Water Woes Solved

Utilities invest in better information to prevent leakages

Recent revelations about the UK's poor response to the current water shortage have forced the utilities to re-think their strategy on leakage. With estimates of millions of gallons of water lost everyday, there is an urgent need to reduce the crisis. Ofwat, the industry regulator, is pushing hard to ensure leakages are not the cause of stand pipes in the towns and cities of southern Britain during the summer.

A total of 13 million people in Southern Britain are currently affected by a hosepipe ban. The water companies are struggling with one of the worst droughts on record. After months of below-average rainfall, some areas are suffering the worst drought since the 1920s. March was the 17th month in a row of below average rainfall.

Consumer groups concede that households could do more to save, but they argue the water companies must have a better record of conserving water by fixing leaks.

Thames Water has been held up as the worst offender. It has missed its target for preventing leaks for the last four years, and last year 915 million litres a day leaked from the company's pipes. In a recent judgement from Ofwat, Thames Water will be forced to invest an additional £150 million in their pipe replacement programme in London.

Amid claims of shareholders being put ahead of structured pipe renewal programmes, the water industry has hit back with new initiatives for detecting leaks. The utilities are now committed to reduce leakages at a greater rate than ever before.

Companies such as Three Valleys and Yorkshire Water have turned to using Building Class datasets to help target replacement programmes over the next five years. Building Class data are derived primarily by photo interpretation of high-resolution aerial photography.

The dataset provides an analysis of the age and type of residential property across their area. Age is broken down into seven categories, the most important of which are the four categories that predate World War II (see image).

Buildings over 60 years old are much more likely to have problems of leakage, especially in the connection between house and mains. In these areas records are often poor or non-existent, and detecting these leaks is difficult.

This dataset enables companies to target potential high leakage areas for further survey. Yorkshire Water noted that the building class data "*proved to be an excellent source of property age information. Its reliability and ease of use will help us to save a great deal of man-hours when planning future replacement schemes.*"

The other approach to reducing leakage is to lower water pressures. Understanding the critical delivery points and the stresses on an aging network is critical. To do this, companies need to know what pressure is needed to reach the highest buildings in an area without additional pumping.

To effectively model this they are using new and exciting technology that is generating building height details. The building heights come from either a remote sensing device such as LIDAR or can be captured from aerial imagery by photogrammetry. In both cases high accuracies can be achieved.

Scottish Water is using Building Heights within their hydraulic network software to better understand levels of service and the impact of any planned changes. Thames Water is also using this type of data in London to help target areas where there might be supply management issues.

With better use of Building Height and Building Class data water companies are taking great strides towards making shortages a thing of the past.