

**ORDINANCE NO. 688**

**AN ORDINANCE OF THE CITY OF WILSONVILLE AMENDING  
WILSONVILLE CODE SECTION 4.001 – DEFINITIONS AND 4.199 – OUTDOOR  
LIGHTING, TO ACHIEVE COMPLIANCE WITH THE REVISED *OREGON ENERGY  
EFFICIENCY SPECIALTY CODE***

WHEREAS, in 2005 the Wilsonville City Council identified the adoption of outdoor lighting standards as a supporting action to the goal of “improving livability and safety in Wilsonville; and

WHEREAS, in June 2008, the City Council adopted outdoor lighting standards via Ordinance No. 648; and

WHEREAS, at the time of adoption it was recognized that the State of Oregon was working on creating new energy standards in the *Oregon Energy Efficiency Specialty Code* to address outdoor lighting requirements; and

WHEREAS, Legislative action in 2009 (SB-79) mandated that the *2010 Oregon Energy Efficiency Specialty Code* reduce energy consumption by 10-15% in residential construction and by 15-25% in commercial and industrial construction by the year 2012; and

WHEREAS, the adoption of the *2010 Oregon Energy Efficiency Specialty Code* fulfills this legislative action in commercial/industrial construction with the residential portion presently under development and scheduled for adoption in April of 2011; and

WHEREAS, the City’s adopted Outdoor Lighting standards are now found to be stricter than the requirements found in the *2010 Oregon Energy Efficiency Specialty Code* and as a result must be modified to be consistent with the State code; and

WHEREAS, after providing public notice to affected parties inviting comment on the proposal, the Planning Commission held a public hearing on this matter on September 8, 2010, receiving no public comment; and

WHEREAS, following deliberation on the matter, the Planning Commission forwarded a unanimous recommendation of approval of the proposal to the City Council; and

WHEREAS, the City Council held a duly noticed public hearing on November 1, 2010, affording interested parties an opportunity to comment on the proposed Planning and Land Development Code amendments.

NOW, THEREFORE, THE CITY OF WILSONVILLE ORDAINS AS FOLLOWS:

**Section 1.** Findings. The Council adopts the foregoing recitals as findings and conclusions, and adopts the staff report in the matter, attached hereto as **Exhibit 1**, as if set forth fully herein.

**Section 2.** Amendments. Wilsonville Code Section 4.001, Definitions, is hereby amended as follows. The **bold text** is inserted:

110. **Foot Candle.** The **unit of** density of luminous flux (lumens) incident at a point on a surface having an area of one square foot.

**Section 3.** Amendments. Wilsonville Code Section 4.199, Outdoor Lighting, is hereby amended as follows. The **bold text** is inserted, ~~strikethrough text~~ is deleted:

Section 4.199 OUTDOOR LIGHTING

- Section 4.199.10 Outdoor Lighting In General.
- Section 4.199.20 Applicability.
- Section 4.199.30 Lighting Zones.
- Section 4.199.40 Lighting Systems Standards for Approval.
- Section 4.199.50 Submittal Requirements.
- Section 4.199.60 Major Additions or Modifications.

Section 4.199.10. Outdoor Lighting In General.

- (.01) Purpose: The purpose of this Code is to provide regulations for outdoor lighting that will:
- A. Permit reasonable uses of outdoor lighting for nighttime safety, utility, security, productivity, enjoyment and commerce.
  - B. Conserve energy and resources to the greatest extent possible.
  - C. Minimize glare, particularly in and around public rights-of-way; and reduce visual discomfort and improve visual acuity over large areas by avoiding “light islands” and “spotlighting” that result in reduced visual perception in areas adjacent to either the source of the glare or the area illuminated by the glare.
  - D. Minimize light trespass, so that each owner of property does not cause unreasonable light spillover to other property.
  - E. Curtail the degradation of the nighttime environment and the night sky.
  - F. Preserve the dark night sky for astronomy and enjoyment.
  - G. Protect the natural environment, including wildlife, from the damaging effects of night lighting from human sources.

- (.02) Purpose Statement as Guidelines: Declaration of purpose statements are guidelines and not approval criteria in the application of WC Section 4.199.

Section 4.199.20. Applicability.

- (.01) This Ordinance is applicable to:
- A. Installation of new exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas.
  - B. Major additions or modifications (as defined in this Section) to existing exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas.
- (.02) Exemption. The following luminaires and lighting systems are EXEMPT from these requirements:
- A. Interior lighting.
  - B. Internally illuminated signs.
  - C. Externally illuminated signs.
  - D. Temporary lighting for theatrical, television, and performance areas.
  - E. Lighting in swimming pools and other water features governed by Article 680 of the National Electrical Code.
  - F. Building Code required exit path lighting.
  - G. Lighting specifically for stairs and ramps.
  - H. Temporary and seasonal lighting provided that individual lamps are 10 watts or less.
  - I. Lighting required and/or regulated by the City (i.e. construction related activities), Federal Aviation Administration, U.S. Coast Guard or other Federal or State agency.
  - J. Single-family residential lighting.
  - K. Code Required Signs.
  - L. American flag.
  - M. Landscape lighting.
  - N. Lights approved by the City through an Administrative Review Temporary Use Permit process.
  - O. Public street lights.
  - P. ATM security lighting.
  - Q. Those 'Exceptions' listed in the 'Exterior Lighting Power Allowance' provisions of the *Oregon Energy Efficiency Specialty Code*.**

Section 4.199.30. Lighting Overlay Zones.

- (.01) The designated Lighting Zone as indicated on the Lighting Overlay Zone Map for a commercial, industrial, multi-family or public facility parcel or project shall determine the limitations for lighting systems and fixtures as specified in this Ordinance.
- A. Property may contain more than one lighting zone depending on site conditions and natural resource characteristics.
- (.02) The Lighting Zones shall be:
- A. ~~LZ 0. Critical dark environments, sensitive wildlife areas and parks. This zone shall not be applied to areas zoned commercial, industrial, residential or agricultural.~~
- B. LZ 1. Developed areas in City and State parks, recreation areas, SROZ wetland and wildlife habitat areas; developed areas in natural settings; sensitive night environments; and rural areas. This zone is intended to be the default condition for rural areas within the City.
- C. LZ 2. Low-density suburban neighborhoods and suburban commercial districts, industrial parks and districts. This zone is intended to be the default condition for the majority of the City.
- D. LZ 3. Medium to high-density suburban neighborhoods and districts, major shopping and commercial districts as depicted on the Lighting Overlay Zone Map.
- E. LZ 4. Reserved for limited applications with special lighting requirements. This zone is appropriate for users who have unique site or operating circumstances that warrant additional light. This zone shall not be applied to residential or agricultural areas.
- (.03) Modification of Lighting Zones.
- A. The City Council may modify the designated Lighting Zones of one or more parcels if the City Council finds that the original Lighting Zone was in error, a change in circumstances has occurred warranting the change since the designation was established or the purposes of this section are better served.
- B. The Development Review Board (DRB) may modify the designated Lighting Zones as part of the Stage II, Site Design Review Process if the DRB finds that the original Lighting Zone was in error, or a change in circumstances has occurred warranting the change since the designation was established or the purposes of this section are better served.
- C. This ordinance establishes a Lighting Overlay Zone Map. The Planning Division shall maintain the current Lighting Overlay Zone Map.

Section 4.199.40. Lighting Systems Standards for Approval.

- (.01) Non-Residential Uses and Common Residential Areas.

