Radar Speed Signs

Things to consider before you buy

Law enforcement officials in Tigard, Ore., were determined to increase pedestrian safety in and around the city's high school. In a school zone where the posted speed limit is 20 mph, drivers were often cited for driving 40 mph or more. Speeds decreased when police officers patrolled the area but quickly increased once the officers left. Because of the high traffic volume, traditional traffic calming techniques, such as placing speed bumps and constructing traffic circles, were unsuitable.

While researching the problem, officials found that a growing number of cities across the country were solving similar concerns by installing radar speed displays in problem areas. The city contacted a radar speed display manufacturer and was able to obtain a unit free of charge for a 90-day trial period, which was enough time to assess its effectiveness. Positive results were experienced immediately.

"We did note during the first six months that there was a significant drop in speeds based on the number of citations issued the speeds were down by about 66 percent," said Jim Wolfe, Tigard Police Department spokesman. "Just from casual observation by police, it still appears that motorists are heeding the displays as they near the school."

In fact, radar speed signs are quickly becoming the traffic calming solution of choice around school zones, neighborhood streets, parks and other locations where pedestrian safety is of particular concern. In a 2007 survey 1 of police officers and safety experts, radar speed displays (when compared with speed bumps, rumble strips or other commonly used methods) were ranked No. 1 for having the most immediate and long-lasting effect on calming traffic.

The surge in radar speed display adoption can be attributed to a variety of factors, including studies that have documented their effectiveness and advancements in the technology. Whatever the reason, it's clear that radar speed displays are being installed and used at an increasing rate. According to Information Display Company (IDC), a nationwide distributor of traffic calming solutions, sales of radar speed displays increased by more than 50 percent in 2007 over the previous year. A growing number of these signs are being permanently mounted to fixed posts rather than temporarily installed.

"We are finding a growing number of safety professionals looking for ways to slow speeders without increasing noise levels, impairing emergency vehicles or causing other disruptive side effects often found with lower-tech alternatives," said Gary O'Dell, IDC president.

Along with the increase in sales has come a correlating increase in the number and variety of models on the market. A review of these differences and a look at specific issues for consideration when you are making a purchasing decision will help ensure you have the right equipment to do the job.

Federal Guidelines

When choosing a display, the first consideration should be compliancy. Approximately 80 percent of cities across the United States and Canada strictly adhere to federal guidelines outlined in the Manual on Uniform Traffic Control Devices (MUTCD). Those that do not, risk losing the backing of the federal government should litigation over a faulty sign occur. MUTCD is published by the Federal Highway Administration and provides stringent guidelines used by law enforcement, as well as city planners, road managers, construction engineers and others.

MUTCD compliancy involves a full spectrum of standards from the size, shape and dimension of the sign to the color of lights used, lettering size, types of messages displayed and even materials used in the sign post.

Not all radar speed displays are designed to be 100 percent MUTCD compliant. Chances are if the sign is compliant, that fact will be highlighted in accompanying documentation. If your particular application requires adherence to federal regulations, you'll want to double-check and make sure the model you choose is compliant.

Power Sources

Perhaps the second most significant issue to consider when first researching your options is the power source. Electronic displays require power to operate. Your specific application and budget will determine whether you choose direct A/C, battery or solar power.

Permanently mounted signs are often located next to an A/C power source. Since typical displays require only a small amount of energy to operate, final operating costs are typically low. Connecting the displays to the power source, however, may be a different matter. Even when the power source is nearby, it may be necessary to rip up roads and nearby terrain to access and hide the connection. A meter will also need to be installed unless the utility company is willing to charge a flat rate for energy consumption. Working with the utility company and a contractor, you'll be able to determine the total cost of installation and operation.

To avoid potentially expensive installation costs, many agencies opt to use solar power displays. Advancements in solar power technology have helped increase efficiencies as well as decrease solar panel costs. Most systems combine solar power with backup battery power to provide a solution that is dependable year-round.

Choosing the right solar-powered system requires careful analysis of two things: the amount of power required and the amount of available sunlight.

The amount of energy needed to drive a display can differ greatly among various models and applications. An energy-efficient display operating only during weekday school hours may require 10 watts of power, while a feature-rich display running auxiliary lights and operating 24/7 may

require 100 watts or more.

At the same time, the amount of power provided by the solar panel can fluctuate depending on the amount of sunlight available, and the size and efficiently of the panels. Consideration must be given to the average weather patterns where the sign is to be installed, as well as the physical location of the display (whether that's next to trees, rooftops or other obstructions).

Fortunately, calculating solar power requirements can be easily handled by a qualified radar speed display representative. Using weather data charts and information about the display, an experienced rep can determine the solar power system you'll need for any intended application.

