Toowoomba escarpment residents' preparedness for storm and bushfire, and their understanding of bushfire preparedness engagement

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Contents

Key findings - answering the research questions

1. How aware are people in this area of the bushfire threat and the bushfire season?
3. What levels of risk do they see in their particular situation?

People in both areas of the study were vague on the when bushfire season starts, and therefore when to start preparation. The largest group thought bushfire season was September to about March, which means they will realise too late that it is time to ramp up bushfire preparation. While the sample size prevented analysis of whether perceptions of risk matched reality, faulty perceptions could be seen in comparisons of the risk perception with the distance to bush. Most people living within 100m of the bush considered their risk of bushfire low to moderate. Generally, all of the study group perceived their bushfire risk to be low to moderate, with the exception of the Vayro Road people who were all aware of their risk. This was even though 27 of the interviews were undertaken during August before summer rains had started after a particularly dry period.

2. How aware are people in this area of storm threat and the storm season?
3. What levels of risk do they see in their particular situation?

For storm, 27 people considered their risk of damage from storm to be low or moderate. Interviewees acknowledged the regularity of storms (two even thought that storm season could now be all year round), but seemed to discount the risk of a damaging storm, even though storms of this type have been experienced in the past ten years in or near Toowoomba.

4. What do they see as their major risk, and why?

Overall, the study group estimated the risk for storm and bushfire to be roughly the same, with most people identifying their risk as low to moderate. This equated to 26 of the 33 for bushfire and 27 for storm. Storms are more frequent in this area, and interviewees spoke with more familiarity and knowledge of storm behaviour, which might cause them to cognitively minimise the concern that a storm might cause for them as opposed to the more unfamiliar bushfire. Bushfire in the escarpment area, particularly on the southern side of Toowoomba, had a lower estimation of risk – respondents seemed to compare probability with impact to come up with a low estimation of risk.

5. How much do they prepare currently for severe weather events such as bushfire and storm?

The study showed that levels of preparation were low to moderate, with the Hodgson Vale people less likely to undertake more than moderate preparations for either type of event. We found also that people were likely to over-estimate their level of preparedness against what they had actually done to prepare. None of the respondents had completed all of the preparation activities that identified basic, moderate or advanced levels of preparation.

One of the most significant findings was that people did not develop a plan for evacuation, even after attending a fire information meeting at which a detailed plan was urged. Most

had a firm idea that leaving involved getting in the car and going, with no thought to the process of leaving the house, what to take, evacuation routes or an evacuation destination.

Most preparation for the group involved basic activities such as keeping the house clear of combustible material, lawns mowed and gutters cleaned. Very few had a mental or written plan for either storm or bushfire. Fewer preparation activities were undertaken for storm than bushfire across the sample.

6. Is preparation in response to an approaching season, or specific events?

Triggers for more than general 'tidy-the-garden' preparation were external cues such as signs for a fire information meeting, brochures in the mail or the weather (hot and dry for bushfires and approaching storms for storms). Storm reminders sent with their accounts by insurance companies and Ergon Energy were also effective reminders, but not necessarily motivators for preparation.

7. What are the most effective motivators for bushfire preparedness?

This was a question that was not well answered by the study as respondents gave a wide range of answers. It seemed that not one single aspect triggered preparation activity, but a combination of things accumulated to the point of realisation of fire season for respondents. These aspects included:
- Weather – hot, dry weather at the end of winter
- Previous bushfire experience in other places
- Meeting a someone who had been involved in a serious bushfire near Canberra
- Seeing the signs for the QFES information meetings in August
- Sustained contact by QFES staff in streets such as Vayro Road and Dau Road, where annual street meetings are held
- Experience as a volunteer firefighter
- Desire to keep their place tidy and accessible
- Activity by neighbours
- Seeing or hearing about bushfires in other parts of Queensland on the news
- Reference to bushfire preparation on the radio
- Seeing the FDR signs – although none of the respondents said there was a single day where seeing the sign prompted them to come home to prepare, several mentioned that they kept an eye on the sign, and would see it creeping up to the point they realised it was bushfire season

While motivations for preparation were not clear, obstacles to preparation were. The most often reported obstacles were:
- Not believing the level of risk was worth the effort
- Cost
- Too busy (especially in Hodgson Vale)
- Hadn't got around to it (especially in Hodgson Vale)
- Perceived restrictions on vegetation removal (especially in Hodgson Vale)
- Not thinking it would make a difference
- Not sure what to do
- Physical difficulty doing the work

8. What are the key concepts that residents took away from public information meetings?

Residents who attended the meetings took away understanding:
- That fire behaviour is faster and more unpredictable than they thought (and therefore more fightening)
- That a plan for dealing with fire is very important
- That more preparation would be necessary
- Where to get more information on preparation
- That preparation should involve organising copies of precious documents either stored offsite or put into an evacuation kit
- Where to tap into sources that provide alerts and more information on incidents
- Leaving early is imperative (although they left the meeting without a proper understanding of what leaving early looked like)
- Of the three level warning protocol Advice. Watch and Act. Emergency Warning.
-

9. What action did they undertake after attending the meetings?

The actions undertaken as a result of the meetings were:
- Cleaning the gutters (n=1)
- Tidying up the yard (2)
- Arrange a meeting with Inspector Brown for advice (4)
- Develop a mental plan where none had existed (1)
- Developed a written plan (2)
- Talked about a plan with family (3)
- Ensuring access for fire trucks (1)
- Creating a bushfire evacuation kit (3)
- Get onto QFES Facebook page (3)
- Download apps (2)
- Put together a fire protection kit (1)
- Got a battery operated radio (2)
- Determine evacuation process (2)
- Installed garden sprinklers (1)

10. What concepts did they miss or misinterpret at the meeting?

There were a few unusual ideas that emerged from the meetings:
- That evacuation is something that happens on the spur of the moment and is a fly-by-the-seat-of-the-pants activity
- It's not applicable to me – too far from the Range for anything to happen here
- Rural background equates to fire commonsense and knowledge
- Triple 0 would be a source of information
- Agencies would knock on the door to trigger evacuation
- Refusal to believe that Officers were presenting at the meeting that evacuation is recommended on Extreme and Catastrophic fire danger days BEFORE a fire starts

A key idea that was overlooked by both Hodgson Vale and Highfields groups was:
- That the evacuation process requires a plan as much as protecting the house requires a plan

1.   Background

This study has been undertaken as a result of interest by QFES Assistant Commissioner Steve Smith in the Toowoomba Escarpment community's understanding of bushfire preparedness, the level of preparedness of this group of residents, and effective methods of engagement for bushfire preparedness.

It attempted to examine these three topics with funding secured by University of Southern Queensland. It involved a review of literature in the fields of hazard preparedness and risk perceptions in Australia, and community engagement in emergency management. Following the literature review, interviews were conducted with 33 people during the bushfire season in Hodgson Vale and Highfields to examine their risk perceptions, preparedness activity and ideas about roles and responsibilities of fire services and individuals. A second batch of interviews was held with nine people who attended QFES engagement meetings in both areas.

This document reports the results of the two sets of interviews. While the two samples are small, this report gives some valuable insights into the stages of preparation of both communities, and some leads on engagement material and techniques for the 2018 bushfire and storm seasons.

2.   Aims

The aims of this project are to:
- Find out the levels of bushfire preparedness in the Toowoomba Escarpment community
- Determine the most effective community engagement practices to motivate people to prepare
- To measure any change in the levels of preparedness after the community engagement program is undertaken.

The first two aims of the research were realised and the results reported in this document. The third aim, to measure change in levels of preparedness before and after the engagement meetings were held, was not realised because of difficulties recruiting respondents for the second stage of the project. However, insights on what people did after the meetings were discovered.

3.   Oversight of the project

A reference group will oversee the project and provide advice and comment at each stage of the project. The reference group members are:
- Megan Stiffler, A/Chief Superintendent, South Western Region
- Timothy Chittenden, Rural Fire Service Area Director -Toowoomba
- Michael Welsh, Rural Fire Service Bushfire Safety Officer – South Western Region
- Tracey Brown, QFES Community Engagement Officer, South Western Region

4.   Research questions

1. How aware are people in this area of bushfire threat and the bushfire season?
2. How aware are people in this area of storm threat and the storm season?
3. What levels of risk do they see in their particular situation?
4. What do they consider is their major risk, and why?
5. What do Queenslanders think preparedness for bushfire and storm consist of?
6. How much do they prepare currently for severe weather events such as bushfire and storm?
7. Is any preparation in response to an approaching season, or specific events?
8. If they do reach a certain level of preparedness for either of these, what are the triggers for this activity?
9. What are the most effective motivators for bushfire preparedness?
10. What are the key concepts that residents took away from public information meetings?
11. What action did they undertake after attending a meeting?
12. What concepts did they miss or misinterpret at the meeting?

5.   Review of previous research: risk and preparedness

Key findings

- Very little research has been conducted on how people look at storm risk or getting ready for storms
- Experience does not necessarily translate into motivation to prepare for most hazards except cyclones, although in many cases it helps
- Previous research confirms that if people decide they are not at risk, they will not look for, or absorb information on getting ready, and won't see the point in getting ready
- People underestimate the potential severity of bushfires
- People overestimate the effect of their preparation for bushfires
- Bushfire preparation activity can be classified into groups – these can be based on potential effect (basic, moderate or advanced), timing (long term or short term preparation) or purpose of the activity (safety planning, preparation for leaving, preparation for defense, reducing danger to the house, reducing house vulnerability)
- People can identify a good range of preparation activities, but they don't do these at home
- People living in bushland-urban interface areas can be least aware and least prepared
- The term 'leaving early' is often interpreted as leaving when the subjects see smoke
- Obstacles to preparing for bushfire include cost, physical ability, skill, knowledge, low perception of risk, lack of time, lack of someone to help
- There is a general lack of knowledge of bushfire preparation or warning messaging and what messages mean
- Agencies are the preferred source of information about preparedness and are often expected to pro-active preparation activity
- 'Commonsense' is relied on by many people rather than official sources for preparation guidance, even when a bushfire approaches
- In flood, location determines risk perceptions.
- People weigh up likelihood and impact when interpreting their risk

The way people perceive their natural hazard risk and their level of preparedness for storm, flood, bushfire or cyclone season has been a source of frustration for emergency agencies for many years. Even in Victoria and New South Wales, states that experience serious bushfires each year, populations discount their risk of bushfire to the point where they do nothing to prepare until a bushfire arrives, and even then do not prepare to a level that reduces the risk of damage to their property (1, 2). In less experienced communities (such as the east coast of Tasmania in the 2006 bushfires), (3), this situation is replicated: people prepare for a bushfire when the fire approaches rather than at the start of bushfire season.

This section will review natural hazard risk perception and preparation by communities, with particular focus on bushfire and storms, the two most likely natural hazards to affect the Toowoomba Escarpment area in Queensland. The findings of this review will provide a foundation for questions to be asked of residents of two communities within this area.

Unfortunately, few studies have investigated storm preparedness and risk perception, so much of this review will focus on bushfires.

5.1 Risk perception

Risk perception is the process of collecting, selecting and interpreting signals about uncertain impacts of events, activities or technologies (4). In a natural hazard setting these signals relate to the likelihood and severity of impact of an incident such as a storm or bushfire. Public judgments of risk are often based on the potential or actual consequences, because these are easy to imagine and understand, but can still be mediated by everyday life and the background of the individual (5). In bushfire, low risk perception is correlated with low bushfire safety information seeking and activity, and few preparation activities (6). Risk perception also affects intentions, even though these intentions can be in turn affected by the reality of the hazard faced (2).

Four situational factors can affect an individual's risk perception (4):
* Hazard factors (the likelihood and severity of the hazard);
* Informational factors (source and level of information, media coverage, involvement of experts in risk management);
* Personal factors (age, gender, educational levels, professions, personal knowledge, (7) personal disaster experience, trust in authorities, trust in experts, confidence in risk reduction actions, involvement in cleaning up after a disaster, world views, degree of control and religiousness); and
* Contextual factors (economic factors, vulnerability indices, home ownership, family status, country, area of living, size of the community, age of youngest child).

The factors that to have the biggest effect are experience and trust in agencies, scientific experts and authorities, although there are weak relationship between experience and motivation to take protective action in a timely way (4). There are three possible reasons for this:
* Individuals understand the risk, but accept it as a result of wanting to live where they live;
* Individuals understand the risk, but won't accept responsibility for it; and/or
* They understand the risk, but don't have the resources to deal with it.
*

In areas that have potential for bushfires, but experience relatively few, the level of risk is balanced with the reasons they live where they live, often taking a back seat to these justifications. For instance, at Mt Tamborine (5), 78.9% of respondents from this study disagreed with the statement that they hadn't really thought about bushfire risk, but they felt that other concerns outweighed the risk of fire, such as personal, family and health matters, and home and environmental matters. In South Australia, in the less bushfire experienced, but high bushfire risk community of Eden Valley (8), respondents assessed their risk as low to moderate, with only 40% agreeing their family was at risk if there was a bushfire. One reason for this low risk perception is that people underestimate the severity of a bushfire and over-estimate the effect of their preparations on their ability to cope with it, which became evident in research from Tasmania after the 2006 east coast bushfires (3). However in some cases, even people in areas that have experienced serious fires in the

recent past will mostly consider their risk minimal or non-existent (9). A review of seven post-Black Saturday studies showed that between 7% and 33% of respondents did not perceive any risk of bushfire (2). This was similar in South Australia after fires in 2014 (8). Respondents mostly realised that bushfire could happen in their area, but did not think it would affect them personally (2).

In contrast to the bushfire experience, two small studies of North Queensland communities affected by Cyclones Larry (10) and Ului (7), showed that about 80% of people were experienced with cyclones, and that this experience guided preparation and prompted a search for more information. For those with no experience, there was evidence of their preparation activity being triggered and guided by experienced neighbours, family and friends (7).

In relatively experienced communities such as Crows Nest, Esk, Laidley and Kilcoy, householders report to be aware of their risk, mainly because they had experienced a fire in the past 3-4 years (more than two thirds of respondents) (11). Respondents used their proximity to vegetation as a gauge of their level of risk – the average was 495 metres, but the median was less than 100 metres away.

In flood risk perception, location of the house in relation to bush or a river could also affect risk perception, and people who have been flooded seem to have a higher perception of their risk (4) than people who have experienced a bushfire (9).

5.2   Preparedness

Preparedness is a subjective term that means different things to householders and agencies (12). When people should start preparing is one point of confusion, with agencies expecting preparation to occur at the start of the storm or fire season, and individuals thinking preparation should be done when dangerous weather is predicted or prevails, or in the face of a storm or fire (3). A second point of confusion is the level at which they should prepare (12). At one end of the spectrum is an individual mowing the lawn, and at the other are people who have installed sprinklers on buildings, have diesel-supplied fire pumps, independent power and water supplies, fire breaks and other proactive measures (13). An extensive range of preparedness actions emerged from the literature (8, 11, 14-16). These are generally divided into longer term actions and preparations immediately before a fire (9), although McLennan et al (17) segmented preparation activity into five categories based on the purpose of the activities:
- Bushfire safety planning:
    - Look for information on bushfire preparedness from agencies
    - Contact fire service for advice on preparation
    - Keep an eye on bushfire rating signs
    - Develop a bushfire plan
    - Discuss the bushfire plan with the family
    - Practice the bushfire plan
    - Monitor weather for bushfire/storm conditions
    - Download and use the (agency here) app

- Preparation for leaving
  - Arrange a safe evacuation place for the family
  - Arrange a safe evacuation place for pets
  - Plan safe evacuation routes
  - Check that you have home and contents insurance
  - Pack a kit ready to leave
  - Ensure valuables and important papers are packed ready to go
  -
- Preparation for active house defense
  - Make sure the water supply is independent and not reliant on electricity;
  - Obtain/maintain a fire pump and hoses
  - Prepare a protective equipment and clothing kit for the family
  - Ensure fire trucks can access the property
  - Organise secondary power source
  - Ensure access to a battery operated radio
  - Ensure taps and buckets are available on each corner of the house
  -
- Preparation for reducing danger to the house
  - Install and maintain fire breaks
  - Clean leaves, grass and other garden rubbish from around the house
  - Plant fire retardant garden plants and trees
  - Landscape to hinder the path of a fire
  - Cut back bushes and overhanging trees
  - Remove combustibles from around the house and garden
  - Controlled burning
  -
- Preparation for reducing house vulnerability
  - Install guttergard
  - Install protective covers for the windows
  - Install rooftop sprinklers;
  - Build house to extreme risk specifications

While people can generally identify a good range of actions for getting ready, they tend not to undertake these activities themselves. Mackie et al's study of three NSW communities that had been affected by bushfire in the past year identified 11 getting ready activities, with between 32% and 76% of interview respondents identifying each of the 11 (9). However, when it came to getting ready, between 4% and 31% actually undertook a range of preparation activities. The biggest number, 35% did nothing because they planned to leave (9), even though leaving requires its own list of activities to be undertaken (17). Three-quarters of people living in the bushland-urban interface in Victoria leading up to the Black Saturday Bushfires in 2009 did not undertake any getting ready activity (18)

Before the 2011 Lake Clifton fire in Western Australia, 59% said they had no readiness for the fire before it arrived, and 33% minimal readiness (15) and 91% said they had no readiness to respond by either defending their house or leaving early. A range of situational factors seem to affect preparedness (9, 17), including experience, critical awareness (or risk perception and talking about the risk), sense of community, self-reliance, connection to the

natural environment, having a positive outlook and being action-oriented, having enough time and resources and contact with fire agencies. In Tasmania before the 2013 fires, the most common long term preparation activities were clearing around a space the house, developing an unwritten bushfire plan and clearing vegetation from around the house, reported by more than 50% of respondents (16). This was the also case in South Australia in 2015, with 82.4% clearing around their house and 77.7% cleaning their gutters (6). Short term activities in Tasmania were mostly undertaken by fewer than 45% of the sample, such as check fire danger ratings and situation (apps, websites, signs), clearing litter from the gutters and yard, filling containers with water for firefighting, and packed a kit ready to leave. All other activities were undertaken by fewer than 30% of the people interviewed (16).

Features of people who tend not to prepare are (7):
- increased age
- lower education levels
- lower income
- renting their house or flat

The presence of children in a household mean that people will evacuate early, but they may also return into a danger area if children are on the property.

5.3   Cues and obstacles to preparation

'Preparation inhibitors' are obstacles to preparation (19) that include cost, lack of time, skill, physical ability, intention to leave instead of defend, the level of risk and co-operation (or access to help from other people). Every et al (6) concluded that people preferred low cost options such as buying a hose instead of installing a sprinkler system (supporting earlier results by McLennan et al (2)), and were more easily undertaken such as clearing gutters but not arranging an independent water source (6).

Sense of community has been found to influence preparation activity, with people living in well-connected communities more likely to prepare (9, 18, 19). In some cases, activity by one person triggers activity in neighbours (19).

5.4   Perceptions of preparedness and knowledge

Research into the perception of individuals of how well prepared they are has usually focused on communities with recent fire experience (9), with the largest proportion of the communities studied believing they were either adequately (up to 58%) or well prepared (up to 41%).

Knowledge of bushfire threat and survival, or knowledge of fire behaviour, has rarely been investigated. Knowledge of bushfire survival has been significantly lower for bushland-urban interface residents than rural and town residents. However, people, particularly those with no experience, underestimate fire behaviour and its psychological effect, and over-estimate their capabilities and preparedness – statements from survivors to the Black Saturday Bushfire enquiry provided graphic evidence of this (20).

5.5 Where information on getting ready comes from

Even bushfire-experienced communities seem to have a low knowledge of the ways that agencies communicate in the preparation or warning phases. A study of three NSW towns that had recently experienced a bushfire (9) showed that:

- fewer than 20% of residents could identify the Prepare. Act. Survive message,
- fewer than 30% were aware of fire danger rating signs,
- fewer than 20% of Shoalhaven and Yass study participants could identify the bushfire alert hierarchy (Coonabarabran was 45%).
- Rural Fire Service apps or resources attracted low awareness – less than 45% for Yass and around 30% for the other two communities.

Sources of preparation advice were identified as:

- Local volunteers (35%)
- Television (22.5%)
- Letterbox drops (18%)
- Radio (10%)
- Newspaper (7.5%)

Commonsense or 'gut feel' emerges from a number of studies as an often-reported source of preparation knowledge (9, 16), with more than 45% of a Tasmanian study respodents relying on this for preparation knowledge(16), and between 50 and 60% in NSW communities (9).

5.6 Leaving early

People who intend to leave in a bushfire do not prepare well, and many who intend to stay and defend will change their plan at the last minute, having done no preparation for leaving (17). Focus groups in Victoria showed that residents are confused about what "leave early" means – many assumed that it meant to leave when they were told to by agencies, or when they saw smoke or flames (21) and these ideas came up again in post-Black Saturday research (22). More than three-quarters do not intend to leave on a Code Red day (the study was held when Code Red was the most extreme option). Research around a Code Red day showed that 50-60% of people intended to leave the night before or early in the morning, but 66% stayed at home on the day, and of the people who were not at home, only 1.5% left because of the fire conditions.

6.   Community engagement

Key findings

- Community experience and levels of risk perception will determine the techniques used by agencies to trigger preparedness activity
- Individuals and communities that have little experience and little knowledge tend to over-rely on agencies during a bushfire.
- Communities with high levels of experience and/or exposure to community education and engagement techniques seem to be ready for deeper involvement in preparation and development of community-wide safety programs
- Agencies tend to conflate the terms "community education" and "community engagement", but these terms mean different things in strategy development.
- Communities with little or no experience require foundation community education techniques that increase knowledge
- One-way information delivery (community education) can be effective and is necessary in inexperienced communities.
- Community education is more effective when backed up by contact with agency staff
- Strong relationships are the key to any level of education or engagement.
- Agency ideas on how the community perceives risk and understands preparedness are consistently different to the actual perceptions of the community.
- Household discussion and agreement on what to do is more important to preparedness than having a written bushfire/storm management plan.
- Not every community has the same education levels and requirements – so knowledge of the local community is a necessity for local brigades and services.
- Localised content and delivery is critical to motivating action – this needs to be down to locality level and delivery teams should be equipped to answer all localised questions.
- Local volunteers should be included in activities
- Certain education events staged by agencies are more effective if more than one agency is present (ie local council, National Parks and Wildlife Service).
- Inexperienced communities do not know what "preparedness" means or what a plan should include.
- A staged approach would be effective with inexperienced communities, perhaps over three years
- No local bushfires will be a hindrance to progressing to a true engagement model in an inexperienced district

6.1   Community engagement - background

Risk perception and preparedness literature shows a frustrating lack of inclination by communities to get ready for a bushfire or some other natural hazard. Even those with recent and often tragic experience or those that are the focus of consistent education and engagement by agencies, will feature large pockets of the community that will not prepare.

This section of the report will review community education and engagement practice and attempt to clarify the effect of different techniques on motivating people to prepare for natural hazards. Particular focus will be on bushfire and storm in the Australian context. This review will build on a foundation article prepared by John Gilbert for the Bushfire Co-operative Research Centre in 2007: **Community Education, Awareness and Engagement Programs for Bushfire: Initial Assessment of Practices Across Australia** (23). Gilbert provided an assessment of Australian practice in delivering programs designed to increase community risk perception and activity to reduce that risk.   Also particularly useful to this report was the Australian Institute of Disaster Resilience's **Guidelines for the Development of Community Education, Awareness and Engagement Programs** (24).

