



DEPARTMENT OF COMMUNITY DEVELOPMENT SERVICES

Planning Division

m e m o r a n d u m

TO: Mayor Laurel Lunt Prussing

FROM: Elizabeth H. Tyler, FAICP, Director

DATE: March 12, 2009

SUBJECT: Plan Case 2081-T-08: Request by the Zoning Administrator to amend Article VI of the Urbana Zoning Ordinance include Outdoor Lighting Standards

Introduction

The Zoning Administrator is requesting an amendment to the Zoning Ordinance to add regulations for outdoor lighting on private property. The amendment is a response to City Council Common Goals and the 2005 Comprehensive Plan.

While the City has long enforced against nuisance lighting, regulations in the Zoning Ordinance are limited. Currently, the Zoning Ordinance provides that lighting of parking lots and billboards be screened or shielded from adjacent residences. Other lighting, such as yard lighting, security lighting, and stadium lighting are not well regulated. The proposed amendment will provide for more modern and specific regulations, and provide standards for other outdoor lighting on private property. The amendment will provide for protection against hazardous and nuisance glare, and will require new lighting to be distributed more uniformly, which will improve public safety. The limits set in the proposed ordinance will help to reduce light trespass and light pollution for new development. All properties, including single-family and duplex homes will be protected from lighting that creates nuisances or hazards. New commercial and multi-family developments will also be subject to more stringent design guidelines that limit light pollution in addition to protections from light trespass and glare. The new regulations are proposed to take effect in July of this year, giving developers enough time to prepare for upcoming projects. The proposed regulations will affect new lighting systems and replacement or upgrades of existing systems where more than 20 percent (or three fixtures) of the lighting is modified. Current lighting systems will remain unaffected, unless they are found to cause a nuisance or a hazard due to glare.

The Urbana Plan Commission held a public hearing on February 5, 2009, which was continued on March 5, 2009. Plan Commission discussed the proposed text amendment and requested specific changes at their February 5, 2009 meeting. Staff received additional input on the proposed text amendment from lighting professionals and local developers, and subsequently proposed some minor changes to the proposed ordinance. At the March 5, 2009 meeting, the Plan Commission voted five ayes to zero nays to forward the case to City Council with a recommendation for

approval, subject to a minor clarification of Section VI-8.E.1. The clarification explains that a lighting plan is only required upon installation of a new lighting system or replacement of 20 percent, but not less than three, light fixtures. Staff has revised Section VI-8.E.1 to include that clarification.

Background

Many municipalities across the nation and in Illinois have adopted outdoor lighting standards, including the Village of Homer Glen, and the cities of Springfield, Champaign and Normal, Illinois.

Peoria, Illinois has adopted lighting guidelines as a part of their form-based code overlay district. Some ordinances only address the lighting of parking lots or signage. Others have restrictions on uplighting or light trespass. Few other communities in the region have comprehensive lighting controls similar to those proposed in this text amendment.

There are many benefits to regulating outdoor lighting in a community. Outdoor lighting controls have grown out of a concern for the disappearance of the night sky. As cities developed over the past century, they have emitted more and more light up into the night sky. This light is reflected by moisture and particulates in the atmosphere, causing a phenomenon known as “sky glow”. Sky glow makes it difficult to see all but the brightest stars. Light emitted up into the night sky is referred to as light pollution.

Another issue that can be controlled with lighting standards is light trespass. Light trespass occurs when unwanted light falls onto one’s property. An example of this would be a neighbor’s flood light shining into your bedroom window at night. Light trespass may result in glare, which occurs when a direct view of a light source causes acute visual discomfort or obscures night vision.

Security and safety may also be improved by proper lighting regulations. The human eye adjusts to the brightest objects in its field of view. Uneven distributions of light, with some areas much more brightly lit than others, make it difficult to see unsafe conditions in the darker areas. Likewise, perpetrators can hide in the shadows of unevenly lit parking lots. By requiring an even distribution of light, communities can support the safety and security of their residents. How evenly the light is distributed is measured by the uniformity ratio. Uniformity ratios can be measured by comparing the maximum to minimum illuminance levels of a given area, or by comparing the average illuminance level to the minimum. Lower uniformity ratios correspond to more even distributions of light.

Another reason to adopt updated lighting standards is to conserve energy. Light fixtures that allow light to shine into the sky or in other undesired directions waste electricity. In order to provide adequate light where it is needed, non-cutoff fixtures require a more powerful light source. Luminaires that contain mirrors and lenses to shine light only where it is wanted are able to provide the desired amount of light with a less powerful bulb, resulting in reduced energy use.

Outdoor light levels vary significantly from those indoors. The eye can adjust to a wide range of illuminance levels. Luminance is measured in footcandles or lux. A footcandle is the amount of illumination provided one foot away from a one-candela point source, which is very roughly equal to the light of one candle. A lux is the metric unit measure of illuminance; there are approximately

10.7 lux in one footcandle. During the day, light levels can reach over 10,000 footcandles in direct sunlight. Upon entering an office, the eye quickly adjusts to a level of 30 to 50 footcandles. At night, the eye can adjust to see under a full moon, which is roughly 0.01 footcandles. The following table gives a rough approximation of the footcandle values at various levels of light.

Condition	Illumination		Condition	Illumination	
	Footcandles	Lux		Footcandles	Lux
Sunlight	10,000	107,527	Deep Twilight	0.1	1.08
Full Daylight	1,000	10,752.70	Full Moon	0.01	0.108
Overcast Day	100	1,075.30	Quarter Moon	0.001	0.0108
Very Dark Day	10	107.53	Starlight	0.0001	0.0011
Twilight	1	10.75	Overcast Night	0.00001	0.0001

Source: http://www.engineeringtoolbox.com/light-level-rooms-d_708.html

Comprehensive Plan Goals

The proposed ordinance is supported by the 2005 Comprehensive Plan and the City Council Common Goals. In the Comprehensive Plan Implementation Program, the first strategy on page 96 reads: “Amend the Urbana Zoning Ordinance to address appropriate private property lighting standards for commercial and industrial areas.” The proposed ordinance also supports the following goals and objectives from the Comprehensive Plan:

Goal 5.0 Ensure that land use patterns conserve energy.

Objective 5.2 Promote building construction and site design that incorporates innovative and effective techniques in energy conservation.

Goal 17.0 Minimize incompatible land uses.