"We currently have four solar-powered radar display signs located in our city," said Sergeant Ed Ormonde of the Ripon (Calif.) Police Department. "They are used year-round and indicate the speed of passing motor vehicles with a flash when the present speed limit is exceeded. We decided on solar panel signs because we felt they gave us the flexibility to place them in areas where A/C power wasn't appropriate. Additionally, A/C signs would have required the city to lay down conduit and wiring, which further complicates the installation," he added. "Using the right data gave us the information we needed to install a system that we can confidently use cost-effectively, and operate every day of the year, rain or shine."

Battery-powered signs are also available. Though this choice may be the most simple to install, these signs often end up being the most expensive to operate. Battery-driven signs require ongoing maintenance. The batteries require constant recharging typically every two weeks and as a result, overall battery life is usually short, so periodic replacement costs must be factored in.

If your application calls for a mobile display, your energy options are limited to solar power or battery power. Used together with a "solar assist" battery backup system, a 40 50 watt solar panel can easily operate a typical mobile radar speed display for well over a month before requiring attendance. Units designed to temporarily mount on the hood or trunk of a parked police vehicle are often powered by a deep-cycle battery. Some models come equipped with a cigarette lighter adapter that allows energy to be drawn directly from the car battery.

Messaging & Warnings

The manner in which the displays alert drivers can differ widely. The most common type of display combines a static "Your Speed" message along with an active panel board that shows drivers their actual speed. These signs are often posted alongside or directly after a traditional speed limit sign and have proven to be extremely effective in redirecting drivers' attention to both the posted limit and their own speeds.

To further gain the attention of speeders, some displays allow operators to set the unit to flash the actual speed when a passing driver exceeds a predetermined limit. The unit may also allow the attachment of accessories such as flashing lights. Often installed directly above the display, the added lights are used to warn drivers of their excessive speeds. The high visibility of the flashing lights makes the displays particularly effective in busy traffic areas where drivers know that their speeding will be noticed by surrounding observers.

"We find it particularly effective to mount a speed display on the back of one of our patrol cars, which we park alongside a problem area. That way there's higher visibility for speeders," said Cpl. Steve Rana of the Carmel (Calif.) Police Department. "The sign is set to flash when drivers reach excessive speeds. I like to say it yells at you by rapidly blinking when you are driving too fast."

Depending on the display model being used, the use of functions and accessories may be scheduled to automatically operate at specific times. These capabilities may vary from model to model. The more flexible units allow operators to schedule the operation of various functions depending on the time of day, day of the week or even week of the month. Scheduling capabilities may be applied to turn a display on and off, automatically change the posted speed limit, flash and alert drivers of excessive speeds, and provide auxiliary light. Some signs allow operators to schedule added messages, such as "Slow Down," when drivers reach excessive speeds.

A growing number of cities have started using electronic displays to take driver guesswork out of determining speed limits around school zones, car pool lanes and other locations where legal limits are dependent on the time of day. The city of Santa Clarita, Calif., installed several radar speed displays around school zones throughout their jurisdiction. Using synchronized built-in atomic clocks, the signs are scheduled to automatically and simultaneously change their displays to reflect the speed limit during school hours when school zone speed limits are in effect.

To make scheduling as simple as possible, a variety of display manufacturers started providing remote scheduling capabilities. First on the market were models that used handheld devices to wirelessly connect to the display's scheduling features. Rather than having to manually open and configure each unit, officers were able to pull up to the display and set the unit's features from inside their patrol car.

Today, remote office technology allows operators to schedule displays using a single PC at a central command center. Using built-in cellular technology, officers can turn off and on features, schedule functions, and monitor multiple displays at once. This remote office accessibility can have a dramatic impact on reducing maintenance costs and ensure proper operation of all displays throughout a city or county.

Measuring Effectiveness

Many of today's radar speed displays offer advanced features that help users gain an accurate and detailed perspective on traffic patterns in areas where the units are deployed.

Displays with built-in data collection capabilities not only warn drivers of excessive speeds but collect information regarding traffic flow. This may include important data such as the total number of cars on the street, the average speed at any given time of day, and the number of cars driving over a specified limit.

Compared to benchmarks determined before the display's installation, the data collected by the unit can provide a quick and accurate account of the sign's effectiveness. By observing changes in driving behavior with changes to various display settings and features, operators can determine the most effective means of employing the displays.

