



**Bushfire CRC
Enhancing Volunteer Recruitment and Retention Project
(D3)**

Report: Tasmania Fire Service Number 1: 2005

**Estimates of the Likely Impact on TFS
Operational Volunteer Fire Fighter Numbers of
Introducing Mandatory Fitness Standards**

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Executive Summary

- Concerns have been raised in general discussions of volunteer fire fighter numbers that, some time in the future, Occupational Health and Safety considerations might require volunteer fire agencies to introduce mandatory fitness standards for operational (in TFS 'Active') volunteers.
- This issue was discussed in general terms in a previous Report (Number 3: 2004 – *Profiles of Australia's Volunteer Firefighters*). However, the likely impact on any particular fire agency has not been investigated previously.
- Staff in the Human Resources unit of the Tasmania Fire Service asked the Bushfire CRC Volunteerism Project team to provide an estimate of the likely impact of mandatory fitness standards on TFS operational volunteer numbers.
- Only one of Australia's eight volunteer fire agencies currently has mandatory fitness standards for its operational volunteer fire fighters, the ACT Emergency Services Authority (ACT ESA).
- The current age distributions of male and female operational fire fighters in the ACT ESA were obtained. These were used to generate estimates of the likely effect of introducing the ACT ESA's mandatory fitness standards on the current TFS operational volunteer fire fighter membership numbers.
- Based on the current ACT ESA and TFS age distributions it is estimated that, on a State-wide basis, TFS would lose 41% of its current female, and 33.5% of its current male operational volunteer membership numbers if mandatory fitness standards equivalent to those currently in force in the ACT were introduced in Tasmania.
- Proactive initiatives to be considered by TFS could include:
 - Increasing efforts to recruit younger volunteers for operational (Active Member) roles;
 - Encouraging/assisting volunteers to improve fitness levels;
 - Reviewing the tasks and roles of operational volunteers generally with a view to making more use of non-operational volunteers for tasks which do not require meeting minimum fitness standards.

Estimates of the Likely Impact on TFS Operational Volunteer Fire Fighter Numbers of Introducing Mandatory Fitness Standards

Introduction

Concerns have been raised in general discussions of volunteer fire fighter numbers that Occupational Health and Safety considerations might someday require volunteer fire agencies to introduce mandatory fitness standards for operational volunteers. There is presently no indication that such a development is imminent. However, given the intrinsically hazardous nature of fire fighting and related emergency response activities, it is entirely possible that the findings from a coronial inquest or similar inquiry in the future could leave volunteer fire agencies with no alternative but to introduce mandatory fitness standards.

This issue was discussed in general terms in a previous Report (Number 3: 2004: *Profiles of Australia's Volunteer Firefighters*). However, the likely impact on any particular fire agency has not been investigated previously. In 2005, staff in the Human Resources unit of the Tasmania Fire Service (TFS) asked the Bushfire CRC Volunteerism Project team to provide an estimate of the likely impact of mandatory fitness standards on TFS operational volunteer numbers.

Currently, only one of Australia's eight volunteer fire agencies has mandatory fitness standards for its operational volunteer fire fighters, the ACT Emergency Services Authority (ACT ESA). Volunteers' age distribution information from that agency was used to generate estimates of the likely impact on TFS female and male operational volunteer fire fighter numbers of introducing a mandatory fitness standard equivalent to that of the ACT ESA.

Methodology

1. The age distributions of ACT ESA female and male volunteer operational fire fighters were obtained.
2. The TFS female and male operational volunteer total membership numbers required in each age category to match the ACT ESA age distributions were then calculated, retaining the same overall TFS total numbers as at present.
3. The current TFS female and male operational volunteer age distributions were then compared with what would be required to match the ACT ESA volunteers' age distributions and the expected shortfalls and forced retirements estimated.

Results

Figure 1 shows the age distribution of female operational volunteer firefighters in the ACT ESA and TFS. Figure 2 shows the corresponding information for male operational volunteer firefighters in the two agencies. In both, the age distribution for TFS volunteers is skewed toward the older end of the age spectrum compared with ACT ESA volunteers. The methodology used to estimate the effects of introducing mandatory fitness standards essentially involved calculating the numbers of TFS operational volunteers needed, females

and males separately, to make the current TFS age distributions identical to those of the ACT ESA.

Tables 1 and 2 show the results of calculating the effects on current TFS female and male operational volunteer fire fighter numbers if the agency was required to have an age distribution corresponding to that of the ACT ESA in order to meet the same fitness standards.

Shortfalls in recruiting younger volunteers and forced retirements of older volunteers would result in an estimated decrease in numbers of 41% of the current female operational volunteers, and 33.5% of the current male operational volunteers.

Discussion

The limitations involved in making the above estimates are considerable and caution should be exercised in drawing conclusions.

