Standards:
   - Continuous lighting utilizing illuminance method (Average, uniformity and veiling luminance)
   - Full cutoff Light Emitting Diode luminaires (Cobra Style)
2. System Configurations
   - Staggered on local streets, collector streets and two-lane arterials; opposite on four-lane divided arterials or special street designs. One side configurations are allowed, but only when approved by the engineer. All other configuration that deviation from our City Streets Standards will be required to submit full photometric report that meets our Lighting Standards and City of Gilroy's own independent test results of the recommended fixtures on this sheet.
3. System Construction Standards
   - Electrolights shall be placed for continuous, permanent lighting systems on streets
   - Underground conduit for streets and walkways shall be PVC Schedule 40 conduit, except for when fiber optic is inside, in which case schedule 80 shall be used.
   - Concrete, bolt-down foundations shall be used (2010 Caltrans ES-6A) for electrolights
   - Full box shall be installed at each electrolight and every 200 feet (long conduit run).
4. Electrical Standards
   - 120/240 volt, single phase multiple circuits shall be used for all streetlight systems
   - Conductor specification shall be as per all of Section 6-2.08 of the 2010 Caltrans Standard Specifications:
     - 2 inch PVC Schedule 40 conduit
     - Each streetlight shall have its independent photo-cell
     - All street lighting pull box lids shall be a "Mr. Steel Security Ltd" or an approved equal anti-theft security lid (see EL-X for details) with "City of Gilroy Street Lighting" inscribed on the pull box lid.
     - All conductors of AWG #14 or larger shall be identified by printed label identifying the UL listing, the insulation type, the voltage rating, the AWG number; and the "City of Gilroy". The embossed label shall read "City of Gilroy". The printed label and the embossed label shall be placed at approximately 90 degrees separation around the center of the conductors. Labels shall appear every one foot interval. Embossed labels shall be between .002" to .003" in depth and shall not damage the conductors. Label heights shall be no less than 3/32" for AWG #8 or larger, and shall be no less than 2/32" for AWG #10.

**LED STREET LIGHTING FIXTURE**

<table>
<thead>
<tr>
<th>ROAD CLASSIFICATION</th>
<th>SYSTEM CONFIGURATION</th>
<th>SPACING 10' BY PEDESTRIAN ACTIVITY</th>
<th>MH</th>
<th>STREET LIGHT FIXTURE (IN APPROVED EQUIVALENT)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>LOW</td>
<td>MED</td>
<td>HIGH</td>
</tr>
<tr>
<td>MAJOR/ARTERIAL 4-LANE UNDIVIDED ARTERIAL (4PC TO 4PC)</td>
<td>OPPOSITE</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
</tbody>
</table>

**STREETLIGHT CONFIGURATION ROADWAYS**

DRAWN BY: CSG CHECKED BY: SCALE: N.T.S
LAST REVISED: 6/20/14 SECTION: ELECTRICAL DRAWING NO.: EL-1
APPROVED: 8-18-14
GENERAL NOTES
1. Type II optics shall be installed on the local street and Leotek GC2-100F-MV-NW-3-GY-700 shall be installed on the major/arterial.

2. Type II optics shall be used for the collector street and a type III optic shall be used for the arterial/major street.

3. A type II optic shall be used for the collector street and a Leotek GC2-120F-MV-NW-3-GY-530 shall be used for the arterial/major street.

4. Type II optics shall be used at the entrance of the cul-de-sac and a type III optic shall be used at the end of the cul-de-sac.

5. Placement of fixtures are approximate locations. Exact location will be determined by the Engineer.

6. Placement of any street lights in any non-City Standard street will require a full photometric report and must meet the latest edition of the IESNA RP-8-00 recommended lighting values and the City of Gilroy’s independent lighting values produced by the recommended luminaries on this sheet.

