

Planning Commission Meeting Date: April 18, 2024

To: Members of the Planning Commission
Jake Reilly, Community Development Director
From: Kim Lindquist, Planning Consultant WSB
Re: Dark Skies/Outdoor lighting supporting documentation

Included in the document are the code sections from the cities of Owatonna, Faribault, Red Wing, Farmington, and Cannon Falls for reference and comparison. Currently within the area, none of these surrounding communities have on par or more restrictive code regarding light pollution than Northfield, or do not address dark sky ordinances within their respective codes. Therefore, the following resources will be more helpful in providing guidance in reexamining the existing code language. The international Dark Sky Campaign has written a model ordinance that includes requirements for All Outdoor lighting, Non-residential Lighting, Residential, special permit lighting, existing and non-conformities, and street lighting. They also have a resource that explains how to conduct a night survey in multiple different ways to measure the lighting impacts in the area. The MN GreenStep program site also has a webinar summary from February of this year which includes some helpful resources on light pollution and the City of Plymouth's Lighting ordinance which includes input from both the Illuminating Engineering Society and International Dark Sky's model ordinance.

[International Dark Sky Campaign – Model lighting Ordinance](#)

[City of Plymouth – Lighting Ordinance](#)

[Minnesota GreenStep Cities Dark Sky Compliant resources page](#)

[Dark Sky Communities & Places – GreenStep Webinar](#)

[International Dark Sky Campaign – How to conduct a Night Sky Quality Survey](#)

Five Lighting Principles for Responsible Outdoor Lighting



DarkSky



IES Illuminating
Engineering Society

Responsible outdoor lighting is

1 Useful

Use light only if it is needed

All light should have a clear purpose. Consider how the use of light will impact the area, including wildlife and their habitats.



2 Targeted

Direct light so it falls only where it is needed

Use shielding and careful aiming to target the direction of the light beam so that it points downward and does not spill beyond where it is needed.



3 Low Level

Light should be no brighter than necessary

Use the lowest light level required. Be mindful of surface conditions, as some surfaces may reflect more light into the night sky than intended.



4 Controlled

Use light only when it is needed

Use controls such as timers or motion detectors to ensure that light is available when it is needed, dimmed when possible, and turned off when not needed.



5 Warm-colored

Use warmer color lights where possible

Limit the amount of shorter wavelength (blue-violet) light to the least amount needed.



Rev 08-2023

Current Northfield Lighting/Dark Sky Ordinance

Chapter 34 - Land Development Code

Article 3 – Site Development

3.3.4 Outdoor Lighting Standards

(A) Purpose. It is the purpose of these lighting standards to recognize the values as expressed by the [International Dark Sky Association](#) and implement lighting standards that will serve to enhance the value of dark sky and minimize ambient lighting to the degree possible. These regulations are intended to minimize the spillover of light and glare on operators of motor vehicles, pedestrians, and land uses in the proximity of the light source. With respect to motor vehicles in particular, safety considerations form the basis of the regulations contained in this section. In other cases, both the nuisance and hazard aspects of glare are the basis for these regulations.

(4) Illumination Standards.

(a) Outdoor lighting shall not be designed or located in such a way as to shine directly into an adjacent dwelling unit, regardless of the applicable zoning district

(b) The maximum illumination permitted in each district type, as demonstrated by a photometric drawing, shall be as shown in Table 3.3-2 below:

Table 3.3-2: Maximum Illumination Level at the Property Line		
District	Maximum Illumination across the Property or Area (average foot-candles)	Maximum Illumination at the Property Line (foot-candles)
R2, R3, R4, N1, N2, and NC-F districts	1.5	0.1
C1, C2, I1, CD-S, PI-S, and ED-F districts	2.5	0.1 when adjacent to a residential use or 2.5 when adjacent to lot in the same district
Parking lots of six spaces or more	2.0	0.1 when adjacent to a residential use or 0.5 when adjacent to a nonresidential use

(c) When parking lots are within 15 feet of a property line, the placement cutoff light fixtures shall be designed to maintain the illumination levels at the property line as cited in Table 3.3-2.

(d) Wall packs on buildings may be used at entrances to a building to light unsafe areas. They are not intended to draw attention to the building or provide general building or site lighting. "Wall Packs" on the exterior of the building shall be fully shielded (true cut-off type bulb or light source not visible from off-site) to direct the light vertically downward.

