



Sonalert Products

## Using Audible Signaling Devices To Assist The Visually Impaired At Pedestrian Crosswalks by Dan O'Brien

The use of audible devices at pedestrian crosswalks to assist the visually impaired across intersections is more popular in Europe than in the U.S. However, that may be changing soon. The broader application of the Americans with Disabilities Act (ADA), along with the possibility that these devices can increase the speed of most pedestrians across intersections, has generated a great deal of interest. There may also be a time in the near future when these devices will be mandated on all new intersections, so it is important for cities and transportation departments to investigate all the issues in buying, installing, and using these devices.

Three basic categories of crosswalk devices include, transmitting, and vibrotactile devices.

Vibrotactile devices require that the person find and touch the apparatus to gain the needed information. This could be something as simple as a vibration to tell the user that it is safe to cross. More complex units, on the other hand, may provide a complete tactile map of the intersection.

Transmitting devices use transmitters and receivers to send detailed verbal instructions to the user. This could include the street corner name and which direction it is safe to cross. While the user may gain a great deal of information with transmitting devices, he or she is required to have a special receiver that may not be readily available to visitors. One drawback to both vibrotactile and transmitting products is that they are relatively expensive to buy and install.

Audible devices typically will generate an audible sound to alert people that it is safe to cross. While the audible sound can be a simple tone or a more complex voice message, distinct birdcalls are commonly used. Audible devices are most frequently specified for intersections because they are simple to install, use, and are inexpensive. For these reasons, audible devices are also the most likely candidates for international or domestic standardization.

### MEETING PEDESTRIAN REQUIREMENTS

After reaching an intersection, and determining which way to cross, the visually impaired pedestrian must then know when to begin their crossing. Since audible pedestrian devices are wired in parallel to the walk light, as soon as the walk light is energized, the audible device will sound. It is important for the audible device to be loud enough to be heard over the traffic noise, and also to have a distinct sound that is easily recognizable. This is why birdcalls have become popular, and are the sounds that are recommended by Canada and California. A repeating "cuckoo" sound is used to indicate that it is safe to cross in the north/south direction, and for the east/west direction, a repeating "chirp" bird sound is used. To provide guidance for the blind pedestrian to go directly across the street, careful orientation of the audible device can provide a highly localized directional sound. Placing opposing audible signals on each side of the street can also be used to furnish even more guidance.

### SOME PEDESTRIAN AUDIBLE SIGNAL FEATURES

In the past, pedestrian audible signals have been commonly offered in a box (5" X 4" X 5") that mounts to the top of the ped-head. These units, which are bulky, offer a volume control option that automatically adjusts the volume of the audible device to enable it be heard over the traffic noise as it changes. In practice, these units usually offer only two different levels of sound (high/low) rather than a continuous adjustment of the sound level. In addition, these units are expensive and it is unclear if the volume control option is cost justified or needed.



Recent pedestrian audible signal products on the market offer a smaller package (1.7" dia. X 4"), and a 5 to 10 times decrease in price. These units can be installed inside most ped-head boxes because of their small size. They are set at either at a fixed volume level, or have the option to set the volume level at a high or low level at installation, depending on whether the intersection is typically noisy or in a relatively quiet neighborhood. Since these devices are inexpensive, opposing devices can be placed on either side of the street to assist in guiding visually impaired pedestrians to the other side.

### **A CASE STUDY: DAVIDSON COUNTY, TN**

Davidson County, Tennessee, which includes the city of Nashville, has about 600 intersections with traffic lights, and 20 of these intersections have audible signals installed. The Traffic Control Department for Nashville and Davidson County under the guidance of Mike Davis, Traffic Control Manager, has been using standard industrial audible signals that emit constant or pulsing tones for the last 10 years. Recently, the Department switched to pedestrian audible devices targeted toward crosswalk applications that use bird call sounds.

The box type pedestrian audible device with volume control was tested, but the Department chose to go with the smaller type audible device for two reasons. First, the smaller unit was much less expensive than the larger unit and fit more within their current budgeting levels. Second, the size of the smaller type pedestrian audible device was comparable with the devices they were using, and could be retrofitted easily. There have been complaints that some intersections with the industrial audible signals that emitted constant tones were too loud. These signals were replaced with the new bird-call pedestrian audible devices, and the new volume levels were satisfactory. The pedestrian audible devices are installed on opposing sides of the intersection.

Dickie Lain, Signal Maintenance Supervisor, who helped devise the unique installation and mounting method used for the pedestrian audible devices, reports that since most of their ped-head boxes are older and have no room inside for the audible device, they developed a method of mounting the device on the ped-head pole. An additional benefit of this mounting is that if the ped-head box is replaced for any reason, the audible device does not have to be re-installed in the new ped-head box.

To mount the audible device on the pole, a ped-head bracket (see Figure I) is used and secured to the pole with band clamps about 7" to 8" off the ground. A 6" piece of pipe is screwed into the end of the bracket, and the audible device sits behind the piece of pipe. For wiring, a hole is drilled into the pole, and an electrical connection is made to the walk light wires. The wires are attached to the audible device, and tape is used to cover the wire connection to the audible device.

### **THE NEED FOR A PRO-ACTIVE APPROACH**

Cities and Traffic Control Departments must begin to take a pro-active approach to installing and using pedestrian audible devices. Important criteria to consider include ease of use, ease of installation, and price. While there may be occasions where the audible products with volume control are cost justified, most intersections can use the less expensive, small pedestrian audible products which allow the placement of opposing devices across the intersections for better guidance across the street.

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