This report for QFES will articulate the effects that have been recorded for different levels of community education and engagement for natural hazard preparedness. This will aid selection of the best tools for application to communities in the Toowoomba Escarpment area.

6.2   Community communication, education and engagement

Community education and engagement programs range in their approach from top-down, informational approaches , to bottom-up, community-driven programs that see the community take charge of aspects of natural hazard preparation, response and recovery (25). The informational approach works on the premise that individuals can make decisions and take action based on the information provided, while the bottom-up approach is based on the concept of involvement resulting in ownership and therefore commitment to preparedness and community. The International Association for Public Participation (IAP2) has classified the range of approaches into a five-stage spectrum, which moves from the top down, informational approach through to the bottom-up, community driven approach. The levels are (26):
1. Inform – provision of "…balanced and objective information to assist them in understanding the problems and alternatives, opportunities and/or solutions."
2. Involve – where public feedback is obtained on analysis, alternatives and/or decisions
3. Consult – where information from the public is used to make organisational decisions and plan programs
4. Collaborate – involvement of the community in planning and implementation
5. Empower – provide the community support to develop and implement their own programs

Details of the Spectrum are published in Appendix 3.

Programs that inform and engage the community at any of these levels on relevant natural hazards have a patchy record in Australia. Elsworth et al (24), in developing guidelines for

the communication function in emergency management for the Australian Institute of Disaster Resilience, were critical of the application and measurement of communication programs, saying they were:

- Supported by low levels of resources
- Suffered from lack of professional design and delivery
- Targeted limited audiences
- Were not often subjected to evaluation
- Were sporadic rather than sustained

The outcome of these shortcomings has been clearly demonstrated in major incidents in Australia. Reviews of post-disaster reports and debriefs (27, 28) found that around 20% of problems experienced before, during and after incidents related to agencies' communication with affected communities.

However, Elsworth et al (25, p. 23) found that programs at any level of the IAP2 spectrum had the "…clear potential to achieve positive outcomes at both the 'individual' (resident, household, family) and community levels". They determined that there were four key processes for achieving success in communication programs (24):

1. Engagement
2. Trust and self confidence
3. Confirmation and reassessment
4. Community involvement, participation and collaboration

Engagement relates not only to the takeup rate by individuals of information and programs and their motivation to learn more, but to processes that allow agencies to look for, listen to and use local knowledge, and involvement of the community in designing and implementing programs. **Trust and confidence** relates to trust in agencies, as well as individual and community confidence in what they have learned, and their ability to face the natural hazard challenge. This self-efficacy will also result in less reliance on agencies during an incident, and less loss of trust in agencies when the community discovers that not every property can have a fire engine to protect it.

The **confirmation and reassessment** process is important in moving communities from the lowest level (or even complete lack) of awareness, to the highest level of engagement and activity. Some communities, such as Victoria in relation to bushfires and Queensland in relation to cyclones, are already at the upper levels of this scale because of their extensive experience with major events. Other communities, such as much of some parts of Tasmania (3) and Queensland (5) in relation to bushfires, are at the very lowest end of the scale, and require certain approaches to move them off this low base

Elsworth et al's final ingredient of success for community education and engagement programs is **community involvement**. However, the position of each community on the four-stage community readiness scale that is discussed in Section 8 will determine the techniques and tools used, the messaging that is implemented, as well as the behavioural outcomes. This supports the idea that informational tools should be used to expose communities to information and ideas and attract their attention to the issue of preparation and receptive to more information. Once the point of interested is reached, the community's experience,

knowledge, interests, concerns, fears, values, priorities and preferences for success (29) can be tapped into to move them up the scale to full involvement in community preparation for bushfire, or any hazard.

This higher level of community engagement tends to be the goal for many agencies, and this could be a reflection of the importance of engagement in the National Strategy for Disaster Resilience Community Engagement Framework. This framework defines community engagement as "… the process of stakeholders working together to build resilience through collaborative action, shared capacity building and the development of strong relationships built on mutual trust and respect." (30, p.2). This means that agencies need to work "…in partnership with the community, building on existing networks, resources and strengths, identifying and supporting the development of community leaders and empowering the community to exercise choice and take responsibility" (30, p.3) .

6.3   What has worked?

Elsworth et al (24) complained that while they reviewed almost 300 separate agency programs and activities from around Australia, only 14 had been evaluated and analysed in detail for outcomes. The previous section of this report discovered that risk perceptions and preparedness activities can be difficult for agencies to influence and change – this may be a result of the weaknesses in agency communication program planning that Elsworth et al identified in their review. However, some studies have shown that small interventions conducted the right way with a research foundation can effect some change (31, 32) . This section will highlight those programs that have produced positive results, and attempt to identify the reasons for their success. These success factors will then be summarised into table form. The programs will be sorted in order of the level of engagement they seek, with the levels derived from the IAP2 framework: inform, consult, involve, collaborate, empower. A full review of programs for which evaluation has been published is available in Appendix 9.

6.3.1   Effective information programs

Information campaigns involve materials and resources that provide information in a one-way form of communication. These include websites, brochures, fact sheets, stickers, promotional items such as manuals and plan templates, advertising, social media accounts, billboards and booklets. They often work in tandem with the first level of involvement, public meetings. The inform level on the IAP2 engagement matrix aims to provide the community with "…balanced and objective information to assist them in understanding the problems and alternatives, opportunities and/or solutions" (26).

According to Paton (33), information availability and hazard experience influence the level of reliance people have on agencies, with low levels of information and experience increasing reliance on firefighting agencies. The need for foundation information delivery in less experienced communities was demonstrated by research on the East Coast of Tasmania in 2006 (3) and in evaluation of the CFA's Bushfire Planning Workshops (34). Many of the Tasmanian respondents had no experience of bushfire and no previous bushfire education, and consequently had unrealistic expectations of agencies, the nature of the fire, and what they needed to do to prepare (3). In the Bushfire Planning Workshop example, intended outcomes could not be achieved because many people arrived at the workshops without the

prerequisite knowledge of bushfire, their own risk profile and preparedness. What was to have been an activity of involvement and collaboration turned into an information session for some attendees (34). This foundation can often be overlooked as an effective education tool in reviews of emergency preparedness (35), even though success has been demonstrated in a few well designed cases.

The most recent of these success stories comes from Rural Fire Service (RFSNSW), which engaged a behavioural economics consultant to help research and analyse target publics and then develop messaging and images on materials for its 2016 Get Ready NSW campaign (31). This campaign achieved:
- a 50% increase in correct identification of their level of risk by householders (which was shown to be problematic in the previous section),
- a 27% increase in the number of people who discussed a bushfire plan with their family, and most importantly,
- a 32% increase in the level of effective preparation (that is, more than just clearing the gutters and mowing the lawn) by study participants.

The success of the program was attributed to the way the materials were simplified to identify four easy steps in the preparedness process, each assigned a symbol:
- discuss (what to do if a bushfire threatens)
- prepare (for bushfire season)
- know (the bushfire alert levels)
- keep (all the bushfire information numbers, websites and the smartphone app)

These are illustrated in Figure 2.

Figure 1 – RFSNSW Get Ready campaign materials

The campaign included: web pages (pictured), visual advertising for mainstream and online media, downloadable guides and checklists, the MyFirePlan app, and Get Ready weekends held by local brigades.

StormSmart, a pilot campaign conducted by the Victorian State Emergency Service and the City of Wodonga in October 2006 also showed effective results, although the materials formats and messages used were not reported in detail, although the study identified the action guide as particularly effective. The campaign involved distribution of the action guide (whether this was mailbox dropped or distributed by some other method is not clear), brochure, poster, web pages, meter box stickers and community barbecues.

The campaign was effective in a number of areas:
- residents improved their knowledge of which agency to call for help (from 68% before the campaign to 82% after)
- 17% felt unprepared for storm before down to 6% two months after
- the number of people with a home storm emergency plan rose from 12% before to 20% two months after the campaign.
- 58% felt moderately prepared before, 31% two months after with dramatic movement from this level to well-prepared
- 5% felt well-prepared before, 36% two months after
- no-one felt very well prepared before, 6% two months after
- 86% of respondents said they had read the action guide

Anecdotally, the community barbecues were effective – two were held, attracting 40-50 people to each, where agency staff were able to use the action plan to guide residents through the necessary preparation for storm. About 45% of the survey participants had attended a StormSmart barbecue.

A weakness of the campaign results was the low recall by participants of which emergency number to use – only 4% surveyed could recall the correct 13 number. In addition, the meter box stickers were identified as not useful – possibly because the message was not congruent with the medium, which seems to have been developed for flood education and transferred to the storm campaign.

6.3.2   Effective consultation campaigns

Under the IAP2 spectrum, 'consult' is the level of engagement at which public feedback is obtained on analysis, alternatives and/or decisions (26). No consultation campaigns were found for this analysis, although consultation is evident in the first stages of **involvement** and **collaboration** campaigns that are considered in this section, and agencies around Australia regularly undertake community research

6.3.3   Effective involvement campaigns

Most preparedness programs include some mechanism that allows communities face-to-face contact with agencies, and therefore to move from passive acceptance of materials to demonstrable involvement. Often this involvement provides a trigger for preparedness activity (36). Involvement under the IAP2 spectrum means working with community members directly or face to face to ensure that public concerns and aspirations are understood and considered. In this context it would include ensuring that these concerns and aspirations can be acted upon by the individual to reduce personal risk and to ensure each group understands the other and the constraints they face. Involvement programs usually entail public meetings, but a few other innovative approaches have been tried in Australia.

For instance, the most relevant activities to the Toowoomba Escarpment situation occurred in Tasmania in a pilot program in 2009 . This program involved interactive information sessions that were mostly presentations and demonstrations about risk levels and preparedness and was part of the Bushfire: Prepare to Survive program. In addition, three of the communities received field days, in which fire officers attended a number of different properties in a day and spoke about the risks and preparedness activity required. The four pilot activities, which were held in small communities at high risk:
- attracted 220 people
- 92% of these said they intended to become more prepared after attending
- 43% said the forum made them realise they had to be more self-sufficient than they realised
- benefits including getting more information about bushfires and how to prepare, a better understanding of community preparedness, and motivation to start preparing immediately, which translated into actual activity for a few in follow up interviews

The field days, which included fire and council officers, were well received, but data was not collected. Anecdotally, the field days allowed networking between neighbours, allowed specific local knowledge to be delivered, and showed that each community requires a slightly different approach, a one-size fits all approach doesn't work.

FireReady in Victoria (formerly known as Bushfire Blitz) is a series of community meetings/street meetings featuring presentations by fire agencies held in high-risk areas in rural and bushland/urban interface areas. Bushfire Blitz days (1997-2003) prompted improved levels of knowledge of risk and planning, higher levels of bushfire preparation activity, and demonstrated an "inspiration effect" – prompting preparedness action, often for the first time. In the FireReady iteration (post-2003), 47% of random survey respondents had attended at least one of these meetings, 1 in 4 in the previous six months.
The top reasons for people attending these meetings were to:
- Get information about the level of bushfire risk in their local area
- Get information on new developments or issues that they may not have been aware of
- Use the knowledge to prepare their bushfire plan

People who attended felt the meetings:
- Provided useful information and updates about changes and initiatives
- Provided motivation to undertake preparation and planning activities
- Helped them develop their preparedness plan
- Created a basis for co-operation with neighbours
- Provided information and understanding, which was the main benefit (28%)
- Provided insights into how to prepare and improve their safety as the major benefit (15%)
- Prompted better planning including decisions on protective actions and evacuations

Evaluation respondents were classified according to their readiness and open-ness to preparation. The Active and Involved group were much stronger in the view that they were actively looking for information and updates, and the Done it Already group (people who were lower on the involvement scale) were more likely to say there were no benefits attending, which reflected the general belief outlined in the Target Communities section that they were well informed about bushfire safety and that the threat to them was minor.
The FireReady research also asked why people didn't attend:
- Meetings and information provided were not useful
- Information is not relevant because they have decided to leave if threatened
- Attendance is not necessary because information can be gleaned from other sources
- Meetings are too time consuming for busy people (or are held at inconvenient times)
- Meetings are unpleasant to be involved in - too crowded, emotional
- Meetings are not adequately advertised or promoted

A second effective program was the CFA Home Bushfire Service by fire officers to give advice about risk and preparedness, which was a service offered as an outcome of the Victorian Bushfire Royal Commission after Black Saturday in 2009. The results of this activity were:
- 17% of respondents accessed the service
- 54% knew of the service

People used it to:
- check, review, confirm and validate existing preparation and plans (16%
- recognise living in a bushfire prone area (15%)
- get information and advice from CFA (37%)

CFA also offers a Household Assessment Tool, an online and paper tool that walks householders through factors that allow them to assess their level of preparedness. It was also set up as a result of the Victorian Bushfires Royal Commission. However, it has been subject to low usage and high dropout rates, and only half of the 15% of survey respondents who had used the tool had worked all the way through to complete course of action provided by the tool.

6.3.4   Effective collaboration campaigns

No evaluated campaigns that fit the IAP2 criteria for collaboration were found for this project.

6.3.5   Effective empowerment campaigns

'Be Read Warrandyte' was a community-led initiative to get more households ready for fire after the 2009 Black Saturday Bushfires. It involved local residents, councils, local brigades and the Country Fire Authority and included development of a local video, adaptation of government messages to the local situation, workshops and tours (37). Interviews were held after three years of the program, with anecdotal evidence from these showing that the program achieved community safety benefits beyond its goals of bushfire preparedness.

Community Fireguard, a program developed by the Victorian Country Fire Authority in responded to the 1983 Ash Wednesday bushfires, is a community capacity building program that encourages local people to collaborate with neighbours to prepare for bushfire with support of a facilitator with relevant experience (38). Gibb et al reviewed the cost and outcomes associated with participating in this program, finding that social and economic benefits to the community were an outcome of the program – risk of property loss was reduced from 35% to 21% amongst participants; fatalities were reduced by 40%; and each FireGuard group saved $250,000 in cost to their community over 100 years (38).

7.   Receptiveness to community engagement

Key finding

- Individuals will be at any one of four stages of fire readiness and receptiveness
- These four levels of bushfire readiness will guide bushfire preparation engagement activities
-

7.1   The Victorian experience

The Country Fire Authority has segmented the Victorian community into four levels of involvement (34, 36). This model is based on the theory of diffusion of innovation and will be a useful benchmark for consideration of the Toowoomba Escarpment population. The model, illustrated in Figure 1, also includes the activities that research has shown will be effective with each group. The groups are:

- Active and involved (estimated to be 31% of the Victorian population[*]);
- Ready and interested (35%);
- Done it already (21%);
- Not into bushfire (13%).

Figure 2- Country Fire Authority's segmentation of the Victorian community

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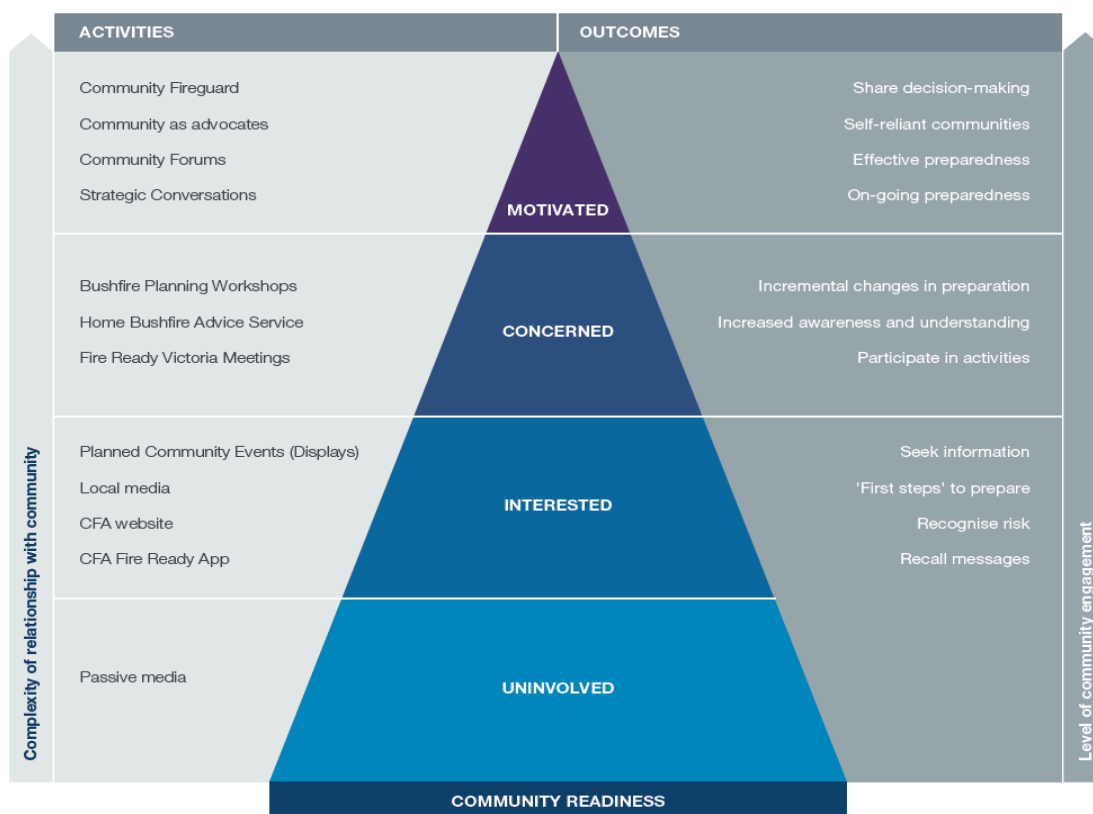
[*] Note that the Victorian population is subject to rigorous and regular bushfire preparedness campaigns, regular serious bushfires, and in some areas, deep community engagement, and therefore would have a higher base level of bushfire knowledge than the Queensland population.

Active and involved: motivated and actively involved in mitigating bushfire risk, significantly more informed than average and actively seek information. This group is more likely to recognise the bushfire risk in their area, and actively prepare, and they are less likely than other groups to wait and see what happens on a high bushfire danger day. They are also more likely to get involved in activities that agencies stage, and are more likely to live on a non-residential block. Similar demographic to the overall community population.

Ready and interested: a motivated group that is less committed to preparation, but more interested than the average in learning more. They have a similar level of risk perception to the active and involved group, but see themselves as less well prepared, and only about half of them will attend activities staged by agencies.

Done it already: Not highly motivated to prepare because they see themselves as well informed and at relatively low risk and bushfires as not relevant to them. They see themselves as well prepared even though those preparation measures turn out not to be at a high level. They are less likely to attend agencies meetings or activities, but those who do attend multiple activities. More likely to be elderly, but similar demographically on other factors.

Not into bushfire: Least motivated to act and most likely to underestimate their risk and threat levels. Tend not to be interested in finding out more about bushfire, and more likely to assess themselves as 'not at all' or 'slightly' prepared. This group intends to rely on agencies for help during a bushfire and most likely to use the 'wait and see' approach, are least likely to evacuate early and less likely to stay and defend. People in this group are least likely to have attended agency activities, more likely to have lived in their area for less than 10 years, and will probably live on a residential block. This group is also more likely than the other groups to be aged 18-44 and be a couple with children.

It is expected that in a place like Toowoomba, where bushfire preparedness campaigns are not as intensive as in Victoria and fire experience is low, the numbers of Active and Involved, and Ready and Interested are expected to be lower than the CFA's estimation. However, the model gives us a useful base to work from as, along with the results of this study, it can guide targeting, and inform messaging and direct communication in the escarpment area.

8. The research target communities and what we know about similar populations

Key findings

- About 80-90% of the Hodgson Vale and Highfields communities will be receptive to bushfire and storm education because of their demographic profile
- The three most receptive groups will require different key messages/activity to motivate them to action
- Residents in the two target communities will mostly be receptive to bushfire preparation messages

8.1   The target communities

The previous section that considered segmentation of the community indicated that people living on non-residential blocks who were older than 44 and without young children would make up the three groups that would be easiest to connect with in relation to bushfire preparation. The bushfire preparedness studies have also shown that increased age, lower education levels and lower income were correlated with lower levels of disaster preparedness. The presence of children in a household will influence preparedness and evacuation plans, with lower levels of preparedness and intentions to evacuate early. Renters are less likely to prepare.

This section will review the demographic features of the two escarpment communities that will be part of this project, Highfields (10kms north of Toowoomba; Appendix 1) and Hodgson Vale/Top Camp (20kms south of Toowoomba; Appendix 2). The demographics provided are of larger localities than will be incorporated in this study, but they are useful to guide us on the demographic profile of the people living in these areas. The two samples are quite similar, although the Highfields community tends to have more older people and more couples with children. Both are relatively high-income areas compared with the wider Toowoomba region. They have roughly the same education levels. The Hodgson Vale area has fewer people with a mortgage (43%) compared with Highfields (54%), and twice as many renters as Highfields (14% compared with 7%). Just under half of all householders seem to have no mortgage and are not renting their home. The Highfields area has many more small residential blocks of less than 1000m^2 than Hodgson Vale, which tends to feature more blocks from one acre to rural-zoned farms.

These profiles show that the two target communities will generally be receptive to bushfire preparation messages, with low numbers of renters, high numbers of people older than 44, and relatively low numbers of young families with dependent children compared with other communities. Renters and people with young families are the traditionally more resistant groups to preparation and risk knowledge.

9.   Methodology

The research methods used for this study were:
1. Literature review (reported on the previous pages)
2. Preparedness and risk perception in-depth interviews with 33 householders in the escarpment areas of Hodgson Vale and Highfields, near Toowoomba.
3. Post-engagement in-depth interviews with nine householders in the same area that focused on what people learned and used from the meetings

The preparedness and risk perception interviews were conducted between August 5 and 21 in the Hodgson Vale (n=13) and Highfields (n=14) areas before public information meetings were held by QFES at Highfields Cultural Centre (August 29) and Hodgson Vale Sports Ground (August 31). A further seven householders were interviewed using the same instrument after the meetings, with interviews undertaken between October 20 and 30. The meetings were designed to encourage residents to get ready, and to introduce them to the Prepare. Act. Survive Bushfire Safety booklet. Following the meetings, post-engagement interviews were undertaken in both areas between October 9 and 31 with residents who had attended the meetings (n=9) to find out what they learned, retained and used.

9.1   Preparedness and risk perception interviews

The pre-engagement interviews were undertaken between August 5 and August 20, with 27 secured. Two areas were targeted by street level – Hodgson Vale, 12kms south of Toowoomba in the Hodgson Vale-Preston Boundary Road-Highgate Road area (n=76), and Highfields, 15kms north of Toowoomba, in the Dau, Vayro and Recreation Reserve Roads areas (n=84) (see maps in Appendix 4).

9.2   Sampling – pre-engagement preparedness interviews

Each of the streets was identified by QFES as at-risk escarpment areas, with the intention of targeting these particular streets with publicity for community engagement events after completion of the first round of interviews. Thirteen interviews were sought in each of the two sample areas before the engagement meetings, and 13 sought in each area after the meetings.

Eligible households were identified using maps generated from Google Earth Pro. In an attempt to randomize interviewee participation, the number of houses in the two areas were counted and then divided by the number of interviews required from each area. Where streets or street clusters were geographically separated from others in either of the two target areas, they were allotted a quota. Vayro Road, a particularly vulnerable road in terms of topography and vegetation, was allocated three of the total 13 interviews. Hodgson Vale-Boundary Road interviews surpassed the quota of five for that area because of the difficulty in securing interviews in the Highgate Road area by the deadline for advertising of the QFES engagement meetings.

