

# Using Neighbourhood Scale Risk Assessment to quantify the benefit of implementing BPM's to an Urban Interface Zone

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## Research Aim

The aim of this research is to use neighbourhood scale risk assessment to quantify the benefit of implementing Bushfire Protection Measures to an urban interface zone.

### 1. Neighbourhood Scale – Define Geographical Extent of Influence on House

To determine the geographical extent of influence on a house an exposure analysis is used to determine the elements within the urban interface zone which have the potential to impact on a house. This determines the elements which are to be considered and defines the geographical extent which is required for risk assessment.

### 2. Bushfire Protection Measure Tool

Determines compliance of an Urban Interface Zone with Bushfire Protection Measures (BPM's).

- The tool assesses an Urban Interface Zone against requirements for an APZ, Access, Building Construction Standards and Water, Electricity and Gas Supplies.
- The tool uses a Geographical Information System (GIS) as the interface for data input (Feature Classes), analysis (Scripts) and display of results.
- Each BPM analysis was developed into a Script using the specifications from 'Acceptable Solutions' in the PBP Guide (RFS, 2006). The scripts obtain the necessary information from the input feature classes and perform geoprocessing tasks. The scripts output the results to an *ArcMap* document.

While the BPM Tool can be used to determine changes which are required to achieve compliance with BPM's, risk assessment is required to quantify the benefit of implementing change.



Figure 1: Output from BPM Tool (APZ and Access Compliance)

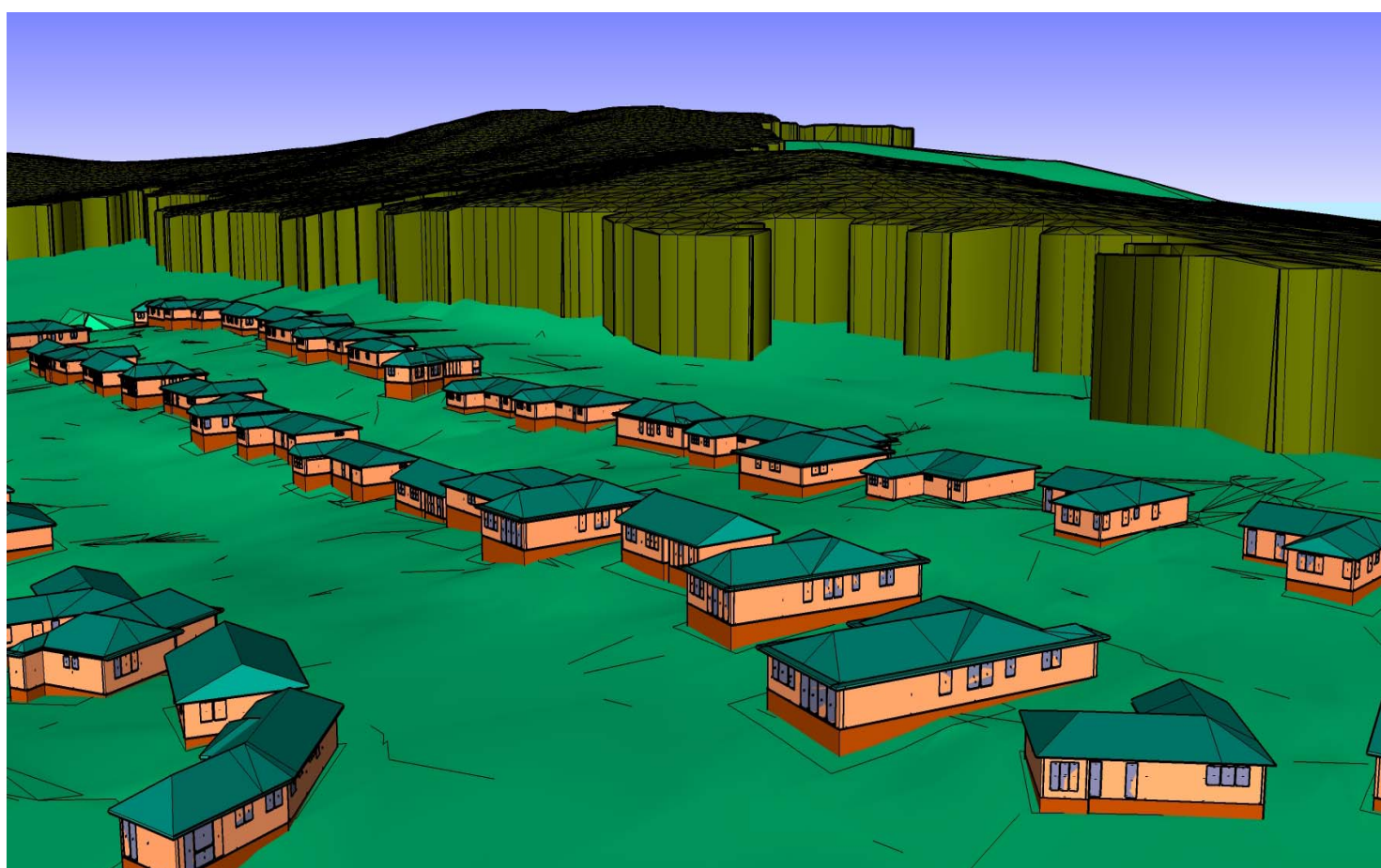


Figure 2: Development of a 3D scenario used for exposure analysis and risk assessment

### 3. Neighbourhood Scale Risk Assessment

- Using the neighbourhood extent defined through exposure analysis, risk assessment is performed on the study area.
- The risk assessment determines the probability of house loss given certain fire conditions.
- Various urban interface scenarios were developed from the output of the BPM Tool. The scenarios reflect changes implemented to the study area to achieve compliance with BPM's
- Scenario's are 3D models of the study area with terrain, vegetation, houses, fences etc.
- The benefit of implementing BPM's is determined through the difference in Pr (House Loss) of the original scenario against the revised scenario.