



“Wireless” Traffic Control Solutions

APPLICATION: *Optical Control Fire Station Flashers*

LOCATION: *Maricopa County Fire Station 132, Sun City, AZ, U.S.A.*

Description

Maricopa County DOT (MCDOT) installed STC fire station flashers with optical operation at fire station 132. The fire station is situated as a mid-block station on a four-lane street with a wide median. One of the key issues at the site were high voltage transmission lines over one side of the street.

Site Survey

Solar Traffic Controls performed a site survey for the county and determined the most reliable and least expensive method for control would be an all-optical approach. The system consists of an optical repeater station at the end of the fire station driveway and a total of three flashing beacon systems on the approach to the station.

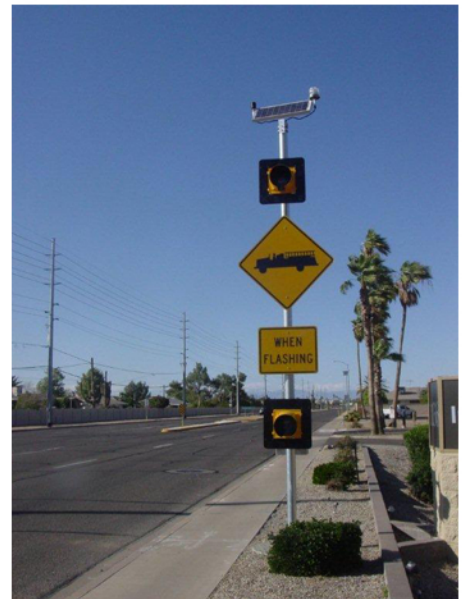
The application site has a large median and two lanes in each direction. Two flashing beacons were placed on one approach, one on the median and one on the curb. The curb unit had visibility issues caused by the transmission line poles. The median unit helped to compensate for the obstacles.

The other approach required one flasher in advance of the driveway. The flashing beacon unit design was based on the STC SR product family which is a flashing beacon package designed to work with an external sensor drive. The sensor is a Tomar Strobe Switch optical detector which provides an open collector output. When a valid pre-emption emitter signal is detected the output goes low thereby registering as a change-in-state at the control logic.

The SR beacon package includes control logic with an LCD screen and a DPC2000 integrated charge/flasher control with built-in night dimming. Each unit includes an omni-directional confirmation beacon strobe and a solar-powered system designed to meet the location, load and duty cycle of the project. As with other advance STC designs, each system includes a self-test function to allow county personnel to verify operation of each unit.



Close-up flashing beacon detector and confirmation light mounted to solar array.



Flashing beacon



The master control unit located at the end of the driveway consists of an STC solar-powered Optical Repeater (OR) system. The OR uses a Tomar Strobe Switch assembly to detect the pre-emption signal from trucks on call exiting. When detection occurs,

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the control logic activates two Tomar pre-emption emitter lamps, one facing each direction. These emitters trigger the flashing beacons through the Strobe Switch detectors on the flashers. To ensure the flashers are triggered the control logic pulses the emitters multiple times during the activation cycle. A built-in, self-test function is included to allow county personnel to test the OR station and trigger the flashing beacons.

One flasher location and the master station suffer from partial shading from nearby palm trees. STC was able to compensate by performing a shaded sizing report for the locations in question. The result is solar arrays for these two locations were increased in size commensurate with the shading effect. A site-specific issue such as this will typically not affect the battery bank since production of power is the primary impact of shading.

Take these steps to insure the success of your solar-powered project:

1. Location - identify the site of the application; for example, the nearest town, village or city and state.
2. Load - specify the number and size of lamps, timers or other controls (anything which draws power).
3. Duty Cycle - determine how many hours per day and which days per week the load will be drawing power.

Go to "Send us your requirements" at www.SolarTrafficControls.com/support/requirements.php for more details.

Solar Power: a free source of energy

STC's solar-powered systems are designed for quick and easy installation in the field. Our careful front-end engineering minimizes your installation costs and provides years of trouble-free operation. The standard solar power system includes the solar array, system enclosure with all the necessary electronics, color-coded wiring harnesses, sealed batteries and full documentation. DC LED lamp kits can also be purchased. These include the LED beacon, lamp housing and mounting hardware.

STC Systems are Cost Effective

Our solar flasher systems allow you to stretch your budget to obtain the traffic safety devices you need at affordable prices. Most systems are equivalent to the cost of obtaining an AC power drop. Battery life is typically three to six years; less expensive than grid electricity for the same period of time.

Solar Traffic Controls (STC) provides solar-powered traffic control systems for city, state and federal DOTs; police, firefighting and public works departments; facility maintenance and plant safety industries. Our primary products are solar-powered flashing beacon systems used for school zones and 24-hour applications. We also supply specialized flasher systems using environmental sensors and custom communications packages to control the flashing beacon systems. Our product spectrum also includes wireless power systems for ITS, EMS and HAR. STC's products and services are sold through a network of regional distributors who offer technical support for your project.

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