The interview quotas gave a base number for selection of potential interviewees by household. For instance, the Vayro Road area has 13 houses, and three interviews were

required from this street. Thirteen divided by three gives 4.3, so every fourth house was approached in that street, starting with the first house physically located on that road. If the first pass of the street failed to produce the desired number of interviews, the count continued from the last house approached around the street again. Once the interview quota for that street was reached, no more houses were approached. Properties with dogs and those where householders were not at home were left a note in the mailbox asking potential respondents to contact the research team. Three days were allowed to elapse before these properties were re-approached. If an interview was not secured, the household was replaced by an approach to the next home on the list. Table 3 summarises the approach results for each street or cluster of streets. Two people in the Highgate Road area agreed to be interviewed, but circumstances forced the cancellation of the interview before researchers arrived. These people were counted as a 'no' in the final count.

Table 1 – summary of sampling for first round of interviews (August, 2017)

	Population	Sample	Yes	No	Not home/dog	Not approached or preferred to be interviewed in second round
Dau Road	39	23	7	5	11	16
Vayro Road	13	4	3	0	1	9
Recreation Reserve Road	32	16	4	6	6	16
Hodgson Vale-Boundary Road	23	12	4	1	7	11
Highgate Road	53	26	8	5	13	27
Total	160	80	26	17	37	82

The total population for the first round of interviews was 160 households. The sample was 80 households, with 27 responses, resulting in a response rate of 33.7%.

9.3 Sampling – post-engagement preparedness interviews

For the second round of interviews, the population was made up of the households not approached for the first round of interviews (n=80), or who had been approached but preferred to be interviewed in the second round (n=2). The unapproached houses were marked on the map and the same sampling approach taken by dividing the number of these houses by the number of interviews that were required (26 total). Seven interviews were secured by door knocking both areas using the outlined sampling method.
Table 2 below shows the sample details.

Table 2 – summary of sampling for second round of interviews (October 2017)

	Total population (houses not approached in the first round)	Sample size	Yes	No	Not home/ dog
Dau Road	16	4	1	2	1
Vayro Road	9	4	2	2	0
Recreation Reserve Road	16	4	1	1	2
Hodgson Vale-Boundary Road	11	6	2	0	4
Highgate Road	27	8	1	2	5
Total	79	26	7	7	12

The total population for the second round of interviews was 82 households. The sample was 26 households, with seven responses, resulting in a response rate of 26.9%.

9.4 Sampling – interviews with meeting attendees

A further nine interviews were secured with people who had attended the meetings, signed up for a visit to their property by a QFES officer for advice on preparedness, and also agreed to be interviewed by the researcher after contact with QFES officers. Some of these people lived in streets outside the initial study area. Three people who attended the Highfields meeting volunteered to be interviewed from 40 attendees, and seven people volunteered to be interviewed from the Hodgson Vale meeting from a total of 41 attendees. Interviews were secured with six of the Hodgson Vale meeting volunteers and all three of the Highfields meeting volunteers.

9.5 The interview instruments

Three interview schedules were developed.

1. The first contained questions drawn from the literature review and QFES staff and aimed primarily at preparedness. This instrument was used in the first round of interviews in August, before the QFES engagement meetings. Three pre-interviews were conducted to test the instrument and several small changes made to the wording of questions to prevent confusion. This instrument asked a mix of closed and open-ended questions.
2. The second featured questions about respondents understanding of the QFES engagement meeting messages, what they took away and what they did as a result of the meetings. These questions were used in the second round of interviews in October for respondents who had attended one of the meetings. No testing of the questions was undertaken – these were predominantly open-ended questions, plus a tick list of possible preparation activities taken from the first instrument used for the first round.
3. The third was an adaptation of Instrument 1 for people who did not attend the meetings but were interviewed in October, after the meetings. Most of the

questions were the same, but questions were added on whether people saw the signs to the meetings, why they had not attended, and what activity the signs had prompted.

9.6 Analysis techniques

The samples of the study were small (n= 33 and 9), so descriptive techniques were mainly used for the closed questions. Thematic analysis was used for the answers to the open ended questions in both the preparedness interviews and the post-meeting interviews.

10. The respondents

The people who agreed to be interviewed about preparedness were working (72.7%) or retired (27.3%), aged older than 54 (63.6%), living in a brick or block house (66.7%) on a large lifestyle block (87.9%), and had been in their house for less than four years (33.3%) or between 10 and 14 years (30.3%). Most (30 of the 33 respondents) owned their home or were paying it off. Appendix 5 provides a summary of the respondent features.

The two communities showed several key differences:
- More of the Hodgson Vale interviewees were from the harder to engage and convince 35-44 age group (30.8%) than Highfields (7.7%)
- Highfields was generally an older community in this sample
- Highfields residence types were more varied: two respondents identified their place as a standard residential block, 76.9% lived on lifestyle blocks and one person on a farm, whereas 92.3% of Hodgson Vale people lived on large lifestyle blocks, and one person on a standard house block.
- Highfields residents were more likely to have lived in their house longer than ten years (61.6%).
-

The largest number of residents had no experience of bushfire (60.6%), but were experienced with storms (75.7%). The two communities were similar:
- 39.4% had experienced a bushfire in the past that caused damage to their local community
- Only four people from Hodgson Vale had any bushfire experience
-

This storm experience was reflected in the number of people having storm insurance or aware they had storm insurance:
- 66.7% had their house and contents or just their contents insured for storms
- 42.4% of respondents knew that their policy covered bushfire for their home and contents, or just contents.
- In both fire and storm, the homeowners who had just contents insured were similar to the number of people in the sample renting their house.
-

Residents were generally better insured for storm than bushfire:
- None said they were not insured for storm, but 15% were not sure
- Six households (18.2%) were not insured for bushfire, and around one third of all households involved in the study did not know if they were covered for bushfire.
-

11. Connection to the community

The review of previous research turned up evidence that people were more likely to be prepared if they had strong connections to their community, especially between neighbours, so we attempted to measure the strength of community networks on the study areas. Both communities seemed to be strongly connected, with very few respondents reporting that their neighbours did not know them, that they would not be able to get help from their neighbours or that they did not feel a sense of connection with their neighbours.

The questions were:

- Do you think your neighbours know you?
- Do your neighbours socialise with each other?
- Do neighbours co-operate if there is a problem?
- If you needed help, could you get this easily from your neighbours?
- Do you feel any sense of personal connection with the neighbours?

All but four people said they felt a sense of connection with their neighbours, but three of these respondents answered yes to all the other questions in this set.

Table 3 – neighbourhood connectedness

		Hodgson Vale		Highfields		Total	
		Yes	No	Yes	No	Yes	No
Do your neighbours know you?	N	15	1	17	0	32	1
	%	93.8%	6.3%	100.0%	0.0%	97.0%	3.0%
Do your neighbours socialise with each other?	N	14	2	16	1	30	3
	%	87.5%	12.5%	94.1%	5.9%	90.9%	9.1%
Do your neighbours co-operate?	N	15	1	16	0	31	1
	%	93.8%	6.3%	100.0%	0.0%	96.9%	3.1%
Could you get help from your neighbours?	N	16	0	17	0	33	0
	%	100.0%	0.0%	100.0%	0.0%	100.0%	0.0%
Do you feel a sense of personal connection with neighbours?	N	12	4	16	1	28	5
	%	75.0%	25.0%	94.1%	5.9%	84.8%	15.2%

If the level of neighbourhood connectedness relates to community preparedness, both the Highfields and Hodgson Vale study communities will have a higher level of preparedness or potential for preparedness than other neighbourhoods with lower community connectedness. This research indicates that each of the study communities has very solid inter-neighbour networks, which was shown by other research to positively influence preparedness for storm and bushfire.

12. Perceptions of risk and preparedness

Residents were asked to rate on a five-point scale their idea of their home's bushfire risk (1 = low up to 5 = extreme). Hodgson Vale residents believed their risk was at the lower and of the scale, with most people identifying their properties at low or moderate risk (n =6 each). Highfields residents were more likely to identify higher risk to their house, but also made up the largest number of people identifying as low risk. No-one from either area identified their place as at extreme risk of bushfire.

Figure 3 – perceptions of bushfire risk across the two communities
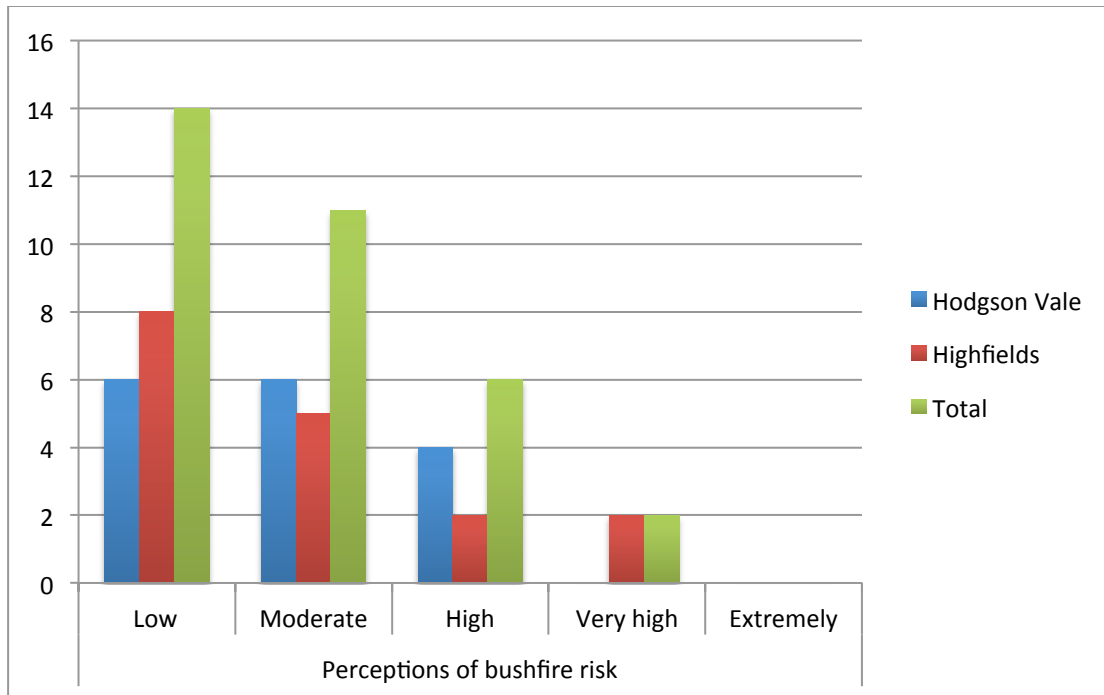
They were also asked to estimate their levels of preparedness for a bushfire (1 = not at all up to 5 = extremely). Householders' estimation of their risk bushfire was low overall, while they believed they were 'moderately' to 'pretty well' prepared. None of the residents thought they were extremely well prepared for bushfire, but those that felt they were 'not at all' prepared estimated that their risk was 'moderate'. The figure on the next page shows the levels of preparation.

Figure 4 – perception of bushfire preparedness levels across the two communities
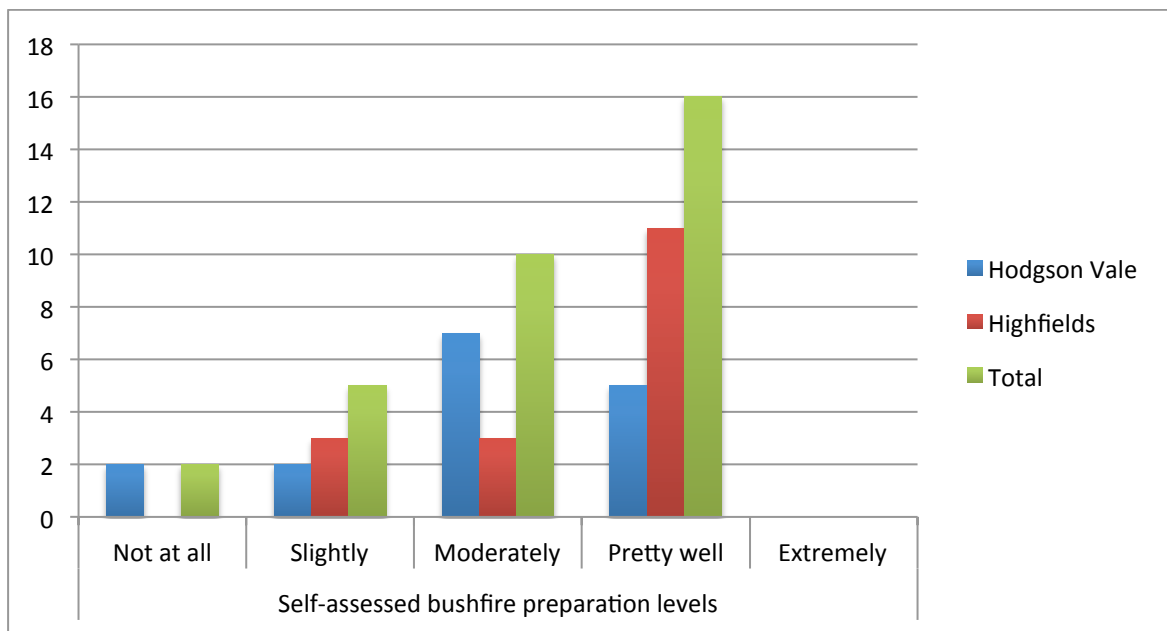
The graph below compares the level of risk people felt they were at with their preparedness levels. Interesting was the number of people who estimated their risk as 'high', but felt they were only 'slightly' prepared. About 25% of those interviewed felt they were at low risk of bushfire, and were therefore 'pretty well' prepared based on what they had done for this level of risk. Three people who felt at high risk were slightly prepared.

Figure 5 – perceptions of bushfire risk and preparedness
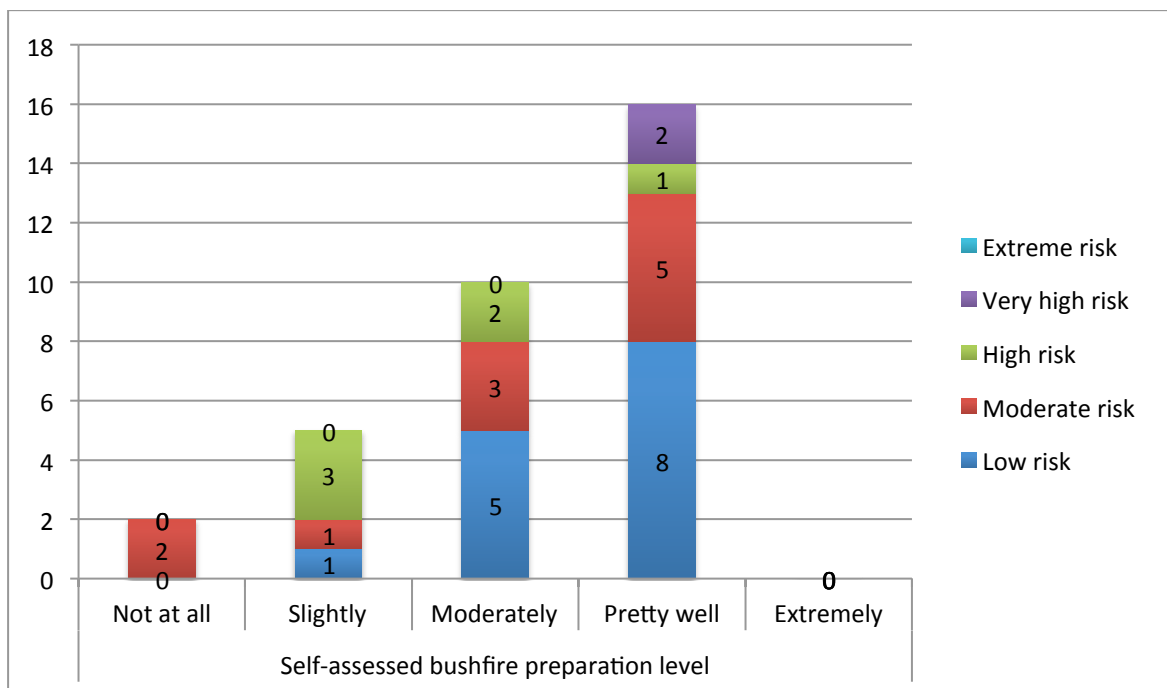
Storm risk perceptions of most people were found to be low to moderate. One person considered they faced an extreme risk from storm. Overall, the two communities were quite similar.

Figure 6 - perceptions of storm risk across the two communities
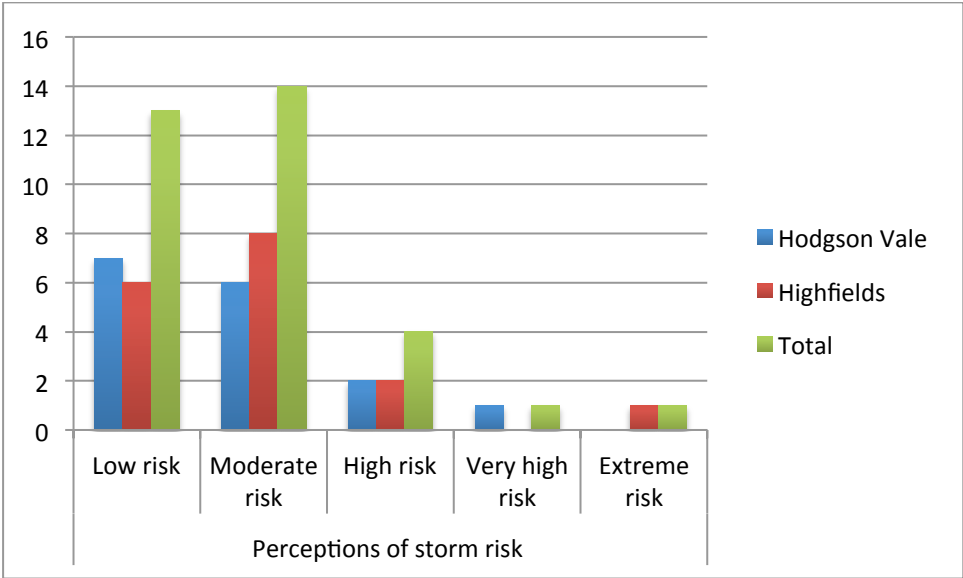
We also measured perceptions of preparedness for storm. The tone gleaned from the interviews was that there was not much to do to prepare for a storm, and that if it was going to hit, it was going to hit. This may have resulted in respondents considering that what little preparation they thought necessary had already been done or was on the list before storm season.

Figure 7 - perceptions of storm preparedness across the two communities
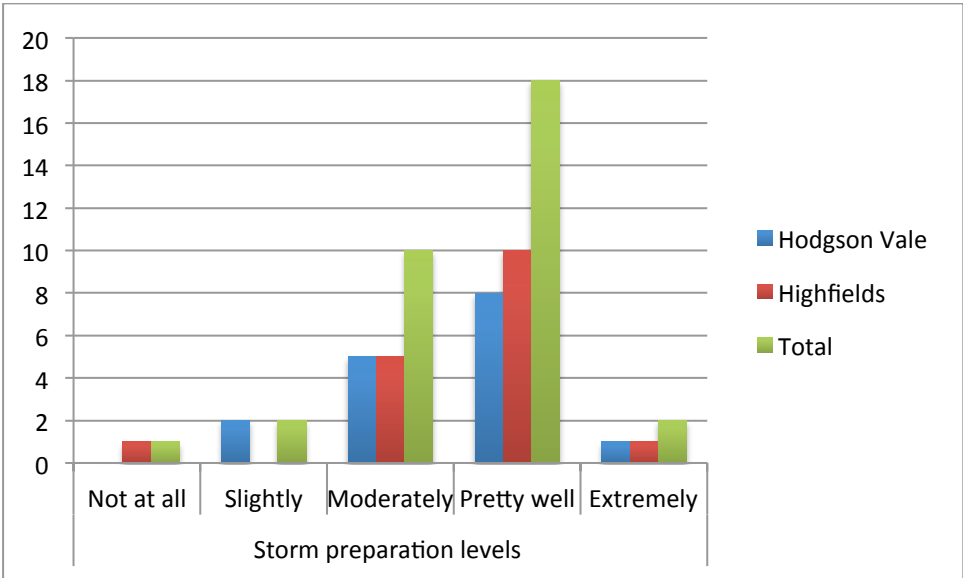
We then compared storm risk with preparedness. The graph below shows how people at each level of preparedness considered their risk for storm. Only one person said they were at extreme risk for a bad storm, and that person said they were moderately prepared for it happening. Those that said they were extremely well prepared considered themselves to be at low risk of storm. About 55% of people were clustered around the 'pretty well' prepared category, and mostly felt that they were either at low risk or moderate risk.

Figure 8 – Perceptions of storm risk and preparedness
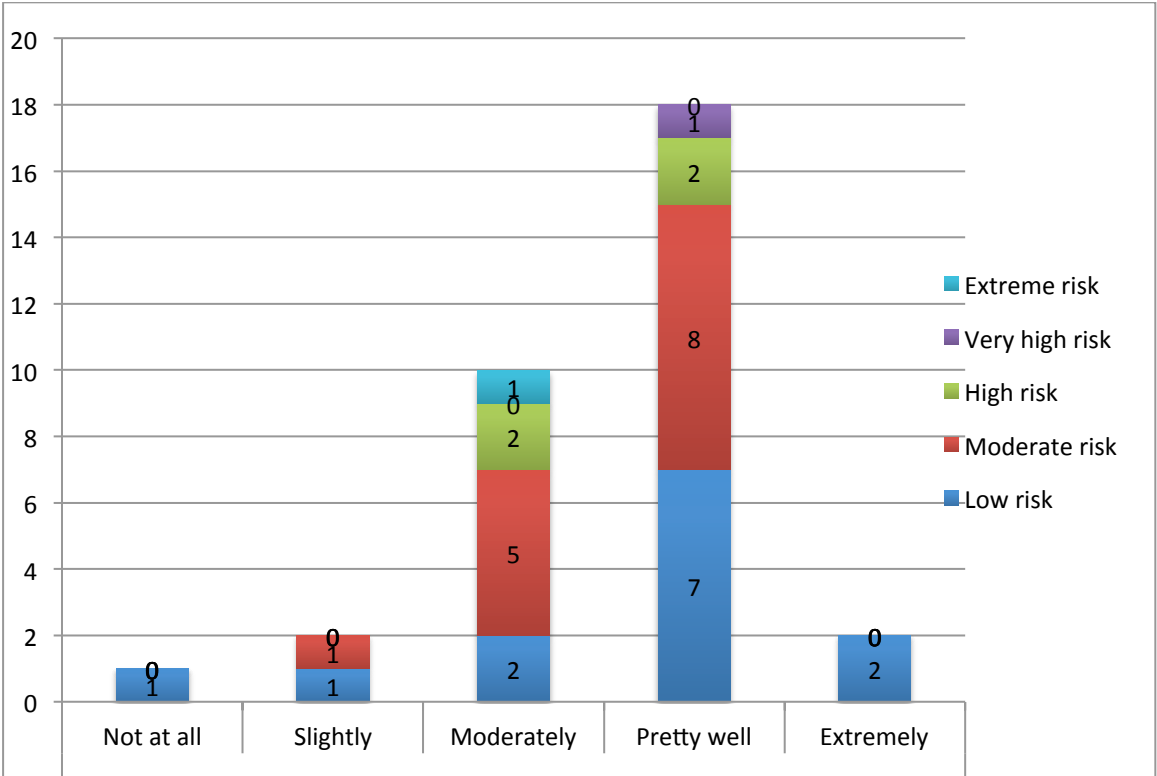
The graphs showed that some people thought that their level of bushfire and storm risk was low, but they felt themselves to be extremely well prepared. This poses the question of whether their preparation activities suited the level of actual risk, or whether their low estimation of risk reduced their idea of what effective preparation would be – that their preparation was enough for the perceived level of risk, but not enough for an extreme bushfire or storm. This will be illustrated in Section 14 and Section 17, where we compare perceived level of risk with actual preparation activities.

