



# SIGN LIGHTING DESIGN GUIDE

*Navigating how to design a reliable solar lighting solution*





*Signs provide information to help people find businesses, tell people directions, showcase entrances to developments and have many other uses. Signs come in various sizes and designs including:*

*Large Monument Signs*

*Small Entrance Signs*

*Billboards*

*Kiosks*

*Internally Illuminated*

*Banner Signs*

*This guide will walk you through why sign lighting is important and how to design the lighting for your next sign project.*

*Different signs require different lighting patterns. Low wide signs require the use of multiple fixtures at a lower wattage and wider distribution where square signs can use a single middle mounted fixture. Internal signs used to require a ton of LED modules to provide lighting; whereas today, you don't need quite as many with the improvements to the lumen per watt ratio.*

*First thing to do is assess the sign itself. Ask a few questions to determine the requirements for illumination.*



## Large Monument Signs

*Large monument signs are typical in front of businesses and neighborhoods. These signs are typically larger than 10' tall and 15' wide. These signs typically use one high powered fixture with a large setback or multiple fixtures to provide even lighting on the entire sign front. They also can use additional light fixtures to show the surrounding landscaping.*



## Small Entrance Signs

*Small entrance signs can be used to provide the same information as the large monument signs, but typically only require one low powered light fixture to provide the required lighting needs. Small entrance signs are more often for neighborhood entrances, single building entrances, and city limit signs. Again additional fixtures can be used to illuminate surrounding landscapes if desired.*



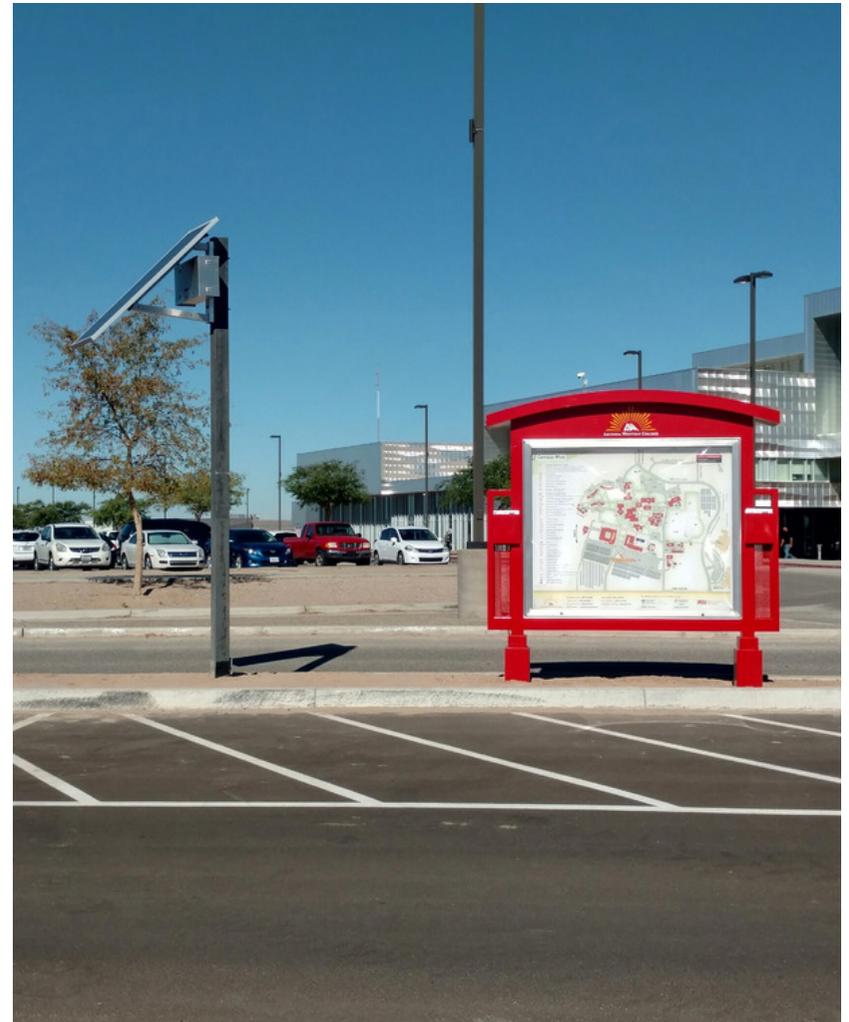
## Billboards

Billboards provide information to travelers in regards to upcoming businesses on highways or local roadways. Billboards are typically quite large and can require many fixtures and can be double sided for travelers going each direction. These require a lot of energy since the fixtures must be high powered. LED light fixtures can provide the high intensity lighting while using much less power than traditional billboard fixtures. Smaller billboards located typically on city streets can use single high intensity fixtures.



