

THREE SPRINGS DESIGN GUIDELINES

LIGHTING STANDARDS

FINAL: DECEMBER 3, 2012



TABLE OF CONTENTS: LIGHTING STANDARDS

<u>1.0 INTRODUCTION</u>	<u>1</u>
<u>2.0 ENVIRONMENTALLY SENSITIVE LIGHTING</u>	<u>1</u>
<u>3.0 VISIBILITY AND FUNCTION</u>	<u>2</u>
<u>4.0 SAFETY AND SECURITY</u>	<u>3</u>
<u>5.0 IMAGE AND IDENTITY</u>	<u>3</u>
<u>6.0 LIGHTING DESIGN</u>	<u>3</u>

1.0 INTRODUCTION

The exterior lighting program for the Three Springs Neighborhood will provide light for safety and comfort while conserving energy resources and minimizing light pollution. The lighting program throughout the community will help to retain a level of darkness for adjacent landowners and natural open spaces, save energy, and reduce waste to help preserve the natural environment. Low glare, well-placed lighting will provide a safe and comfortable nighttime environment. Lighting will be minimized to provide light only where safety and visibility are critical. Specific control measures as defined will ensure that lighting is not used when it is not needed.

All outdoor lighting shall comply with all regulations associated with the City of Durango Outdoor Lighting Ordinance No. 0- 2004-37 (LUDC Sec. 10-11-10; Supplement No 37). Any exterior fixture must emit “white” colored light.

The following design principles address the basic objectives of site lighting throughout the Three Springs Neighborhood:

- Environmentally sensitive lighting
- Nighttime visibility and function
- Safety
- Image & Identity

2.0 ENVIRONMENTALLY SENSITIVE LIGHTING

Principles

Environmentally sensitive lighting minimizes light pollution and light trespass, and applies only the right amount of light where it is needed.

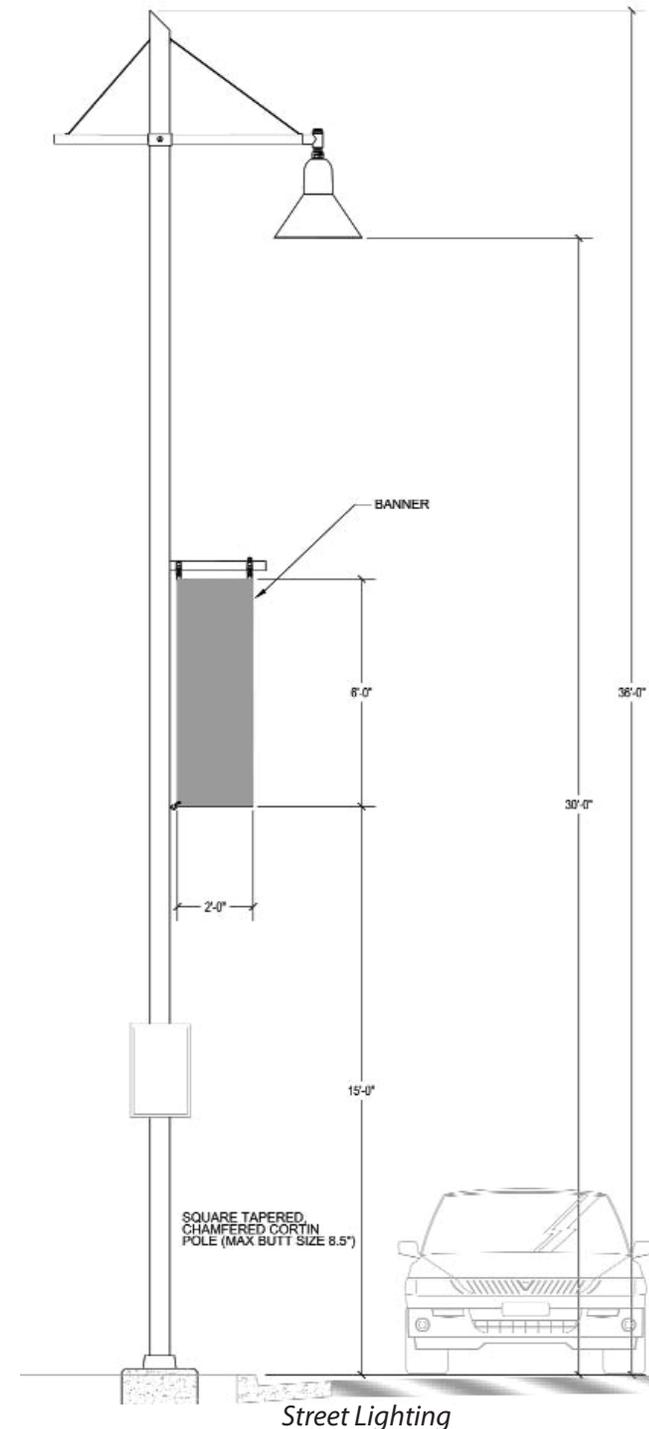
Guidelines

a. The determination of what to light is just as important as how to light. Some areas may be specifically designated as dark preserves. Street and trail lighting locations should minimize stray light onto adjacent residences.

