CASE STUDY: COMMUNITY TELEMETRY AND WARNING SYSTEMS, PARBOLD, WEST LANCASHIRE

OVERVIEW

On the morning of 26th December 2015, Storm Eva caused flooding in Parbold. Three businesses and approximately 129 residential properties suffered internal flooding with much disruption caused to local infrastructure, including the railway line

Dock Brook was first to overtop its banks in the early hours followed by the River Douglas later in the afternoon. The event and subsequent recovery effort led to the formation of the Parbold Residents Flood Action Group, whose aims are to promote a better understanding of flood risk within Parbold and work towards reducing flood risk for individuals, businesses and the community.

Over the coming months, the Parbold Residents Flood Action Group worked extremely hard to develop a robust emergency plan to assist those who need help during a flood. Provisions are now in place for a recovery centre with generators, along with food, water, hot drinks and blankets. A team of ten flood wardens will be warning and informing residents, as well as helping to ensure some of the community's most vulnerable residents remain safe.

While the Environment Agency is able to issue flood warnings for main rivers, water levels within ordinary watercourses, such as Dock Brook, remained unmonitored with no provision for a warning. As with many narrow watercourses and channels, Dock Brook can be quick to react to heavy rainfall and overland run-off. On Boxing Day morning, the brook overtopped and began to flood areas of the village before the River Douglas had time to react and trigger a Flood Warning to residents.

CHALLENGES

The events of Boxing Day 2015 left many residents feeling vulnerable and frightened. The flood group began facilitating regular meetings with risk management authorities, and with their help and support began working to reduce flood risk in the village. The flood event highlighted the potential benefit of having a warning system in place for Dock Brook and the group began exploring possible options for a telemetry and warning system for the watercourse. In addition to providing a direct warning to residents, such a system would also compliment the group's community action plan and provide a suitable warning trigger for the brook.

THE SOLUTION

A telemetry system on Dock Brook next to the rail track would provide multiple benefits. Not only would this location provide the earliest warning possible for residents and the group, it would also allow Network Rail to monitor their line, respond to flooded tracks and help to reduce the risk to passing trains. In addition, it would provide a means for other risk management authorities to monitor flood risk from the brook.

With support from the Environment Agency (EA), the group explored suitable locations for the telemetric equipment and discussed options for the design of the system and its features. Through subsequent consultation, stakeholders agreed upon the installation site next to the railway, together with the design specification for the system and how the project would be funded.

FUNDING

Network Rail held riparian landowner responsibilities for the site and they agreed to fund the cost of the telemetry equipment and its installation, together with the first year's service costs – totalling approximately £4,000.

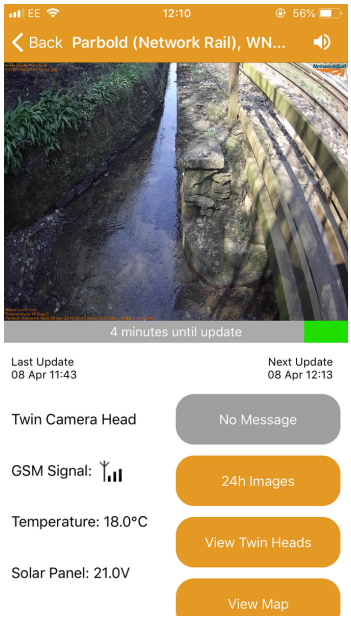
THE SYSTEM AND HOW IT WORKS

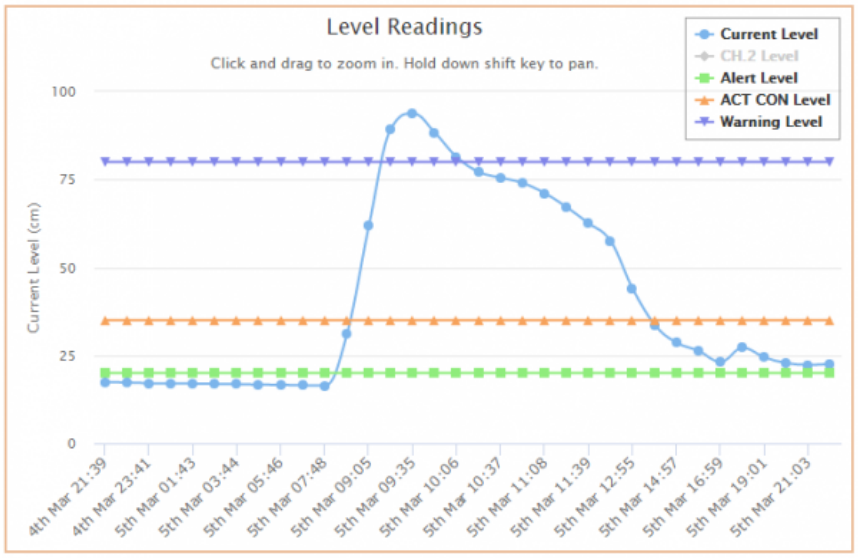
The system incorporates a digital water level sensor together with a twin camera head unit to relay images of the watercourse either side of the rail track. A gauge board installed within the channel allows users of the system to visually read off the water level via the cameras should an issue ever develop with the digital water level sensor.

