

# The Forest Drive Bushfire Management Plan: A Community Group Initiative

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## Abstract

This project evolved from the attendance by concerned Elanora residents at Gold Coast City Council's presentation of their strategy for "reducing the risk of fire to residential properties". Cuong Tran of the SEQ Fire & Biodiversity Consortium also spoke at the meeting on the desirability of individuals preparing their own Fire Management Plans.

A subsequent Council-endorsed workshop conducted by Cuong Tran galvanised Elanora residents into forming a community group with the objective of developing a meaningful, creditable, and useful local Fire Management Plan that could not only assist in saving homes from bushfire, but also preserve and possibly even enhance the surrounding bushland environment. This eventually culminated in the Forest Drive Bushfire Management Plan.

The FMP represents a practical application of the SEQ Fire & Biodiversity Consortium's 'Individual Property Fire Management Planning Kit'. The project involved extensive research, data collection and compilation; with valuable assistance provided by numerous organisations and individuals.

The unique feature of the Forest Drive Fire Management Plan is the design of the integrated software database solution to compile, correlate and summarise collected data, and utilise this data in an integrated risk assessment model. Applying the principles of Australian Standard AS3959 to numerically rate hazard and management criteria, the model facilitates the evaluation of the impact of a whole range of fire hazard factors, and allows the quantitative assessment of alternative fire management measures.

## Introduction

A group of Forest Drive residents became concerned about Council's proposed clearing of bushland in their area. There was a general view that Council was primarily concerned with public liability issues and not necessarily the interests of residents.

It was decided to canvas local opinion, and a subsequent door knock survey revealed many people in the area were interested in the joint issues of fire and bush protection. A meeting of concerned residents resulted in the formation of the Forest Drive Bushfire Action Group (Group). The Group's founding objectives were to work towards minimising the bushfire risk while at the same time preserving the surrounding bush.

An information gathering phase was undertaken that included contacting Cuong Tran of the SEQ Fire and Biodiversity Consortium. A workshop was subsequently conducted by Cuong Tran, attended by over 20 local residents.

Based on the workshop, the Group decided to undertake their own Fire Management Plan (FMP) to determine the best interests of the community in terms of both fire and bush protection courses of action. It was intended that this would be generally based on the SEQ Fire & Biodiversity Consortium's 'Individual Property Fire Management Planning Kit' (SEQF&BC Kit).

