### Description

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitions</td>
<td>1-1-1</td>
</tr>
<tr>
<td>Lighting Contracts</td>
<td>1-2-1</td>
</tr>
<tr>
<td>Municipal Design Procedures</td>
<td>1-3-1</td>
</tr>
<tr>
<td>Municipal Midblock and Subdivision/Road Widening/Aesthetics</td>
<td>1-4-1</td>
</tr>
<tr>
<td>Private and Security Design Procedures, Cities Other than City of Phoenix</td>
<td>1-5-1</td>
</tr>
<tr>
<td>Non-Municipal Procedures, Lighting Associated with Other Projects</td>
<td>1-6-1</td>
</tr>
<tr>
<td>Additional References</td>
<td>1-7-1</td>
</tr>
</tbody>
</table>
Acronyms and Definitions

ATP: Authorization to Proceed

Ballast: An iron core and copper coil designed to limit the electric current through and control the voltage to the lamp

CIAC: Contribution In Aid of Construction

Circuit, Streetlight: The streetlights and one or more branches of conductor served from a single electrical source, preferably a single phase transformer

Collector Roadway: Generally one-half mile roadways

Cutoff Style: A luminaire from which light rays emitted either directly from the lamp or indirectly from the fixture are projected below the horizontal plane of the lowest point of the fixture; legally required by the Dark Sky Ordinance

Dark Sky Ordinance: Primarily Bill 2347 passed by the state of Arizona in 1986 but also various other bills which require SRP, and others installing outdoor lighting, to discontinue use of mercury vapor and install only cutoff style lighting. All MV and non-cutoff lighting must be removed by 2011.

Footcandle: One lumen per square foot

Fully Shielded Lighting: Luminaires with a flat glass refractor.

IES: The Illuminating Engineering Society publishes lighting standards

Junction Box (J-Box): Flush mounted box is where the connection to the light is made; it is the contractual point of delivery. Above ground junction box is where service to the flush mounted junction box is connected to secondary from the transformer, if not served directly from the transformer.

LOA: Letter of Authorization

Local or Minor Roadway: Roadways within residential

Lumen: A unit of measure used to rate the total usable light output of electric lamps; usable light being light at wavelengths visible to the human eye.

Major Roadway: Generally mile roads (there are exceptions), expressways and similar streets

Minimum Average Maintained Footcandles: Average illumination on the roadway when the reflector and refractor are dirty and the lamp is at its lowest output

Mole Assembly: The submersible connector used inside the j-box to make the electrical connection from the transformer to the luminaire

PHOENIX Customer Relationship System (CRS): Customer information system. Generates Customer’s orders, trouble calls and billing.

Photocell: A small electronic device mounted on top of the luminaire for the purpose of switching the luminaire on at dusk and off at dawn. Specified to fail on so the light would be a day-burner.

Reflector: The mirror-like part of a luminaire behind the lamp that redirects light out to the area to be illuminated
Acronyms and Definitions

**Refractor**: The lens through which light passes from the lamp, or bulb, out to the area to be illuminated

**SLVD**: An Excel program on the Line Standards, Policies, Procedures web page that calculates voltage drop and conductor amp loading given luminaire wattage, conductor type and length, circuit configuration and additional amp loads modeled at chosen junction boxes.

**Starter**: An electronic device in a high-pressure sodium luminaire that delivers a high voltage pulse to the lamp with the purpose of starting the lamp

**Uniformity Ratio**: The ratio of the average maintained foot-candle value to the lowest maintained foot-candle value at any point on the pavement.
SRP Outdoor Lighting Contracts

SRP offers the following lighting contracts:

1. Municipal Rights-of-Way (Public): Available to all municipal districts within SRP territory. These are used on public thoroughfares and publicly owned lighted street signs.
   - Foreign Lighting: Equipment owned by the SRP municipal Customer. These are mapped for the purpose of outage tracking and maintenance if maintained by SRP. Design to POD. Post all unmetered served lights to SmallWorld.
   - Public: Customer owned and maintained. (Exception: Queen Creek to 2019, Maricopa County – Ongoing)

