

Climate hazard mapping

The Where We Build, What We Build Project

As natural hazards intensify, living expenses like energy, mortgages and insurance will get more expensive for climate vulnerable homes – that is, homes that are in high-risk areas and have not been built to mitigate those risks. This project aims to encourage building or retrofitting of homes that are climate-ready, by demonstrating that the benefits of doing so outweigh the costs.

The Where We Build, What We Build project was undertaken in the Adelaide Hills and Fleurieu Peninsula region. One of the goals of the region is to remain liveable, affordable and resilient in the changing climate, by better managing climate risks.

To help achieve this, the project explored:

1. Where We Build – the exposure of the region's existing housing to flood, heat and bushfire risks
2. What We Build – the sensitivity of the region's existing housing to those risks
3. Climate-Ready Home – the ideal specification for a climate-ready home in the region
4. Economic Analysis – the costs and benefits of building or retrofitting to climate-ready specifications, compared with existing housing stock and standards.

The project is an initiative of Resilient Hills & Coasts, delivered by Edge Environment. It was jointly funded by the Commonwealth and South Australian Governments under the South Australian Disaster Resilience Grant Program, and the Insurance Council of Australia. The scope covers Adelaide Hills Council, Alexandrina Council, Mount Barker District Council, City of Victor Harbor and District Council of Yankalilla.

Mapping climate hazards and housing vulnerability

The combined outputs of climate hazard hotspots and house resilience mapping illustrate the overall vulnerability of the housing stock in the region to flood, bushfire and extreme heat.

Climate hazard hotspot mapping

Allotments with high exposure to flood, bushfire and extreme heat were identified in the following focus areas:

- Mount Barker District Council – Mount Barker & Nairne
- Alexandrina Council – Strathalbyn, Goolwa, Hindmarsh Island, Middleton, Port Elliot
- City of Victor Harbor – Victor Harbor
- District Council of Yankalilla – Yankalilla & Cape Jervis
- Adelaide Hills Council – Stirling, Crafrers & Aldgate (all rural living).

The Government of South Australia's bushfire protection areas dataset was used to identify those areas with high bushfire exposure. The bushfire dataset excluded urban areas. A three-kilometre buffer area was added to the perimeter of each high bushfire exposure area to account for the ability of an ember to travel this distance.

The Insurance Council of Australia's iLEAD dataset was used to identify areas of possible flood risk. High flood exposure areas were those areas identified as "Flooding Likely" or having any probable flood risk.

Extreme heat areas were identified using land surface temperature data collected by satellite. Any areas registering as 32°C land surface temperature or above were considered to have high extreme heat exposure.

House resilience mapping

Mapping layers were created based on common regional housing types and their resilience ratings (see 'Archetypes' factsheet). The resilience ratings identify the resilience (or vulnerability) of existing homes to flood, bushfire and extreme heat.

Where we build. What we build.

Access to online mapping

The resilience, hazard, and property level data can be used to help identify priority areas for the application of risk mitigation measures by councils. The mapping tool only presents the towns considered for this study.

Resilience mapping generated from the project can be accessed at <http://edge.endevgeo.com/> (project: wwbwwb).

Further information

This factsheet is part of a series. For more information on building or retrofitting more climate resilient homes in the Adelaide Hills and Fleurieu Peninsula region, read the other factsheets or the full project report, available online.

Interpreting the mapping

The online mapping tool allows users to view individual and combined hazard maps, as well as resilience ratings of homes located in hotspots.

Using the side bar to navigate, users can view:

- High hazard exposure areas to
 - bushfire risk
 - flood risk
 - extreme heat risk
- High exposure areas to combined hazards
 - hotspots considering high exposure to bushfire and flood
 - hotspots considering high exposure to bushfire, flood and extreme heat
- Resilience ratings of dwellings located in hotspots considering bushfire, flood and extreme heat.