Objective 17.2 Where land use incompatibilities exist, promote development and design controls to minimize concerns.

As discussed earlier, the proposed ordinance will help conserve energy by requiring light fixtures that do not direct light into the sky. The proposed text amendment will also help reduce land use conflicts, especially where commercial properties impact nearby residences with excessive lighting.

Council Common Goal 5.B also supports the proposed regulations:

Goal 5: Implement the 2005 Comprehensive Plan

- B. Include use of design guidelines, form-based code concepts, modern sign and **lighting standards**, Traditional Neighborhood Development standards, commercial big box store standards, neighborhood business zones, preserving historic neighborhoods, farmland, natural areas and minimizing sprawl as guiding principles (see Comprehensive Plan implementation strategy for complete items and goals). [Emphasis added]

Discussion

The proposed text amendment has been developed using several other ordinances and lighting profession guidebooks, and an information packet from the Planner's Advisory Service. Staff have also discussed how ordinances in other communities have worked with staff at the cities of Normal and Champaign. Additionally, staff attended a presentation at which officials from Homer Glen discussed the formation and administration of their ordinance. Lighting ordinances in other communities range from simple to complex. Some more limited ordinances only prohibit light trespass at the property line, or require minimum levels of light in a parking lot. More comprehensive ordinances may include several requirements.

The proposed ordinance focuses on features designed to reduce light pollution and trespass while increasing security. Designing the ordinance was a collaborative effort involving several City departments, including Public Works, Police, Legal, and Community Development. Staff also received comments on the proposed text amendment from local architects, engineers, and lighting professionals. The regulations are proposed to be added to Article VI of the Zoning Ordinance, which contains development regulations.

It should be noted that street lights are not regulated by the Zoning Ordinance. In general, improvements within the right-of-way are outside the purview of the Zoning Ordinance and are governed by other sections of the Municipal Code. The Public Works Department administers street lighting based on recommended levels provided by the state and Illuminating Engineering Society of North America.

Purpose

Section A outlines the goals of the proposed lighting controls. The goals include promoting the goals, objectives, and policies of the 2005 Urbana Comprehensive Plan, as well as providing modern lighting standards for private property that protect against light trespass and nuisances, promote efficient lighting, and provide for a safe and secure lighting environment appropriate for the context of the areas to be lit. Stating the goals of the ordinance provides guidance and lays a foundation for the regulations contained within the text amendment.

Definitions

Section B of the proposed text amendment introduces definitions pertinent to the regulations that follow. Some of the defined terms do not appear in the text, but are necessary to define terms in other definitions. Since these definitions are specific to the lighting regulations, they are proposed to be placed in the same section of Article VI as the rest of the lighting regulations. This is consistent with other sections of the Zoning Ordinance, such as sign regulations and telecommunication facility provisions.

Applicability

The next section explains when and how this section of the ordinance will apply. Staff is proposing to require that all properties be prohibited from creating excessive glare which can cause a nuisance or hazard. In addition, properties other than single-family homes and duplexes must submit a lighting plan if they are installing a new lighting system. Most of the surveyed ordinances include requirements for a lighting plan. Some were based on number of fixtures or lumens being installed, where others were based on the amount of money spent on construction.

Single family and duplex properties are exempted from most of these requirements in order to allow for continued street and sidewalk lighting in areas without street lights. There are large areas of the City that do not have street lighting. These areas often have homeowner covenants that require a light in the front yard to help light the neighborhood. Exhibit “B”, taken from the 2008 Capital Improvement Plan, shows the areas which do not have street lighting in green. It should be noted that single-family and duplex homes are not often a source of lighting nuisances in Urbana.

The next provision of Section C allows for the Zoning Administrator to alter or waive requirements of the ordinance in consultation with the Building Official if the applicant cites security concerns or other practical difficulties. This allowance of administrative waivers is common to most of the surveyed ordinances. Staff considers lighting to be a technical issue that is best dealt with by the Zoning Administrator in consultation with other officials such as the Building Official, Electrical Inspector, City Engineer, or Police Chief.

In order to obtain a waiver, the applicant would need to provide an alternative lighting plan which adheres to the guidelines of the Illuminating Engineering Society of North America (IESNA). The IESNA provides detailed guidelines for a multitude of lighting situations. Many of the IESNA guidelines were used to form the general regulations found in the proposed text amendment. For example, the proposed ordinance allows building façades to be illuminated at a level of up to five footcandles. This number was based on the average from an IESNA table. The table recommends light levels for seven different lighting contexts. If a property owner wants to illuminate a building with a medium-light surface in an area with bright surroundings, IESNA guidelines would allow for up to seven footcandles of illumination. However, there are several other IESNA guidelines that pertain to façade lighting which would also have to be met, including setback, spacing, angle of projected light and direction fixtures should be aimed.

The applicability section concludes with exceptions to the lighting ordinance. Emergency lights, vehicle lights, holiday lights, and other lights required by law are proposed to be exempt from the provisions of this Ordinance.

General Requirements

The requirements of the text amendment are specified in Sections D and E. Section D addresses requirements for all properties in the City, including single-family and duplex homes, while section E contains specific provisions for multi-family, commercial, and industrial properties.

The first paragraph of Section D restricts glare posing a nuisance or hazard. According to this section, fixtures that cause glare shall be shielded or removed. While the City has long enforced against nuisances, the proposed language will strengthen our ability to eliminate lighting hazards and

nuisances. Previously, the Zoning Ordinance specifically required parking lot and billboard lighting to be screened from adjacent residences. This new provision will require shielding or removal of other types lighting that may cause glare onto other properties.

Façade and landscape lighting are addressed next. When properly controlled, these types of lighting systems can provide aesthetic value to the community. The proposed ordinance aims to ensure light pollution and glare are minimized, while still allowing for creative lighting approaches.

Additional Requirements

Section E is divided into paragraphs on light plan submission requirements, light fixture design, lighting context, and maximum light levels. Lighting plan requirements are proposed in order to allow for a detailed review, ensuring proposed lighting systems conform to the new regulations. Applicants will be required to provide a photometric plan which shows light levels for the entire property. Many new projects do not currently include photometric plans along with their building plan submissions, although larger developments such as national chain stores usually do submit such plans.

