



City of Pomona Public Works
Department

Policies & Procedures
STREET LIGHTING DESIGN
GUIDELINES



May 2024

This procedure will be followed for the review and approval of new street light installations within the public right-of-way.

1. The City will provide the developer/consultant engineer with the City's standards, guidelines, and other relevant data (as available).
2. It is the developer/consultant engineer's responsibility to design and lay out the street lighting system or systems and to submit three (3) copies of the plan or plans to the City for review.
3. Included with the street light layout, the developer/consultant engineer shall show all existing and proposed streetlights within 250 feet on either side of the property and across the street from the proposed development. The wattage, lumens and circuits of both existing and proposed streetlights shall also be shown on the plans. When more than three (3) street lights are involved, a separate circuit plan, drawn in 1"=20' scale shall be provided in addition to the site plan.
4. After reviewing the plan, the City will return the marked plan to the developer/consultant engineer for revisions (if necessary). At least two (2) weeks should be allowed for plan checking.
5. The developer/consultant engineer shall provide the Edison Company with three (3) copies of the development plan showing the layout and type of streetlight required by the City. The Edison Company will indicate the feed point location on these plans (if necessary). One copy will be returned to the developer/consultant engineer, one shall be sent to the City, and Edison will retain the third for their records.
6. The developer/consultant engineer will indicate the feed point on the plan and make the necessary corrections. A standard size Mylar, (D size), of the original plan shall be submitted to the City for final approval.
7. All work and materials shall conform to the requirements of the Standard Specifications for Public Works Construction, ("Green Book"), latest edition, any supplements or revisions and these City Standards. In the event of a conflict

between the Standard Specifications and the City Standards, the Standard Specifications shall prevail.

8. The Contractor shall contact Underground Service Alert at 8-1-1 at least two (2) working days before any excavations are performed.

9. **Street Light Locations:**

- A. In the process of designing a street light system or determining location for a single street light, the exact location shall be determined through field review and clearance provided to avoid sidewalk area vaults, meter boxes, poles, overhead utility wires, trees, driveways, etc.
- B. The normal location for street lights shall be on the side property line prolongation in residential areas and BCR/ECR at curb returns. If an unusually small curb return exists (i.e. less than 25 feet), allowances for future enlargement should be made.
- C. Show lighting location on plans distinctly and precisely as opposed to schematically showing a representation of location particularly when the intention is to have it placed on the side property line prolongation, a dimension should be given showing distance from sideline, in addition to construction stations and/or dimensions. Adjustments might be necessary to provide a minimum of 25 feet as the minimum separation of light from any trees.
- D. Installation or upgrading of street lights will be required as a condition if the projected property at property line is greater than the street light design spacing for that street, as determined by the Public Works Department. As an example: A property of 260 feet in width and a street light design of 120 feet, $260 \div 120 = 2.16$. Therefore, two lights would be required.
- E. This will not relieve the property owner/developer from the City requirements of installation of conduits, pull boxes and pull ropes along the street frontage of the property to be developed for future use.

F. **Spacing:**

| <u>Property Use or Classification of Street</u> | Curb to Curb Street Width | Lumen Level | Pole Spacing (Staggered) | Pole Height |
|---|---------------------------|-------------|--------------------------|-------------|
| Residential | 40 ft | 5,800 | 180' | 23.25 ft |
| Collector | 64 ft | 16,000 | 180' | 23.25 ft |
| Arterial | 84 ft | 22,000 | 180' | 28.25 ft |

| | | | | |
|-------------------|-------|--------|------|----------|
| Commercial/Retail | 64 ft | 22,000 | 150' | 23.25 ft |
| | 84 ft | 27,500 | 150' | 28.25 ft |

G. Average Maintained Footcandles (F.C.)

| | Average Daily Traffic Volume (ADT) | |
|--|------------------------------------|----------------|
| | Under 5,000 ADT | Over 5,000 ADT |
| Heavy Pedestrian Activity Commercial Zones and Public Service Centers | 1.0 – 2.0 F.C. | 2.0 – 3.0 F.C. |
| Moderate Pedestrian Activity High Density Residential and Industrial Zones | 0.5 – 1.5 F.C. | 1.5 – 2.5 F.C. |
| Light Pedestrian Activity Low and Medium Density Residential Zones | 0.2 – 0.4 F.C. | 1.0 – 2.0 F.C. |

- Locations which might require higher intensities will be considered on an individual basis.
- Intersections will be considered separately. Design will be governed by safety considerations with careful consideration of controlling unwanted spilled light.
- Conduct analysis block by block, starting at ECR and ending ECR of opposite side:



- 0.8-1.0 F.C. for high pedestrian activity neighborhoods
- 0.3-0.5 F.C. for average activity neighborhoods

