DEPARTMENT OF COMMUNITY DEVELOPMENT SERVICES

Planning Division

m e m o r a n d u m

TO: Urbana Plan Commission

FROM: Jeff Engstrom, AICP, Planner I

DATE: January 30, 2009

SUBJECT: Plan Case 2081-T-08: Outdoor Lighting Standards Text Amendment to the Urbana Zoning Ordinance

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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 Goal 5.B and a 2005 Comprehensive Plan Implementation Strategy found on page 96.

The City has always enforced against nuisance lights, but regulations in the Zoning Ordinance were limited. Currently, the Zoning Ordinance only provides that lighting of parking lots and billboards must be screened from adjacent residences. All other lighting, such as yard lighting, security lighting, and stadium lighting is not regulated. The proposed amendment will provide more modern and specific regulations, and provide standards for other outdoor lighting on private property (street lights are subject to separate City policies). It will provide for protection against hazardous and nuisance glare, and will require lighting to be distributed more uniformly, which will improve public safety. The limits set in the proposed ordinance will greatly reduce light trespass and light pollution. Single-family and duplex homes will be subject to a prohibition against lighting that creates nuisances or hazards. Other properties, such as commercial and multi-family parcels, will be subject to more stringent design guidelines that limit light pollution in addition to prohibitions against 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 of the lighting is modified. Current lighting systems will remain unaffected, unless they are found to cause a nuisance or a hazard with glare.

Background

Many cities across the nation and within the state 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 some 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 discomfort or obscures night vision.

Security and safety may also be improved with improved lighting regulations. The human eye adjusts to the brightest objects in its field of view. If there is an uneven distribution of light, with some areas much more brightly lit than others, it can be difficult to see unsafe conditions in the darker areas. Likewise, would-be criminals 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.

A final 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. Hence, less 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, and 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	
	Footcandles	Lux
Sunlight	10,000	107,527
Full Daylight	1,000	10,752.70
Overcast Day	100	1,075.30
Very Dark Day	10	107.53
Twilight	1	10.75

Condition	Illumination	
	Footcandles	Lux
Deep Twilight	0.1	1.08
Full Moon	0.01	0.108
Quarter Moon	0.001	0.0108
Starlight	0.0001	0.0011
Overcast Night	0.00001	0.0001

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

Comprehensive Plan Goals

The proposed ordinance was brought about from 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 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 planners at 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 of the simpler ordinances only prohibit light trespass at the property line, or require minimum levels of light in a parking lot. More complex 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 and engineers. 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. The Public Works Department administers street lighting based on recommended levels provided by the state and Illuminating Engineering Society of North America. 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.

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 or replacing more than 20 percent of the number of existing fixtures. Most of the surveyed ordinances include requirements for a lighting plan. Some were based on number of fixtures or lumens being installed, 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. Single-family and duplex homes are not the source of lighting nuisances in general.

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 other officials such as the Building Official, Electrical Inspector, City Engineer, or Police Chief. The Zoning Administrator's interpretation may be appealed to the Zoning Board of Appeals.

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 very 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 wanted to illuminate a building with a medium-light surface in an area with bright surroundings, the 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.

Requirements

The actual requirements of the text amendment are specified in the Section D. This section

addresses light trespass and light pollution, while providing for adequate safety. Section D is divided into paragraphs on lighting plan requirements, glare, light fixture design, façade and landscape lighting, lighting context, and maximum light levels.

Lighting plan requirements are proposed in order to allow for a detailed review to ensure that 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. Most new projects do not include photometric plans along with their building plan submissions, although larger developments such as national chain stores usually submit such plans. In speaking with planners at Normal, Illinois, staff has learned that this was not felt to be an onerous requirement 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 D restricts glare which may pose a nuisance or hazard. The City shall require fixtures that cause glare to be shielded or removed on a complaint basis. While the City has always enforced against nuisances, the proposed language will strengthen our ability to eliminate lighting hazards and nuisances. Previously, the Zoning Ordinance only required parking lot and billboard lighting to be screened from adjacent residences. This new provision will require shielding or removal of any light that causes glare onto other properties.

