

City of Laguna Beach Guidelines for Street Lighting

Adopted September 2019

Updated March 2022

Introduction

In February 2020, the City of Laguna Beach acquired 785 street lights from Southern California Edison (SCE). The City purchased only the stand-alone street lights that are not occupied by other utilities. Photographs of some of the various styles of street lights that were purchased are shown in Exhibit 1. The decision to acquire these lights assumed that the cost of energy, maintenance and capital replacements would be the same or less than the current cost of these services from SCE.

Potential benefits of City ownership of the street lights include: immediate conversion of the fixtures to Light Emitting Diode (LED) technology to save energy, increased aesthetic choices for street lights throughout town, and less obtrusive options for wireless antenna attachments.

Owning the street lights allows for aesthetic options for the future replacement of the street lights. With City ownership of the street lights, a variety of street light designs have been adopted by the City Council and can be selected on a project-by-project basis as projects are proposed.

Another potential benefit of owning the street lights is to coordinate the design and placement of small cell facilities onto existing street lights. It is recommended that the wireless communication companies provide a design for a replacement street light that is suitable for their equipment and antenna while also meeting these guidelines.

By owning the street lights, the City will now have options and considerations regarding the maintenance and replacement of street lights that are not currently addressed in the Municipal Code. Therefore, the following guidelines are intended to provide a starting point for design and maintenance decisions in the future.

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Street Light Guidelines

These guidelines are provided to assist City decision-making bodies and staff when considering street light installations within the City. Recommendations are provided regarding aesthetics, photometric design, and placement of street lights within the public right-of-way for decisions of maintenance and routine replacement of street lights due to age or damage and/or for large-scale street light replacement projects proposed as part of the Capital Improvement Program. These guidelines do not address lighting in parking lots, exterior stairways, or public parks.

A. Purpose of Street Lighting

The primary purpose of street lighting is to assist travelers using the public right-of-way to identify obstacles and other users of the right-of-way at potential conflict areas (typically at intersections, driveways, and crosswalks), and to assist in visual search tasks, both on and adjacent to the roadway.

B. Street Lighting Not Generally Required

California courts recognize that in the absence of state law or a municipal code provision to the contrary, a city is under no duty to install or maintain street lights even though it has the power to do so. While cities may have certain obligations with respect to dangerous conditions of public property, darkness is not considered to be a condition that renders streets dangerous; however, an exception to this rule may exist if a peculiar condition of the roadway makes lighting necessary.¹

C. Funding

To maintain the existing street light inventory in a satisfactory operating condition, it is recommended to replace existing street lights when they are approximately 60 years old. The street lighting budget includes funding for the replacement of approximately 13 street lights annually due to age.

Large-scale replacement of street lights will be proposed as capital improvement projects should be budgeted through the Capital Improvement Program.

Other funding options include the formation of a utility undergrounding assessment district or a community facilities district.

D. LED Conversion / Energy Use

City-owned street lights shall be converted to LED fixtures of similar illuminance to the existing fixture or the lights can be upgraded to meet the performance criteria in these guidelines.

¹ Plattner v. City of Riverside (1999) 69 Cal.App.4th 1441; Antenor v. City of Los Angeles (1985) 174 Cal.App.3d 477.

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E. Permit Process

Any replacement street light or new street light must receive approval through a design review process using one of the street lights in the approved standard.

1. Replacement – The replacement of a street light at an existing location with an aesthetically different pole and fixture design must receive design review approval.

Exception: An exact replacement of a street light due to age or damage is exempt from the design review and permit process. (See Section F.5.a below for more information.)

2. New – A proposed new street light at a new location must be reviewed through the design review process. Approvals will be documented through a Coastal Development Permit and/or an encroachment permit.

