

6. Lighting Guidelines

The main purpose of roadway lighting is to provide better safety, security, and commerce through increased visibility of all public streets at night. The following lighting guidelines are designed with safety and security in mind while considering sustainability, light pollution, cost, and maintenance.

6.1 General

- 6.1.1 These lighting guidelines apply to public streets and is intended for all new development and re-development projects within the City of Encinitas.
- 6.1.2 Lighting for existing public facilities, such as parking lots, do not necessarily follow this document and is up to the City's discretion for lighting maintenance.
- 6.1.3 The luminaire types identified in this document will apply for lighting retrofits based upon the facilities they serve.
- 6.1.4 The focus of this document is on requirements for continuous lighting within the City of Encinitas. The City will have the final decision on the lighting levels required based on the street classification, pedestrian use, and any special circumstances for the area of concern.
- 6.1.5 Street light poles should be pre-stressed concrete with an exposed concrete aggregate finish and a graffiti-resistant coating unless approved by the City (Director of Public Works).
- 6.1.6 Street light poles should have a height of 28 feet (± 2 feet to match existing nearby lighting) with an aluminum or galvanized steel mast arm of 8 feet (± 2 feet) in length unless approved by the City (Director of Public Works).
- 6.1.7 Street lighting conduit and pull boxes shall be in conformance with the latest version of the Greenbook Standard Specifications for Public Works Construction unless approved by the City (Director of Public Works).
- 6.1.8 The use of landscape feature lighting within the public right-of-way is encouraged for aesthetic purposes.
- 6.1.9 Landscape up-lights within the public right-of-way are effective for accentuating trees and other plant material; however, they should not be used as the sole source of illumination along walkways or other pedestrian areas.
- 6.1.10 All site, landscape or building exterior lighting shall be of a configuration, style, finish and color that complements the architectural theme and materials established by the building architecture, subject to final approval by the City. Patterns of light and fixture concealment should be designed to avoid glare and intrusion into adjacent properties.

6.2 Luminaire Guidelines

- 6.2.1 In this standard, luminaire is defined as the light fixture whereas street lights or lighting is defined as the entire light standard (pole, foundation, and fixture).
- 6.2.2 Luminaires should be LED and cobra-head form for street and roadway lighting unless otherwise noted.
- 6.2.3 Decorative street lighting fixtures should have the same lighting characteristics as defined in this section for the appropriate street classification.
- 6.2.4 All lighting should be broad spectrum light sources with a Correlated Color Temperature (CCT) no greater than 4000K.

- 6.2.5 All lighting should be full cut-off and utilize shielding when necessary to reduce spillover to adjacent properties.
- 6.2.6 Luminaires shall have an ANSI C136.41 compliant NEMA 7 pin receptacle for use with photo controls and compatibility with future smart lighting applications.
- 6.2.7 Continuous pedestrian scale lighting shall be installed in high pedestrian areas along the sidewalk or walkway.
- 6.2.8 Energy code regulations for exterior lighting are in the current version of California’s Title 24 regulations.
- 6.2.9 Pedestrian scale light poles should have a height of 15 feet (\pm 2 feet) and utilize an acorn style post-top mounted luminaire.
- 6.2.10 Pedestrian scale light spacing shall be a maximum of 50’ on-center in the walkway area.
- 6.2.11 The following luminaire types referenced in this document are defined as follows in Table 6-1:

Table 6-1: Luminaire Requirements		
Luminaire Type	Required Lumen Output	Light Distribution
Arterial Luminaire (Light)	14,250 lumens, minimum	Type III
Local Luminaire (Light)	5,750 lumens, minimum	Type II
Pedestrian Scale Light	3,890 lumens, minimum	Type V

6.3 Roadway Lighting

6.3.1 Roadway lighting shall be installed to conform with Table 6-2:

Table 6-2: Continuous Roadway Lighting			
Street Classification	Pedestrian Activity Classification		
	Low (Residential)	Medium	High (Commercial)
Prime Arterial (80’-110’)	Arterial Light 160’ Spacing ³	Arterial Light 135’ Spacing ³	Arterial Light 100’ Spacing ³
Major Arterial (64’-80’)	Arterial Light 325’ Spacing ³	Arterial Light 220’ Spacing ³	Arterial Light 155’ Spacing ³
Collector (40’-64’)	Arterial Light 450’ Spacing ³	Arterial Light 350’ Spacing ³	Arterial Light 245’ Spacing ³
Local (Up to 40’)	Local Light 400’ Spacing ³	Local Light 225’ Spacing ³	Local Light 200’ Spacing ³