We asked a number of questions to establish the level of experience of respondents with bushfire and storms, including qualifiers about evacuation, distance to the house (bushfire) and damage to the houses of respondents or their neighbours (storm) during their experience. Most had no experience of bushfire (65.4%), but were experienced with storms (73.1%).

Just over a third of people reported that at sometime in the past they had experienced a bushfire within 1km of their house, and most of these people considered their current house

to be at low bushfire risk (ten of the 13). Two of the experienced people thought their current house was at 'very high' risk of bushfire threat. Figure 9 illustrates their responses.

Figure 9 – comparing bushfire experience with risk perceptions
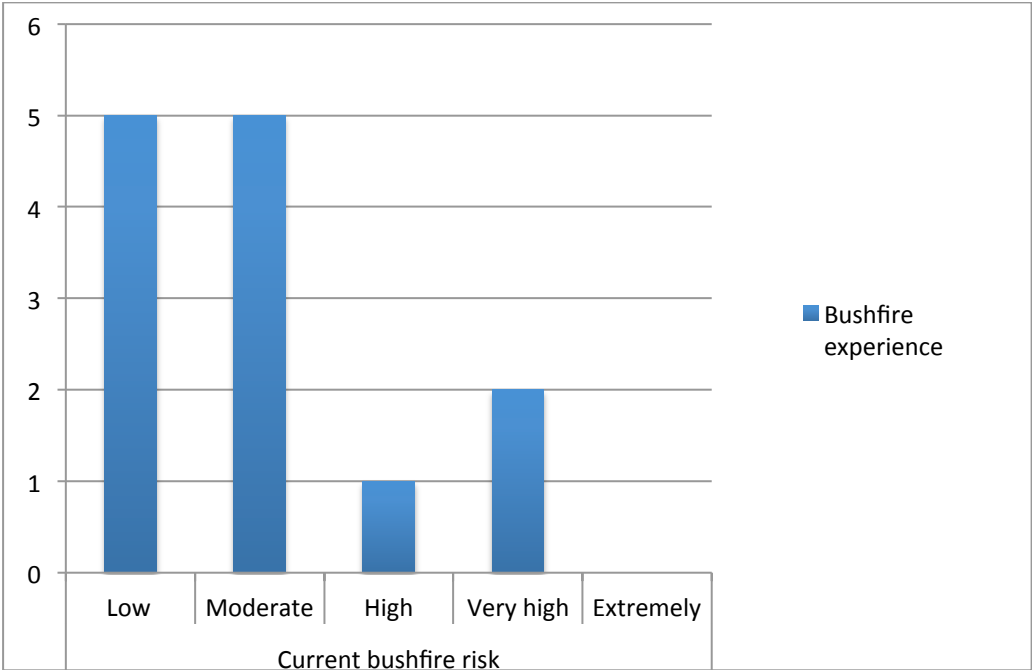
Just over 76% of the people we interviewed had experienced a storm some time in the past that caused damage to either their house or to a neighbour's. Here we compare their risk perceptions with past experience. The graph on the next page shows that even with previous storm damage experience, residents in the two study areas tend to consider their risk of storm very low.

Figure 10 – comparing storm experience with risk perceptions
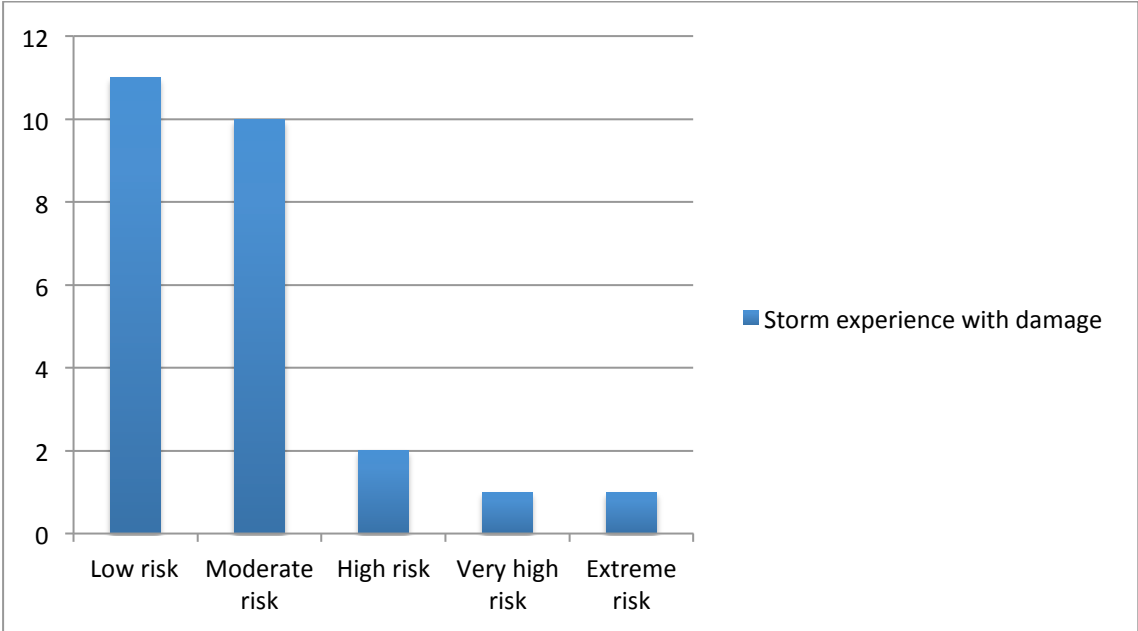
We also asked about the distance houses were from the bush (areas of trees and undergrowth such as lantana) and compared this with people's idea of their bushfire risk. The following graph in Figure 11 shows the results – one of the two people living within 20m of the bush considered themselves to be at 'moderate' risk and the other 'high' (even though there was an option for 'very high' and 'extreme' risk. People living 30-50m from the bush ranged from 'low' to 'very high', with just one person of the 11 in this category nominating the high risk category. Those more than 500m from the bush considered themselves low risk.

Figure 11 – Perception of risk of bushfire compared with distance to bushland
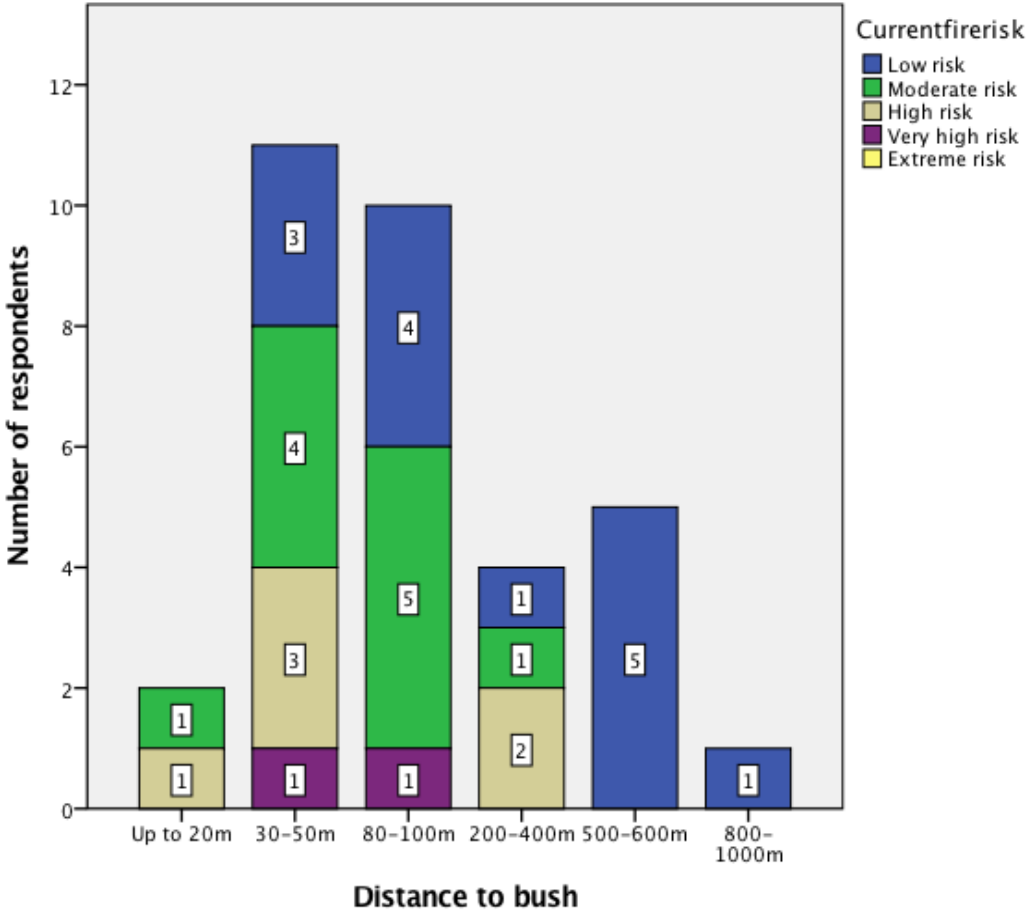
People living in the Highfields and Hodgson Vale areas seem to misunderstand fire behaviour and the possibility that, given the right weather conditions, a fire and/or ember attack could encroach into their urban area and directly affect their house, even those a kilometer away from bushland interface.   One couple, who estimated that they lived 500-900m from bushland, had direct bushfire experience from what they described as extensive ember attack into a bushland-urban interface during a fire in semi-rural Queensland, yet still rated their risk on the lowest level.

We then asked about understanding of storm and bushfire behaviour, knowledge of how to prepare, and their current house's risk of suffering damage in either storm or bushfire. Most people said they had reasonable or good knowledge of how storms and fires behave, and

reasonable or good knowledge about how to prepare for either hazard. One person, a recent migrant to Australia, reported no knowledge of how a fire behaves or how to prepare for a bushfire. One person, a retired engineer, said he had an excellent knowledge of how storms behave and how to prepare for a storm. Figure 12 shows the detail of respondents' answers to these questions. Most believed they had a reasonable (light green) or good (purple) knowledge for each of these questions despite the lack of bushfire experience of more than 60% of the respondents.

Figure 12 – self assessed knowledge of bushfire and storm behaviour, and knowledge of preparation for each hazard
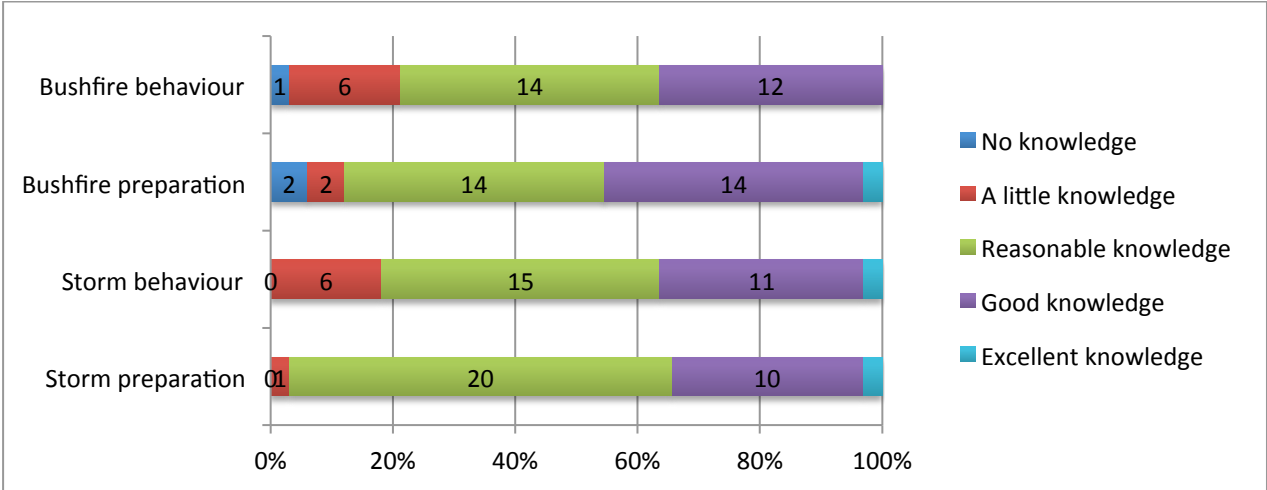
Given that few respondents had experience with bushfires, residents are most probably over-estimating their knowledge of bushfire behaviour. Even though over 75% of respondents were experienced with storms, and to the extent where damage was experienced by themselves or neighbours, their estimation of their understanding of storm behaviour was roughly the same as their knowledge of bushfire behaviour, even though they had little experience with bushfire.

13. Bushfire season

We tested resondents' knowledge of emergency agencies and bushfire in Queensland using open-ended questions.

13.1 When is bushfire season in this area?

Most people seemed to be guessing at this question, and some based their guesses on hot weather rather than the length and severity of dry weather moving into summer. Only two people of the 33 identified bushfire season in Queensland as starting at the end of winter or July-August. Many guessed 'summer' and most thought it lasted until about Easter, and a few believed there was potential for bushfires all year round. One person said there wasn't a bushfire season in Queensland.

14. Bushfire preparedness – perceptions and actuals

In section 12, we looked at perceptions of risk and preparedness. This section of the interview aimed to compare perceived preparedness with actual preparedness, and to determine obstacles to undertaking preparations.

14.1 Preparedness – perceived and actual

Respondents were asked how prepared they thought they were (the results of this were reported on **page 33)**, and then the survey worked through a series of actual preparedness tasks on three levels: basic, intermediate and advanced preparedness. Respondents answered yes, no or not applicable to a list of 33 preparation activities that were developed from the literature. These activities are detailed in Appendix 7 for bushfire and Appendix 8 for storm.

The basic level of preparedness included clearing leaves and grass from around the house, clearing gutters, removing combustibles from around the house on bad days and bringing in outdoor furniture on bad days. Intermediate activities included planning (defense and evacuation), including the family in planning, ensuring access for fire trucks, having hoses and buckets ready, ensuring gardens are watered and green, monitoring weather, ensuring access to information. Advanced activities included practicing the plan, having a water supply not reliant on the town supply or electricity, protective covers for windows, sprinklers on rooftops, fire breaks, backup power, burning off.

We compared the three different levels of preparation to respondents' idea of how well prepared they were. Figures 13a shows the results for Hodgson Vale and Figure 13b the results for Highfields – most people had undertaken at least five of the seven basic preparation activities (blue), including prepare a bushfire plan in their head. The green bar is the intermediate level of preparation with 15 items.

Figure 13a – Perception of bushfire preparedness against actual preparation activity – Hodgson Vale respondents
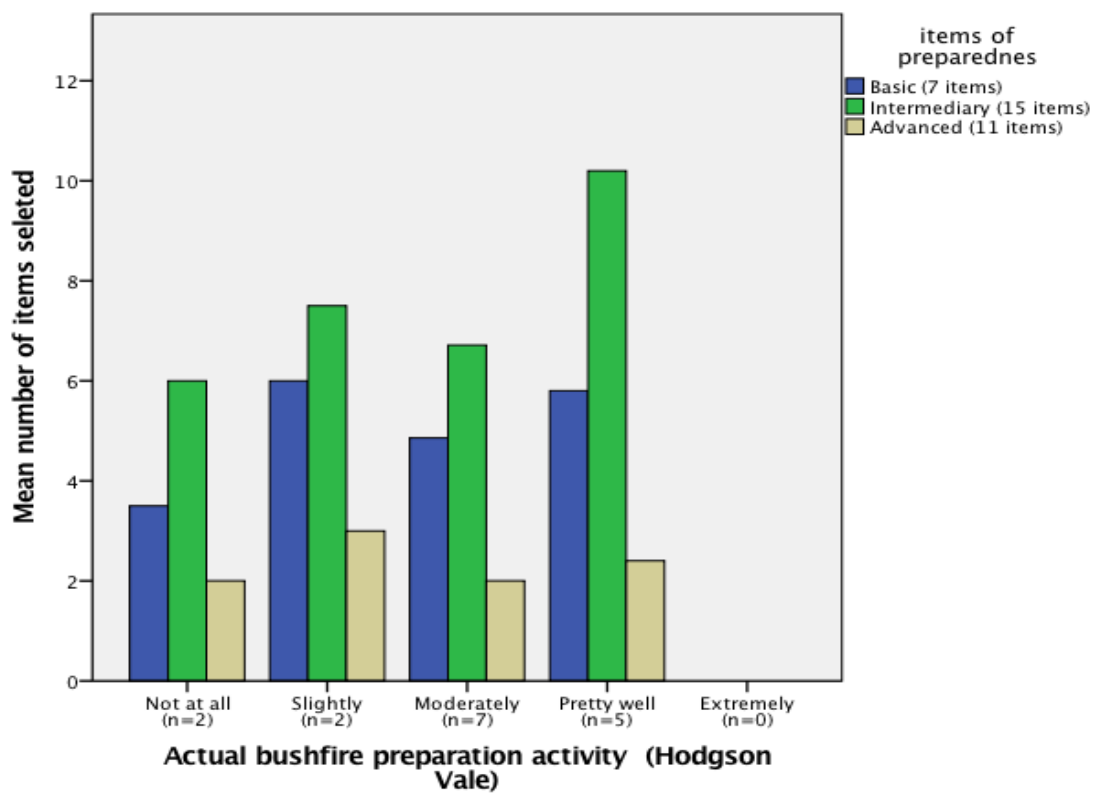
Figure 13b – Perception of bushfire preparedness against actual preparation activity – Highfields respondents
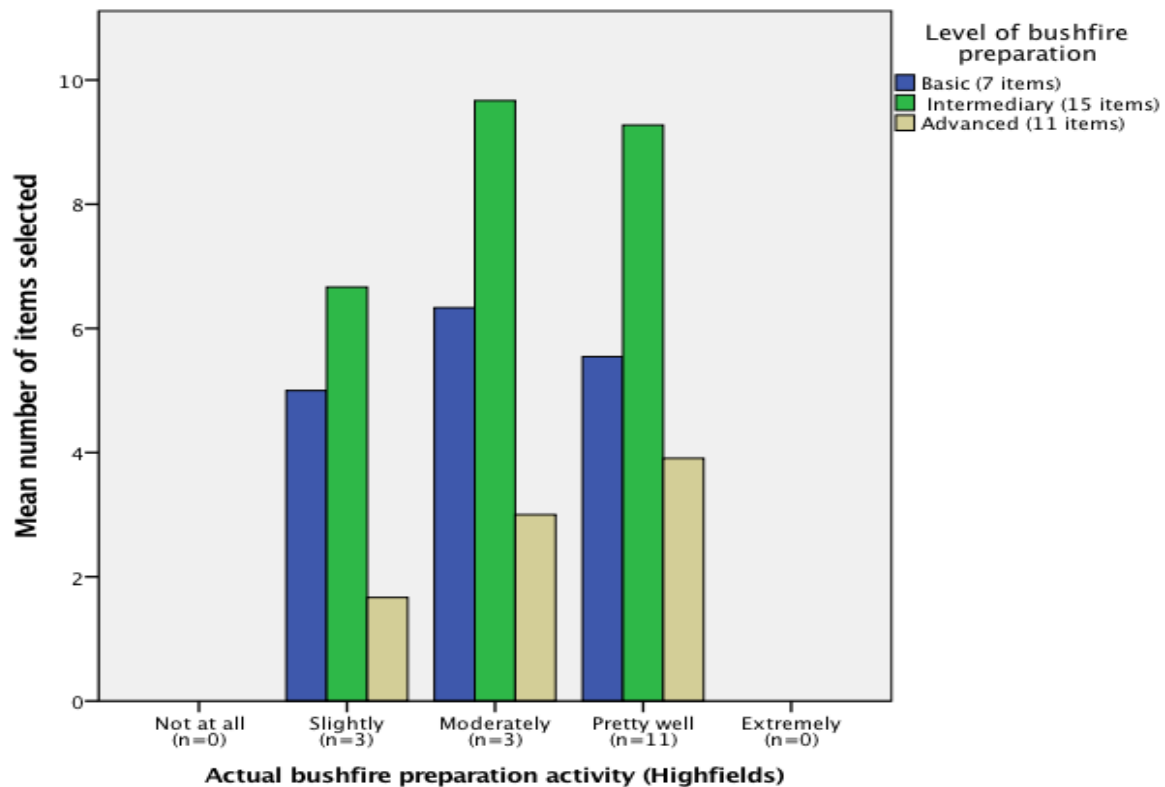
The charts show that people who thought they were moderately or pretty well prepared slightly overestimated their preparedness when compared with the activity they had actually undertaken. For instance, the Hodgson Vale residents who thought they were pretty well prepared had undertaken six out of the seven basic measures, and 10 out of 15 of the intermediate measures, and just two of the 11 advanced measures. Highfields residents completed almost six out of the seven basic measures, not quite 10 of the 15 intermediate actions, and just over two of the advanced activities. Highfields residents who estimated they were moderately prepared were actually better prepared than those thinking they were pretty well prepared on the number of actions they had undertaken. Those who thought they were pretty well prepared had undertaken just less than four of the possible 11 actions in Highfields, and just over two in Hodgson Vale.

A second method of grouping preparedness activities used in past BNHCRC research was by purpose – these purposes were:
- Bushfire safety planning (such as planning, getting initial information, monitoring weather)
- Preparation for leaving (such as evacuation points, routes, what to take, checking insurance)
- Preparation for active house defense (such as equipment, protective clothing, battery operated radio and other communication tools)
- Preparation for reducing danger to the house (such as clearing gutters, removing combustibles, landscaping for fire, clearing a buffer zone)

- Preparation for reducing house vulnerability (such as covering gaps, installing gutter guard, covers for windows, house design)

These groupings are useful to see where shortcoming appeared in preparation activity, given people's intentions.

We compared people's estimation of their own preparedness with these clusters of preparation purpose. The most notable outcome of this comparison was the low level of preparation that people had undertaken for leaving and the seeming lack of understanding of how to make a house more impervious to the danger of fire. The graphs on this page and the next compare Highfields' preparation activity by purpose with that of Hodgson Vale.

