STAFF REPORT

DATE: January 21, 2015

TO: Members of the Planning Commission

FROM: Elizabeth Greene, Senior Planner

SUBJECT: City Council Referral: Shielded Outdoor Light Fixtures in Residential Districts

RECOMMENDATION

1. Recommend to the City Council an amendment to the Zoning Ordinance designed to reduce exterior lighting glare from residentially zoned properties to other residentially zoned properties;
2. Recommend to the City Council a proposal for a new referral on residential glare which would include a more comprehensive analysis of lighting issues in the City and additional changes to the Zoning Ordinance; and
3. Recommend the City Council consider Municipal Code changes to retroactively address properties which produce glare on residential properties.

BACKGROUND

At the September 17, 2014, meeting, the Planning Commission held a Public Hearing and reviewed draft Zoning Ordinance language to reduce glare onto residentially zoned properties that is generated from other residentially-zoned properties. The draft Zoning Ordinance changes met the intent and breadth of the Council Referral on the subject (Attachment D).

At that meeting, the Commission expressed concern that the proposal did not cover enough potential contributors to residential glare. The Commission asked staff to develop a more complete ordinance that could address glare from existing developments and a broader range of lighting issues.

Staff has evaluated that request and makes the above noted recommendation in response to the Commission. In addition, staff requests (through the Commission Chair) that the Commission reconsider the draft Zoning Ordinance on glare, proposed at the September 17, 2014 public hearing.
DISCUSSION

This Discussion is separated into sections based on staff’s proposal and in response to Commission requests.

Proposal and Staff Analysis
Staff recommends that the Planning Commission consider changes to lighting regulations in two steps:
1) Recommend to Council the draft Zoning Ordinance (ZO) amendment related to residential glare recommended by staff at the September 17, 2014, public hearing; and
2) Identify additional glare issues for the Council to consider in a future referral back to the Planning Commission.

Draft Zoning Ordinance Amendment
The referral from the City Council was limited to regulating glare from residentially zoned properties onto other residentially zoned properties. The draft ZO changes suggested by staff address that specific referral. Forwarding the recommended ordinance to Council, with or without additional amendments from the Planning Commission, would allow those changes to be adopted in an expedient manner (Attachment A).

Recommendations for a Referral on Additional Lighting Regulations
The Planning Commission identified more comprehensive consideration of glare issues as a priority. Of particular interest was enforcement for reducing glare from existing lights, and addressing other specialized lighting such as architectural and landscaping lights.

Staff has reviewed lighting ordinances from other cities to see how these jurisdictions regulate lighting. Ordinances for Taos, Flagstaff, Boulder, and Chula Vista are attached, along with a matrix which compares features of the ordinances (Attachments B and C). San Francisco is included in the matrix as an example of a jurisdiction that does not have an ordinance.

With this research, staff has identified different ways that lighting is addressed in other cities. These are shown below in broad categories, with examples as necessary.

Adoption of Regulations:
- Develop a separate lighting ordinance for the jurisdiction;
- In larger geography cities develop lighting ordinances for different areas of the city;
- Incorporate lighting standards into residential zoning regulations (similar to Berkeley).

Specificity of Standards:
- Identify standards that restrict lighting fixtures based on energy conservation, color, etc.;
• Add standards that evaluate lighting impacts based on lighting measurements (lumens, foot-candles) rather than fixtures;
• Add more specific language and requirements for light fixtures, bulb wattage, light curfew, etc.

**Addressing Existing Glare:**
• Amortization programs;
• More specific regulations and specific penalties.

(Note: These options would typically be done through the Municipal Code, rather than the Zoning Ordinance.)

**Implementation Practices:**
• Require lighting plans to be submitted and approved prior to installation of fixtures/building permits.

**Dark Sky Ordinance:**
Adopt a light pollution/Dark Sky ordinance, which is focused on reducing nighttime light pollution. This ordinance is separate of the above noted approaches and is not focused on reducing glare to adjacent properties, or managing the lighting of issues currently under discussion.

**Suggestions for Additional Zoning Ordinance and BMC Amendments**
As demonstrated by the ordinances from other cities, light and glare regulations cover a range of specificity. The Commission’s discussions on September 17th addressed concerns related to residential glare. In order to focus on those concerns, staff recommends that the Commission suggest the following Zoning Ordinance-related changes to be included in a referral from Council:

A. Develop more specific language for 23D.04.080 (Special Building Feature Requirements for R-Lots) related to security lighting, architectural up-lighting, landscape lighting, and other lighting that could affect residential properties;
B. Require lighting plans for projects;
C. Develop definitions that clarify what is meant by glare, shielding, light trespass, etc.;
D. Consider more objective ways that lighting could be measured to determine nuisance, such as foot-candles, wattage, etc.

**Issues of Existing Glare**
The Commission was also concerned about the impacts of glare from existing projects on residential properties. This would involve changes to the Municipal Code, and would not be included in a referral to the Commission. The Commission could recommend that the Council consider changes to the Municipal Code to retroactively address properties which produce glare on residential properties.
CONCLUSION

Staff recommends:
1) that the attached draft Zoning Ordinance language (Attachment A) be forwarded to the Council for consideration;
2) that the Commission forward a recommendation to Council for an additional referral related to residential glare, with a focus on the items recommended by staff, as amended by the Commission; and
3) that the Commission forward a recommendation to Council to consider changes to the Municipal Code to retroactively address properties which produce glare on residential properties.

The staff report dated September 17, 2014, is Attachment E. It addresses CEQA and General Plan compliance, along with providing more information on the subject.

Attachments:
A. Proposed Ordinance Language
B. Lighting Ordinances from other Communities:
   a. Taos
   b. Flagstaff
   c. Boulder
   d. Chula Vista
C. Matrix of Features Found in Other Ordinances
D. Council Referral (Shielded Outdoor Fixtures in Residential Areas)
E. Planning Commission Report dated September 17, 2014
Proposed Addition to Zoning Ordinance Section 23D.04 (Lot and Development Standards) language related to residential glare

23D.04.080 Special Building Feature Requirements for R-Lots

A. Exterior lighting on a residentially zoned property shall satisfy the following conditions:

1. All exterior lighting shall be shielded and directed downward and away from property lines to prevent excessive glare beyond the subject property.

2. Lights on motion sensors shall not be triggered by movement or activity located off the property on which the light is located.


15.28.010: PURPOSE:

The purpose of the outdoor lighting on public and private property ordinance is to regulate outdoor lighting in order to reduce or prevent light pollution. This means to the extent reasonably possible the reduction or prevention of glare and light trespass, the conservation of energy, and promotion of safety and security. This chapter will ensure the aesthetically appropriate outdoor lighting in keeping with the historic character of the town of Taos. (Ord. 99-2, 1999)

15.28.020: DEFINITIONS:

As used in this section:

ACCENT LIGHTING: Any directional lighting which emphasizes a particular object or draws attention to a particular area.

DISABLING GLARE: Lighting that impairs visibility and creates a potentially hazardous situation for either pedestrians or motorists.

GLARE: The brightness of a light source that causes eye discomfort.

LAMP OR BULB: The light producing source installed in the socket portion of a luminaire.

LIGHT POLLUTION: General sky glow caused by the scattering of artificial light in the atmosphere and resulting in decreased ability to see the natural night sky.

LIGHT TRESPASS: Light emitted by a luminaire that shines beyond the property on which the luminaire is installed.

LUMINAIRE OR FIXTURE: A complete lighting unit including the lamps or bulbs, together with the parts required to distribute the light, to position and protect the lamps, and to connect the lamps to the power supply.

NUISANCE GLARE: Light that creates an annoyance or aggravation but does not create a potentially hazardous situation.

SHIELDING: That no light rays are emitted by a fixture above the horizontal plane running through the lowest point of the fixture where light is emitted.
SPOTLIGHT OR FLOODLIGHT: Any lamp that incorporates a reflector or a refractor to concentrate the light output into a directed beam in a particular direction. (Ord. 99-2, 1999)

15.28.030: APPLICABILITY:

A. All outdoor lighting fixtures installed on private and public property after the effective date hereof shall comply. This chapter does not apply to interior lighting. However, overly bright inside light emitted outdoors from any structure will be subject to control by this chapter if it is determined by the code administrator that it creates a "nuisance glare" or a "disabling glare" as defined by this chapter.

B. All outdoor lighting fixtures existing and legally installed and operative before the effective date hereof are exempt from these requirements unless they are determined to create a "nuisance glare" or a "disabling glare" as defined by this chapter. When existing lighting fixtures become inoperable, their replacements are subject to all the provisions of the night sky protection act.

C. When an existing fixture is replaced, the replacement fixture shall meet the requirements of this chapter. Modifications to nonconforming fixtures in historic districts shall also comply with this chapter.

D. Compliance with this chapter shall be administered by the town of Taos planning department.

E. In the event of a conflict with any other section of this chapter, the more stringent requirement shall apply.

F. All governmental agencies, federal, state or county, including their security facilities, which operate within the town limits of Taos, should experience no difficulty meeting the requirements of this chapter and are encouraged by the town to comply with its provisions. (Ord. 99-2, 1999)
15.28.040: EXEMPTIONS:

The following are exempt from the provisions of this chapter:

A. Traffic control signals and devices.

B. Streetlights installed prior to the effective date hereof.

C. Temporary emergency lighting (i.e., fire, police, repair workers).

D. Moving vehicle lights.

E. Navigation lights (i.e., airports, heliports, radio/television towers).

F. Lighted signs that conform with the town's sign ordinance.

G. Seasonal decorations with individual lights in place no longer than sixty (60) days.

H. Sports field outdoor lighting (i.e., ball fields, football, soccer, ice rink, etc.).

I. Other special situations approved by the town for temporary or periodic events (i.e., rodeos, revivals, fairs, fiestas, carnivals, nighttime construction).

J. Covered porch lighting on single-family or multi-family homes provided that each outdoor light fixture does not exceed 150 watts (2,220 lumens output).

K. Security lights of any wattage that are controlled by a motion sensor switch and which do not remain on longer than ten (10) to twelve (12) minutes after activation. (Ord. 99-2, 1999)
15.28.050: SUBMITTALS:

A. Applications for building permits or applications for review by the planning and zoning commission, or the historic preservation commission, which includes the installation of outdoor lighting fixtures for new construction, shall provide evidence of compliance with the requirements of this chapter. The submittal shall contain the following information and submitted as part of the site plan to the planning and zoning department for approval:

1. Plans indicating the location, type, and height of luminaries including both building and ground mounted fixtures;

2. A description of the luminaries, including lamps, poles or other supports and shielding devices, which may be provided as catalogue illustrations from the manufacturer;

3. Photometric data, such as that furnished by the manufacturer, showing the angle of light emission; and

4. Additional information as may be required by the planning and zoning department in order to determine compliance with this chapter.