Owatonna – Does not mention Dark Sky Ordinances

§ 157.073 LIGHTING AND GLARE

(A) Any lighting used to illuminate an off-street parking area, sign or other structure shall be arranged as to deflect light away from any adjoining residential zone or from the public streets. Direct or sky-reflected glare, whether from floodlights or from high temperature processes such as combustion or welding, shall not be directed into any adjoining property. The source of lights shall be hooded or controlled in the manner so as not to light adjacent property. Bare incandescent light bulbs shall not be permitted in view of adjacent property or public right-of-way.

(1) Except for street lighting provided by the city's public utilities, any light or combination of lights which cast light on a public street shall not exceed one foot candle (meter reading) as measured from the centerline of said street.

(2) Any light or combination of lights which cast light on residential property shall not exceed 0.4 foot candles (meter reading) as measured from said property.

Faribault – Does not mention Dark Sky Ordinances

Sec. 6-340. - Lighting.

(A) In general. No use or structure shall be operated or occupied as to create light or glare in such an amount or to such a degree or intensity as to constitute a hazardous condition, or as to unreasonably interfere with the use and enjoyment of property by any person of normal sensitivities, or otherwise as to create a public nuisance.

(B) Specific standards. All uses shall comply with the following standards except as otherwise provided in this section:

(1) Lighting fixtures shall be effectively shielded and arranged so as not to shine directly on any residential property. Lighting fixtures not of a cutoff type shall be subject to the following:

(a) Maximum initial lumens generated by each fixture shall not exceed two thousand (2,000) lumens (equivalent to a one hundred fifty (150) watt incandescent bulb).

(b) Mounting heights of such fixtures shall not exceed fifteen (15) feet.

(2) Lighting shall not create a sensation of brightness that is substantially greater than ambient lighting conditions so as to cause annoyance, discomfort, or decreased visual performance or visibility.

(3) Lighting shall not directly or indirectly cause illumination or glare in excess of one-half ($\frac{1}{2}$) foot-candle measured at the closest residential property line and five (5) foot-candles measured at the street curb line or non-residential property line nearest the light source.

(4) Lighting shall not create a hazard for vehicular or pedestrian traffic.

(5) Lighting of building facades or roofs shall be located, aimed, and shielded so that light is directed only onto the facade or roof. (6) Lighting shall be maintained stationary and constant in intensity and color, and shall not be of a flashing, moving, or intermittent type.

(C) Exceptions. The uses listed below shall be exempt from the provisions of this section as follows:

(1) Publicly controlled or maintained street lighting and warning and emergency or traffic signals.

(2) Athletic fields and outdoor recreation facilities serving or operated by an institutional or public use that otherwise meets all of the requirements of this ordinance shall be exempt from the requirements of Sections 6-340(B)(1) through (B)(4) due to their unique requirements for nighttime visibility and limited hours of operation.

(3) Neon signs, theater marquee lights, and decorative lighting.

Red Wing Chapter 11, Division 55 Special Provisions (Page 15) – Does not mention Dark Sky Ordinances

M) Lighting, Lighting Fixtures and Glare. In all districts, any lighting used to illuminate an off-street parking area, or other structure or area, shall be arranged as to deflect light away from any adjoining residential zone or from the public streets. Direct or sky-reflected glare, whether from floodlights or from high-temperature processes such as combustion or welding shall not be directed into any adjoining property. The source of light shall not be directed into any adjoining property. The source of light shall be hooded or controlled so as not to light adjacent property. Bare light bulbs shall not be permitted in view of adjacent property or public right-of-way. No light or combination of lights which cast light on a public street shall exceed 1 foot candle meter reading as measured from the centerline of said street nor shall any light or combination of lights which cast light on residential property exceed .04 foot candles.

55-15

- 1) Lighting standards shall not exceed 25 feet or the height of the principal building on the lot; whichever is less, without a conditional use permit.
- 2) All lighting in Non-Residential Districts used for the external illumination of buildings, so as to feature said building, shall be placed and shielded so as not to interfere with the vision of persons on adjacent highways or adjacent property.
- 3) All illumination of signs and any other outdoor features shall not be of a flashing, moving or intermittent type. Artificial light shall be maintained stationary and constant in intensity and color at all times when in use.

Farmington - Does not mention Dark Sky Ordinances

10-6-8: EXTERIOR LIGHTING:

- (A) All interior lighting shall be designed and arranged so as to not direct any illumination upon or into any contiguous residential districts.
- (B) No exterior lighting shall be arranged and designed so as to create direct viewing angles of the illumination source by pedestrian or vehicular traffic in public right of way.

(C) Lenses, deflectors, shields, louvers and prismatic control devices shall be utilized so as to eliminate nuisance and hazardous lighting.

(D) Reflected glare from exterior lighting or from high temperature processes such as combustion or welding shall not be directed into any adjoining property.