Residents can access water level data, air temperature and pressure readings, as well as view images from the cameras via a free Smartphone app.

The app is also designed to issue a flood warning when the systems pre-designated water-level trigger point is reached. The app, designed by Vision-Link, also enables residents to view Environment Agency telemetry data for Environment Agency Main River and Coastal assets, including levels and trends for the River Douglas.

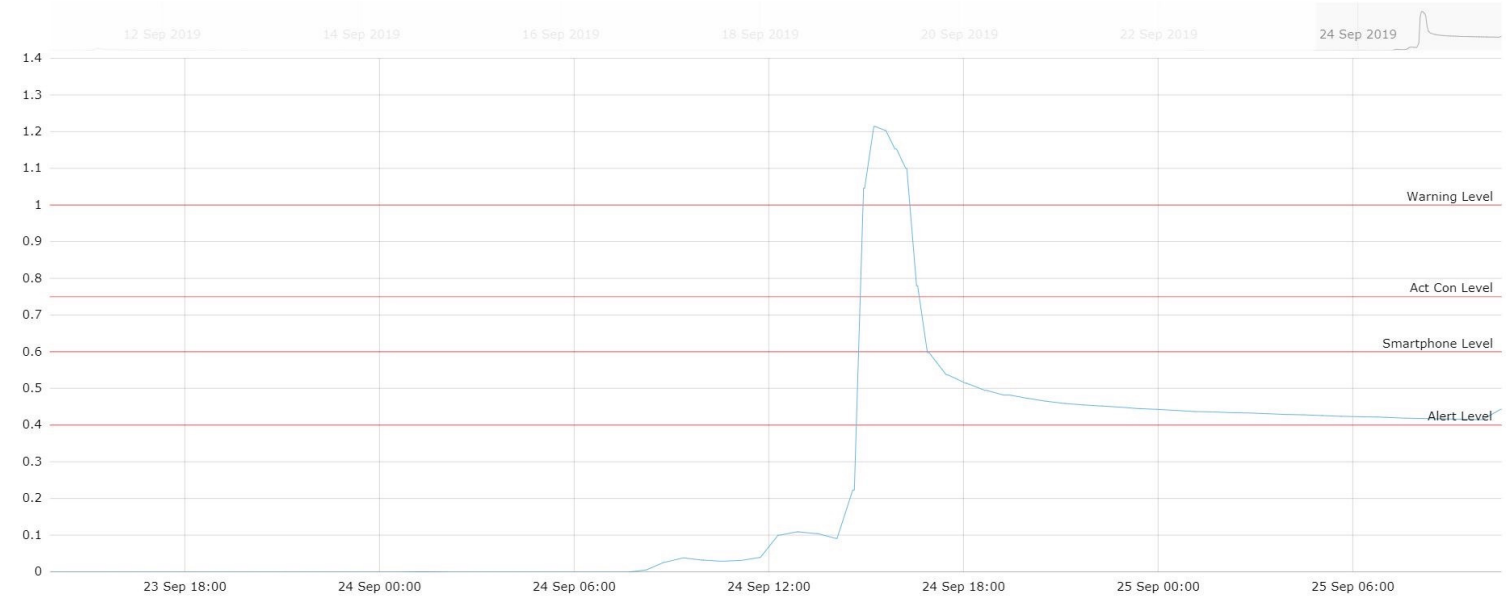
Under normal conditions data and images from the telemetry system are relayed every thirty minutes, with the app providing viewers a minute by minute countdown before the images and readings are updated. However, when a preset water level is reached, update intervals can be set to be as frequent as required.





Once the system was in place, Parbold Residents Flood Action Group distributed a leaflet to every household at risk which contained simple instructions on how to download and use the Smartphone app. Feedback from residents was extremely positive! Having the system in place has made a huge difference for the community, with many residents able to sleep better during times of heavy rainfall. Knowing that they are able to receive a warning is great, but having the ability to easily check and monitor the watercourse themselves, day or night, brings a new level of assurance to the community.

On the 24th September 2019 the flood telemetry system at Parbold triggered and issued a warning as a result of heavy and sustained rainfall which raised the water level in Dock Brook. The rain brought large amounts of mud, debris and branches into the watercourse, which collected at the culvert beneath the railway line and began to restrict flow. The trigger prompted a response from Network Rail employees who attended site and cleared away the debris.



You can read more about the telemetry system at Parbold and view live images and data here: http://www.vision-link.co.uk/parbold/

Telemetry systems are bespoke and solutions can be designed for practically any situation or circumstance. If you feel your community could benefit from a flood telemetry and warning system, you can read more about them via our infographic here:
https://thefloodhub.co.uk/wp-content/uploads/2018/12/Community-Flood-Telemetry.pdf

You can find out more information about these systems via the Vision-Link website here:
https://www.vision-link.co.uk/

Images: Vision-Link, David Hignett