In speaking with planners at Normal, Illinois, staff has learned that this requirement was not felt to be onerous by the development community, and that developers adjusted to the change with little difficulty. Developers may obtain such a plan from a professional lighting designer or from the manufacturer of the lighting fixtures. The photometric plan will also contain a summary table for the areas to be lit, indicating the average light level as installed, and the maximum-to-minimum uniformity of light ratio. As discussed earlier, a low uniformity ratio provides for better vision and fewer hiding spaces.

Paragraph 2 of Section E requires full-cutoff luminaires for new area lighting. Full-cutoff means that no light is emitted above the horizontal plane intersecting the bottom of the fixture. This provision reduces light pollution, and will also help with light trespass.

Lighting context, regulated in the next section, is an important concept for safety at night. Since the human eye adjusts to the brightest light level in its field of view, properties which are very brightly lit can be a problem for motorists, bicyclists, and pedestrians. Conversely, inadequate lighting can be a hazard for those coming from well-lit streets into dark private drives and parking lots. The proposed regulations call for lighting designers to take the context of the surrounding streets and properties into consideration when preparing a lighting plan.

Finally, light level and timing requirements are addressed. Maximum to minimum uniformity ratios of the surveyed ordinances varied from 20:1 down to 10:1, meaning that the brightest spot in the measured area is ten to twenty times as bright as the least bright spot. The Illuminating Engineering Society of North America (IESNA) recommends a maximum uniformity level of 20:1 for “basic security” in most parking lots, and a level of 15:1 for areas where “enhanced security” is required. Discussions with lighting professionals revealed that a 15:1 uniformity ratio may be difficult to attain without increasing lighting costs by a significant amount. Consequently, staff is proposing a maximum uniformity ratio of 20:1.

Average initial footcandles are the average level of light for a given area just after installation of the

lighting fixtures. Light bulb intensity diminishes over time, so the initial average represents the most intense light in any given installation. Staff chose to use the same maximum as Normal, Illinois for residential applications, which is one footcandle. For commercial properties, Staff proposes a limit of 2.5 footcandles, based on a survey of other ordinances, which averaged a limit of 3.6 footcandles. An average level of no more than 2.5 footcandles will allow for adequate lighting on commercial properties.

Property line maximums will limit light trespass. Most communities measure these maximums either at five feet above the property line or at ground level six feet into the adjoining property. Surveyed property line maximums ranged from 0.05 to 1, with an average of 0.34. These maximums, combined with a requirement for full-cutoff fixtures should ensure light sources are not visible to neighboring homes. Staff proposes a maximum of 0.1 footcandles at a point six feet beyond the property line for parcels adjacent to single and two-family zoning districts, and 0.2 footcandles for all other districts.

Canopy lighting at fuel and service stations is a specific exception from limits on average light levels that most communities allow. Gas stations have extremely high light levels in order to draw the attention of customers and for the appearance of security. Other cities allow canopy lighting to average between 5 and 40 footcandles, with an average up around 25. Staff considers 25 footcandles to be too bright, creating a potential nuisance to neighboring properties that are reasonably lit. Staff proposes an average of up to 15 footcandles, together with requirements for use of full-cutoff, recessed lighting. Display areas, like gas stations, are usually set at a higher level in order to draw the attention of customers and discourage thieves. Staff proposes allowing a higher light level for these areas as well: 10 footcandles. This is the same level as allowed in the Normal ordinance.

Building entrances and access drives require slightly higher light levels in order to ensure safe conditions. These higher levels will allow drivers to see pedestrians at high traffic areas, such as the entrance to a supermarket.

The last subsection relates to timing and security lighting. Staff is proposing that non-residential properties install timers or light sensors that will extinguish lights once sufficient daylight is available. Turning off fixtures will reduce unnecessary light and conserve energy. The other requirement is for non-residential properties to reduce exterior light levels by two-thirds within one hour of the close of business. Properties will be allowed to keep up to one third of their lights on to secure building entrances and other sensitive areas.

Summary of Findings

1. The proposed text amendment will allow for more modern and specific lighting regulations.
2. The proposed text amendment will reduce the amount of light where it is not wanted, providing for reduced light trespass.
3. The proposed text amendment will promote safety by providing for more even lighting levels.

4. The proposed text amendment will allow the City to have lights that cause hazardous or nuisance glare to be removed.
5. The proposed text amendment will reduce light pollution by requiring full-cutoff fixtures.
6. The proposed text amendment will result in reduced energy consumption for site lighting.
7. The proposed text amendment fulfills a Comprehensive Plan Implementation Strategy and a 2005 City Council Common Goal.
8. The proposed text amendment will help in administration of the Urbana Zoning Ordinance.

Options

In Plan Case 2081-T-08, City Council may:

- a. Approve the proposed amendment as presented herein;
- b. Approve the proposed amendment as modified by specific changes; or
- c. Deny the proposed amendment.

Recommendation

At their March 5, 2009 meeting, the Urbana Plan Commission voted five ayes to zero nays to forward the proposed lighting standards text amendment to City Council with a recommendation for **APPROVAL**, as attached.

Attachments: Exhibit A: Lighting Text Amendment Adopting Ordinance
 Exhibit B: Street Light System Map from 2008 Capital Improvement Plan

ORDINANCE NO. 2009-03-018

**AN ORDINANCE APPROVING A TEXT AMENDMENT TO THE ZONING ORDINANCE
OF THE CITY OF URBANA, ILLINOIS**

**(Addition of Section VI-8, "Outdoor Lighting Standards" -
Plan Case No. 2081-T-09)**

WHEREAS, the City Council of the City of Urbana, Illinois, adopted Ordinance No. 9293-124 on June 21, 1993 consisting of a comprehensive amendment to the 1979 Zoning Ordinance of the City of Urbana, also known as the Urbana Zoning Ordinance; and

WHEREAS, the 2005 Urbana Comprehensive Plan contains goals to promote site design requirements that conserve energy and to minimize incompatible land uses; and

WHEREAS, the 2005 Urbana Comprehensive Plan includes an implementation strategy reading "Amend the Urbana Zoning Ordinance to address appropriate private property lighting standards for commercial and industrial areas"; and

WHEREAS, the City Council Common Goals promote the implementation of the 2005 Urbana Comprehensive Plan and the adoption of lighting standards; and

WHEREAS, the adoption of modern lighting standards for private property will provide for a safe and secure lighting environment, promote efficient use of light and energy conservation, and will protect against light trespass and lighting nuisances; and

WHEREAS, the Urbana Zoning Administrator has requested to amend Article VI of the Urbana Zoning Ordinance to include lighting standards for private property; and