2. Non-Municipal: Non-Municipal lighting (Private or Security) is not to be used to light public thoroughfares.
   - Private: Private streets, parking lots, drives and alleys, thoroughfares and common areas. Used in PUE or SRP easement. Requires a 10 year contract (Private and Security lighting, check Private E50 option on Private and Security Leasing Contract, on JET; see copy page 1-12-1). Compatible units for this category end with the code letter P. Example: ULHC2609P
   - Security: Private residences and commercial applications such as parking lots. Used on private property. This service is not intended for activities requiring illumination higher than an average of two foot-candles. Requires a 10 year contract. (Private and Security lighting, check Security E57 option on Private and Security Leasing Contract, on JET; see copy page 1-12-1.) Compatible units for this category end with the code letter D. Example: ULHC2609D
   - Customer Owned and Maintained Private Lighting: Design to POD and post all unmetered served lights to SmallWorld. Requires a 10 year contract. Check Customer E51 option on Private and Security Leasing Contract (Underground served only).

See the Distribution Design Policies and Procedures Manual for costing, contracting, permits, paper flow, notification and billing.
Municipal Design Procedures

The general design procedures for municipal street lighting is listed below. For municipal street lighting there are two additional outlines on the following pages, titled "MIDBLOCK" and "SUBDIVISION/ROAD WIDENING/AESTHETICS". These illustrate steps occurring outside the design process and are provided for added understanding. For individual cities requirements, refer to Section 2, Municipal Lighting Flowcharts in the Distribution Design Policies and Procedures Manual.

NOTE: Since SRP does not own municipal street lighting, generally the foreign compatible unit codes ending with "F" and found in the Reference Only sections in the back of sections 7 and 8, should be used as the billing code on the DX22 screen on UNSS (Unit Number Sub System). Private and Security light compatible units, ending in P or D, should not be used for municipal street lights. If you have questions regarding the billing code, contact Unmetered Services.

If a Customer requires municipal street lighting:

1. SRP receives approved streetlight plan from municipality.
2. Design determines the POD requirements.
3. Design determines costs.
4. Design prepares the contract and submits it to the municipality.
5. Design for POD and energization only (Customer owned streetlight).
6. Municipality submits the payment or signs authorizing SRP to bill the city.
7. City sends Letter of Authorization (LOA), if required by municipality, for monthly billing to Design.
8. Design releases job to Construction.
9. Design sends Unmetered Services the job package.
10. Unmetered Services bills for monthly energy to Customer.
11. Design posts lights to SmallWorld.
12. Unmetered Services and Design retains all documentation.
SECTION 1: SRP OUTDOOR LIGHTING OVERVIEW

Municipal

Midblock
1. Customer requests light(s) from City.
2. City obtains signatures from neighborhood via petition.
3. City obtains easement to install pole and associated equipment.
4. City submits a letter requesting service and costs to SRP describing type of light and location of proposed light(s). SRP Design for POD only, calculates costs on Amp, prepares contract and submits contract to the City.
5. City signs contract and returns to SRP with payment or requests to be billed for CIAC. City submits LOA, if required by municipality, to Design for monthly billing.
6. Miscellaneous Accounts Receivable enters ATP and invoices City. Design is notified of ATP.
7. Design releases job to Construction.
8. Job is scheduled, constructed, and closed.
10. Unmetered Services and Design (JPC) bills for monthly energy to Customer.
11. Unmetered Services and Design retains all documentation.

Subdivision / Road Widening / Aesthetics

Lighting requests for subdivisions, road widening and aesthetics are processed the same by all divisions, except for the final billing. For subdivisions, the subdivision contractor will submit a request for lighting to the municipality prior to contacting SRP. For lighting requests from a municipality involving road widening or aesthetics, the municipality will contact SRP directly.

1. Municipality/Developer contacts SRP and submits approved light plan to SRP.
2. Design assigns streetlights POD locations and subdivision street light numbers on the subdivision/road widening/aesthetics job.
3. Draft job - for Road Widening and Aesthetics Only:
   A. Designer prepares construction cost proposal and may collect connection fees. Designs for POD only
   B. After the municipality approves the costs and payment is received, the Designer receives the ATP, and LOA, if required by municipality, for monthly billing responsibilities.
5. Job is scheduled, constructed and closes.
6. Unmetered Services authorizes billings for monthly energy to Customer.
7. Design posts lights to SmallWorld.
8. Unmetered Services and Design retains all documentation.
Non-Municipal Procedures
Lighting Not Associated With Other Projects