B. Applications for single-/multi-family residential or other projects where any single outdoor light fixture not used for landscaping or foliage illumination exceeds 150 watts (2,220 lumens output) shall be required to comply with subsection A of this section. (See subsection 15.28.060H of this chapter for landscaping and foliage illumination.) (Ord. 99-2, 1999)

15.28.060: GENERAL STANDARDS:

The following general standards shall apply to all outdoor lighting installed after the effective date hereof, which is not exempted above:

A. Outdoor lighting must be hooded, shielded, and/or aimed downward. Examples of acceptable and unacceptable light pollution control shielding and hooding is shown in tables 1 through 4 of this section.

B. The hood or shield must mask the direct horizontal surface of the light source. The light must be aimed to ensure that the illumination is only pointing downward onto the ground
surface, with no escaping light permitted to contribute to sky glow by shining upward into the sky.

C. Any bright light shining onto adjacent property or streets which would result in a nuisance glare or a disabling glare shall not be permitted. Light trespass beyond property boundaries or above the horizontal plane shall be considered noncompliant.

D. Existing fixtures may be adapted to comply with this chapter by adding a properly designed hood or shield, or by pointing any upward mounted, shielded fixture downward onto the ground surface.

E. All outdoor lighting fixtures shall be designed, installed, located and maintained such that nuisance glare onto adjacent properties or streets shall be minimized and all direct illumination kept within the boundaries of the fixture owner’s property.

F. This section may be enforced on the basis of a formal complaint filed in writing with the planning and zoning department.

G. Accent lighting, when so approved, shall be directed downward onto the building or object and not toward the sky or onto adjacent properties. Direct light emissions shall not be visible above the roofline or beyond the building edge.

H. Spotlighting on landscaping and foliage shall be limited to 150 watts (2,220 lumens output). The lamp shall be shielded and not create disabling or nuisance glare.

1. Acceptable Shielding, Hooing And Aiming Of Outdoor Light Fixtures: The following four (4) tables of schematics show what is acceptable and what is unacceptable in the town of Taos:

   TABLE 1: WALL MOUNTED LIGHTS

   ![Table 1](http://www.sterlingcodifiers.com/codebook/printnow.php)
The angle of light deflection from hoods or shields is to be no more than 45 degrees perpendicular through the light source (bulb or tube).

**TABLE 2: FREESTANDING LIGHTS**
Street and Parking Lot P
TABLE 3: OFF WALL, BUILDING, FOLIAGE, SIGN AND ESCARPMENT LIGHTS

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<thead>
<tr>
<th>UNACCEPTABLE</th>
<th>ACCEPTABLE</th>
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<tr>
<td>![Image of unacceptable off-wall lighting]</td>
<td>![Image of acceptable off-wall lighting]</td>
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<td>![Image of unacceptable building lighting]</td>
<td>![Image of acceptable building lighting]</td>
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<td>![Image of unacceptable sign lighting]</td>
<td>![Image of acceptable sign lighting]</td>
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TABLE 4: STREET AND LOT LIGHT CUTOFF AT PROPERTY LINE

UNACCEPTABLE
(Ord. 09-19, 2009: Ord. 99-2, 1999)

15.28.070: FURTHER RESTRICTIONS:
The town reserves the right to further restrict outdoor lighting, including, but not limited to, searchlights for special events, quartz lighting, laser lights, pole height, and level of illumination, when it is deemed to be in the best public interest in keeping with the stated purpose of this chapter. (Ord. 99-2, 1999)

15.28.080: PENALTIES FOR VIOLATION:

A. Any violation of the provisions of this chapter shall constitute a petty misdemeanor, and upon conviction thereof, shall be punishable by a fine not to exceed three hundred dollars ($300.00) or imprisonment not to exceed ninety (90) days, or both.

B. Each twenty four (24) hour period during any portion of which any violation of this chapter is committed or continued to exist shall constitute a separate offense. (Ord. 99-2, 1999)

15.28.090: SEVERABILITY:

The provisions of this chapter are severable and if any paragraph, section, subsection, or part of this chapter is held to be invalid, unenforceable, unconstitutional, or inapplicable to any person or circumstance, such illegality, invalidity, unconstitutionality, or inapplicability shall not affect or impair the remainder of this chapter. (Ord. 99-2, 1999)

15.28.100: EFFECTIVE DATE:

The provisions of this chapter shall become effective five (5) days after published unless otherwise provided by law. (Ord. 99-2, 1999)
Division 10-50.70: Outdoor Lighting Standards

Sections:

- 10-50.70.010 Purpose
- 10-50.70.020 Conformance with Applicable Codes
- 10-50.70.030 Applicability
- 10-50.70.040 Establishment of Lighting Zones
- 10-50.70.050 General Requirements – All Lighting Zones
- 10-50.70.060 Special Uses
- 10-50.70.070 Prohibited Outdoor Lighting
- 10-50.70.080 Exceptions
- 10-50.70.090 Nonconforming Outdoor Lighting
- 10-50.70.100 Violations and Enforcement

10-50.70.010 Purpose

A. The City was recognized as the world’s first International Dark Sky City on October 24, 2001 for its pioneering work in the development and implementation of lighting codes that balance the need to preserve Flagstaff’s dark sky resource with the need for safe lighting practices. The purpose of this Division is to help assure that dark skies remain a resource to be enjoyed by the Flagstaff community and its visitors, and to provide safe and efficient outdoor lighting regulations that protect Flagstaff’s dark skies from careless and wasteful lighting practices. Dark starry nights, like natural landscapes, forests, clean water, wildlife, and clear unpolluted air, are valued in many ways by the residents of this community, and they provide the natural resource upon which our world-renowned astronomical industry depends.

B. The use of outdoor lighting is often necessary for adequate nighttime safety and utility, but common lighting practices can also interfere with other legitimate public concerns. Principle among these concerns is:

1. The degradation of the nighttime visual environment by production of unsightly and dangerous glare;

2. Lighting practices that produce excessive glare and brightness that interferes with the health and safety of Flagstaff’s citizens and visitors;

3. Unnecessary waste of energy and resources in the production of too much light or wasted light;

4. Interference in the use or enjoyment of property that is not intended to be illuminated at night by light trespass, and the loss of the scenic view of the night sky due to increased urban sky-glow; and
5. The impact of inappropriately designed outdoor lighting that disrupts nocturnal animal behavior, particularly migrating birds and other species.

C. The concerns of safety, utility, dark sky protection and aesthetic appearance need not compete. Good modern lighting practices can provide adequate light for safety and utility without excessive glare or light pollution. Careful attention to when, where, and how much night-time lighting is needed results in better lighting practices, darker skies and reduced energy use and costs.

D. It is therefore the intent of this Division to encourage lighting practices and systems which will:

1. Minimize light pollution, glare, and light trespass;

2. Conserve energy and resources while maintaining night time safety, utility, security, and productivity; and

3. Curtail the degradation of the night time visual environment.

E. It is recognized that since topographic and atmospheric conditions surrounding the City are uniquely suited for astronomical observation and since observatories have been established in the City’s vicinity, the City promotes the reduction of light pollution which interferes with the successful operation of these observatories.

F. The sensitivity of different areas to the different obtrusive impacts of outdoor lighting use depends on many factors, including the dominant use of the area (e.g. residential, industrial or commercial). Further, the effect of outdoor lighting on light pollution to the observatories is strongly dependent on the distance of those lights from the observatories. Therefore, three Lighting Zones are established, with varying standards designed to address the principal issues associated with the different areas.

10-50.70.020  **Conformance with Applicable Codes**

All outdoor lighting fixtures shall be installed in conformance with the provisions of this Division and the applicable Building Codes currently in effect in the City under appropriate permit and inspection.

10-50.70.030  **Applicability**

A. **Existing Buildings and Uses**

Any new outdoor lighting installed on a building or parcel shall meet the requirements of this Division with regard to shielding and lamp type. The total outdoor light output after the new outdoor lights are installed shall not
exceed that legally nonconforming or pre-approved on the site before the modification, or as permitted by this Division, whichever is larger.

B. New Uses, Buildings, and Major Additions or Modifications

1. The requirements of this Division apply to any and all new and major additions to land uses, developments, buildings, or structures.

2. If a major addition occurs on a property, the entire property shall comply with the requirements of this Code. For purposes of this section, the following are considered to be major additions:

   a. Additions of 25 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 subsequent to the effective date of this provision; and

   b. Single or cumulative modification or replacement of outdoor legally installed lighting fixtures constituting 25 percent or more of the lumens that would be permitted under this Division for the property, no matter the actual amount of lighting already on a non-conforming site, constitutes a major addition for purposes of this section.

C. Minor Additions or Modifications

Additions or modifications of less than 25 percent in terms of additional dwelling units, gross floor area, seating capacity, or parking spaces to existing uses shall require the submission of a complete inventory and site plan detailing all existing and any proposed new or modified outdoor lighting. Any new or modified outdoor lighting on the site shall meet the requirements of this Division with regard to shielding and lamp type; the total amount of lighting after the modifications are complete shall not exceed that on the site before the modification, or that permitted by this Division, whichever is larger.

D. Change of Use

1. Except as provided in Section 10-20.60.080 (Nonconforming Outdoor Lighting), whenever the use of any existing building, structure or premises is intensified through the incorporation of additional dwelling units, gross floor area, seating capacity, or other units of measurement which create a need for an increase in the total number of parking spaces of 25 percent or more either with a single change or cumulative changes subsequent to the effective date of this Zoning Code, then all outdoor lighting shall be reviewed and brought into compliance with the requirements of this Division before the use is resumed to the maximum extent feasible as determined by the Director.

2. For changes of use or intensity which require an increase in parking of less than 25 percent cumulative, the applicant shall only have to meet the requirements of this Division for any new outdoor lighting provided.
E. **Public Rights-of-Way Exempt**
   The provisions of this Division shall not apply to streetlights installed in public rights-of-way.

F. In accordance with A.R.S. § 49-1101, all outdoor light fixtures on property or buildings that are owned and operated by the City of Flagstaff shall be fully shielded.

