

Location: _____

Project Number: _____

Light Source Type: _____

IES Light Distribution Type: _____

Service Cost per Year for Luminaire Replacement or Partial Modernization

= Annual Energy Cost + Annual Maintenance Cost + (Installation Cost/Warranty Period)

Annual Energy Cost

= [(No. of Luminaires x Wattage per Luminaire x Operational Hours) ÷ 1000] x
Unit Cost of Electricity

No. of Roadway Luminaires = _____ (1)

Roadway Luminaire Wattage = _____ (2)

No. of High Mast Luminaires = _____ (3)

High Mast Luminaire Wattage = _____ (4)

Operational Hours = 4380

Unit Cost of Electricity = _____ (5) (\$0.08 per kWh or location specific rate)

Annual Energy Cost =

{[(____ x ____)] + [(____ x ____)]} x 4380 ÷ 1000 x ____ = ____
(1) (2) (3) (4) (5) (A)

Annual Maintenance Cost

= No. of Luminaires x Maintenance Cost per Luminaire

No. of Roadway Luminaires = _____ (1)

Maintenance cost per Roadway Luminaire,

for 250W or 400W HPS = \$60 (6)

for other light source types = _____ (7) (per manufacturer's info)

No. of High Mast Luminaires = _____ (3)

Maintenance Cost per High Mast Luminaire,

for 1000W = \$105 (8)

for other light source types = _____ (9) (per manufacturer's info)

Annual Maintenance Cost = {(____ x ____)} + {(____ x ____)} = ____
(1) (6) or (7) (3) (8) or (9) (B)

**SERVICE COST PER YEAR
FOR LUMINAIRE REPLACEMENT OR PARTIAL MODERNIZATION**

Installation Costs

$$= \text{No. of Luminaires} \times \text{Furnish \& Install Cost per Luminaire}$$

$$\text{No. of Roadway Luminaires} = \underline{\hspace{2cm}} \text{ (1)}$$

$$\text{Furnish/Install Cost per Roadway Luminaire} = \underline{\hspace{2cm}} \text{ (10) (for HPS use bid history)}$$

$$\text{Roadway Luminaire Warranty Period} = \underline{\text{(choose one)}} \text{ years (11)}$$

$$\text{No. of High Mast Luminaires} = \underline{\hspace{2cm}} \text{ (3)}$$

$$\text{Furnish/Install Cost per High Mast Luminaire} = \underline{\hspace{2cm}} \text{ (12) (for HPS use bid history)}$$

$$\text{High Mast Luminaire Warranty Period} = \underline{\text{(choose one)}} \text{ years (13)}$$

$$\text{Installation Cost} = \left[\left(\frac{\underline{\hspace{1cm}} \text{ (1)} \times \underline{\hspace{1cm}} \text{ (10)}}{\underline{\hspace{1cm}} \text{ (11)}} \right) + \left(\frac{\underline{\hspace{1cm}} \text{ (3)} \times \underline{\hspace{1cm}} \text{ (12)}}{\underline{\hspace{1cm}} \text{ (13)}} \right) \right] / \underline{\hspace{1cm}} \text{ (C)}$$

$$\text{Service Cost per year} = \frac{\underline{\hspace{1cm}} \text{ (A)}}{\underline{\hspace{1cm}}} + \frac{\underline{\hspace{1cm}} \text{ (B)}}{\underline{\hspace{1cm}}} + \frac{\underline{\hspace{1cm}} \text{ (C)}}{\underline{\hspace{1cm}}} = \underline{\hspace{1cm}}$$

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**SERVICE COST PER YEAR
FOR LUMINAIRE REPLACEMENT OR PARTIAL MODERNIZATION**

Location: _____ Project Number: _____

System Configuration: _____ Pole Spacing: _____ Mounting Height: _____

Light Source Type: _____ IES Light Distribution Type: _____

Service Cost per Year for New Installations or Complete Modernization
= Annual Energy Cost + Annual Maintenance Cost + (Installation Cost/Warranty or Service Period)

Annual Energy Cost
= [(No. of Luminaires x Wattage per Luminaire x Operational Hours) ÷ 1000] x Unit Cost of Electricity

