

**N.B.** This case study considers only one possible approach, which will not be suitable for every church. Always seek professional advice.

## Key Points

- The village of Tirley and its Grade I-listed church St Michael and All Angels are being flooded on a more and more regular basis. In 2007, the church and much of the surrounding area was devastated by a record flood that caused massive damage.
- As a result, and the likelihood of future flooding events, the church engaged in an extensive reordering process with the aim of ensuring future resilience; new seating, a new floor, a sump pump, a new mezzanine, electrical changes, valves in the churchyard walls, and a clear flood-response plan.
- The work is a prime example of changes that can be considered for a flood threatened church building, and there are further measures which the church and diocese are seeking to pursue.



1 St Michael and All Angels in Tirley



2 The new interior with movable furnishings and balcony



3 The flood box containing tools and plans to protect the church from floodwater

## The context

In 2007 the River Severn flooded large areas of Gloucestershire including the village of Tirley. When the community became aware of the floods, volunteers moved as many fabric items and valuable pieces to the highest part of the church. The church itself was flooded to unprecedented levels, over one metre inside the church building as well as completely flooding the graveyard, impacting listed monuments, and access routes. Once the water level had receded, the interior and furnishings of the church were revealed to have been completely destroyed. An extensive period of reordering was undertaken, with a focus on resilience to expected future flooding to ensure the damage was not repeated.

For more information visit the church's [website](#), or its entry on the [Church Heritage Record](#).

## Previous Flood Resilience Levels

- Tirley had long experience of flooding, although not previously to the extent of the 2007 flood.
- Church wardens and other church volunteers were well aware of the historic direction of flooding from the nearby River Severn, however they increasingly report that these patterns are changing in unpredictable ways.
- The church had pew seating as well as a number of historic wooden pieces that were unable to be moved. The graveyard had very limited protection.

- In the case of a flood, it was likely that access to the church and the village could become very limited in a short period of time.

### **What was done?**

During the reorganisation following the flooding a number of significant changes to increase the resilience of the church building to flooding were undertaken:

- pew seating was removed and replaced with stackable, easy-to-move seating
- a mezzanine balcony was installed, providing space for the storage of fabric items during flood events
- one way valves were installed in the graveyard wall
- electricity sockets were raised above 1 metre from the floor
- the damaged floor was replaced and a sump pump installed to drain standing water from the interior
- a flood response plan and associated equipment storage was created to allow a quick, coordinated response to future flood events

### **How well did it work?**

St Michael and All Angels has since been flooded multiple times. Flood prevention devices and their flood response plan has been largely successful, limiting the extent of water ingress into the church building and organising interior furnishings to be out of danger. This has largely prevented any damage and protected the most valuable items within the church.

The reordering of the church building that accompanied the flood resilience methods has allowed for a diverse range of uses of the church building including concerts and art exhibitions. The community is still extremely supportive of the changes to the church building and it has increased the number of visitors.

The main worry for the future of St Michaels and All Angels is a lack of succession in volunteer flood defence roles, currently undertaken by the church wardens. The growing possibility of more severe flooding is also having a wider impact on the community, which may impact the church as well.

The still-saturated outer rendering of the church is leading to accelerated erosion of the building fabric.

The church community is still actively exploring the implementation of new resilience devices, and seeking funding for scoping work, which would assess the effectiveness of further resilience measures.

### **How were these actions funded?**

- The majority of the money came through insurance following the incident.
- Grant funding was also obtained from a wide range of small funding sources, targeting small parts of the church reorganisation and restoration. This was led by a motivated volunteer who applied for the range of grants.
- They were able to access some legacy funds from the diocese, that was able to be matched.

### **What could others learn from this case study?**

1. Consider future flood risk when undertaking reorganisations or other prospective works within the church building.
2. Create a flood response plan and maintain a list of volunteers who may be called at short notice to act if threatened by a flood event.
3. Changes made to church buildings primarily for resilience purposes can complement and even enhance existing fabric and design elements.

*“We’ve proved that out of catastrophe we can produce something that is there for all sort of purposes... that is a building of use not a relic”*

Church Warden, St Michael and All Angels