7. Individual independent photocells shall be installed for each streetlight.

8. Conductor specification shall be as per all of Section 86-2.08 of the 2010 Caltrans Standard Specifications.

9. All pull boxes shall be an Anti-Theft type (see EL X).

10. Lighting configuration is not applicable to signalized intersections.
NOTES
1. Luminaires have the following characteristics based on IES Luminaire Classifications
   a.) Vertical Light Distribution - Medium
   b.) Lateral Light Distribution - Type III
   c.) Control of Light Distribution above maximum candle power - full cutoff
2. Light source shall be Light Emitting Diode (LED).
3. All LED fixture heads shall be installed perpendicular to the road surface.
4. See Detail EL-18
5. Concrete, bolt-down foundations for electroliters
6. All Electroliters are to be numbered with photo-reflective numbers placed 10' to 12' above grade and facing the street. (To be coordinated with the City on numbering)
7. All LED fixtures shall have a wattage sticker as per ANSI Standard C136.15 (Identifying the fixture technology)
8. Luminaires shall have an independent photocell
9. Pole and mast arm shall be spun aluminum or galvanized steel. (An optional powder-coat paint finish may be applied at the discretion of the City Engineer)
10. Refer to 2010 Caltrans Standard Details ES-7N for foundation detail.
11. Pull box lid shall be anti-theft type per City Detail. Pull box lid shall have "City of Gilroy Streetlighting" inscribed on the lid.

CONSTRUCTION NOTES
1. A fiberglass or polypropylene pull rope shall be left in all empty conduits.
2. No mechanical means shall be used to pull wires smaller than No.1 AWG
3. Fusible links shall be located in the pull box adjacent to each electroliter.
4. At the installation of each LED fixture a 24-hour burn-in test shall be conducted.
NOTES
1. All Streetlight poles are to be numbered. (To be coordinated with the City on numbering)
LUMINAIRE SPECIFICATIONS

LUMINAIRE SPECIFICATION: Die cast aluminum housing with universal four-bolt slip fitter mounts to 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter mast arm. Cooling fins maintain LED junction temperature assuring long LED life and efficiency. Electrical components are accessed without tools and are mounted on removable power door. Power door features quick electrical disconnects to terminal block and LED board. Photocontrol receptacle is standard and can be added without tools.

Light Emitting Diode: Hi-flux/Hi-power white LEDs produce a minimum of 95% of initial intensity at 100,000 hours of life. LEDs are tested in accordance with IESNA LM-80 testing procedures. They have a mean correlated color temperature of 4300K (standard). LEDs are 100% mercury and lead free.

Optical System: Micro-lens system produce IESNA Type 2 or Type 3 distributions. Luminaire is classified as Full Cutoff with 0% total lumens above 90 degrees. (see EL-10 for application)

Electrical Supply: Power supply features a minimum power factor of .90 and <20% Total Harmonic Distortion (THD). EMC meets and exceeds FCC CFR Park 15. Transient voltage complies with ANSI C62.41 CAT. A. Power supply is field adjustable to 350mA, 530mA or 700mA drive current. Standard factory setting is 700mA. Integral surge protector is tested per ANSI/IEEE C62.45 procedures based on ANSI/IEEE C62.41.2 definitions for standard and optional waveforms for category C-High.

Finish: Housing receivers a fade and abrasion resistant, epoxy polyester powder coat, light gray finish standard.

Listings/Ratings/Warranties/Patents: Luminares are UL listed for use in wet locations in the United States and Canada. Optical systems maintain an IP66 rating. Ten-year limited warranty is standard on all components. Patents pending.

Photometry: Proof shall be provided that all luminares are photometrically tested by certified independent testing laboratories in accordance with IESNA LM-79 testing procedures.

<table>
<thead>
<tr>
<th>WEIGHT</th>
<th>EPA</th>
</tr>
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<tbody>
<tr>
<td>21 LBS. (9KG)</td>
<td>.90SQFT</td>
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</table>
DECORATIVE LED STREET LIGHTING FIXTURE

<table>
<thead>
<tr>
<th>ROAD CLASSIFICATION</th>
<th>SYSTEM CONFIGURATION</th>
<th>SPACING BY PEDESTRIAN ACTIVITY</th>
<th>POLE HEIGHT</th>
<th>STREET LIGHT FIXTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCAL STREET</td>
<td>STAGGERED</td>
<td>600</td>
<td>100</td>
<td>14</td>
</tr>
</tbody>
</table>

K445R-TAGR-IV-100(SSL)-120/277V-K14-PR

LUMINAIRE SPECIFICATIONS
Catalogue No.: K445R-TAGR-IV-100(SSL)-120/277V-K14-PR (OR APPROVED EQUAL)
Quantity:
Optical System: TOWER ARRAY GLASS REFRACCTOR
IES Class: TYPE IV
Wattage: 100W
Light Source: SOLID STATE LIGHTING
Series: -
Line Voltage: 120/277V
Pole Adaptor: K14
Paint: TEXTURED BLACK
Options: G/W TWISTLOCK RECEPTACLE (PHOTO-EYE BY OTHERS)