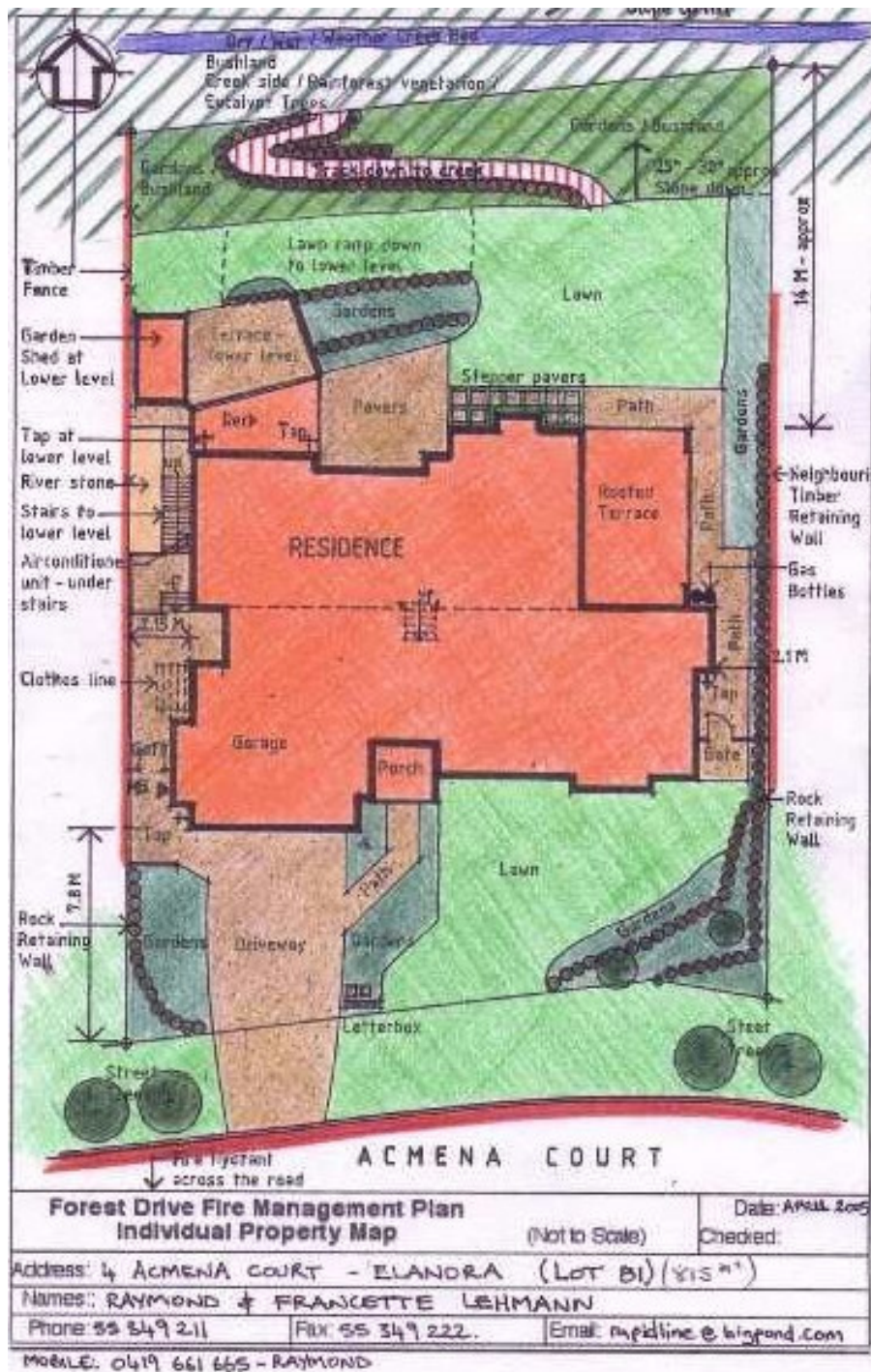
This preliminary FMP, limited to Forest Drive Elanora and connecting streets and surrounding bushland, represents the culmination of the efforts of concerned residents, and the invaluable assistance of many others.

## Methodology

The SEQF&BC Kit provided the initial basis for the FMP. The SEQF&BC Kit prescribes a step-by-step process in order to optimise fire management measures for individual properties.

Because the SEQF&BC Kit was not intended for multiple properties, a modified approach was required to take into account that there exist over 120 individual owners of property within the Forest Drive local area, and that a large proportion of the bushland is owned by Council who have not directly participated in the preparation of the FMP.





A community awareness campaign was implemented that aimed to acquire Individual Property Maps (IPMs) adhering generally to the principles of the SEQF&BC Kit. For this purpose a template document was produced and distributed that included comprehensive instructions, an example pro forma map and even extended to supplying coloured pencils. Despite an intensive door knock appeal less than 10% of residents provided an IPM. This disappointing result required the adoption of the alternative strategy outlined below.

The IPMs collected (see Figure 1) did reveal extensive similarities between the residential properties as would be expected in an urban residential development. Consequently, a less comprehensive but more extensive individual property inspection was carried out by members of the Group. This inspection concentrated on assessing predetermined critical hazard factors developed from combined research using the Fire Management Workshop, the SEQF&BC Kit, AS3959, and other sources. Despite limited property access, it is believed the recorded findings achieve generally reliable and qualitatively consistent evaluation of the critical factors affecting the fire hazard susceptibility of all the residential properties encompassed by the FMP.

**Figure 1.** One of the best examples of a submitted Individual Property Map based on the template provided.

As the FMP project progressed there emerged an awareness that for a fire management tool to be effective, it also needed to be dynamic in nature. The numerous influencing hazard and resource factors for each property and bush area could each change at any time, and it was considered vital that these changes could be readily reflected in the FMP. Fortunately suitable programming skills by a Group member enabled the concurrent development of a suitable electronic database solution to address this issue, and to undertake the necessary extensive data manipulation and calculations.