10. **Street Light Poles:**

- Street light poles shall be centrifugally spun reinforced Portland cement concrete. They shall be coated with Anti-Graffiti coating. Coloring shall be Ameron color #37 – BLACK & WHITE exposed.
- Concrete foundations for street light standards shall conform to the following City Standard: Foundation size shall be 3' square by 4' deep, if hand dug or dug by backhoe. Foundation size shall be 3' round by 5' deep, if dug by auger. Bolt circle will be determined by type of pole installed. Foundations shall be Class 560-C-3250 Portland concrete cement, as per the Green Book, Section 201-1.1.2.
- Street light poles shall be installed adjacent to the curbs or as directed by the City Engineer. **All hand holes shall face oncoming traffic.** Where sidewalks

exist at the light pole location, the sidewalks shall be sawcut and removed as required by the City Engineer. After installation of the streetlight, the concrete sidewalk shall be replaced to match existing sidewalk. The Contractor shall perform concrete work.

- D. Street light poles shall be of the following type, as specified by the Public Works Department: Ameron Contemporary Series 6B1 Octagonal Pole with Anchor Base. Height, mast arm and usage areas are shown in the following table:

| Length/Weight | Arm Length (Aluminum) | Mounting Height | Order Number | Street Classification (Usage) |
|--------------------|--------------------------|--------------------|-------------------------|----------------------------------|
| 21' 1" / 1,255# | 4' 0" * | 22' 10" | 6B1-21 | Residential |
| 24' 1" / 1,390# | 6' 0" | 26' 6" | 6B1-24 | Collector / Commercial |
| 26' 7" / 1,375# | 8' 0" | 29' 10" | 6B1-26 | Arterial / Retail |
| Bolt Circle | | | Anchor Bolt Size | |
| 21" | | | 1" x 36" x 4" | |

* If pole is set away from the curb, arm length will be increased per notes.

11. Conduit and Conductors:

- A. Conduit shall be Schedule 80 PVC, 1.5 inches in diameter, unless otherwise noted. Conduit shall be placed to a depth of not less than 30 inches nor more than 60 inches below the flowline grade, except that conduit placed behind a curb shall not be less than 14 inches nor more than 36 inches below top of curb; and conduit placed under railroad tracks shall be not less than 36 inches nor more than 60 inches below bottom of ties. Conduit terminating in street lighting standards shall not be transposed and shall terminate as near the door or hand hole of the standard as possible with the end of the conduit below, but within 1 inch of the lower edge of the door. The prolongation of the conduit shall pass through the door opening.

All roadway crossings shall be rigid metallic, 1.5 inches in diameter, unless otherwise noted. All conduit ends shall be reamed to remove burrs and rough edges. All metallic conduits shall be provided with threaded conduit ground bushings.

- B. Conduit to be installed behind curb within City right-of-way in a straight line run from pole to pole, pole to pull box or from pull box to pull box, unless otherwise noted. Bell bushings shall terminate all PVC Schedule 80 conduits.
- C. **Stranded** No. 8 conductors shall be used in all street lighting circuits. All wire inside each street light pole shall be No. 10 **solid** wire. All conductors shall be new copper with type THHN insulation, except that the grounding conductor shall be a No. 8 AWG **solid** wire with no insulation. All splices shall be treated as if the splice is for High-Voltage, series-circuit lighting. The splices shall be waterproof and use rubber tape, vinyl chloride tape and 3M Scotchkote sealer or approved equal.

12. Pull Boxes:

- A. All pull boxes shall be constructed from concrete and be of the following dimensions, known commonly as a State Number 5: Overall length = 28"; Overall width = 18". The covers shall be R-Series Composite Lid and be 23.25" in length and 13.75" in width. Pull box covers shall be inscribed with the legend "Street Lighting". There shall be bolt down kit for the cover. (Christy N30Box, N30R with N90 Bolt Down from Oldcastle Precast or approved equal) Concrete surrounding the pull box is not required for boxes placed behind the curb. The spacing between boxes shall not exceed 150 feet without intervening poles.
- B. Pull boxes adjacent to street light poles shall not be required unless requested by the City Engineer. All pull boxes shall be installed 6" to 12" behind the curb and no more than 4 feet from the light standard or as directed by the City Engineer. All installed pull boxes shall be shown on all plans submitted.
- C. Pull boxes adjacent to Edison Company service points shall be provided with a 5/8" diameter copper ground rod eight (8) feet long. Conduit runs longer than five hundred (500) feet in length shall have additional ground rods installed as required.
- D. Pull boxes shall be installed at the locations shown on the plans. They shall be approximately equally spaced, but not over 150 feet apart. It shall be at the option of the Contractor, at its own expense and subject to the approval of the Engineer, to install additional pull boxes that it may desire to facilitate the work. The bottom of the pull box shall rest firmly on a 12-inch thick bed of 1 inch crushed rock base extending 6 inches beyond the outside edges of the pull box. Grout all pull box bottoms. Allow for drainage by providing a 1/2" hole.
- E. All pull boxes shall have McCain vandal resistant insert or approved equal, installed and furnished by the contractor.

