

City of Medford  
Public Works Department  
Engineering & Development Division  
Traffic Engineering Section

**Street Light Standards and Specifications – April 23, 2019**

<u>Luminaire Types</u>	<u>Typical Lumens</u>	<u>Color Temp (CCT)</u>	<u>Misc.</u>	<u>Typical Arm</u>
Type P	3,500 – 4,500	3000K	BL – 16'	N/A
Type R-100	5,000 – 6,000	2700K	BL – 25'	6'
Type R-150	7,000 – 8,000	3000K	BL – 25'	6'
Type C-200	10,000 – 11,000	3000K	BL – 35'	L-12' / R-7'
Type C-250	11,500 – 12,500	4000K	BL – 35'	L-12' / R-7'
Type A-310	19,000 – 20,000	4000K	BL – 40'	L-12' / R-7'
Type A-400	23,000 – 25,000	4000K	BL – 40'	L-12' / R-7'

Luminaires will be mounted on steel poles. Lighting circuits will be underground where underground power is available. Luminaires maintained by PPL should be removed in lieu of street light requirements.

**Developer Responsibility**

The developer will be required to furnish and install all new street lighting as part of a new development. This will be accomplished in the following manner:

(a) Fees:

1. **Land Divisions** – The Developer will be charged a \$53 fee per street light for a photo electric control for each street light unit required. This fee will be paid as part of the Final Plat fees for the land division. The City's additional costs for inspection and plan review will be paid by the developer as a part of the Public Improvement Plan Review and Inspection Fee, due prior to approval of the public improvement plans.
2. **Commercial Projects not Involving a Land Division** – The developer will be charged a \$174 "Inspection and Start-up Fee" for each street light to be constructed as part of the development. This fee will cover all inspection and plan review costs in addition to the City's installation of the photo-electric control and will be collected as a part of the building permit fees.

(b) The City will furnish and install the following material for each new street light installation if applicable:

- (1) Photo-electric Control
- (1) Pole Tag

(c) All street lights in subdivisions and land partitions must be installed complete with power-on and functioning properly prior to the Final Inspection ("walk-thru") of the land division. Building permit applications will not be accepted by the City's Building Safety Department until a "walk-thru" has been conducted and all aspects of public improvements approved for acceptance by the City.

- (d) Land divisions may post security for street lights in lieu of installation and start-up in order to get final plat approval. However, the conditions in (c) above must be met prior to application for building permits. In those cases where security is allowed or required, it shall be of a form acceptable to the City Engineer per Section 10.667 of the Medford Municipal Code. The amount for a Type R street light shall be \$3,500 per unit. For a Type A or C street light, or a decorative street light in the Central Business District, the amount shall be \$5,000 per unit. For a Type P pedestrian light, the amount shall be \$2,000 per unit. For a base mounted service cabinet (BMC), the amount shall be \$6,000 per unit.
- (e) For commercial projects, other than land divisions, where new street lights are required, a cash deposit in the amounts stated above will be required at the time the building permit is issued.
- (f) To provide power to street lights in residential, commercial, industrial subdivisions and land partitions, the developer may be required to install transformers in addition to the electrical backbone system. After the City provides street light locations, the developer's engineer shall determine number and location of transformers, with approval by Pacific Power and the City.
- (g) The contractor shall call 774-2100 to verify location of street light units at least 24 hours PRIOR to drilling foundations or laying conduit.  
The contractor shall provide trench and backfill including sand blanket per City of Medford CD980 and lay conduit as required. All trenching is to be within public utility easements or in public right of ways. If trenching in planter strip, trench should be behind curb or in front of sidewalk. Trench should never be centered in planter strip due to conflicts with root balls of future trees. Preference would be under sidewalk. The contractor shall call 774-2100 for inspection of trench and conduit at least 24 hours PRIOR to backfill. Failure to do so may result in the contractor digging new trench to City requirements. Trench to have a minimum of 18" (30" under roadway/alleyways) compacted cover over lighting conduit; 2" of sand is required below lighting conduit and 2" above, for a 4" total around lighting conduit.

NOTE: The Traffic Division Inspector is available to perform required inspections between the hours of 8:00 am and 3:00 pm, Monday thru Friday, exclusive of holidays.

The contractor shall dig and set pole foundations, per the City of Medford CD970 – CD975. Contractor shall call 774-2100 for inspection of pole foundations at least 24 hours PRIOR to pouring concrete. Pouring without an inspection or inspector on site shall result in contractor removing bases and installing new bases to City requirements. All foundation concrete shall be 3300 commercial grade (CGC) and follow 2018 ODOT/Oregon Standard Specifications for Construction section 440 and is to be vibrated during placement to remove air pockets. Concrete batch tickets are required before placement of concrete. Excavations for foundations shall have no more than 3" of water in the bottom at the time of the concrete pour. If concrete is poured to forms, all forms shall be removed after 3 days and compaction of crushed  $\frac{3}{4}$ " minus backfill by mechanical means in 6" lifts is required. If sonotubes are used, 50% of the tube **SHALL** be removed after 3 days and compaction of crushed  $\frac{3}{4}$ " minus backfill by mechanical means in 6" lifts is required. There will be a seven (7) day minimum curing period for foundation concrete before poles are to be set. NOTE: Testing of concrete may not be required, at the discretion of the City, as long as the above items are met.