- A. All outdoor lighting shall comply with either the Prescriptive Option or the Performance Option below.
- B. Prescriptive Option. If the lighting is to comply with this Prescriptive Option, the installed lighting shall meet all of the following requirements according to the designated Lighting Zone.
1. The maximum luminaire lamp wattage and shielding shall comply with Table 7.
  2. ~~The total lighting power for the site shall be less than or equal to the allowed lighting power. The allowed lighting power shall be determined according to Table 8.~~ **Except for those exemptions listed in Section 4.199.20(.02), the exterior lighting for the site shall comply with the *Oregon Energy Efficiency Specialty Code, Exterior Lighting*.**
  3. The maximum pole or mounting height shall be consistent with Table 8 9.
  4. Each luminaire shall be set back from all property lines at least 3 times the mounting height of the luminaire:
    - a. Exception 1: If the subject property abuts a property with the same base and lighting zone, no setback from the common lot lines is required.
    - b. Exception 2: If the subject property abuts a property which is zoned (base and lighting) other than the subject parcel, the luminaire shall be setback three times the mounting height of the luminaire, measured from the abutting parcel's setback line. (Any variance or waiver to the abutting property's setback shall not be considered in the distance calculation).
    - c. Exception 3: If the luminaire is used for the purpose of street, parking lot or public utility easement illumination and is located less than 3 mounting heights from the property line, the luminaire shall include a house side shield to protect adjoining property.
    - d. Exception 4: If the subject property includes an exterior column, wall or abutment within 25 feet of the property line, a luminaire partly shielded or better and not exceeding 60 lamp watts may be mounted onto the exterior column, wall or abutment or under or within an overhang or canopy attached thereto.
    - e. Exception 5: Lighting adjacent to SROZ areas shall be set back 3 times the mounting height of the luminaire, or shall employ a house side shield to protect the natural resource area.
- C. Performance Option. If the lighting is to comply with the Performance Option, the proposed lighting design shall be submitted by the applicant for approval by the City meeting all of the following:
1. The weighted average percentage of direct uplight lumens shall be less than the allowed amount per Table 9 10.
  2. The maximum light level at any property line shall be less than the values in Table 9 10, as evidenced by a complete photometric analysis including horizontal illuminance of the site and vertical illuminance on the plane facing

the site up to the mounting height of the luminaire mounted highest above grade. The Building Official or designee may accept a photometric test report, demonstration or sample, or other satisfactory confirmation that the luminaire meets the shielding requirements of Table 7. Luminaires shall not be mounted so as to permit aiming or use in any way other than the manner maintaining the shielding classification required herein:

- a. Exception 1. If the property line abuts a public right-of-way, including a sidewalk or street, the analysis may be performed across the street at the adjacent property line to the right-of-way.
- b. Exception 2. If, in the opinion of the Building Official or designee, compliance is impractical due to unique site circumstances such as lot size or shape, topography, or size or shape of building, which are circumstances not typical of the general conditions of the surrounding area. The Building Official may impose conditions of approval to avoid light trespass to the maximum extent possible and minimize any additional negative impacts resulting to abutting and adjacent parcels, as well as public rights-of-way, based on best lighting practices and available lighting technology.

3. The maximum pole or mounting height shall comply with Table 8 9.

D. Curfew. All prescriptive or performance based exterior lighting systems shall be controlled by automatic device(s) or system(s) that:

1. Initiate operation at dusk and either extinguish lighting one hour after close or at the curfew times according to Table 10 44; or
2. Reduce lighting intensity one hour after close or at the curfew time to not more than 50% of the requirements set forth in **the Oregon Energy Efficiency Specialty Code Table 8** unless waived by the DRB due to special circumstances; and
3. Extinguish or reduce lighting consistent with 1. and 2. above on Holidays.

The following are exceptions to curfew:

- a. Exception 1: Building Code required lighting.
- b. Exception 2: Lighting for pedestrian ramps, steps and stairs.
- c. Exception 3: Businesses that operate continuously or periodically after curfew.

(.02) Special Permit for Specific Lighting Fixtures and Systems and When Exceeding Lighting Requirements.

- A. This section is intended to apply to situations where more than normal foot candles are required due to a unique circumstance or use or where it is absolutely essential to perform the proposed activities after dark. All special permits shall be reviewed by the DRB.
- B. Upon issuance of a special permit by the Development Review Board (DRB), lighting systems not complying with the technical requirements of this Ordinance may be installed, maintained, and replaced for lighting that exceeds the

maximums permitted by this Ordinance. This section is intended to be applied to uses such as sports lighting systems including but not limited to, sport fields and stadiums, such as baseball and football field lighting, tennis court lighting, swimming pool area lighting and prisons; other very intense lighting defined as having a light source exceeding 200,000 lumens or an intensity in any direction of more than 2,000,000 candelas; building façade lighting of portions of buildings over two stories high; and public monuments.

- C. To obtain such a permit, applicants shall demonstrate that the proposed lighting installation:
  - 1. Is within Lighting Zone 3 or above.
  - 2. Has been designed to minimize obtrusive light and artificial sky glow, supported by a signed statement from a registered civil or electrical engineer describing the mitigation measures. Such statement shall be accompanied by calculations indicating the light trespass levels (horizontal and vertical at ground level) at the property line.
  - 3. Will not create excessive glare, sky glow, or light trespass beyond that which can be reasonably expected by application of best lighting practices, and available technology.
  - 4. Provides appropriate lighting curfew hours based on the use and the surrounding areas.
- D. The DRB may impose conditions of approval to mitigate any negative impacts resulting to the abutting parcel, based on best lighting practices and available lighting technology.
- E. The City may charge a review fee and may, at the Building Official's option, employ the services of a qualified professional civil or electrical engineer to review such submittals and the cost thereof shall be an additional fee charged to the applicant.

Section 4.199.50. Submittal Requirements.

- (.01) Applicants shall submit the following information as part of DRB review or administrative review of new commercial, industrial, multi-family or public facility projects:
  - A. A statement regarding which of the lighting methods will be utilized, prescriptive or performance, and a map depicting the lighting zone(s) for the property.
  - B. A site lighting plan that clearly indicates intended lighting by type and location. For adjustable luminaires, the aiming angles or coordinates shall be shown.
  - C. For each luminaire type, drawings, cut sheets or other documents containing specifications for the intended lighting including but not limited to, luminaire description, mounting, mounting height, lamp type and manufacturer, lamp watts, ballast, optical system/distribution, and accessories such as shields.
  - D. Calculations **demonstrating compliance with Oregon Energy Efficiency Specialty Code, Exterior Lighting, as modified by Section 4.199.40(.01) B. 2. of**

~~allowed lighting power and actual lighting power demonstrating compliance with power limits.~~

- E. Lighting plans shall be coordinated with landscaping plans so that pole lights and trees are not placed in conflict with one another. The location of lights shall be shown on the landscape plan. Generally, pole lights should not be placed within one pole length of landscape and parking lot trees.
  - F. Applicants shall identify the hours of lighting curfew.
- (.02) In addition to the above submittal requirements, Applicants using the Prescriptive Method shall submit the following information as part of the permit set plan review:
- A. A site lighting plan (items 1 A - F, above) which indicates for each luminaire the 3 mounting height line to demonstrate compliance with the setback requirements. For luminaires mounted within 3 mounting heights of the property line the compliance exception or special shielding requirements shall be clearly indicated.
- (.03) In addition to the above submittal requirements, Applicants using the Performance Method shall submit the following information as part of the permit set plan review:
- A. Site plan showing horizontal isocandle lines, or the output of a point-by-point computer calculation of the horizontal illumination of the site, showing property lines and light levels immediately off of the subject property.
  - B. For each side of the property, the output of a point-by-point vertical footcandle calculation showing illumination in the vertical plane at the property line from grade to at least 10 feet higher than the height of the tallest pole.
  - C. Lighting plans shall be prepared by a qualified licensed engineer.
- (.04) In addition to the above applicable submittal requirements, Applicants for Special Permits shall submit the following to the DRB for review:
- A. Tabulation of International Engineering Society of North America (IESNA) lighting recommendations for each task including area illuminated, recommended illumination level, actual maintained illumination level, and luminaires used specifically to achieve the indicated criteria.
  - B. Lighting plans shall be prepared by a qualified licensed engineer.
- (.05) For all calculations, the following light loss factors shall be used unless an alternative is specifically approved by the City:
- |                       |             |
|-----------------------|-------------|
| Metal halide          | 0.6         |
| High pressure sodium  | 0.8         |
| Compact fluorescent   | 0.7         |
| Full size fluorescent | 0.75        |
| Incandescent          | 0.9         |
| Halogen               | 0.95        |
| Other                 | As approved |



Section 4.199.60. Major Additions or Modifications to Pre-Existing Sites.

(01.) Major Additions. If a major addition occurs on a property, all of the luminaires on the site shall comply with the requirements of this Section. For purposes of this subsection, the following are considered to be major additions:

- A. Additions of 50 percent or more in terms of additional dwelling units, gross floor area, seating capacity, or parking spaces, either with a single addition or with cumulative additions after July 2, 2008.
- B. Modification or replacement of 50 percent or more of the outdoor lighting luminaries' within a 5-year timeframe existing as of July 2, 2008.

Table 7: Maximum Wattage And Required Shielding

Lighting Zone	Fully Shielded	Shielded	Partly Shielded	Unshielded
LZ 0	55	None permitted	None permitted	None permitted
LZ 1	70	20	13	Low voltage landscape lighting 50 watts or less
LZ 2	100	35	39	Low voltage landscape lighting 50 watts or less
LZ 3	250	100	70	Landscape and facade lighting 100 watts or less; ornamental lighting on private streets of 39 watts and less
LZ 4	450	150	150	Landscape and facade lighting 250 watts or less; ornamental lights on private streets and lanterns 70 watts or less; marquee lighting not employing medium based lamps

**Table 8: Allowed Lighting Power Density**

(watts per square foot (w/ft<sup>2</sup>) unless otherwise noted)

Determine the allowed lighting power for each application by multiplying the area in plan by the allowed lighting power density for the application. Only one lighting power allowance can be claimed for an allowed area. The actual lighting power must be equal to or less than the sum of the allowed lighting power for all applications.

