

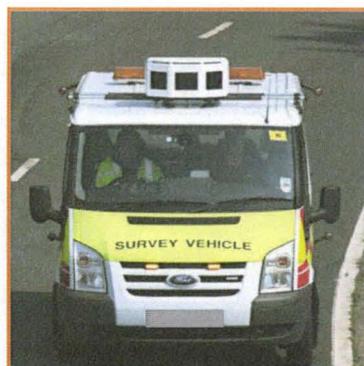
# Innovative Forward Facing Imaging System

**Assessing the condition of Britain's roads at traffic speed is now accepted as the norm. This has been achieved through, amongst other things, the use of cameras either looking directly at the surface or looking forward at the scene in front of a survey vehicle.**

Conventional forward facing cameras for the most part only give a general view, whereas high definition (HD) cameras offer a wider aspect (1920 by 1080 pixels) with significant improvements in terms of definition and image quality. However, even HD cameras have limitations when it comes to the level of detail Highway Engineers require to assess condition.

**TRL** has developed an imaging system that creates images with an ultra-wide aspect of 3072 by 1372 pixels and which successfully overcomes the technical challenges of providing quality, detailed images at traffic speed under the wide range of lighting conditions encountered when surveying the network. To achieve this, three cameras are used to create a single image in real-time. The cameras are connected to a unique TRL developed interface that performs three major functions:

- Dynamically modifies the exposure to respond to weather conditions or location
- Accurately synchronises the cameras so that images are taken simultaneously from the same location
- Inserts hidden information within the image that enables the Ordnance Survey Grid Reference of the image location to be accurately generated





Once captured, the three images are processed in real-time to combine them into a single high resolution image, without loss of quality. The approach leads to images that are 'factual' rather than 'aesthetic', with no attempt to blend the join between the parts of the image from the different cameras. This provides the advantage of zero loss of information at image joins and no unwanted artefacts.

Having images from three cameras in one file means that they can be easily integrated into existing asset management software or they can be viewed or printed using standard desktop software.

This highly sophisticated, technologically advanced system provides highway engineers with a robust tool with which to assess condition. The images provide a level of detail that can be used to undertake a general assessment of highway condition, and to confirm the condition of adjacent assets such as roadside equipment, and even roadside vegetation, with accurate location referencing.

This transportable system can be simply installed as a multi-camera pod on the roof of a vehicle and controlled by a single PC. It has already been successfully deployed on the Strategic Road Network by one consultant with a second system is due for delivery early in 2012.



## Further Information

**Richard Lodge**

Technology Development

**Telephone** +44 (0) 1344 770057

**Email** rlodge@trl.co.uk

