;
4. Provide meaningful standards for evaluation of special requests for variation of intensities;
5. Address standards for parking structures; and
6. Address vertical variation of light intensities on a site.

Prepared by: _____
Lawrence Calderon,

List of Appendices

Appendix “A” Table 1. A comparison of lighting standards for various cities

Appendix “B” Current City Lighting Standards

Appendix "B"

Current City Lighting Standards

Sec. 30-330. - Design requirements for vehicle parking.

(a)(4)

Lighting. All off-street parking facilities shall be continuously lighted after dark throughout the hours that they are in use by the public. Such lighting shall be designed to maintain an average horizontal illuminance not to exceed 2.5 footcandles, and a minimum horizontal illuminance of 0.5 footcandles. The uniformity ratio (ratio of average to minimum illuminance) shall be no greater than 5:1, and the maximum to minimum uniformity ratio shall be no greater than 15:1. Multiple-family dwellings must provide parking area lighting sufficient to light the area for pedestrians entering and exiting the parking area. All other uses and development, shall, at a minimum, meet the standards provided in the "IESNA Lighting Handbook: Recommended Maintained Illuminances for Open and Covered Parking Facilities, Latest Edition (hereinafter IESNA)" for pedestrian safety. All lighting fixtures serving parking lots shall be full cut-off fixtures as defined by IESNA. Cut-off type (as defined by the IESNA) decorative light fixtures of either pedestrian or intermediate height (such as Washington globe, lantern, pendant, or other such decorative fixtures) may be allowed by the appropriate reviewing board, or city manager or designee for development plans requiring only staff review. A photometric plan shall be provided in compliance with section 30-160(d). Parking lot lighting locations shall not be in conflict with required trees or any existing trees required to remain on the property. The maximum height of fixtures shall not exceed 30 feet, except as regulated by an adopted special area plan or other applicable regulations.

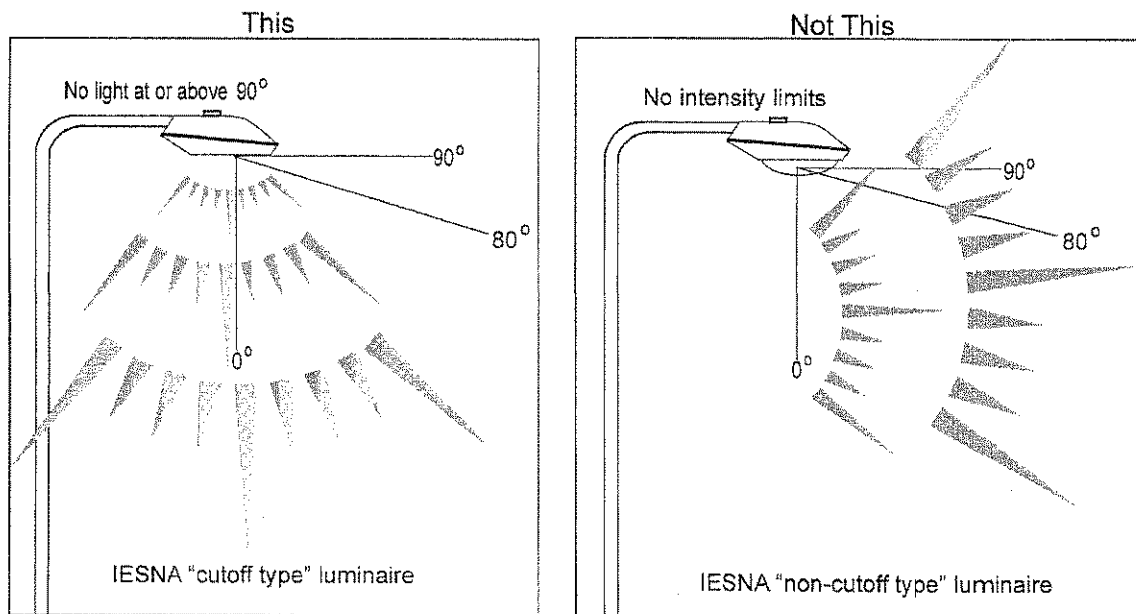


Figure 1. Full Cut-Off Fixture

Transformer boxes or utility poles should not be located within required parking lot landscape islands. Where transformer boxes or utility poles are located within such islands, the island should be designed so the required tree will still have the minimum of 140 square feet.

Sec. 30-345. - General performance standards.

(b) (8)

Lighting. Any light installation which provides for re-aiming of the fixture shall be aimed in compliance with this section.

a. Light trespass and glare. Any development adjacent to a residential use shall not create light trespass of more than 0.5 footcandles measured perpendicularly from the light source at a distance of 25 feet from the property line. Any light trespass onto adjacent non-residential properties shall not exceed 1.0 footcandle measured perpendicularly from the light source at a distance of 25 feet from the property line. Roadway lighting is exempt from light trespass requirements. Directional luminaires such as floodlights, spotlights, sign lights and area lights shall be so installed and aimed that they illuminate only the task intended and that the light they produce does not shine directly onto neighboring properties or roadways. Building facade lighting, sports lighting and other applications using floodlights shall have glare shielding (external or internal shields) to prevent light trespass and light pollution. All lighting shall be designed, hooded or shielded to direct light so that no illumination source or glare creates a nuisance to any adjoining property or unreasonably interferes with the lawful use and enjoyment of any adjoining property.