Lighting Application	Allowed Area	LZ 0	LZ 1	LZ 2	LZ 3	LZ 4
Hardscape	Paved area plus 5 feet of the perimeter of adjacent unpaved land. Includes planters and landscaped areas less than 10 feet wide that are enclosed by hardscape on at least three sides	0.03	0.05	0.07	0.09	0.20
Building entrances <sup>‡</sup>	Per Door (stated values are watts, not watts per square foot).	13	18	26	32	70
Building entry, drive-up sales, and general use canopies	Drip line area under canopy.	Not allowed	0.10	0.20	0.40	0.70
Vehicle Service Station Canopy	Drip line area under canopy	Not allowed	0.30	0.60	1.20	2.40
Outdoor Sales, Service or Industrial Lot	Portion of uncovered hardscape used exclusively for display of vehicles or other merchandise for sale, for the service of vehicles, aircraft or watercraft, or for exterior manufacturing.	Not allowed	0.25	0.45	0.90	1.80
Ornamental Lighting	Entire site	Not allowed	Not allowed	0.010	0.020	0.04
Building Facade	Square foot of illuminated facade	0.00	0.00	0.18	0.35	0.50
Landscape Lighting	Landscaped area	Exempt	Exempt	Exempt	Exempt	Exempt
ATM Security Lighting	Within 5 feet of ATM facility	Exempt	Exempt	Exempt	Exempt	Exempt
Flagpole lighting	Illuminating flags on flagpole	Exempt	Exempt	Exempt	Exempt	Exempt

<sup>‡</sup>In addition to area lighting, an additional allowance per door is permitted.

**Table 9 8: Maximum Lighting Mounting Height In Feet**

Lighting Zone	Lighting for private roads, driveways, parking, bus stops and other transit facilities	Lighting for walkways, bikeways, plazas and other pedestrian areas	All other lighting
LZ 0	20	8	4
LZ 1	25	12	4
LZ 2	40	18	8
LZ 3	40	18	16
LZ 4	Height limit to be determined by Special Use Permit Only		

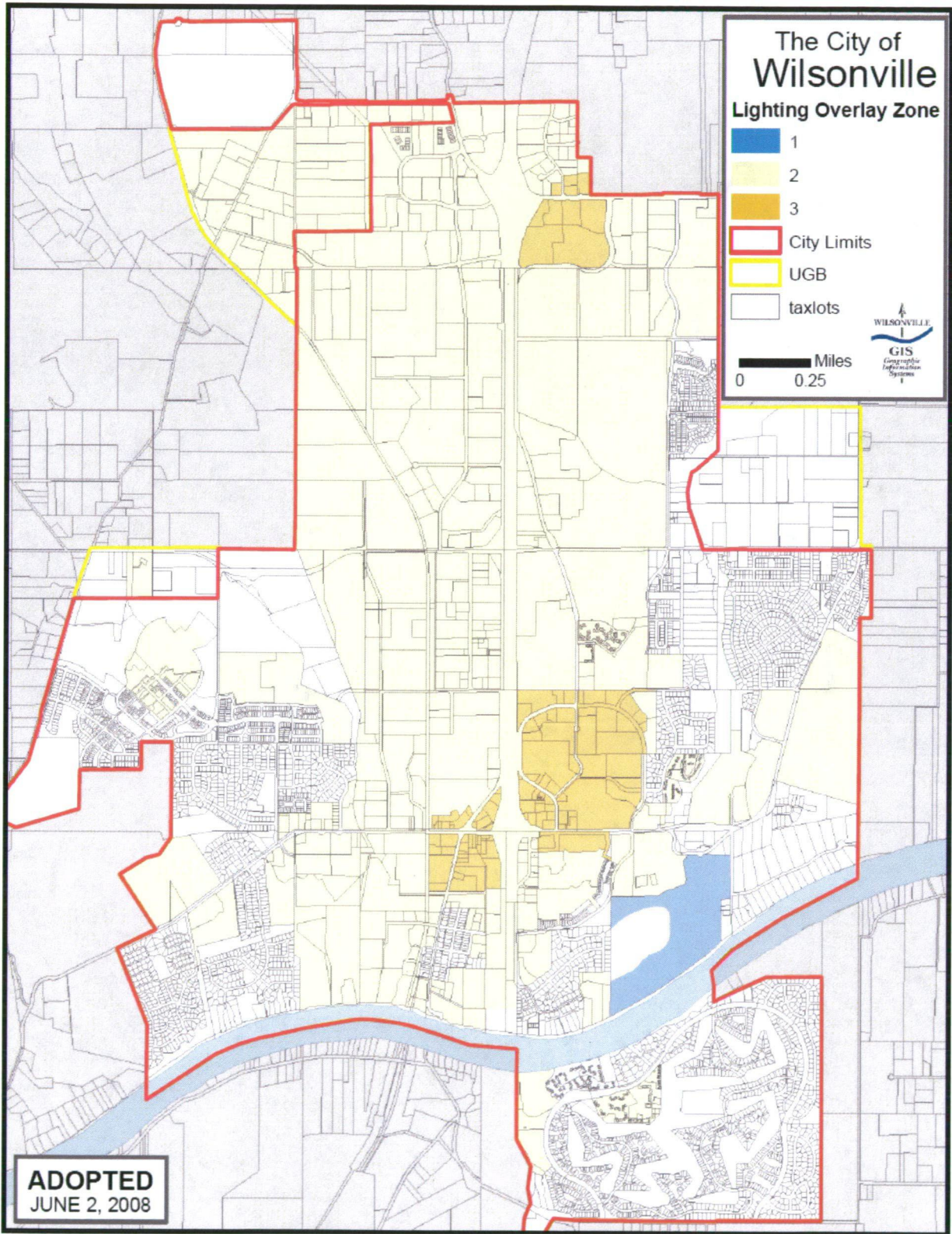
Lighting mounted onto buildings or other structures shall not exceed a mounting height greater than 4 feet higher than the tallest part of the building or structure at the place where the lighting is installed, nor higher than 33.33 percent of the horizontal distance of the light from the nearest property line, whichever is less.

**Table 10 9: Performance Method**

Lighting Zone	Maximum percentage of direct upright lumens	Maximum Light Level at Property Line	
		Horizontal plane at grade (foot candles - fc)	Vertical plane facing the site in question, from grade to mounting height of highest mounted luminaire (foot candles - fc)
LZ 0	0	0.01 fc	0.02 fc
LZ 1	1%	0.05 fc	0.1 fc
LZ 2	5%	0.2 fc	0.4 fc
LZ 3	10%	0.4 fc	0.8 fc
LZ 4	20%	0.8 fc	1.6 fc

**Table 11 10: Curfew**

Lighting Zone	Curfew Time
LZ 0	8:00 PM (2000 hours)
LZ 1	
LZ 2	10:00 PM (2200 hours)
LZ 3	Midnight (2400 hours)
LZ 4	



• Figure 30: Lighting Overlay Zone Map

[Section 4.199 – 4.199.60 added by Ord. No. 649, adopted 6/2/08]

**Section 4. Directive.** The City Council hereby authorizes and directs the City Recorder to make any conforming changes necessary to amend the Wilsonville Code (WC) in keeping with the adoption of these revisions.

**Section 5. Severability.** In the event any provisions of this Ordinance shall be held invalid or unenforceable by any court of competent jurisdiction, such holding shall not invalidate or render unenforceable any other provision hereof.

SUBMITTED to the Wilsonville City Council and read for the first time at a regular meeting thereof on the 1<sup>st</sup> day of November, 2010, at the hour of 7:00 p.m. at the Wilsonville City Hall, 29799 SW Town Center Loop East, Wilsonville, Oregon, and scheduled for second reading on the 15<sup>th</sup> day of November, 2010, commencing at the hour of 7:00 p.m. at the Wilsonville City Hall.

  
\_\_\_\_\_  
Sandra C. King, MMC, City Recorder

ENACTED by the City Council on the 15th day of November, 2010, by the following votes: YEAS: -5- NAYS: -0-

  
\_\_\_\_\_  
Sandra C. King, MMC, City Recorder

DATED and signed by the Mayor this 16<sup>th</sup> day of November, 2010.