### 10-50.70.040 Establishment of Lighting Zones

A. **Establishment of Lighting Zones**
   Three Lighting Zones are established, with varying development standards specific to their location within the City. Lighting Zones are shown in Division 10-90.50 (Lighting Zone Map).

B. **Lighting Zone Boundaries**
   The boundaries of the Lighting Zones are illustrated in Division 10-90.50 (Lighting Zone Map).

C. **Split Parcels**
   A parcel located in more than one of the described zones shall be considered to be only in the more restrictive Lighting Zone.

### 10-50.70.050 General Requirements – All Lighting Zones

A. **Preferred Source – Low-Pressure Sodium (LPS) lamps and Narrow-Spectrum Amber LEDs**
   Due to their high energy efficiency, long life, and spectral characteristics, Low-Pressure Sodium (LPS) lamps are the preferred illumination source throughout the City. Their use is encouraged, when not required, for outdoor illumination whenever their use would not be detrimental to the use of the property. In all applications where LPS lighting is required or preferred, an acceptable alternative is Narrow-Spectrum Amber LEDs.

B. **Lighting Classes**
   1. **Class 1 Lighting** is lighting used for applications where color rendition is required to preserve the effectiveness of an activity. Recognized Class 1 Lighting applications include only the following. Application of Class 1 Lighting standards to uses not included in this list requires a finding by the Director of the essential nature of color rendition to preserve the effectiveness of the activity.
      
      a. Outdoor sales areas, including service station canopies;
      
      b. Primary customer building entry/exit areas (does not include service or emergency entry/exits);
c. Outdoor seating areas at restaurants;

d. Outdoor assembly or repair areas where assembly or repair work occurs at night on a regularly scheduled basis;

e. Outdoor recreational field/track/arena areas; and

f. External and internal lighting for signs.

2. Class 2 Lighting is lighting used for applications where general illumination for safety or security is the primary concern.

a. Examples of Class 2 Lighting applications include the following:

   (1) Pedestrian walkways and driveways;

   (2) Parking lots; and

   (3) Outdoor security.

b. Low-Pressure Sodium (LPS) lamps or Narrow-Spectrum Amber LEDs are required in all Class 2 Lighting applications, except that up to 10 percent of all lighting of all classes may be non-LPS lighting as noted in Table A (Maximum Total Outdoor Light Output Standards).

3. Class 3 Lighting is outdoor lighting used for decorative purposes.

a. Examples of Class 3 Lighting applications include the following:

   (1) Architectural illumination;

   (2) Flag and monument lighting; and

   (3) Landscape lighting and the illumination of trees, shrubs, or other vegetation.

b. Class 3 lighting Fixtures shall be included in the total lumen calculations for the site. If decorative lighting is applied to the exterior wall of a building using LED lights or similar technologies that allow for the color of the light to change, only one color change every two minutes is permitted.

4. The use of solar powered light systems as a light source in all Lighting Classes is appropriate.

C. Total Outdoor Light Output

1. Total Outdoor Light Output, excluding streetlights and pedestrian lighting used to illuminate public rights-of-way and any interior lighting shall not exceed the following limits averaged over the entire
development (values listed are total initial lamp lumens per acre and per residence).

<table>
<thead>
<tr>
<th>Table 10-50.70.050.A: Maximum Total Outdoor Light Output Standards</th>
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<tbody>
<tr>
<td><strong>Land Use</strong></td>
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<tr>
<td>Commercial, Industrial, and Multi-family Residential (lumens per net acre)</td>
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<tr>
<td>Total (Fully Shielded and Partially Shielded)</td>
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<tr>
<td>Partially Shielded only</td>
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<tr>
<td>Non-LPS</td>
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<tr>
<td>Single-family Residential (lumens per parcel inclusive of accessory structures)</td>
</tr>
<tr>
<td>Total (Fully Shielded and Partially Shielded)</td>
</tr>
<tr>
<td>Partially Shielded only</td>
</tr>
</tbody>
</table>

2. For determining compliance with this Section, light emitted from outdoor lighting is to be included in the Total Outdoor Light Output as follows (see Figure A):

a. Light fixtures installed as described below shall be included in the Total Outdoor Light Output by adding 100 percent of the initial lumen outputs of the lamps used:

(1) All unshielded or partially shielded fixtures, regardless of location;

(2) Light fixtures installed on poles (such as parking lot light fixtures);

(3) Light fixtures installed on the side of buildings or other structures but not located as described in paragraphs b. or c. below; and

(4) Light fixtures installed within open parking garages, or under canopies, building overhangs, or roof eaves that are not fully shielded or are fully shielded but not located as described in paragraphs b. or c. below.

b. Fully shielded light fixtures installed as described below shall be included in the Total Outdoor Light Output by adding only 25 percent of the initial lumen outputs of the lamps used:

(1) Fully shielded light fixtures located within open parking garages, or located under canopies, building overhangs, or roof eaves, where all parts of the light fixture are located at least five feet but less than 10 feet from the nearest outdoor opening, canopy, or overhang edge.
c. Fully shielded light fixtures installed as described below shall be included in the Total Outdoor Light Output by adding only 10 percent of the initial lumen outputs of the lamps used:

(1) Fully shielded light fixtures located within open parking garages, or located under canopies, building overhangs, or roof eaves, where all parts of the light fixture are located 10 feet or more from the nearest outdoor opening, canopy, or overhang edge.

D. Lamp Source and Shielding:
The standards provided in Table B (Lamp Type and Shielding Standards) shall apply:
<table>
<thead>
<tr>
<th>Lamp Type and Lighting Class</th>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3</th>
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<tbody>
<tr>
<td>Non-Residential Outdoor Lighting</td>
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<tr>
<td>Class 1 Lighting (Color Rendition):</td>
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<tr>
<td>All lamp types and outputs</td>
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<td>Class 2 Lighting (General Illumination):</td>
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<td>All lamp types and outputs</td>
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<td>Class 3 Lighting (Decorative):</td>
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<tr>
<td>All lamp types 2,500 lumens(^1) or above per Fixture</td>
<td>X</td>
<td>A</td>
<td>FS</td>
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<tr>
<td>All lamp types below 2,500 lumens(^1) per Fixture</td>
<td>FS</td>
<td>A(^3)</td>
<td>A(^3)</td>
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<tr>
<td>Residential Outdoor Lighting</td>
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<td>Class 1-3 Lighting</td>
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<td>Lighting (Color Rendition):</td>
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<td>All lamp types 1,000 lumens(^1) or above per Fixture</td>
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**Key:**

FS = Allowed; Only Fully Shield Fixtures permitted

A = Allowed; Fully Shielded Fixtures preferred, and Partially Shielded Fixtures permitted subject to the amounts listed in Table A (Maximum Total Outdoor Light Output Standards).

X = Prohibited

**End Notes**

\(^1\)Examples of lamp types of 2,500 and 1,000 lumens and below for commercial and residential applications respectively are provided in Table C (Lamp Type and Wattage with Outputs below 2,500 and 1,000 lumens). The acceptability of a particular lamp is decided by lumen output, not wattage. The values listed are approximate, and the manufacturer’s specifications for a particular lamp must be checked.

\(^2\)For purposes of this subsection, residential refers to property developed primarily for residential purposes, including single-family residences, manufactured homes, duplexes, and triplexes as well as multi-family (i.e. apartment, condominium, townhome) uses. Non-residential uses include all other uses.

\(^3\)For purposes of determining total light output from a light fixture, lighting assemblies which include multiple unshielded or partially shielded fixtures or lamps on a single pole shall be considered as a single fixture (see Figure B). Partially shielded lighting is limited to the amounts listed in Table A (Maximum Total Outdoor Light Output Standards).
Table 10-50.70.050.C: Lamp Type and Wattage with outputs below 2,500 and 1,000 lumens

<table>
<thead>
<tr>
<th>Lamp Type</th>
<th>2500 lm (Commercial and Industrial)</th>
<th>1000 lm (Residential)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard incandescent and less</td>
<td>100 watt</td>
<td>60 watt</td>
</tr>
<tr>
<td>Tungsten-halogen (quartz) and less</td>
<td>100 watt</td>
<td>60 watt</td>
</tr>
<tr>
<td>Fluorescent and less</td>
<td>25 watt</td>
<td>15 watt</td>
</tr>
<tr>
<td>Compact Fluorescent and less</td>
<td>26 watt</td>
<td>13 watt</td>
</tr>
</tbody>
</table>

No available data for High-Pressure Sodium or Metal Halide lamps

E. Effective Shielding
All light fixtures that are required to be fully shielded shall be installed in such a manner that the shielding satisfies the definition of a fully shielded fixture.

F. Light Trespass Standard

1. All light fixtures, including security lighting, shall be located, aimed and shielded so that the direct illumination from the fixture shall be confined to the property boundaries of the source.

2. Any privately or publicly owned outdoor light fixture with a lamp of initial output over 10,000 lumens located within 50 feet of any residential (including multi-family residential) property or public right-of-way shall utilize an internal or external shield, with the light fixture and shield oriented to minimize light trespass over the adjacent property or right-of-
way line. If an external shield is used, its surface must be painted black to minimize reflections (Figure C).

![Figure C. Shielding Configurations](image)

G. **Motion Sensing Light Fixtures**
Motion sensing light fixtures shall be fully shielded.

H. **Time Limits for Outdoor Lighting**
All outdoor Class 1 and Class 3 lighting, and outdoor Class 2 lighting located more than 50 feet from any building or outdoor product display or storage area shall be turned off at the times listed in Table D (Time Limits for Outdoor Lighting), or no later than 30 minutes after the business closes, whichever is later, and remain off for the remainder of the night or until the business reopens. Decorative holiday lights are exempt in accordance with Section 10-50.70.080.D, and outdoor recreation facilities are exempt in accordance with Section 10-50.70.060.B.

<table>
<thead>
<tr>
<th>Table 10-50.70.050.D: Time Limits for Outdoor Lighting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Zone</strong></td>
</tr>
<tr>
<td>Time limit when outdoor lights must be turned off</td>
</tr>
</tbody>
</table>

I. **Sign Illumination**
Standards for external and internal sign illumination are provided in Division 10-50.100 (Sign Standards). Lighting used for the external illumination of signs is included toward the Total Outdoor Light Output standards of Subsection C.