POLE SPECIFICATIONS
Catalogue No.: KM20SFE-14" (OR APPROVED EQUAL)
Quantity:
Material: SHALLOW FLUTED EXTRUDED SHAFT & CAST ALUM. BASE
Height: 14'
Pole Tip: 5" Ø
Pole Butt: 16 1/2" Ø
Paint: TEXTURED BLACK
Mounting: ACCEPT 3 1/2" OD X 3 1/2" O.D TENON

CAPITAL TO ACCEPT 3-1/2" OD X 3-1/2" LG TENON

SEE SHEET EL-1E FOR BASE DETAIL

DECORATIVE STREETLIGHT

APPROVED BY: ____________________________
8-18-14
CITY ENGINEER

DRAWN BY: CSG
CHECKED BY:
LAST REVISED: 6/20/14
SECTION: ELECTRICAL
DRAWING NO.: EL-6

SCALE: N.T.S
BASE DETAIL

(8) LEVELING NUTS
3" LEVELING NUTS
SIDEWALK

CONCRETE FOUNDATION
GROUND CLAMP SUITABLE FOR CONCRETE ENCASEMENT OR DIRECT BURIAL, INSTALLED ON GROUND ROD

3/4" X 4" X 28" HOT DIP GALVANIZED ANCHOR BOLTS (TYP. OF 4)

4 - #4 VERTICAL BARS WITH #3 SPIRAL AT 6" 135° HOOK AT TERMINATIONS.

5/8" X 8" COPPERWELD GROUND ROD

INSTALLATION

The one-piece post shall be provided with four 3/4" diameter, L-type anchor bolts to be installed on a 12" diameter bolt circle. A door shall be provided in the base for anchorage and wiring access. A grounding screw shall be provided inside the base opposite the door.

NOTES: DIMENSION IS 4' FOR 14' POLES AND 5' FOR 23' POLES

DECORATIVE STREETLIGHT BASE

DRAWN BY: CSG
CHECKED BY: N.T.S.
LAST REVISED: 6/20/14
SECTION: ELECTRICAL
DRAWING NO.: EL-7

CITY OF GILROY
APPROVED BY: P. LORENZ
8-18-14
CITY ENGINEER
DATE
Grounded lug welded inside pole, opposite hand-hole.

Provide 18" slack (typ.)

Hand-hole w/ Theft Protection Lock

Waterproof fused splice connector with 15 amp fuse or size specified for branch circuit protection.

Provide grounding type bushing on rigid conduit.

5/8" x 10' copper weld ground rod.

AWG No. 8 min. 120 volt feeder.

No. 6 cu ground wire

Conductor splicing spring connector. See EL-4

Ground clamp visible from hand-hole.

NOTE:
Seal all conduit with duct seal.
Grounded lug welded inside pole, opposite hand-hole.

Provide 18" slack (typ.)

Hand-hole w/ Theft Protection Lock

Conductor splicing spring connector. See EL-4

Ground clamp visible from hand-hole

No. 6 cu ground wire

Waterproof fused splice connector with 15 amp fuse or size specified for branch circuit protection.

Provide grounding type bushing on rigid conduit.

5/8" x 10' copper weld ground rod.

AWG No. 12 min.

AWG No. 8 min.

240 volt feeder.

NOTE:

Seal all conduit with duct seal.
DETAIL: CROTCH

Rubber and plastic tape carefully worked in to crotch to provide watertight joint.

