

Development of a residential planning tool to minimise house loss from bushfire in the Urban Interface

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Research Aim

The aim of this research is to develop a planning tool which can be used in conjunction with a risk assessment model, to assess the benefit of developing improved residential areas to minimise house loss from bushfire in the Urban Interface.

The Residential Planning Tool

The planning tool is used to define the residential area which is subject to the risk assessment model. The options which are available to the user to implement in a residential area include:

- Provide for an Asset Protection Zone (Planning Bushfire Protection, NSW and WA)
- Assign minimum house to house separation distance as in BCA
- Apply house construction standards as detailed in AS3959:1999
- Define road characteristics to determine accessibility and response time to a house
- Define demographics of the residential area

Once these options have been selected this sets the residential area which is subject to the risk assessment model. But which risk assessment model to use?

Risk Assessment Method

While the output of the residential planning tool defines the residential scenario, a risk assessment model is required to quantify risk. To quantify risk across a residential area, a risk assessment model must be used which is able to support the residential scenario defined in the residential planning tool. Currently, the CSIRO are developing a risk assessment model which can be used to assess risk to any number of houses in the Urban Interface.

Planning Tool and Risk Assessment

The residential planning tool complements the CSIRO risk assessment model by setting the residential scenario which can be assessed. The options available in the planning tool are largely determined by standards and guideline documents, while the format of the output is determined by the required input to the CSIRO Risk Assessment Model.

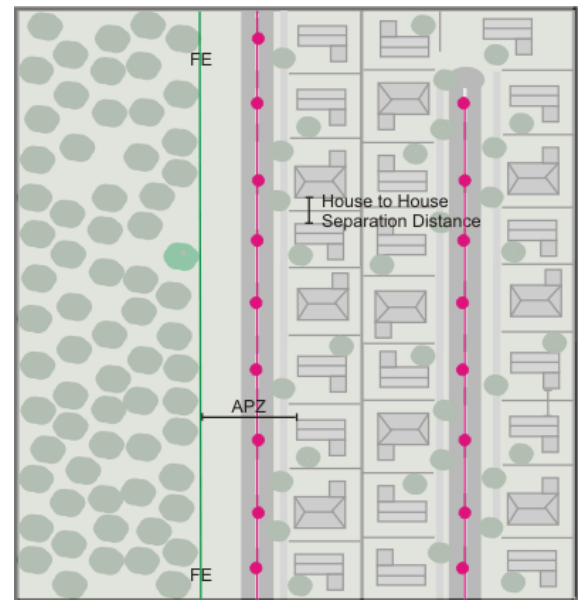


Figure 2: Residential Scenario

(APZ) Asset Protection Zone

(FE) Forest Edge

● Accessibility/Suppression Response Analysis to each house

🏠 House Construction Level 1

🏠 House Construction Level 2

🏠 House Construction Level 3

🏠 No Construction Level

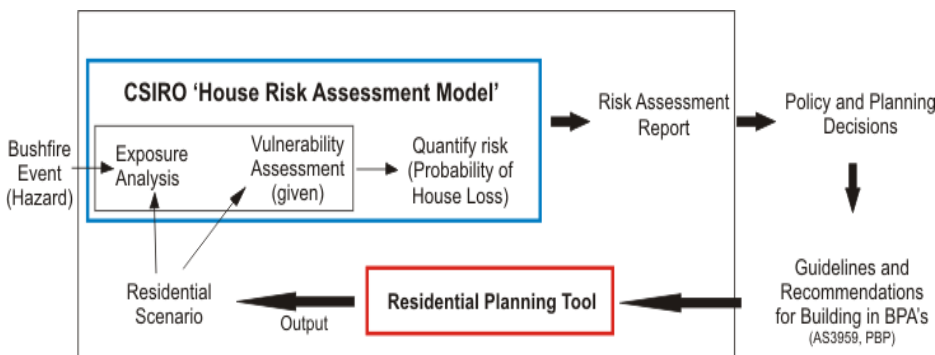


Figure 2: Link between standards, planning tool and risk assessment model

Through the use of the residential planning tool a number of residential scenarios can be designed based on guidelines and standards. By making the residential planning tool compatible with a risk assessment model the benefit of implementing various standards and guidelines outlined in regulatory documents can be quantified.

The following have been used to determine options available in the Residential Planning Tool:

- Australian Standard AS 3959:1999 (2001). Construction of Buildings in Bushfire Prone Areas
- Building Code of Australia (2008)
- Planning for Bushfire Protection (2006), Rural Fire Service, NSW
- Planning for Bushfire Protection (2001), Department of Planning and Infrastructure, WA.