J. **Neon Building Lighting**
Neon building lighting is included in the Total Outdoor Light Output calculations for the site. Lumens for neon lighting are calculated on a per foot basis, rather than per "fixture." Any unshielded neon lighting is limited by the unshielded lighting limits of Subsection C.
K. **Multi-class Lighting**
   Multi-class lighting must either conform to the lamp-type and shielding requirements of the strictest included class as shown in Table A (Maximum Total Outdoor Light Output Standards) and Table B (Lamp Type and Shielding Standards), or conform to the time limitations of the least restrictive included class as shown in Table D (Time Limits for Outdoor Lighting).

L. **Internally Illuminated Architectural Elements**
   Any architectural element including walls or portions of buildings that are internally illuminated and that is not a sign or fenestration (windows or doors) shall have 100 percent of the initial lamp output of all lamps used to provide such illumination counted toward unshielded lighting for the purposes of calculating Total Outdoor Light Output for the site and is subject to the standards of Subsection C.

M. **Architectural/Landscape Lighting**
   Architectural lighting used to illuminate the wall of a building or landscape lighting used to illuminate trees or other landscape elements is permitted subject to the following:

   1. Architectural and landscape lighting that is directed downward onto a wall, tree or other landscape feature shall be included in the Total Outdoor Light Output standards provided in Table A (Maximum Total Outdoor Light Output Standards), based on whether a fully shielded or partially shielded light fixture is used; and

   2. Architectural and landscape lighting that is directed upward onto a wall, tree or other landscape feature shall be included in the lumen caps for unshielded Fixtures provided in Table A (Maximum Total Outdoor Light Output Standards).

N. **Emergency Lighting**
   Emergency lighting that is only turned on in the event of a power failure or when an alarm is activated is permitted in all lighting zones and is excluded from the total lumen calculations for the site.

O. **Use of Mercury Vapor Light Fixtures**
   1. No new mercury vapor outdoor light fixtures shall be installed after the effective date of this Zoning Code. No replacement equipment other than bulbs for mercury vapor lighting fixtures shall be sold in the State after January 1, 1991 and the use of mercury vapor light fixtures is prohibited after January 1, 2011.

   2. The provisions of this section shall not apply to outdoor light systems erected prior to 1950.
10-50.70.060 Special Uses

A. Service Station Canopy Lighting

1. Lighting Class
   Lighting for service station canopies shall be considered Class 1 Lighting.

2. Shielding
   All light fixtures mounted on or recessed into the lower surface of service station canopies shall be fully shielded and utilize flat lenses. Such shielding must be provided by the fixture itself; shielding by surrounding structures such as canopy edges is not permitted.

3. Total Under-Canopy Output
   The total light output used under service station canopies, defined as the sum of all under-canopy initial lamp outputs in lumens, shall not exceed 40 lumens per square foot of canopy in Lighting Zone 2 and 3, and shall not exceed 20 lumens per square foot in Lighting Zone 1 (note: these values are not foot-candle illuminances).

4. All lighting mounted under the canopy, including but not limited to light fixtures mounted on or recessed into the lower surface of the canopy and any lighting within signage (but not including any lamps mounted within the pumps and used to illuminate information indicating the total cost of such items as fuel pumped and price per gallon), shall be included in the Total Outdoor Light Output for the site and is subject to the standards of Section 10-50.70.050.C.

B. Outdoor Recreation Facilities

1. Lighting Class
   Lighting for field/track/arena areas only shall be considered Class 1.

2. Lumen Cap Exemption

   a. In Lighting Zone 1, lighting for field/track/arena areas is subject to the lumens per acre limit set in Section 10-50.70.050.C;

   b. In Lighting Zones 2 and 3, lighting for field/track/arena areas is not subject to the lumens per acre limit set in Section 10-50.70.050.C; and,

   c. Illumination levels for the field/track/arena shall be designed to be no higher than recommended for Class IV play, as defined by the Illuminating Engineering Society of North America publication IESNA RP-06-01.

3. Shielding
   Fixtures used for field/track/arena areas shall be fully shielded.
4. **Time Limits**
   No illuminated sports facility shall be illuminated after the time limits listed in Table 10-50.70.050.D (Time Limits for Outdoor Lighting), except to conclude a scheduled recreational or sporting event in progress prior to the time limitation.

5. **Certification**
   Lighting systems for outdoor recreational facilities shall be designed and certified by an engineer registered in Arizona as conforming to all applicable restrictions of this Code before construction commences. Further, after installation is complete, the system shall be again certified by a registered engineer to verify that the installation is consistent with the certified design.

C. **Street Lighting**
   1. Standards for street lighting installed on public rights-of-way are found in the City Engineering Standards, Title 12 (Street Lighting).
   2. Street lighting installed on private rights-of-way shall be included within the Total Outdoor Light Output for the development.

D. **Parking Garages**
   1. **Lighting Class**
      Lighting installed for general illumination of parking areas within parking garages, where the parking areas are open to the outside, shall be considered Class 2.
   2. **Inclusion Toward Total Outdoor Light Output**
      The lumen output of lamps mounted on or within open parking garages shall be included toward the Total Outdoor Light Output standards in Section 10-50.70.050.C.
   3. **Shielding**
      All light fixtures used on open parking garages, including those mounted to the ceilings over the parking decks, shall be fully shielded.

E. **Outdoor Display Lots**
   1. **Lighting Class**
      Outdoor lighting for outdoor display lots shall be considered Class 1 lighting, and shall conform to applicable lumens per net acre limits applied to the entire parcel.
   2. **Lighting Time Limitations**
      Outdoor display lot lighting shall conform to the hours of operation as established under Class 1 Lighting Standards. Any lighting on after the time limitations shall be considered Class 2 lighting and shall conform to all restrictions of this Division applicable to this class.
3. **Shielding**
   All light fixtures used in outdoor display lots shall be fully shielded and be aimed so that the direct illumination shall be confined to the property boundaries of the source.

F. **Temporary Lighting**
   Temporary lighting which does not conform to the provisions of this Division may be approved by the Director subject to the approval of an Outdoor Lighting Permit in accordance with the provisions of Section 10-20.40.100 (Outdoor Lighting Permits). Temporary lighting is intended for uses which by their nature are of limited duration, including for example, holiday decorations, civic events or construction projects.

### 10-50.70.070 Prohibited Outdoor Lighting

The following types of outdoor lighting are prohibited:

A. Outdoor floodlighting by flood light projection above the horizontal plane.

B. Search lights, flood lights, laser source lights, or any similar high intensity light, except in emergencies by police, fire, or medical personnel or at their direction; or for meteorological data gathering purposes.

C. Any lighting device located on the exterior of a building or on the inside of a window which is visible beyond the boundaries of the lot or parcel with intermittent fading, flashing, blinking, rotating or strobe light illumination.

### 10-50.70.080 Exceptions

A. **Airport Lighting**
   Required navigational lighting systems at airports for the safe and efficient movement of aircraft during flight, take off, landing and taxiing is exempt from the provisions of this Division. Lighting used for illumination of aircraft loading, unloading, and servicing areas is exempt from the lumens per acre limits provided in Section 10-50.70.050.C, although it must conform to all other requirements of this Division. All other outdoor lighting at airport facilities shall comply with the provisions of this Division.

B. **Infrared Security Lighting**
   Lights emitting infrared radiation used for remote security surveillance systems is permitted in all zones with the following restrictions:

   1. Fixed lights must be fully shielded; and
   2. Movable lights, such as spot lights attached to infrared sensitive cameras, must be mounted such that the lights cannot be directed higher than 20 degrees below the horizontal, measured from the center of the light beam.
C. **Emergency Lighting by Emergency Services**
Searchlights, floodlights, laser source lights, strobe or flashing lights, or any similar high intensity lights are permitted when used in emergencies by police, fire, medical, or utility personnel or at their direction.

D. **Holiday Decorations**
In all lighting zones low voltage holiday decorations may be unshielded and remain on all night from November 15 to January 15.

E. **Solar-powered Lighting**
Solar-powered lights of 5 watts or less per fixture used in residential landscaping applications and to illuminate walkways are exempt from applicable lamp type and shielding standards and are excluded from the total lumen calculations for the site.

F. **Construction and Renovation of Municipal Facilities**
All outdoor lighting used for construction or major renovation of municipal buildings, structures and facilities is exempt from the provisions of this Division.

**10-50.70.090 Nonconforming Outdoor Lighting**

Section 10-20.60.080 (Nonconforming Outdoor Lighting) provides the standards and regulations for nonconforming outdoor lighting.

**10-50.70.100 Violations and Enforcement**

A. It shall be unlawful to install or operate an outdoor light fixture in violation of this Division. Any person violating any provisions of this Division shall be guilty of a misdemeanor. Each and every day during which the illegal erection, maintenance, and use continues shall be considered a separate offense.

B. The requirements of this Division shall be enforced in compliance with the enforcement provisions of Division 10-20.110 (Enforcement).
Boulder, CO Lighting Ordinance

9-9-16 Lighting, Outdoor.  top↑

(a) Purpose: The purposes of the outdoor lighting standards are to:

(1) Provide adequate light for safety and security;

(2) Promote efficient and cost effective lighting and to conserve energy;

(3) Reduce light pollution, light trespass, glare and offensive light sources;

(4) Provide an environmentally sensitive nighttime environment that includes the ability to view the stars against a dark sky so that people can see the Milky Way Galaxy from residential and other appropriate viewing areas;

(5) Prevent inappropriate, poorly designed or installed outdoor lighting;

(6) Encourage quality lighting design; light fixture shielding, establish maximum uniformity ratios and establish maximum light levels within and on property lines; and

(7) Establish an amortization program to remove or replace light fixtures that exceed the requirements permitted by this section.

(b) Legislative Findings Regarding the Amortization Provisions: The city council adopts the following findings regarding the amortization provisions of this section:

(1) On balance, that the burdens created to individual property owners by the amortization provisions of this section are greatly outweighed by the benefits that will be provided to all of the citizens in and visitors to the City and areas that are in close proximity to the City. The value of the fixtures required to be replaced by this section are minimal, and that, on balance, the burden placed on the property owner is minimal, given the value of such fixtures against the benefits gained by such replacement, which is a substantial decrease of unnecessary light pollution.

(2) The amortization period, based upon the formula that is used by the United States Internal Revenue Service to depreciate fixtures attached to real property over a fifteen-year period, is reasonable and provides a rational basis for the amortization schedule set forth in this section.

