



## SafeZone IRAD Installation Overview:

### A pictorial guide



July 2010

*'SafeZone: making our roads & railways safer'*

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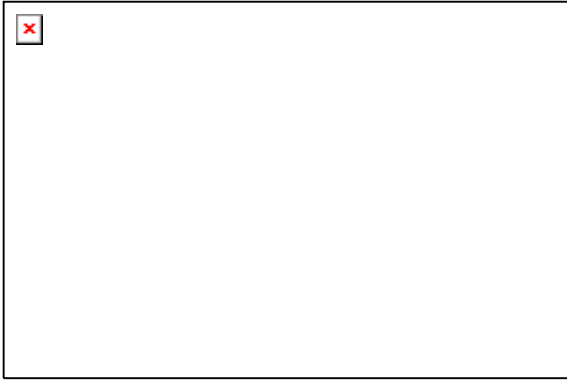
This pictorial guide is intended as an overview only to highlight the simple procedures required to successfully install IRADs (In-Road/Rail Alert Devices). IRADs are a secondary visual alert beacon element within the SafeZone suite of detection and alert devices, used to enhance road and rail safety through delivering more effective alerts to drivers of a danger condition that requires them to slow down and/or stop.

Installation crews should refer to the latest release version of the complete IRAD Installation Guide before installing IRADs.



# SafeZone IRAD Installation

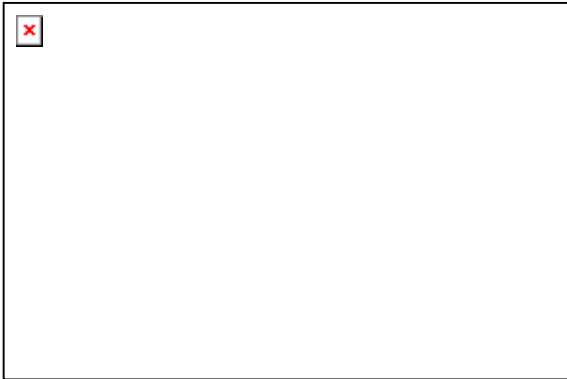
## A - Work site preparation



### STEP 1: Preparing work site

After site survey and appropriate setup of safe work area in line with required OH&S and local regulations, mark IRAD locations, ready for drilling.

IRADs may be installed either long the road centre line or lane markers, and/or (depending on site design) be installed across the road, parallel with the pedestrian or railway crossing.



### STEP 2: Drilling road surface

Using standard 10cm water cooled drill bit, drill through road surface into compacted road base. If road surface is applied over concrete road base, drill to depth of 12cm.

Remove drilled core section using appropriate tools. Surface may require jack hammering using hand held tool. Clean hole of loose gravel to depth of 12cm below road surface.



### STEP 3: Preparing hole

3a - Once core is drilled, road surface should be removed, ensuring all loose gravel, etc is removed from cored hole to a depth of 12cm below the road surface.



3b – Once prepared, hole should be dried using blow torch ready for application of epoxy.

**SafeZone IRAD Installation** (continued)

## B – IRAD Installation

## STEP 4: Applying bonding agents

4a - Prepared 2-part epoxy (refer Installation Guide) is poured into the hole, with secondary epoxy bonding agent applied to lip of hole.

4b - Epoxy in hole should be allowed to stand for short period to allow majority of entrapped air to escape.

## STEP 5: Installing IRAD

IRAD is lowered into epoxy and allowed to stand for a short time to allow any entrapped air to escape.

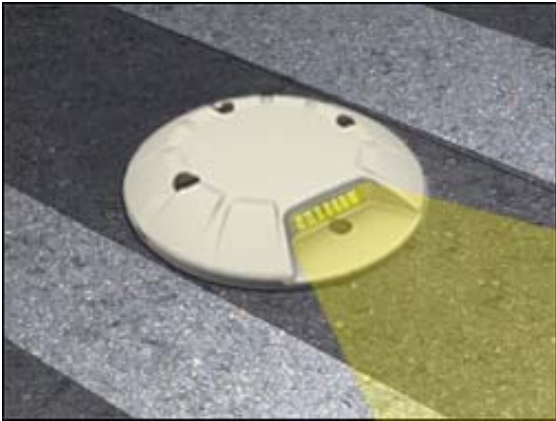
Once seated, the IRAD is aligned in direction required, using the Alignment Tool, which drops over IRAD dome. Tool arm is then aligned to road centre line or lane marker, as per site specific design requirements.

## STEP 5: Clean up

Note that as IRAD is installed, there may be continued out-gassing that will cause epoxy around lip to bubble. Simply clean around lip and seal any holes created by out-gassing air to ensure lip remains sealed. This ensures no water penetrates road surface into IRAD created for hole.

Cleaning of excess epoxy should ensure no epoxy remains on IRAD dome or on lens cover. Excess epoxy on road surface should also be removed.

C – IRAD Commissioning



**STEP 6: Programming**

Once installed into the road surface, IRADs are programmed using a wireless 'Programming Wand' that activates the IRAD and establishes it as part of the site-specific wireless network.

Additional software updates may be loaded using the wand either at the time of initial installation or at a future date.

**STEP 7: Commissioning**

Once programmed, IRADs are automatically 'discovered' by the site's controlling radio system. RF Repeaters are fitted to AAWSs (Active Advance Warning Signs) and/or ADCs (Alert Device Controller), depending on site architecture.

The repeaters maintain an active communication session with each IRAD in the network, providing both activation/deactivation functions, and monitoring/fault reporting functions.



**In Service**

The installed system, once programmed and commissioned, operates autonomously under the control of the local activation system; or in fail-to-safe mode under the control of the site's AAWS (Active Advance Warning Sign) and ADC (Alert Device Controller).