WHEREAS, said text amendment was presented to the Urbana Plan Commission as Plan Case No. 2081-T-08; and

WHEREAS, after due publication in accordance with Section XI-7 of the Urbana Zoning Ordinance and with Chapter 24, Section 11-13-14 of the Illinois Revised Statutes, the Urbana Plan Commission held a public hearing to consider the case on February 5, 2009, which was continued to March 5, 2009; and

WHEREAS, the Urbana Plan Commission voted 5 ayes to 0 nays on March 5, 2009 to forward the proposed text amendment set forth in Plan Case No. 2081-T-08 to the Urbana City Council with a recommendation for approval;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF URBANA, ILLINOIS, that the Urbana Zoning Ordinance shall be amended as follows:

Section 1. Section 8, Outdoor Lighting Requirements, is hereby added to Article VI as follows:

Section VI-8. Outdoor Lighting Requirements

A. Purpose

The purpose of this section is to establish regulations and controls which promote the goals, objectives, and policies of the City of Urbana Comprehensive Plan. These controls aim to provide modern lighting standards for private property that protect against light trespass and nuisances, promote efficient use of light and energy conservation, and provide for a safe and secure lighting environment appropriate for the context of the areas to be lit.

B. Definitions

Candela: A measure of luminous intensity, or power emitted by a light source in a particular direction.

Cutoff Light Fixture: A fixture installed such that the luminous flux at 90 degrees above nadir is less than 5 percent of rated lumens, and less than 20 percent of rated lumens at 80 degrees above nadir.

Fixture (or Luminaire): A device which directs, diffuses, or modifies the light given out by the illuminating source in such a manner as to make its use more economical, effective and safe to the eye. The fixture includes the assembly that holds the lamp in a lighting system, including elements such as the reflector, refractor, housing, and shielding, ballasts in fluorescent and HID (High Intensity Discharge) units, and stems and canopies where used.

Floodlight: a light fixture or lamp which projects light in a wide beam, typically 100 degrees or more.

Footcandle (fc): A unit of measure of luminous flux, the illumination which is produced by a one-candela point source on a surface which is exactly one-foot distant from the point source. All measurements of footcandles shall be in the horizontal plane at ground level unless otherwise specified.

Full Cutoff Light Fixture: A fixture, as installed, designed or shielded in such a manner that all light rays emitted by the fixture, either directly from the lamp(s) or indirectly from the fixture, are projected below a horizontal plane running through the lowest point on the fixture where light is emitted. The luminous flux emitted in the band between 80 degrees and 90 degrees above nadir in all directions is no more than 10 percent of the total luminous flux for the luminaire. A luminaire that meets the Illumination Engineering Society of North America (IESNA) full-cutoff definition shall be considered full cutoff for the purposes of this Ordinance.

Glare: The sensation produced by luminances within the visual field that are sufficiently greater than the luminance to which the eyes are adapted, which causes annoyance, discomfort or loss in visual performance and visibility. Often the result of a direct line of sight to the filament or cathode in a light fixture.

IESNA Standards: Lighting guidelines provided by the IESNA, Illuminating Engineering Society of North America. These standards are found in IESNA guidebooks such as RP-33-99, *Lighting for Exterior Environments* and RP-20-98, *Lighting for Parking Facilities*.

Initial Light Levels: The amount of light produced on a site upon installation of a new lamp. As lamps age, they become less efficient and produce less light. Initial light levels represent the brightest portion of a lamp's life cycle.

Lamp: An artificial source of visible illumination.

Light Pollution: term used to describe light trespass, over-illumination, glare, clutter and/or skyglow from an artificial light source

Light Trespass: light projected onto a property from a fixture not located on that property.

Lumen: quantity of incident luminous flux which will, when uniformly distributed over a surface having an area of one square foot, produce an illumination of one footcandle on every point of the surface. Typical luminous flux values for incandescent bulbs are 100 watts: 1,550 lumens, 75 watts: 1,080 lumens, 60 watts: 780 lumens, and 40 watts: 450 lumens. Note: When luminous flux impinges nonuniformly on a surface, then a lumen is the quantity of luminous flux which will, on a one-square foot surface, produce an average illumination of one footcandle

Luminance: a photometric measure of the luminous intensity per unit area of light travelling in a given direction.

Luminous Flux: The power emitted from a source of electromagnetic radiation, such as a lamp, in the form of visible light. Luminous flux is measured in lumens (lux) or footcandles (fc) and is typically specified by the manufacturer for a given lamp or luminaire.

Nadir: The direction pointing directly downward from the light source of the luminaire.

Spill Zone: The area immediately outside of an area intended to be lit, onto which low levels of excess light may spill.

Spotlight: A light fixture or bulb which projects light in a narrow beam, typically 45 degrees or less.

Uniformity Ratio: A measure of the dispersion of light on an area. For the purposes of this Ordinance, the ratio is measured as maximum light level to minimum light level. Lower uniformity ratios help eliminate places to hide, give better depth perception, and a greater feeling of security to individuals in the area

C. Applicability

1. It shall be unlawful for any person, firm, or institution to install or operate any outdoor light fixture on private property which does not comply with the requirements of this Ordinance. Lighting fixtures on single and two-family residential properties shall not be subject to the requirements of Section IX-8.E.

2. The Zoning Administrator, in consultation with the Building Official, may alter or waive certain requirements of this Section in order to alleviate site security concerns or other practical difficulties. In such cases an alternative lighting plan shall be provided demonstrating that lighting conforms to current IESNA standards.
- 3 Lighting fixtures installed prior to July 1, 2009 and any of the following types of lighting shall be exempt from the requirements of this Ordinance, except that fixtures found by the Zoning Administrator to be a nuisance or cause excessive glare creating a public hazard can be ordered to be removed or altered at any time.
 - a. All temporary lighting needed by the police, fire, public works, or other public agencies or emergency services.
 - b. Vehicular luminaires.
 - c. All hazard warning luminaires required by law.
 - d. Properly permitted recreational and outdoor event lighting during times that the lighted area is actually in use and for a period of one hour before the event and one half hour after. Nonetheless, recreational and outdoor event lighting shall be installed in a way that minimizes light trespassing onto adjacent property.
 - e. Temporary lighting, such as holiday or special event lighting.
 - f. City street lights, traffic lights, and other lighting required for public safety.
 - g. Other exceptions as required by law.