F. Design Standards

1. Design Professional – Street lighting designs for new installations shall use ANSI/IES RP-8 Standard Practice for Roadway and Street Lighting. The designs must be prepared by a registered civil or electrical engineer in the State of California with street lighting experience, who shall stamp and sign the record drawings.
2. Locations and Luminosity – Since the primary purpose of street lighting is to assist travelers in identifying obstacles and other users of the right-of-way at potential conflict areas, it is recommended that street lighting criteria be related to street classification, traffic volume, and the likelihood of potential conflicts.

Street lighting criteria for various street classifications are provided in ANSI/IES RP-8 Standard Practice for Roadway and Street Lighting. Table 3. Lighting Design Criteria from this manual is shown below:

Table 3. Lighting Design Criteria for Streets

STREET CLASSIFICATION	PEDESTRIAN AREA CLASSIFICATION	AVG. LUMINANCE L_{avg} (cd/m ²)	AVG. UNIFORMITY RATIO L_{avg}/L_{min}	MAX. UNIFORMITY RATIO L_{max}/L_{min}	MAX. VEILING LUMINANCE RATIO LV_{max}/L_{avg}
MAJOR	HIGH	1.2	3.0	5.0	0.3
	MEDIUM	0.9	3.0	5.0	0.3
	LOW	0.6	3.5	6.0	0.3
COLLECTOR	HIGH	0.8	3.0	5.0	0.4
	MEDIUM	0.6	3.5	6.0	0.4
	LOW	0.4	4.0	8.0	0.4
LOCAL	HIGH	0.6	6.0	10.0	0.4
	MEDIUM	0.5	6.0	10.0	0.4
	LOW	0.3	6.0	10.0	0.4

L_{avg} - minimum maintained average pavement luminance
 L_{min} - minimum pavement luminance
 LV_{max} - maximum veiling luminance

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Using Table 3 as a guide, the following recommendations are provided for the placement of street lights:

- a. Streets with the highest traffic volumes (over 20,000 vehicles per day) and high potential conflict areas should be classified as a “Major” street with a “High Pedestrian Area” classification. Streets to be considered in this category include, but are not limited to, Coast Highway, Broadway Street, and Laguna Canyon Road (Broadway Street to Canyon Acres Drive). These streets should be upgraded over time with street lights designed to a standard average luminance of 1.2 fc with an average uniformity ratio of 3 and veiling luminance ratio of 0.3.
 - b. Streets with lesser traffic volumes (between 5,000 and 20,000 vehicles per day) and fewer potential conflict areas should be classified as “Collector” streets with a “Medium Pedestrian Area” classification. Streets to be considered in this category include, but are not limited to, Glenneyre Street (Forest Avenue to Brooks Street), Forest Avenue, Thalia Street, Park Avenue (Coast Highway to Saint Anns Drive), Third Avenue, and Cliff Drive. The intersections of these streets should be upgraded over time with street lights so that the intersections are lit to an average luminance of 0.6 fc with a uniformity ratio of 3.5 and veiling luminance ratio of 0.4 throughout the intersection.
 - c. All other streets with low traffic volumes and lower potential conflict areas, should be classified as a “Local” street with a “Low Pedestrian Area” classification. The intersections of these streets should be upgraded over time with two street lights, generally at opposite corners of each four-way intersection, so that the intersection is lit to a standard average luminance of 0.3 fc with a uniformity ratio of 6 and veiling luminance ratio of 0.4 throughout the intersection.
 - d. The placement of street lights should not interfere with any walkway and should be set back in compliance with Municipal Code Section 21.12.240 (Street hydrants, lighting standards and other obstructions).
3. Dark Sky Compliance – All new and replacement street lights shall comply with Municipal Code Chapter 7.70 (Good Neighbor Outdoor Lighting), which regulates lighting to reduce or prevent light pollution, glare and light trespass. Key considerations for compliance are:
- a. Fixtures should be full cutoff or fully shielded so that the light bulb is not visible at a horizontal position from the fixture; and
 - b. Fixtures should be designed to limit light trespass.
- It is recommended that the ratings for back-light, up-light, and glare for each fixture be presented in a photometric design that is most suitable for the application and location.
4. LED Light Color – All new and replacement fixtures shall use LED technology, with a light color temperature of 2,700K to 3,000K. Color temperatures for LED fixtures range

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from approximately 2,700K, generally considered to be a “warm” light, to 5,000K, generally considered to be a “cold” light.