  
\_\_\_\_\_  
Tim Knapp, Mayor

**SUMMARY OF VOTES:**

Mayor Knapp	<u>Yes</u>
Councilor Kirk	<u>Yes</u>
Councilor Nunez	<u>Yes</u>
Councilor Hurst	<u>Yes</u>
Councilor Goddard	<u>Yes</u>

**Attachments:**

Exhibit 1: Planning Division Staff Report dated October 25, 2010  
Exhibit 2: Planning Commission Hearing Record

**WILSONVILLE PLANNING DIVISION**  
**Legislative STAFF REPORT**

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**HEARING DATE:** November 1, 2010

**DATE OF REPORT:** October 25, 2010

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**APPLICATION NO:** LP10 - 0003

**REQUEST:** Proposed minor modifications to Sections **4.001 – Definitions and 4.199 – Outdoor Lighting** of the Planning and Land Development Ordinance (Wilsonville’s Development Code) to achieve compliance with the recently adopted energy standards contained in the *Oregon Energy Efficiency Specialty Code*.

**LOCATION:** Planned Development Industrial (PDI), Planned Development Commercial (PDC), multi-family residential (PDR 4, 5, 6 and 7) Public Facilities Zones, as well as Residential-Agricultural Holding (RA-H) Zoned lands when they develop consistent with the Comprehensive Plan (future designation of commercial, industrial, public or high-density residential).

**APPLICANT:** City of Wilsonville

**STAFF REVIEWER(S):** Chris Neamtzu, AICP, Planning Director and Martin Brown, Building Official

**APPLICABLE REVIEW CRITERIA:**

Wilsonville Comprehensive Plan: Goals 1.1 and 1.2- Citizen Involvement: Policy 1.1.1, 1.2.1, 4.1.2, 4.1.3 and 4.1.5; Implementation Measures 1.1.1a, e, f; 3.1.13.d; 4.1.2.a; 4.1.3.a; 4.1.3.b; 4.1.3.d; 4.1.3.g;

Planning and Land Development Ordinance: Section: 4.197: Zone Changes and Amendments to this Code - Procedures; and 4.199: Outdoor Lighting.

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**SUMMARY:**

On September 8, 2010 the Planning Commission conducted a public hearing on minor revisions to the Outdoor Lighting standards (WC 4.199) to achieve compliance with the recently adopted energy standards contained in the 2010 *Oregon Energy Efficiency Specialty Code*. Following deliberations, the Commission forwarded a unanimous recommendation of approval to the City

Council. There was no public testimony received as part of the public hearing process and Staff has not received any comments following the Commission hearing.

As part of the hearing the Planning Commission did approve three small corrections to the Staff proposal. They are:

1. Amend the first sentence of the finding for Implementation Measure 4.1.2.a on Page 8 of 27 of the September 1, 2010 staff report to state, "The Outdoor Lighting standards protect residential areas of the community from excessive light *from commercial or industrial uses.*"
2. Correct Section 4.001.110 Definition for "Foot Candle" on page 11 of 27 of the September 1, 2010 report to read, "Foot Candle. The *unit of* density of luminous flux (lumens) incident at a point on a surface having an area of one square foot." This language was unintentionally omitted.
3. Correct Section 4.199.20(02)(Q) on Page 15 of 27 of the September 1, 2010 staff report to state, "Those 'Exceptions' listed in the 'Exterior Lighting Power Allowance' provisions *of the Oregon Energy Efficiency Specialty Code.*"

Legislative action in 2009 (SB-79) mandated that the 2010 *Oregon Energy Efficiency Specialty Code* reduce energy consumption by 10-15% in residential construction and by 15-25% in commercial and industrial construction by the year 2012. The adoption of the 2010 Energy Code fulfills this legislative action in commercial/industrial construction. The residential portion of the Senate Bill is presently under development and is scheduled for adoption in April of 2011.

Summary of Lighting Changes:

- Interior lighting density standards reduced
- Lighting controls increased
- Scope expanded to regulate exterior lighting including parking lot lighting

The lighting section of the *Oregon Energy Efficiency Specialty Code* is the part that affects the City's Outdoor Lighting Ordinance requiring amendments for consistency. Specifically, the lighting levels in 'Table 8 - Allowed Lighting Power' are proposed to be deleted from the City Code and replaced with a reference to the lighting levels included in the *Oregon Energy Efficiency Specialty Code*.

When the City adopted outdoor lighting regulations via Ordinance No. 648 in June 2008, city staff was aware of the general direction the State was headed in developing the new standards and was able to create a code that could be modified once the final State version was completed. The City's adopted ordinance is stricter than the State code, and as a result must be modified to be consistent with the State code. The creation of lighting zones and the overall



format of the City ordinance were informed by the State energy committee's early work, and city lighting consultant, Mr. Jim Benya assisted both the City and the State with code writing.

**Summary of Proposed Changes to WC 4.199 - Outdoor Lighting:**

1. Addition of a new reference in the 'Exemption' section (WC 4.199.20 (.02) Q.) of the Ordinance to include the exceptions listed in the *Oregon Energy Efficiency Specialty Code*.
2. Deletion of reference to Lighting Zone LZ0. LZ0 is reserved for critical dark sky environments found in areas such as National Wildlife Refuges, which are not included in the city today or in the foreseeable future. The State Code does not include LZ0.
3. Proposed language in the "Prescriptive Option" section (4.199.40(.01) B.) referencing the exemptions section (4.199.20 (.02)) and the *Oregon Energy Efficiency Specialty Code*.
4. Proposed language in the Submittal Requirements Section (4.199.50 (.01) D.) referencing the *Oregon Energy Efficiency Specialty Code* exterior lighting section.
5. Proposed deletion of Table 8: Allowed Lighting Power Density. This is the section of the City Ordinance that is more restrictive than the State Code and therefore needs to be deleted in its entirety to achieve consistency.
6. Deletion of reference to LZ0 in Tables 7, new 8, 9 and 10.
7. Renumbering of tables and associated references due to the deletion of Table 8.

**Planning Commission Process:**

- Following mailing of the public hearing notice to interested individuals, agencies, owners of commercial, industrial, public and multi-family housing, Staff received one phone call inquiry on the draft proposal from the manager of the Wilsonville Suites (formerly the Phoenix Inn). His questions related to how their plans for remodeling the exterior of the hotel could be affected by the proposed outdoor lighting changes. Since their architectural changes did not include lighting, there is no impact.
- At the August worksession, Commissioner Levit raised a question about some of the technical terms contained in the Ordinance (candelas, lumens etc.) and asked if all of the various terms were necessary or could be converted to watts per square foot. The 'definitions' section of the Ordinance is included in the staff report to give some context to the technical terminology. The short answer is that the Outdoor Lighting Ordinance is a technical document applied by specialists and the various terms all play important roles in the application of the standards found in the code.



**RECOMMENDATION:** Staff respectfully recommends that the City Council conduct the public hearing on the minor amendments to the Outdoor Lighting Standards and approve Ordinance No. 688 on first reading.

**BACKGROUND:**

For years, without clear and objective standards, the City's Development Review Boards (DRBs) struggled to provide consistent direction to applicant's regarding the amounts, types and adequacy of outdoor lighting in vastly different land uses. This on-going frustration manifest itself in the form of a formal request from the DRB to the City Council and the Planning Commission to create legislation that would result in clear and concise criteria to guide the installation of outdoor lighting. The City Council responded in 2005-06 by creating an implementation measure to their City Council goals that stated "*adopt exterior lighting standards for new development*" as a supporting action to Goal #1 that was to "*Improve livability and safety of Wilsonville*".

Over the course of a year plus (end of 2006- through 2007), with assistance from the Development Review Board members and consultant Jim Benya, the Planning Commission worked on a new, state of the art lighting ordinance. Development of outdoor lighting standards guides the installation of exterior lights in new commercial, industrial, public and multi-family housing projects. Its goals are to permit all necessary and reasonable uses of outdoor lighting while reducing wasted energy and light pollution. While the proposed code is not a sustainability policy per se, it has the net effect of using energy more efficiently, resulting in potential cost savings to property owners and reductions in energy consumption over time. As part of the Ordinance development, there were 13 Planning Commission work sessions on this topic, two of which were joint work sessions with the DRB. One session included a tour of existing projects.

One of the important benefits of the Outdoor Lighting standards is that it has created a level playing field allowing businesses to be treated equally in the land use review process, not allowing businesses of a similar nature to obtain different light levels. The lack of clear criteria caused disparity over the years, which is one of the main reasons why the DRB requested Staff work with the Planning Commission and City Council to create standards. The Ordinance gives the DRB the tools it needs to review lighting proposals in a fair and equitable way.

