TYPICAL VOLTAGE DROP CALCULATION FOR 3 - WIRE SYSTEM

$$\text{VOLTAGE DROP (COPPER CONDUCTOR)} = \frac{D \times A \times N \times 22}{\text{CIRCULAR MILS}}$$

D = Length of section, in feet.

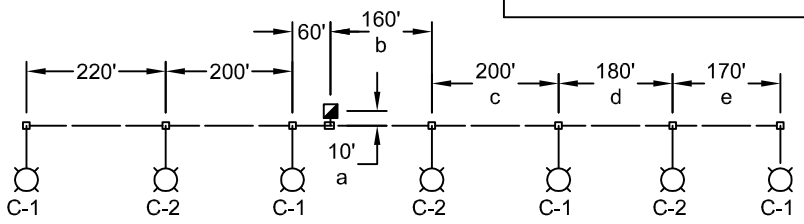
A = Line operating amperes drawn by one light.

N = Number of lights in the circuit beyond the section.

WIRE SIZE (AWG)	AREA (Circular Mils)
14	4,110
12	6,530
10	10,380
8	16,510
6	26,250
4	41,740

LINE OPERATING AMPERES FOR HIGH PRESSURE SODIUM LUMINAIRES (AT 115 VOLTS)
100 Watt ..... 1.10 Amps ENERGY EFFICIENT
100 Watt ..... 1.25 Amps
150 Watt ..... 1.80 Amps
200 Watt ..... 2.35 Amps
250 Watt ..... 2.90 Amps

TYPICAL MULTIPLE STREET LIGHTING SYSTEM



EXAMPLE CALCULATION:

FIND TOTAL VOLTAGE DROP IN CIRCUIT #1:
(115 volt system)

NOTE:

Dimension "a" is the distance between the service can and the adjacent load pull box. Use "a"=10' for standard installations where the load pull box is immediately adjacent to the service can.

Voltage drop calculations

Section a = $\frac{10\ (2.9 \times 4)\ (11)}{6{,}530}$ = 0.20

Section b + c = $\frac{360\ (2.9 \times 2)\ (11)}{6{,}530}$ = 3.52

Section d + e = $\frac{350\ (2.9 \times 1)\ (11)}{6{,}530}$ = 1.71

TOTAL VOLTAGE DROP = 5.43

LEGEND

- 250W High Pressure Sodium Luminaire
- C-1 — Circuit #1
- Service Can
- Conduit with #12 AWG Conductors

NOTE:

Maximum voltage drop allowed in 115 volt system = 6.90 volts.

DATE: 01/17/2007	NOT TO SCALE	CITY OF ELK GROVE - PUBLIC WORKS	APPROVED BY:
			CITY ENGINEER

REVISION	BY	APPROVED	DATE

3 - WIRE STREET LIGHT SYSTEM WIRE SIZE AND VOLTAGE DROP CALCULATION

DRAWING NUMBER

SL - 14

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