5. Aesthetics –New street lighting projects shall replace poles in kind or use ornamental LED street light styles approved by the Planning Commission and adopted by the City Council on _____, 2022. The approved ornamental styles are shown in Exhibit 2 and described below:
 - a. Coast Highway Ornamental Style: Marina Style with K204 Viscount fixture
 - b. Residential Neighborhood Ornamental Styles:
 - i. Alhambra Style with K729 Aurora fixture
 - ii. Marina Style with K707 Doral fixture
 - iii. Anaheim Contemporary with K729 Aurora Fixture

The replacement or new installation of any street light shall follow these aesthetic guidelines as a starting point for the design review process.

- a. Replacements – As replacement street lights are needed due to damage or age, it is recommended to replace them “in-kind.” The Director of Public Works and the Zoning Administrator will determine if the replacement is in-kind. If so, the replacement will be exempt from the design review process. Considerations for an in-kind replacement include a similar pole and fixture arm, and a similar but modern LED fixture that is as compliant with the Good Neighbor Outdoor Lighting ordinance as is possible while keeping to the existing style of fixture – e.g., an existing street light with an ornamental glass globe will not be fully compliant with the Good Neighbor Outdoor Lighting ordinance.
 - b. Assessment Districts – The residents of an undergrounding assessment district shall select from the three approved residential ornamental street light styles to incorporate into the project. For street lighting that conforms to Section F.2 (Locations and Luminosity), the costs for the street lights, design, and construction shall be included in the construction costs of the assessment district and the City shall maintain the lights in perpetuity.
6. Future Technology Compliant –Street light designs must be compatible for the future installation of sensors, cameras, control systems, and data communications.

Considerations include the following:

- a. The street light pole should have a conduit or raceway for power to the light fixture, a separate conduit or raceway for power to the additional technology, and possibly a third conduit or raceway for communication cables.

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- b. The street light fixture should include a standardized socket and a device on the top of the fixture that replaces the typical photo-controller. An example is shown in Exhibit 3.
 - c. Additional wireless communications capabilities for sensors, cameras, or networks can be built into the fixture in advance or installed as a replacement/retrofit in the future. An example is shown in Exhibit 3.
7. Wireless Communications Facilities Attachment – It is recommended that wireless communications companies utilize existing street light locations for new small cell antenna sites in lieu of installing an additional pole in the right-of-way. However, it may not be feasible that all existing street lights will meet the design criteria to accommodate a future small cell antenna and associated equipment.

Therefore, at the time a future facility is proposed, the wireless communication company shall provide a design for a replacement street light that matches the design and character of the existing street light and is suitable for their equipment and antenna while meeting the requirements of these guidelines and the City's adopted *Guidelines for Site Selection and Visual Impact and Screening of Telecommunication Facilities*. All such designs shall be submitted to the Community Development Department for design review and the permitting process.

Exhibit 1

Samples of Existing Street Lights



Cliff Drive at Heisler Park



Coast Highway at Crescent Bay Drive



Laguna Canyon Road at Big Bend



Forest Avenue at Beach Street

Exhibit 1 continued

Samples of Existing Street Lights



Canyon View Drive



Alta Laguna Blvd. at Temple Hills Drive (overhead wiring)



