



Response and recovery without compromise

GIS technology answers the rescue call and proves pivotal in getting communities back on their feet after devastating natural disasters and emergencies throughout Queensland.

By their very nature, natural disasters are unpredictable, unavoidable and unrelenting.

Thanks to Geographic Information System (GIS) technology, emergency services departments are better equipped than ever before to act swiftly in a crisis and effectively manage response and recovery efforts.

According to Mark Wallace, Manager of the Queensland Fire and Rescue Service (QFRS) GIS Unit, GIS is the enabler that puts vital data and information in context, to improve the coordination of emergency response activities across the state.

The QFRS, a division of the Department of Community Safety (DCS), is one of the agencies responsible for delivering emergency services to communities throughout Queensland.

Their GIS solution, known as the Total Operational Mapping (TOM) system, operates with QFRS' other internal systems, bringing together information from various sources and organisations – such as the Bureau of Meteorology and Department of Transport and Main Roads – to create an interactive map of events as they occur across the state.

TOM visually represents near-real time emergency data on a map, translating complex scenarios into an easy-to-digest universal language, enabling staff to quickly and clearly interpret large volumes of information.

As a result, says Mr Wallace, decision making and response times are significantly improved and rescue staff and resources can be appropriately allocated – saving lives and protecting property.

When tropical cyclones, severe storms and floods ravaged Queensland between November 2010 and February 2011, an Esri Australia GIS solution provided QFRS with the capability to run scenario based models, allowing them to keep ahead of the disasters before they fully unfolded.

In one case, the system mapped storm tide inundation along the Queensland coast, enabling the QFRS to conduct predictive flood modelling to identify areas likely to be affected.

Armed with this foresight, emergency services personnel could evacuate communities and strategically position their crews and resources, including evacuation centres and food drops, where they were clear of rising waters.

During the floods and Tropical Cyclone Yasi, the QFRS also leveraged cutting-edge aerial GIS technology, to convey information from out in the field back to the State Operations Coordination Centre.

“Aerial Total Operational Mapping (A-TOM) is a GIS-driven aerial intelligence gathering tool that was used in aircraft for mapping damage, flood extent, road closures, and threatened assets such as buildings or pump stations,” said Mr Wallace.

“Without Esri Australia’s GIS solution, the response and recovery effort would have been severely hampered.”

Mark Wallace,
Queensland Fire and Rescue Service

“A-TOM is a particularly vital resource for assessing and assisting disaster affected communities that have become inaccessible by road and helps identify and prioritise where resources need to be put most efficiently to get people back into their homes as soon as possible.”

Mr Wallace said GIS has been the cornerstone for the recovery and reconstruction of Queensland – enabling the community to build resilience and bounce back from this difficult time.

“Without Esri Australia’s GIS solution, the response and recovery effort would have been severely hampered,” he said.

“It’s about the social wellbeing of Queenslanders. And you can’t compromise on that.”



Developed leveraging the ArcGIS Server and ArcGIS Mobile platforms, the Queensland Fire and Rescue Service’s GIS solutions, Total Operational Mapping (TOM) and the Aerial – Total Operational Mapping (A-TOM), form the basis of Queensland’s largest response unit.



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