

Responding more effectively to extreme weather events

Cork County Council

The Challenge

- Improve the council's ability to prepare for and respond to severe weather events, as well as communicate events with the public

The Benefits

- Faster and more effective responses during exceptional storms
- Improved long term planning
- Better information about hazards for the public and emergency responders



Across Ireland, the frequency and severity of storms is steadily increasing, creating logistical challenges for the local authorities that need to maintain local roads. Cork County Council has used Esri's ArcGIS Online platform to help it monitor issues on roads during extreme weather events, in near real-time, improve its emergency response and support its public communications.

The Challenge

In October 2017, Storm Ophelia propelled hurricane-strength winds across Ireland, taking the lives of three people and causing substantial damage. Yet extreme weather like this can no longer be assumed to be a rare occurrence. According to some estimates, the frequency of storms and severe rainfall events in winter and autumn in Ireland could increase by up to 30 per cent.

Recognising the risk to its local communities, Cork County Council wanted to improve its ability to monitor and communicate the impact of extreme weather events on its road network. It sought to collate information about roads blocked by flood, fallen trees and heavy snowfall and provide this information in near real-time to council teams, in an easily understood format, so that they could respond more effectively, learn from past events and improve communication to the public.

The Solution

The council already used Esri's ArcGIS web geographic information system (GIS) technology within its organisation and had access to Esri's ArcGIS Online platform. It also subscribed to a geographic public alert service called MapAlerter, which it used to inform the public on severe weather events and scheduled road closures via text messages to subscribers of the system, as well as posting the information on its Facebook and Twitter accounts. The council decided to leverage its existing investment in both of these services to create a bespoke solution that assists with emergency management.

Now, when field-based council employees observe an issue on a road during exceptional weather, they report it to MapAlerter via text, using road segment codes and message templates. This information is then not only used to generate MapAlerter posts, but is also automatically passed to the ArcGIS Online platform, where it is displayed on an interactive map in near real-time. During storms, teams in the council's Emergency Incident Room, roads department and other service areas can all view this Severe Weather Map to see a clear picture of the extent of road disruption right across the county. The map refreshes automatically every minute, highlighting new issues as they are reported.

Cork County Council has two views of this information. The first, the ArcGIS Online Severe Weather Map, displays the current situation and can be made available to not only council employees, but also the general public and emergency responders, via Twitter, Facebook, MapAlerter and other news channels. The second version is an ArcGIS Server Portal Map for internal use only, where all the historical data from past events is displayed and can be viewed using the time slider function, so that the council's staff can look back in time to identify hot spots where the same issues have occurred in sequential extreme weather events.

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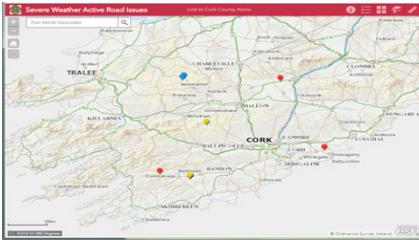
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Mr Tim Lucey, Chief Executive, Cork County Council



Cork County Council's Severe Weather Map, which supports emergency planning and decision making during and after extreme weather events

As ArcGIS Online is a hosted solution, it offers high availability, even in the worst of storms, which is a significant advantage for Cork County Council. “If our offices in Cork are flooded and our in-house IT systems go down, or if senior managers cannot travel into work, we can view the ArcGIS Online map from a temporary emergency centre or from home,” says Judith Vonhof, IS Project Leader at Cork County Council. “In crisis situations, it’s reassuring to know that Esri Ireland has the resources to keep our Severe Weather Map available 24/7.”

Benefits

Fast, effective responses during extreme weather events

ArcGIS Online provides a single point of reference, where all council employees can see the same, accurate, up-to-date view of an emergency situation, in a clear visual format, as incidents unfold. As a result, council managers can make faster decisions about how best to allocate resources to clear fallen trees at the earliest opportunity following the storm. Similarly, if managers can see that both major roads to West Cork are flooded, for example, the council’s emergency team can direct field-based teams to the area as a priority to erect signs to warn the public of the potential danger.

Improved long term emergency planning

Cork County Council can use the historical maps and time slider functionality of ArcGIS Server to better understand the impacts of past events and use this insight to prioritise road improvements that could help minimise disruption in the future. “You can never know for certain what the next storm will bring,” says Mr Tim Lucey, Chief Executive of Cork County Council. “But, this historic information enables us to look back at previous severe weather events and learn from the past.”

Better information for the public and emergency services

During major storms, Cork County Council can now play an important role in helping to keep members of the public aware of potential hazards and obstructions on the roads. By directing local citizens to the map with all the latest information, the council can help them make better choices about whether to make non-essential journeys and which routes to take. Emergency responders, such as the fire and ambulance service, can also refer to the map to see the latest status and make better decisions about the best routes to reach people in dire need.

Summing up, Mr Lucey adds, “With the frequency and severity of storms increasing, councils need to be prepared for dealing with them. This system has certainly assisted with this.”

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