

CASE STUDY:

Bundaberg Regional Council Incremental Flood Gauge Mapping

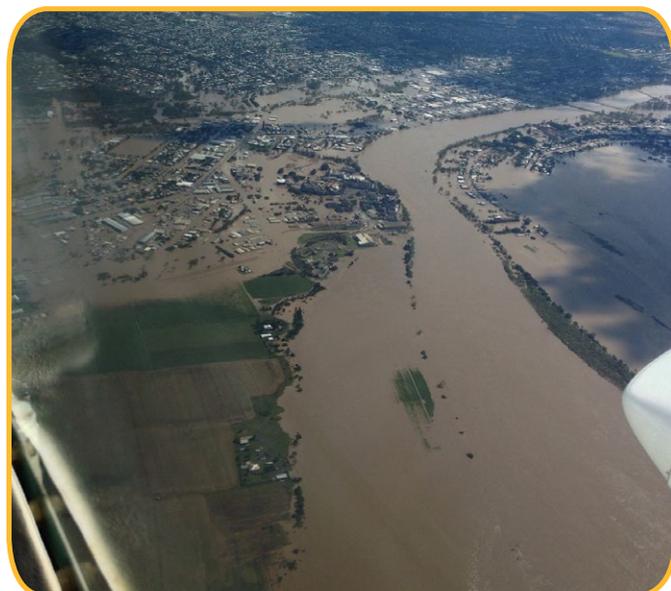
Taking Flood Mapping to a New Level

OVERVIEW

In the wake of devastating flooding in January 2013, Bundaberg Regional Council (BRC) has taken their flood mapping of the Burnett River to a new level. The Council has, for arguably the first time in Australia, delivered a publically available and easy to use flood mapping tool that ties traditional flood modelling outputs to local flood gauges in a way that the community can easily understand and make decisions on during a flood event.

SITUATION

At 3pm on 29 January 2013, the community in Bundaberg experienced the largest flood in recorded history for the Burnett River which reached a massive 9.53m at the city's flood gauge. This resulted in more than 7,500 residents being evacuated from their homes. The impact to the community was extensive, not just in the millions of dollars in damage to property and infrastructure but also to the community's ability to bounce back from natural disasters.



When the flood hit, BRC was already working on a flood study of the Lower Burnett River. These traditional flood studies and maps are primarily used for internal Council disaster management activities, understanding potential infrastructure impacts and for land use planning.

Typically a flood study produces maps of flood extent, depths, levels and velocities based on various Annual Exceedance Probability (AEP). While good for land use planning and setting habitable floor levels, they are not suitable for flood emergency management. This is because the maps have no relation to the flood gauges operated by the Bureau of Meteorology (BoM) during a flood event. The public needed to understand the expected inundation of their property based on a flood gauge level, a lesson learnt from earlier flood events in 2010/11, and again reinforced in 2013.

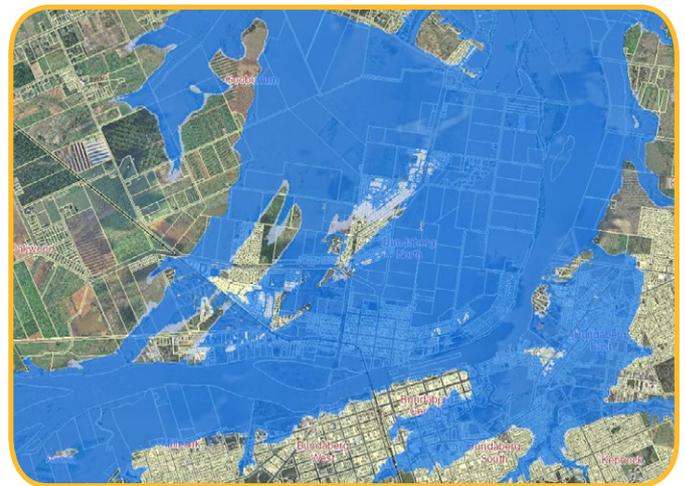
Dwayne Honor, BRC's Manager of Design explains that "The simple question everyone wants answered is – What does a given flood mean to me on my block of land?" Not being able to answer this simple question has resulted in a high level of anxiety and intense emotions within the Bundaberg community.

ACTION

Based on feedback from extensive community consultation in late 2013, Council fast tracked development of an easy to use online mapping tool to allow residents to select a flood gauge, set a flood height for that gauge and see the expected inundation for their property. BRC promised residents this online mapping tool by Christmas in preparation for the 2014 wet season.

With the pressure on to deliver this tool, BRC considered existing Council technologies unsuitable and instead engaged AAM to implement a public facing Geocortex Essentials website with a custom workflow that allows users to pick a flood gauge, set the flood height for that gauge and see the expected flooding.

Steven Bowden, BRC's GIS Team Leader explains that "the flexibility of the Geocortex Essentials workflow manager to support the concept of pick a gauge, pick a height and see the results, as well as the ability to deliver the system across a wide range of mobile devices, was key in choosing the Geocortex technology."



9.5m flood level guide over the Bundaberg area ([BRC Geocortex Viewer application](#)).

RESULT

With high levels of community anxiety it has been important for BRC to deliver an easy to use flood mapping tool that gives residents facts about what inundation they can expect on their property when a flood gauge reaches a certain height. The flexibility of Geocortex Essentials has been instrumental in BRC delivering the tool into people's homes and onto their mobile devices.

Having well modelled and calibrated flood products, tied to local flood gauges has given BRC a high level of confidence in communicating expected flood inundation to the public.

In the future the ability to expand the tool to include road closures and evacuation routes will assist the public to self evacuate and move away from flood zones during an event and improve their capacity to make evacuation decisions, further increasing community resilience.



Actual flood footage taken over the Bundaberg CBD.



AAM aircraft captured the above flooded area over the North Bundaberg area.

“The public want and need facts about a given flood. A simple map that says at this gauge height you can expect this inundation on your block and this allows the public to increase their resilience because for the first time they will be able to make decisions for themselves without having to call Council or anyone else during a flood event.”

BRC's Dwayne Honor