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Understanding How Much Does a Street Light Cost?

May 9, 2024(<https://www.cps-lighting.com/2024/05/09/>)

Wondering how much street lights cost to install and maintain? Our comprehensive guide breaks down the expenses and offers insights on optimizing your lighting budget.

The cost of a street light includes initial investments like fixture costs and installation, plus ongoing operational costs such as energy and maintenance. Overall, expenses vary based on light type, location, and technology used.

Dive deeper into the specifics of street light costs, from initial investments to long-term operational expenses, and discover strategies to maximize your lighting infrastructure's value and efficiency.

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Understanding Street Light Costs: A Breakdown of the Numbers

The price of a street light isn't a one-size-fits-all answer. Here's a breakdown of the key factors that affect street light costs:

- **The Type of Light Fixture:** This is a major consideration. Light-emitting diode (LED) lights are generally more expensive upfront than traditional high-pressure sodium (HPS) or metal halide lights. However, LEDs boast superior energy efficiency and a longer lifespan, leading to significant cost savings over time.

To learn more about the various types of street lights available, check out our comprehensive guide on [Types of Street Lights](https://www.cps-lighting.com/types-of-street-lights-guide/) (<https://www.cps-lighting.com/types-of-street-lights-guide/>).

- **Installation Location:** The complexity of the installation site can significantly impact the price. Traffic volume, environmental factors, and accessibility all play a role. For instance, installing a light on a busy highway might require additional safety measures and specialized equipment, inflating the cost.

- **Maintenance Requirements:** Lights that necessitate frequent bulb replacements and repairs will obviously cost more to maintain in the long run. LEDs, with their extended lifespan, can help minimize these ongoing costs.

By understanding these factors, you're well on your way to making informed decisions about your street lighting needs. In the next section, we'll delve deeper into the breakdown of street light costs to shed some light on the numbers.

Breaking Down Street Light Costs: Shining a Light on Initial Investments and Ongoing Expenses



Modern LED street lights

Cost Comparison of Different Street Light Types

Light Type	Initial Cost Range (USD)	Energy Use (Watts)	Daily Energy Cost (USD)	Annual Energy Cost (USD)	Maintenance Cost per Year (USD)	Expected Lifespan (years)
LED	100 – 300	100	0.12	140.16	50 – 120	20 – 25

High-Pressure Sodium	80 – 250	150	0.40	350.40	50 – 120	10 – 15
Metal Halide	90 – 270	125	0.33	300	50 – 120	7 – 15
Solar	900 – 1200	0	0	0	50 – 120	20 – 30

So, you've grasped the key factors influencing street light costs. Now, let's delve into the nitty-gritty: the breakdown of both the initial investment and the ongoing operational costs associated with street lights.

Initial Investment Costs: A Look at Upfront Expenses

The initial investment for street lights encompasses several elements:

- **Light Fixture Costs:** There's a range of pricing depending on the brand, model, and features. For insights on leading manufacturers and their offerings, explore our guide to the [Top 10 Street Lighting Manufacturers in 2024](https://www.cps-lighting.com/top-10-street-lighting-manufacturers/) (<https://www.cps-lighting.com/top-10-street-lighting-manufacturers/>). Factors to consider include the light output (measured in lumens), the color temperature (affecting light appearance), and the warranty coverage.
- **Installation Costs:** This includes labor costs for electricians and the materials needed, such as wiring, poles, and conduits. The site complexity, any underground wiring requirements, and permitting needs can all influence the installation price.
- **Other Initial Costs:** Depending on the project scope, local regulations, and potential delays, there might be additional upfront expenses. These could include design fees, environmental impact studies, or site preparation costs.

