Assessing the vulnerability of local houses to climate change impacts

COUNCIL NAME
Lake Macquarie City Council

WEB ADDRESS
lakemac.com.au

SIZE
757 square kilometres

POPULATION
203,823

FUNDING PROGRAM
Building Resilience to Climate Change

Overview

The Building Resilience to Climate Change (BRCC) project helped inform Lake Macquarie City Council discussions about insurance affordability, based on analysis of the climate change vulnerability of housing stock in the area.

The project developed a methodology that aimed to create consistent and comprehensive information about the risk and exposure of housing to the increasing frequency and intensity of natural hazards including flood, storm and fire.

Background

Lake Macquarie Council is home to one of the largest coastal lakes in eastern Australia. The highly urbanised foreshore community is vulnerable to tidal inundation and projected rises in sea level. In 2013, Council participated in a pilot that looked at flood risk to housing around the foreshore of Lake Macquarie. An audit of 1300 homes collected details on structure, materials and floor height. This was overlayed with flood risk data to create a map of flood exposure, sensitivity and vulnerability.

This BRCC project built on these findings by broadening data collection methods and hazard assessment, and increasing the number of dwellings surveyed. Storm and bushfire risks as well as flooding were included, enabling a more complete, interdependent profile of climate-related risks to be considered when determining development planning, pricing measures, building design, asset management and insurance coverage.

1900 -1940 suspended timber archetype

Implementation

A result of this project was a database of 10,500 homes in Lake Macquarie. Property and building data held by council plus Google Street View and onsite assessment was used to document 3,500 homes. A trial to identify archetypes of the remaining 7,000 houses, that did not have field or Street View data, was added to previous findings.

REFERENCES

www.resilient.property

Using these different methods led to varying levels of confidence in the integrity of the database, undermining its validity with some key stakeholders and limiting its accuracy to conclusions drawn at a high level, such as streets or suburbs, instead of individual properties.

Resilience maps were produced using the Building Resilience Rating Tool developed by the Insurance Council of Australia. The tool uses local government hazard mapping and building survey data to recognise the resilience of properties. It also identifies locations where properties are at high risk and building styles that are at greater risk than others, due to poor design.

Lake Macquarie's database and the results of resilience mapping were discussed with insurers to explore if this modelling could be reflected in local insurance premiums, now and into the future.

Outcomes

Due to challenges in obtaining information and various methodologies used to assign housing archetypes, the number of assessed housing stock with reliable, usable data was less than anticipated.

However, it is hoped that an enhanced database may help to inform the development of strategic and site-specific development controls regarding the exposure of local buildings to hazards, as well as potential adaptive measures to address insurance affordability. In addition, the online mapping tool provided council staff a more user-friendly way to engage with data collected.

The outcomes of the BRCC project will help inform Council's ongoing engagement and collaboration with the community about climate change, residential resilience and local adaptation planning.

Key learnings

The importance of stakeholder confidence in the ways in which data is collected, collated and interpreted is a key learning from this BRCC project, as is the importance of continuing to refine systems to ensure ongoing improvements to the accuracy, consistency and usability of this information.

This project also highlights that engagement with business and other partner agencies needs to clearly identify agreed outcomes and recognise that trialling new approaches can impact timelines and anticipated results.

The need to engage the community about the relationship between building resilience and climate change presents an opportunity for increasing resilience and adaptive capacity.

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