**Basic Principles:**

Light pollution is a broad term describing the undesirable side effects of outdoor lighting.

The most negative effects of outdoor lighting include:

- *Artificial sky glow*, the illumination of clouds and airborne particles, causing the sky to glow and preventing enjoyment of the night sky, astronomy and star gazing;
- *Light trespass*, the unwanted illumination caused by light from neighboring properties;

- *Glare*, when lighting causes discomfort or visual disability, potentially causing safety issues for pedestrians, bicyclists and the motoring public;
- *Circadian Interruption*, when lighting causes unwanted changes in the circadian cycles of living organisms;
- Other impacts to flora and fauna, particularly those causing changes in habitat or behavior.

Most light pollution is the result of carelessly applied lighting. The Ordinance helps prevent most light pollution by limiting the wattage of lighting that can be used, by requiring most lighting to be shielded; and requiring lighting to be located thoughtfully with respect to mounting height, setback, shielding and adjacent land uses. In addition, while the Ordinance does not absolutely prohibit incandescent lighting, preference is given for energy efficient lighting, and for most installations, the use of energy efficient sources is urged.

There are two alternative calculation procedures spelled out in the Ordinance: the ***performance method***, which requires complete computer lighting calculations, and the ***prescriptive method***, which is very straightforward, simple and does not require special computer calculations. Applicant's have their choice of paths to follow.

#### **FINDINGS:**

*GOAL 1.1 To encourage and provide means for interested parties to be involved in land use planning processes, on individual cases and City-wide programs and policies.*

*Policy 1.1.1 The City of Wilsonville shall provide opportunities for a wide range of public involvement in City planning programs and processes.*

Response: On July 14, and August 11, 2010 the Planning Commission conducted work sessions on the concepts necessitating the proposed minor code amendments. At the September 8, 2010 meeting, the Planning Commission conducted a public hearing. Public notice of the hearing was mailed to all affected property owners, as well as to agencies and interested individuals. The above criteria are supported by the Planning Commission process.

*Implementation Measure 1.1.1.a Provide for early public involvement to address neighborhood or community concerns regarding Comprehensive Plan and Development Code changes. Whenever practical to do so, City staff will provide information for public review while it is still in "draft" form, thereby allowing for community involvement before decisions have been made.*

Response: The Planning Commission practice is to conduct a minimum of one work session per proposed Code revision allowing for early involvement into the concepts being proposed. This item

was discussed at both the July 14, and August 11, 2010 Planning Commission meetings and a public hearing conducted on September 8, 2010. Draft versions of the proposal have been available prior to and following Planning Commission review of the proposed ordinance in paper and digital form, as well as on the city web site. This criterion is met.

*Implementation Measure 1.1.1.e Encourage the participation of individuals who meet any of the following criteria:*

1. *They reside within the City of Wilsonville.*
2. *They are employers or employees within the City of Wilsonville.*
3. *They own real property within the City of Wilsonville.*
4. *They reside or own property within the City's planning area or Urban Growth Boundary adjacent to Wilsonville.*

Response: Through the worksession, public notification and public hearing schedule, the City has encouraged the participation of a wide variety of individuals addressing the groups listed above. This criterion is met.

*Implementation Measure 1.1.1.f Establish and maintain procedures that will allow any interested parties to supply information.*

Response: The established procedures, public notification process and enhanced city web site notifications all allow interested parties to supply information. The City's Citizen Request Module (CRM) has provided a new venue for citizens to comment on projects. This criterion is met.

**GOAL 1.2:** *For Wilsonville to have an interested, informed, and involved citizenry.*

*Policy 1.2.1 The City of Wilsonville shall provide user-friendly information to assist the public in participating in City planning programs and processes.*

Response: Through the work session and public hearing schedule, public hearing notices, available Planning Commission meeting minutes and staff reports on the city web site, the City has informed and encouraged the participation of a wide variety of individuals. This criterion is met.

*Implementation Measure 3.1.13.d To reduce future demands for electrical energy, the City shall:*

1. *Encourage incorporation of alternative energy sources (e.g., solar, etc.) into new construction, as well as retrofitting of existing development.*
2. *Encourage energy efficient site and building designs. The City should also consider joint efforts with PGE and the Army Corps of Engineers and other government agencies, to study the potential for local power generation.*
3. *To set an example for proposed developments, the City will incorporate energy-efficient designs into construction of City buildings and facilities.*

4. *The City will review and revise existing street lighting standards to provide adequate safety while minimizing the demand for power (e.g., use of minimum number of lights, use of energy-efficient lights such as high pressure sodium lamps, etc.).*

Response: In a general sense, the Outdoor Lighting Ordinance encourages the use of energy efficient light sources, and results in energy efficient lighting design. With the exception of street lights, these criteria are generally supported by the proposal.

*Policy 4.1.2 The City of Wilsonville shall encourage commercial growth primarily to serve local needs as well as adjacent rural and agricultural lands.*

Response: The Outdoor Lighting Ordinance applies to new commercial development. The Town Center area, Boones Ferry commercial area and Argyle Square area are in Lighting Zone 3, which would allow more light than the rest of the City. Businesses locating in these areas should be encouraged by the provision permitting additional light. This criterion is generally supported by the proposal.

*Implementation Measure 4.1.2.a Encourage commercial uses which are compatible with the residential nature of the community, and are complementary to or supportive of industrial development in the City.*

Response: The Outdoor Lighting standards protect residential areas of the community from excessive light **from commercial or industrial uses** (added by the Planning Commission). One of the fundamentals of the proposal is to keep light on site, and not allow light to spill un-necessarily off site onto adjacent property, particularly residential property. This approach addresses compatibility between land uses. This criterion is supported by the proposal.

*Implementation Measure 4.1.3.a Develop an attractive and economically sound community.*

*Implementation Measure 4.1.3.b Maintain high-quality industrial development that enhances the livability of the area and promotes diversified economic growth and a broad tax base.*

*Implementation Measure 4.1.3.d Encourage industries interested in and willing to participate in development and preservation of a high-quality environment. Continue to require adherence to performance standards for all industrial operations within the City.*

Response: Properly designed and installed lighting assists in achieving an attractive community. Attractive communities are desirable for conducting business. Regulating the amount of light and glare on new projects directly contributes to maintaining a high quality built environment, and supports a livable community. These criteria are satisfied.

*Implementation Measure 4.1.3.g Encourage energy-efficient, low-pollution industries.*

Response: New projects that comply with the Ordinance will have more energy efficient lighting systems. This criterion is met.

**Planning and Land Development Code, Section 4.197, Zone Changes and Amendments to This Code:**

*(.01) The following procedure shall be followed in applying for an amendment to the text of this Chapter:*

*A. The Planning Commission shall conduct a public hearing on the proposed amendment at its earliest practicable meeting after it is proposed and shall, within forty (40) days after concluding the hearing, provide a report and recommendation to the City Council regarding the proposed amendment. The findings and recommendations of the Commission shall be adopted by resolution and shall be signed by the Chair of the Commission.*

Response: The Planning Commission has conducted two work sessions in preparation for the September 8, 2010 public hearing. Following the public hearing, the Planning Commission forwarded a recommendation of approval of the Ordinance, with amendments, to the City Council. This criterion is met.

*B. In recommending approval of a proposed text amendment, the Planning Commission shall, at a minimum, adopt findings relative to the following:*

*1. That the application was submitted in compliance with the procedures set forth in Section 4.008; and*

*2. The amendment substantially complies with all applicable goals, policies and objectives set forth in the Comprehensive Plan; and*

*3. The amendment does not materially conflict with, nor endanger, other provisions of the text of the Code; and*

*4. If applicable, the amendment is necessary to insure that the City's Land Use and Development Ordinance complies with mandated requirements of State or Federal laws and/or statutes.*

Response: The above criteria are substantially met as is evidenced by the facts in the case file on this matter, the Planning Commission record and the narrative and findings of fact contained in this staff report. The purpose of the code text amendment is to comply with the Oregon Energy Efficiency Specialty Code. Other State and Federal laws/statutes are not in conflict with the proposal. These criteria are met.