13. Service and Fusing:

- A. The Contractor shall install a 120/240-volt pedestal service for each designated circuit and shall be responsible for the payment of service point fees to the Edison Company. The City may, at its option, provide the service pedestal to the Contractor.
- B. Services shall be an unmetered TESCO 26000 complete with the following: (1) 100 Amp 2-pole main disconnect, four (4) 30-amp single pole circuit breakers, two (2) 30-amp magnetic contactors, an Auto/Test switch and an internally mounted photoelectric control socket with a "Delay Type" photoelectric cell. All circuit breakers shall be installed in a vertical position, handle up for "ON", handle down for "OFF". All connections to circuit breakers shall be by a compression lug or machine screw. There shall be no plug-in type circuit

breakers. All circuit breakers shall be industrial grade, Westinghouse Quicklag C or approved equal. The service cabinet shall be completely prewired at the factory.

- C. Service cabinet shall be manufactured from 12 gauge anodized aluminum. Maximum width of service cabinet shall be twelve (12) inches and maximum depth shall be nine (9) inches, unless otherwise noted. Service shall be welded construction. Cabinet shall have a Best lock with a RED core installed.
- D. All risers/sweeps at service poles shall be 3" inches in diameter and installed at least three inches above grade. Riser/sweep shall meet Edison Company requirements. The quadrant locations shall be as directed by the Edison Company.
- E. Tesco Controls can be reached at (916) 395-8800. The Customer Service Planner for the Edison Company can be reached at (909) 592-3719.
- F. Each street light shall have a fuse holder installed in the base of the pole. The fuse holder shall be a TRON waterproof HEB-AA McGraw-Edison type or approved equal with an eight (8)-amp fuse for a 70-watt lamp, a ten (10)-amp fuse for a 100-watt lamp and a fifteen (15)-amp fuse for 200-watt lamps.

14. Bonding and Grounding:

- A. Metallic conduit, nonmetallic conduit grounding wire, service equipment and anchor bolts that form a continuous system shall be effectively grounded. Bonding and grounding jumpers shall be No. 8 **solid** copper wire.
- B. For bonding purposes in all nonmetallic type conduits, a bare No. 8 **solid** copper wire shall be run continuously in all circuits.
- C. Bonding of light standards shall be accomplished by means of a No. 8 **solid** bonding wire attached from a grounding bushing or from the continuous grounding wire to a foundation bolt.

15. All street light locations shall be verified in the field by the City Engineer before construction. All removals within existing improvements shall be accomplished by saw cutting unless otherwise approved by the City Engineer.

16. Final acceptance will be based on all necessary excavation, removals and/or replacement necessary to restore adjacent grounds to as near original condition as possible. All spoils shall be removed from the job site on the same day of excavation.

17. Street Light Luminaires:

- A. Street light luminaires shall meet the following criteria - Power/Door Luminaire as manufactured by GE Current LED fixtures (or approved equal) ordered using the following order code:

| | | |
|---------------------|----------|----------------------------|
| Residential streets | 36W LED | ERLC 0 05 C5 30 A GRAY G L |
| Collector streets | 87W LED | ERL1 0 11 C5 30 A GRAY G L |
| Arterial streets | 110W LED | ERL1 0 14 C5 30 A GRAY G L |
| Safety Lights | 129W LED | ERL1 0 16 C5 30 A GRAY G L |

- B. All luminaires shall be installed with individual photoelectric controls manufactured by Ripley Lighting Controls (RD8645) or approved equal.
- C. The contractor shall provide the City with one (1) spare luminaire of the same type and manufacture as installed for every five (5) the contractor installs. As an example, if the Contractor installs from one (1) to five (5) street lights, the Contractor will provide to the City one (1) spare luminaire. If the contractor installs from six (6) to ten (10) street lights, then the Contractor will provide two (2) spare luminaires to the City, and so on.
- D. After installation is complete and the serving utility has energized the circuit, the system will be burn tested for seventy-two (72) hours prior to City acceptance.

18. Salvaged Materials:

- A. The balance of all or any number of the street light poles to be removed by the Contractor or from this project shall be delivered to the City Yard location as designated by the Signal/Lighting Supervisor or shall become the property of the Contractor. The decision on this item shall be made by the City Engineer.
- B. All excavation materials not to be re-used as backfill materials, such as broken sidewalk, removed light pole foundations excess fill materials shall be disposed of by the Contractor.

Supersedes Policy Dated 04/04/2008, 12/15/1995
Policy Initiated 10/08/1985