

Bushfire Evacuation Risk Assessment – Deferred Areas Methodology

BACKGROUND

Background Study - Managing Bushfire Risk, Now and Into the Future

As part of the preparation of the *Ku-ring-gai Local Environmental Plan 2015*, Council prepared a background study – *Managing Bushfire Risk, Now and Into the Future* (March 2012). One of the aims of this background study was to better understand the future risk of bushfire in the Ku-ring-gai local government area.

In order to reduce the risks to people and property from bushfire, the study made a number of recommendations which focused on land use planning and development controls, such as zoning, lot sizes and lot depths.

In order to assess evacuation risk, the study considered research paper undertaken by Thomas Cova (2005) *Public Safety in the Urban-Wildland Interface: Should Fire-Prone Communities Have a Maximum Occupancy?* The focus of the paper is evacuation egress or accessibility out of an area in an evacuation. The research paper identified a range of factors that affect the capacity to evacuate during bushfire, including the capacity of the road, the type of land use and the number and location of exit roads.

The Cova research paper proposes a minimum number of exit roads based on the number of households in a sensitive area:

Number of households	Minimum number of exit roads	Maximum number of households per exit
1-50	1	50
51-300	2	150
300-600	3	200
601+	4	

Table 1 - Cova (2005) Proposed Minimum Exits Table

The Cova research paper states that *'Economic pressure is strongly toward developing fire-prone communities to a density beyond which the egress system can safely handle in an urgent wildfire evacuation'*.

Within Ku-ring-gai, development has occurred in a number of locations where the local community is surrounded by extensive areas of bushfire prone vegetation, often with inadequate road networks to enable safe evacuation. Pressure to increase development in these areas has led to increasing evacuation risk to residents, including a high number of elderly and very young residents.

Land Use and Evacuation Risk

Land uses such as child care centres, schools, retirement villages, housing for seniors or people with a disability, group homes, hotels, motels or other tourist accommodation and hospitals provide for people who are particularly vulnerable during a bushfire, and increase evacuation risks in the event of a bushfire. These uses are identified as a 'special fire protection purpose' under Section 100B of the *Rural Fires Act 1997* and *Planning for Bushfire Protection 2006*. The Rural Fire Service (RFS) has noted that occupants of these types of developments are highly vulnerable to the effects of bushfire, are difficult to evacuate and are more susceptible to smoke impacts, resulting in additional demands on emergency services, particularly if evacuation is required. Section 4.2.3 of *Planning for Bushfire Protection 2006* details the following specific objectives for Special Fire Protection Purpose Developments:

1. Provide for the special characteristics and needs of occupants as they are more likely to be adversely affected by smoke or heat while being evacuated.
2. Provide for safe emergency evacuation procedures

Methodology

The background study *Managing Bushfire Risk Now and Into the Future* identified zoning as a means of managing the risks associated with bushfire and evacuation. The study recommended that environmental zones – E3 Environmental Management and E4 Environmental Living - could be applied to prevent further development of incompatible land uses (such as child care centres) in areas identified as being of high evacuation risk during a bushfire event.

The background study made the recommendation to apply the environmental zoning to sites that were:

- Identified as 'extreme' bushfire risk using the Bushfire Risk Management Plan 2010 (Hornsby and Ku-ring-gai Councils); AND
- Identified within the bushfire evacuation risk area (SEPP 5 Exclusion Zone) on the Bushfire Prone Land Map and Bushfire Evacuation Risk Map; AND
- The area does not meet the exit criteria proposed by Cova (2005).

This methodology was used to identify the areas and properties that were considered to be of high evacuation risk during the event of a bushfire and as such the environmental zoning was applied to these areas that met the methodology criteria within the *Draft Ku-ring-gai Local Environmental Plan 2013*.

Following the exhibition of the *Draft Ku-ring-gai Local Environment Plan 2013* consultation was undertaken with the RFS and Police who advised that in the event of a bushfire, emergency services would be looking at evacuating more than those properties identified as 'extreme' bushfire risk under the Bushfire Risk Management Plan 2010 (Hornsby and Ku-ring-gai).

As a result of this advice, the methodology was revised so that the areas and properties that were identified to be of high evacuation risk and should have the environmental zoning applied were:

- **Land identified as bushfire evacuation risk area (SEPP 5 Seniors Exclusion Zone) on the Bushfire Prone Land and Bushfire Evacuation Risk Map**

- **The area does not meet the exit road criteria proposed by Cova (2005)**

Deferred Areas Planning Proposal

Due to the change to the methodology, the areas that met the revised methodology criteria were deferred from inclusion within the *Ku-ring-gai Local Environmental Plan 2015* in order to allow Council to re-exhibit the proposed changes prior to making a final decision within these areas.

A Planning Proposal to include these 13 deferred areas into the *Ku-ring-gai Local Environmental Plan 2015* was prepared. The 13 areas the subject of the Planning Proposal are all surrounded by large areas bush fire prone land, and with only a single or limited exit roads from the catchment area. Some areas, like North Turramurra also have a high number of retirement village, schools and hospital which are particularly vulnerable and pose additional difficulties in the event of evacuation from bushfire events.

The Planning Proposal utilised the revised methodology in order to identify areas and properties that were of high evacuation risk during the event of bushfire, and as a result applied the E4 zone as a planning control in order to limit further development to incompatible land uses and limit further increases in residential density by limiting further subdivision.

The Planning Proposal involved extensive consultation with the NSW RFS and Police. The Planning Proposal was gazetted by the Department of Planning in January 2018.