Paragraph 3 of Section D requires full-cutoff luminaires for 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.

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 creative lighting approaches.

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 distraction to 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 most parking lots, and a level of 15:1 for areas where security concerns are the greatest. Staff is proposing a maximum uniformity ratio of 15:1 in order to provide a secure environment.

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 all of the ordinances, which range up to 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 turn off two-thirds of their exterior lights 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.

Lighting Exceptions

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

Summary of Staff 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

The Plan Commission has the following options for recommendation to the Urbana City Council. In Plan Case 2081-T-08, the Plan Commission may:

a. forward this case to City Council with a recommendation for approval as presented herein;

b. forward this case to City Council with a recommendation for approval as modified by specific suggested changes; or

c. forward this case to City Council with a recommendation for denial.

Staff Recommendation

Based on the evidence presented in the discussion above, and without the benefit of considering additional evidence that may be presented at the public hearing, staff recommends that the

Commission recommend **APPROVAL** of the proposed lighting standards text amendment to the Zoning Ordinance in its entirety, as presented herein.

Attachments: Exhibit A: Zoning Ordinance Proposed Changes
Exhibit B: Street Light System Map from 2008 Capital Improvement Plan

EXHIBIT A

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 lighting, 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 unintentionally 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.

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

It shall be unlawful for any person, firm, or institution to install any outdoor light fixture on private property which does not comply with the requirements of this Ordinance. For new lighting systems or existing systems in which more than twenty percent of the current total fixtures will be replaced or added, a lighting plan must be submitted to and approved by the Urbana Building Safety Division prior to installation.

Lighting fixtures installed prior to July 1, 2009 shall be exempt from these requirements, 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.

Single and two-family residential uses shall be exempted from the requirements of Section VI-8, except as noted in Paragraph VI-8.D.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 IESNA standards.

D. Requirements

1. Lighting Plan Submission Requirements. 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 in conformance with the requirements of paragraph VI-8.D.6.

    d. The location, mounting height, lamp intensity for all exterior luminaires.

    e. An after hours security lighting plan indicating not more than 33 percent of site lighting fixtures as operational.

2. 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. This shall apply to all properties, including single- and two-family residences.

3. Luminaires. In order to prevent unreasonable light pollution, any luminaire and all wall-mounted luminaires used for area light shall use a full-cutoff fixture positioned in a way that the cutoff effect is maximized.

4. 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. Landscape lighting shall not exceed 1,100 lumens per fixture.

5. Lighting Context. Outdoor lighting must consider 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 must factor in existing light affecting the site.

    b. Outdoor lighting shall have fixtures that shield residential areas from direct light.

6. Light Levels, Luminaire Mounting Position, and Timing.

    a. In order to help eliminate places to hide, give better depth perception, and a greater feeling of security to individuals in the area, lighting levels shall not exceed an initial maximum to minimum uniformity ratio of 15:1 for the areas to be illuminated. Areas to be illuminated may be different for after-hours security lighting as required under paragraph VI-8.D.6.g.

    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 6 feet beyond the property line, except that light levels shall not exceed 0.1 footcandles as measured at a point 6 feet beyond the property line 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. Site security lighting shall not exceed 33 percent of the total fixtures. Individual luminaires shall not emit more light for security lighting purposes.

E. Lighting Exceptions.

The following types of lighting shall be exempt from the requirements of this Ordinance:

1. All temporary lighting needed by the police, fire, public works, or other public agencies or emergency services.

2. Vehicular luminaires.

3. All hazard warning luminaires required by law.

4. 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.

