

Reducing flood risk for Whalley residents

Sensor solutions and early flood warnings proactively prevent flooding in urban drainage for a Lancashire village

Challenge

Whalley – a village located in the Ribble Valley, Lancashire – has experienced significant flooding historically, notably in 2012, 2015 and 2020. The village sits on the banks of the River Calder and a smaller watercourse, Wiswell Brook, is culverted under the main street. The culvert has a trash screen on the upstream side that is prone to blockage and requires regular maintenance to remove debris and mitigate flood risk. This screened culvert represents one of the principal sources of flood risk for the town.

In 2015, floods caused catastrophic damage, with over 300 homes and businesses affected and many residents requiring rescue. In response, the village set up Whalley and Billington Flood Action Group (WBFAG) to work with local authorities and find ways to mitigate risk from future flooding.



Catastrophic flooding hit Whalley in 2015, prompting residents to take action. Image courtesy of Daria Neklesa.



Since 2020, Previsico's sensor has been monitoring water depth at the entrance to the culvert.

Solutions

Previsico provides real-time, property-level surface water flood forecasts using proprietary live hydrodynamic modelling software and sensor technologies to help mitigate flood-related impacts and losses. Solutions cover surface water and ordinary watercourses – flood perils not covered by other forecasting systems.

- **Email notifications:** Automated email warnings when districts and properties are at risk of flood.
- **Flood dashboard:** Displays predicted time and depth of flooding up to 48 hours in advance and visualises data from sensors.
- **Water depth and flow sensors:** Located on and around critical infrastructures. Either stand alone or complementary to forecasting solutions, giving customers both the confidence and time to act in a flood event.
- **API feed:** Automated real-time forecast data and warnings that integrate with existing systems.

Benefits

- Previsico's sensor measures water depth in the Wiswell Brook culvert, immediately upstream of the trash screen. WBFAG members can access data in near real-time via a dashboard and warnings are issued when critical water depths are detected, enabling them to take preventative action. [Watch the video.](#)
- Proven as a prevention tool across multiple events: Since the sensor was installed in 2020, two critical warnings have enabled flood wardens to clear the trash screen in time to prevent the village from flooding.
- Previsico's sensor solution is helping to reduce anxiety amongst village residents by enabling them prepare in advance, protect valuables and move vulnerable residents to safety.



In 2020, the alert went off on Boxing Day evening at around 11pm. It alerted our flood wardens and we managed to get to the culvert and clear it before it flooded the village. We can only recommend this type of technology as it is the way forward in flood management tools.



Gill Darbyshire,
Whalley and Billington Flood Action Group

The growing flood problem...

- 1 in 5 properties affected by surface water flood risk.*
- 33% UK commercial properties at risk from flood.*
- Long-term mental health problems up to nine times more likely for flood victims.*

* References



Leading the way through technology and data



Previsico's algorithmic technology draws on several leading data sources, including best available weather nowcasts and forecasts, satellite imagery, ground sensors, LiDAR elevation data, land cover, drainage and geology.

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