~~Deleted language struck through~~  
**New language in bold**

Section 4.001 Definitions that relate to the OUTDOOR LIGHTING Ordinance

24. Artificial Sky Glow. The brightening of the night sky attributable to human made sources of light.
44. Building Official. The person holding the position of Building Official of the City of Wilsonville.
46. Candela. The unit of luminous intensity of a lighting source emitted in a given direction.
47. Canopy. A roof-like covering over an area, in or under which a lighting fixture is mounted.
55. Common Residential Areas.
- Areas shared in common by residents of buildings with three or more dwelling units, (i.e. common open space, play areas, trash receptacle areas, “common property” under a subdivision or partition declaration); and
  - Three or more open off-street stripped parking spaces, either abutting or within 10 feet of each other and not separated by a wall or other physical barrier between the two parking spaces, designated or set aside for use by the three or more dwelling units, regardless of whether the parking space is assigned for exclusive use of each dwelling unit or non-exclusively used by three or more dwelling units, and are either commonly owned or were developed for the purpose of serving the parking needs of “multiple dwellings” or multiple attached single-family dwellings, as defined in the Development Code.
72. Curfew. A time each night after which certain electric illumination must be turned off or reduced in intensity.
95. Façade. The exterior wall or elevation of a building.
110. Foot Candle. The **unit of** density of luminous flux (lumens) incident at a point on a surface having an area of one square foot.
114. Glare. Light that causes visual discomfort or disability, and the wattage and/or light distribution is excessive for the purposes for which the illumination is necessary.
118. Hardscape Permanent improvements to a site, including but not limited to, parking lots, driveways, streets, plazas, sidewalks, walkways, bikeways, abutments, stairs, ramps, and architectural features, such as fountains and sculptures.
126. House Side Shield. For fully shielded luminaires only, an internal shield designed and installed by the luminaire manufacturer that significantly attenuates candlepower in the back photometric hemisphere at all angles greater than 30 degrees relative to nadir.
128. IESNA. The Illuminating Engineering Society of North America (see [www.iesna.com](http://www.iesna.com)).

135. Landscape Lighting. Luminaires attached to structures, mounted on poles or otherwise, or at grade (luminaire not to exceed 3 feet above grade) and used solely for landscape rather than area lighting.
138. Light Source (or Lamp): The actual bulb or lamp that emits the light.
139. Light Trespass. Spill light that because of quantitative, directional, or spectral content causes light level at the property line that is greater than as provided on Table 4 of this Code.
141. Lighting System. One or more luminaires, together with associated wires, conduits and poles that constitute the illumination system on the parcel.
142. Lighting Zones. Specific allowances and limitations for lighting systems and fixtures as specified in this Ordinance.
155. Lumen. The unit of luminous flux: a measure of the amount of light emitted by a lamp.
156. Luminaire (or "Light Fixture"). A complete lighting unit consisting of one or more electric lamps, the lamp holder, reflector, lens, ballast, and/or other components and accessories.
157. Luminance. The amount of light emitted in a given direction from a surface by the light source or by reflection from a surface. The unit is candela per square meter.
158. Luminous Flux. A measure of the total light output from a source, the unit being the lumen.
173. Mounting Height. The vertical distance between the lowest part of the luminaire and the ground surface directly below the luminaire.
174. Multi-family housing. For purposes of this ordinance, multi-family housing is defined as a building or structure that contains three or more dwelling units used, intended, or designed to be built, used, rented, leased, let or hired out to be occupied, or that are occupied for living purposes, apartment houses, condominiums, congregate residences, townhouses and similar non-transient dwellings.
175. Nadir. The downward direction; exactly vertical, directly below a luminaire.
190. Obtrusive Light. Glare and light trespass.
198. Ornamental or Accent Lighting. Outdoor lighting that is installed mainly or entirely for its decorative effect or to accent an object or a feature, rather than as an aid to visibility.
215. Photometric Test Report. A report by an independent testing laboratory or one certified by the National Institute of Standards and Technology (NIST) describing the candela distribution, shielding type, luminance, and other characteristics of a specific luminaire.
260. Shielding.
- Directional. A luminaire designed to be aimed or pointed.

- Fully Shielded. A luminaire emitting no more than 0.5 percent of its luminous flux above the horizontal plane, including any luminaire rated “full cut off” according to IESNA RP-8-01.
  - Shielded. A luminaire emitting no more than 2 percent of its total luminous flux above the horizontal plane, including any luminaire rated “cutoff” according to IESNA RP-8-01.
  - Partly Shielded. A luminaire emitting no more than 10 percent of its total luminous flux above the horizontal plane, including any luminaire rated “semi-cutoff” according to IESNA RP-8-01.
  - Unshielded. A luminaire that may emit its flux in any direction.
297. Temporary Lighting. Lighting installed with temporary wiring and operated for less than 120 days in any calendar year.

Section 4.199 OUTDOOR LIGHTING

- Section 4.199.10 Outdoor Lighting In General.
- Section 4.199.20 Applicability.
- Section 4.199.30 Lighting Zones.
- Section 4.199.40 Lighting Systems Standards for Approval.
- Section 4.199.50 Submittal Requirements.
- Section 4.199.60 Major Additions or Modifications.

Section 4.199.10. Outdoor Lighting In General.

- (.01) Purpose: The purpose of this Code is to provide regulations for outdoor lighting that will:
- A. Permit reasonable uses of outdoor lighting for nighttime safety, utility, security, productivity, enjoyment and commerce.
  - B. Conserve energy and resources to the greatest extent possible.
  - C. Minimize glare, particularly in and around public rights-of-way; and reduce visual discomfort and improve visual acuity over large areas by avoiding “light islands” and “spotlighting” that result in reduced visual perception in areas adjacent to either the source of the glare or the area illuminated by the glare.
  - D. Minimize light trespass, so that each owner of property does not cause unreasonable light spillover to other property.
  - E. Curtail the degradation of the nighttime environment and the night sky.
  - F. Preserve the dark night sky for astronomy and enjoyment.
  - G. Protect the natural environment, including wildlife, from the damaging effects of night lighting from human sources.



- (.02) Purpose Statement as Guidelines: Declaration of purpose statements are guidelines and not approval criteria in the application of WC Section 4.199.

Section 4.199.20. Applicability.

- (.01) This Ordinance is applicable to:
- A. Installation of new exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas.
  - B. Major additions or modifications (as defined in this Section) to existing exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas.
- (.02) Exemption. The following luminaires and lighting systems are EXEMPT from these requirements:
- A. Interior lighting.
  - B. Internally illuminated signs.
  - C. Externally illuminated signs.
  - D. Temporary lighting for theatrical, television, and performance areas.
  - E. Lighting in swimming pools and other water features governed by Article 680 of the National Electrical Code.
  - F. Building Code required exit path lighting.
  - G. Lighting specifically for stairs and ramps.
  - H. Temporary and seasonal lighting provided that individual lamps are 10 watts or less.
  - I. Lighting required and/or regulated by the City (i.e. construction related activities), Federal Aviation Administration, U.S. Coast Guard or other Federal or State agency.
  - J. Single-family residential lighting.
  - K. Code Required Signs.
  - L. American flag.
  - M. Landscape lighting.
  - N. Lights approved by the City through an Administrative Review Temporary Use Permit process.
  - O. Public street lights.
  - P. ATM security lighting.
  - Q. Those 'Exceptions' listed in the 'Exterior Lighting Power Allowance' provisions of the *Oregon Energy Efficiency Specialty Code*.

Section 4.199.30. Lighting Overlay Zones.

- (.01) The designated Lighting Zone as indicated on the Lighting Overlay Zone Map for a commercial, industrial, multi-family or public facility parcel or project shall determine the limitations for lighting systems and fixtures as specified in this Ordinance.
- A. Property may contain more than one lighting zone depending on site conditions and natural resource characteristics.
- (.02) The Lighting Zones shall be:
- A. ~~LZ 0. Critical dark environments, sensitive wildlife areas and parks. This zone shall not be applied to areas zoned commercial, industrial, residential or agricultural.~~
- B. LZ 1. Developed areas in City and State parks, recreation areas, SROZ wetland and wildlife habitat areas; developed areas in natural settings; sensitive night environments; and rural areas. This zone is intended to be the default condition for rural areas within the City.
- C. LZ 2. Low-density suburban neighborhoods and suburban commercial districts, industrial parks and districts. This zone is intended to be the default condition for the majority of the City.
- D. LZ 3. Medium to high-density suburban neighborhoods and districts, major shopping and commercial districts as depicted on the Lighting Overlay Zone Map.
- E. LZ 4. Reserved for limited applications with special lighting requirements. This zone is appropriate for users who have unique site or operating circumstances that warrant additional light. This zone shall not be applied to residential or agricultural areas.
- (.03) Modification of Lighting Zones.
- A. The City Council may modify the designated Lighting Zones of one or more parcels if the City Council finds that the original Lighting Zone was in error, a change in circumstances has occurred warranting the change since the designation was established or the purposes of this section are better served.
- B. The Development Review Board (DRB) may modify the designated Lighting Zones as part of the Stage II, Site Design Review Process if the DRB finds that the original Lighting Zone was in error, or a change in circumstances has occurred warranting the change since the designation was established or the purposes of this section are better served.
- C. This ordinance establishes a Lighting Overlay Zone Map. The Planning Division shall maintain the current Lighting Overlay Zone Map.

