Protecting communities in catastrophic incidents

Lincolnshire Resilience Forum

The Challenge

- Allow 30+ partner organisations to share data and collaborate more effectively

The Benefits

- Improved collaboration between agencies
- Faster decision making during emergencies
- Enhanced safety of officers, volunteers and communities
- Clearer communication with the public
- Better understanding of risk

More than 30 category one and two responding organisations that make up the Lincolnshire Resilience Forum can now collaborate and share information far more effectively using a suite of solutions built with Esri's ArcGIS system. With common operational dashboards, mobile data capture tools and versatile new web apps, they can make fast, appropriate and coordinated decisions to improve public safety.

The Challenge

Lincolnshire Resilience Forum responds to all major emergencies and incidents that impact on the wider county of Lincolnshire and that require a coordinated, multi-agency response, such as flooding and pandemics. Responsible for an area of 2,292 miles and over 750,000 people, the partnership comprises more than 30 category one and two responding agencies. These organisations need to be able to share information and collaborate effectively to respond immediately to catastrophic incidents, helping preserve life, livelihoods and the environment.

The Solution

Lincolnshire Resilience Forum worked with consultants from Esri UK's Professional Services group to build a range of solutions with Esri's ArcGIS system to improve collaboration and information sharing. "Professional Services was second to none," says Steve Eason-Harris, Emergency Planning Officer at Lincolnshire County Council. "With Esri UK's support, we hit the ground running and got things right the first time."

The organisation's foremost ArcGIS solution is an interactive dashboard that consolidates data from a myriad of different third party systems and provides a common operating picture for teams from all partners. Built using ArcGIS Dashboard and ArcGIS Experience Builder, it can be viewed online, on mobile devices or on huge touch screens in the County Emergency Centre and Force Control Rooms, giving everyone an accurate, shared understanding of fast-changing situations.

Using this ArcGIS solution, Lincolnshire Resilience Forum can quickly identify critical national and local infrastructure (such as gas and oil terminals) plan evacuation routes, forward command points and places of safety, and model potential hazards to establish wider impacts. The ArcGIS solution also allows officers to identify property and vulnerable people at risk and calculate the time it takes for officers to door knock an area, before deploying operational staff to the scene, reducing the time needed to directly warn and inform the public.

Lincolnshire Resilience Forum has also developed a series of ArcGIS Field Map apps to make it far easier for first responders to collect and share information, on the ground, about damage to infrastructure or new risks. First responders can also use apps built with ArcGIS Survey123 to record contact information for people who are evacuating their homes, register the people sheltering in rest centres and highlight any urgent medication or support needs individuals may have.

In addition, Lincolnshire Resilience Forum is currently developing a new capability with ArcGIS Workforce to help it manage resources, deploy police officers and optimise the use of volunteers. It also plans to use drones and ArcGIS SiteScan to create a 3D digital twins of areas at higher risk of impact from emergencies. "We have done so much, yet we've only scratched the surface!" Eason-Harris says. "We didn't realise just how much ArcGIS would enable us to do. It has vastly outperformed our expectations."
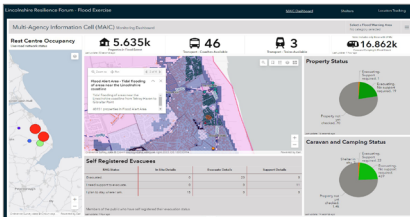
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Steve Eason-Harris, Emergency Planning Officer, Lincolnshire County Council

An example of one of the Lincolnshire Resilience Forum's ArcGIS Dashboards, showing data from a recent multi-agency flood emergency exercise

The Benefits

Improved collaboration between agencies

ArcGIS has delivered the common operating picture that Lincolnshire Resilience Forum needed, enabling all partners to share the same information and respond to emergencies in a way that is coordinated, proportionate and appropriate for the incident taking place. If police officers from other forces and military troops are drafted in to help respond to an emergency, operational commanders can brief them using ArcGIS dashboards and mobile devices, speeding up deployment and minimising the risk of duplication.

Faster decision making during emergencies

With instant access to accurate, up-to-date, multi-agency information, strategic and tactical commands have all the information they need to make the right decisions, faster, as situations change. This improved decision-making capability was clearly evidenced in a major exercise undertaken in November 2022, based on a flooding scenario necessitating the evacuation of over 35,000 people from coastal properties and static caravans.

Enhanced safety of officers, volunteers and communities

During emergencies, ArcGIS helps to improve safety for everyone in affected areas, whether they are residents or first responders. ArcGIS mobile tools help police and volunteers to knock on all doors and give advice, while ArcGIS web apps share the latest information about closures, cordons and areas to avoid. ArcGIS can also be used to inform recovery plans, helping affected residents to return safely to their homes.

Clearer communication with the public

Lincolnshire Resilience Forum recognises the advantages of using ArcGIS for communicating clearly with the public. It is, for example, currently converting its Community Risk Register from a pdf document into ArcGIS Story Maps to make it easier for people and businesses to understand how to protect themselves if an incident should occur. As Story Maps and public web maps can be created very quickly with ArcGIS, they can be produced during emergencies to show members of the public where road blocks, cordons and rest centres are located.

Better understanding of risk

Long before emergencies occur, Lincolnshire Resilience Forum uses ArcGIS to build up a deeper understanding of communities and infrastructure at risk. Use of the new 3D mapping capability, for example, helps the partnership to pinpoint properties that are at greatest risk from flood, wildfire and isolation and put targeted mitigation plans in place. Summing up, Eason-Harris, observes: "ArcGIS gives us a collaborative solution that we can use before, during and after major events. It's far more than just maps."

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