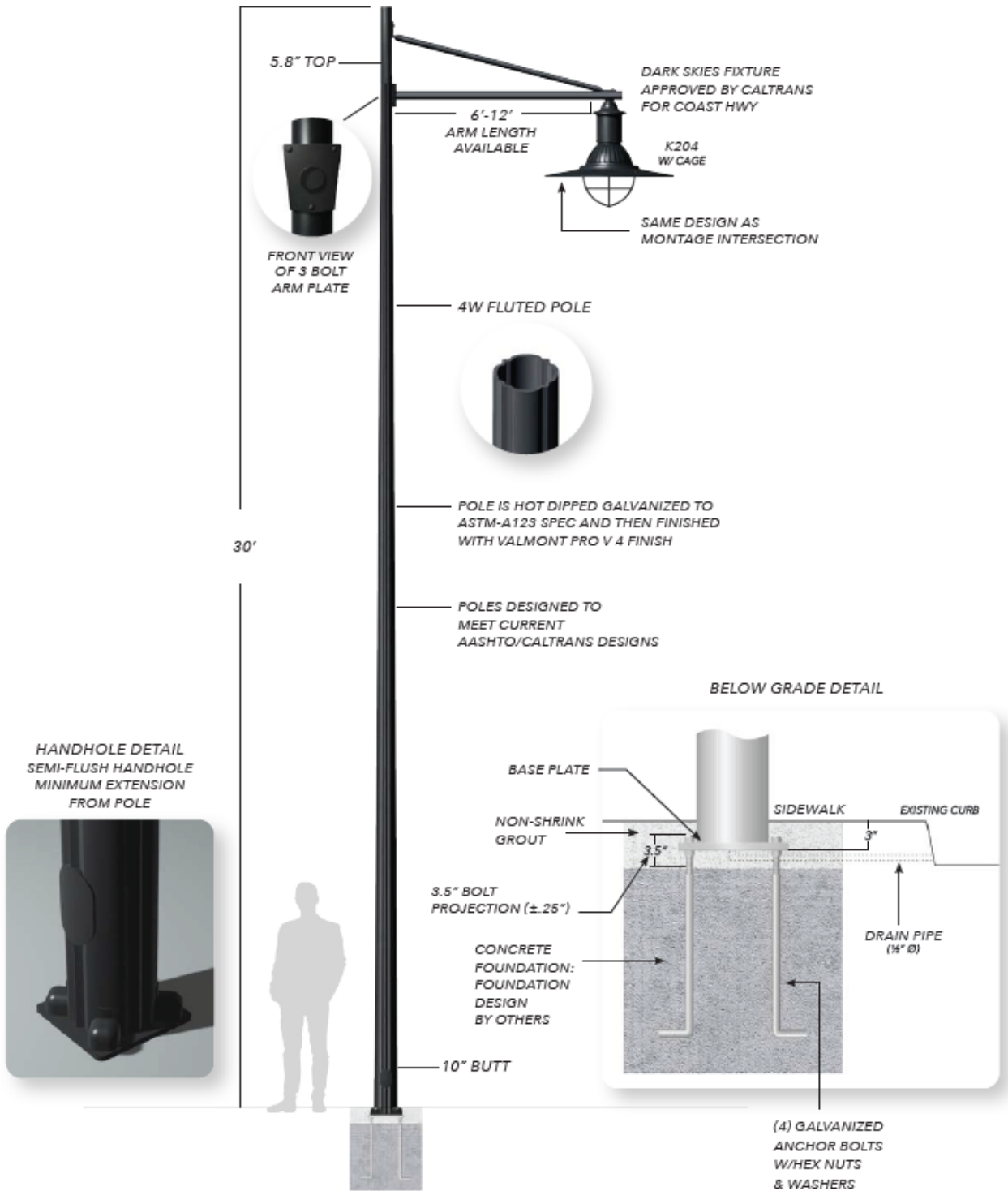
Coast Highway near Hotel Laguna (overhead wiring)



Alta Laguna Blvd. near Park Ave. (shorter pole)