(3) The adopted amortization periods, together with an opportunity for extensions beyond the time periods set in this section, will allow the property owner to recoup or recover costs or otherwise reap the benefits of the useful life of such improvements in a manner that is consistent with the generally accepted methods of depreciating fixtures utilized by the United States Internal Revenue Service.

(c) Scope: This section shall apply to all exterior lighting, including illumination from outdoor signs that impact the outdoor environment. No person shall install any light fixture unless such fixture meets the requirements of this section.
(1) Conformance at the Time of Building Permit Application: Compliance with the requirements of this chapter shall be required for all new development. The following outdoor lighting improvements shall be installed prior to a final inspection for any building permit for any redevelopment which exceeds the following thresholds:

(A) When development or redevelopment exceeds twenty-five percent of the Boulder County Assessor's actual value of the existing structure, then all existing unshielded exterior light fixtures shall be retrofitted with shielding to prevent light trespass.

(B) When development or redevelopment exceeds fifty percent of the Boulder County Assessor's actual value of the existing structure, then:

(i) All exterior lighting, except existing parking lot lighting, shall be brought into conformance with the requirements of this section; and

(ii) All existing parking lot light fixtures shall be retrofitted with shielding to prevent light trespass.

(C) When development or redevelopment exceeds seventy-five percent of the Boulder County Assessor's actual value of the existing structure, then all exterior lighting fixtures shall be brought into full conformance with the requirements of this section.

(2) Replacement of Fixtures: If an existing light fixture is removed, it shall only be replaced with a conforming light fixture.

d) Design Standards: No person shall install or maintain any exterior lighting that fails to meet the requirements of this section:

(1) Maximum Light Levels at Property Line: The maximum light level at any point on a property line shall not exceed 0.1 footcandles within or adjacent to a residential zone or 0.2 footcandles in nonresidential zones except as follows:

(A) The light emitted by light fixtures mounted on a structure built within five feet of a public street right of way or sidewalk shall not exceed the maximum allowable light levels for "pedestrian areas" specified in subsection (e) of this section for the underlying zoning district or use. The maximum allowable light level shall include any existing or proposed street or pedestrian lighting located within the right of way. In no case shall the maximum allowable light level within the right of way, excluding street lights, exceed 0.2 footcandles when measured at the curbline.

(B) In nonresidential zoning districts, unless a variance has been granted, light levels exceeding 0.2 footcandles at the property line may be approved by the city manager upon finding that the increased light levels will not adversely affect an adjacent property owner. Evidence that the light will not adversely affect an adjacent property owner may include, without limitation, a statement from such property owner that it will not be adversely affected by the increased light levels. The maximum allowable light levels specified in subsection (e) of this section shall not be exceeded when measured on the property line.
(2) White Light Source Required: White light sources that include, without limitation, metal halide, fluorescent, or induction lamps, but excluding incandescent and halogen lamps, shall be required for any light fixture which exceeds two thousand four hundred lumens that is within a parking lot, vehicular circulation, or pedestrian use area.

(3) Use of High Pressure Sodium Lamps: Full cutoff high pressure sodium lamps, not exceeding a maximum lumen rating of sixteen thousand lumens, may be used in outdoor storage areas and other similar use areas not accessible to the general public and the need for good color rendering capabilities for safety and security is not necessary.

(4) Architectural Lighting of Building Facades: The lighting of a building facade for architectural, aesthetic, or decorative purposes is permitted subject to the following restrictions:

(A) Upward aimed building facade lighting shall not exceed nine hundred lumens. All upward aimed light shall be fully shielded, fully confined from projecting into the sky by eaves, roofs, or overhangs, and mounted as flush to a wall as possible.

(B) Building facade lighting exceeding nine hundred lumens shall be fully shielded, aimed downward, and mounted as flush to a wall as possible.

(C) Building facade lighting shall be fully contained within the vertical surface of the wall being illuminated.

(D) Building facade lighting that is measurable at the ground level shall be included in the maximum allowable light levels.

(5) Unshielded Lighting:

(A) Unshielded lighting that emits more than nine hundred lumens but less than or equal to one thousand two hundred lumens is permitted provided that it is activated by a motion sensor and provided it is aimed and located in such a manner as to prevent glare and light trespass. The light shall only go on when activated and go off within five minutes of activation. Motion sensor activated lighting shall not be triggered by any movement or activity located off the property on which the light is located.

(B) All lamps and bulbs less than nine hundred lumens located in residential zones shall be within a fully shielded fixture, or must be within a light fixture where the bulb or lamp are obscured from view by a material that diffuses the light. (i.e., frosted or milk colored materials), except as otherwise permitted in this section. (See figure 9-15 of this section.)
Figure 9-15: Fully Shielded Fixtures

*Examples of fully shielded light fixtures: Sconce, Pole, Canister, and Canopy. In each case the fixture has a solid housing with a flat lens or bottom and the bulb is fully within the housing.*

(6) Signs: All exterior signs shall be required to meet the standards for this section. In addition, all exterior signs are also subject to the requirements set forth in Section 9-9-21, "Signs," B.R.C. 1981.

(7) Standards for Lights Adjacent to Residential Zoning Districts, Residential Uses, or Public Right of Ways: Any light fixture located within ten feet of a property line, of a residential zoning district, an existing residential use, or within ten feet of a public right-of-way, except as permitted in subparagraph (d)(1)(A) of this section shall be:

(A) Aimed away from the property line, residential zone, residential use, and/or right of way;

(B) Classified as an IESNA Type III or Type IV light fixture; and

(C) Shielded on the side closest to the property line, residential zone, residential use, or public right of way.

(8) Canopy Lighting: Lighting fixtures mounted under canopies used for vehicular shelter shall be aimed downward and installed such that the bottom of the light fixture or its lens, whichever is lower, is recessed or mounted flush with the bottom surface of the canopy. A full cutoff light fixture may project below the underside of a canopy. All light emitted by an under-canopy fixture shall be substantially confined to the ground surface directly beneath the perimeter of the canopy. No lighting, except that permitted by the sign ordinance, shall be permitted on the top or sides of a canopy.

(9) Flagpoles: A flagpole meeting the requirements of Section 9-9-21, "Signs," B.R.C. 1981, may be illuminated by one upward aimed fully shielded spotlight light fixture which shall not exceed three thousand five hundred lumens. The light fixture shall be placed as close to the base of the flagpole as reasonably possible.

(10) Strings of Lights: No person shall use a string of lights on property with nonresidential uses except as follows:

(A) Strings of lights may only be used if they are approved by the city manager as part of an outdoor lighting plan or landscape plan. The plan must comply with all of the standards of this Subsection. The purpose of such lighting is intended to create pleasing pedestrian spaces, such as outdoor dining or patio areas, utilizing low lighting levels.

(B) Strings of lights permitted under this subsection shall be displayed in compliance with the following standards:

   (i) The string of lights contains only low wattage bulbs that are not greater than fifty lumens per bulb (equivalent to a seven watt C7 incandescent bulb);
(ii) The string of lights shall be located within a pedestrian way, plaza, patio, outdoor dining area, or the primary entry into a building;

(iii) The string of lights is not placed in any required landscape setback adjacent to a street;

(iv) The string of lights shall be displayed on a building, wall, fence, trees, and shrubs; and

(v) The string of lights shall not suspend horizontally between any buildings, walls, fences, trees, or shrubs (for the purposes of this paragraph, "horizontally" means any portion of the suspended string which dips less than forty-five degrees below the horizontal).

(11) Parking Lot Lights and Trees: Parking lot light fixtures and poles shall be located such that trees located within the parking lot do not obscure the operation of the light fixture.

(12) Full Cutoff Fixtures: Full cutoff fixtures shall be installed in a horizontal position as designed.

(e) Maximum Light Standards: No person shall operate any device which makes light in excess of the levels specified in this section. Light from any fixture shall not exceed any of the limits for the applicable zoning district or use classification in tables 9-10 and 9-11 of this section. In the event an applicant utilizes light levels at the highest level permitted for a specific use area, such lighting shall be substantially confined to that particular use area.

TABLE 9-10: ZONING DISTRICT REQUIREMENTS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum allowable light levels (measured in footcandles)</td>
<td>5.0 at building entries</td>
<td>5.0 at building entries</td>
<td>5.0 at building entries</td>
</tr>
<tr>
<td></td>
<td>3.0 in parking areas</td>
<td>5.0 in parking areas</td>
<td>5.0 in parking lots</td>
</tr>
<tr>
<td></td>
<td>3.0 along pedestrian walkways</td>
<td>3.0 along pedestrian walkways</td>
<td>3.0 along pedestrian walkways</td>
</tr>
<tr>
<td></td>
<td>2.0 in common open space areas</td>
<td>2.0 in outdoor storage areas (maximum uniformity ratio requirements are not applicable)</td>
<td></td>
</tr>
<tr>
<td>Maximum uniformity ratio (maximum to minimum)</td>
<td>n/a</td>
<td>10:1 (except as noted above)</td>
<td>15:1</td>
</tr>
<tr>
<td>Maximum lumen rating for a full cutoff luminaire shielded from view of adjacent streets and properties</td>
<td>8,500 - parking areas of 6 or more spaces</td>
<td>8,500 - pedestrian areas</td>
<td>14,000 - parking and loading areas</td>
</tr>
<tr>
<td></td>
<td>14,000 - parking and loading areas</td>
<td>14,000 - parking and loading areas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4,000 - walkway lights and common areas</td>
<td>23,500 on 35 foot pole when permitted (parking and loading areas)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1,800 stairways and</td>
<td>16,000 for high pressure</td>
<td></td>
</tr>
</tbody>
</table>
### Maximum Lumen Rating

<table>
<thead>
<tr>
<th>Description</th>
<th>Entryways</th>
<th>Sodium When Permitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>For an IESNA cutoff or semi-cutoff fixture</td>
<td>900</td>
<td>1,250</td>
</tr>
<tr>
<td>For an unshielded light fixture</td>
<td>900, except no lamp or bulb, other than for seasonal displays and landscape ornamental lighting, shall be visible beyond the property line</td>
<td>900</td>
</tr>
</tbody>
</table>

### Controls

<table>
<thead>
<tr>
<th>Description</th>
<th>Entryways</th>
<th>sodium when permitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motion sensors required for all unshielded fixtures in excess of 900 lumens</td>
<td>Recommended after close of business</td>
<td>Recommended after close of business</td>
</tr>
</tbody>
</table>