b. Time control and motion sensors can be used to automatically turn lights off in areas that are used less at night, such as the office buildings in the Special Districts, yet still provide light when needed for late night use.

Standards

a. All exterior area lighting for single-family attached and detached dwellings shall be shielded or fully shielded, aimed downward, and will utilize white light sources.



Street Lighting

THREE SPRINGS - DURANGO, COLORADO

b. Lighting levels shall be minimized and lighting controls will ensure that lighting is turned off in some areas when it is not needed.

c. The lighting within Three Springs shall be well shielded and designed to limit light levels to help maintain dark skies.

d. Excessive light trespass is not acceptable in Three Springs and shall be minimized with careful equipment selection, proper location, and proper orientation and shielding. Refer to LUDC Sections 0-11-6(a) for further information on light trespass standards.

e. Municipal functions and uses shall adhere to the guidelines and standards as defined.

3.0 VISIBILITY AND FUNCTION

Principles

Quality accent lighting creates a composition of light and darkness on the architecture, using less light for greater effect. Lighting quality involves many issues such as contrast, brightness adaptation, minimal glare, and light source color. Good visibility is achieved by balancing brightness, lighting vertical surfaces, providing clear visual cues and controlling glare. These strategies create a high quality visual environment using low light levels.

Guidelines

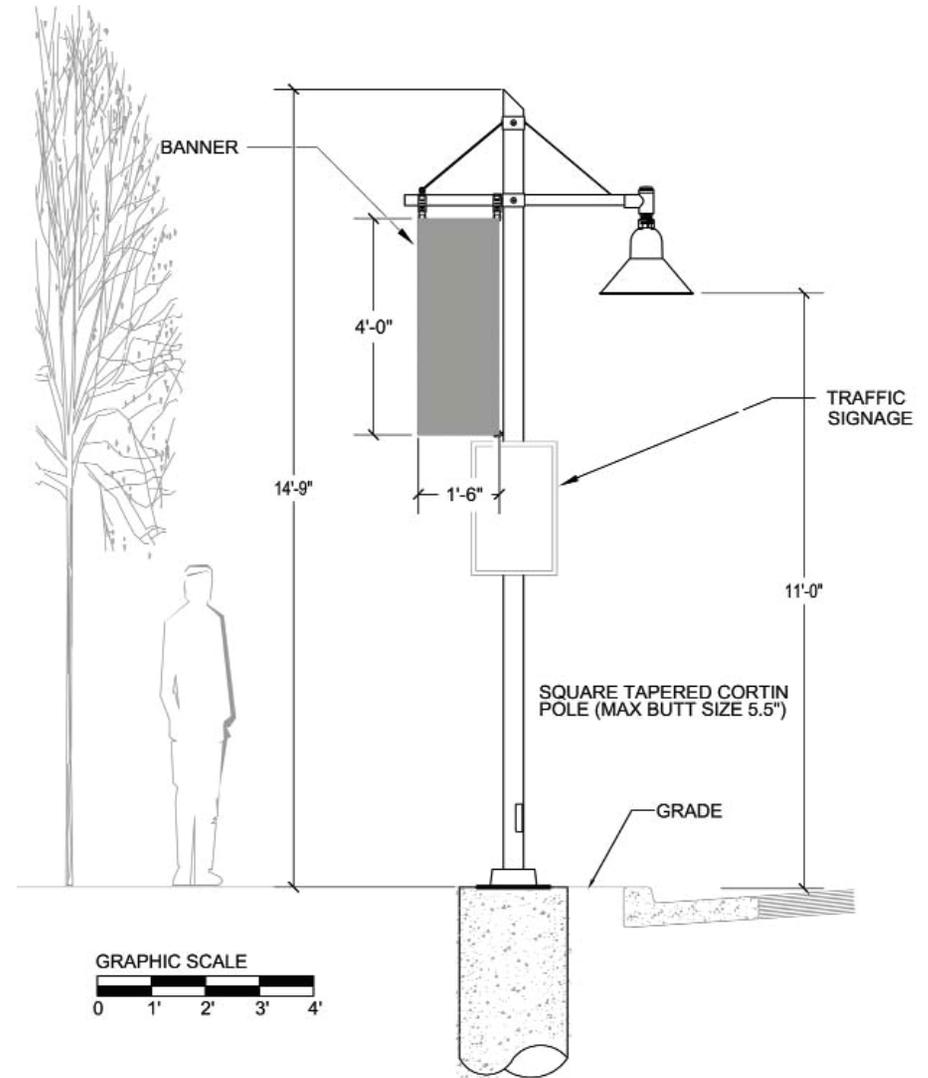
a. Illuminated surfaces improve the sense of brightness, safety, and security in an exterior environment.