Exhibit 2

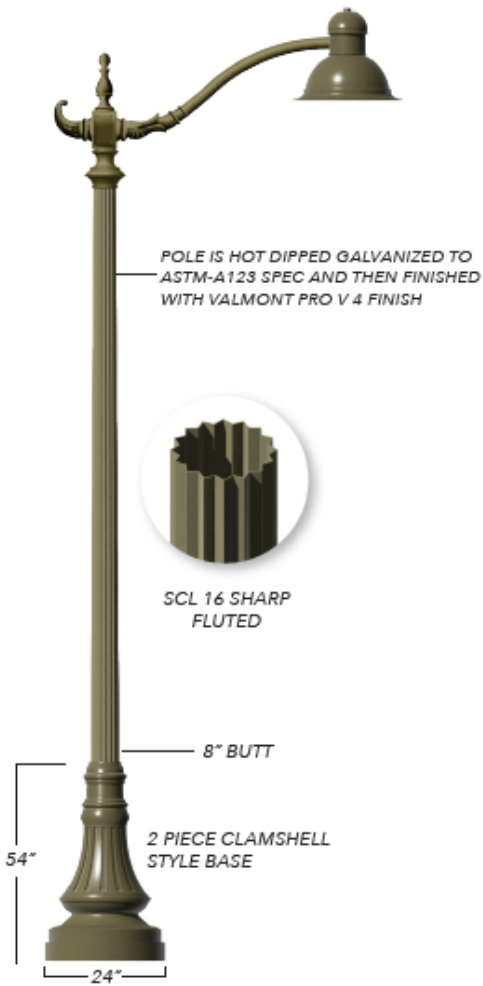
Coast Highway Ornamental Style



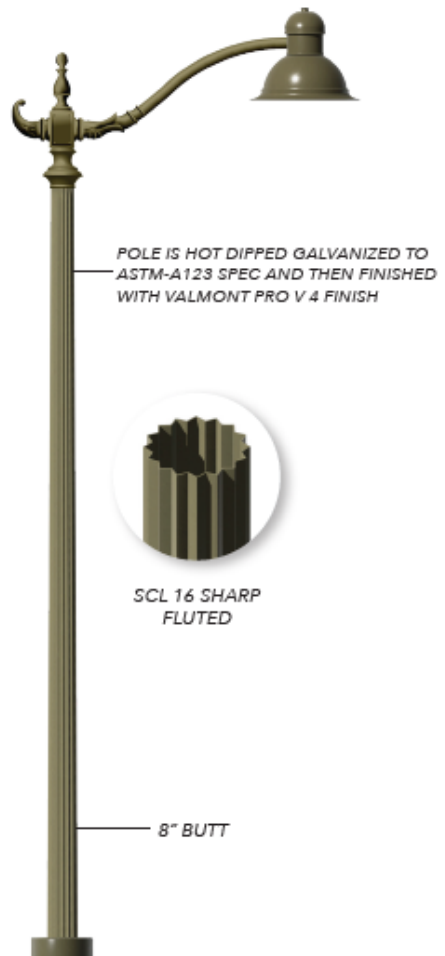
Marina Style with K204 Viscount fixture

Exhibit 2 Continued

Residential Neighborhood Ornamental Styles



TYPE: ALHAMBRA DECORATIVE BASE
FIXTURE: KING K729FL
POLE: ROUND TAPERED FLUTED GALVANIZED W/ BASE COVER
ARM: 8 FT
HEIGHT: 20 FT - 30 FT
*COLOR: MEDIUM BRONZE