### Maximum Allowable Pole Height

<table>
<thead>
<tr>
<th>Description</th>
<th>Entryways</th>
<th>Sodium When Permitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pole height (includes base, pole and luminaire)</td>
<td>20 feet in parking lots</td>
<td>25 feet in parking lots</td>
</tr>
<tr>
<td>15 feet in all other areas</td>
<td>35 feet for contiguous parking lots of 5 or more acres in size</td>
<td></td>
</tr>
<tr>
<td>20 feet in all other areas</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 9-11: SPECIAL USE REQUIREMENTS

<table>
<thead>
<tr>
<th>Description</th>
<th>Open Parking Structures and Parking Below a Building</th>
<th>Private Recreation Use</th>
<th>Public Recreation Use</th>
<th>Service Stations, Automobile Dealerships, Drive-Thru Windows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum allowable light levels (measured in footcandles)</td>
<td>5.0 within open parking structure and parking below a building</td>
<td>The lesser of 30 footcandles or the IESNA recommended standards for the specific sports venue</td>
<td>The IESNA recommended standards for the specific sports venue</td>
<td>5.0 in building entries and drive-up windows</td>
</tr>
<tr>
<td></td>
<td>5.0 for uncovered upper levels</td>
<td>5.0 in parking lots</td>
<td>5.0 in parking lots</td>
<td>20.0 under service station canopies</td>
</tr>
<tr>
<td></td>
<td>5.0 for covered exterior pedestrian circulation areas that are a part of a parking structure or parking below a building</td>
<td>4.0 in pedestrian areas</td>
<td>4.0 in pedestrian areas</td>
<td>15.0 within vehicular display areas</td>
</tr>
<tr>
<td></td>
<td>Maximum uniformity ratio (maximum to minimum)</td>
<td>3.1 on sports field or court</td>
<td>3.1 on sports field or court</td>
<td>5.0 in parking lots</td>
</tr>
<tr>
<td></td>
<td>5.1 within parking structure</td>
<td>10:1 remainder</td>
<td>10:1 remainder of</td>
<td>3.0 along pedestrian walkways</td>
</tr>
<tr>
<td></td>
<td>10:1 remainder</td>
<td>10:1 remainder of</td>
<td>10:1 remainder of</td>
<td>10:1</td>
</tr>
<tr>
<td></td>
<td>of site</td>
<td>site</td>
<td>site</td>
<td>site</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>---------</td>
<td>-------------------------------</td>
<td>-------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Maximum lumen rating for a full</td>
<td>14,000</td>
<td>23,500 for field or court</td>
<td>107,000 for sports field</td>
<td>14,000</td>
</tr>
<tr>
<td>cutoff light fixture shielded from</td>
<td></td>
<td>area</td>
<td>23,500 for courts</td>
<td></td>
</tr>
<tr>
<td>view of adjacent streets and</td>
<td></td>
<td>8,500 for parking and</td>
<td>14,000 for parking areas</td>
<td></td>
</tr>
<tr>
<td>properties</td>
<td></td>
<td>pedestrian areas</td>
<td>8,500 for pedestrian areas</td>
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<tr>
<td>Maximum lumen rating for an IESNA</td>
<td>1,800</td>
<td>1,250</td>
<td>4,000</td>
<td>1,800</td>
</tr>
<tr>
<td>cutoff or semi cutoff light fixture</td>
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<tr>
<td>Maximum lumen rating for an unshielded light fixture</td>
<td>900</td>
<td>900</td>
<td>900</td>
<td>900</td>
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<tr>
<td>Sports shielding</td>
<td>n/a</td>
<td>Internal and external</td>
<td>Internal and external</td>
<td>n/a</td>
</tr>
<tr>
<td>Light fixture aiming angle</td>
<td>n/a</td>
<td>n/a</td>
<td>Not greater than 60 degrees</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
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<td>from nadir</td>
<td></td>
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<tr>
<td>Controls</td>
<td>Automatic daylight adaptation</td>
<td>Field or court lights shall</td>
<td>Field or court lights shall</td>
<td></td>
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<td></td>
<td>controls required</td>
<td>be turned off within 30</td>
<td>be turned off within 30</td>
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<td>minutes of the last event or</td>
<td>minutes after the last</td>
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<td>12:00 midnight, whichever is</td>
<td>event</td>
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<td>earlier</td>
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<td>Service station canopies and</td>
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<td>vehicular display lights shall</td>
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<td>not exceed 5.0 footcandles</td>
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<td>within 1 hour of the close of</td>
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<td></td>
<td>business</td>
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<tr>
<td>Maximum allowable pole height (includes base, pole, and light fixture)</td>
<td>12 feet for uncovered upper level parking</td>
<td>20 feet in residential zones</td>
<td>20 feet in parking lots within or adjacent to residential zones, otherwise 25 feet</td>
<td>20 feet when adjacent to residential zones, otherwise 25 feet in parking lots</td>
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<td>25 feet in all other zones</td>
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<td>35 feet for sports lighting or as approved by the city manager per section 9-2-14, “Site Review,” B.R.C. 1981</td>
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</tbody>
</table>

(f) Prohibitions: No person shall install any of the following types of outdoor lighting fixtures:

1. Mercury vapor lamps;

2. Low pressure sodium lamps, unless within six hundred feet of an existing astronomical observatory, which is owned or operated by a governmental entity;
(3) Blinking, flashing, moving, revolving, flickering, changing intensity or color, and chase lighting, except lighting for temporary seasonal displays, lighting for public safety or required for air traffic safety;

(4) Any light fixture that may be confused with or construed as a traffic control device;

(5) Any upward oriented lighting except as otherwise provided for in this section;

(6) Searchlights, beacons, and laser source light fixtures;

(7) Exposed linear lamps that include, without limitation, neon, Light Emitting Diode (L.E.D.), and fluorescent lighting, primarily intended as an architectural highlight to attract attention or used as a means of identification or advertisement except as permitted by section 9-9-21, "Signs," B.R.C. 1981; and

(8) Any lamp or bulb, except for seasonal displays and landscape ornamental lighting, which is visible beyond the property line on which it is located.

(g) Lighting Plans Required: A lighting plan shall be submitted with any building permit application in which outdoor lighting is proposed or required, except when all proposed lighting is provided by fixtures of nine hundred lumens or less, and except for a single detached dwelling unit on an individual lot. The lighting plan shall include:

(1) A site plan showing the location of all buildings and building heights, parking, and pedestrian areas on the lot or parcel;

(2) The location and description including mature height of existing and proposed trees and the location of light fixtures on adjacent properties or the street right-of-way within ten feet of the subject property;

(3) The location and height above grade of all proposed and existing light fixtures on the subject property;

(4) The type, initial lumen rating, color rendering index, and wattage of each lamp source;

(5) The general style of the light fixture such as cutoff, lantern, coach light, globe, and a copy of the manufacturer's catalog information sheet and IESNA photometric distribution type, including any shielding information such as house side shields, internal, and/or external shields;

(6) Control descriptions including type of controls (timer, motion sensor, time clock, etc.), the light fixtures to be controlled by each type, and control schedule when required;

(7) Aiming angles and diagrams for sports lighting fixtures; and

(8) A light calculation which shows the maximum light levels on a grid not to exceed ten feet by ten feet across the entire site and a minimum of ten feet beyond the lot or parcel property line. The grid shall also indicate maximum to minimum uniformities for each specific use area such as parking and circulation areas, pedestrian areas, and other common public areas.
(h) Final Inspection and Certification: Prior to a building permit final inspection or the issuance of a certificate of occupancy, the applicant shall provide certification that the outdoor lighting as installed complies with the approved illumination plan and the requirements of this section unless waived or amended by the city manager in writing. The certification shall be submitted in a format prescribed by the city manager. The certification shall be completed by the architect, electrical engineer, electrical contractor, or lighting consultant responsible for the plans or the final installation.

(i) Exceptions: The standards of this section shall not apply to the following types of exterior lighting:

1. Ornamental Lighting: Low voltage (twelve volts or less), low wattage ornamental landscape lighting fixtures, and solar operated light fixtures having self-contained rechargeable batteries, where any single light fixture does not exceed one hundred lumens.

2. Strings of Light: Strings of light, not exceeding a maximum of fifty lumens per lamp, (equivalent of a seven watt C7 incandescent light bulb) on properties located in all residential zoning districts or on properties that are used exclusively for residential uses shall be exempt from the requirements of this chapter.

3. Aviation Lighting: Lighting used exclusively for aviation purposes. All heliport lighting, except lighting associated with emergency facilities, shall be turned off when the heliport is not in use.

4. Right-of-Way Lighting: Public lighting that is located within the right-of-way.

5. Seasonal Lighting Displays: Lighting displays from November 15 through January 30 of the following year.

(j) Variances and Exemptions: The city manager is authorized to grant variances to this section in accordance with the following standards:

1. Equivalent Material: The provisions of this section are not intended to prevent the use of any design, material or method of installation not specifically prohibited by this section provided any such alternate has been approved by the city manager. The city manager may approve any such alternate provided that the proposed design, material or method provides an approximate equivalent method of satisfying the standards of this section.

2. Variance: The city manager may grant a variance from the provisions of this section if the city manager finds that one of the criteria of subparagraph (j)(2)(A), (j)(2)(B) or (j)(2)(C), and subparagraphs (j)(2)(D) and (j)(2)(E) of this section have been met:

   A. There are special circumstances or conditions applying to the land, buildings, or outdoor light fixtures for which the variance is sought, which circumstances or conditions are peculiar to such land, buildings or outdoor light fixtures and do not apply generally to the land, buildings or outdoor light fixtures in the neighborhood;

   B. For nonresidential uses, there are occupational safety lighting requirements for activities or processes that occur outdoors that are required by another governmental agency; or
(C) Upon a finding by the city manager that outdoor lighting in specific areas of the community, that otherwise meets the requirements of this section is not adequate and additional lighting is necessary to improve safety or security for the property or its occupants; and

(D) The granting of the variance will generally be consistent with the purpose of this section and will not be injurious to the neighborhood or otherwise detrimental to the public welfare; and

(E) The variance is the minimum variance that provides the relief required.

(3) Temporary Lighting Exemption: The city manager may grant an exemption from the requirements of this section for temporary outdoor activities that include, without limitation, fairs, carnivals, sporting events, concerts, and promotional activities, if the city manager finds the following:

(A) The length of time that the temporary lighting is to be used is not longer than thirty days;

(B) The proposed lighting is designed in such a manner as to minimize light pollution, light trespass, and glare as much as feasible; and

(C) The proposed lighting will comply with the general purpose of this section.