D. General Requirements

The following shall apply to all properties in the City of Urbana, except as noted in Section VI-8.C:

1. Limits on Glare. Outdoor lighting shall not create a glare that hinders sight to the extent that it is hazardous for motorists, bicyclists, or pedestrians. Lighting shall be aimed or shielded so as not to cause a nuisance to the public or nearby properties.
2. Façade and Landscape Lighting.
 - a. Floodlights directed at buildings shall be shielded such that light emitted falls upon the building façade. The initial average exterior building façade luminance shall not exceed five foot candles on the illuminated surface. Floodlights used for facade lighting may be no farther from the building than one-third of the building height. The mounting height of such floodlights shall not exceed the building height.
 - b. The lamp of landscape luminaires shall be shielded such that it is not directly visible from any adjacent properties.

E. Additional Requirements

The following shall apply to all properties except for single-family and duplex uses and as noted in Section VI-8.C:

1. Lighting Plan Submission Requirements. A lighting plan shall be submitted to and approved by the Urbana Building Safety Division prior to installation or replacement of a lighting system. Lighting plans shall not be required for the installation or replacement of less than three fixtures or less than 20 percent of the existing fixtures. Lighting plans shall be submitted for review as a part of the building permit process and shall include the following information:
 - a. A site photometric plan indicating initial footcandle levels in a ten-foot by ten-foot point spacing at grade to a distance of 20 feet beyond the lot lines.
 - b. Specifications for all luminaires, poles, luminaire mounting arms, and lighting control products.
 - c. Lighting specifications including footcandle initial averages, and maximum-to-minimum uniformity ratio for the areas to be lit, excluding the spill zone, in conformance with the requirements of paragraph VI-8.E.4.
 - d. The location, mounting height, lamp intensity for all exterior luminaires.
 - e. An after-hours security lighting plan indicating reduced light levels as specified in VI-8.E.4.
2. Luminaires. In order to prevent unreasonable light pollution, any luminaire and all wall-mounted luminaires used for outdoor area light shall use a non-adjustable, full-cutoff fixture positioned in a way that the cutoff effect is maximized.
3. Lighting Context. Outdoor lighting design must take into account existing light sources that impact the site as well as the presence of sensitive land uses that may be impacted by the lighting.
 - a. In order to prevent over-lighting, proposed new outdoor lighting shall consider existing light affecting the site.
 - b. Outdoor lighting shall have fixtures that shield residential areas from direct light.
4. Light Levels, Luminaire Mounting Position, and Timing.
 - a. In order to help eliminate places to hide, give better depth perception, and a greater sense of security to individuals in the area, lighting levels shall not exceed an initial maximum to minimum uniformity ratio of 20:1 for the areas to be illuminated. Areas to be illuminated may be different for after-hours security lighting as required in this section.

- b. Average initial light levels at ground level shall not exceed one footcandle in residential zoning districts and 2.5 footcandles in all other districts.
- c. Light levels created by proposed new outdoor lighting shall not exceed 0.2 footcandles as measured at a point six feet beyond the property line or farther, except that light levels shall not exceed 0.1 footcandles as measured at a point six feet beyond the property line or farther where the adjacent property is zoned R-1, R-2, or R-3.
- d. Canopy lighting. All lighting under a canopy shall be cutoff or recessed, and no luminaires shall extend below the horizontal plane of the canopy. Light levels under the canopy shall not exceed an initial average of 15 footcandles at grade.
- e. Display areas. Areas dedicated to the display of merchandise may have an initial average light level no greater than ten footcandles while the business on the site is open to the public, and shall have an initial average light level no greater than five footcandles thereafter.
- f. Building entrance areas and access drives shall have an average light level no greater than ten footcandles.
- g. All exterior lighting on non-residential properties shall be controlled by a photo sensor, occupancy sensor, or time switch which shall:
 - i) automatically reduce exterior lighting when sufficient daylight is available, and
 - ii) automatically extinguish subject lights no more than one hour following the close of business on subject property, excluding lighting for security purposes. Security lighting shall not exceed 33 percent of the total light output (in lumens) from all outdoor lighting located on the zoning lot. Individual luminaires shall not emit more light for security lighting purposes.

Section 2. The City Clerk is directed to publish this Ordinance in pamphlet form by authority of the corporate authorities. This Ordinance shall be in full force and effect from and after its passage and publication in accordance with the terms of Chapter 65, Section 1-2-4 of the Illinois Compiled Statutes (65 ILCS 5/1-2-4).

This Ordinance is hereby passed by the affirmative vote, the "ayes" and "nays" being called of a majority of the members of the City Council of the City of Urbana, Illinois, at a regular meeting of said Council on the ____ day of _____, 2009.

PASSED by the City Council this ____ day of _____, 2009.

AYES:

NAYS:

ABSTAINED:

Phyllis D. Clark, City Clerk

APPROVED by the Mayor this _____ day of _____, 2009.

Laurel Lunt Prussing, Mayor

CERTIFICATE OF PUBLICATION IN PAMPHLET FORM

I, Phyllis D. Clark, certify that I am the duly elected and acting Municipal Clerk of the City of Urbana, Champaign County, Illinois. I certify that on the ____ day of _____, 2009, the corporate authorities of the City of Urbana passed and approved "AN ORDINANCE APPROVING A TEXT AMENDMENT TO THE ZONING ORDINANCE OF THE CITY OF URBANA, ILLINOIS (Addition of Section VI-8, "Outdoor Lighting Standards" - Plan Case No. 2081-T-09) which provided by its terms that it should be published in pamphlet form. The pamphlet form of Ordinance No. _____ was prepared, and a copy of such Ordinance was posted in the Urbana City Building commencing on the _____ day of _____, 2009, and continuing for at least ten (10) days thereafter. Copies of such Ordinance were also available for public inspection upon request at the Office of the City Clerk.

DATED at Urbana, Illinois, this _____ day of _____, 2009.