b. Light source color is another key to low light level visibility. Using a warm colored light source (3000 K) should give a warm residential aesthetic while taking advantage of the white light source.

c. Sign lighting provides an obvious complement to way-finding features. Lighting may also augment way-finding in the form of indicators.

d. Changes in brightness provide visual cues and orientation for pedestrians.

e. Brightly lit streets may identify a retail district to a pedestrian while lower lighting levels suggest private or residential areas



Three Springs Lighting Identity

4.0 SAFETY AND SECURITY

Principles

a. Appropriate lighting for safety purposes involves lighting hazards so that they can be seen with sufficient reaction time. Hazards may include vehicle intersections, crosswalks, urban trails, commercial alleyways, stairs and ramps and other site features that may be perceived as unsafe if not well identified at normal night time lighted conditions. The lighting system, along with other site design elements, must provide visual information to assist users in avoiding such things as a collision or loss of bearings.

b. Security can be described as the perception of safety. Lighting to improve security involves lighting potentially hazardous locations and situations. For example, an increase in reaction time can improve the ability to find refuge, or call for help. Lighting can also act as a deterrent by increasing the visibility in an area of concern. Lighting is required in many secured areas to provide visibility for surveillance cameras or security personnel. However, it should be noted that an increase in the number of people in an area will be a more effective deterrent against crime than an increase in light level.

5.0 IMAGE AND IDENTITY

Principles

a. The luminaire styles should be influenced by the architectural styles. However, many traditional lighting fixtures create as much glare as they do useful light and are not designed to minimize light trespass and light pollution. With some minor modifications, many traditional styles can be made to better control the light and still stay true to the traditional forms.

b. Light enhances architectural form and will support massing, hierarchy, and details of the architecture. Surfaces will be revealed with light, but the light fixtures will be hidden. Light fixtures should be integrated into the architecture where possible by mounting in eaves, under canopies, or within low walls. Light fixtures shall be inconspicuous unless there is an intentional decorative purpose. In general, the pedestrian level of the architectural form shall be the emphasis for appropriate exterior and interior lighting. Non-pedestrian levels (second story and above) shall have less emphasis on lighting or not be lighted at all unless deemed appropriate.

6.0 LIGHTING DESIGN

Principles

a. Areas within the Special Districts, such as Office Buildings, are used less at night. Lighting controls can be used to dim or turn off lighting during late evening and night-time hours to help further reduce the negative effects of lighting on the surrounding areas. To provide for late-night safety and security, motion sensors can be used to turn on lighting for short periods of time to allow for periodic late-night use.

b. Façade lighting within the Special Districts should be limited to areas near walkways or entries to help provide vertical brightness and increased sense of safety and security. Automated controls should be used to turn off or dim lighting during late-night hours.

c. During the early evening hours, lighting for signs and artwork within the Special Districts will help provide guidance and help create an attractive environment. Controlling brightness of lighted signs and artwork is important to minimize glare, reduce light pollution and light trespass. With limited night-time use within the Special Districts, dimming or turning off lighting for signage and artwork during late evening and night-time hours will further reduce the negative effects of lighting on the surrounding areas.

d. Parking lot lighting should provide uniform illuminance and/or luminance while avoiding direct glare. Because poles are often located at the perimeter of lots and next to adjacent properties, light trespass must be carefully considered and prevented. By utilizing fully shielded or full cut-off luminaires, the direct beam light that contributes to light pollution will be eliminated. Full cut-off luminaires, house-side shields, and low wattage lamps all help to reduce the chance of light trespass.

e. Because ambient light levels are so low at night (where in some cases surroundings may be very dark) any glare will be very noticeable and contrast between a visible light source and nighttime surroundings can easily become too high. Therefore, use of low wattage and shielded or low brightness light fixtures is strongly encouraged. Residential exterior lights are often left on for significant periods of time. Dusk to dawn operation is common for such lights, and therefore provides a good opportunity for controls based on daylight, time of day, motion (occupancy) or some combination of these factors.