No. of Luminaires = _____ (1)

Luminaire Wattage = _____ (2)

No. of High Mast Luminaires = _____ (3)

High Mast Luminaire Wattage = _____ (4)

Operational Hours = 4380

Unit Cost of Electricity = _____ (5) (\$0.08 per kWh or location specific rate)

Annual Energy Cost =

$$\left\{ \left(\frac{\text{_____}}{(1)} \times \frac{\text{_____}}{(2)} \right) + \left(\frac{\text{_____}}{(3)} \times \frac{\text{_____}}{(4)} \right) \right\} \times 4380 \div 1000 \times \frac{\text{_____}}{(5)} = \frac{\text{_____}}{(A)}$$

Annual Maintenance Cost

= No. of Luminaires x Maintenance Cost per Luminaire

No. of Luminaires = _____ (1)

Maintenance cost per luminaire,

for HPS = \$60 (6)

for other light source types = _____ (7) (per manufacturer's info)

No. of High Mast Luminaires = _____ (3)

Maintenance Cost per High Mast luminaire,

for 1000W = \$105 (8)

for other light source types = _____ (9) (per manufacturer's info)

Annual Maintenance Cost = $\left\{ \left(\frac{\text{_____}}{(1)} \times \frac{\text{_____}}{(6) \text{ or } (7)} \right) + \left(\frac{\text{_____}}{(3)} \times \frac{\text{_____}}{(8) \text{ or } (9)} \right) \right\} = \frac{\text{_____}}{(B)}$

SERVICE COST PER YEAR FOR NEW OR FULLY-MODERNIZED LIGHTING

Figure 78-5C

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Installation Costs

$$= [\text{Cost of Luminaires} \div \text{Warranty Period}] +$$

$$[\text{Cost of Poles/Foundations} \div \text{Pole Service Life}] +$$

$$+ [\text{Cost of Towers/Foundations} \div \text{Tower Service Life}]$$

No. of Roadway Luminaires = _____ (1)
 Furnish/Install Cost per Roadway Luminaire = _____ (10) (per mfr. for non-HPS)
 Warranty Period = (choose one) years (11)

No. of Poles Foundations = _____ (12)
 Furnish/Install Cost of Pole = _____ (13)
 Furnish/Install Cost of Pole Foundation = _____ (14)
 Pole Service Life = 20 years

No. of High Mast Luminaires = _____ (3)
 Furnish/Install Cost per High Mast Luminaire = _____ (15) (per mfr. for non-HPS)
 Warranty Period = (choose one) years (16)

No. of High Mast Towers Foundations = _____ (17)
 Furnish/Install Cost of Tower = _____ (18)
 Furnish/Install Cost of Tower Foundation = _____ (19)
 Tower Service Life = 40 years

Installation Cost =

$$[(\frac{\text{_____}}{(1)} \times \frac{\text{_____}}{(10)}) \div \frac{\text{_____}}{(11)}] = \text{_____} (20)$$

$$+ [(\frac{\text{_____}}{(12)} \times (\frac{\text{_____}}{(13)} + \frac{\text{_____}}{(14)})) \div 20] = \text{_____} (21)$$

$$+ [(\frac{\text{_____}}{(3)} \times \frac{\text{_____}}{(15)}) \div \frac{\text{_____}}{(16)}] = \text{_____} (22)$$

$$+ [(\frac{\text{_____}}{(17)} \times (\frac{\text{_____}}{(18)} + \frac{\text{_____}}{(19)})) \div 40] = \text{_____} (23)$$

$$/= \frac{\text{_____}}{(20)} + \frac{\text{_____}}{(21)} + \frac{\text{_____}}{(22)} + \frac{\text{_____}}{(23)} = \text{_____} (C)$$

$$\text{Service Cost per year} = \frac{\text{_____}}{(A)} + \frac{\text{_____}}{(B)} + \frac{\text{_____}}{(C)} = \text{_____}$$

SERVICE COST PER YEAR FOR NEW OR FULLY-MODERNIZED LIGHTING

Figure 78-5C