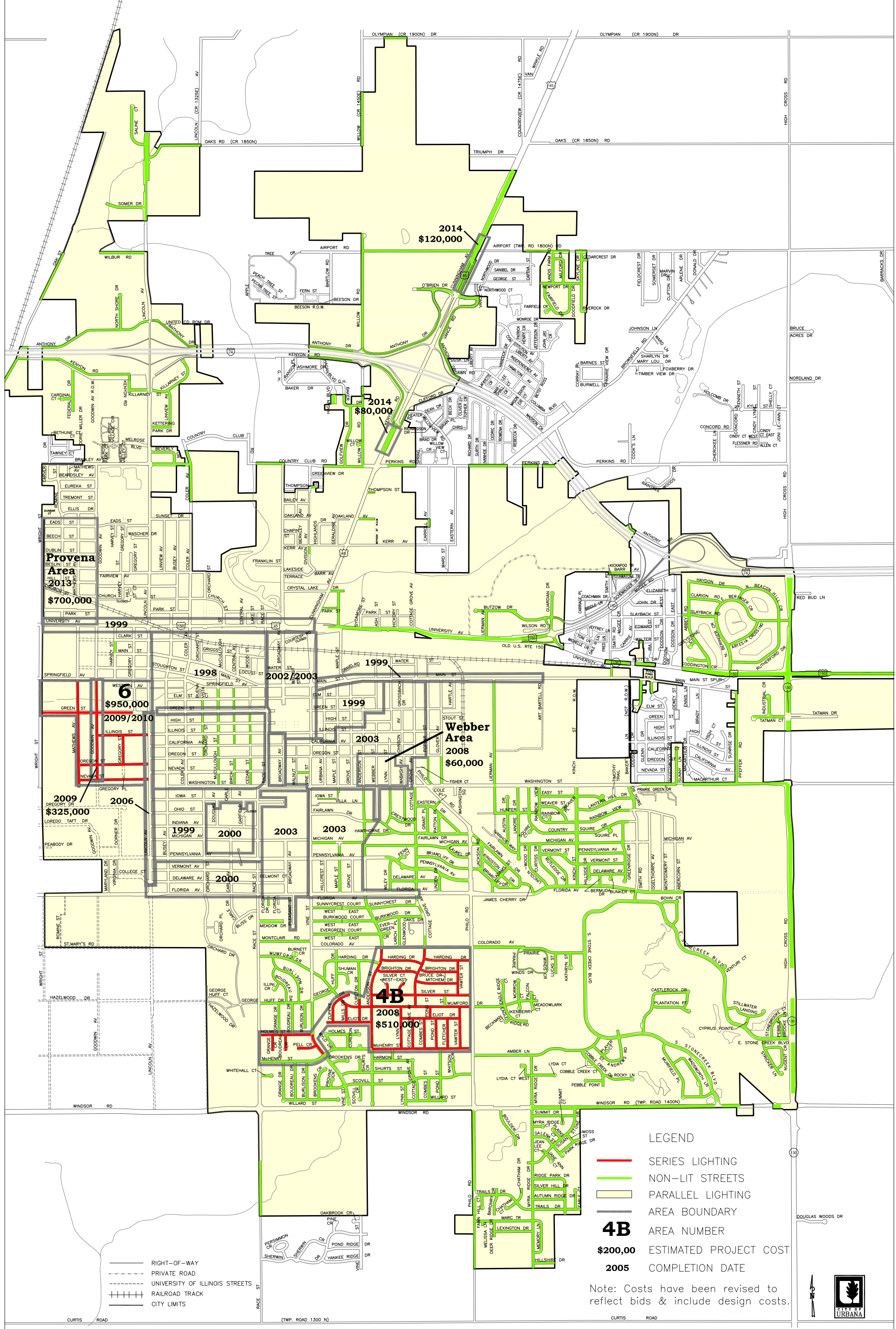


EXHIBIT B
STREET LIGHTING

- - - - - RIGHT-OF-WAY
 - - - - - PRIVATE ROAD
 - - - - - UNIVERSITY OF ILLINOIS STREETS
 + + + + + RAILROAD TRACK
 - - - - - CITY LIMITS

LEGEND
 - - - - - SERIES LIGHTING
 - - - - - NON-LIT STREETS
 - - - - - PARALLEL LIGHTING
 - - - - - AREA BOUNDARY
4B AREA NUMBER
\$200,00 ESTIMATED PROJECT COST
2005 COMPLETION DATE

Note: Costs have been revised to reflect bids & include design costs.



MINUTES OF A REGULAR MEETING

URBANA PLAN COMMISSION

APPROVED

DATE: February 5, 2009
TIME: 7:30 P.M.
PLACE: Urbana City Building
400 South Vine Street
Urbana, IL 61801

MEMBERS PRESENT: Tyler Fitch, Ben Grosser, Lew Hopkins, Bernadine Stake, Don White

MEMBERS EXCUSED: Jane Burris, Michael Pollock, Marilyn Upah-Bant

STAFF PRESENT: Robert Myers, Planning Manager; Jeff Engstrom, Planner I; Teri Andel, Planning Secretary

OTHERS PRESENT: Liila Bagby, Gail Barman, Kyle Clapper, Katie Cowlin, Julia Crowley, Ayesha Johns, Katie Keller, Vicki Kesman, Daniel Lima, Sarah Scott, Edward Tsery, Feng Wang, Jack Washington, Jackie Wilkoz

CONTINUED PUBLIC HEARINGS

Plan Case No. 2081-T-08: Amend the Urbana Zoning Ordinance by adding Section VI-8, Outdoor Lighting Standards.

Jeff Engstrom, Planner I, presented this case to the Plan Commission. He provided a background on the City's regulation of lighting. He cited other nearby cities currently having lighting ordinances and about the benefits of having regulations in place, including security. He discussed energy conservation by directing light where it is needed, lighting context, and light levels. He explained how the proposed ordinance relates to the 2005 Comprehensive Plan. He further discussed the proposed text amendment by reviewing the purpose of the amendment, definitions, applicability, requirements and lighting exceptions. He read the options of the Plan Commission and presented staffs' recommendation, which was as follows:

Based on the evidence presented in the written staff report, and without the benefit of considering additional evidence during the public hearing, staff

recommends that the Plan Commission recommend approval of the proposed lighting standards text amendment to the Zoning Ordinance in its entirety.

Mr. Fitch asked why City staff chose to take the approach of only allowing 33% of the lighting fixtures to be left on after hours rather than lowering light levels altogether. Mr. Engstrom responded by saying that after looking examples of other ordinances, he found that the cities regulate this in different ways, but most of them regulate using the fixture level because it is easier to count the number of lights that are turned on rather than trying to determine the level of a light.

Mr. Fitch asked if a business left the brightest lights on, how would the City deal with this? Mr. Engstrom explained that all lights, including security lights, will be subject to the light trespass limits.

