In school zones across North America, flashing beacons increase safety by alerting drivers to slow their speed. Without compromising critical operational reliability, solar school zone flashers are proving to be popular alternatives to their hardwired counterparts.

Solar power is a reliable, renewable energy source, and many products have been drawing upon this readily available resource for decades. In recent years, solar technology has progressed significantly, and improved energy efficiency has yielded further cost reductions and more opportunities to power an increasing number of applications such as centralized control capabilities.

Operational Improvements – Combining Solar Technology and LEDs
Due to their low power requirements, LEDs (light emitting diodes) and solar power technology are a natural combination. LEDs, considered the enabling technology for solar, are fundamentally changing how and where solar technologies are utilized. Even more, LED technology continues to advance at a rapid rate – directly impacting the capabilities of solar systems.

However, LEDs are only one component of a solar beacon system. The collection, conversion to electricity, storage and use of solar energy is a complicated process. A system that performs these functions efficiently, despite widely varying environmental extremes, is the key to developing a reliable, cost effective alternative to hard-wired flashers.

Centralized Control
Improved solar collection capabilities have led to the ability for compact solar-powered flashers to add functions such as centralized control. In cases where a traffic agency manages large quantities - sometimes hundreds - of school zone flashers, a centralized control system is often used. These systems frequently utilize pager technology, which allows a central computer to upload the activation schedule to all flashers simultaneously. This system ensures that the activation schedule is current and in sync with the schedule of the school. This system also provides the flexibility to update as required.

Traffic agencies using this type of control system prefer to continue using established and proven communication equipment. One key feature of the latest compact solar flashers, such as Carmanah’s R829C solar-powered school zone flasher, is that they are compatible with third party programmable time switches. As new wireless technologies emerge for centralized school zone control, such as two-way radio, cellular, or even Wi-Fi, compatibility with third party centralized control devices is critical and Carmanah’s products offer the flexibility to incorporate any of these new technologies as they are developed.

Compact Size Means Big Cost Savings
Solar power solutions are ideal for roadway applications, such as flashing beacons, which can be installed and operated without the need for large infrastructure changes.

There are a number of benefits that make solar flashers more appealing than hard-wired alternatives. Operation and installation cost savings are two primary drivers of the adoption of solar flashers.

Originally, traditional solar flashers made economical sense only where power was not available. Advancements in solar and LED technologies allow users to avoid high metering costs and escalating electricity bills. More compact solar school zone flashers have emerged on the market, and despite a substantial reduction in physical size, they are extremely powerful.

More versatile than their solar predecessors, compact solar flashers are economical to install and maintain even when power is readily available. Their compact size also lends itself to a simplified installation process, with lower installation costs compared to traditional hardwired solar flashers.

Carmanah’s R829C solar school zone flasher, now with centralized control capabilities, installed at a public school.

Installation costs arise with the need to trench and cable electrical power to a hardwired beacon. Often, this requires permits, underground checks or ‘dig alerts’, trenching, electrical contractors, and site remediation. Solar-powered beacons eliminate all of these installation costs, as well as the ongoing costs to power the beacon. Installation of a solar flashing beacon is approximately one third to half the cost of installing a hard-wired system, and there are also considerable time savings.

The overall size of a solar flashing beacon can also greatly impact installation costs. New, self-contained compact designs consist of the solar panel, battery, electronics that are housed in one assembly (referred to as the solar engine); these are all integral pieces of the signal housing and mounting connection. This compact design is shipped ready to install out of the box, eliminating pre-assembly and on-site assembly.

Another significant advantage provided by a compact solar flasher is that it can mount onto existing sign posts, either 2” square tubing or 2.5” round sign posts. Traditional solar systems, with much larger solar panels and a separate cabinet for batteries, require a 4.5” diameter pole. Installing onto standard sign posts eliminates labor-intensive pole foundations, and can change the nature of an installation from a construction project with contractors.

Continued on page 56

IMSA Journal
IMSA Scholarship Program
During the 1992 IMSA Board of Directors Meeting, approval and criteria was established for implementation of the IMSA Scholarship Fund.

The Scholarship Fund will continue during the 2007-2008 school year.