b. Exterior lighting. Lighting which is provided for the security of areas such as, but not limited to, building entrances, stairways, ramps and main walkways or for a permitted outdoor use of land (such as ball parks) shall not under any circumstances exceed a maximum average maintained illumination of 25 footcandles at ground level, and uniformity ratio of 6:1. Exterior wall-mounted lighting shall be full cut-off fixtures (as defined by IESNA). The maximum lighting intensity permitted for the security of the areas described above, for permitted outdoor land uses, or pole heights, other than those located in off-street parking facilities, may be increased by the appropriate reviewing board through site plan review, or the board of adjustment by obtaining a special exception if site plan review is not required, provided that the applicant establishes that such an increase meets the following standards: a. the increase in intensity is reasonably required for security purposes for the use or for conducting the permitted outdoor use; b. the increase in intensity will not result in a nuisance to adjoining properties and does not interfere with the lawful use and enjoyment of adjoining properties; and c. necessary screening will be erected or exists and maintained to reduce the impact of the increase in intensity on adjoining properties.

c. Outdoor recreational lighting. Lighting installations for outdoor recreational uses (including pole heights) shall be designed in accordance with IESNA standards, as outlined in report number RP-6-88, or any update thereto.

d. Height. The maximum height of light fixtures, except as otherwise regulated by this section, shall not exceed 30 feet.

(9) Light pollution. All building lighting for security or aesthetics will be fully cut-off type, not allowing any upward distribution of light.

(10) Odor. No use shall be operated in any zoning district in such a manner that the emission of odorous matter occurs in such quantity or volume as to produce a nuisance, source of discomfort, or hazard beyond

the bounding property lines of such a use. For the purpose of this performance standard, the presence of such a described odor shall be determined by observation by a person or persons designated by the city manager or designee. In any case, where the operator of an odor-emitting use may disagree with the enforcing officer where specific measurement of odor concentration is required, the method and procedures specified by the American Society for Testing and Materials (ASTM) E679 and E1432, entitled "Standard Practice for Determination of Odor and Taste Thresholds By a Forced-Choice Ascending Concentration Series Method of Limits" and "Standard Practice for Defining and Calculating Individual and Group Sensory Thresholds for Forced-Choice Data Sets of Intermediate Size," respectively. The operator and the city shall equally share the cost of conducting the more elaborate ASTM E679 Procedure.

(11) Air pollution emissions. No industrial operation or use shall cause, create, or allow the emission of air contaminants which at the emission point or within the bounds of the property are in violation of the standards specified by the Florida Department of Environmental Protection, or successor agency, or any governmental entity with regulatory jurisdiction, whichever standards are more stringent.

(12) Other air pollution. Open storage and open processing operations, including on-site transportation movements, which are the source of windblown or airborne dust or other particulate matter; or which involve dust or other particulate air contaminant generating equipment including but not limited to paint spraying, grain or seed handling, sand or gravel processing or storage or sand blasting shall be conducted such that dust and other particulate matter so generated are not transported across the boundary property line or the tract on which the use is located in concentrations exceeding standards set by the Florida Department of Environmental Protection, or successor agency, or any governmental entity with regulatory jurisdiction, whichever standards are more stringent.

(13) Toxics. No industrial operation or use shall emit toxic or noxious matter at a concentration exceeding ambient air quality standards for the State of Florida across the property line of the parcel on which the operation or use is located. Where toxic materials are not listed in the ambient air quality standards of the state, concentrations shall not exceed one percent of the threshold limit values (TLVs) adopted by the American Conference of Governmental Industrial Hygienists (ACGIH). If a toxic substance is not listed by the ACGIH, verification of safe levels of the proposed toxic material for public health, plant and animal life will be required.

(c) Utility service. All utility services, including but not limited to those of franchised utilities, electric power and light, telephone, cable services, water, sewer and gas, shall be installed beneath the surface of the ground, unless the city manager or designee determines that the soil, topography and other compelling condition makes it unreasonable or impractical. The subsurface mounting of incidental appurtenances, including but not limited to transformer boxes or pedestal-mounted boxes for the provision of utilities, electric meters, back flow preventers and fire hydrants, is not required.

(Ord. No. 3777, § 1, 6-10-92; Ord. No. 991381, §§ 1, 2, 9-25-00; Ord. No. 001917, § 3, 12-13-01; Ord. No. 000516, § 5, 2-11-02)

Editor's note—

Ord. No. 000516, adopted Feb. 11, 2002, erroneously amended subsection (a) of this section 30-345. As it was not the intent of the city for Ord. No. 000516 to amend subsection (a), said subsection reads herein as

is set out in Ord. No. 001917, adopted Dec. 13, 2001. The city will adopt an ordinance correcting the language of subsection (a) to read as it appears herein.

Sec. 30-345.1. - Nonconforming luminaires.

All lamps, light fixtures and lighting systems (hereinafter "luminaires") lawfully in place prior to February 11, 2002, shall be deemed legally nonconforming. However, if cumulatively at any time, 50 percent or more of the existing outdoor light fixtures are replaced, or number of outdoor light fixtures is increased by 50 percent or more, then all outdoor light fixtures shall conform to the provisions of section 30-160, section 30-330, and section 30-345. A development plan amendment shall be certified by a registered engineer or architect, or lighting professional holding a current L.C. (lighting certificate) from the National Council on Qualifications for the Lighting Profession (NCQLP). Additionally, nonconforming luminaires that direct light toward streets or parking areas that cause glare so as to cause a public nuisance should be either shielded or re-directed within 30 days of notification.

(Ord. No. 000516, § 7, 2-11-02)