esri UK

Case study

Improving the efficiency of fire hydrant inspections

Norfolk Fire & Rescue

The Challenge

- Inspect and maintain over 23,000 fire hydrants to ensure adequate water supply for firefighting

The Benefits

- 25% - 50% reduction in administrative time
- Accurate data on hydrants available for firefighting
- Faster responses to hydrant issues
- Clear visibility of management information

Norfolk Fire & Rescue Service is using ArcGIS to help it inspect and maintain over 23,000 fire hydrants and manage planning applications for hundreds more each year. The solution, configured in collaboration with Esri UK's Professional Services team, is significantly improving operational efficiency, while giving fire crews better information about fire hydrant availablity to help them fight fires and save lives.

The Challenge

Under the terms of the Fire and Rescue Services Act (2004), fire and rescue services throughout the UK must take reasonable measures to ensure that an adequate supply of water will be available for use in the event of fire. In practice, this means that fire and rescue services must routinely inspect fire hydrants to check that they are operating correctly and ensure that sufficient additional hydrants are installed where new properties are being developed.

This is an enormous logistical challenge.

In Norfolk alone there are over 23,000 fire hydrants, a figure that is increasing by up to 500 a year due to new housing developments. For many years, Norfolk Fire & Rescue Service managed its hydrant inspections and planning applications for new hydrants using a hybrid system, comprising a database and a front-end mapping interface, with the two parts maintained by separate organisations. The solution was, however, unstable and unreliable, leading to data inaccuracies and inefficient ways of working.

The Solution

Norfolk Fire & Rescue service initially evaluated three off-the-shelf hydrant management systems, but none of them offered all the functionality that it needed. The organisation therefore approached Esri UK and asked the Professional Services team to work with it to create a comprehensive solution for inspecting existing hydrants, overseeing new schemes where additional hydrants need to be installed and managing the workload for mobile teams.

The resulting solution was configured quickly and collaboratively. "My experience of working with Esri UK was very good," says Tim Allison, Water Resources and Planning Manager at Norfolk Fire & Rescue Service. "Once the project scope was agreed, the solution was delivered by Esri UK's Professional Services team in just 14 weeks."

Now, technicians on the road receive a map-based work schedule from ArcGIS Workforce and then go to ArcGIS Field Maps to enter data on the condition of each hydrant inspected. All the data collected in the field, and the progress of inspections, is immediately visible back in the office on ArcGIS Online, enabling the central team to monitor workloads and schedules.

The water resources team then uses ArcGIS Online and ArcGIS Pro on desktops to add and remove hydrants, create hydrant schemes for new housing developments and send details of defective hydrants to the relevant water authority so that repairs can be initiated. ArcGIS Online provides a single conduit to all hydrant data, so up-to-date plans for new schemes and other documents can be accessed simply by clicking on the map.

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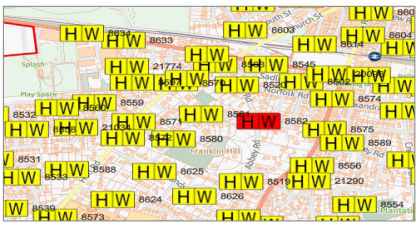
> “Fire crews on a shout can trust the information they see and quickly find the hydrants that are nearest and useable.”

Tim Allison, Water Resources and Planning Manager at Norfolk Fire & Rescue Service



ArcGIS Online displays fire hydrants and their operational availability

Each night, up-to-date hydrant data is sent automatically from ArcGIS Online to the mobile data terminals (MDTs) in fire engines, enabling crews to see instantly which hydrants are available. On a weekly basis, data from ArcGIS Online is also fed directly into the Norfolk Mapping Browser, used by staff at Norfolk County Council.

The Benefits

25% - 50% reduction in administrative time

ArcGIS has led to significant time savings in the administration of hydrant inspections and hydrant planning in Norfolk. Tim Allison estimates that the water resources team spends 50% less time than before hunting for information, such as planning applications. He and his colleagues also spend as much as 25% less time allocating jobs to technicians and managing work schedules. “We are massively more efficient now,” he says. “ArcGIS is enabling us to manage a growing number of hydrants with the same number of people.”

Accurate data on hydrants available for firefighting

Norfolk Fire & Rescue Service is now confident in the accuracy of the hydrant information that is being sent to fire crews. In the future, it will be able to feed even more information from ArcGIS Online to fire appliances, when the MDT software has the capability to receive this enhanced information. “Fire crews on a shout can trust the information they see and quickly find the hydrants that are nearest and useable,” Tim Allison says. “This helps to save valuable minutes and better prepare fire crews to fight fires and save lives.”

Faster responses to hydrant issues

Using ArcGIS, Norfolk Fire & Rescue Service can now respond faster to issues reported by the public, such as leaks from hydrants. The water services team can simply look at ArcGIS Online to find the nearest technician and send an urgent job to him via ArcGIS Workforce, diverting him to this location. He can then upload photos and details of the damage, which can be forwarded to the water authority. “We can respond in a joined up way, send accurate information to the water authority and get back to the customer in a couple of hours,” Tim Allison says.

Clear visibility of management information

The water services team now has better oversight of the end-to-end process of creating, inspecting and maintaining hydrants in accordance with its statutory duties. It also has more information than ever before, as it can record information on additional water sources like lakes and hydrants on private land. ArcGIS Dashboards show precisely how many hydrants have been inspected, how many are awaiting repair and even how long each one takes to maintain, and all this management information is being used to continue to improve services for the future.

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