Mr. Fitch inquired about the provision that states, “Average initial light levels at ground level shall not exceed one foot-candle in residential zoning districts...”. Does this apply to R-4 Zoning Districts and higher? Mr. Engstrom replied that it applies to usages of multi-family residential, not just the zoning districts.

Mr. Fitch questioned how a person would figure an AVERAGE of one foot-candle. How can you measure the average of a site with a light meter? Mr. Engstrom stated that the only way to determine light averages is using a computer model. This would be something that the City would require the developers to submit with their site and construction plans.

Ms. Stake inquired as to why City staff would only require businesses to comply on a “complaint basis.” Mr. Engstrom pointed out that to proactively inspect for violations, City staff would have to work at night and drive around to look for violations. The City doesn’t have that capability.

Mr. Grosser wondered if there would be a device used to measure light levels at a particular point. Mr. Engstrom said yes. City staff has a device that measures light levels in foot-candles.

Mr. Grosser questioned if City staff had considered requiring flag lighting to go off at dusk. Mr. Engstrom explained that it is an accepted practice with the American flag (and possibly with the state flag) that if the flag is not taken down at night, then it needs to be lit.

Mr. Grosser commented that the exception for lighting in single-family residential appears to be primarily concerned with street lighting in areas where there is not currently any street lighting. However, it seems to him that some of the purpose of the proposed text amendment is to avoid light pollution. A large portion of the City is taken up by single-family residential. So, did City staff consider extending the proposed text amendment to the rest of single-family residential lighting? Mr. Engstrom responded that after much discussion, City staff determined that it would be unrealistic to require a lighting plan for outdoor home light fixtures, and practically impossible to enforce.

Robert Myers, Planning Manager, asked how do we make single-family homeowners turn in lighting plans? Many times developers leave it up to the future homebuyers to choose where

they would like their homes to be constructed on lots in new single-family subdivisions, which affects where the lighting would be placed. Many home lighting fixtures are put in a single-family home after the development and building plans have been reviewed.

He stated that the proposed text amendment does not pertain to existing development except for nuisance lighting. It really pertains to new commercial, industrial and multi-family development. It would be too complicated and impractical to require it for single-family residential as well.

Ms. Stake asked why the ordinance is written to not take affect until July 2009. Mr. Engstrom responded that there are many projects in the pipeline. The developers of these projects probably already have the lights ordered. Since the development review process is long, it is basically to help ease builders into the new requirements.

With no further questions for City staff from the Plan Commission, Acting Chair Grosser opened the hearing up for public input and testimony. With none, he closed the public input portion of the hearing and opened it up for Plan Commission discussion and/or motion(s).

Mr. Hopkins expressed his concern about the following:

- ◆ Section C: The structuring of the Applicability section should be reorganized. It should begin with a general statement and then list the exceptions. The statement that “everyone must submit a lighting plan” should be mentioned under Section D – Requirements.
- ◆ When staff talked about using nuisance to enforce one of the examples Mr. Myers gave, was it general nuisance? Was it the notion of nuisance as common law, independent of whether something is in an ordinance or is there a nuisance ordinance that the City has in which there is explicit discussion of lighting? There are references in the proposed text amendment that refers to a rule or common law that he believes can already be enforced. If they are going to rely on the Zoning Ordinance to enforce the lighting regulations, then they need to be specific about what constitutes an exception and what does not. It should also be clear that the proposed text amendment does not in any way undermine a citizen’s ability to bring a nuisance complaint about lighting.
- ◆ He expressed his concern about the number of fixtures as a way to measure the amount of after hours lighting. He understands that it is easier to count the number of fixtures that are left on. It might make more sense to dim all of the lighting fixtures. Otherwise, the City will be making it necessary for a business to not light all of their property or to light it less uniformly. For security purposes, a business owner would want to do the opposite. Given that this only applies at the building permit stage for commercial and multi-family residential, the calculation of the level of lighting would be on the applicant.
- ◆ Section E.4 and E.5 are contradictory and confusing in that the proposed text amendment says one thing and the exceptions listed in the text amendment imply another.
- ◆ Regarding Section E.6, he looked up the definition of a “flag” in the Zoning Ordinance. The definition is “any banner held on one side to a pole”, which is a physical definition and not a content definition. So, he could have a flag/sign saying anything as big as he wants and he can light it in any way that he wants without restriction. This creates a problem. Mr. Myers stated that the sign ordinance avoids a content basis for regulation,

and if they try to define a “flag” as something particular such as the American flag, then we would be regulating content. He mentioned that this same issue has been all the way to the Supreme Court. A land use law expert at Washington University advised City staff to avoid defining the content of a flag. With regards to the size of a flag, the City would be entering slippery territory legally. Mr. Hopkins stated that a couple of ways to approach this would be either to not mention it in the proposed ordinance and the other would be to put it in a list which are subject only to the general nuisance principles of lighting.

- ◆ Under Section E.8, he did not understand why ATMs are an exception. Mr. Engstrom explained that an area lighting professional had told him that there are very specific rules for ATMs. ATMs are required to have brighter light levels and even more specific uniformity ratios. City staff felt that they should go by what is in the guidebook and not make ATMs subject to the general provisions. Mr. Hopkins suggested that they word it differently to clarify that lighting standards do apply to ATMs, but that they are required to follow a specific guideline.

Mr. Grosser wondered if there is a definition for “other high risk areas”. Mr. Engstrom said the ordinance doesn’t define that.

Mr. Grosser asked Mr. Hopkins to clarify his concerns on Section D.2. Was Mr. Hopkins suggesting that staff remove the word “nuisance” from the sentence? He feels that single-family residents should be able to question a light that they see as a nuisance, and the Zoning Ordinance should address this. Mr. Hopkins stated that he believes it is important not to impose the building permit review process on single-family and duplex residential uses. In that sense, the bulk of the proposed ordinance does not apply. However, it goes back to a general principle that exceptions to the ordinance do not change the responsibility to avoid nuisance lighting situations. In other words, the ordinance does not enable or make it permissible to create a nuisance just because a single-family residence is an exception in the ordinance.

Mr. White commented that since the proposed ordinance applies primarily to new business construction, he believed it might be to the City’s advantage to have a lighting ordinance that deals primarily with nuisances in residential areas. It should emphasize what outdoor lighting should do, even existing outdoor lighting.