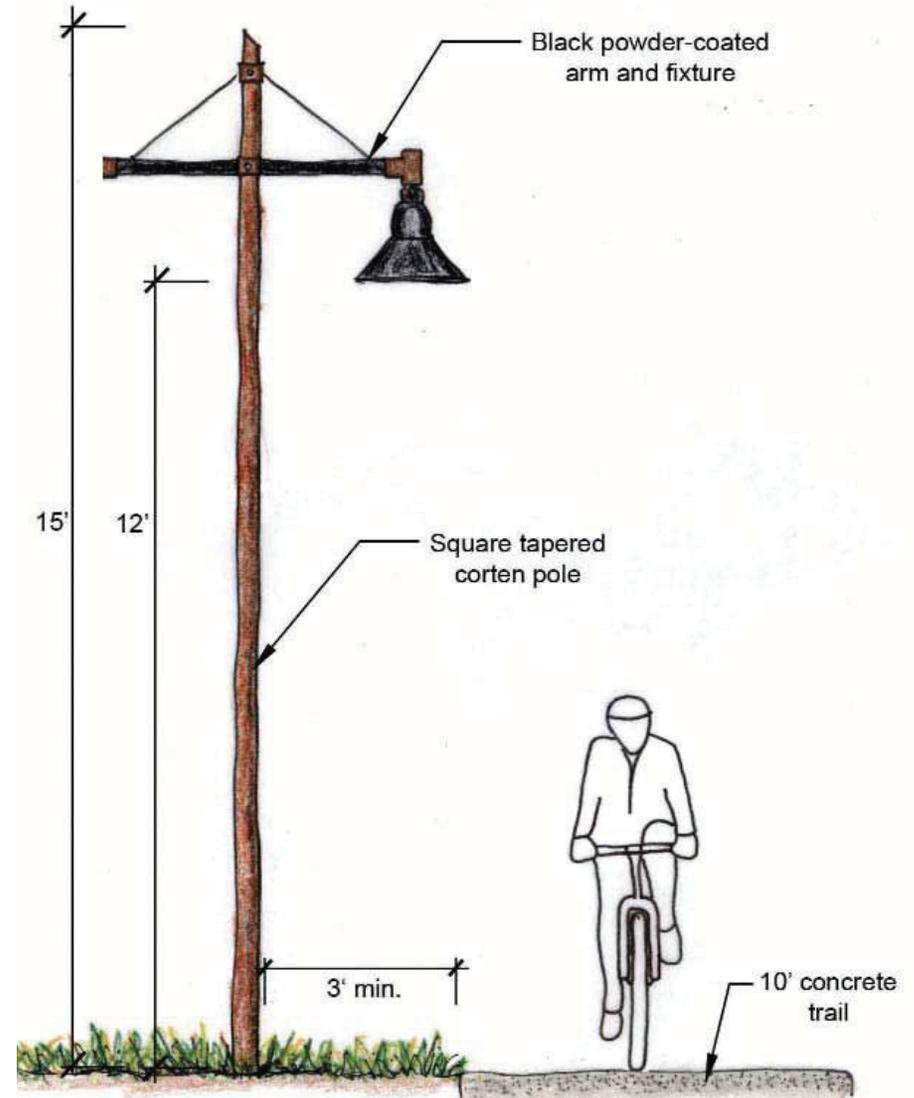
f. Lighting for pedestrian crossings is critical for pedestrian safety. It is important to provide light for pedestrians from the side of on-coming traffic to ensure that

THREE SPRINGS - DURANGO, COLORADO

there is enough vertical brightness within the crossing to create good visibility for drivers.

Guidelines

- a. Pedestrian level lighting should be the most critical lighting scale to be addressed.
- b. Site lighting should be directed onto vegetation, entry ways, or a prominent site feature and not necessarily upon the building.
- c. Exterior ornamental lighting associated with year-end holidays may be illuminated only from the Saturday immediately preceding Thanksgiving through January 15th. All seasonal lighting shall be removed promptly after January 15th, if not before. Refer to the Mixed-Use Association CC&R's for further information.
- d. Banner string lights across Confluence Avenue, Mercado Street, and Heritage Lane to The Three Springs Plaza shall be allowed on a permanent basis.
- e. Lights should be only at nodes, six feet to eight feet before crosswalk (located on oncoming traffic side of crosswalk).
- f. Lights in public spaces should be located at hazards, intersections with roadways, and midblock.
- g. Lights in public spaces should be spaced 300 feet apart or at hazards and intersections.
- h. Luminaires should be mounted above garage door.
- i. In semi-private entry walkways, use bollards as they are the best as indicators of a path and do not provide any vertical illuminance on a pedestrian's face.
- j. On porches, luminaire should be in canopy or mount on wall.
- k. Lights should be located a maximum of two feet from the sign that is being illuminated.
- l. Lights around schools should be located in landscape parking islands, at the perimeter of the lot and along pedestrian access corridors to building entrances, trails and/or gates.