1. The ACT ESA has a very small total number of operational volunteers—approximately one tenth the number of TFS operational volunteers. The effect of this is to cast doubt on the precision of the estimated effects of mandatory fitness standards on TFS operational volunteer numbers.
2. The assumption that the age distributions of female and male operational volunteers in the ACT ESA are determined solely by the imposition of mandatory fitness standards is questionable.
3. The assumption that the general levels of fitness in the ACT and Tasmanian populations from which volunteer operational fire fighters are drawn is likewise questionable.

However, having due regard for the limitations inherent in the procedure, the estimation exercise indicates that the likely effect of imposing mandatory fitness standards on today's TFS operational volunteer numbers would be appreciable—numbers would probably, all other things being equal, fall by at least one third. Of course, the only way to make a confident prediction of the likely effects of introducing mandatory fitness standards would be to carry out a fitness audit of a sample of the TFS Active membership.

Introducing mandatory fitness standards would almost certainly have a negative impact on current TFS attempts to maintain adequate numbers of volunteers to meet community protection needs. Proactive initiatives to minimise the impact probably fall into three categories.

1. Increasing recruitment and retention activities targeting younger volunteers.
2. Encouraging and assisting current volunteers to increase fitness levels.
3. Reviewing tasks and roles of operational volunteers in order to identify ways in which operational volunteers can be replaced by non-operational volunteers. Consideration might be given to changing the terminology currently in use to describe volunteers' roles: 'Active' and 'Non-active'.

Thanks to David Tunbridge, ACT ESA, for providing the age distribution data.

