



## CITY OF DUNWOODY

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## MEMORANDUM

**To:** Mayor and City Council

**From:** Howard J. Koontz, City Planner

**Date:** September 27, 2010

**Subject:** **Outdoor Lighting Efficiency Ordinance**

### **BACKGROUND**

In May 2009, to fulfill the Atlanta Regional Commission's Green Communities Measure 15: Outdoor Lighting Efficiency, the Mayor and Council initiated a text amendment to modify the Zoning Ordinance section 1324 "Lighting" by adding provisions for an Outdoor Lighting Efficiency Ordinance. The Outdoor Lighting Efficiency Ordinance would require efficient operation of outdoor lighting by limiting misdirected, excessive, or unnecessary outdoor lighting.

This text amendment was reviewed by the Community Council and the Planning Commission. Upon being placed on the agenda for the Mayor and Council in July 2009, the Sustainability Commission asked for postponement to allow the Commission to re-orient its direction toward government-only measures. The Mayor and Council honored this request, deferring the ordinance change until the Sustainability Commission requested their renewed consideration.

### **DISCUSSION**

The Sustainability Commission has since accomplished the majority of the government-only measures and is now focusing on community-oriented measures such as Outdoor Lighting Efficiency. At their June 14 work session, the Mayor and Council re-initiated the text amendment, due to the length of time between when this text amendment was first heard by the Community Council and Planning Commission. The following ordinance reflects the recommendation by the Sustainability Commission and staff.

### **RECOMMENDATION**

Community Council discussed this item at their July 8 regularly scheduled meeting. After discussion, a motion was made to approve the amendment with the following conditions: the luminaire standard be specified, the applicability of the ordinance only be for construction requiring a permit, and that the prohibition on mercury vapor lamps be revisited since CFLs contain mercury. The motion with recommendations was voted and carried 6-0. The Council also pointed out that a semi-colon is needed in Section 27-1324(b)(3) after "permit" in the first sentence.

After discussion of the ordinance and clarification on the applicability of the ordinance, the Planning Commission voted to approve the proposed ordinance 4-0.

**AN ORDINANCE AMENDING CHAPTER 27 OF THE CITY OF DUNWOODY CODE  
OF ORDINANCES BY AMENDING LIGHTING REGULATIONS TO ADD  
OUTDOOR LIGHTING EFFICIENCY**

**WHEREAS,** the City Council chartered a Sustainability Commission in December, 2008 to promote measures that encourage the City to work towards reducing the environmental footprint of the government through its policies, practices, buildings and fleets; and

**WHEREAS,** the Sustainability Commission has, in its attempt to research and pursue measures to attain the Atlanta Regional Commission's (ARC) Green Communities Certification, researched lighting ordinances in regulations in surrounding jurisdictions, as well as other states; and

**WHEREAS,** many of the surrounding jurisdictions have an Outdoor Lighting Efficiency Ordinance, and some are cited by the ARC as model ordinances for the promotion of a Green community, and the City Council thus desires to adopt an Outdoor Lighting Efficiency Ordinance in an effort to limit misdirected, excessive, or unnecessary outdoor lighting; and

**WHEREAS,** A First Read of this ordinance took place at Council Work Session on September 13, 2010 and a properly-advertised public hearing has been held on September 27, 2010 along with the Second Read of this Ordinance.

**THEREFORE,** Mayor and City Council of the City of Dunwoody hereby ordain as follows:

**Section 1: The City of Dunwoody Zoning Ordinance, Chapter 27 of the City Code, is hereby amended by amending Article I (In General), Sec. 27-1 (Definitions), to add the following definitions:**

*Cutoff Fixture* means a luminaire light distribution where the candela per 1000 lamp lumens does not numerically exceed 25 (2.5 percent) at or above a vertical angle of 90 degrees above nadir, and 100 (10 percent) at or above a vertical angle of 80 degrees above nadir. This applies to all lateral angles around the luminaire.

*Flood Lamp* means a form of lighting designed to direct its output in a specific direction with a reflector formed from the glass envelope of the lamp itself. Such lamps are so designated by the manufacturers and are typically used in residential outdoor area lighting.