Also, he never understood how one would define a “nuisance”. What might be a nuisance to him might not be a nuisance to someone else. However, including language about foot-candles and distance in a Lighting Nuisance Ordinance would be helpful. He realizes that what he is suggesting is different the proposed Lighting Ordinance, and he does not know if the two could be in the same ordinance.

Mr. Fitch agreed that a Lighting Nuisance Ordinance would be helpful. He wondered what would happen if a business or multi-family structure is in fundamental compliance with the proposed ordinance and someone still deems it a nuisance, then what happens? Would they go to court? Should there be language in the proposed ordinance that there is a presumption against nuisance? Mr. Hopkins stated that this is precisely the issue. Mr. White commented that most nuisance complaints come after construction. Many probably even come after a light bulb has

been changed. Mr. Engstrom pointed out that the nuisance provisions in the proposed ordinance would be enforceable to any property, not just new construction.

Mr. White felt that the nuisance provisions should be removed from the proposed ordinance and put in a different ordinance of its own. Mr. Grosser mentioned that there is a Nuisance Ordinance in the City Code, but not in the Zoning Ordinance or being proposed as part of the text amendment before them.

Mr. Myers added that the existing Zoning Ordinance requirements for nuisance lighting pertains just to parking lot lighting. Second, Mr. Myers commented that it is hard to create a measurable standard for every potential situation. It would be preferable in some ways to have numerical standards for light trespass, rather than a reference to nuisance lighting, but a reference to nuisance is still necessary to catch situations which might otherwise fall through the cracks using just numerical standards.

Mr. White felt that "light trespass" was clearly defined in terms of foot-candles and distance from the property lines. Mr. Engstrom stated that a light that may be a nuisance to one person might have a lower level and might actually be allowed under the trespass requirements. Mr. White believes that "light trespass" is one way to solve some of the problems; although it will not solve all of the problems.

Mr. Grosser remarked that he agrees with Mr. White and Mr. Fitch in that something more specific be created for residential areas. He also acknowledged that the Comprehensive Plan directive was specific to commercial uses.

Mr. Myers agreed having a section for lighting nuisances would clarify things for the average person trying to read the Zoning Ordinance and help them understand how it applies and where.

Mr. White commented that it would help define a nuisance of a lighting trespass if they included a table stating the maximum number of foot-candles and distance from the property line. He realizes that they cannot define all nuisances.

Ms. Stake stated that she is really happy to see the Plan Commission take the time to discuss the proposed text amendment. It seems more and more complicated the more they talk about it. She agreed that they need to think about lighting standards for residential as well.

Acting Chair Grosser continued the case to the next scheduled meeting.

MINUTES OF A REGULAR MEETING

URBANA PLAN COMMISSION

DRAFT

DATE: March 5, 2009

TIME: 7:30 P.M.

PLACE: Urbana City Building – City Council Chambers
400 South Vine Street
Urbana, IL 61801

MEMBERS PRESENT: Jane Burris, Tyler Fitch, Michael Pollock, Bernadine Stake, Don White

MEMBERS EXCUSED: Ben Grosser, Lew Hopkins, Marilyn Upah-Bant

STAFF PRESENT: Robert Myers, Planning Manager; Jeff Engstrom, Planner I; Rebecca Bird, Planner I; Teri Anandel, Planning Secretary

OTHERS PRESENT: Justin Gholson, Vicki Kesman, Diana Martinez, Sergio Mendoza, Danielle Ross, Terry Scudieri, Susan Taylor, Zach Woolard

CONTINUED PUBLIC HEARINGS

Plan Case No. 2081-T-08: Amend the Urbana Zoning Ordinance by adding Section VI-8, Outdoor Lighting Standards.

Jeff Engstrom, Planner I, updated the Plan Commission. He talked about the changes City staff made to the proposed text amendment since first introducing it to the Plan Commission on February 5, 2009. He said that following the previous meeting, City staff presented the draft ordinance to local developers and engineers at the City's Developers' Round Table Luncheon. He gave the staff recommendation, which was as follows:

The Plan Commission forward the proposed Zoning Ordinance text amendment to the City Council with a recommendation for approval.

Mr. Fitch raised a question about the wording of Section E.1 on Page 4 of Exhibit A. It reads, "Lighting plans shall not be required for the installation or replacement of three fixtures or less than 20 percent of the existing fixtures." He then asked if staff intended for it to be the lesser of three fixtures or 20%. If it is three fixtures or 20%, then the only way they would exceed 20% would be if there were 12 total fixtures. Four fixtures would be 25%. He suggested that City staff work on this language a little more. Mr. Engstrom explained that City staff intended for it to mean fewer than three fixtures. He will correct the wording.

Chair Pollock wondered what the remedies are for when someone does something that they are not suppose to do. Mr. Engstrom replied that it depends on the violation. Chair Pollock gave the example of someone putting up lights and not shielding them from the residential lots nearby. Mr. Engstrom responded that the City has the ability to order the developer/business owner to install shields after a light is installed. Robert Myers, Planning Manager, added that this would be a violation of the Zoning Ordinance and would be pursued like other violations. He recently encountered a similar issue with the lights in the Meijer store parking lot. City staff asked Meijers to correct several light fixtures which created a nuisance for adjoining residents. They replaced and shielded the fixtures. However, the current Zoning Ordinance standards for lighting are vague and inadequate.

Chair Pollock inquired as to what kind of comments they received at the Developer's Round Table Luncheon. Mr. Engstrom noted that there were two comments. The first comment was about the need to have flexibility in lighting standards for the aged. The second comment was about projects that have already been started. The proposed ordinance takes both of these issues into account.

With no further questions from the Plan Commission for City staff, Chair Pollock opened the hearing up for public input. There was none, so Chair Pollock closed the public input portion of the hearing and opened it up for Plan Commission discussion and/or motion(s).

Mr. White moved that the Plan Commission forward Plan Case No. 2081-T-08 to the Urbana City Council with a recommendation for approval contingent on staff revising the language in Section E.1 to reflect what was previously discussed. Ms. Burris seconded the motion. Roll call was taken on the motion and was as follows:

Mr. White	-	Yes	Ms. Burris	-	Yes
Mr. Fitch	-	Yes	Mr. Pollock	-	Yes
Ms. Stake	-	Yes			

The motion was approved by unanimous vote. Mr. Myers noted that the case will go before the City Council on March 16, 2009.