5. Temporary lighting, such as holiday or special event lighting, that does not cause glare which creates a hazard.

6. Lighting of any flag in compliance with Article IX of the Zoning Ordinance.

7. City street lights, traffic lights, and other lighting required for public safety.

8. Automated Teller Machine kiosks and other high-risk areas, provided they meet IESNA standards.

9. Other exceptions as required by law.

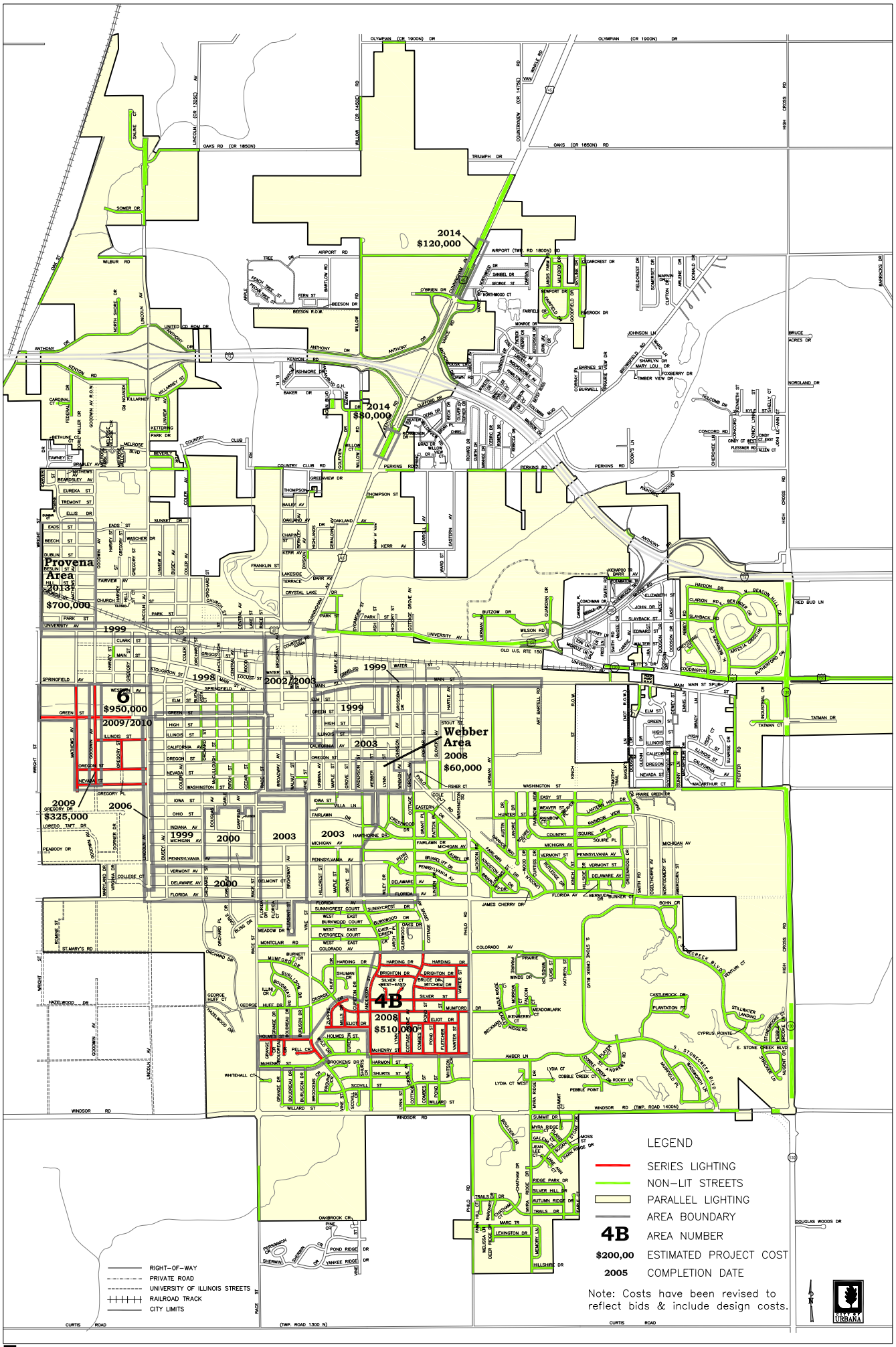

EXHIBIT B
STREET LIGHTING

05/02/08