Figure 14a – preparation activity grouped by purpose compared with perceived preparation by Hodgson Vale residents
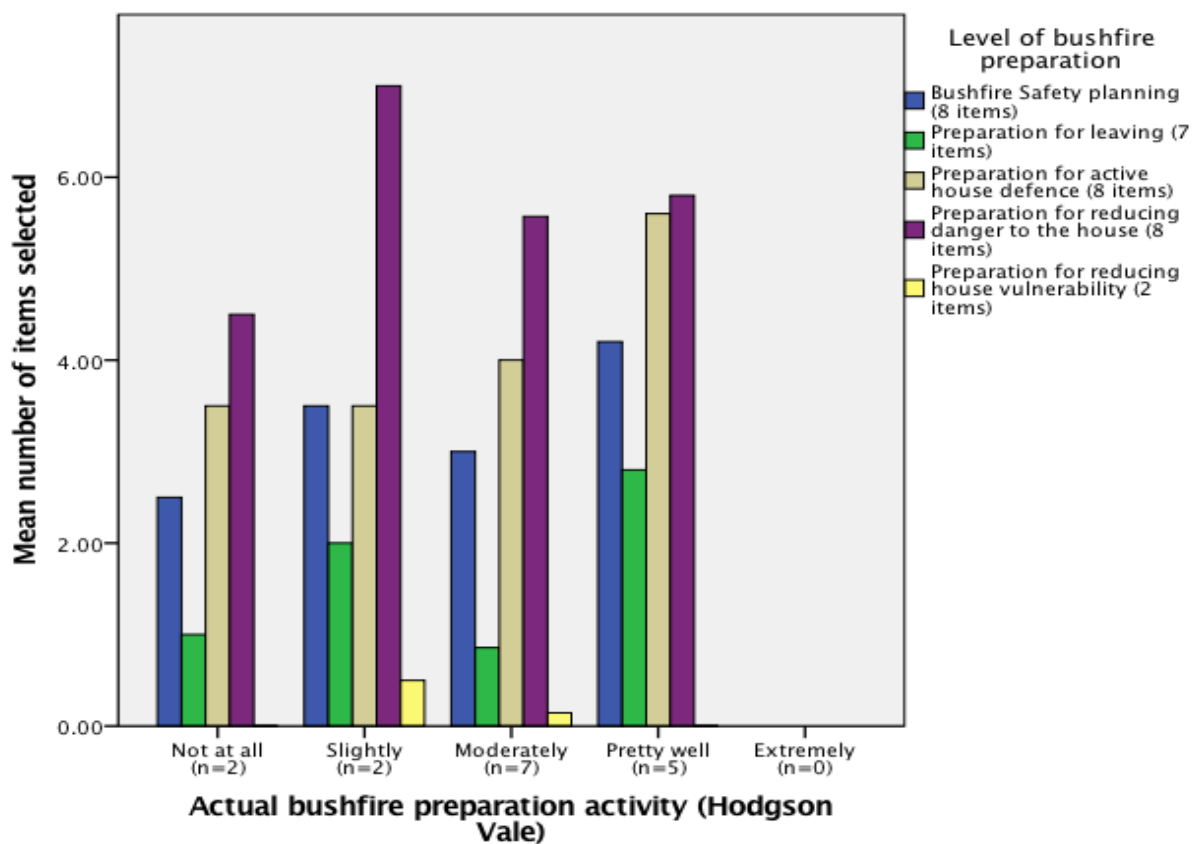
Figure 14b – preparation activity grouped by purpose compared with perceived preparation by Highfields residents
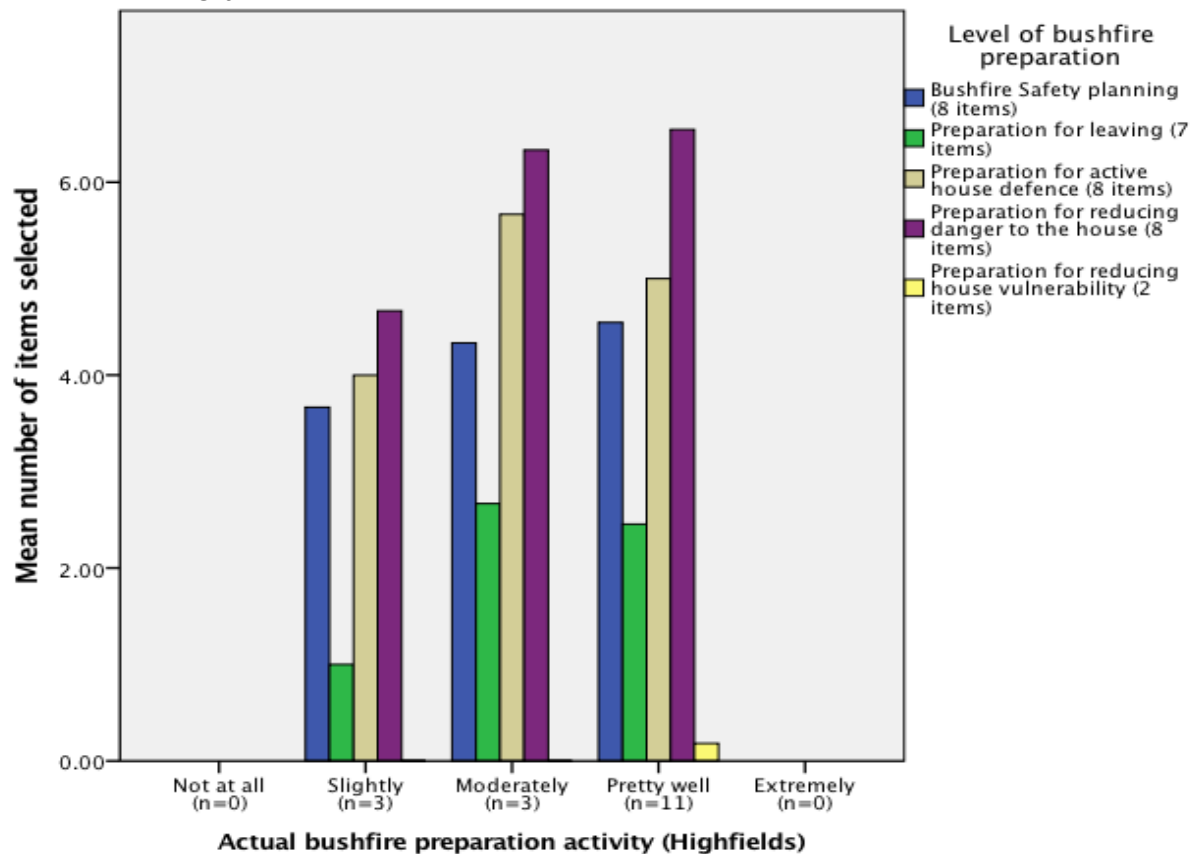
The main feature of these graphs is the lack of preparation that each respondent undertook for leaving. Out of seven 'leave' measures, even those who thought they were pretty well prepared in Hodgson Vale had undertaken three, and this was slightly fewer in Highfields. By far the most popular preparation purpose was reducing the danger to the house – the slightly prepareds in Hodgson Vale had undertaken the largest number of these activities (more than 7 out of the 8 possible). Highfields residents were overall better prepared by purpose – the pretty wells and moderates had undertaken nearly all eight actions to reduce danger to the house (clearing rubbish and foliage away, creating fire breaks etc), and between five and six of the actions to actively defend the house (making sure taps and hoses available, ensuring backup power and water etc). The only measure that fared worse than the leave activities was undertaking measures that reduced the vulnerability of the house – very few people in either area had installed window covers, sprinklers on their roof or other house or garden structural items, and this was reflected in their estimation of risk, and their tendency to weigh the cost against the risk in the obstacles to preparation section in coming pages.

The lack of preparation for leaving was also evident in the open questions of the interviews, particularly the interviews with people who had attended the meetings. Many people commented that they would not do much more than the basic preparation because they were 'just going to leave'. They seemed to imagine that leaving would be as simple as locating and collecting a few precious things (often just the animals), shutting the door and driving away.

14.2 Triggers for preparation

Triggers for preparation activity were identified as:

- Ongoing activity, these are things they do all the time. This was true of people at the 'slightly' prepared end of the scale, indicating that their preparation activity was probably not a result of bushfire preparation, but a desire to keep their place tidy; and also of the people at 'pretty well' end of the scale who were more bushfire conscious.
- The weather and time of year – long, dry periods with little rain triggers preparedness in those at the higher end of the preparedness scale.
- The fire meeting signs – which reminded people it was 'that time of year'
- Letterbox delivery of bushfire preparation material by QFES

14.3 Obstacles to getting ready

Obstacles to preparation for bushfire appeared to be mostly related to residents weighing up the perceived risk with the effort involved, and deciding that anything they had not done to prepare was not worth it given the level of risk they faced (38.4%). A few people cited time as a factor (34.6%), and some had not 'got round to it' at the time of the interviews (30.7%). Just over a quarter of the sample cited cost as an obstacle to preparation for bushfire (26.9%). Cost was mainly related to the more extreme measures such as installing or maintaining window covers, and installing/maintaining rooftop sprinklers. Table 4 gives details.

Table 4 – obstacles to preparing for bushfire

	Hodgson Vale	Highfields	Total	%
Don't think it is worth it (risk/benefit)	7	6	13	39.39
Cost	5	7	12	36.36
Too busy	3	7	10	30.30
Hadn't got around to it	2	8	10	30.30
Restrictions/laws on vegetation removal	1	4	5	15.15
Don't think it will make a difference	2	3	5	15.15
Not sure what to do	2	3	5	15.15
Physical difficulty doing the work	1	4	5	15.15
Hadn't thought about it	1	1	2	6.06
Lack of equipment	1	1	2	6.06
Didn't want to change the way the place looks	0	1	1	3.03
Renting the property	1	1	2	6.06
Land is too rugged	1	0	1	3.03

The obstacles were mostly related to downplaying the level of risk to the point that in some cases it didn't register, rather than lack of resources or knowledge to prepare. There may also be a misunderstanding of local laws on vegetation removal in non-rural areas.

15.   Information preferences and activity

We asked questions about how people preferred to get information about bushfire preparedness, what information they had received before or during bushfire season and what they had found most useful.

On the question about information preferences for bushfire preparation, respondents had eight options, plus room for other ideas. The suggestions included:
- From a meeting held by RFS/QFES
- From brochures delivered by QFES
- On social media
- From the council
- From the RFS/QFES or some other website
- From neighbours
- From the television or radio
- From The Chronicle

Almost half of the people interviewed indicated that they would prefer to get the information via a meeting held by QFES or RFS, but this was not reflected in the number of people who attended the meetings in either Hodgson Vale or Highfields. One third of respondents preferred a brochure in the mail, and some commented that this was a useful reminder that bushfire season was coming and in some cases triggered their shorter term bushfire preparations and more vigilance about bushfire safety issues. Table 5 shows the clear preference for official information.

Table 5 – preferred channels of information on getting ready for a bushfire

	Hodgson Vale		Highfields		Total	Total %
From a meeting held by the Rural Fire Service	7	46.7%	8	53.3%	15	45.45
From brochures delivered by the RFS	6	54.5%	5	45.5%	11	33.33
From the RFS or some other fire agency website	1	33.3%	2	66.7%	3	9.09
On social media	2	66.7%	1	33.3%	3	9.09
Other (all sources)	0	0.0%	1	100.0%	1	3.03
From neighbours	0	0.0%	0	0.0%	0	0.00
From television or radio	0	0.0%	0	0.0%	0	0.00
From the council	0	0.0%	0	0.0%	0	0.00
From The Chronicle	0	0.0%	0	0.0%	0	0.00

In the open ended section of the interviews, people were asked about where they have received or looked for information for the 2017 bushfire season. Most identified a pamphlet in the mail box from the Rural Fire Service or 'the council' as information they had seen, especially the Highfields group. Street meetings run by fire agencies, as well as advertising on television were sources of information that had come to them. Some people actively sought information by going to a neighbour or searching the web for agency websites.

Respondents identified more than one source of information, and these are listed in Figure 15.

Figure 15 – bushfire preparation information sources
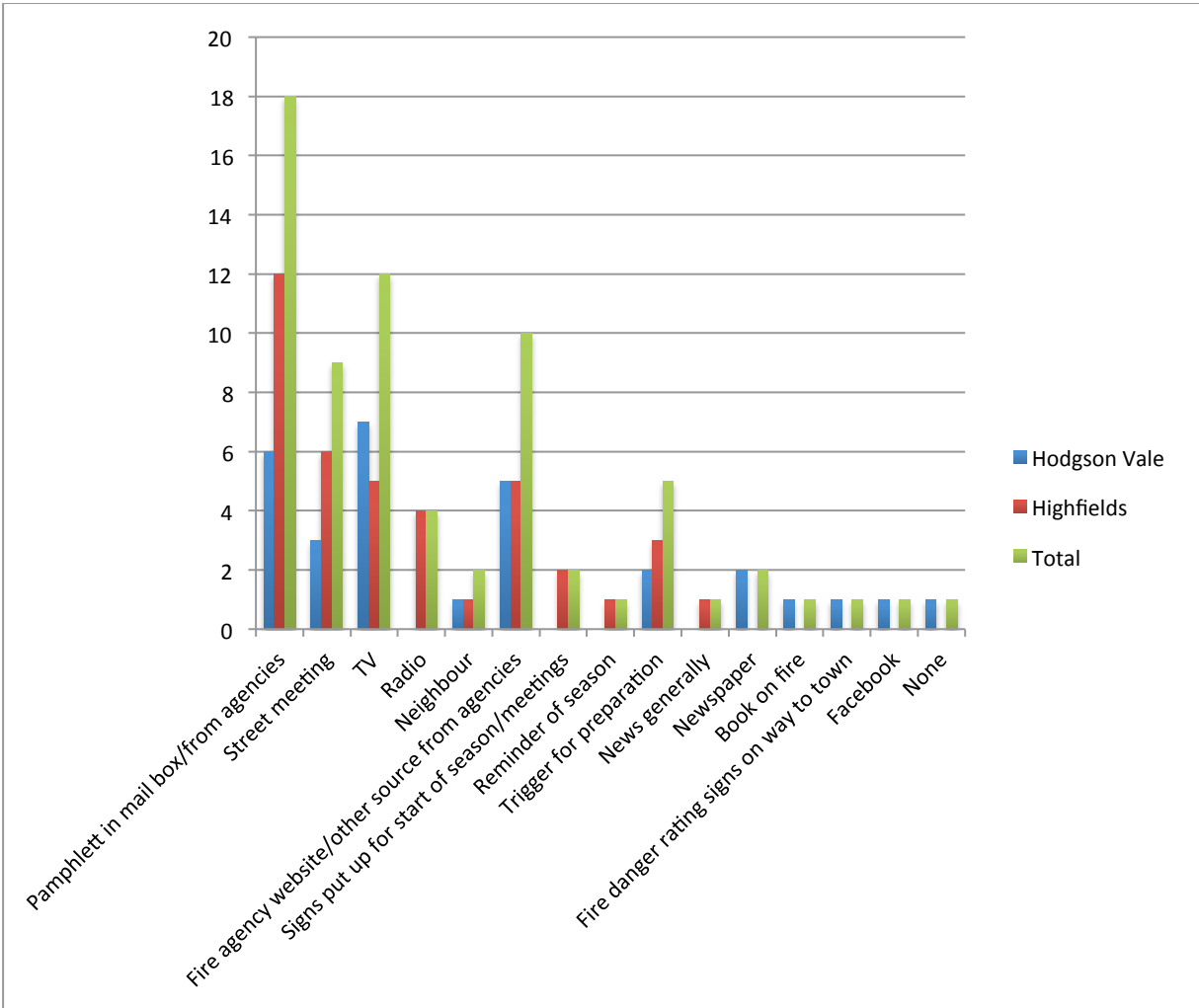
Social media use is usually of particular interest, so one of the questions asked about Facebook use. Not everyone answered this question, but Hodgson Vale people were more likely to be on Facebook (11 out of 18 respondents), while about seven of the 15 Highfields residents who answered this question were on Facebook. Only three people followed Facebook pages such as Queensland SES, QFES or QPS.

Figure 16 – social media use
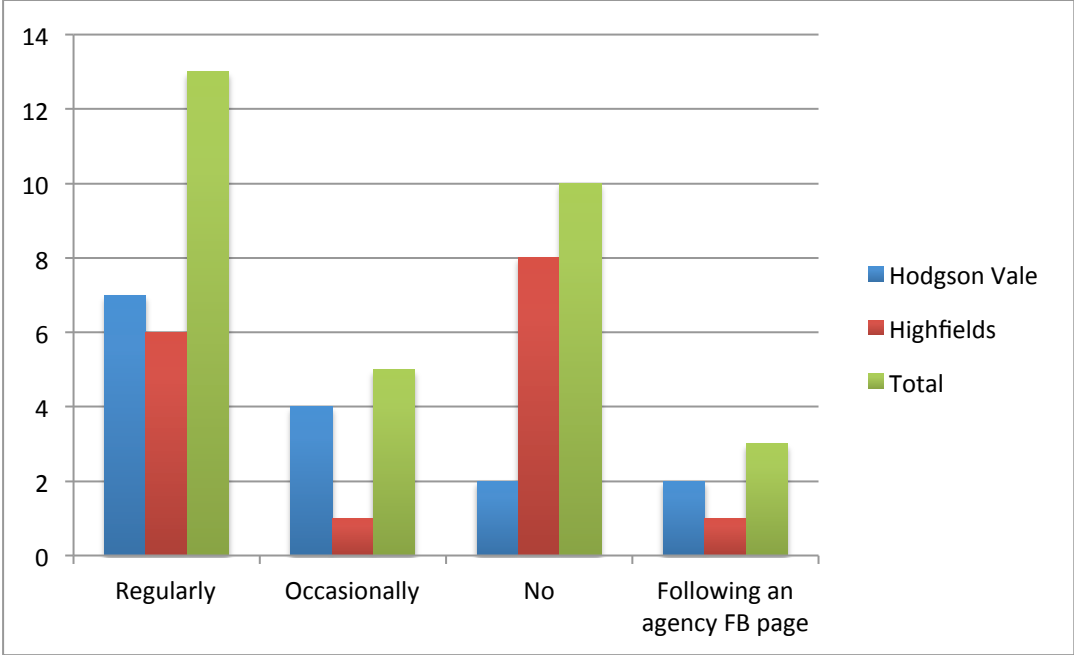
We also asked what was most useful and just a few of the respondents identified these – information on how to get the place ready was most popular, followed by information on evacuation. Other suggestions were information on survival after the fire, checklists, and confirmation that what respondents were doing to prepare was sufficient and/or on the right track.

On how they would learn about a bushfire in their area, most people thought they would see or smell the smoke (n=18), and that their neighbours would let them know (n=13). Other alert sources were expected to be agency personnel knocking on doors or driving trucks around the neighbourhood, radio, text alerts, social media, TV and news and hearing aircraft. These are detailed in Figure 17 over the page.

Figure 17 – expected alert sources for a bushfire
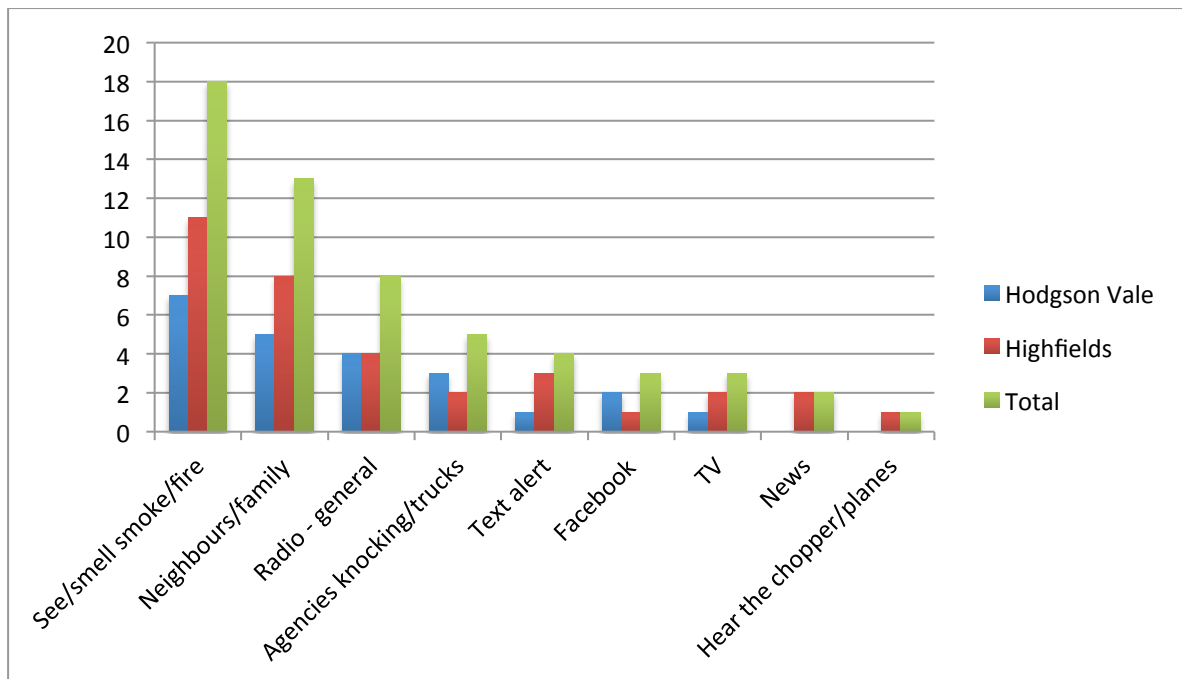
Knowledge of the bushfire alert protocol – Advice, Watch and Act, and Emergency warning was something we wanted to test. The best way to do this was to ask without any sort of prompt so that true understanding could be gauged, but people did not seem know what we referred to, and no-one identified any of the words used in the protocol. In the second round of interviews, we used the Bushfire Safety brochure as a prompt, but found that people were guessing from the subheadings they were reading and a true understanding of their level of knowledge was not possible.

However, understanding of the fire danger rating signs was almost universal – only three Preston people did not know what it meant. We did get a feeling from the interviews that people did not know how each colour translated into certain actions for themselves and only one person said that seeing the danger rating sign was a trigger for preparation. There were a few comments about the lack of prominence of a fire danger rating sign between Highfields and Toowoomba.

The seven people interviewed after the meetings but had not attended were also asked whether they saw the signs for the meetings, and if so, why they had not attended.   Six were away or had other commitments at the time of the meetings and one said they had been to a meeting before.   Three people said the signs triggered the realisation that bushfire season was starting or approaching, one sought information from a neighbor who went, and one, who was quite advanced in his preparation, used it as a reminder to check his progress and do additional things that had already been on his to-do list.

On how much time people had from alert to action, estimations covered a wide range of time. Eight people said it would really depend on the characteristics of the fire and an equal number thought they would have up to 30 minutes to take action (either leave or defend the house). Figure 18 over the page illustrates responses to this question.