(k) Amortization: All exterior lighting fixtures which do not conform to the following standards shall be brought into conformance no later than fifteen years from the date of adoption of this section, July 15, 2003.

(1) Extension of Amortization Period: The city manager may extend the amortization period of this section. The city manager shall provide a compliance date for meeting the requirements of this section under a plan whereby the owner's actual investment in the improvements before the time that the use became nonstandard under this section can be amortized within a definite time period. The city manager shall consider the following factors in determining a reasonable amortization period:

(A) The owner's investment in improvements and other assets on the property before the time the improvements became nonstandard.

(B) Any costs that are directly attributable to the establishment of a compliance date, including demolition expenses and reconstruction expenses.

(C) Any return on investment since inception of the use, including net income and depreciation.

(D) The anticipated annual recovery of investment, including net income and depreciation.

(2) Compliance Requirement: If the city manager establishes a compliance date for a nonconforming use, the use must cease operations on that date and it may not operate thereafter unless it meets the lighting standards of the Boulder Revised Code.
(3) Appeal: A property owner that requested the extension of an amortization period under this section that is aggrieved by any decision of the city manager denying such an extension may appeal to the BOZA by providing a notice to the city manager of the owner's intent to appeal within fourteen days after receiving notice of the City's decision. The hearing shall be held in conformance with the requirements of subsection 9-2-3(g), B.R.C. 1981.

(4) Exempt From Amortization Requirements: The following shall be exempt from the amortization provisions, but not the shielding requirements, of this section:

   (A) Existing high pressure sodium and metal halide light fixtures which do not exceed the maximum allowable light levels of subsection (e) of this section by more than twenty percent;

   (B) Existing high pressure sodium and metal halide light fixtures mounted on poles which exceed the maximum allowable pole heights of subsection (e) of this section, but do not exceed thirty-five feet in height and do not exceed the maximum allowable light levels of subsection (e) of this section;

   (C) Existing high pressure sodium and metal halide light fixtures which exceed the maximum lumen ratings of subsection (e) of this section, but comply with the maximum allowable light levels of subsection (e) of this section.

(5) Special Amortization Requirements: Notwithstanding the fifteen-year amortization period set forth above, the following types of fixtures or bulbs shall be replaced sooner, as follows:

   (A) Replacement of Unshielded Mercury Vapor Light Fixtures: Existing unshielded mercury vapor light fixtures shall be removed or replaced with a light fixture that meets the requirement of this section by September 1, 2005.

   (B) Replacement of Bulbs: To the extent that compliance with this section can be achieved by replacement of a light bulb, the light bulb shall be replaced with one that meets the requirements of this section upon its failure or by September 1, 2004, whichever is earlier.

   (C) Aiming of Fixtures: To the extent that compliance with this section can be achieved by re-aiming a fixture, such fixture shall be re-aimed by September 1, 2004.

Ordinance Nos. 6017 (1998); 7297 (2003); 7484 (2006); 7522 (2007); 7568 (2007); 7577 (2007)
Chula Vista, CA Lighting Ordinance
Chapter 17.28
UNNECESSARY LIGHTS*

Sections:

17.28.010  Purpose and intent of provisions.

17.28.020  Industrial or commercial operations – Lights to be shielded when.

17.28.030  Residential districts – Certain lights prohibited when – Exceptions.

17.28.040  Lighting plans – Approval required when.

17.28.050  Complaints – Investigation – Notice – Hearing.

17.28.060  Unshielded lighting deemed misdemeanor when.

* For statutory authority for city councils to declare what constitutes a nuisance, see Gov. Code § 38771; for statutory provisions regarding abatement of nuisances, see Gov. Code §§ 38773 and 38773.5.

17.28.010  Purpose and intent of provisions.

A. It is the purpose and intent of this chapter to provide reasonable restrictions and limitations upon the use of lighting in or near the residential zones of the City so as to prevent lighting from creating a nuisance to residents within said residential zones. It is recognized that lighting is widely used in commercial or industrial zones for the purpose of advertising and security and that such lighting is essential to the conduct of many commercial or industrial enterprises.

B. The City Council acknowledges that protective security lighting in residential zones constitutes a deterrent to crime and an aid in law enforcement and contributes generally to the safety of those persons residing in such residential zones. It is further accepted that properly controlled lighting in residential areas used for landscaping and highlighting of architectural features of buildings and structures enhances and promotes the aesthetic condition of the property and the general welfare of the area.

C. However, it is equally recognized that lighting, by virtue of its intensity, brightness, direction, duration and hours of operation, can constitute a nuisance to adjacent residential dwellers.

D. It is the intent of the City Council in adopting this chapter to encourage the continued and appropriate use of lighting for the purposes set forth in this section, but to require that said lighting be regulated and controlled in a manner so as to avoid the creation of a public nuisance in residential areas. (Ord. 1324 § 1, 1971; prior code § 20.35.3).

17.28.020  Industrial or commercial operations – Lights to be shielded when.

It is unlawful for any commercial or industrial operation to display lights in such a manner so that the beams or the rays from the light source shall be directed to and unshielded from adjacent residential properties. All light sources used for advertising, security or safety purposes shall be arranged or shielded in such a manner so that they will not constitute a public nuisance for residential property owners. (Ord. 1324 § 1, 1971; prior code § 20.35.4 (A)).

17.28.030  Residential districts – Certain lights prohibited when – Exceptions.
It is unlawful for any person in a residential zone to maintain lighting upon premises under his ownership or control for any purpose between the hours of 11:00 p.m. and 6:00 a.m. in a manner so that the beams, rays, reflections or diffusions from the lighting spill out, over or onto adjoining or neighboring residential properties, as defined in the zoning ordinance of the city, so that said lighting, by its degree of intensity or duration of operation, interferes with the peaceful enjoyment of the property of such adjoining or neighboring landholders and unnecessarily or unreasonably disturbs the comfort and repose of the adjoining or neighboring landowners so as to constitute a nuisance. Protective security lighting, landscape lighting or architectural highlighting, properly directed and shielded, may be operated at all hours of the night. (Ord. 1324 § 1, 1971; prior code § 20.35.4(B)).

17.28.040 Lighting plans – Approval required when.

All lighting plans in multiple-family, commercial and industrial zones shall be submitted to the director of planning for approval prior to installation thereof. Should the city disapprove of the plans, appeal may be taken to the planning commission. The determination of the commission shall be final. (Ord. 1324 § 1, 1971; prior code § 20.35.4 (C)).

17.28.050 Complaints – Investigation – Notice – Hearing.

Upon the written complaint setting forth the particulars concerning any offending lighting situation by the adjoining or neighboring residential property dwellers, it shall be the responsibility of the city to investigate the basis of the complaint, and if there is found to be sufficient cause for said complaint which constitutes a nuisance to the adjoining or neighboring property owners, a written notice shall be sent to the owner or person controlling such lighting, directing that the lighting be modified, discontinued or abated within 15 days of receipt of the notice. If the lighting situation has not been discontinued or abated as required in this section, the city manager shall issue a notice to the property owner pursuant to Chapter 1.40 CVMC to appear and show cause as to why the lighting should not be declared a public nuisance and abated pursuant to Chapter 1.30 CVMC. (Ord. 2718 § 1, 1998; Ord. 1324 § 1, 1971; prior code § 20.35.4(D)).

17.28.060 Unshielded lighting deemed misdemeanor when.

Lighting which is unshielded or so directed as to focus the beams directly upon adjacent residential property is prohibited at all times, and such use of lighting shall constitute a misdemeanor subject to the penalties set forth in this code. (Ord. 1324 § 1, 1971; prior code § 20.35.4(E)).

The Chula Vista Municipal Code is current through Ordinance 3326, passed November 18, 2014.
Disclaimer: The City Clerk's Office has the official version of the Chula Vista Municipal Code. Users should contact the City Clerk's Office for ordinances passed subsequent to the ordinance cited above.
<table>
<thead>
<tr>
<th>Location</th>
<th>Purpose of ordinance</th>
<th>Projects subject to ordinance/Applicability</th>
<th>Purpose of ordinance</th>
<th>Projects subject to ordinance/Applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taos</td>
<td>Regulate outdoor lighting to reduce or prevent light pollution, conserve energy, and prevent light trespass, glare, and safety hazards.</td>
<td>All projects installed after effective date of ord.</td>
<td>Light that is determined to create a “nuisance glare” or “disabling glare,” including overly bright interior lighting and existing outdoor fixtures.</td>
<td>Existing outdoor fixtures are subject to these regulations.</td>
</tr>
<tr>
<td>Flagstaff</td>
<td>Dark Sky Ordinance. Reduce degradation of nighttime visual environment; excessive glare interfering with health and safety, waste of energy, interference of property enjoyment, impact on nocturnal animals and birds.</td>
<td>All new lighting on a building or parcel shall meet shielding and lamp type requirements. Total outdoor lighting output shall not exceed the existing output or the output allowed by the ordinance, whichever is greater.</td>
<td>glare among the items listed that can be considered a nuisance by the City.</td>
<td>Existing outdoor fixtures are subject to these regulations.</td>
</tr>
<tr>
<td>Boulder</td>
<td>Provide adequate lighting for safety and security, reduce light pollution, reduce light trespass and conserve energy.</td>
<td>Major additions or Mods: New Buildings, Use, and Projects apply to all Existing Buildings and Uses.</td>
<td>All commercial and industrial projects, and residential lighting that creates glare between 11:00 PM and 6:00 AM.</td>
<td>Major additions or Mods: New Buildings, Use, and Projects apply to all Existing Buildings and Uses.</td>
</tr>
<tr>
<td>San Francisco</td>
<td>No ordinance. Regulate lighting in commercial and industrial zones to prevent nuisance to residents in residential districts.</td>
<td>All projects. Max allowable light level determined by district and location on property. Some special uses (parking structures, private rec, public rec, auto-related uses) have separate restrictions.</td>
<td>Glare among the items listed that can be considered a nuisance by the City.</td>
<td>Major additions or Mods: New Buildings, Use, and Projects apply to all Existing Buildings and Uses.</td>
</tr>
<tr>
<td>Chula Vista</td>
<td>Regulate lighting in commercial and industrial zones to prevent nuisance to residents in residential districts.</td>
<td>All projects. Max allowable light level determined by district and location on property. Some special uses (parking structures, private rec, public rec, auto-related uses) have separate restrictions.</td>
<td>Glare among the items listed that can be considered a nuisance by the City.</td>
<td>Major additions or Mods: New Buildings, Use, and Projects apply to all Existing Buildings and Uses.</td>
</tr>
</tbody>
</table>
new buildings. A major addition (25% cumulative increase in DUs, gross floor area, seating capacity or parking spaces or modification/replacement of outdoor lighting fixtures constituting 25% or more of the lumens permitted for property) would trigger compliance for the entire property.