*Flood Light* means a form of lighting designed to direct its output in a diffuse, more or less specific direction, with reflecting or refracting elements located external to the lamp.

*Foot-candle* means a unit of measure for illuminance on a surface that is everywhere one foot from a point source of light of one candle, and equal to one lumen per square foot of area.

*Full Cutoff* means a luminaire light distribution where zero candela intensity occurs at or above an angle of 90 degrees above nadir. Additionally, the candela per 1000 lamp lumens does not numerically exceed 100 (10 percent) at or above a vertical angle of 80 degrees above nadir. This applies to all lateral angles around the luminaire.

*Full Cutoff Fixture* means an outdoor light fixture shielded or constructed in such a manner that it emits no light above the horizontal plane of the fixture.

*Glare* means the sensation produced within the visual field by luminance that is sufficiently greater than the luminance to which the eyes are adapted, causing annoyance, discomfort, or loss in visual performance and visibility.

*IESNA* means the Illuminating Engineering Society of North America, a non-profit professional organization of lighting specialists that has established recommended design standards for various lighting applications.

*Illuminance* means the quantity of light arriving at a surface divided by the areas of the illuminated surface measured in foot-candles. Horizontal illuminance applies to a horizontal surface; vertical illuminance applies to a vertical surface. Average illuminance is the level of illuminance over an entire illuminated target area. Maximum illuminance is the highest level of illuminance on any point within the entire area; minimum illuminance is the lowest level of illuminance on any point within the entire area.

*Illuminance Levels* and foot candles noted in this Chapter mean the maintained illuminance levels, the illuminance levels occurring just prior to lamp replacement and luminaire cleaning. The average illuminance level applies to an entire illuminated target area. Minimum and maximum illuminance levels apply to small areas within the entire illuminated target area. Unless otherwise noted, illuminance levels refer to horizontal illuminance levels.

*Luminaire* means a complete lighting unit consisting of a lamp or lamps and the parts designed to distribute the light, to position and protect the lamp(s), and to connect the lamp(s) to the power supply. These parts include, but may not be limited to: lamp, reflector, ballast, socket, wiring, diffuser and housing.

*Outdoor Lighting Fixture* means outdoor artificial illuminating device, lamp, and other similar device used for flood lighting, security, and/or general illumination. Such devices shall include, but are not limited to: outdoor lighting of buildings and structures, including building overhands and canopies; outdoor lighting of recreational areas or parking lots; security lighting; street lighting; landscape lighting; building-mounted area lighting; product display area lighting; and building façade lighting.

*Spill Light* means the light that illuminates surfaces beyond the intended area of illumination caused by the uncontrolled direct light component from the luminaires.

*Trespass Light* means the offsite spill light that illuminates beyond the property boundaries in which the light fixture is installed, where it is neither wanted nor needed.

**Section 2:** The City of Dunwoody Zoning Ordinance, Chapter 27 of the City Code, is hereby further amended by deleting Article IV, Sec. 27-1324 (“Lighting”) in its entirety and replacing it as follows:

**Sec. 27-1324. Lighting**

- (a) *Short title.* This section shall be known and may be cited as the Outdoor Lighting Efficiency Ordinance of City of Dunwoody, Georgia.
- (b) *General purposes.*
- (1) City of Dunwoody seeks to provide a regulatory strategy for outdoor lighting that will permit reasonable uses of outdoor lighting for nighttime safety, utility, security, productivity, enjoyment and commerce; curtail and reverse the degradation of the nighttime visual environment and the night sky; preserve the dark night sky for astronomy; minimize glare, obtrusive light and artificial sky glow by limiting outdoor lighting that is misdirected, excessive or unnecessary; conserve energy and resources to the greatest extent possible; and help to protect the natural environment from the damaging effects of night lighting from man-made sources.
  - (2) *Conformance with Applicable Codes.* All outdoor lighting devices shall be installed in conformance with the provisions of this ordinance, the Building Code and the Electrical Code as applicable and under appropriate permit and inspection. Where there is conflict between the provisions of this ordinance and other regulations, the most restrictive provision shall prevail.
  - (3) *Applicability.* This section applies to all land uses, developments and buildings that require a permit, all outdoor lighting fixtures shall meet the requirements of this ordinance. All building additions or modifications of twenty-five (25) percent or more in terms of additional dwelling units, gross floor area, or parking spaces, either with a single addition or with cumulative additions subsequent to the effective date of this provision, shall invoke the requirements of this ordinance for the entire property, including previously installed and any new outdoor lighting. Cumulative modification or replacement of outdoor lighting constituting sixty (60) percent or more of the permitted lumens for the parcel, no matter the actual amount of lighting already on a non-conforming site, shall constitute a major addition for purposes of this section. Regulations governing sign lighting can be found in Chapter 20, Signs, of the City of Dunwoody Code.
    - (i) *Minor Additions.* Additions or modifications of less than twenty-five (25) percent to existing uses, as defined above, and that require a permit, shall require the submission of a complete inventory and site plan detailing all existing and any proposed new outdoor lighting. Any new lighting on the site shall meet the requirements of this ordinance with regard to shielding and lamp type.
    - (ii) *Exempt Lighting.* The following luminaries and lighting systems are exempt from these requirements:

- A. Underwater lighting used for the illumination of swimming pools and fountains;
  - B. Temporary holiday lighting;
  - C. Lighting required and regulated by the Federal Aviation Administration, or other federal, state, or local agency;
  - D. Emergency lighting used by police, fire, or medical personnel, or at their direction;
  - E. All outdoor light fixtures producing light directly from the combustion of fossil fuels, such as kerosene and gasoline;
  - F. Security lighting controlled and activated by a motion sensor device for duration of 10 minutes or less.
- (iii) *Prohibited Lighting.* The following lighting systems are prohibited:
- A. Aerial lasers;
  - B. Searchlight style lights;
  - C. Other very intense lighting, defined as having a light source exceeding 200,000 lumens or intensity in any direction of 2 million candelas or more;
  - D. Mercury vapor lamps;
  - E. Low sodium vapor lamps; and
  - F. Exposed neon lighting.
- (4) *Outdoor Lighting Standards.* All nonexempt outdoor lighting fixtures shall meet the following criteria:
- (i) Shall be full cutoff placed so as to allow no light above the horizontal as measured at the luminaire, except as herein noted in this ordinance (as in the case of period fixtures, cutoff fixtures may be used).
  - (ii) Shall be located, aimed or shielded so as to minimize glare and stray light trespassing across property boundaries and into the public right of way.
  - (iii) Flood or spot lamps must be positioned no higher than 45 degrees above straight down (half-way between the vertical and the

horizontal) when the source is visible from any off-site residential property or public roadway.

TABLES INSET:

At Property Lines Including Rights-of-Way	Maximum Foot-candles
At property line abutting a residential or an agricultural use	0.5
At property line abutting an office or institutional use	1.0
At property line abutting a commercial or industrial use	1.5

Off-Street Parking Lots	Minimum Foot-candles	Average Foot-candles	Maximum Foot-candles
Residential areas	0.5	2.0	4.0
Office-professional areas	1.0	3.0	6.0
Commercial areas	2.0	6.0	12.0
Light industrial areas	1.0	4.0	8.0

- (iv) All light fixtures that are required to be shielded shall be installed and maintained in such a manner that the shielding is effective as described herein for fully shielded fixtures.
  - (v) Multi-use development lighting must conform to the standards of its respective use.
  - (vi) Illumination levels are measured from any height and orientation of the measuring device at any location along the property line except the lighting of parking lots shall be measured at grade with the meter sensor held horizontally at the surface.
- (5) *Special Uses.* All lighting not directly associated with the special use areas designated below shall conform to the lighting standards described in this ordinance.
- (i) *Outdoor Sports, Recreation Fields, or Performance Areas.* Lighting of outdoor recreational facilities (public or private), such as, but not limited to, outdoor athletic fields, courts, tracks, special event or show areas shall meet the following requirements:
    - A. Facilities designed for municipal leagues, elementary to high school levels of play and training fields for recreational or social levels of play, college play, semi-professional, professional or national levels of play shall utilize luminaries with minimal upright consistent with the illumination

constraints of the design. Where fully shielded fixtures are not utilized, acceptable luminaries shall include those which:

- i. Are provided with internal and/or external glare control louvers or lenses, and are installed so as to minimize uplight and offsite light trespass and glare; and
- ii. *Illuminance.* All lighting installations shall be designed to achieve the illuminance levels for the activity as recommended by the Illuminating Engineering Society of North America (IESNA RP-6).

TABLES INSET:

Environmental Zones (as defined in IESNA RP-33-99)

E1	Areas with intrinsically dark landscapes, such as national parks, areas of outstanding natural beauty, etc.
E2	Areas of low ambient brightness, including sensitive residential areas.
E3	Areas of medium ambient brightness, generally being urban residential areas.
E4	Areas of high ambient brightness, which would include dense urban areas with mixed residential and commercial use with high levels of nighttime activity.

Light Trespass Limitations for Sports Lighting			
Environmental Zone	Pre-Curfew Limitations	Post-Curfew Limitations	Degrees above nadir not to exceed 12,000 candela from a single fixture
E1	Not allowed	0.0 max vertical	Not allowed
E2	0.25 max horizontal 1.0 max vertical	0.10 max vertical	82 degrees
E3	0.5 max horizontal 2.0 max vertical	0.30 max vertical	85 degrees
E4	0.75 max horizontal 3.0 max vertical	0.60 max vertical	88 degrees

- B. *Curfew.* All events shall be scheduled so as to complete all activity no later than 10:30 p.m. Illumination of the playing field, court or track shall be permitted after the curfew only to conclude a scheduled event that was unable to conclude before the curfew due to unusual circumstances. Field lighting for these facilities shall be turned off within 30 minutes after the last event of the night.

- C. *Setback.* All light poles shall be set back a minimum sixty feet from any residential property line or right-of-way.
- (ii) *Service Station Canopies and Parking Structures.*
- A. All luminaries mounted on or recessed into the lower surface or service station canopies and parking structures shall be fully shielded and utilize flat lenses.
- B. The total light output of luminaries mounted on the lower surface, or recessed into the lower surface of the canopy, and any lighting within signage or illuminated panels over the pumps, shall not exceed 50 foot-candles.
- C. The total light output of illuminated areas of a service station other than as detailed in B. above shall not exceed 15 foot-candles.
- D. Illuminance levels for the interior of parking structures, where interior lighting is visible from outside the structure, shall conform to the IESNA recommendation (RP-20).
- E. Lights shall not be mounted on the top or sides of a canopy and the sides of a canopy shall not be illuminated.
- (iii) *Security Lighting.*
- A. Security lighting shall be directed towards the targeted area.
- B. Sensor activated lighting must be located in such a manner as to prevent direct glare and lighting into properties of others or into a public right-of-way, and the light shall not be triggered by activity off the property.
- (iv) *Pedestrian Path Lighting.* Lighting post shall not exceed 16 feet from the finished grade.
- (v) *Architectural Accent Lighting.*
- A. Fixtures used to accent architectural features, materials, colors, style of buildings, landscaping, or art shall be located, aimed and shielded so that light is directed only on those features. Such fixtures shall be aimed or shielded to minimize light spill into the dark night sky in conformance with the luminaire standards.



- B. Lighting fixtures shall not generate glare, or direct light beyond the façade onto a neighboring property, streets or into the night sky.

(vi) *Temporary Lighting Permits.*

- A. Permits for temporary lighting will be granted by the Community Development Department if the total output from the luminaries does not exceed 50 foot-candles and the following conditions apply:

- i. The purpose for which the lighting is proposed can be completed within thirty (30) days, except that the permit for a major construction project may extend to completion.
- ii. The proposed lighting is designed in such a manner as to minimize light trespass and glare.
- iii. Temporary recreational lighting allowed by permit shall be extinguished by 10:30 p.m.