Notes:

1. Roadway cross-sections are measured curb-to-curb and are approximate and may vary along roadway segments.
2. Street classifications are per the current City of Encinitas General Plan, Circulation Element.
3. Lights are to be placed in a staggered configuration and the spacing refers to the distance between lights on the same side of the roadway. Spacing distance has a tolerance of \pm 25 feet.
4. Urban core areas with high pedestrian volumes (e.g. portions of South Coast Highway 101) will utilize pedestrian scale lighting. The use of pedestrian scale lighting as noted in Section 6.2 is up to the City’s discretion.
5. Pedestrian activity level will ultimately be a judgement made by the City. The following is guidance provided from IES RP-8-18:
 - Low – the lighting system in residential areas can allow both driver and pedestrian to visually orient in the environment, detect obstacles, identify other pedestrians, read street signs, and recognize landmarks.
 - Medium – areas have moderate pedestrian activity, typically those near to community facilities such as libraries and recreation centers. Safety for the pedestrian and providing guidance to primary travel ways are key elements for the lighting system in these areas.

- High – commercial areas in urban environments where the visual environment is much more cluttered. It is important to provide lighting systems that will increase the visibility of pedestrians.

6.4 Intersection Safety Lighting

- 6.4.1 Lighting shall be installed at all street intersections adjacent to continuous street lighting per Table 6-3:

Street Classification	Prime Arterial (80'-110')	Major Arterial (64'-80')	Collector (40'-64')	Local (Up to 40')
Major and Prime Arterial (64'-110')	Install (4) Arterial Lights	Install (4) Arterial Lights	Install (4) Arterial Lights	Install (4) Arterial Lights
Collector (40'-64')	Install (2) Arterial, (2) Arterial Lights	Install (2) Arterial, (2) Arterial Lights	Install (4) Arterial Lights	Install (2) Arterial, (2) Local Lights
Local (Up to 40')	Install (2) Arterial, (2) Local Lights	Install (2) Arterial, (2) Local Lights	Install (2) Arterial, (2) Local Lights	Install (4) Local Lights ⁵

Notes:

1. Roadway cross-sections are measured curb-to-curb and are approximate and may vary along roadway segments.
2. Street classifications are per the current City of Encinitas General Plan, Circulation Element.
3. All signalized intersections shall have at least one intersection safety light on each corner.
4. For intersections where four lights are installed, they shall be installed on the far-right corners of the approach lane(s) of the appropriate street classification.
5. For isolated local/local intersections without advanced continuous lighting, install (2) local lights for partial lighting. The lights shall be installed on the far-right corners of the approach lane(s) of the major street.

6.5 Roundabout Lighting

- 6.5.1 Roundabouts and traffic circles should require continuous lighting throughout the facility.
- 6.5.2 Due to the unique nature of roundabouts and traffic circles, the City of Encinitas requires a photometric analysis (performed by a consultant) to determine the number and location of lights.
- 6.5.3 The luminaire type should match the luminaire guidelines from Section 6.2 based on the facility classifications.
- 6.5.4 Lighting for roundabouts should focus on the approach and the perimeter and not from within the center island of the roundabout.
- 6.5.5 The photometric analysis should utilize a combination of horizontal illuminance for the roadway and vertical illuminance in the crosswalks (if present).
- 6.5.6 Further design guidelines can be found in the current version of ANSI/IES RP-8 publication titled *Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting* and FHWA's *Roundabouts: An Informational Guide*.
- 6.5.7 Table 6-4 represents the required illuminance values for roundabouts:

Functional Classification	Pedestrian Activity Classification			E _{avg} /E _{min}
	High	Medium	Low	

Prime & Major/Prime & Major	3.2	2.4	1.7	3:1
Prime & Major/Collector	2.7	2.0	1.4	3:1
Prime & Major/Local	2.4	1.9	1.2	3:1
Collector/Collector	2.2	1.7	1.1	4:1
Collector/Local	2.0	1.5	0.9	4:1
Local/Local	1.7	1.3	0.7	6:1

Note:

Per Table 12-4, *Recommended Pavement Illuminance for Roundabouts, Based on Pedestrian Activity Classification* of IES/ANSI RP-8-18 publication.