When wire is pulled, the free end in the junction box at the transformer shall be of adequate length to make connections to Pacific Power terminals. Contractor shall coordinate Power Company for access and installation of conduit/wire into the pedestal/transformer vault. In new installations, the free end of the wire shall be brought into new pedestal/transformer vault for Pacific Power to make up. The amount of wire at the foundation shall be of sufficient length to allow contractor to make connection in the pole. After wire has been pulled into the foundation, the Contractor shall call 774-2100 for meg/continuity check of wire **PRIOR** to setting of the pole. The 500 V wire insulation megger tester, shall be 500M ohms or greater when checked.

Contractor shall not set poles until Inspector has examined all materials for conformance to specifications. Contactor shall call 774-2100 for material inspection **PRIOR** to setting of pole.

The Contractor shall set light pole, install luminaire, lamp, shorting cap and perform all wiring and other work necessary for complete street light installation, ready for turn-on by Pacific Power. Contractor shall call 774-2100 to request final inspection. After successful turn-on inspection the City of Medford will request turn-on by Pacific Power. If required by the power company, Contactor shall coordinate and pay for the cost for Pacific Power to set the pole.

- (h) Contractor will be required to repair or correct, at his expense, any problem that develops up to the time that the units are accepted by the City, including refinishing any units that have been scuffed or scratched. Use of metal chains or cables will not be permitted.

**Approved Materials Specifications**

All Contractor supplied material used in street light installations shall be as follows:

<b>Poles</b>	<b>Manufacturer</b>	<b>Catalog #</b>	<b>Drawing #</b>
Type P	Visionaire Mel Northy	RNTS - 4R-11-16-9BC-343-T3R-BK Belle Chase #92132	N/A *Discontinued*
Type R	Valmont Ameron	DS99-656A299-6S-GV-SFBC-LAB JSL-256	#DB00528 JSL Series
Type C	Valmont Ameron	DS32-800A280-12S-GV-SBFC-LAB NN-2812	#DB00529 NN Series
Type A	Valmont Ameron	DS32-900A330-12S-GV-SBFC-LAB NN-3312	#DB00740 NN Series

<b>Luminaires</b>	<b>Manufacture</b>	<b>Catalog #</b>	<b>Options</b>
Type P	Visionaire	CAL-1-L-T2-42LC-3-3K-UNV-PT-BK-FIN1	N/A
Type R-100	American GE Cree	ATBMic-10BLEDE15- MVOLT-R2 ERL1-0-06-E3-27-A-GRAY XSPSM-D-HT-2ME-5L-27K7-UL-SV-N	3K-NL-P7 N/A N/A

Type R-150	American	ATB0-20BLEDE10-MVOLT-R2	3K-NL-P7
	GE	ERL1-0-08-E3-30-A-GRAY	N/A
	Cree	XSPSM-D-HT-2ME-8L-30K7-UL-SV-N	N/A
Type C-200	American	ATB0-20BLEDE15-MVOLT-R2	3K-NL-P7
	GE	ERLH-0-11-E3-30-A-GRAY	N/A
	Cree	XSPMD-D-HT-2ME-12L-30K7-UL-SV-N	X7
Type C-250	American	ATB0-30BLEDE10-MVOLT-R2	NL-P7
	GE	ERLH-0-13-E3-40-A-GRAY	N/A
	Cree	XSPMD-D-HT-2ME-12L-40K7-UL-SV-N	N/A
Type A-310	American	ATB2-60BLEDE85-MVOLT-R2	NL-P7
	GE	ERL2-0-19-E3-40-A-GRAY	N/A
	Cree	XSPLG-D-HT-2ME-24L-40K7-UL-SV-N	X6
Type A-400	American	ATB2-80BLEDE85-MVOLT-R3	NL-P7
	GE	ERL2-0-23-C3-40-A-GRAY	N/A
	Cree	XSPLG-D-HT-3ME-24L-40K7-UL-SV-N	N/A

### **Shorting Caps**

For new installations, cobra head fixtures shall have shorting cap installed. BMC systems shall have a photocell installed.

### **Junction Boxes**

Min. 17" x 24" x 12" deep – Plastic junction box for use in dirt areas to be Carson, Inc. – 1419-12-4BE, HDPE black w/ lid stamped "electric" with hex bolts.

Min. 10" x 17" x 12" deep – Concrete junction box for use in sidewalk areas to meet the newest revised ODOT Blue Sheet Spec for precast concrete JB-1 box. The lid labeled "lighting" or "electric" with hex bolts.