- B. The application for the Temporary Lighting Permit shall include, but not be limited to, the following information:

- i. Name and address of applicant and property owner;
- ii. Location of proposed luminaire(s);
- iii. Date and times for the lighting;
- iv. Type, wattage and lumen output of lamp(s);
- v. Type and shielding of proposed luminaires;
- vi. Intended use of the lighting;
- vii. Duration of time for requested exemption;
- viii. The nature of the exemption; and
- ix. The means to minimize light trespass and glare.

(vii) *Parking Areas.*

- A. All lighting fixtures servicing parking lots shall be directed downward and not towards buildings or other areas.

- B. The minimum illumination level for a parking lot shall be 0.4 foot-candles at grade level and the ratio of the average illumination to the minimum illumination shall not exceed 4:1.
- C. Light poles used in parking lots for 100 vehicles or less shall not exceed 20 feet in height. Light poles used in parking lots for over 100 vehicles shall not exceed 35 feet in height.
- D. *Street lights.* Unless street light fixtures are of a period or architecture style as approved by the Public Works Department, all new, repaired or replaced fixtures shall be full cutoff fixtures.

(6) *Variances*

- (i) Any person may submit an application to the Zoning Board of Appeals for a variance from the provisions of this ordinance. The application should include, but not be limited to, evidence about the following:
  - A. How the proposed design and appearance of the luminaire are superior;
  - B. How light trespass and glare will be limited;
  - C. How the proposed solution will provide a benefit without negative impact on the health, safety, or welfare of the community.
- (ii) The application may include the recommended practices of the Illuminating Engineering Society of North America, a professional engineer, or other authority on outdoor lighting.

(7) *Submission of Plans and Evidence of Compliance.* The applicant for any permit required by any provision of the ordinances of the City of Dunwoody in connection with proposed work involving outdoor lighting fixtures shall submit, as part of the application for permit, evidence that the proposed work will comply with this ordinance.

- (i) Even should no other such permit be required the installation or modification, except for routine servicing and same-type lamp replacement of any exterior lighting shall require submission of information described below.
- (ii) The submission shall contain but shall not necessarily be limited to the following, all or part of which may be part or in addition to the

information required elsewhere in the ordinances of the City of Dunwoody upon application for the required permit:

- A. Plans indicating the location on the premises of each illuminating device, both proposed and any already existing on the site.
  - B. Description of all illuminating devices, fixtures, lamps, supports, reflectors, both proposed and existing. The description may include, but is not limited to catalog cuts and illustrations by manufacturers.
  - C. Photometric data, such as that furnished by manufacturers or similar, showing the angle of cut off of light emissions.
  - D. Photometric plans must include the maximum and average light layout.
- (iii) *Additional Submission.* The above required plans, descriptions, and data shall be sufficiently complete to enable the Community Development Department to readily determine whether compliance with the requirements of this ordinance will be secured. If such plans, descriptions and data cannot enable this ready determination, the applicant shall additionally submit as evidence of compliance to enable such determination such certified reports of tests as will do so provided that these test shall have been preformed and certified by a recognized testing laboratory.
- (iv) *Subdivision Plats.* All new subdivided properties shall submit information as described herein for installed street lights and other common or public outdoor lighting.
- (v) *Certification.* For all projects, certification that the lighting as installed, conforms to the approved plans shall be provided by a licensed professional before the Certificate of Occupancy is issued. Until this certification is submitted, approval for use by the issuance of the Certificate of Occupancy shall not be issued.

**Section 3: This Amendment shall become effective immediately upon its adoption by the City Council, and incorporated into the Code of the City of Dunwoody, Georgia. This Amendment hereby repeals any and all conflicting ordinances and amendments.**

SO ORDAINED, this \_\_\_\_ day of September, 2010.

Approved:

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STATE OF GEORGIA  
CITY OF DUNWOODY

**ORDINANCE 2010-09-35**

Ken Wright, Mayor

ATTEST:

Approved as to Form and Content:

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Sharon Lowery, City Clerk  
(Seal)

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Brian Anderson, City Attorney