The assessment of fire hazards and the implementation of management measures for a number of individual properties required a rating system to allow meaningful comparisons and the development of priorities. Although the SEQF&BC Kit does outline a rating method for assessing fire risks, this is not integrated with the determination of consequent fire management priorities. The Forest Drive FMP developed a unique integrated Fire Management Assessment process applied to each individual property which considered both hazards and management (protection/suppression) measures. The Fire Management Assessment allowed the comparison of the current fire risk with various proposed fire



management recommended actions (see Figure 2). It should be noted that any rating system developed is relative and not absolute, due to the numerous unquantifiable contributing factors and variances that exist.

The process of attaching a numerical rating to each hazard and protection/suppression type is inherently subjective in nature, and hence this preliminary design has determined that each hazard has equal importance. This weighting can be easily modified.

<b>Fire Management Assessment</b>		Property Inspection Date: 23 May 2005
<b>Hazard Types</b> <small>info</small>	<b>Yes/No</b>	<b>Rating</b>
Predominant bush located less than 15 meters from main building	<input type="checkbox"/> Yes	1
Building located upslope from bush (>10 degrees)	<input type="checkbox"/> Yes	1
Combustable construction (open under floors/decks/eaves etc)	<input type="checkbox"/> No	0
Roof and/or gutters blocked with vegetation etc	<input type="checkbox"/> Yes	1
Long grass/extensive shrubs etc surrounding main building	<input type="checkbox"/> No	0
Other Hazards - Identify: Gas Bottle	<input type="checkbox"/> Yes	1
<b>Assessed Initial Bushfire Attack Category:</b>		<b>High</b>
		<b>4</b>
Does Council owned land comprise the predominant bush ?	<input type="checkbox"/> Yes	
Swimming Pool ?	<input type="checkbox"/> No	
<b>Protection/Suppression Recommendations</b>	<b>Yes/No</b>	<b>Rating</b>
Clean roof and gutters	<input type="checkbox"/> Yes	1
Mow grass	<input type="checkbox"/> No	0
Purchase fire fighting kit	<input type="checkbox"/> Yes	1
Purchase petrol firefighting pump for swimming pool	<input type="checkbox"/> No	0
Install Roof sprinklers	<input type="checkbox"/> No	0
Other protection - Identify: Remove gas bottle during fire	<input type="checkbox"/> Yes	1
<b>Bushfire Attack Category after Recommendations only adopted:</b>		<b>Low</b>
		<b>1</b>
<b>Bushfire Attack Category after Council Plan only implemented:</b>		<b>High</b>
		<b>3</b>

**Figure 2.** Cropped screenshot from the database showing the Fire Management Assessment process for an individual property. The Yes/No checkbox allow quick and accurate data input.

To achieve the highest possible degree of credibility, the rating system was developed with reference to AS3959. Because of the new building construction focus of AS3959, the number of criteria evaluated were increased in line with the much more comprehensive and relevant hazard and management tasks outlined in the SEQF&BC Kit. The rating system relies on a weighted numerical value for each hazard and management criteria, positive values for hazards and negative values for management measures. These values are aggregated to achieve relative outcomes. This was achieved by adopting the AS3959 Section 2: Table 2.1 descriptive categories concept i.e. 'Low', 'Medium', 'High'. An 'Extreme' category was considered unnecessary as 'High' was determined to be an unacceptable outcome in any case. The database was also calibrated to correlate with the AS3959 categories using sample data from Section 2 of the standard.

### Outcomes

The database Fire Management Assessment process for each property initially calculates the 'Assessed Initial Bushfire Attack Category' outcome (Figure 2). For the purposes of this exercise it was arbitrarily determined that a minimum 'Medium' result meant that no protection/suppression measures were required.



Council's proposal to clear bushland in the area has also been integrated into the Fire Management Assessment process, to ascertain the likely benefits it could have for individual properties. The 'Bushfire Attack Category after Council Plan only Implemented' outcome (Figure 2) for each individual property provides the Fire Management Assessment after the Council's proposed bush clearing. The assessment is a simple calculation based on the principles of AS3959 and does not rely on any of the subjective ratings within the FMP made with respect to construction or property specific hazards.