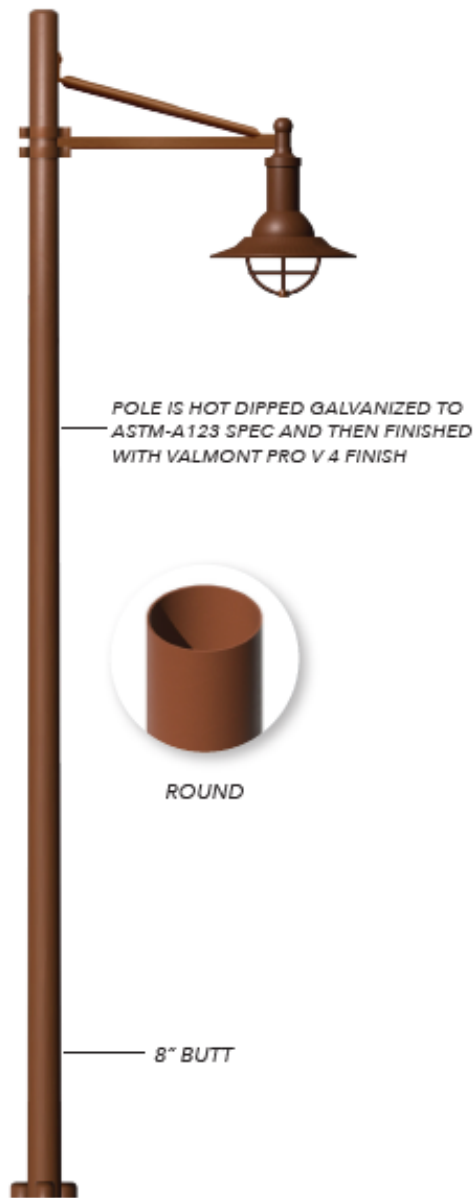


TYPE: ALHAMBRA CONTEMPORARY
FIXTURE: KING K729FL
POLE: ROUND TAPERED FLUTED GALVANIZED W/ BASE COVER
ARM: 8 FT
HEIGHT: 20 FT - 30 FT
*COLOR: MEDIUM BRONZE
DETAIL: 12" BASE PLATE

Alhambra Style with K729 Aurora fixture

Exhibit 2 Continued

Residential Neighborhood Ornamental Styles



TYPE: MARINA TAPERED
FIXTURE: KING K707FL
POLE: ROUND GALVANIZED
ARM: 8 FT
HEIGHT: 20 FT - 30 FT
*COLOR: BROWN
*FIXTURE: BROWN
DETAIL: 12" BASE PLATE

Marina Style with K707 Doral fixture

Exhibit 2 Continued

Residential Neighborhood Ornamental Styles



TYPE: ANAHEIM CONTEMPORARY
FIXTURE: KING K729FL
POLE: ROUND TAPERED
SMOOTH GALVANIZED
ARM: 4 FT
HEIGHT: 20 FT - 30 FT
*COLOR: BLACK
DETAIL: 12" BASE PLATE

Anaheim Contemporary with K729 Aurora fixture

Exhibit 3

Examples of Smart Pole Devices

Communication Device Connects to Compliant Fixtures in Place of Photocell Switch



Operations & Maintenance

- Advanced light control
- Utility metering
- Power loss detection
- High accuracy tilt and vibration sensor
- Knock-down detection



Simplified Installation

- Installs and activates in 5 minutes
- Auto carrier configuration
- Auto firmware update
- Eliminate mounted gateways



Sensor Connectivity

- Every streetlight is a smart city area
- 2 wire connections for power/data
- Sensor data aggregation
- 2 way comms. for sensor calibration



Complete Asset Management

- GPS data mapping of inventory
- Alert threshold management
- Scheduling convenience



Location Based Services

- Pedestrian movement
- Vehicle movement
- Congestion level/dwell time
- Beacon triggers



Global/Universal Compatibility

- All LED or HID streetlights
- All 3, 5 and 7 pin streetlights
- All dimming protocols, 0-10V, DALI, DALI-2
- All voltage ranges (120V to 480V)
- LTE data communications

Exhibit 3 Continued

Examples of Smart Pole Devices

Communication Device Connects to Pole



ELECTRICAL

- Easily accessible driver and surge protector with easy quick-disconnect connectors
- 120, 208, 240, 277, 347 or 480 volts available¹