If a Customer requires non-municipal lighting (10 year contracts):

1. The Customer contacts SRP through Residential Customer Services (RCS), Business Contact Center (BCC), or Construction Contact Center (CCC).
2. RCS, BCC, or CCC generates an Unmetered Service Memo Order on Phoenix CRS and transmits it to Unmetered Services via AMP.
3. Unmetered Services schedules a meeting between the Designer and Customer.
4. Unmetered Services meets with Customer.
5. Unmetered Services and Customer determine the lighting needs of the Customer.
6. Unmetered Services opens Work order number.
7. Unmetered Services draws up a contract for CIAC charges and monthly equipment charges.
8. Customer signs contract and pays applicable fees.
9. MARS enters ATP and scans in the signed contract.
10. Unmetered Services drafts and grids the job.
11. Unmetered Services releases the job to Construction and SRP Inspection as applicable and provides copies to the Customer.
12. SRP Inspection is involved if any construction is done by the Customer, typically any underground work, i.e. trench, conduit, and j-box.
13. The Customer should call Unmetered Services Inspections at (602)236-0436 for a pre-construction meeting with SRP Inspection, Design and the Customer’s contractor. At this meeting SRP answers any of the Customer’s questions about what work the Customer must perform.
14. When the Customer has completed his work, a final inspection is required.
15. After SRP Inspection has given final approval they send the Inspection and Communication Record, the “Pink Sheet” as it is called, to SRP Construction for completion of the work.
16. Job will be scheduled, constructed and closed.
17. Unmetered Services initiates billing.
18. Unmetered Services posts lights to SmallWorld.
19. Unmetered Services retains all documentation.
Non-Municipal Procedures
Lighting Associated With Other Projects

If a Customer requires non-municipal lighting (10 year contracts):

1. The Customer typically contacts SRP by plan submittal.

2. Design schedules a meeting with the Customer and requests the customer to contact the municipality and ask for their outdoor lighting criteria.
   Example: In the City of Phoenix, the mounting height is restricted to 15 ft. when located within 150 ft. of a residential district, and 25 ft. in a non-residential district. Mounting heights greater than this will require the Customer to obtain a zoning variance issued by the City of Phoenix.

3. Design meets with the Customer and determines lighting needs of the Customer.

4. Design provides proposal to Customer.

5. Design requests a work order number from the Job Processing Coordinator (JPC).

6. Calculate charges

7. Design draws up a contract. \srpusr20\vbinstalls\DDLC\publish.htm

8. Customer signs contract and pays applicable fees.

9. Design drafts and grids the job.

10. Job is released to Construction and SRP Inspection as applicable.

11. Design provides copies to the Customer.

12. Design sends the job package to Unmetered Services.

13. SRP Inspection is involved if any construction is done by the Customer, typically any underground work (i.e., trench, conduit, j-box).

14. Customer contacts East Valley (EV) (602) 236-6300 or West Valley (WV) (602) 236-0676 to schedule a pre-construction meeting with SRP Inspection, Design and the Customer’s contractor. At this meeting, SRP answers any of the Customer’s questions about what work the Customer must perform.

15. When the Customer has completed their work, they contact EV or WV for a final inspection.

16. After Inspection has given final approval, they send the Inspection and Communication Record (aka “pink sheet”), to SRP Construction for completion of the work.

17. The job is scheduled for construction.

   A. The city inspector will be advised of the construction schedule. This inspection is intended to verify zoning compliance (conformity to approved site plan) and spot check conformity to the installation standards. The city has advised this inspection requirement will not delay energization. The facility may be energized following completion of construction, whether or not the inspector was on site during construction.

   B. Construct the job

   C. Z-code the job when complete
18. Unmetered Services initiates billing and posts lights to exhibit maps. 
19. Unmetered Services and Design retains all documentation for one to two years and then forwards the documentation to Graphic Records to be stored permanently.
Additional References

1. See the Customer Charges section of the Distribution Design Policy and Procedures Manual for information regarding:
   - Customer street lighting services
   - Customer charges
   - The lighting request process
   - Customer responsibilities
   - SRP Lighting Policy
   - Lighting conflicts with trees
   - SRP outdoor lighting options
   - Job Types section for information regarding streetlight connection blanket numbers.
   - Forms section for examples of the various forms mentioned in this book.