Ongoing Operational Costs: Keeping the Lights On



Green lighting transformation LED upgrades and environmental gains

Once your street lights are installed, there are ongoing operational costs to consider:

- **Energy Costs:** This depends on the wattage of the light fixtures, the lighting hours per night, and the occupancy rates (how often the lights are needed). LED lights, again shining brighter in terms of efficiency, typically consume much less energy compared to HPS or metal halide lights.
- **Electricity Rates:** The price of electricity can vary depending on your region, time-of-day pricing structures, and even the availability of renewable energy options.
- **Energy Optimization Strategies:** Smart lighting controls (<https://www.cps-lighting.com/lighting-control-modules-guide/>), like motion sensors, dimming systems, and photocells, can significantly reduce energy consumption and extend the lifespan of your fixtures, leading to long-term cost savings.
- **Maintenance Costs:** These include labor costs for repairs, replacement parts (bulbs, ballasts, fixtures, or poles), and the importance of preventive maintenance strategies. Regular inspections, scheduled cleaning, and proactive bulb replacements can minimize downtime, extend fixture lifespans, and ultimately reduce repair costs. Understanding both the initial investment and the ongoing operational costs is crucial for making informed financial decisions about your street lighting needs.

If you're considering upgrading or purchasing LED lights in bulk, **contact us today** (<https://www.cps-lighting.com/contact>) to explore our wholesale options and benefit from our industry-leading expertise.

Calculating the Total Cost of Ownership (TCO): Unveiling the True Cost of Street Lights

While the initial price tag of a street light might seem straightforward, the true cost of ownership (TCO) paints a more comprehensive picture. TCO considers all the expenses associated with a street light over its entire lifespan, not just the upfront investment.

Understanding TCO: A Holistic View of Street Lighting Costs

TCO essentially represents the total amount of money you'll spend on a street light throughout its entire service life. This includes:

- **Initial Investment Costs:** As explored earlier, this encompasses the light fixture itself, installation costs, and any other upfront expenses.
- **Ongoing Operational Costs:** These include energy consumption, maintenance costs, and lamp replacements.

According to the International Association of Lighting Designers (IALD) (<https://www.iald.org/>), TCO analysis is crucial for making informed decisions about lighting projects, as it considers both the upfront costs and the long-term savings that can be achieved through energy efficiency and reduced maintenance requirements.

Replacing Street Lights: A Breakdown of Costs

Replacing aging or inefficient street lights can be a significant undertaking. Let's delve into the specific costs associated with street light replacements:

- **Bucket Truck Rental:** Renting a bucket truck to reach and safely replace the light fixture typically costs around \$500 per day.
- **Labor Costs:** Replacing a street light usually involves two workers, with an average hourly rate of \$50 per person. This translates to \$100 per hour for labor costs.
- **New LED Light Fixture:** The cost of a new LED light fixture can vary depending on wattage and features, but generally falls within the range of \$100.

Total Replacement Cost: Considering the above factors, replacing a single street light can cost approximately \$1000, excluding the price of the new LED fixture itself.

Additional Considerations:

- Permitting fees or unexpected challenges during replacement can add to the overall cost.
- Economies of scale can come into play when replacing multiple lights simultaneously. Renting a bucket truck for a longer duration might become slightly more cost-effective per light replaced.

Installing New Street Lights: Understanding the Investment

LED Lights Installed

The cost of installing new street lights depends on the type of light chosen and the complexity of the project. Here's a general breakdown:

- **100W LED Street Light Installation:** Including labor and bucket truck rental, installing a 100W LED light fixture typically costs around \$440.

- **High-Pressure Sodium (HPS) Light Installation:** Installing an HPS light fixture is slightly less expensive than an LED, with an average cost of \$380, including labor and equipment. However, [LED street light](https://www.cps-lighting.com/product-category/outdoor/street-light/) (<https://www.cps-lighting.com/product-category/outdoor/street-light/>) offer long-term cost savings due to their energy efficiency and longevity.
- **Solar Street Light Installation:** Due to the additional components like solar panels and batteries (<https://www.delongtop.com/product-category/lithium-ion-battery-pack/12v-lithium-battery/>), installing a solar street light is more expensive. The cost can range around \$1000, depending on the model and features.