The determination of appropriate fire protection and/or suppression options is not covered in AS3959. The SEQF&BC Kit does provide extensive general information, and this and other research has been utilised to prepare the list of measures that individual property owners might take to mitigate the identified hazards. Each measure has been selected on the basis of its ability to address the respective hazard, and the feasibility of property owners actually achieving compliance. The database apportiones these measures depending on their relevance to the input data. For example the purchase of a diesel pump is only applicable if the property has a swimming pool.

The 'Bushfire Attack Category after FMP Recommendation only adopted' outcome (Figure 2) for each individual property provides the final Fire Management Assessment outcome after the FMP Recommendations only are adopted.

All the individual assessment data is also summarised in the database in a table for perusal and further analysis of the Fire Management Assessment criteria and outcomes (see Figure 3). This provides a ready comparison between alternative considered management measures e.g. Council's proposal verses the FMP Recommendations.

Hazards						Initial Rating	Property affected by GCCC Plan	Rating after GCCC Plan	FMP Recommendations						Rating after FMP Recs.
Close Bush	Up Slope	Open Const.	Blocked Gutters	Long grass	Other				Clean roof	Mow Grass	Fire fight Kit	Purchase pool pump	Install sprinklers	Other	
Yes	Yes	Yes	Yes	Yes	No	High	No	High	Yes	Yes	Yes	No	No	No	Medium
Yes	Yes	Yes	Yes	Yes	No	High	No	High	Yes	Yes	Yes	No	No	No	Medium
Yes	Yes	Yes	Yes	No	No	High	No	High	Yes	No	Yes	No	No	No	Medium
Yes	Yes	Yes	Yes	No	No	High	No	High	Yes	No	Yes	No	No	No	Medium
Yes	Yes	Yes	Yes	No	No	High	No	High	Yes	No	Yes	No	No	No	Medium
Yes	Yes	Yes	Yes	No	No	High	No	High	Yes	No	Yes	No	No	No	Medium
Yes	Yes	Yes	Yes	No	No	High	No	High	Yes	No	Yes	No	No	No	Medium
Yes	Yes	Yes	No	Yes	No	High	No	High	No	Yes	Yes	No	No	No	Medium
Yes	Yes	Yes	Yes	No	No	High	No	High	Yes	No	Yes	No	No	No	Medium
Yes	Yes	Yes	Yes	No	No	High	No	High	Yes	No	Yes	No	No	No	Medium
Yes	Yes	Yes	Yes	No	No	High	No	High	Yes	No	Yes	No	No	No	Medium
Yes	Yes	Yes	Yes	No	No	High	No	High	Yes	No	Yes	No	No	No	Medium
No	Yes	Yes	Yes	Yes	No	High	No	High	Yes	Yes	Yes	No	No	No	Low
Yes	No	Yes	Yes	Yes	No	High	No	High	Yes	Yes	Yes	No	No	No	Low
Yes	No	Yes	Yes	Yes	No	High	No	High	Yes	Yes	Yes	No	No	No	Low
Yes	Yes	No	Yes	Yes	No	High	No	High	Yes	Yes	Yes	No	No	No	Low
Yes	Yes	Yes	Yes	No	No	High	Yes	High	Yes	No	Yes	No	No	No	Medium
Yes	Yes	Yes	Yes	No	No	High	Yes	High	Yes	No	Yes	No	No	No	Medium

**Figure 3.** Cropped screenshot from the database showing the Fire Assessment Summary screen.

## The Future

It is recognised that the concept of an electronic database Fire Management Plan is in its infancy, however the fundamental principles of the Forest Drive FMP are believed to be sound (based on AS3959 and the SEQ Fire and Biodiversity Consortium Individual Property Fire Management Planning Kit). Further development with the assistance of Council and the Fire Service has the potential to produce an indispensable fire assessment and management tool for the analysis of current fire risks, qualitative evaluation of alternative management strategies, and provision of up-to-date critical information to assist in the onsite management of an actual fire event.

## References

South East Queensland Fire and Biodiversity Consortium: Individual Property Fire Management Planning Kit  
 Australian Standard AS3959-1999: Construction of buildings in bushfire-prone areas