DETAIL: SPLICE WITH INSULATING SPRING CONNECTOR

NOTES:

1. Paint all taped splices with electrical waterproof coating.

2. Heat shrink tubing (Rated 600V AC) may be used in lieu PVC electrical tape for insulated spring connectors.

3. Do not exceed spring connector manufacturers AWG copper wire splicing combination recommendations.
CONCRETE PULL BOX INSTALLATION

NOTES:
1. SEE PULL BOX DIMENSION CHART EL-13B FOR MINIMUM REQUIREMENT OF ROCK FOR DRY WELL.
2. CONDUIT SHALL RUN FROM BOX TO BOX WITHOUT UNNECESSARY BENDS.
3. INSTALL CONDUIT TRUE TO GRADE AND PARALLEL WITH CURB. INSTALL PULL BOX WITH TOP TRUE TO GRADE FROM TOP OF CURB TO SIDEWALK.
PULL BOX DIMENSIONS

1. TYPE 6E PULL BOX - 36" X 23" X 24"
2. TYPE 7E PULL BOX - 48" X 31" X 24"
3. PROVIDE CONDUCTOR SLACK:
   6' MIN FOR COPPER CONDUCTORS
   10' MIN FOR FIBER OPTIC CONDUCTOR
4. SEE DETAIL EL-13 FOR PULL BOX DETAIL
### Diagram

- **Cover**
- **Extension**
- **Box**
- **Base**

### Dimensions Table

<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>NO. 3-1/2</th>
<th>NO. 5</th>
<th>NO. 6</th>
<th>NO. 7</th>
<th>NO. 8</th>
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<tbody>
<tr>
<td>A</td>
<td>15&quot;±</td>
<td>25&quot;±</td>
<td>36&quot;±</td>
<td>48&quot;±</td>
<td>52&quot;±</td>
</tr>
<tr>
<td>B</td>
<td>15&quot;±</td>
<td>21&quot;±</td>
<td>30&quot;±</td>
<td>34&quot;±</td>
<td>46&quot;±</td>
</tr>
<tr>
<td>C</td>
<td>9&quot;±</td>
<td>11&quot;±</td>
<td>12&quot;±</td>
<td>22&quot;±</td>
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<td>23&quot;±</td>
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<tr>
<td>E</td>
<td>12&quot;±</td>
<td>12&quot;±</td>
<td>12&quot;±</td>
<td>14&quot;±</td>
<td>34&quot;±</td>
</tr>
</tbody>
</table>

**Extension**
- 1.8 cu.ft.
- 2.6 cu.ft.
- 5.3 cu.ft.
- 7.7 cu.ft.
- 12.2 cu.ft.

**NOTES:**

1. PULL BOXES NOT TO BE INSTALLED IN AREAS SUBJECT TO TRAFFIC UNLESS OTHERWISE DIRECTED BY CITY ENGINEER.

\[ \Delta = \text{MINIMUM CUBIC FEET OF CLEAN CRUSHED ROCK, SIZED 1" MIN TO 2" MAX. ROCK PER DRY WELL: ONE FOOT THICK BY LENGTH TIMES WIDTH OF APPLICABLE BOX.} \]
GALVANIZED 1/4" DIAMOND PLATE STEEL LID WITH BLACK POLYURETHANE FINISH

1" DIAMETER HOLE EACH SIDE FOR 1/2" 13 X 1-1/2" SECURITY BOLT

1-1/2" X 1/4" CONTINUOUS STEEL BAND

<table>
<thead>
<tr>
<th>MR STEEL SECURITY LID</th>
<th>A</th>
<th>B</th>
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</thead>
<tbody>
<tr>
<td># LA1</td>
<td>14 3/4&quot;</td>
<td>8 1/2&quot;</td>
</tr>
<tr>
<td># 3 1/2 T</td>
<td>14 7/8&quot;</td>
<td>9 3/4&quot;</td>
</tr>
<tr>
<td># 3 1/2</td>
<td>15 1/4&quot;</td>
<td>10&quot;</td>
</tr>
<tr>
<td># 5</td>
<td>20 5/8&quot;</td>
<td>10 1/2&quot;</td>
</tr>
<tr>
<td># LA2</td>
<td>21 1/4&quot;</td>
<td>13 3/8&quot;</td>
</tr>
<tr>
<td># 7</td>
<td>23 1/4&quot;</td>
<td>13 3/4&quot;</td>
</tr>
<tr>
<td># LA3</td>
<td>29 3/4&quot;</td>
<td>13 3/4&quot;</td>
</tr>
<tr>
<td># 9</td>
<td>30 1/2&quot;</td>
<td>17 1/2&quot;</td>
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<td># 40</td>
<td>35 1/2&quot;</td>
<td>24&quot;</td>
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<tr>
<td># 44</td>
<td>43 1/8&quot;</td>
<td>21 1/4&quot;</td>
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<tr>
<td># 48</td>
<td>47 3/4&quot;</td>
<td>30 1/8&quot;</td>
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</table>

