

Safeguarding lives and property from devastating floods

Galway County Council

The Challenge

- Protect property and help save lives in crises such as flooding incidents

The Benefits

- A fast and appropriate response to emergencies
- Better information sharing, leading to improved public safety
- Improved multi-agency coordination and decision making
- Increased confidence in the council's ability to handle flooding incidents



When exceptional flooding occurred in the west of Ireland, Galway County Council employed Esri's ArcGIS platform to coordinate a fast and effective emergency response. The council's rapid and intelligent use of mobile and web GIS technology helped it protect property and safeguard lives during the crisis.

The Challenge

In December 2015, a chain of severe storms swept across the county of Galway, causing devastating floods. 472 properties became cut off, 62 homes were flooded and major transportation routes became impassable, leading to significant concerns for public safety.

Right from the outset, when the first flood warnings were issued, Galway County Council was acutely aware of the challenges it would face. A similar flooding incident had occurred in the county six years before and, on that occasion, the council had struggled to collect data about the rising flood water quickly enough to support the emergency response. It also hadn't had an effective mechanism for sharing information with the public and stakeholders. This time, however, the council was better prepared. It had recently implemented new geographic information system (GIS) technology from Esri Ireland, which gave it the ability to react incredibly quickly to the emerging crisis.

The Solution

Galway County Council had replaced all of its separate, multi-vendor GIS packages with Esri's ArcGIS platform. In tandem, it had used ArcGIS server to create the council's first centralised store of spatial information, eliminating multiple databases, removing data duplication and making a single source of accurate data available to all of the council's GIS apps. "For the first time, ArcGIS gave us seamless integration of data and GIS services across mobile, desktop, server and web platforms, online and offline," says Mark Conroy, IS project leader at Galway County Council.

While the 2015 storms still raged over Ireland, the council used ArcGIS to quickly set up a GIS-based web service to capture information about the floods and store it in the cloud using ArcGIS Online. It then used the ArcGIS Collector App to allow regional engineers, technical staff and other council employees to conduct surveys in the field and upload flood details to the web service via their smart phones and tablet devices. At the same time, staff in council offices used ArcGIS desktop to add information about road closures and uploaded new satellite imagery when it became available. All this information was combined on interactive maps in ArcGIS Online, with no manual intervention, and made visible immediately to all staff, partners, the general public and the media.

Esri Ireland

Dublin

Block B | Ashtown Gate

Navan Road | Dublin 15

T +353 (0) 1 8693900 | F +353 (0) 1 8693901

Belfast

T +44 (0) 2890730165 | F +44 (0) 2890730167

E mapsmakesense@esri-ireland.ie

W esri-ireland.ie

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Mark Conroy, IS project leader, Galway County Council



Galway County Council's emergency GIS, showing areas of flooding, road closures and properties at risk

“Within an hour of getting our first call about flooding, we had a system up and running for capturing information via mobile devices and sharing it externally,” recalls Conroy. “The out-of-the-box functionality of ArcGIS allows us to develop new GIS web services and apps at a moment’s notice, enabling us to address the challenges of a rural county, as they occur.”

Benefits

A faster emergency response

The use of ArcGIS enabled Galway County Council to see precisely which homes and businesses were in danger of flooding and deploy resources promptly to those places where they were most needed. Rather than wasting time collating data and responding to requests for information, staff could instead focus on making arrangements for drains to be cleared, roads to be raised and culverts to be dug. 63 properties were saved from immediate threat in the wake of the storms, thanks to the timely implementation of such protective measures.

Greater public safety

Galway County Council was able to use Twitter, Facebook, the council web site and local media to direct people to its online flood map and keep citizens informed about areas of risk. “The general public was getting updated information as quickly as we were in the council,” says Conroy. “Everyone could follow the progress of the flooding, see which roads were closed and plan safer routes accordingly. By enabling us to share flood information instantly, ArcGIS certainly helped us to improve public safety.”

Improved multi-agency coordination

Every day during the height of the crisis, Galway County Council used its ArcGIS maps to help it share situational information with partners including the Office of Public Works, Health Service Executive, the Gardaí and defence forces who were called in to assist. The maps helped the different agencies to better coordinate their activities and make effective decisions. Conroy observes, “Without a doubt, ArcGIS played a key role in helping us to focus on vulnerable households, deliver constructive support and alleviate suffering in the worst affected communities.”

Increased confidence in the council

Now that the flood waters are subsiding, Galway County Council looks back on its handling of the crisis with satisfaction, knowing that no lives were lost in the county. It also has a full GIS-based record of the extent of the flooding, which will help it collaborate with the Office of Public Works to plan flood alleviation and mitigation schemes going forward. “ArcGIS has helped give internal employees, partners and the general public confidence in the council’s ability to manage floods and other similar emergencies,” Conroy notes. “When the next incident arises, we can be confident that we have the ability to handle it quickly and effectively.”

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T +353 (0) 1 8693900 | F +353 (0) 1 8693901

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W esri-ireland.ie

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