Junction boxes shall be installed per CD981. Junction boxes **SHALL NOT** be installed in any part of a driveway, ramp, or other traveled ways unless otherwise specified. All lids shall be bolted down. No tamperproof hardware allowed unless specified. All junction boxes shall have a minimum of 12" of crushed  $\frac{3}{4}$ " compacted rock below the box.

### **Conduit**

All stand-alone road projects will require continuous conduit between all pole foundations. All conduit in foundations shall be 1  $\frac{1}{4}$ " PVC. Conduit in trenches shall be 1  $\frac{1}{4}$ " Schedule 40 PVC electrical, unless plans specify larger size. All bends in conduit 22.5 degrees or more shall be factory made PVC. All ends shall be cut at 90 degree angle, reamed and terminated with a PVC bushing. Duct seal or approved foam plugs (closed cell polyethylene foam) shall be installed in all conduit ends. Spray foam shall NOT be used.

PVC conduit bends of less than 22.5 degrees **SHALL** be made with equipment certified for such use. Improper bends are subject to rejection of installation. Conduit runs with PVC 90's longer than 100' and/or more than three (3) 90's, **SHALL** have a factory 24" radius. Any repairs/extension of existing conduit shall be of the same material used. All empty/spare conduit shall have a tracer wire installed. #16 AWG TFFN (orange with blue tracer)

**Wire**

- (a) Underground circuits in conduit to be No. 8 THW/THHN stranded copper, 600 volt, unless plans specify larger size. Voltage requirements will vary according to transformer availability. The following wire requirements corresponds to each voltage.

Requested Voltage:	Wiring Required:
120v	1-hot leg, 1-neutral
208v	2-hot legs (same color)
240v	2-hot legs (same color)
277v	1-hot leg (orange), 1-neutral (light grey)

Hot legs are to be Black/Red/Blue, the neutral wire is to be white. No phase tape shall be allowed. If multiple circuits are present, circuits shall be grouped for identification and circuit label numbers installed.

All circuits will require a continuous No. 8 green ground wire. No bare copper allowed. The ground shall also bond to the ground rod and fixture.

- (b) Wire in poles shall be three #10 conductor cable (TC Cable) with XHHW stranded copper. Cable shall be supported by a Kellum grip if over 25' drop. Wire from JB to pole shall be #10 THW/THHN along with a #8 green ground wire.
- (c) All connections to be with split bolt or other approved mechanical compression crimp, and made watertight with insulating rubber tape wrapped with insulating vinyl plastic tape comply with ASTM D 3005, Type II and UL 510 or heat-shrink tubing with inner melting wall for encapsulated insulation. **NO WIRE NUTS.**
- (d) All street lights shall have an in-line fuse connector and fuse installed in the pole hand hole, with the exception of Pedestrian lighting, where the fuse holder shall be installed in junction box adjacent to pole base. Each in-line fuse connector shall be supplied with a 10-amp fuse, Bussman KTKR10 or approved equal.

In-line fuse connectors to be used on 208 V and 240 V lighting circuits shall be designed for two pole fusing such that both poles disconnected simultaneously from both legs of the line side. The connector shall have no exposed metal parts, except the head of the metal assembly screw and shall be recessed a minimum of 1/32 inch below the top of a plastic boss which surrounds the head. The connector shall be designed for compression connection to the line and luminaire conductors. Screw connection will not be allowed. Crimp shall be made with proper crimping tool and shall be made watertight by use of inner melting wall heat shrink tubing for an encapsulated insulation or insulating boots. **NO ELECTRICAL TAPE.**

Approved in-line fuse connectors include:

1. TRON                      HEB (for 120 V and 277 V circuits)
2. TRON                      HEX (for 208 V and 240 V circuits)

**Contacting Power Source**

- (a) For individual units, Contractor to set junction box 3' from Pacific Power secondary terminal pad. Install fuse holder and supply sufficient wire for Pacific Power to make hook up to power source. If power source is a transformer, Contractor to contact Pacific Power to have a serviceman standby on-site while Contractor makes entry into vault.
- (b) For dip circuit, Contractor to set a junction box at Pacific Power service pole. Install fuse holder with 30-amp fuse along with a CU ground rod and supply sufficient wire for Pacific Power to make hook up to power source. The City shall derive a PPL Work Order Number. The Contractor is to use Work Order Number to contact Pacific Power Estimator to determine location of junction box and placement of conduit on pole. All risers and sweeps are to be installed to Pacific Power requirements.
- (c) For overhead span, Contractor to attach wires to new street light overhead disconnect with sufficient length to reach Pacific Power pole to make connection to service wires. Ground wire must be supplied in duplex and terminated in disconnect box mounted on City pole.

**City/Contractor Responsibility**

**Types A, C, & R:** The City will assume ownership and will pay electrical energy costs for the new street lights as soon as the new lights are accepted and in operation. The Contractor shall warranty the workmanship and materials for a period of twelve (12) months following acceptance by the City after which the City will assume total responsibility.

**Type P:** As per Medford Municipal Code 10.380