ELECTRICAL PROPERTIES OF INYATI 6750 UV BLACK POLYUREA LINING MATERIAL

<table>
<thead>
<tr>
<th>ELECTRICAL PROPERTIES</th>
<th>English</th>
<th>AVERAGE VALUE</th>
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<tbody>
<tr>
<td>ELECTRICAL RESISTIVITY</td>
<td>1.00e+10 - 1.00e+13 ohm·cm</td>
<td>3.37e+12 ohm·cm</td>
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<tr>
<td>SURFACE RESISTANCE</td>
<td>1.00e+10 - 1.00e+12 ohm</td>
<td>3.70e+11 ohm</td>
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<tr>
<td>DIELECTRIC CONSTANT</td>
<td>4.10 - 7.10</td>
<td>5.73</td>
</tr>
<tr>
<td>DIELECTRIC STRENGTH</td>
<td>787 - 1240 kV/ln</td>
<td>1084 kV/ln</td>
</tr>
<tr>
<td>DISSIPATION FACTOR</td>
<td>0.0240 - 0.200</td>
<td>0.0377</td>
</tr>
<tr>
<td>COMPARATIVE TRACKING INDEX</td>
<td>600 V</td>
<td>600 V</td>
</tr>
</tbody>
</table>

ANTI-THEFT PULL BOX COVER DETAIL
NOTES:
1. TRAFFIC SIGNALS TO BE DESIGNED BASED ON LATEST EDITION OF CALTRANS' SIGNAL AND LIGHTING DESIGN GUIDE, UNLESS CITY STANDARDS SPECIFY OTHERWISE.
2. LOOP INTERSECTION WITH 3" CONDUIT ACROSS ALL INTERSECTION APPROACH LEGS.
3. INSTALL TYPE 332 CONTROLLER CABINET WITH TYPE 2070 SIGNAL CONTROLLER.
4. INSTALL TWO 4" CONDUITS BETWEEN CONTROLLER CABINET AND FIRST PULL BOX ON THE 3" CONDUIT INTERSECTION LOOP.
5. FIRST PULL BOX BETWEEN CONTROLLER CABINET AND THE INTERSECTION SHOULD BE NO SMALLER THAN NO. 6E.
6. ALL MAST ARM SIGNAL HEADS SHALL BE SIDE MOUNTED (MAS TYPE).
7. DESIGN ISNS FOR ALL APPROACHES. LETTERS TO BE 8" UPPERCASE, 6" LOWER CASE, CLEARVIEW FONT, TYPE 4 TYPEFACE.
1. The presence of vehicles and bicycles shall be detected by means of video detection, unless directed otherwise by the City of Gilroy.

2. Unless geometric constraints require otherwise, video detection cameras shall be mounted on luminaire mast arms.

3. New and modified traffic signals shall include an emergency vehicle preemption system. Emergency vehicle detectors should be mounted on signal mast arms, unless geometric constraints require otherwise.

4. Intermediate and advance loops shall be 6' x 6' square type A (or round type E) loops, cut and installed per Caltrans guidelines.

5. Advance vehicle detection not required for approaches with posted speeds below 35 MPH.

<table>
<thead>
<tr>
<th>APPROACH SPEED</th>
<th>DETECTOR SET-BACK DISTANCE</th>
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<tbody>
<tr>
<td>35 MPH</td>
<td>155 FT.</td>
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<tr>
<td></td>
<td>185 FT.</td>
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<tr>
<td>40 MPH</td>
<td>115 FT.</td>
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<tr>
<td></td>
<td>230 FT.</td>
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<tr>
<td>45 MPH</td>
<td>155 FT.</td>
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<tr>
<td></td>
<td>285 FT.</td>
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<tr>
<td>50 MPH</td>
<td>105 FT.</td>
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<tr>
<td></td>
<td>345 FT.</td>
</tr>
</tbody>
</table>

TRAFFIC SIGNAL - DETECTION

DRAWN BY: CSG
CHECKED BY: N.T.S.
LAST REVISED: 6/20/14
SECTION: ELECTRICAL
DRAWING NO.: EL-16
APPROVED BY: 8-18-14
DATE: 8-18-14