<table>
<thead>
<tr>
<th>Types of lighting subject to ordinance</th>
<th>Outdoor lighting.</th>
<th>Outdoor lighting. City is divided into 3 Lighting Zones based on dominant use of area and prox to observatories. Total Outdoor Light Output, and types of lights permitted, are determined by Lighting Zone of property.</th>
<th>All exterior lighting including outdoor signs. Applies to all new development, all replacement fixtures, and existing buildings with modifications</th>
<th>N/A</th>
<th>Lighting in or near residential districts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighting standards</td>
<td>Lighting must be hooded, shielded and/or aimed downward, with no light escaping to the sky. All outdoor lighting shall be designed, installed. Located and maintained so that nuisance glare onto adj properties or streets shall be minimized and all direct illumination kept within the boundaries of the</td>
<td>Standards based on Lighting Zone and the type of lighting (three Classes).</td>
<td>Maximum light levels (foot candles) at property lines; standards for white light sources and high-pressure sodium lights; shielding, location and lighting fixture requirements for lights in or adjacent to residential zones.</td>
<td>N/A</td>
<td>All lights shall be shielded so that the beams are not directed onto residential properties.</td>
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<tr>
<td>fixture owner’s property.</td>
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<tr>
<td><strong>Lighting plans required?</strong></td>
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<tr>
<td>Yes, for all projects which include the installation of outdoor lights beyond one single 150 watt outdoor light fixture.</td>
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<tr>
<td>Not sure. Plans not specifically mentioned. “All outdoor lighting fixtures shall be installed in conformance with the provisions of this Division and the applicable Building Codes currently in effect in the City under appropriate permit and inspection.”</td>
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<tr>
<td>Yes, submitted with any building permit proposing outdoor lighting except for single detached unit on an individual lot</td>
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<td>N/A</td>
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<tr>
<td>Yes for multi-family, commercial and industrial zones. Subject to approval by Planning Director prior to installation. Appeals may be heard by the Planning Commission.</td>
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<tr>
<td><strong>Exceptions</strong></td>
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<tr>
<td>Traffic controls, streetlights predating ord, temporary emergency lighting, moving vehicle lights, navigation lights, lighted signs conforming to sign ord, seasonal decorations not up longer than 60 days, sports fields Special events Covered porch lighting not exceeding 150 watts (2,220 lumens0 and security lights of any wattage controlled by a motion sensor and timed to turn off within 10-12 minutes.</td>
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<td>Lighting in public right-of-way</td>
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<td>Ornamental lighting (low wattage, low voltage), strings of lights not exceeding a max of 50 lumens per lamp), aviation lighting, ROW lighting, seasonal displays btw Nov 15 – Jan 30. Variances permitted.</td>
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<td>N/A</td>
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<td>In residential districts, protective security lighting, landscape lighting and architectural highlighting “properly directed and shielded” may operate all hours of the night.</td>
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<tr>
<td>Prohibited lighting</td>
<td>Outdoor floodlighting with projection above the horizontal plane, search lights except for emergencies, and strobe lights, etc., visible from the exterior of the building.</td>
<td>Mercury vapor lamps, low pressure sodium lamps, blinking lights (except seasonal displays), any upward oriented lighting except as otherwise provided, and lamp or bulb except seasonal displays and landscape ornamental lighting, which is visible beyond the property line on which it is located.</td>
<td>N/A</td>
<td>Unshielded lighting or lighting directed directly upon adjacent residential properties.</td>
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<tr>
<td>Amortization?</td>
<td>No</td>
<td>No</td>
<td>N/A</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Enforcement and penalties?</td>
<td>Enforced on basis of formal written complaint to planning dept. Petty misdemeanor. Conviction = $300 fine and/or up to 90 days in jail. Each 24 hour period constitutes a separate offense.</td>
<td>Misdemeanor for installing or operating light fixture in violation of ord. See Chapter 10-20.110 for enforcement.</td>
<td>Nuisance law</td>
<td>Written complaints would generate a city investigation. NOV would be issued with requirement to abate the lighting within 15 days. Public nuisance proceedings could begin if the lighting is not abated. Unshielded lighting constitutes a misdemeanor.</td>
<td></td>
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</tbody>
</table>
To: Honorable Mayor and Members of the City Council
From: Councilmembers Laurie Capitelli and Susan Wengraf
Subject: Shielded Outdoor Fixtures in Residential Areas

RECOMMENDATION
Refer to the Planning Commission an amendment to the Zoning Code requiring exterior lighting be shielded in a manner which avoids direct glare onto abutting lots in a residential district.

FINANCIAL IMPLICATIONS
Unknown.

BACKGROUND
This amendment would provide protection from direct light and/or unreasonable glare originating from outdoor fixtures on adjacent properties in residential areas. This is the same protection afforded those whose residential property abuts a commercial property.

BMC 23E.04.060. A. For lots that are located in a commercial District that abuts or confronts a lot or lots in a residential District the following building features shall conform to the specified requirements, unless otherwise specified by the provisions of an individual District:

BMC 23E.04.060.C Exterior lighting shall be shielded in a manner which avoids direct glare onto abutting lots in a residential District.

The goal would be to encourage residents to shield their outside lighting in order to 1. Minimize direct impacts on adjacent properties; 2. Limit ambient lighting by focusing light where needed.

This would also be consistent with Berkeley’s General Plan: Policy EM-42 Outdoor and Street Lighting states: Outdoor lighting should be chosen to avoid glare and provide an attractive nighttime environment with “fully shielded” fixtures to limit light rays emitted above the horizontal plane.

CONTACT PERSON
Councilmember Laurie Capitelli, District 5 981-7150
Councilmember Susan Wengraf, District 6 981-7160
RECOMMENDATIONS

Hold a Public Hearing. Recommend to the City Council an amendment to the Zoning Ordinance designed to provide protection to residential properties from glare from other residential properties.

BACKGROUND

At the May 21, 2014 meeting, the Planning Commission reviewed a referral from Council to consider an amendment to the Zoning Ordinance to address direct light and/or unreasonable glare onto residential properties that originates from other residential properties. The May 21st staff report outlined how glare from commercial properties onto residential properties is currently regulated, and suggested that this existing language be used to apply to residential-to-residential glare issues. The report also provided zoning language regarding outdoor lighting from other communities.

DISCUSSION

Reasoning behind Referral
The Berkeley Municipal Code has regulations in Section 23E.04.060 to protect residential properties from excessive glare at night. These regulations only address glare that originates on non-residential properties and affects residential properties in residential zones. The following is a complete list of Berkeley’s residential districts: R-1, R-1A, ES-R, R-2, R-2A, R-3, R-4, R-5, R-S and R-SMU.

The Council acknowledges that glare is a nuisance regardless of its origin, and that all residentially zoned properties should be afforded the same protection from glare as those that abut commercial properties. The Council suggests that the Planning
Commission consider zoning amendments that would encourage residential property owners to:

- Minimize direct lighting impacts on adjacent residential properties; and
- Limit ambient lighting by focusing light where needed.

Proposal and Staff Analysis
The Commission discussed the referral and lighting requirements used by other jurisdictions. Among the topics of discussion were the need to balance safety and security needs against light spill-over onto other properties, and how specific the regulations should be in terms of the types of lights and shielding requirements. The commissioners also discussed how to address different levels of sensitivity to nighttime glare that might exist between neighbors.

Based on Commission direction, staff has developed the following proposal for consideration:

- Add a new section to Zoning Ordinance Chapter 23D.04 that would require outdoor light fixtures on residentially-zoned properties to be shielded, directed downward, and directed away from other residentially-zoned properties.

Staff believes that this proposal would achieve the goal of preventing excessive glare on neighboring residentially-zoned properties while still allowing homeowners the ability to light their own property adequately for security and visibility.

This language would not change how projects are reviewed. Outdoor light fixtures are only reviewed by Planning staff on projects that require discretionary review. In these cases, staff already has standard conditions of approval that require exterior lighting to be shielded, directed downward, and directed away from property lines. This new language would set a standard for all residentially zoned projects. This standard would allow the City’s Code Enforcement Division to follow up on complaints, something which is not directly stated in the current Zoning Ordinance language.

The Planning Commission could also consider other options, such as:

- Require that motion sensors which activate outdoor lights be placed in such a manner that they are not triggered by movement or activity located off the property on which the light is located (draft language has been provided and noticed for this option); and/or
- Recommend that the Council make no change to the Zoning Ordinance.

Environmental Review
The environmental impacts of regulating glare onto residential properties, from a CEQA standpoint, are not significant. CEQA is used to evaluate physical impacts resulting from the change in the use and activity, such as increased development or traffic, on an identified area.

The proposed Zoning Ordinance change could reduce the amount of artificial light that a residence would experience at night; exterior lighting is already allowed in residential
districts. It would not prohibit exterior lighting, but would add a requirement that the lighting be shielded, directed downward and away from adjacent residential properties. For this reason, the project can be considered “exempt” from CEQA, per Section 15061.b.3, which states:

"...CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA."

General Plan Review
Staff has determined that no changes are necessary to the General Plan.

The General Plan has a specific policy that supports this proposed zoning ordinance change:

Policy EM-42: Outdoor and Street Lighting. Outdoor lighting should be chosen to avoid glare and provide an attractive nighttime environment with “fully shielded” fixtures to limit light rays emitted above the horizontal plane.

Requiring outdoor lights to be installed in such a way to prevent glare on neighboring residentially-zoned properties would be compatible with this goal. It would also be consistent with the existing Zoning Ordinance regulations that protect residential properties from light generated by commercial uses.

CONCLUSION

Staff recommends that the attached zoning language be forwarded to the Council for consideration, with any changes identified through a vote of the Commission.

Attachments:
A. Proposed Ordinance Language
B. Council Referral (Shielded Outdoor Fixtures in Residential Areas)
C. Public Hearing Notice