TENON ADAPTOR

- Self-leveling
- Mounts on a Ø4" O.D. x 3" long tenon

OPTIONS

- LED in 3000K (GW3) or 4000K (GW4)¹
- Motion Sensor (MS)
- ANSI C136.41 standard 7-pin receptacle (PTDR)
- Photocell with 7-pin receptacle (PT)
- Long life photocell with 7-pin receptacle (PTL)
- Shorting cap with 7-pin receptacle (PX)
- MOM System monitoring photocell²
- Dome camera adaptor²
- Compatible with a wide variety of twist-lock control nodes from:
Acuity · Cimcon³ · DimOnOff · Echelon³ · GE · Harvard³
LED Roadway Lighting · Ripley · SELC · Sensity³
Sun-Tech · Telensa · TriDiNetworks · WattStopper³

Camera Adaptor



A DIFFERENT POINT OF VIEW

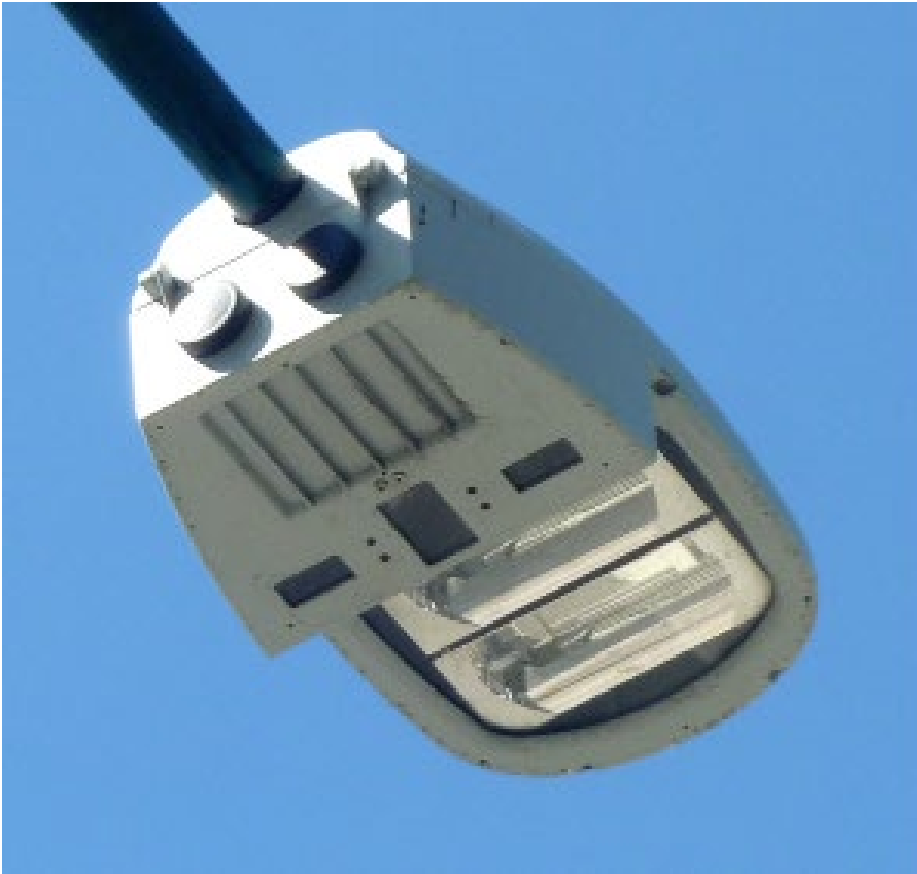
- Simple plate adaptor for surface mount cameras.
Due to variations of formats and mounting requirements, contact Cyclone Lighting for a solution adapted to your camera
- Ideal for mini dome type camera diameters from 4" to 6 1/2". Wire way must be within central diameter of 4"
- Compatible with a wide variety of cameras from:
Arecont Vision · Axis · Bosch · Hikvision · KT&C · LG
Panasonic · Pelco · Samsung · Vicon · Vivotek³



¹ Other brands may be compatible, contact Cyclone Lighting for more information.

Exhibit 3 Continued

Examples of Smart Pole Devices



Smart Street Light with sensors, network connection, and camera built in



Internal Retrofit for Smart Street Light