Other Issues

There are a variety of other issues to consider when purchasing a radar speed display. The reputation of the manufacturer and the warranty issued often reflects the overall quality of the product being sold. Customer service is also a critical concern. The initial installation and set-up of the display often requires the assistance of a qualified expert. As with any sophisticated product, long-term maintenance and repair issues are likely. Partnering with a reputable dealer can make a huge difference in the overall cost and effectiveness of your traffic-calming project.

With these key factors in mind, the following is a brief overview of the products and services offered by four major manufacturers of radar speed displays.

3M Corporation

3M prides itself on diversity of products. In 2000, the company behind trusted brands including Post-It, Scotchgard, and Nexcare purchased American Electronic Sign, a company founded by Luke Williams, the co-inventor of the alternating time and temperature display. 3M quickly leveraged this purchase to bolster its offerings in traffic control solutions.

3M's three radar speed signs series combine radar technology with LEDs and the company's Diamond Grade Fluorescent Yellow-Green Reflective Sheeting. The DFB-100 series is switch-controlled, the DFB-120 is relay/dry contact timer-controlled, and the DFB-150 is controlled via an RF modem. More information on 3M products available in the United States can be found at http://solutions.3m.com/en_US/.

Information Display Company (IDC)

IDC is one of the few major manufacturers in the United States devoted solely to the design and production of radar speed displays and accessories. According to a company spokesperson, the company's SpeedCheck brand products are used in more U.S. cities than any other brand. One of the first companies to design displays with advanced scheduling and remote programming features, IDC is considered an industry pioneer.

All SpeedCheck brand signs are built with proprietary technology designed to increase the effectiveness and ruggedness of the displays. IDC's UltraClear contrast enhancement technology claims to provide maximum visibility. SafetyMask technology is used to reduce distraction and increase driver safety. More information can be found at http://www.informationdisplay.com/.

Radarsign

Radarsign claims use of its radar speed displays will reduce average speeds 8 15 percent and increase overall posted speed limit compliancy by as much as 60 percent. Radarsign offers one sign size (24" by 21") housed in a quarter-inch powder-coated aluminum casing. The front plate is vandal-resistant, and the sign's display allows users to choose between two different flashing speeds. A maximum speed cutoff helps eliminate "speed testing" by thrill-seeking drivers.

The company's MiniSD memory card allows users to collect data on over 500,000 vehicles. The company offers its own StreetSmart software to format and display the data collected. The software

provides information such as the number of vehicles detected per day, per hour or per half hour; the average vehicle speed and peak vehicle speed. Graphs can be used to compare week-to-week or day-to-day changes.

Traffic Logix

Traffic Logix offers a variety of traffic calming solutions including raised speed humps, traffic circles, alley bumps as well as radar speed signs. The company currently offers two models of radar speed displays: a standard sign with a static "Your Speed" message combined with an LED panel that shows the driver's actual speed, and a programmable message sign that allows operators to select between three messages: "Your Speed," "Slow Down" and (for static speed limits) "Speed Limit."

According to Traffic Logix, the company's signs are designed to offer maximum effectiveness while limiting power consumption. The LEDs used in Traffic Logix signs offer optimal brightness using 30 percent of their power supply, while radar uses 25 percent less power than radar used in some competitive products. Traffic Logix offers solar-, AC- or battery-powered options. Data collection features gather and save data on passing vehicles, and can be accessed via Bluetooth wireless technology.

References

1. "Traffic Calming Solutions A Survey of Safety Professionals," 2007. www.stopspeeders.org.

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They Cost How Much?

Agencies can expect to pay between $2,000 $3,000 per portable radar speed sign units and $5,000 $12,000 for trailer-mounted units. However, for many agencies, shrinking budgets have reduced or totally eliminated funding for traffic calming programs and products. Luckily, many government agencies offer grant programs to supplement funding loss and may help pay for community radar speed signs. Visit the Web sites below to find available grants.

- The Catalogue of Federal Domestic Assistance www.cfda.gov
- The Office of Justice Programs www.ojp.usdoj.gov/resguide
- Office of Justice Programs www.ojp.usdoj.gov/BJA
- National Sheriff's Association www.sheriffs.org
- Governors Highway Safety Association www.ghsa.org

Additional Vendors

Many other vendors offer radar speed signs, including the those we've listed below. We don't have the space to review all of the latest offerings, so we urge you to do your own research. Start with the vendor Web sites to learn more.

- All Traffic Solutions www.alltrafficsolutions.com/radar-speed-display-speedsentry.html
- Kustom Signals www.kustomsignals.com
- Decatur Electronics, Inc. www.decaturradar.com
- MPH Industries www.mphindustries.com
- Radarsign www.radarsign.com
- Stalker Radar http://www.stalkerradar.com/
- Traffic Logix www.trafficlogix.com
- Wanco www.wanco.com