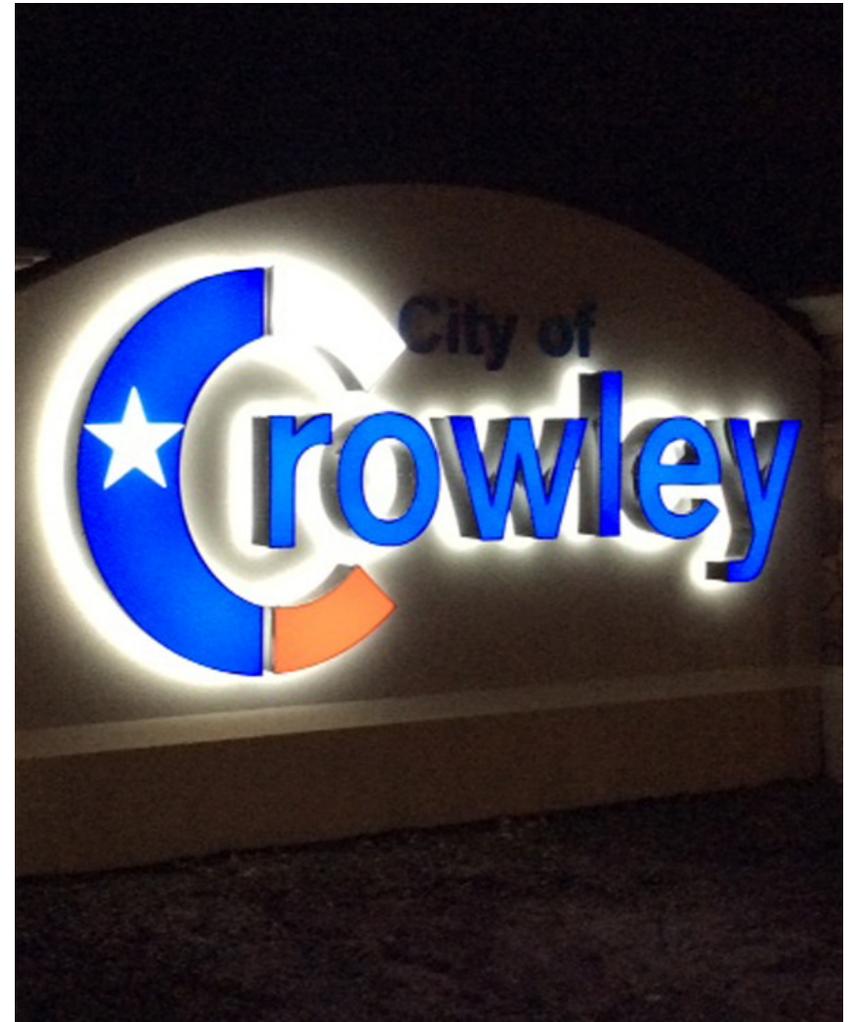
## Kiosks

*Kiosks are found on school campuses, outdoor shopping areas and plazas. Kiosks need to have proper lighting at night during hours of operation for the people still needing the information. The kiosks don't use as much power as their fixtures can be turned off shortly after the area closes for the night, but may be required to be turned back on in the morning before dawn for early arrivals. Kiosks typically provide maps and layouts of the area to help people find their way around the location.*



## Internal Signs

*Internally illuminated signs provide the same information as typical signs, but the lettering is opaque allowing the light to shine through. These require LED strip lights or long fluorescent lamps inside the sign cabinet. Most components of these signs are located within the sign cabinet which helps landscapers easily work around the sign and prevents vandalism. Signs on buildings can also be internally illuminated along with channel lettering.*



## Banner Signs

*Banner signs are typically found in downtown areas. The banners can change periodically throughout the year showcasing events that are going on in the area. Since most banner poles are installed after the area is already completed, providing electrical can sometimes be difficult to provide the needed lighting or to add additional lighting on the poles.*



*The implementation of LEDs allows for uniform lighting levels between various fixture sets. An old-style flood fixture which used to only produce a round area of light directly out from the fixture can now provide different distribution patterns and allow for lighting of different size signs with uniformity. SEPCO works with Hubbell Outdoor Lighting to provide different distribution patterns for every project maximizing the light output of each fixture.*

