



TRANSIT LIGHTING DESIGN GUIDE

Navigating how to design a reliable solar lighting solution





Bus stops and shelters provide information and shelter to those using public transportation. This allows for a single place for commuters to gather on a route for easy pick up and drop off. Information on the route is typically provided at each stop allowing travelers to know where they are on a specific route and where the bus is heading.

Lighting the shelters and area around a bus stop provides additional safety and security for travelers after dark. Providing them with better visibility of their surroundings and provide additional visibility to the bus drivers themselves when doing their route.

Lighting can also be used for Ads located in the shelter structure. Some of these are illuminated using LED strips in a cabinet, similar to a standard internal sign system. These can also be used to provide addition route information on the inside of the shelter structure while providing the ad to the outside.

The following overview goes over how and when a commercial lighting source should be considered for your transit system needs and how solar power can benefit your next project.



Bus Shelters

Transit companies provide bus stops to the travelers using their transit system. Bus stops need to provide lighting for the safety and security of travelers waiting for their next bus. Good lighting lowers theft and vandalism rates, provides a sense of safety and security.

Bus shelters can have a ceiling mounted or wall / side mounted fixture to illuminate the area inside and around the shelter structure. The light should either operate all night or have an occupancy sensor for when the shelter structure is being used.



Bus Stops

Bus Stops tend to be an open area with a single pole and sometimes a bench.

Since there isn't a roof structure, have a post mounted fixture is typically the best option for these setups. The light should still illuminate the surrounding area at night and would either follow the transit schedule for illumination, use a push button, or can just operate all night long.



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 BUS STOP AND SHELTER SYSTEM

Every project varies from one to the next from actual size to installation location, transit company needs, and design of the project. Understanding how each project is designed will help you navigate the process efficiently.

Step 1 – Find the bus stop or shelter in need of light

The first step is to find out which bus stops and shelters require illumination. Some shelters and stops may be located in a well illuminated area; however, others could be in a remote location where illumination is definitely a must.

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 shelter structure or area of the bus stop? Is the transit stop located in a high ambient light area? Or is it installed in a remote location with no competing light fixtures? 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 transit lights are an option to traditional electrical lights. Solar transit 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, even setups that have an Ad box installed.

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 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 bus stop and shelter lights are self-contained, the installation will be a snap. Installing the solar power assembly either on a roof of the shelter or on a pole for a stop and the light fixture mounted typically on the battery enclosure 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 40' flagpole or multiple flags will take much more power than lighting a small 20' single flag 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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