Solar Flashers:
An Urban Alternative for Traffic Control

by Joseph Wise

When presenting solar flashers as an alternative to traditional traffic controls, I am often confronted with solar as being applicable only in rural areas. Most DOT personnel think it is easier and cheaper—in an urban setting—to simply connect to grid power for their project. However, upon closer examination of the problems encountered and their possible financial ramifications, recent trends prove solar a better choice in an urban location.

Over urbanization

The majority of solar flashers installed around the country have been in urban rather than rural areas due to the costs of getting power to the site. Norm Akin of the City of Scottsdale (AZ) describes many locations as being "over urbanized" to the point that they are "isolated from power" even though power lines may be overhead. Typical factors which contribute to this inaccessibility include:

- Right-of-way and zoning restrictions
- Location of nearest power drop
- Time required to obtain a hook up
- Cost of obtaining service
- Site remediation costs
- Soil conditions

Restricted right-of-way

In many areas, right-of-way access for utilities has been restricted due to roadway expansion and development, making it difficult, if not impossible, to use power machinery to trench for conduit. Hand-digging may be the last resort for trenching to the site which not only will increase the cost of the project, but could create unexpected delays depending on the excavating conditions and availability of personnel.

Furthermore, the restricted right-of-way may also indicate other services nearby which may complicate the installation of power. Due to the density of services in some areas there is no choice but to manually dig for new installations or risk damaging existing services.

Going underground

Zoning issues also contribute to the inability to obtain power. Approximately 30 years ago, most areas of the country began moving from overhead power lines to using underground lines for power distribution, thus mandating that flashers be connected with underground hook-ups.

Related to these issues is the location of the nearest power drop. Very often, there will be easy access to power on one side of a roadway and limited, or no access on the other side. Sometimes this is caused by a complete lack of power. Or linked to access issues regarding power to roadway lighting poles which may not be controlled by the installing agency.

Crossing the street

In some areas of the country, roadway lighting and the power to it, may be controlled by a local utility company which limits or denies other agencies' connection due to liability issues. Regardless of the reason only one flasher may have power. Therefore, plans must be made to get power from one side of the street to the other. Arlington County, VA chose to go solar with a crosswalk flasher detector station for this reason (see cover photo *IMSA Journal* July-August 2002).

Time also plays a pivotal role in the use of solar flashers. As urban areas have expanded, the lead-time to obtain a power hook up has increased. In some areas it can take several weeks or months to obtain a hook up. In most cases, a solar flasher can be specified, bid and installed within a month.

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Site remediation
Generally, flashing beacon systems are not part of the original roadway plan. They are added to a location after it has been determined a condition exists which warrants their use, such as installation of a pedestrian crosswalk or school zone speed compliance. This usually means installing them into an area with existing landscaping, pavement or sidewalks, requiring site remediation work at the end of the project. This remediation may be as little as replacing ground cover shrubs or as extensive as replacing paving stones over a wide area.

Soil conditions
An area with rocky soil can become a major expense factor. The desert areas of Arizona are a good example. Special trenching machinery may be needed to enable the installing agency to lay conduit. In addition to delaying a project, the cost of special equipment can easily double or triple installation costs. Similar problems arise if the installing agency tries to bore under the roadway.

Cost comparison
Considering the above information one can then ask how a solar flasher system compares in costs? Whether you choose a solar flasher or a hardwired system there are certain basic costs: the pole and/or base; anchor bolts; the foundation work; also the beacon assembly and signs.

When considering the solar flasher there is the added cost of the solar power system with its controls. Depending on the project requirements, these can run as little as $1,800 to as high as $5,000 per power system. Usually, there is one power system per pole in the project. There may also be a small premium for the DC beacon kit over an AC beacon kit but it is generally insignificant.

However, with a solar installation, most if not all, of the problems previously discussed, and their possible financial ramifications, are avoided. Installation of a solar flasher only requires the pouring of a foundation for the assembly, which is generally 2 feet in diameter by 3 to 5 feet deep (actual foundations may vary with your soil conditions). With such a small footprint for the solar flasher and the lack of conduit, it is generally easier to find a suitable location for the installation. Long term, operating system costs are usually limited to the expense of replacing the batteries every 3 to 6 years; less than the cost of the monthly power charge from a utility company.

Considering the high potential for hidden complications when installing a traditional flashing beacon system in an urban environment, solar flashers have become an attractive alternative. Installation time can be minimized and projects can be kept on schedule by reducing the infrastructure required to support the flasher system. Delays in obtaining power and costs associated with obtaining power are eliminated. Overall, solar flasher systems can offer a better choice for your agency's next flashing beacon project.

Many thanks for the background information on this article to:
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