Section 4.199.40. Lighting Systems Standards for Approval.

(.01) Non-Residential Uses and Common Residential Areas.

- A. All outdoor lighting shall comply with either the Prescriptive Option or the Performance Option below.
- B. Prescriptive Option. If the lighting is to comply with this Prescriptive Option, the installed lighting shall meet all of the following requirements according to the designated Lighting Zone.
1. The maximum luminaire lamp wattage and shielding shall comply with Table 7.
  2. ~~The total lighting power for the site shall be less than or equal to the allowed lighting power. The allowed lighting power shall be determined according to Table 8.~~ **Except for those exemptions listed in Section 4.199.20(.02), the exterior lighting for the site shall comply with the *Oregon Energy Efficiency Specialty Code, Exterior Lighting*.**
  3. The maximum pole or mounting height shall be consistent with Table 8 9.
  4. Each luminaire shall be set back from all property lines at least 3 times the mounting height of the luminaire:
    - a. Exception 1: If the subject property abuts a property with the same base and lighting zone, no setback from the common lot lines is required.
    - b. Exception 2: If the subject property abuts a property which is zoned (base and lighting) other than the subject parcel, the luminaire shall be setback three times the mounting height of the luminaire, measured from the abutting parcel's setback line. (Any variance or waiver to the abutting property's setback shall not be considered in the distance calculation).
    - c. Exception 3: If the luminaire is used for the purpose of street, parking lot or public utility easement illumination and is located less than 3 mounting heights from the property line, the luminaire shall include a house side shield to protect adjoining property.
    - d. Exception 4: If the subject property includes an exterior column, wall or abutment within 25 feet of the property line, a luminaire partly shielded or better and not exceeding 60 lamp watts may be mounted onto the exterior column, wall or abutment or under or within an overhang or canopy attached thereto.
    - e. Exception 5: Lighting adjacent to SROZ areas shall be set back 3 times the mounting height of the luminaire, or shall employ a house side shield to protect the natural resource area.
- C. Performance Option. If the lighting is to comply with the Performance Option, the proposed lighting design shall be submitted by the applicant for approval by the City meeting all of the following:

1. The weighted average percentage of direct uplight lumens shall be less than the allowed amount per Table 9 10.
  2. The maximum light level at any property line shall be less than the values in Table 9 10, as evidenced by a complete photometric analysis including horizontal illuminance of the site and vertical illuminance on the plane facing the site up to the mounting height of the luminaire mounted highest above grade. The Building Official or designee may accept a photometric test report, demonstration or sample, or other satisfactory confirmation that the luminaire meets the shielding requirements of Table 7. Luminaires shall not be mounted so as to permit aiming or use in any way other than the manner maintaining the shielding classification required herein:
    - a. Exception 1. If the property line abuts a public right-of-way, including a sidewalk or street, the analysis may be performed across the street at the adjacent property line to the right-of-way.
    - b. Exception 2. If, in the opinion of the Building Official or designee, compliance is impractical due to unique site circumstances such as lot size or shape, topography, or size or shape of building, which are circumstances not typical of the general conditions of the surrounding area. The Building Official may impose conditions of approval to avoid light trespass to the maximum extent possible and minimize any additional negative impacts resulting to abutting and adjacent parcels, as well as public rights-of-way, based on best lighting practices and available lighting technology.
  3. The maximum pole or mounting height shall comply with Table 8 9.
- D. Curfew. All prescriptive or performance based exterior lighting systems shall be controlled by automatic device(s) or system(s) that:
1. Initiate operation at dusk and either extinguish lighting one hour after close or at the curfew times according to Table 10 11; or
  2. Reduce lighting intensity one hour after close or at the curfew time to not more than 50% of the requirements set forth in the ***Oregon Energy Efficiency Specialty Code*** ~~Table 8~~ unless waived by the DRB due to special circumstances; and
  3. Extinguish or reduce lighting consistent with 1. and 2. above on Holidays.

The following are exceptions to curfew:

- a. Exception 1: Building Code required lighting.
- b. Exception 2: Lighting for pedestrian ramps, steps and stairs.
- c. Exception 3: Businesses that operate continuously or periodically after curfew.

(.02) Special Permit for Specific Lighting Fixtures and Systems and When Exceeding Lighting Requirements.

- A. This section is intended to apply to situations where more than normal foot candles are required due to a unique circumstance or use or where it is absolutely essential to perform the proposed activities after dark. All special permits shall be reviewed by the DRB.
- B. Upon issuance of a special permit by the Development Review Board (DRB), lighting systems not complying with the technical requirements of this Ordinance may be installed, maintained, and replaced for lighting that exceeds the maximums permitted by this Ordinance. This section is intended to be applied to uses such as sports lighting systems including but not limited to, sport fields and stadiums, such as baseball and football field lighting, tennis court lighting, swimming pool area lighting and prisons; other very intense lighting defined as having a light source exceeding 200,000 lumens or an intensity in any direction of more than 2,000,000 candelas; building façade lighting of portions of buildings over two stories high; and public monuments.
- C. To obtain such a permit, applicants shall demonstrate that the proposed lighting installation:
  - 1. Is within Lighting Zone 3 or above.
  - 2. Has been designed to minimize obtrusive light and artificial sky glow, supported by a signed statement from a registered civil or electrical engineer describing the mitigation measures. Such statement shall be accompanied by calculations indicating the light trespass levels (horizontal and vertical at ground level) at the property line.
  - 3. Will not create excessive glare, sky glow, or light trespass beyond that which can be reasonably expected by application of best lighting practices, and available technology.
  - 4. Provides appropriate lighting curfew hours based on the use and the surrounding areas.
- D. The DRB may impose conditions of approval to mitigate any negative impacts resulting to the abutting parcel, based on best lighting practices and available lighting technology.
- E. The City may charge a review fee and may, at the Building Official's option, employ the services of a qualified professional civil or electrical engineer to review such submittals and the cost thereof shall be an additional fee charged to the applicant.

**Section 4.199.50. Submittal Requirements.**

- (.01) Applicants shall submit the following information as part of DRB review or administrative review of new commercial, industrial, multi-family or public facility projects:
  - A. A statement regarding which of the lighting methods will be utilized, prescriptive or performance, and a map depicting the lighting zone(s) for the property.

- B. A site lighting plan that clearly indicates intended lighting by type and location. For adjustable luminaires, the aiming angles or coordinates shall be shown.
  - C. For each luminaire type, drawings, cut sheets or other documents containing specifications for the intended lighting including but not limited to, luminaire description, mounting, mounting height, lamp type and manufacturer, lamp watts, ballast, optical system/distribution, and accessories such as shields.
  - D. Calculations **demonstrating compliance with Oregon Energy Efficiency Specialty Code, Exterior Lighting, as modified by Section 4.199.40(.01) B. 2. of allowed lighting power and actual lighting power demonstrating compliance with power limits.**
  - E. Lighting plans shall be coordinated with landscaping plans so that pole lights and trees are not placed in conflict with one another. The location of lights shall be shown on the landscape plan. Generally, pole lights should not be placed within one pole length of landscape and parking lot trees.
  - F. Applicants shall identify the hours of lighting curfew.
- (.02) In addition to the above submittal requirements, Applicants using the Prescriptive Method shall submit the following information as part of the permit set plan review:
- A. A site lighting plan (items 1 A - F, above) which indicates for each luminaire the 3 mounting height line to demonstrate compliance with the setback requirements. For luminaires mounted within 3 mounting heights of the property line the compliance exception or special shielding requirements shall be clearly indicated.
- (.03) In addition to the above submittal requirements, Applicants using the Performance Method shall submit the following information as part of the permit set plan review:
- A. Site plan showing horizontal isocandle lines, or the output of a point-by-point computer calculation of the horizontal illumination of the site, showing property lines and light levels immediately off of the subject property.
  - B. For each side of the property, the output of a point-by-point vertical footcandle calculation showing illumination in the vertical plane at the property line from grade to at least 10 feet higher than the height of the tallest pole.
  - C. Lighting plans shall be prepared by a qualified licensed engineer.
- (.04) In addition to the above applicable submittal requirements, Applicants for Special Permits shall submit the following to the DRB for review:
- B. Tabulation of International Engineering Society of North America (IESNA) lighting recommendations for each task including area illuminated, recommended illumination level, actual maintained illumination level, and luminaires used specifically to achieve the indicated criteria.
  - B. Lighting plans shall be prepared by a qualified licensed engineer.

