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Improving public confidence in gritting services

Transport Scotland

The Challenge

- Keep the public informed about gritting services

The Benefits

- Improved public confidence in gritting services
- Widespread positive publicity for Transport Scotland
- Collaborative management of extreme weather events
- Engaging interactions with local communities

Road users in Scotland can now see for themselves precisely which roads are being gritted in bad weather, by taking advantage of an interactive ArcGIS app. Developed for Transport Scotland by Esri UK, the solution has attracted widespread media attention and improved public confidence in the organisation's gritting services.

The Challenge

When temperatures fall and icy weather is forecast, people who live, work and travel in Scotland depend on Transport Scotland to ensure that 2,179 miles of trunk roads and motorway are gritted. The national transport agency for Scotland has over 210 gritting trucks, operated by nine regional contractors, and wanted to find a way to let people know exactly where they were and which roads were being gritted. "We have a huge fleet of gritters out there, but people claimed they never saw them," says Iain McDonald, Network Resilience Manager at Transport Scotland. "We wanted a way to show where all the gritters are, in real time, and reassure the public that we are doing what we can to keep roads safe."

The Solution

Transport Scotland had prior experience of using Esri's ArcGIS, so decided to leverage this geographic information system (GIS) technology to help it improve public awareness of gritting activities. It engaged consultants from Esri UK to develop the solution, as well as host and manage it through Esri UK's Managed Cloud Service. "We knew exactly what we wanted and because of our tried and tested relationship with Esri UK, we could trust them to build, host and manage the solution for us," McDonald says.

In a development project described by McDonald as "some kind of wizardry," the Esri UK consultants created a bespoke API to stream data from nine separate GPS tracking systems, used by Transport Scotland's nine operating companies, and present the locations of all the gritters on the trunk roads in Scotland, on one live, interactive map for the first time. The consultants then added layers of supplementary data, including 3D terrain models and traffic data showing traffic delays. The app has an attractive, intuitive interface making it easy for members of the public to see all trucks, and their direction of travel, on any device.

To help it publicise the ArcGIS Gritter Tracker app and encourage members of the public to use it, Transport Scotland gave its gritters imaginative and fun names such as Sir Andy Flurry, Gritney Spears and Chilly Connolly. During the winter service period, which typically runs from 1st October until 15th May, anyone can access the app and search for their favourite gritter by name or see which gritters are in a specific location.

Having a hosted, managed GIS solution has been a significant advantage to Transport Scotland, as the organisation can be confident that the app will always be available and can scale up rapidly to meet unexpected surges in demand. "Esri UK's Managed Cloud Services platform has been able to deal with huge spikes in the usage of the app, particularly during extreme weather or following publicity," McDonald says. "The app has always been able to perform."

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Iain McDonald, Network Resilience Manager, Transport Scotland
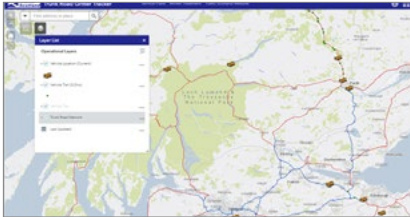
Transport Scotland's ArcGIS-based Gritter Tracker

The Benefits

Improved public confidence in gritting services

The ArcGIS Gritter Tracker app has significantly improved public awareness of the full extent of gritting services carried out in Scotland. The app received 1,020,985 hits in the winter of 2020 to 2021 and, in the same period, there was a substantial decline in the number of calls to Transport Scotland's call centre from people asking about gritting. "The ArcGIS app gives confidence to the general public that our winter service is being provided throughout the whole of Scotland on the Scottish Trunk Road Network," McDonald says. "By letting the public see all our gritters, the app improves recognition of the hard work that goes into providing winter service across the country."

Widespread positive publicity for Transport Scotland

At the onset of the coronavirus crisis, the British Red Cross was able to use ArcGIS to rapidly create a COVID-19 Response App and a COVID-19 Vulnerability Index map, which provided its staff, volunteers and the 230 partner organisations that form the Voluntary and Community Sector Emergencies Partnership, with a shared understanding of the fast-moving situation. As everyone could see the same data, it was easier to coordinate the activities of multiple voluntary organisations and ensure that support was provided to groups most affected by the pandemic, lockdowns or furloughs.

Collaborative management of extreme weather events

Although the ArcGIS Gritter Tracker app was never intended to be an operational tool, it is nonetheless used internally within Transport Scotland to support the management of gritting operations. With instant access to live data on the locations of all gritting trucks, on one screen, together with data on traffic disruptions and terrain, Transport Scotland can better manage its contractors and make rapid, well-informed decisions during extreme weather events. When the 'Beast from the East' storm hit Scotland in 2018, the app was used in the National Control Centre to share live situational data with other agencies including Traffic Scotland and Police Scotland.

Engaging interactions with local communities

Transport Scotland and its local operating companies now use the ArcGIS Gritter Tracker app in community engagement initiatives to capture people's interest. Popular with young people, the app is used in schools as a way to open up important conversations about road safety in bad weather. The app also helps to educate pupils about maps, showcase the use of digital technology in the delivery of public services and inspire them with ideas for their future careers.

Learn more at: esriuk.com