Trail light design

Standards

- a. Pedestrian Bollards: Manufactured by Kim Lighting, VRB1/26PL120/DB-P, compact fluorescent, dark bronze finish.
- b. Street Lights: Installed by GRVP, corten steel pole w/Hadco luminaire (black).
- c. Parking Lot Lights: Distributed by Mountain States Lighting, square, dark bronze pole, Hadco luminaire (black).
- d. Lighting of exterior plant materials, walls, public art elements, and decorative accents shall be achieved with hidden light sources (such as surface mounted fixtures), lamps recessed in building soffits, overhangs and walls; lamps recessed in the ground, and/or lamps concealed by plant materials.
- e. As per the outdoor lighting standard, building lighting shall be directed downward, away from adjacent properties, streets, and open spaces.
- f. Exterior fixtures shall be fully shielded to prevent visibility of the light source from adjacent properties, streets, or open spaces.
- g. Exterior building lighting above the primary pedestrian (ground floor) level shall be discouraged. Variances may be considered on a limited basis on a case by case determination provided that lighting is limited to downcast architectural lighting of prominent building features only.
- h. Except for seasonal ornaments that may be illuminated and fall into the “seasonal lighting” heading above, no colored exterior lights, including “bug” lights, may be used in the Urban Center.
- i. Neon lighting other than window mounted informational signs (Refer to the Three Springs Design Guidelines, Section 5.9 Signage, Standard h) is prohibited.
- j. There shall be a maximum of one luminaire per garage.
- k. Self illuminated boards for messages, time, or temperature are not allowed.

	Wall mounted	Soffit Lighting	Signage/Artwork	Parking	Office Buildings
Luminaire type					
Lamp type/maximim wattage	LED, 20 watt metal halide, 32 watt CFL, or 55 watt induction lamp	LED or 18 watt CFL or linear fluorescent	LED or 18 watt CFL or linear fluorescent	165 watt induction lamp or 150 watt metal halide	165 watt induction lamp or 150 watt metal halide
Lamp color temperature	3000K	3000K	3000K	3000K	3000K
Lamp color rendering	80+ CRI	80+ CRI	80+ CRI	80+ CRI	80+ CRI
Controls	photocell or dimming (dusk), off (post curfew), timeclock	photocell or dimming (dusk), off (post curfew), timeclock	photocell or dimming (dusk), off (post curfew), timeclock	photocell or dimming (dusk), motion sensor (post curfew), timeclock	photocell or dimming (dusk), motion sensor (post curfew), timeclock
Height	varies	varies		25' max	25' max

	Schools	Parks and Public Spaces	Trail Underpass	Sport Facilities	Pedestrian Crossings
Luminaire type					
Lamp type/maximim wattage	85 watt induction lamp or 100 watt metal halide	55 watt induction lamp, 50 watt metal halide, or 42 watt CFL	18 watt CFL	1500 watt metal halide	55 watt induction, 50 watt metal halide, 42 watt compact fluorescent
Lamp color temperature	3000K	3000K	3000K	4000K	3000K
Lamp color rendering	80+ CRI	80+ CRI	80+ CRI	70+ CRI	80+ CRI
Controls	photocell or dimming (dusk), motion sensor (post curfew), timeclock	photocell	photocell		photocell
Height	25' max	15' max	10' min	70' max	12' max

	Semi-Private Entry Walkways	Porches	Garages and Alleys
Luminaire type			
Lamp type/maximim wattage	single family: 26 watt compact fluorescent or one watt LED multi-family: 13 watt compact fluorescent, 40 watt incandescent, or 1 watt LED	13 watt compact fluorescent, 40 watt incandescent, or 1 watt LED	18 watt compact fluorescent
Lamp color temperature	3000K	3000K	3000K
Lamp color rendering	80+ CRI	80+ CRI	80+ CRI
Controls	photocell	photocell/switch	photocell
Height	8' max	varies	10' max

Basis of Evaluation: IESNA 9th Edition Handbook

Mixed Use, Special Districts, and Variable Lots to provide photometrics plan