Running the Lights: Understanding Operational Costs

Once your street lights are up and running, there are ongoing expenses to factor in:

- **LED Light Operational Costs:** LED lights are known for their energy efficiency. The annual operational cost for an LED street light on a 1-kilometer, two-lane highway with 25 poles is estimated to be around \$140.16. On a daily basis, with 12 hours of operation, the electricity cost would be approximately \$0.12.
- **HPS Light Operational Costs:** Compared to LEDs, HPS lights consume more energy. The annual operational cost for an HPS light on a similar 1-kilometer highway is estimated at \$350.40. The daily electricity cost for 12 hours of operation would be around \$0.40.
- **Solar Light Operational Costs:** Solar lights eliminate electricity costs entirely. However, the upfront installation cost is significantly higher compared to grid-powered options.

Maintenance Costs: Keeping Your Street Lights Shining Bright

The cost of maintaining street lights involves several factors:

- **Replacement Parts:** When bulbs, LED modules, or other components fail, replacements are needed. The cost can vary depending on the specific part, but generally falls between \$50 and \$120, including labor and equipment.
- **Labor Rates:** The cost of labor for repairs or replacements can vary depending on your location and the electrician's experience level. Skilled electricians typically charge around \$50 per hour, with helpers costing around \$30 per hour.

- **Bucket Truck Rental:** If a bucket truck is needed for maintenance work, expect to pay the rental fee, which is around \$60 per hour (approximately \$400 per day).

Total Maintenance Cost: The total cost of a single street light maintenance event can range from \$50 to \$120, depending on the specific repairs needed.

Choosing High-Value Street Lights: Making Informed Decisions

When selecting street lights, consider these factors to maximize value:

- **Luminous Efficacy:** Look for lights with high lumens per watt (lm/W) ratings. This indicates how efficiently the light converts energy into usable light output.
- **Lifespan:** LED lights generally boast longer lifespans compared to HPS or metal halide options, reducing replacement frequency and long-term costs.
- **Ease of Maintenance:** Lights that are easy to access and service can minimize maintenance labor costs.
- **Price:** While upfront costs are important, prioritize the total cost of ownership (TCO) by factoring in energy efficiency and maintenance requirements.

Choosing the Right Model:

To select the most suitable model, consider the following:

- **Lighting Requirements:** Evaluate the specific needs of the area being illuminated, such as in stadium lighting systems (<https://www.cps-lighting.com/types-of-stadium-lighting/>), where traffic volume, pedestrian walkways, or desired light intensity will all influence the choice of lumens and beam pattern.
- **Budget Constraints:** Balance the upfront cost of the light fixture with the long-term operational savings offered by higher luminous efficacy models.

The Illuminating Engineering Society of North America (IESNA) (<https://www.ies.org/>) provides a wealth of resources on lighting design, including guidance on selecting the right type of light fixture for different applications.

A Note on CPS Lighting:

The information in this section is provided as an example, and the focus of this guide is to empower readers with the knowledge to make informed decisions about street light costs regardless of specific brands.

Conclusion: Illuminating the Path to Smart Street Light Choices

Understanding street light costs and prioritizing TCO analysis empower communities to make informed decisions about their lighting infrastructure. By carefully considering factors like:

- Energy Efficiency:** LED lights are generally the most cost-effective option in the long run due to their low energy consumption.
- Maintenance Requirements:** LEDs typically require less frequent maintenance compared to HPS lights, reducing labor costs.
- Potential Incentives:** Many government agencies or utility companies offer rebates or incentives to offset the upfront costs of LED lights, emphasizing the importance of

Author like **surge protection** (<https://www.cps-lighting.com/why-is-the-surge-protection-so-important-for-led-lighting/>) for their longevity and performance.

Choosing high-value street lights with superior efficiency and minimal maintenance needs paves the way for long-term cost savings and a brighter, safer future for your community.



To take the first step towards upgrading your street lighting infrastructure, reach out to our sales team (<https://www.cps-lighting.com/about-us>) for more information on our competitive wholesale LED lighting solutions.

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