CASE STUDY NUMBER 93: Thames Water, Acoustic Sensing Technology Ltd, Lanes and NRW Utilities Ltd - SewerBatt Prioritising Sewer Cleaning and CCTV

WINNER OF THE NJUG INNOVATION AWARD 2016

The National Joint Utilities Group (NJUG) is the UK industry association representing utilities solely on street works issues. NJUG represents some 56 utility companies and contractors engaged in the street works sector, and 18 specialist sub-contractors who provide equipment, materials and services supporting street works activities. Our members represent major contributors to economic growth and work to deliver gas, electricity, water and telecommunications to both individual consumers and UK plc. In order to continue this drive for further improvements within the industry - we have developed the NJUG Vision for Street Works, which revolves around seven main principles:

- Safety
- High Quality
- Minimise Disruption
- Keep the Public Fully Informed

- Sustainable Methods and Materials
- Avoid Damage to Underground Assets
- Innovation

This case study is an example of the street works sector delivering on these principles and turning the vision into reality.

Overview

SewerBatt™ as a tool can quickly and accurately assesses the serviceability of drains, sewers and other pipe networks. This prevents wasted investment by efficiently targeting CCTV surveys, cleansing & maintenance at pipes that have failed or have a high probability of failure.

Case Study

The innovative technology sends an acoustic pulse through a sewer pipe and provides an immediate assessment of the serviceability of the pipe. The survey results are reviewed back at the office to determine the condition of the sewer, as well as estimate the location and nature of the problem in order to provide recommendations for follow on works (FoW). Thames Water adopted this technology to screen sewer blockage hotspot areas and proactive cleaning programmes to determine which lengths required attention; this was an innovative approach.

With the majority of problems in buried pipes actually occurring in only 20% of sewer networks, the challenge is to find those hotspot areas most in need of attention as quickly as possible.

Blockages are relatively random occurrences but often represent significant lengths of sewer network to be inspected, traditionally by CCTV which becomes uneconomical and can cause sustained traffic disruption. Thames Water adopted the SewerBatt technology to screen blockage hotspots and scheduled proactive cleaning areas to determine which lengths required further CCTV and cleaning.

A full SewerBatt survey can be carried out for a fraction of the cost of the current CCTV method, and is exponentially faster in its operation; on-site completion of a survey happens within seconds of its deployment within the manhole, meaning much more length of sewer can be covered with minimised street disruption. Back-office analytics and assessment follows immediately after the completion of the field survey allowing decisions on follow on work to be made rapidly.

The NRW Acoustic Innovations Team in partnership with Lanes (TW contractors) use the technology to perform rapid condition assessments of sewers, reducing the pressure placed on CCTV and Cleaning crews by targeting follow on work. The lightweight, one-person-operable technology operates under short-stop durations minimising street works disruption.

The technology is able to indicate asset condition, with an immediate Red, Amber, Green to the operator. survey results are analysed by NRWs Acoustic Innovations Team to confirm serviceability and recommend the appropriate intervention, where necessary.

NRWs Acoustic Innovations Team have used the SewerBatt technology with success on Blockage Hotspot areas, Proactive cleaning programmes, Hydraulic flooding investigations and Large area network profiling / exploration. The information generated from the NRW Acoustic Innovations Team's work is being used by Thames Water planned maintenance team with the aim of driving continued efficiency in network maintenance.

The key benefits of this innovative technology, in summary, are:

- Reduced pollution incidents by significantly increasing proactive surveying volumes
- Minimised street works disruption due to short stop notices
- Better use of maintenance budgets to improve customer service