Figure 18 – Expected time from alert to either evacuation or defense
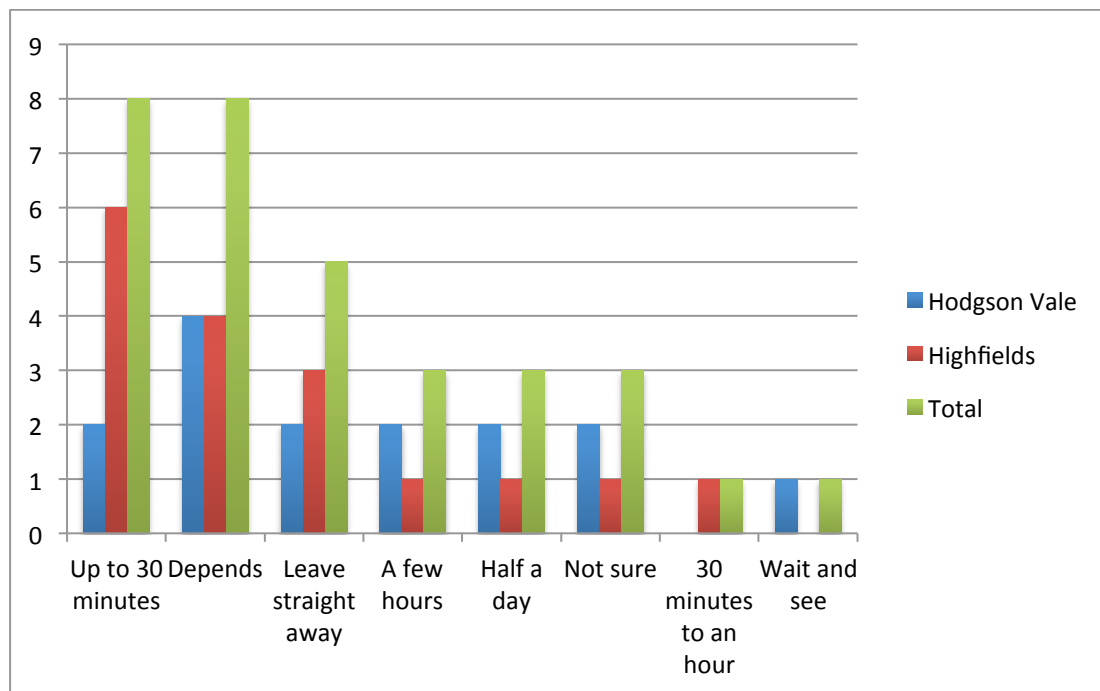
16. Perceptions of roles and responsibilities in a bushfire

The interviews attempted to develop a picture of what people thought of their roles and responsibilities in a bushfire, and how much responsibility they attributed to agencies. Questions were asked on responsibility for fire, intentions to rely on fire services, and attitudes to controlled burns.

16.1 Responsibilities and dependency

During the pre-project briefing with QFES, concern was raised by QFES staff that many property owners did not know that they were responsible for any fire that started on their property so we tested this in the interviews. Over all, the people interviewed showed a good understanding of their own roles in a bushfire, tending to show intentions of self-efficacy. For instance, six statements in the survey instrument referred to concepts of dependency when it came to protection of self and property, and respondents mostly rejected these.   To the statements "There is little you can do to protect yourself and your home against bushfire", and "Protecting your property is too expensive", 30 people (90.9%) disagreed or strongly disagreed.

However, the reactions to the statement that fire services were responsible for a fire on the respondents' property confirmed QFES concerns that some householders placed responsibility for all fires onto response agencies – six of the 33 people interviewed (18.2%) agreed that they would leave rather than take any action to protect their house. Almost as concerning was the level of agreement to the statement that if a fire was to arrive, they would "just call the fire brigade" – 10 people (30.3%) agreed or strongly agreed with this. Figure 19 on the next page provides details of responses to each of the statements on roles and responsibilities.

Figure 19 – roles and responsibilities in a bushfire
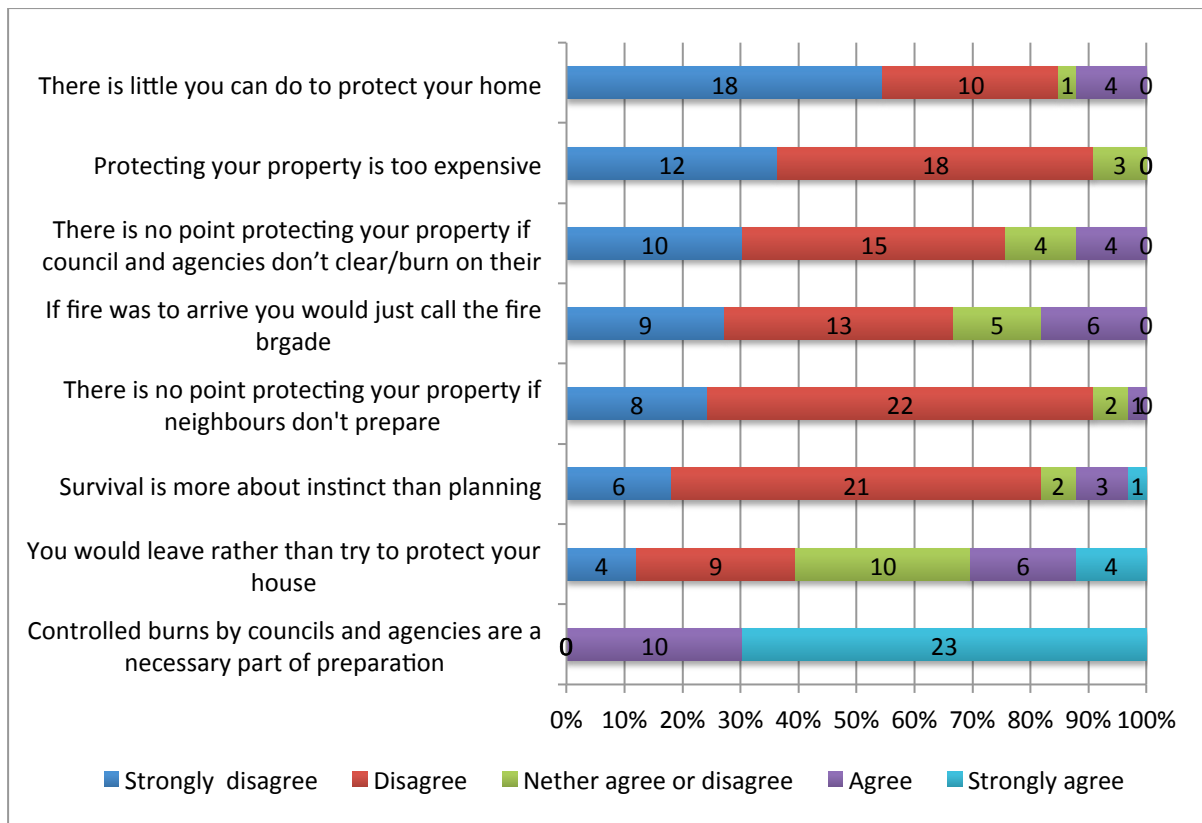
16.2 Controlled burns

The most notable outcome in this section of questioning was the almost unanimous support for controlled burning as a necessary part of bushfire mitigation. Many participants qualified their support with statements like "as long as it's supervised by people who know what they are doing", which tended to extend the support across landholder types, as long as QFES or RFS staff supervised the burn. A version of this question was also asked in the open section of the interview with support from all but one person, even though that respondent agreed with the earlier statement that controlled burns are a necessary part of bushfire preparation. That person said "…no, we're not keen. The biggest problem with local burns is that they get out of hand…"

Comments in support included:
- "Great idea…"
- "As long as the agencies do it…as long as it's well controlled and at the right time of year…"
- "…they can prevent more danger.."
- "Essential…"
- "I think given where we live, it is probably a good idea…"
- "I think it should be done far more regularly than it is…"
- "Imperative…"

Three of the respondents said they were asthmatics or had asthmatics in their family and still agreed that controlled burns were desirable.

16.3 Personal capability

Respondents were asked what they thought their capacity would be to fight a bushfire that started on their property, with four answer choices ranging from 'none' to 'good'. No-one indicated that their capacity was good, that they were set up to fight a bushfire and their knowledge was good. While no-one thought they were well-equipped and experienced, a large number (39.4%) thought they were moderately prepared to fight a fire on their property (see Table 6 below). About half of these people mentioned that they had previous experience with fire as either farmers or volunteer firefighters, and eight had fire pumps or similar equipment. However, the majority felt that they had low capacity to fight a fire, which would hinder their ability to take on their responsibilities for fire management as property holders. Highfields residents were more likely to believe they had some capacity to fight a fire on their property.

Table 6 – capacity to fight a fire that starts on their property

	Hodgson Vale		Highfields		Total	Total %
	N	%	N	%		
None – I have no equipment or knowledge	5	100.0%	0	0.0%	5	15.15
Low – I have some equipment and a little knowledge	6	40.0%	9	60.0%	15	45.45
Moderate – I have good equipment and knowledge	5	38.5%	8	61.5%	13	39.39
Good – I am set up to fight a bushfire and have experience	0	0.0%	0	0.0%	0	0.00

16.4 Knowledge and expectations of fire services

A small number of the interview group said they knew nothing about the fire services (n=7), or the differences between the Rural Fire Service and urban services. However, the remainder had some knowledge, with most people able to identify that RFS officers were mainly volunteers. There was also frequent mention of the RFS yellow trucks and urban red trucks, fundraising, the urban services dealing with house fires and RFS with vegetation, and an expectation of slightly delayed response times for the volunteer brigades because of the time it takes to get everyone together.

When asked about the level of support they expected if a fire was to occur in their road, responses ranged from "Nothing, we would be on our own", to "Complete support". Many people expected best efforts, but qualified this depending on what else was happening at the time. "They'll give it their best shot, but they'll have to prioritise", "Depends what's going on in other areas" and "They'd be pretty stretched, so we wouldn't rely on them" was more common from areas such as Vayro and Brady Roads, where most residents were aware of the difficulty of defending those areas and the regularity of bushfires there. Hodgson Vale people were more likely to expect good to high levels of support and none thought they would be provided with little or no support. These expectations are illustrated below.

Figure 20 – expectations of support during a bushfire
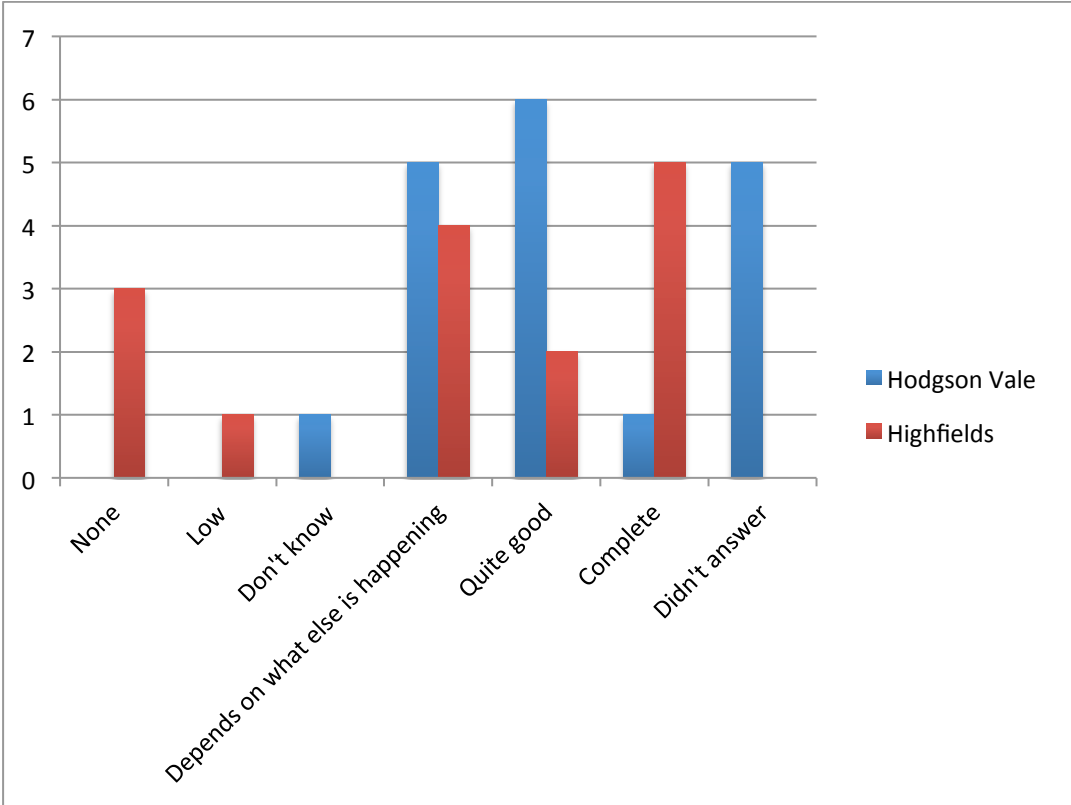
17. Storm preparedness - perceptions and actuals

17.1 Levels of storm preparedness

On page 30, we looked at how prepared people thought they were for storm and their perceptions of storm risk. In this section we will revisit this preparedness and compare it with actual storm preparation activity.

At the basic level, all respondents had cleaned leaves and grass from around the house and checked their roof to make sure it was in good condition. However, identifying the safest room in the house was not high on the list of basic preparation for 12 people (36.4%), who said they had not done this. In the first round of interviews, this question's phrasing may have been a problem, as the interviewers felt that some people were answering this question as a yes, even as they actively determined during the interview which room would be the safest in a bad storm – they had not thought about this before being asked the question. Only three people said they did not learn or review how to switch off gas, water and power – and again, the interviewers felt that this question was answered 'yes' for some people on the basis that they felt this task would be simple and that they would not have to learn or review this aspect of preparation. The full list of activities is included in Appendix 8.

The final question in the suite of basic activity was about bringing in furniture and other loose items on bad days – twelve people (36.4%) said they did not, and one person had nothing to bring in and answered that it was not applicable.

In the next two sections for moderate and advanced storm preparedness, escarpment residents tend to be generally unprepared. While many said they had a storm emergency plan in their head (57.6%), the details of that plan was not determined; no-one had a written plan, and one person identified that a written plan was not applicable in their case. On possible discussion with their family of the storm plan, three people lived by themselves, so this question did not apply. Thirteen people (42.3%) said they had discussed their plan with their family, although the form and depth of this discussion was not explored. The most adopted moderate preparation activity was monitoring weather forecasts – only one person did not keep an eye on the weather from day to day during storm season.

Most people had enough water for three days via water tanks connected to their house, and a way of getting to the water if they lost power; and both groups seemed to be well prepared with at least three days' supply of food on hand. Only one person answered no to this question. As with the fire question, the more extreme mitigation measures, such as protective covers for windows and a generator or other secondary power source did not figure as part of most escarpment residents' preparedness measures for storm. One person had window covers and seven people had alternative forms of power, either a generator, or solar powered kit for a caravan.

The levels of preparation are illustrated in the chart below – the blue bar indicates the number of people undertaking basic preparation, green is moderate preparation and fawn advanced preparation. These were compared with how people identified their preparedness levels. The perceptions of preparedness evidently vary, because there is very little

difference between the activity levels of those who thought they were 'moderately', 'pretty well' or 'extremely' well prepared for a storm.

Figure 21 – perceptions of preparedness compared with actual preparation activity
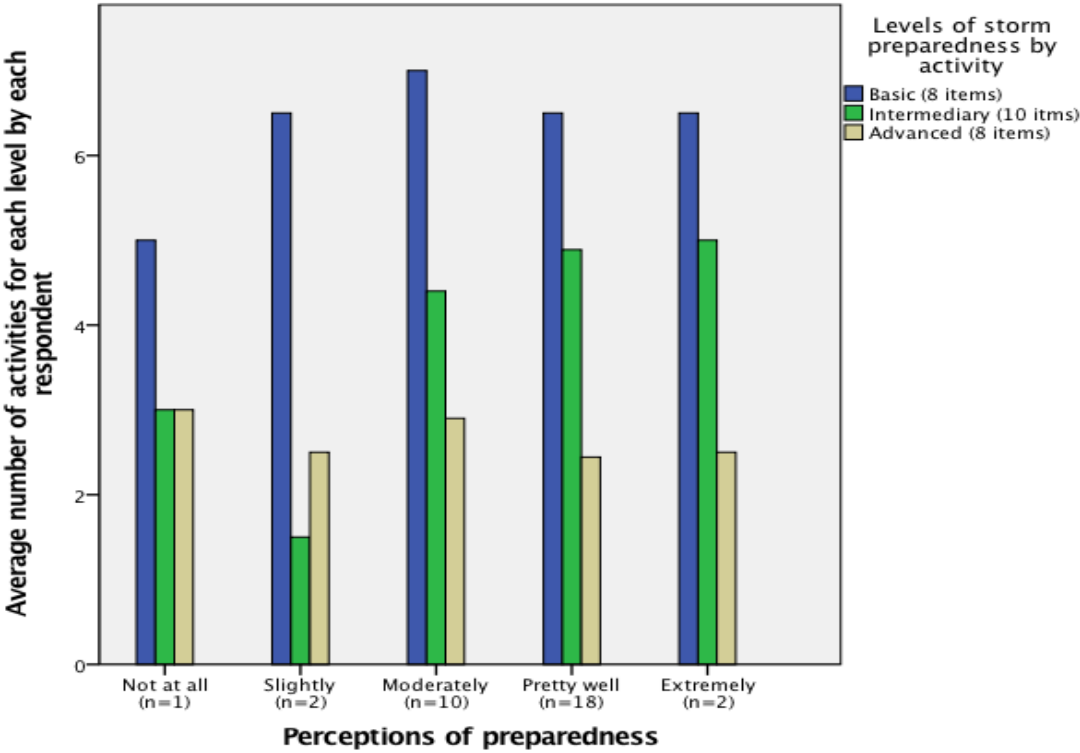
We did not use the bushfire purpose categorisations in this analysis, as these were unique to bushfire research, but we did compare self-assessed levels of preparation with the level of risk that residents thought they faced from storm. The following chart shows that the person who considered themselves at extreme risk of storm considered themselves 'moderately' well prepared, the very high risk person was 'pretty well' prepared, and those thinking they were high risk were 'moderately' or 'pretty well prepared'.

Figure 22 – perception of risk compared with perceived preparation levels
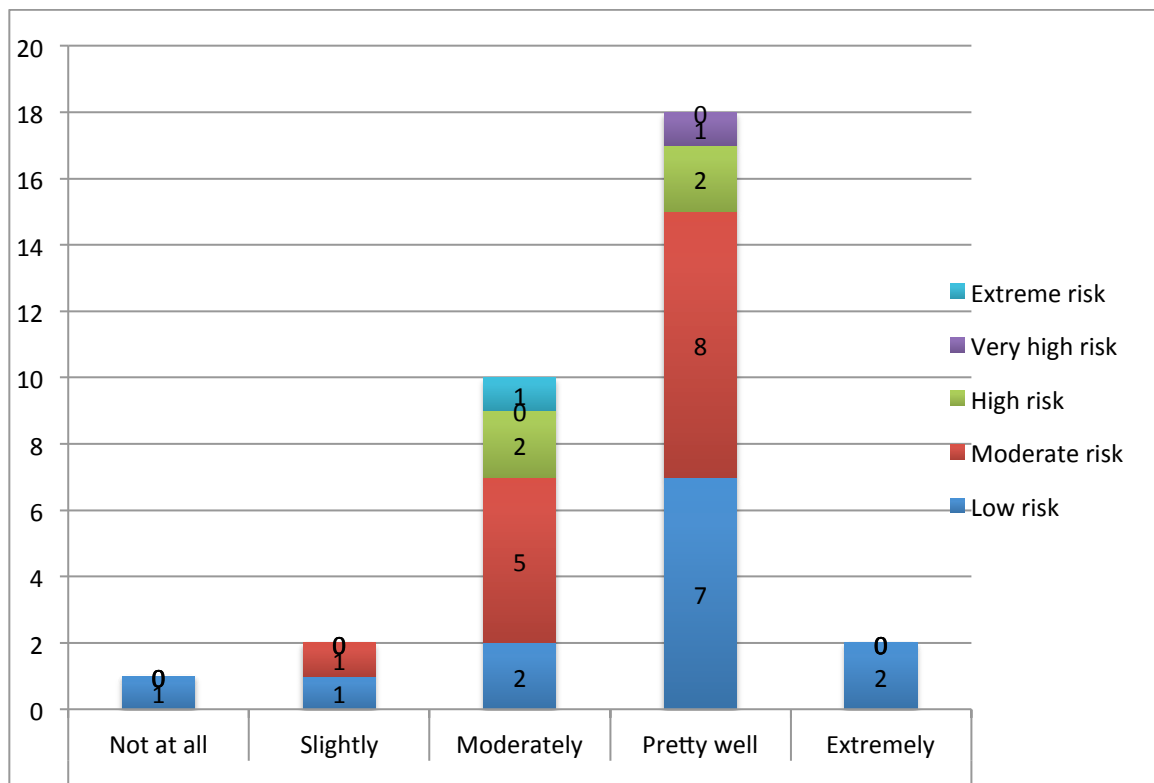
17.2 Triggers for storm preparation

Triggers for preparation activity were similar to bushfire and identified as:

- Ongoing activity, these are things they do all the time. However, unlike bushfire, people were not likely to prepare for storms specifically – activity tended to be more about keeping their place tidy.
- The weather and time of year – people interviewed in the first round were expecting storms to start October-November, whereas people interviewed in the second round had experienced storms in September and realised they were in storm season.
- A storm approaching seemed to be the trigger for most people to do additional preparation activity such as check rooves and put loose items inside.

Effective reminders for storm season were storm preparation brochures sent by insurance companies and Ergon Energy (these were mentioned by 11 of the respondents), but they prompted action in only two of the residents.

18. Obstacles to storm preparation

As with bushfire, the most often-cited obstacle to preparing for storm season was the cost-benefit analysis that residents seemed to undertake where the cost (time, effort, financial outlay etc) outweighed the possibility that a storm might do damage to their property. More than half of residents had made this calculation. A few (19.2%, mostly Highfields residents) were not sure what to do, and cost was a factor for 15.3%, almost all of them from Hodgson Vale. Equal numbers had 'not got around to it yet' this year and didn't think it would make a difference. Table 7 gives the details.

Table 7 – obstacles to preparing for storm

	Hodgson Vale	Highfields	Total	Total %
	Yes	Yes		
Don't think it is worth it (risk/benefit)	9	9	18	54.55
Not sure what to do	2	5	7	21.21
Cost	5	1	6	18.18
Lack of equipment	3	2	5	15.15
Don't think it will make a difference	3	2	5	15.15
Hadn't got around to it	1	4	5	15.15
Physical difficulty doing the work	0	4	4	12.12
Hadn't thought about it	1	2	3	9.09
Restrictions/laws on vegetation removal	0	2	2	6.06
Too busy	1	1	2	6.06
Didn't want to change the way the place looks	0	1	1	3.03
Lack of options for large animals	0	1	1	3.03
Renting the property	0	1	1	3.03

Despite the majority of respondents having experience with a serious storm that caused damage to their place or a neighbour's (75.6%), more than 50% thought that the level of risk of a storm was too low to undertake more than basic preparation and this was by far the main reason for not getting ready for a major storm until one actually approached. A reasonable number were not sure what they could do to prepare for a storm (21.2%), and seven people had not got around to it or were too busy (21.2%).

19. Storm information preferences and activity

Storm season seemed to be treated by the interview participants more casually than bushfire. All participants identified storm season as mostly summer, although many recalled last year where the region experienced a few minor winter storms and said that sometimes it could be "all year 'round".

Participants were asked a series of questions about whether they had received storm preparation information, what they found useful, how they would first hear about a storm approaching their house, what they knew about the Queensland storm alert system and how long they might have to react to a storm once they heard it was coming. Each of these questions was open-ended, which means participants contributed their own answers and often identified more than one item in their answers. It also means that their recollections on some of the particulars were vague. For instance, they may have recalled television advertising, which they thought was by QFES, but then mentioned that the ads were focused on downed power lines, which appears in Ergon and Energex advertising. This section collates and presents all of their responses, confirming a communication tool kit of sorts, but doesn't provide data strong enough for strategy.

