





New Zealand

CHRISTCHURCH Christchurch Shares Spatial Data to Manage **Disaster Recovery**

Former Mayor Bob Parker uses a brief, yet powerful phrase to describe Christchurch, New Zealand, in the hours after the earthquake of February 2011: "utter chaos."

The magnitude 6.3 earthquake severely damaged New Zealand's secondlargest city and took the lives of 185 people, making it the second-deadliest natural disaster in the country's history. Emergency response was the first priority following the earthquake, as lives were at risk. However, officials quickly transitioned to recovery mode to keep the city of 350,000 functioning.

"Once we got through those first hours of getting people out of broken buildings and the immediate rescue, the next issue was, 'Well, I've got a whole city that has no water; it has no electricity; it has no waste water system; bridges are broken, roads are beyond using. Where are the pipes? Where are the things that we need to resolve?" Parker explained.

To understand "where," Christchurch needed access to geospatial data, which has become central to modern disaster management. The ability to rapidly author, fuse, analyze, manage, and deliver data is crucial for response and recovery efforts. Standardized data from multiple sources is important, as is an extensive catalog or repository where multiple agencies can access and work interactively with the data.

A CUMBERSOME, MANUAL PROCESS

As business and information services manager, Nigel Banks is part of the team responsible for making geospatial information available across the city.



In the aftermath of the earthquake, the GIS team worked continuously to push out information.

"Our emergency requirement was to have maps; and getting this information out in visual properties as quickly as possible," Banks said. "On average, we were spending three people, somewhere between 19 and 20 hours a day, packaging and shipping information out."

The process was cumbersome and time-consuming. It involved producing snapshots of datasets in various formats and storing them on compact or digital video discs, which meant information was outdated as soon as it was produced. The city needed to free up staff resources and improve information accuracy by removing manual processes for data management and dissemination.

"We realized we had to change, so we looked to Hexagon, our partner, to help," Banks said.

FROM DISCS TO SDI

Hexagon Safety & Infrastructure donated local personnel and provided a global expert from Canada to help implement a new solution. Using this support and Hexagon's GeoMedia software, the city created a spatial data infrastructure (SDI) using web feature service (WFS) technology to make feeds of geospatial data continuously available to the various organizations involved in recovery work.

This new implementation allowed the city to share spatial data several times a day with minimal use of staff time, enabling personnel to focus on other critical needs.

"What this enabled people to do and organizations to do was pull information and view it in whatever GIS viewer they had," said Leonie Rae, development manager. "Now, this was fantastic because what this enabled us to do was provide information into one system, and then people could just pull it whenever they needed it."

RECOVERY & REBUILDING

This back-office innovation produced results on the streets of Christchurch.

"What was not so long ago a difficult, paper-based system was now a readily deployable, flexible system that's based on web distribution," said Mayor Parker. "In other words, I can get it anywhere. That's a very, very powerful system."

AT A GLANCE

» The Challenge

In the aftermath of a devastating magnitude 6.3 earthquake, Christchurch's GIS team worked continuously to push out information to support recovery efforts. However, the process was cumbersome and timeconsuming. The city needed to free up staff resources and improve information accuracy by removing manual processes for data management and dissemination.

» The Solution

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" That core of information that Hexagon gave us is now the wealth of information, the framework, and the structure for recreating the city of Christchurch." Importantly, the capabilities built during earthquake recovery have helped the city rebuild infrastructure and improve asset management.

"People need the information to rebuild this city," said Parker. "So that core of information that Hexagon gave us from the very beginning in that recovery and emergency operation is now the wealth of information, the framework, and the structure for recreating the city of Christchurch."

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