Eligibility Requirement: Must be an active member or life member of the International Municipal Signal Association in good standing for at least two consecutive years as of December 31 of the year of application. May apply while entering college as freshman or at a higher level with some college credits completed. Must take course of study leading to an Associate, Bachelor, Master, or Doctoral degree in Public Safety, limited to the areas in which IMSA is involved.

If not a member, applicant must be son, daughter, grandchild, stepchild, or legally adopted child of a current or deceased member. Sponsor must have two years continuous good-standing membership as of December 31 of the year of application.

Additional Information: May attend any accredited 4-year college or university, or a 2-year accredited college.

Application Period: September 1, 2006-April 30, 2007 Apply to:
Marilyn Lawrence, Executive Director
IMSA
P.O. Box 539, 165 East Union Street
Newark, NY 14513-0539

Instructions for Completing Application
1. Application is to be completed by applicant.
2. Please type or print clearly.
3. Attach a transcript of courses completed.
4. Submit written essay on what you may hope to accomplish or how you may make a difference in the public safety area you have chosen. Include your special qualities or interests you possess that take you into your field.
5. Send completed application with attachments to:
IMSA
Marilyn Lawrence, Executive Director
P.O. Box 539
165 East Union Street
Newark, NY 14513-0539
Compact Solar School Zone Flashers – The Next Generation...

Continued from page 52

to a process traffic agency crews can carry out. This presents a fundamental reduction in cost, complexity, and time required for installing solar school zone flashers. In situations where sign posts are already in place, installation is completed in minutes.

In addition, compact solar systems do not look like a typical solar system – in fact, the solar panel is not noticeable from the ground level. With its batteries and control electronics housed inside the solar engine, which mounts to the top of the pole, there is a significant reduction in vandalism, also contributing to a reduction in replacement and repair costs.

Compact and Durable Solar Flashers
Despite the obvious cost benefits of solar flasher systems, many traffic agencies are reluctant to adopt the technology due to performance and reliability concerns. Locations in the Pacific Northwest, with weeks of cloud cover, have traditionally been challenging environments for solar systems, as are locations with extreme fluctuations in temperature that may hamper battery performance.

Older solar school zone flashers have experienced performance difficulties in low solar areas such as the Pacific Northwest, as well as high temperature locations in the Sun Belt, where battery longevity is put to the test.

Advancements in solar LED technology for other market applications, such as solar-powered marine navigational aids and solar-powered runway lights, have proven to perform in various extreme climates, including locations where temperature cycling is more extreme than anywhere in North America.

Leading manufacturers of self-contained solar LED products have experienced performance success in low solar conditions. Large-scale installations of self-contained solar LED lights for bus shelters and bus stops in locations such as Seattle, Chicago, and even London, England, have eradiated doubt regarding the long-term performance of solar products. From a technology perspective, self-contained solar airfield lights and solar LED transit lights have very similar characteristics and requirements to solar school zone flashers.

Leading manufacturers of solar school zone flashers today benefit from advanced solar simulation software that incorporates solar isolation data from NASA with field data from thousands of real-world installations.

Grant Opportunities
Government agencies are also beginning to see the benefits solar technology can bring to the industry. Under the new Federal Transportation Bill (SAFETEA-LU), the Safe Routes to School Program provides funding opportunities for equipment like solar school zone flashers. While grant programs vary with each State, Safe Routes to School grants and pedestrian safety grants are sometimes structured such that only equipment is funded, requiring the local agency to fund the installation. In cases such as these, compact solar school zone flashers are particularly ideal when considering grant projects that fund equipment only.

For more information on the Safe Routes to School Program in your state, visit: http://safety.fhwa.dot.gov/saferoutes/statecontacts.htm

About Carmanah Technologies
Carmanah is an award-winning manufacturer specializing in energy-efficient technologies. The company manufactures several products for traffic applications, including compact solar-powered school zone flashers, 24 hour flashers, and pedestrian activated beacons, as well as LED Edge-lit Internally Illuminated Street-Name Signs.

With more than 250,000 installations worldwide, Carmanah is one of the world’s premier suppliers of energy-efficient products. For more information call 1-877-722-8877, or visit our website: www.roadlights.com.

About the Author
Greg Miller has been with Carmanah’s Roadway Division since 2004. He has been involved in the traffic industry, and specifically solar LED products, since 2000. Prior experience includes manufacturing, marketing and sales of technology products. He has a Bachelor of Commerce Degree from the University Of Victoria, School Of Business.