(E) In no case shall reflected glare or spill light exceed five-tenths (0.5) foot-candle as measured on the property line when abutting residential zones and 1.0 foot-candle measured on the property line when such line abuts a similar zone and land. (Ord. 002-469, 2-19-2002)

Cannon Falls – Does not mention Dark Sky Ordinances

§ 152.187 EXTERIOR LIGHTING.

(A) Purpose. It is the purpose of this section to encourage the use of lighting systems that will reduce light pollution and promote energy conservation while increasing night-time safety, utility, security and productivity.

(B) Exemptions. The provisions of this section shall not apply to the following:

1. Temporary outdoor lighting used during customary holiday seasons;
2. Temporary outdoor lighting used for civic celebrations and promotions;
3. Lighting required by a government agency for the safe operation of airplanes or security lighting required on government buildings or structures;
4. Emergency lighting by police, fire and rescue authorities;
5. Architectural/historical light fixtures and street lights that feature globes that are not shielded. In no case shall the light affect adjacent property in excess of the maximum intensity defined in division (C)(1) below of this chapter; and
6. All outdoor lighting fixtures existing and legally installed prior to the effective date of this chapter are exempt from regulations of this section but shall comply with the following standards:

(C) Performance standards.

1. Limitation. No light source or combination thereof which cast light on a public street shall exceed one foot candle meter reading as measured from the centerline of the street nor shall any light source or combination thereof which cast light on adjacent property exceed four-tenths foot candles as measured at the property line.
2. Measurement. The foot candle level of a light source shall be taken after dark with the light meter held six inches above the ground with the meter facing the light source. A reading shall be taken with the light source on, then with the light source off. The difference between the two readings will be identified as the light intensity.
3. Residential district standards. In all residential districts, any lighting used to illuminate an off-street parking area, structure or area shall be arranged as to deflect light away from any adjoining residential property or from any public right-of-way in accordance with the following provisions.

- a. The light source shall be hooded or controlled so as not to light adjacent property in excess of the maximum intensity defined in division (C)(1) above of this chapter.
 - b. Bare light bulbs shall not be permitted in view of adjacent property or public right-of-way, unless part of a permanent fixture.
- 4. Commercial, industrial and institutional districts. Any lighting used to illuminate an off-street parking area, structure or area shall be arranged so as to deflect light away from any adjoining property or from any public right-of-way in accordance with the following provisions.
 - a. Shielding. The light fixture shall contain a cutoff which directs the light at an angle of 90 degrees or less. Exposure of the light source shall not be permitted in view of adjacent property or public right-of-way.
 - b. Lighting of entire facades or architectural features. Lighting of entire facades or architectural features of a building shall be approved by the City Council. Building facades or architectural features may not be internally illuminated and shall only utilize illuminating devices mounted on top and facing downward onto the structure. In no case shall the light affect adjacent property in excess of the maximum intensity defined in division (C)(1) above of this chapter.
 - c. Intensity. Light sources shall not be permitted so as to light adjacent property in excess of the maximum intensity defined in division (C)(1) above of this chapter.
- 5. Height. The maximum height above the ground grade permitted for poles, fixtures and light sources mounted on a pole is 25 feet. A light source mounted on a building shall not exceed the height of the building. Exceptions to the height limits for light sources may be approved by conditional use permit provided that all other requirements of this section are complied with.
- 6. Location.
 - a. All non-public outdoor light fixtures shall be set back a minimum of ten feet from a street right-of-way and five feet from an interior side or rear lot line.
 - b. No light sources shall be located on the roof unless the light enhances the architectural features of the building and is approved by the City Council.
- 7. Glare. Direct or reflected glare from high temperature processes such as combustion or welding shall not be visible from any adjoining property.
- 8. Outdoor recreation. Outdoor recreational uses such as, but not limited to, baseball fields, football fields and tennis courts have special requirements for night-time lighting. Due to these unique circumstances, a conditional use permit shall be required for outdoor lighting systems for those uses that do not comply with regulations of this section, provided that:
 - a. No public or private outdoor recreation facility shall be illuminated after 11:00 p.m., except for required security lighting;

- b. Off-street parking areas for outdoor recreation uses that are illuminated shall meet the requirements for commercial, industrial and institutional applications as found in division (C)(4) above of this chapter; and
- c. The provisions of § 152.072 of this chapter are considered and satisfactorily met.

9. Outdoor signs.

- a. Outdoor signs constructed of translucent materials and wholly illuminated from within do not require shielding.
- b. All shall comply with all other provisions of this chapter.

(Prior Code, § 11-16-8) (Ord. 258, passed 5-4-2006)