Thirty three forms of information on storm preparation were suggested including none at all. Just over a quarter could not remember receiving information on storms, but others mentioned television advertising by Ergon Energy and QFES, plus brochures received from their insurance company or with their electricity bill. Television news was mentioned, but this could have been news on storm effects across the state rather than specific preparation information – some respondents commented that this was useful in reminding themselves to start getting ready for storm season. Other sources of preparation information were agency websites, council publications and radio, mainly ABC. All of the people who thought they would receive storm preparation information on TV news were from Hodgson Vale.

Figure 23 – sources of information on storm preparation
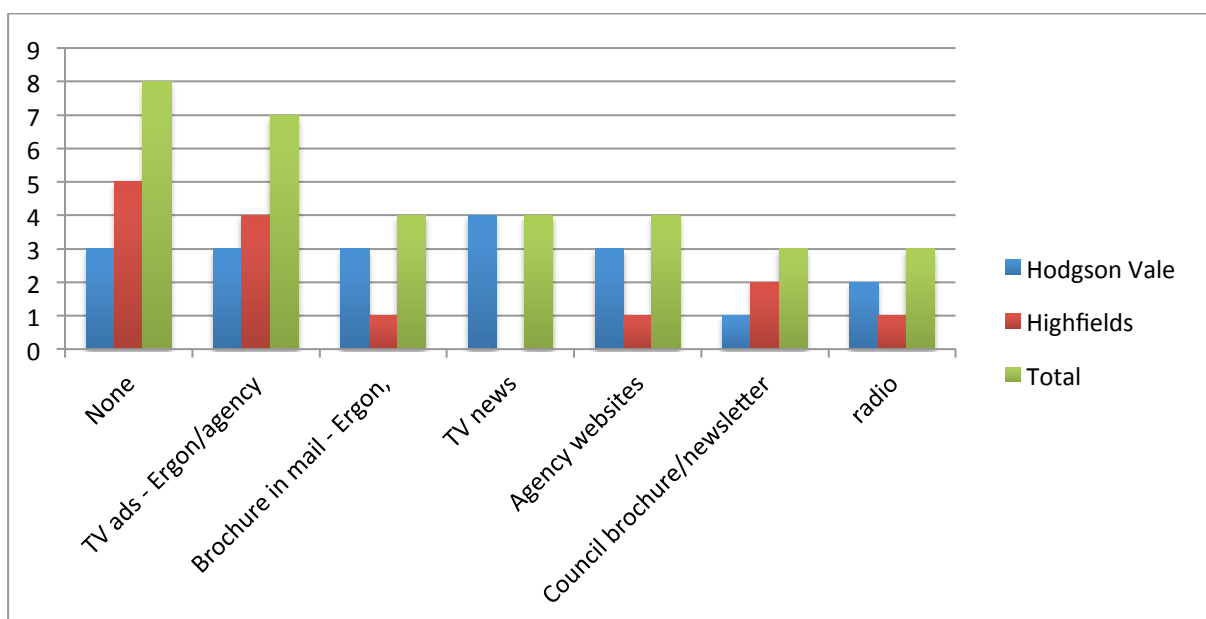
When asked how they would hear about a storm that might affect them directly, most thought they would be alerted by one of their weather apps (n=14), or they would hear or see it coming (n=12). Other options were TV and radio, text message, work email alert and Higgins Stormchasing on Facebook. Weather apps used by participants included:

- Bureau of Meteorology's app
- Weatherzone
- Elders weather
- Ozradarlite

This graph shows the full range of alert sources suggested by the group.

Figure 24 – how people thought they would learn about a storm approaching their house
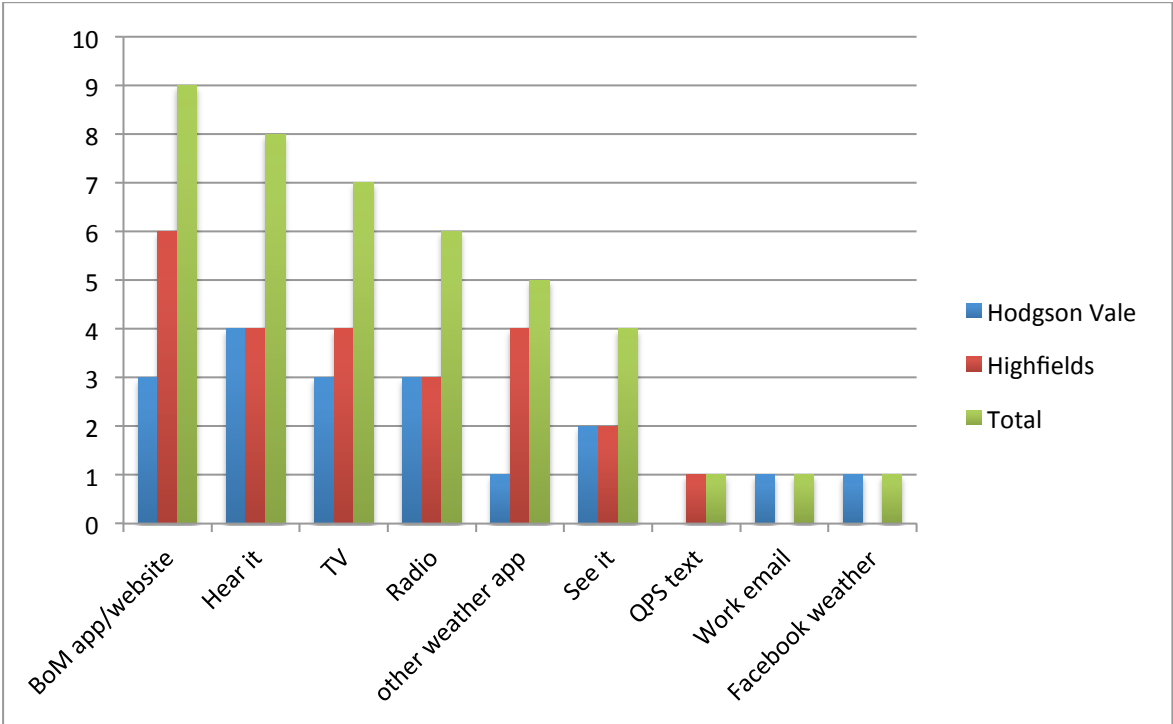
One of the questions was aimed at determining what people knew about the storm alert system – like the bushfire version of this question, it was difficult to tease out understanding without leading the person being interviewed. On the whole, most people (16 out of the 25 who answered this questions) did not know what the official agency warning for a storm might look like and how it might be distributed. Four people identified SEWS, but all qualified this with the certainty that it applied for cyclone, they were just not sure if it applied to storms as well. Four also named text messages, and one person thought that triple 0 might be how they would receive a warning. Figure 25 on the next page shows the range of answers to this question.

Figure 25 – perceptions of how the storm warning system works
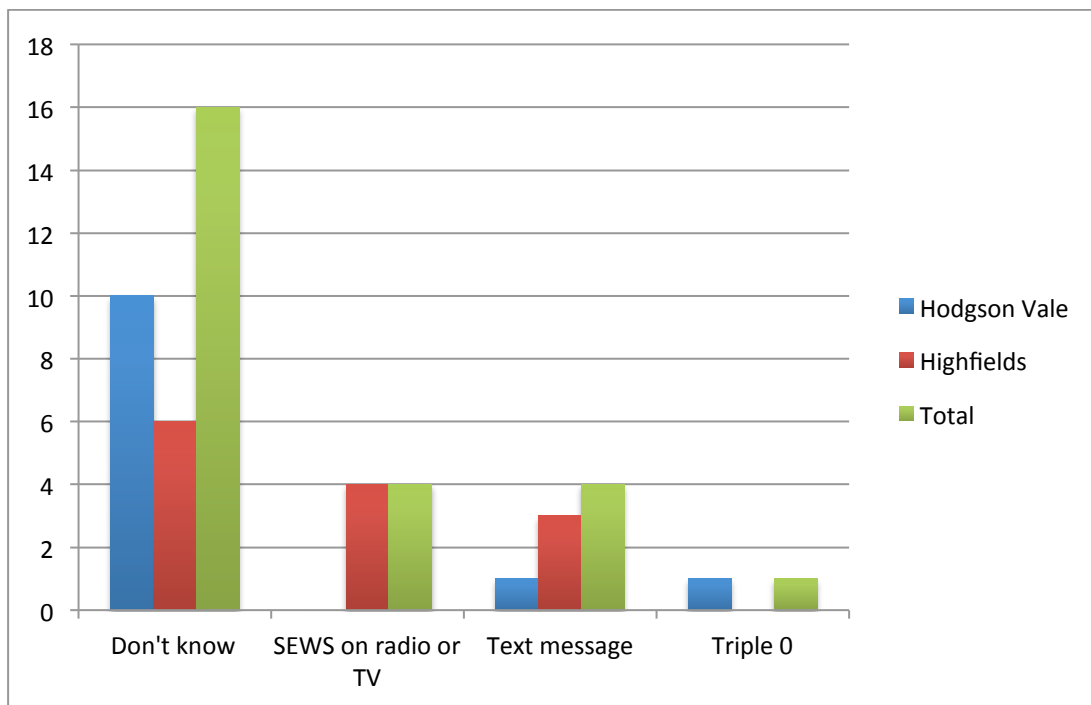
Participants were also asked how much time they might have to prepare for an approaching storm given the alert sources they had identified. Nine of the 22 who answered the question thought they would have few hours. We thought that these nine would probably be people who had weather apps on their phones that generated push messages for warnings, but when we checked the app users, their estimations of the time they'd had to take action ranged from 30 minutes to 24 hours, with one saying it would depend on the specific features of the storm. Ten people self-identified as 'weather watchers' or 'weather nerds/geeks', and these people consistently thought that they would have just 30 minutes up to two hours to prepare. The details are in the graph on the next page.

Figure 26 – expected time from alert to storm impact
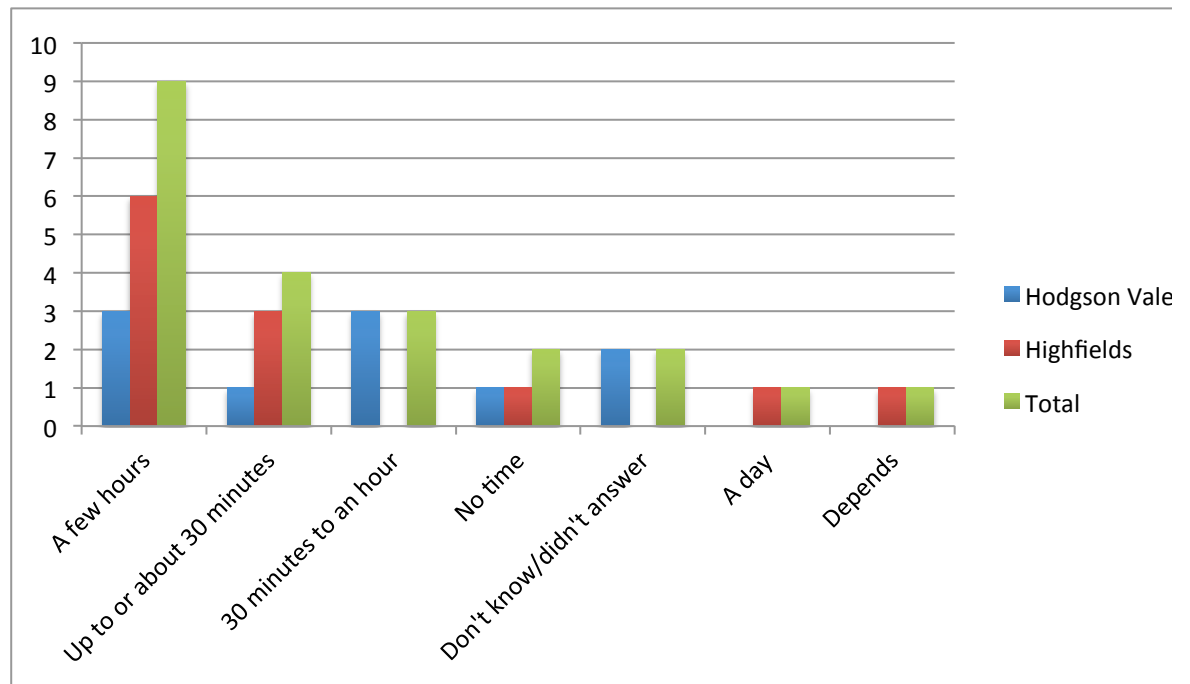
20. Preparation for storm and bushfire as a result of participating in the research

The questions asked during the research about respondents' preparation activity were quite detailed, and segmented into three levels of preparation – basic, moderate and advanced. It was felt that in the process of answering these questions, a respondent with a low or moderate level of preparedness might become more knowledgeable about the process of becoming prepared for either a storm or a bushfire, and that the interviews themselves might have a motivating effect. Two questions were asked about this – one on intentions to get more prepared for storm after the interview and the other on intentions to get better prepared for fire. Almost two thirds of respondents said they intended to do more to prepare for both storm and bushfire: 57.6% of respondents finished the interview intending to do more for storm preparedness, and 69.7% of respondents intending to do more to get ready for bushfire. Table 8 shows that the two communities were quite similar in their intent, although Hodgson Vale participants were less likely to do more storm preparation.

Table 8 – intentions to do more preparation as a result of the interview

	Hodgson Vale		Highfields			
	Yes	No	Yes	No	Total Yes	Total Yes %
Intentions to prepare more for storm after completing the interview	7	9	12	5	19	57.58
Intentions to prepare more for bushfire after completing the interview	11	5	12	5	23	69.70

21. Outcomes from the meetings

Nine people who attended the meetings were interviewed and asked questions about the key things they took away from the meetings, what they did, and how they understood each section of the meeting. The meetings were structured along the lines of the Bushfire Safety flip chart brochure, so the interviews followed a similar path. The interview group's ages ranged from 44-77, they lived between 10m and 1km from the bush, and five of the nine had lived in their house four years or less, three had lived there 10-15 years and one had been in the house 31 years. Three people had bushfire experience where a fire had been within two kolimetres of their house – one of these had experienced her house burning down. Three were from Highfields and the remainder from Hodgson Vale/Preston.

The nine have been roughly plotted onto the CFA community readiness matrix in Figure 27. The principles behind the CFA community readiness matrix indicates that those in the interested and concerned areas of the model could be moved to 'motivated' in future years if they could be involved in further engagement activity.

Figure 27- where the interviewed meeting attendees sit on the community readiness scale
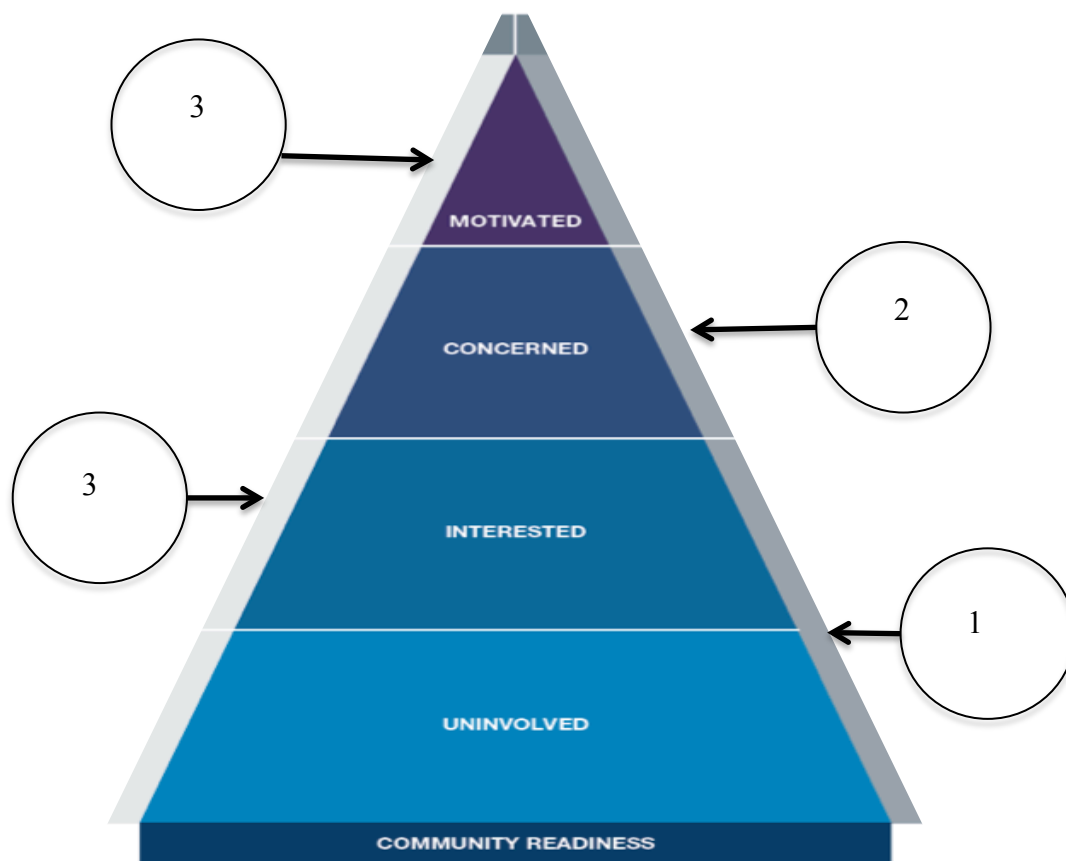
21.1 Reasons for attending the meeting

A number of people said they attended the meeting to secure key contacts in the fire services. On further probing, this was not so much about future communication, but getting an idea of the lay of the local land in terms of which local brigade looks after the area and who the key people were in these brigades, just in case advice was needed in future. Several of these people lived near areas that they felt needed a controlled burn or some pressure on the owner of the land, and they went to the meeting to try and arrange this. One respondent from Top Camp had discovered the relevant brigade was Flagstone Creek RFS down the bottom of the Range just before the meeting, but attended Hodgson Vale to get more information on Neighbourhood Safe Places for her neighbourhood.

Another key reason to attend was the hot weather leading up to the meeting triggered some concern amongst residents, combined with their personal situation – personal experience with fire, build up of rubbish and vegetation, concern over their own lack of knowledge (especially amongst those who were fairly new to the area). One person realized that living on the escarpment was a reason to attend the meeting.

21.2 What they took away from the meeting

When first asked what the main things they learned were, many mentioned what emerged as 'reality checks' – concepts covered in the meeting that suddenly threw into doubt their perceptions of risk and level of preparation. The reality check that had the biggest impact was the presentation on fire behaviour. The speed of fire travelling up hill and the fact that a fire could throw embers up to 5kms away was one of the big learning points for five of the people interviewed. Others were:
- Have a written plan (5)
- Sharing the plan (3)
- Evacuation can be hazardous because of smoke (2)
- Evacuation routes that might be unrealistic because of congestion or the path they took (3)
- Contacts for local brigades (2)
- Being in a very risky house (timber, on stumps, in heavily treed area)
- That the suburb they lived in had one exit
- Accepting the fact that they had to walk away from the house and hope it was there when they came back

However, one older person, who was 1km from the bush, had grown up in the bush, and thought he was very well prepared, believed he was confirming that the information presented was not really applicable to him as he was so far from the Range. Three of the four people over 60 had very fixed ideas of their preparation process and tended not to take new ideas or realisations away from the meeting, despite recording the greatest number of faulty recollections from the presentations of any group.

21.3 Preparation triggered by the meeting

Most of the nine came away from the meeting with intentions of undertaking more preparation, and many did so. Activity included:

- Cleaning the gutters (n=1)
- Tidying up the yard (2)
- Contact Inspector Brown for advice (2)
- Develop a mental plan where none had existed (1)
- Developed a written plan (2)
- Talked about a plan with family (3)
- Ensuring access for fire trucks (1)
- Creating a bushfire evacuation kit (3)
- Get onto QFES Facebook page (1)
- Download apps (2)
- Put together a fire protection kit (1)
- Got a battery operated radio (2)
- Determine evacuation process (2)
- Installed garden sprinklers (1)

One respondent described difficulty trying to get her family to take fire preparation seriously, but she did get them to sit down to talk about it and she decided to get her local fire warden to talk to her husband. Apart from reducing fuel around her house, that was the only preparation she was able to undertake.

Most people came to the meeting having undertaken as much clearing and tidying around their house as possible and with the gutters regularly cleaned out.

21.4 Fire behaviour

Part of the presentation by QFES officers included an explanation of fire behaviour. This seemed to catch the attention of most of those interviewed, and for some it was the reality check that made them realise that their own situation needed more work. One interviewee described the realization that prompted a complete change in the way he approached his preparedness and that of his family:
It might sound a bit naive, but (I would originally) probably panic and try to fight it. I probably would have been the idiot trying to stay and fight the fire and probably would have been fairly bad consequences. As I said, the thing that got me was the speed up the hill; I always thought that fires moved at the same speed and that you had plenty of time…from the bottom of the hill to the top. That really, really did scare me for a start. If the fire started over the back, before we could see the embers coming over the top, we'd have a problem.

Seven could recall much of the detail provided about bushfire behaviour, particularly relating to hills and embers: "*You know, multiply by four every 20 degrees or something*" and "*probably spot fires a distance of 2kms away, that sort of thing*". This information seemed to change the perception of risk for many of the seven. However, one attendee noted how a bushfire could spread in the wind, and up hills, but did not seem to realize what this could mean for him, located about 1km from the bush: "*…it's not applicable to (us) – if you lived at the top of the Range or on the edge of the Range with trees all around the house…*".

21.5 Roles and responsibilities

Interviewees were asked to recall what the officers said about residents' responsibility in and leading up to a fire. Some interpreted this question to be about level of preparedness and evacuation, "to get out of the Firies hair" so to speak. This idea of acting on the plan and preparing as much as possible was considered their responsibility and was a thread for four people. Other responses included:

- I understood that they would come and tell you
- That was confusing, the urban and the rural
- Couldn't remember
- We dial triple 0 and they will sort out who will come
- Explanation of the difference between RFS and urban firefighters

21.6 How they learned about the meeting

The signs posted around the area were the main trigger for people to attend the meeting with another being a notice in Hodgson Vale Sports Club newsletter.

21.7 What information sources they learned about and then used

The sources of information for bushfire preparation that the group recalled from the meeting are listed in order of number of mentions:

- Bushfire Safety brochure (n=6)
- RFS website (4)
- QFES Facebook page (1)
- FDR sign on Ruthven Street
- Visit by fire safety officer

The sources some of the residents visited in the day or two after the meeting were:

- Bushfire Safety brochure (6)
- QFES Facebook page (3)
- RFS website (2)
- Didn't look (1)

The sources of alerts that they recalled included:

- ABC radio (4)
- QFES Facebook page (3)
- Warnings from apps (generally, none named specifically) (3)
- Text messages (general) (2)
- Fire Qld app
- Triple 0

One resident commented that she couldn't find any fire apps for Android, so she relies on the QFES Facebook page for alert-type information.

21.8 Bushfire warnings protocols

The three-level bushfire warning protocol was covered in the meeting and then tested for recollection in the interviews. Most people could not recall the three levels, but once

prompted were able to describe what the levels meant. Some described it in terms of what agencies expected people to do at each level, and some described it in terms of the information agencies would deliver at that level. In both cases, some recollections were not quite right. The following is a collation of the descriptions of each level:

Advice:
- There's a fire in your area, start thinking about the plan
- Start listening
- Don't remember
- Keep an eye on it, listen with your apps and stuff
- Start getting your plan reviewed, get plan into action and start gathering things that are needed
- Commonsense, turn to the radio
- Fire in your area…keep following what's going on
- The radio is never on here for a start, so…

Watch and Act:
- Decide what you are going to do – leave or stay?
- Start enforcing your plan and wait for further information
- Monitor, be prepared
- Act – out plan is to just go
- Get car ready to go, start hosing things down, but be ready to go
- Not sure
- Time to get active, get your things together
- Try and get your insurance papers and documents of that nature, but they're not always in an accessible place.