(.05) For all calculations, the following light loss factors shall be used unless an alternative is specifically approved by the City:

Metal halide	0.6
High pressure sodium	0.8
Compact fluorescent	0.7
Full size fluorescent	0.75
Incandescent	0.9
Halogen	0.95
Other	As approved

Section 4.199.60. Major Additions or Modifications to Pre-Existing Sites.

(01.) Major Additions. If a major addition occurs on a property, all of the luminaires on the site shall comply with the requirements of this Section. For purposes of this subsection, the following are considered to be major additions:

- A. Additions of 50 percent or more in terms of additional dwelling units, gross floor area, seating capacity, or parking spaces, either with a single addition or with cumulative additions after July 2, 2008.
- B. Modification or replacement of 50 percent or more of the outdoor lighting luminaries' within a 5-year timeframe existing as of July 2, 2008.

Lighting Zone	Fully Shielded	Shielded	Partly Shielded	Unshielded
LZ 0	55	None permitted	None permitted	None permitted
LZ 1	70	20	13	Low voltage landscape lighting 50 watts or less
LZ 2	100	35	39	Low voltage landscape lighting 50 watts or less
LZ 3	250	100	70	Landscape and facade lighting 100 watts or less; ornamental lighting on private streets of 39 watts and less
LZ 4	450	150	150	Landscape and facade lighting 250 watts or less; ornamental lights on private streets and lanterns 70 watts or less; marquee lighting not employing medium based lamps

**Table 8: Allowed Lighting Power Density**

(watts per square foot (w/ft<sup>2</sup>) unless otherwise noted)

Determine the allowed lighting power for each application by multiplying the area in plan by the allowed lighting power density for the application. Only one lighting power allowance can be claimed for an allowed area. The actual lighting power must be equal to or less than the sum of the allowed lighting power for all applications.

Lighting Application	Allowed Area	LZ 0	LZ 1	LZ 2	LZ 3	LZ 4
Hardscape	Paved area plus 5 feet of the perimeter of adjacent unpaved land. Includes planters and landscaped areas less than 10 feet wide that are enclosed by hardscape on at least three sides	0.03	0.05	0.07	0.09	0.20
Building entrances*	Per Door (stated values are watts, not watts per square foot).	13	18	26	32	70
Building entry, drive-up sales, and general use canopies	Drip line area under canopy.	Not allowed	0.10	0.20	0.40	0.70
Vehicle Service Station Canopy	Drip line area under canopy	Not allowed	0.30	0.60	1.20	2.40
Outdoor Sales, Service or Industrial Lot	Portion of uncovered hardscape used exclusively for display of vehicles or other merchandise for sale, for the service of vehicles, aircraft or watercraft, or for exterior manufacturing.	Not allowed	0.25	0.45	0.90	1.80
Ornamental Lighting	Entire site	Not allowed	Not allowed	0.010	0.020	0.04
Building Facade	Square foot of illuminated facade	0.00	0.00	0.18	0.35	0.50
Landscape Lighting	Landscaped area	Exempt	Exempt	Exempt	Exempt	Exempt
ATM Security Lighting	Within 5 feet of ATM facility	Exempt	Exempt	Exempt	Exempt	Exempt
Flagpole lighting	Illuminating flags on flagpole	Exempt	Exempt	Exempt	Exempt	Exempt

\*In addition to area lighting, an additional allowance per door is permitted.

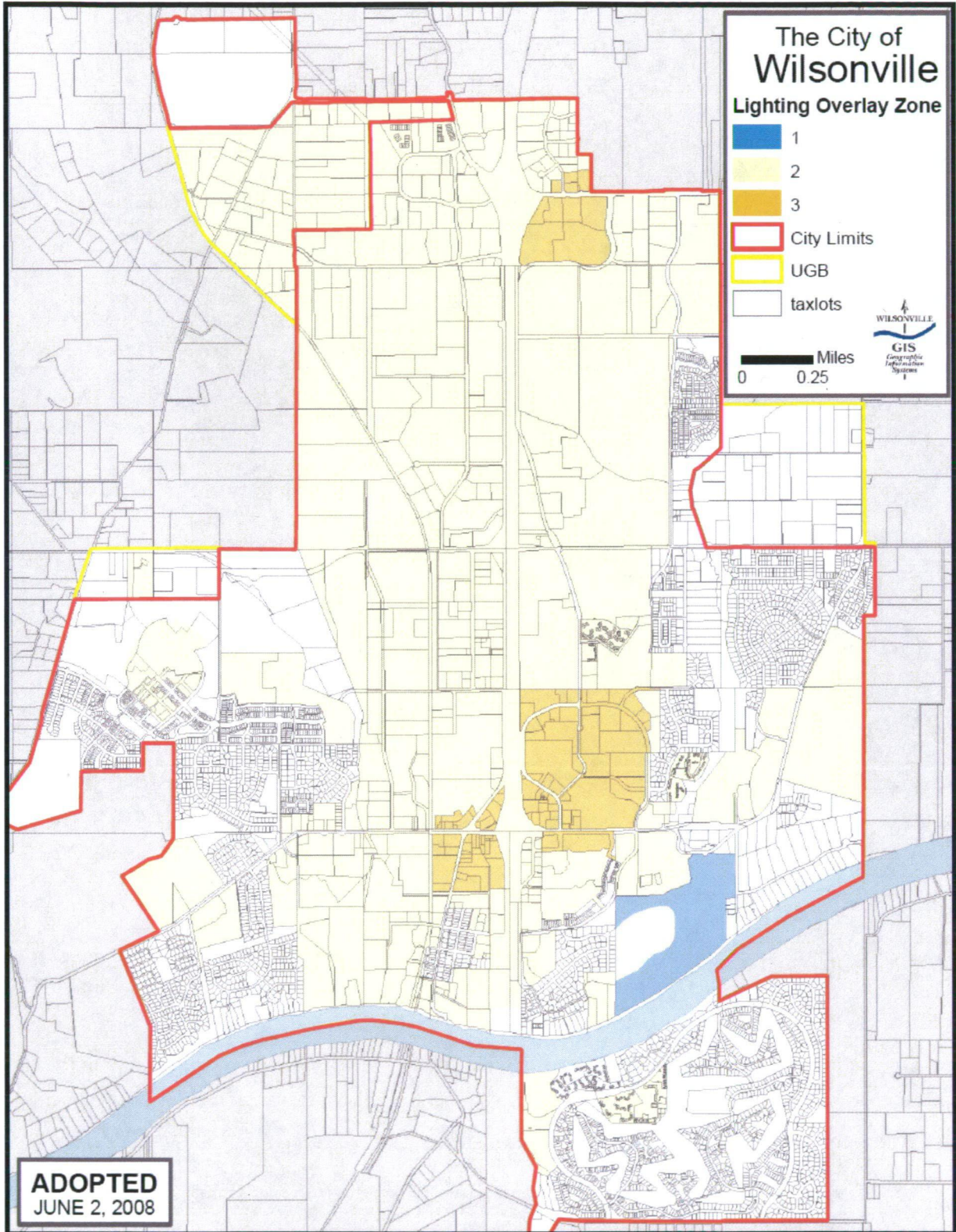


Table 9 8: Maximum Lighting Mounting Height In Feet			
Lighting Zone	Lighting for private roads, driveways, parking, bus stops and other transit facilities	Lighting for walkways, bikeways, plazas and other pedestrian areas	All other lighting
LZ 0	20	8	4
LZ 1	25	12	4
LZ 2	40	18	8
LZ 3	40	18	16
LZ 4	Height limit to be determined by Special Use Permit Only		

Lighting mounted onto buildings or other structures shall not exceed a mounting height greater than 4 feet higher than the tallest part of the building or structure at the place where the lighting is installed, nor higher than 33.33 percent of the horizontal distance of the light from the nearest property line, whichever is less.

Table 10 9: Performance Method			
Lighting Zone	Maximum percentage of direct upright lumens	Maximum Light Level at Property Line	
		Horizontal plane at grade (foot candles - fc)	Vertical plane facing the site in question, from grade to mounting height of highest mounted luminaire (foot candles - fc)
LZ 0	0	0.01 fc	0.02 fc
LZ 1	1%	0.05 fc	0.1 fc
LZ 2	5%	0.2 fc	0.4 fc
LZ 3	10%	0.4 fc	0.8 fc
LZ 4	20%	0.8 fc	1.6 fc

Table 11 10: Curfew	
Lighting Zone	Curfew Time
LZ 0	8:00 PM (2000 hours)
LZ 1	
LZ 2	10:00 PM (2200 hours)
LZ 3	Midnight (2400 hours)
LZ 4	



• Figure 30: Lighting Overlay Zone Map