*LED lights also provide much better lighting with much less light loss from wasted light. Older style fixtures such as metal halide and high-pressure sodium had a lot of wasted light. The lumens of the lamp gets thrown in all directions and the fixtures were designed to push the light out everywhere with no real task lighting.*

*LEDs provide task specific lighting and are pushing the light in only in the area that requires lighting. This additional efficiency allows for the use of much less power, fewer lumens, and better overall lighting and uniformity.*



# KNOW WHAT GOES INTO DESIGNING A SIGN LIGHT SYSTEM

*Every sign varies from one to the next from actual size to installation location. Understanding how each sign project is designed will help you navigate the process efficiently.*

## **Step 1 – Find the sign in need of light**

*The first thing to figure out is what sign needs to be illuminated and how large the sign is. Is the sign single or double faced? If internally illuminated, does LED modules or fluorescent lamps already exist and what is the power draw (in wattage)? Finally, how are you going to mount fixtures? Out in front of the sign on the ground? Using a bracket or piece of conduit on a catwalk? There are many mounting options.*

## **Step 2 – Find out if electric is available**

*Is the electrical grid already nearby or would you need to call the power company to bring in electrical lines? If the electric needs to be brought to the area, how much is this going to cost? Depending on how far the grid electric is from the location of the needed lighting, this can be quite expensive. If the underground grid power has gone bad, look at the costs of trenching and repairing the area.*

### **Step 3 – Determine the lighting requirements**

*How much lighting is needed for the illuminating the sign? Is the sign located in a high ambient light area? Or is the sign installed in a remote location with no competing light fixtures? How long per night does the sign need to be illuminated? These questions need to be answered before you can decide on how many fixtures and what wattages are required for completing the project.*

### **Step 4 – Find all alternatives**

*Solar power sign lights are an option to traditional electrical lights. Solar sign lights do not need the electrical grid to be brought in as they are self-contained units that provide their own electric. LED light fixtures provide the best lighting solution by using lower amounts of power, better optics, and cost less in an overall solution. The solar unit can be sized to operate a single fixture to multiple fixture setups.*

## **Step 5 – Contact companies for quotes**

*The last step after gathering the above information is to contact companies for quotes. Just like anything else, get multiple quotes and weigh the pros and cons of every company and situation. The lowest quote is not always the best, so make sure to do your research on companies and products before you submit a purchase order.*

*Make sure your quotes come with an explanation of:*

**Battery Backup:** *How much battery backup you are offering based on days? Some solar sign light manufactures offer 2-day backup which is actually a bad solar system assembly design. SEPCO provides a battery backup which has a minimum of 5 days storage. This lengthens the backup times while prolonging the life of the battery.*

**Photometric Study:** *A photometric layout allows you to see the foot-candle and light distribution for every project. Without the photometric study, there is no representation of the light the systems will produce.*



## USING SOLAR LED LIGHTING SYSTEMS FOR YOUR PROJECT

*Since solar powered sign lights are self-contained, the installation will be a snap. Setting the poles, installing the solar power assembly and light fixture with bracket will take less time and will not require additional trenching. This saves on costs and allows for the lighting to be implemented more quickly.*

*Solar lights that are in production for commercial applications such as signs, billboards, etc have a higher upfront cost, but they will pay for themselves immediately when looking at the total costs of installation for new construction or in areas where grid power is not feasible to bring in. These systems provide lighting for specific applications with different runtime settings. They also provide many days of stored power to provide continuous reliability, even during times of inclement weather.*

*Each system is built for the type and wattage lamp that will be utilized for the specific application. Lighting a large monument or internal sign will take much more power than lighting a small sign or banner / kiosk application. That makes the commercially manufactured solar lights more versatile to adapt from one job to the next. They range from small one LED fixture to multiple fixture setups to cover larger areas.*

*Solar lighting also has many excellent qualities. It is a green alternative to traditional lighting, it is low cost and practically maintenance free, and there is no power bill associated with utilizing solar since the power is not coming from the grid. Solar is also low voltage which makes it much safer to install and operate. Finally, solar lighting is renewable and promotes sustainability; its only requirement is the sun for operation.*

# THANK YOU FOR YOUR TIME!

*Kindly get in touch to let us know if you have any questions.*

*One of our solar specialists would be happy to help you choose the best option for your Solar Lighting project and provide clean, renewable solar energy!*

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