Emergency warning:
- If your plan is to leave, leave now
- Get out, evacuation
- That's pretty much when you need to get out
- Should have gone at this stage
- You, the dog and the cat should all be in the car and gone by now
- Get yourself going, no running around grabbing things, that should have been done during Watch and Act
- Couldn't identify it

21.9 Evacuation

Most of the group identified their preferred option was to leave, evident in their description of what the Emergency Warning meant for them. We asked what evacuation would look like for them. This revealed some vague planning and a wait and see approach, with many respondents misunderstanding exactly what 'leave early' means.

All identified evacuation as leaving, either to what they thought was the designated safe place or an open area such as a school (although some had not determined where).

However, it was how they planned to do this that gave insights into their understanding of the level of preparation that should be done before an evacuation is necessary, leaving early and also how they really thought they would learn about a fire:

- It depends on how fast you had to get out – if it was an extreme emergency, you would just take your wife with you, you wouldn't take much else with you
- Leave early, find a safe spot. Well it's really hard, it will be hard to see the fire coming
- Be very careful, if it's a one-way street then we are going to have to be prepared for …smoke, it will be very smoky…
- Driving to the neighbourhood safe place in Highfields
- Just to evacuate when they come and tell you…pick up your basic necessities and leave
- Pretty much it's get a feel for the wind and whether the fire is coming down the hill and the mountain… and you'd see embers starting to light up fires ahead
- Get in the car and go, take the pets and go…to Hodgson Vale Sportsground
- …grab a few belongings, the fire box, pets, secure the house, notify the neighbours that we're going if they haven't already gone, I would probably fill gutters with water, etc, etc, do what I could there, damp stuff down as much as I could and just leave the place (this respondent discussed carefully thought out evacuation routes, but had not solved the problem of the single street access to his estate)
- Grab the animals and ourselves and any valuables and get out. (Which way would you go?) Well, one way, you know, one way out.
- Leave early. When they send an alert or when I can see it coming.

Only one person in this group understood what a prepared evacuation would look like, and several people did not connect the warning levels with their own situation – that an evacuation should be triggered by the level of warning received by monitoring information sources. Many seemed to believe that evacuation would be when the fire arrived.

Only three people identified where they would go to, and one of these mis-identified the neighbourhood safe place, instead identifying a school on the escarpment, about 100m from her home.

21.10   *How much have you used the bushfire survival guide?*

Six people identified the Bushfire Safety brochure as a source of information after the meeting. We asked how much all of the respondents had used it. The depth of use ranged from completely filled in, stored in the evacuation box and reviewed every few months to not at all. The responses were:

- Matched it to the same information online, wanted to stick it on the fridge, read it thoroughly when got home
- Worked thoroughly through it and found everything covered off. Would like it in an app so there is no paperwork and it can always be found – and everyone in the family can have a copy
- Went through in pretty good detail, keep in the box, intend to pull it out and rad every few months
- I was motivated after the meet and did read it, tried to get all the family to read it

- Had a quick look, showed my wife and daughter
- I looked through it, smoke alarms a concern, will do something about that
- Quite a lot, it's on the fridge, pretty methodical look, but jumped straight to bushfire preparation and the checklist
- Looked through most of it, thinking "oh god!". Put together an emergency kit and evacuation kit.

Many people could identify the two kits listed in the brochure, and most were able to list at least four items that belonged in each kit. However, the focus was on the evacuation kit, and many of the respondents discounted the necessity to look at the emergency kit because they had no intention of staying. The evacuation kit focus was despite only one person having a complete evacuation kit.

21.11   Faulty recollections and unusual ideas

Some unusual interpretations were made of some of the presentation's concepts. The sample was very small and there were no patterns to some of the ideas that were based on faulty recollections, but we felt it useful to list these.
- On evacuation: it's something that happens on the spur of the moment. You know, you're not always packed up and ready to go every minute of the day for bushfire.
- It's not applicable – too far from the Range for anything to happen here
- Rural background equates to fire commonsense and knowledge
- Triple 0 would be a source of information
- Agencies would knock on the door to trigger evacuation
- They made it sound like we should to leave before there was even a fire when the FDR sign was on extreme. Just because it's on extreme DOES NOT mean that everybody leaves, but that's what they made it sound like.

Coincidentally, all of these ideas came from people who were over 65.

21.12   Comments on the presentations

Only a few comments were made of the presentations themselves, but these are worth mentioning, as emphasising the good and correcting criticisms may be a way to move people away from some of the undesirable attitudes and behaviour that have emerged from the study. Most respondents seemed happy with the format, understanding that the presentation as following the Bushfire Safety guide. However, a few people made some comments and suggestions:
- The presentations were a little disorganized and two respondents found them occasionally confusing. It could be useful for the presenters to have a clearer structure that they can follow, perhaps according to the timeline of a fire rather than the way the information is presented in the brochure. This may also have come from the Hodgson Vale meeting where one presenter was held up by a fire and arrived later – he then had to get up to speed on what had been covered, and that process was a little messy.
- The presentations need a clear introduction that includes "this is what we are going to do, and this is what you need to be clear on".

- It would be good to keep the meeting strictly on topic.
- To help get across the message on the differences between RFS and urban firefighters, and introduction of a few of the key local people from QFES and RFS in the introduction would be effective. This would also be helpful for the people who had attended the meeting to get a feel for the local firefighting landscape to achieve their objective.
- At the end of each section, include a pause with a recap on what people need to take away from that section. This will allow the presenters to-reiterate the main points on each aspect of preparation and might help with problems such as the gap in planning that was seen in evacuation intentions.
- Have key points at the end that outline what people need to do as soon as they get home and what they need to do on the weekend.
- It would be great to have the Bushfire Safety brochure in app form, especially the checklists.
- Meeting interviewees appreciated the stories that were attached to some of the information, which helped them remember how it will happen and what they should do.
- The images in the brochure helped attendees recall what they needed to remember.
- The presenters came across as knowledgeable and genuine, and the interviewees tuned in to and respected their operational experience, which added gravity to the material.

22. Summary

Overall, the findings of this research probably confirm many beliefs that QFES staff had about Toowoomba escarpment communities' readiness for bushfire and storm. However, the research showed that respondents seemed to underestimate the ferocity and speed that fire can achieve, and this caused them to discount a number of possible situations that they might face. Most people in both communities were very open to undertaking more preparation for bushfire and the demographic characteristics of both populations were similar to characteristics that CFA research showed might provide the platform for them to move up the community readiness scale. Both communities preferred information about preparation to come from fire agencies, but obstacles listed by both groups showed that more time/improved convenience and a more realistic perception of risk might motivate them to take action on this information. The challenge for QFES is to cost-effectively establish face-to-face contact that might facilitate the required change in risk perception. The meetings had proved to be an important trigger for deeper thought about plans and more preparation activity. The tight neighbourhood connections in both communities might provide just one means to do get more people to QFES engagement activities. The conventional start-of-bushfire season meeting will be an important feature of any engagement calendar as it was effective on a number of levels.

The research also showed that most people were preparing the leave if their suburb faced a bushfire, but the lack of planning for leaving was a concern, in particular the assumption that there would be smoke and even fire present before some people actually left. This shows an area for some work in 2018.

The small numbers make generalization across the region impossible, but at least the research was able to provide some insights that could improve future information and engagement activities.

23. Appendices

Appendix 1: Profile of the Highfields/Blue Mountain Heights district (2011)

Index	Highfields etc	Toowoomba	Queensland
Population	3,418		
Males	49.8%		
Females	50.2%		
Aboriginal/Torres Strait Islander	0.8%		
Employed	97.6%	95.1%	93.9%
Weekly household income	$1,716	$1,059	$1,227
Median age	35	37	36
Couples with children	53%	29%	30%
Older couples without children	8%	11%	9%
Households with a mortgage	54%	32%	33%
Households renting	7%	30%	32%
Non-English speaking backgrounds	3%	5%	9%
Uni degree	20%	14%	16%
TAFE qualifications	22%	20%	20%
Babies and preschoolers	8.2%		
Primary schoolers	13.3%		
Secondary schoolers	12.7%		
Tertiary students and under 25s	6.7%		
Young workforce 25-34	8.2%		
Parents and homebuilders (35-49)	24.6%		
Older workers and pre-retirees (50-59)*	14.2%		
Empty nesters and retirees (60-69)*	8.4%		
Seniors (70-84)*	3.1%		
Elderly (over 85)	0.6%		
Disabled (people who need assistance with core activities)	2.1%		

*Growth groups on previous census

(39)

Appendix 2: Profile of the Top Camp and Hodgson Vale district (2011)

Index	Highfields etc	Toowoomba	Queensland
Population	10,268		
Males	49.1%		
Females	50.9%		
Aboriginal/Torres Strait Islander	1.4%		
Employed	97.2%	95.1%	93.9%
Weekly household income	$1,577	$1,059	$1,227
Median age	39	37	36
Couples with children	43%	29%	30%
Older couples without children	14%	11%	9%
Households with a mortgage	43%	32%	33%
Households renting	14%	30%	32%
Non-English speaking backgrounds	4%	5%	9%
Uni degree	20%	14%	16%
TAFE qualifications	22%	20%	20%
Babes and preschoolers	6.9%		
Primary schoolers*	12.9%		
Secondary schoolers*	10.2%		
Tertiary students	5.5%		
Young workforce 25-34	7.9%		
Parents and homebuilders (35-49)*	22.7%		
Older workers and pre-retirees (50-59)*	14.3%		
Empty nesters and retirees (60-69)	11.4%		
Seniors (70-84)	7.5%		
Elderly (over 85)	0.7%		
Disabled (people who need assistance with core activities)	3.0%		

(40)

Appendix 3: IAP2 public participation spectrum

IAP2 Public Participation Spectrum
Developed by the International Association for Public Participation

INCREASING LEVEL OF PUBLIC IMPACT

INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
Public Participation Goal:	Public Participation Goal:	Public Participation Goal:	Public Participation Goal:	Public Participation Goal:
To provide the public with balanced and objective information to assist them in understanding the problems, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision-making in the hands of the public.
Promise to the Public:	Promise to the Public:	Promise to the Public:	Promise to the Public:	Promise to the Public:
We will keep You informed.	We will keep you informed, listen to and acknowledge concerns and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for direct advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.
Example Techniques to Consider:	Example Techniques to Consider:	Example Techniques to Consider:	Example Techniques to Consider:	Example Techniques to Consider:
• Fact sheets • Web Sites • Open houses	• Public comment • Focus groups • Surveys • Public meetings	• Workshops • Deliberate polling	• Citizen Advisory • Committees • Consensus building • Participatory decision-making	• Citizen juries • Ballots • Delegated decisions

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Appendix 4: Maps of each of the five street clusters within the two study areas

Highfields – Dau Road, Hannah Court, Ballantyne Court, Fielding Street, Bimbi Court, Kleve Road

Highfields – Vayro Road
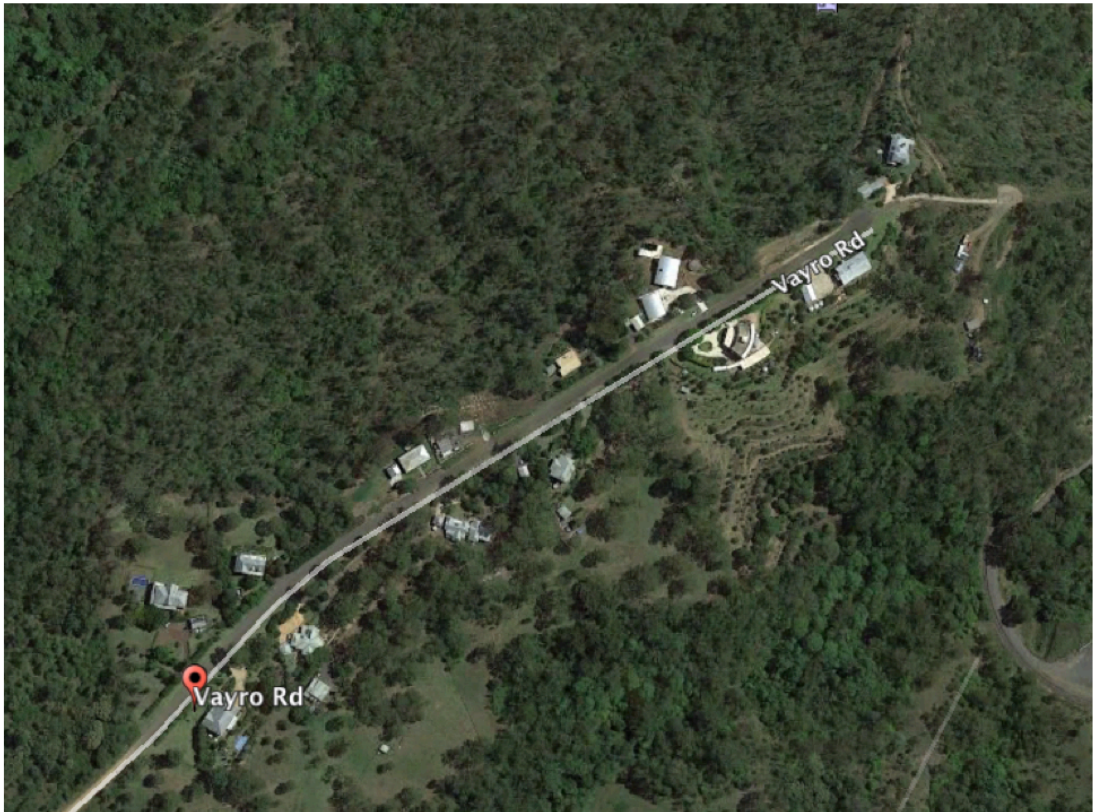
Appendix 5: Summary of respondent and property features

Features of interview respondents		Hodgson Vale		Highfields			
		N	%	N	Row N %	Total	% of total
Property type	House on standard residential block	1	33.3%	2	66.7%	3	9.09
	House on large lifestyle block	15	51.7%	14	48.3%	29	87.88
	Working farm	0	0.0%	1	100.0%	1	3.03
	Subtotal	16	48.5%	17	51.5%	33	100.00
Distance to the bush	Up to 20m	1	50.0%	1	50.0%	2	6.06
	30-50m	9	81.8%	2	18.2%	11	33.33
	80-100m	4	40.0%	6	60.0%	10	30.30
	200-400m	1	25.0%	3	75.0%	4	12.12
	500-600m	1	20.0%	4	80.0%	5	15.15
	800-1000m	0	0.0%	1	100.0%	1	3.03
	Subtotal	16	48.5%	17	51.5%	33	100.00
House construction type	Other	1	100.0%	0	0.0%	1	3.03
	Steel and iron/colourbond	0	0.0%	0	0.0%	0	0.00
	Timber	0	0.0%	3	100.0%	3	9.09
	Brick/block and timber	4	57.1%	3	42.9%	7	21.21
	Brick/block	8	53.3%	7	46.7%	15	45.45
	Brick and steel/colourbond	1	50.0%	1	50.0%	2	6.06
	Steel and iron/colourbond and timber	2	40.0%	3	60.0%	5	15.15
	Subtotal	16	48.5%	17	51.5%	33	100.00
Age of the house	0-5 years	0	0.0%	2	100.0%	2	6.06
	6-10 years	6	100.0%	0	0.0%	6	18.18
	11-15 years	4	50.0%	4	50.0%	8	24.24
	16-20 years	1	20.0%	4	80.0%	5	15.15
	21-25 years	0	0.0%	1	100.0%	1	3.03
	Older than 25 years	5	45.5%	6	54.5%	11	33.33

Features of interview respondents		Hodgson Vale		Highfields			
	Subtotal	16	48.5%	17	51.5%	33	100.00
Age of the respondent	18-24	0	0.0%	1	100.0%	1	3.03
	25-29	0	0.0%	1	100.0%	1	3.03
	30-34	1	100.0%	0	0.0%	1	3.03
	35-44	4	66.7%	2	33.3%	6	18.18
	45-54	1	33.3%	2	66.7%	3	9.09
	55-64	4	44.4%	5	55.6%	9	27.27
	65-74	4	50.0%	4	50.0%	8	24.24
	75-84	2	66.7%	1	33.3%	3	9.09
	85 or older	0	0.0%	1	100.0%	1	3.03
	Subtotal	16	48.5%	17	51.5%	33	100.00
Length of time living in the house	0-4 years	6	54.5%	5	45.5%	11	33.33
	5-9 years	3	50.0%	3	50.0%	6	18.18
	10-14 years	5	50.0%	5	50.0%	10	30.30
	15-19 years	2	66.7%	1	33.3%	3	9.09
	20+ years	0	0.0%	3	100.0%	3	9.09
	Subtotal	16	48.5%	17	51.5%	33	100.00
Ownership status	Renting	1	33.33%	2	66.64%	3	9.09
	Own/mortgage	15	50.00%	15	50.00%	30	90.91
	Managing/housesitting	0	0	0	0	0	0.00
	Subtotal	16	48.00%	17	52.00%	33	100.00

Appendix 6: Respondent occupations

Respondent occupations	Hodgson Vale	Highfields	Total occupations	% of Total Respondents
Retired	6	4	10	30.3
Admin officer/receptionist/clerical	2	1	3	9.1
Manager/managing director	2	0	2	6.1
Bus driver	0	1	1	3.03
Company director	0	1	1	3.03
Construction	0	1	1	3.03
Consultant	0	1	1	3.03
Financial planner	0	1	1	3.03
Freelance caterer	0	1	1	3.03
Nursery hand	0	1	1	3.03
Oil and gas worker	0	1	1	3.03
Palaeobotanist/ Pathology ass.	0	1	1	3.03
Podiatrist	0	1	1	3.03
Retired Aero Engineer	0	1	1	3.03
Schools officer part time	0	1	1	3.03
Teacher and RN	0	1	1	3.03
Business owner	1	0	1	3.03
Customer service	1	0	1	3.03
Mechanic	1	0	1	3.03
Researcher	1	0	1	3.03
Software Developer	1	0	1	3.03
Ventilation engineer	1	0	1	3.03

Appendix 7: Full list of bushfire preparation activities

Count and % of respondents who answered yes, no or n/a to each of the bush fire items

	Level	Yes		No		Not applicable	
	B=1,I=2, A=3	Count	Row N %	Count	Row N %	Count	Row N %
BFgrassleaves	1	33	100.0%	0	0.0%	0	0.0%
BFGutters	1	32	97.0%	1	3.0%	0	0.0%
BFbushes	1	30	90.9%	2	6.1%	1	3.0%
BFcombustibles	1	32	97.0%	1	3.0%	0	0.0%
BFfurniture	1	9	27.3%	15	45.5%	9	27.3%
BFprotectivekit	2	12	36.4%	21	63.6%	0	0.0%
BFmentalplan	1	26	78.8%	7	21.2%	0	0.0%
BFdiscussfamily	2	20	60.6%	9	27.3%	4	12.1%
BRFwrittenplan	2	3	9.1%	29	87.9%	1	3.0%
BFagencyinfo	1	15	45.5%	18	54.5%	0	0.0%
BFtruckaccess	2	29	87.9%	2	6.1%	2	6.1%
BFtapshosesbckts	2	33	100.0%	0	0.0%	0	0.0%
BFsafeevacplace	2	17	51.5%	15	45.5%	1	3.0%
BFevacforpets	2	9	27.3%	12	36.4%	12	36.4%
BFevaclargeanimals	3	4	12.1%	3	9.1%	26	78.8%
BFgreenplants	2	31	93.9%	2	6.1%	0	0.0%
BFevacroutes	2	16	51.6%	12	38.7%	3	9.7%
BFmonitorweather	2	31	93.9%	2	6.1%	0	0.0%
BFbattopradio	2	23	69.7%	10	30.3%	0	0.0%
BFpetsupplies	2	1	3.0%	11	33.3%	21	63.6%
BFimpdocs	2	7	21.2%	25	75.8%	1	3.0%
BFdangerraatingssigns	2	26	78.8%	7	21.2%	0	0.0%
BFmobilephonecharge	2	18	56.3%	12	37.5%	2	6.3%
BFpracticeplan	3	5	15.2%	25	75.8%	3	9.1%
BFindependntwater	3	24	72.7%	9	27.3%	0	0.0%
BFfirepump	3	8	24.2%	25	75.8%	0	0.0%
BFwindowcovers	3	2	6.3%	30	93.8%	0	0.0%
BFfirebreaks	3	17	51.5%	12	36.4%	4	12.1%
BFroofsprinklers	3	2	6.1%	31	93.9%	0	0.0%
BFsecpower	3	7	21.2%	26	78.8%	0	0.0%
BFapp	3	2	6.1%	30	90.9%	1	3.0%
BFgobag	3	10	30.3%	23	69.7%	0	0.0%
BFburnoff	3	12	36.4%	18	54.5%	3	9.1%

Appendix 8: Full list of storm preparation activities

Count and % of respondents who answered yes, no or n/a to each of the storm items

	Level	Yes		No		Not applicable	
		Count	Row N %	Count	Row N %	Count	Row N %
Strmgrassleaves	1	33	100.0%	0	0.0%	0	0.0%
Strmgutters	1	32	97.0%	1	3.0%	0	0.0%
Strmtrees	1	31	93.9%	1	3.0%	1	3.0%
Strmcheckroof	1	33	100.0%	0	0.0%	0	0.0%
Stormsaferoom	1	21	63.6%	12	36.4%	0	0.0%
Stormutilities	1	30	90.9%	3	9.1%	0	0.0%
Stormoutsidefurn	1	19	57.6%	12	36.4%	2	6.1%
Stormmentalplan	1	19	57.6%	14	42.4%	0	0.0%
Stormwrittenplan	2	0	0.0%	31	96.9%	1	3.1%
Stormplanfamily	2	13	40.6%	16	50.0%	3	9.4%
Stormprtctionkit	2	8	24.2%	25	75.8%	0	0.0%
Stormagencyinfo	2	10	30.3%	23	69.7%	0	0.0%
Stormsafeplace	2	13	39.4%	18	54.5%	2	6.1%
Stormevacpets	2	9	27.3%	12	36.4%	12	36.4%
Stormlrganimalsevac	3	1	3.1%	4	12.5%	27	84.4%
Stormevacroutes	2	20	62.5%	9	28.1%	3	9.4%
Stormmonitorweather	2	32	97.0%	1	3.0%	0	0.0%
Stormpetsgobag	3	3	9.1%	9	27.3%	21	63.6%
Stormbattopradio	2	22	66.7%	10	30.3%	1	3.0%
Stormmobilecharge	2	21	63.6%	11	33.3%	1	3.0%
Stormpracplan	3	2	6.9%	25	86.2%	2	6.9%
Stormwater3days	3	31	93.9%	2	6.1%	0	0.0%
Stormfood3days	3	32	97.0%	1	3.0%	0	0.0%
Stormwindowcovers	3	2	6.1%	31	93.9%	0	0.0%
Stormgobag	3	6	18.8%	26	81.3%	0	0.0%
Stormindpndtpower	3	9	27.3%	24	72.7%	0	0.0%