Figure 1: FEMALE OPERATIONAL VOLUNTEERS

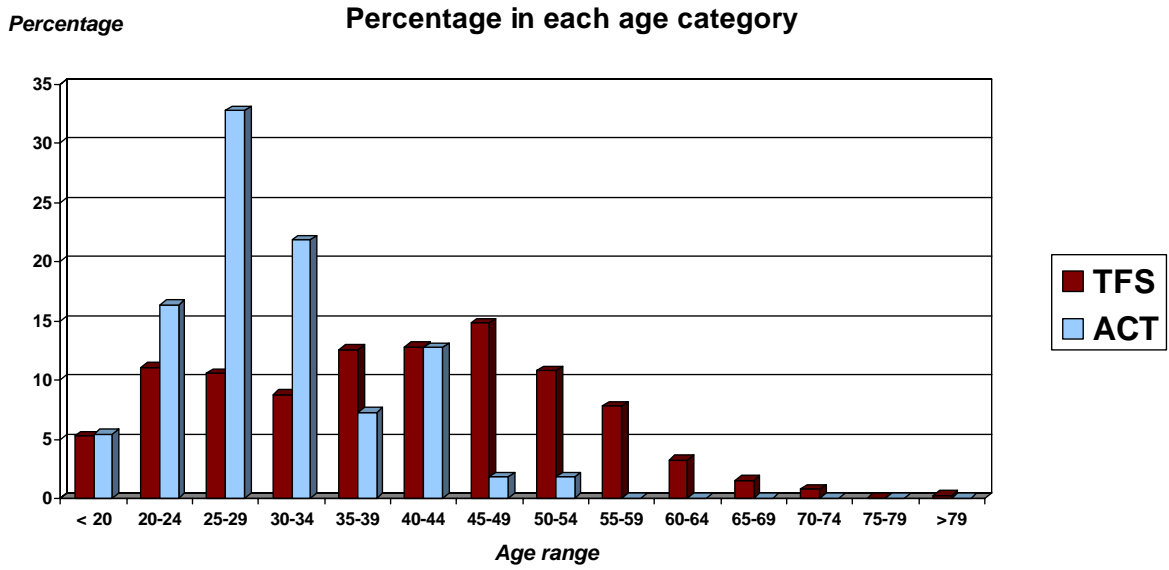


Figure 2: MALE OPERATIONAL VOLUNTEERS

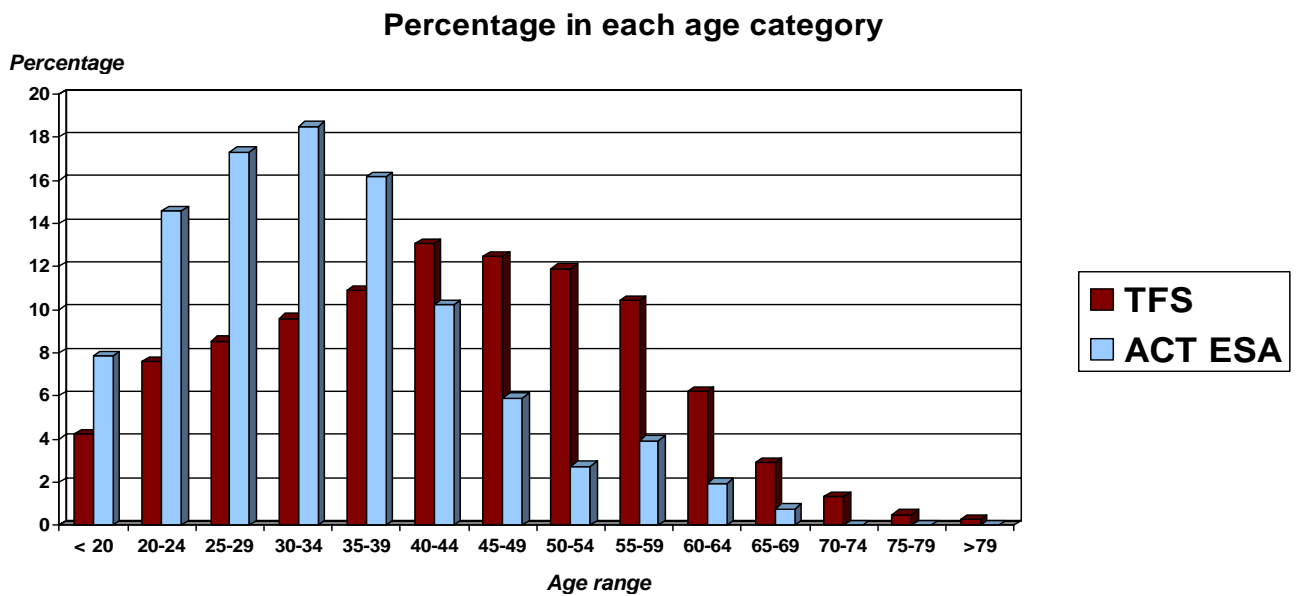


Table 1: Female Operational Fire Fighters: ACT ESA and TFS - Age Category Distributions

AGE RANGE	ACT ESA		TFS -- Current		TFS – REQUIRED			
Years	Frequency	Percent	Frequency	Percent	Frequency –R**	Percentage -R	Shortfall**	Forced Retirements**
<20	3	5.5	21	5.3	22	5.5	-1	
20-24	9	16.4	44	11.0	65	16.4	-21	
25-29	18	32.7	42	10.5	130	32.7	-89	
30-34	12	21.8	35	8.8	86	21.8	-52	
35-39	6*	10.9	50	12.5	44	10.9		6
40-44	5*	9.0	51	12.8	36	9.0		15
45-49	1	1.8	59	14.8	8	1.8		51
50-54	1	1.8	43	10.8	8	1.8		35
55-59			31	7.8				31
60-64			13	3.3				13
65-69			6	1.5				6
70-74			3	0.8				3
75-79			-	-				-
80-84			1	0.2				1
TOTAL	55		399		399		-163#	

* Smoothed – total for the two age categories 35-39 and 40-44 is unchanged at 11
 ** Rounding to whole numbers results in some minor inconsistencies in totals
 # Represents a predicted loss of **40.8%** of the current TFS female volunteer operational fire fighter membership

Table 2: Male Operational Fire Fighters: ACT ESA and TFS – Age Category Distributions

AGE RANGE	ACT ESA		TFS – Current		TFS – REQUIRED			
Years	Frequency	Percent	Frequency	Percent	Frequency – R**	Percentage - R	Shortfall**	Forced Retirements**
<20	20	7.9	109	4.2	203	7.9	-94	
20-24	37	14.6	195	7.6	375	14.6	-180	
25-29	44	17.3	220	8.6	445	17.3	-225	
30-34	47	18.5	247	9.6	475	18.5	-228	
35-39	41	16.1	280	10.9	414	16.1	-134	
40-44	26	10.3	335	13.0	265	10.3		70
45-49	15	5.9	321	12.5	152	5.9		169
50-54	9*	3.5	306	11.9	90	3.5		216
55-59	8*	3.1	268	10.4	80	3.1		188
60-64	5	2.0	160	6.2	51	2.0		109
65-69	2	0.8	75	2.9	20	0.8		55
70-74			34	1.3				34
75-79			13	0.5				13
80-84			6	0.2				6
85-89			1	0.0				1
TOTAL	254		2570		2570		-861#	

* Smoothed –total for the two age categories 50-54 and 55-59 is unchanged at 17
 ** Rounding to whole numbers results in some minor inconsistencies in totals
 # Represents a predicted loss of **33.5%** of the current TFS male volunteer operational firefighter membership

APPENDIX: EXTRACTS FROM ACT BUSHFIRE AND EMERGENCY SERVICES MINUTE, 08/01/04. SUBJECT: B & ES FITNESS FOR DUTY STANDARDS

FITNESS CATEGORIES

The following four levels of physical fitness are those agreed between the USA and Australia prior to Australian and New Zealand bushfire fighters being deployed to the USA to assist with wildfire operations. These fitness categories have also been established as the National Forest Industry Standard for bushfire and emergency condition operations. It is considered that these fitness categories also meet the ACT Bushfire and Emergency Services requirements.

The fitness categories are:

Arduous: Duties involving field work that requires physical performance calling for above average endurance and conditioning. These duties may include an occasional demand for strenuous activities in emergencies under adverse environmental conditions and over extended periods of time. Requirements include walking, climbing, jumping, twisting, bending and lifting more than 22 kg. The pace of work is set by the emergency situation.

Moderate: Duties involving field work that requires complete control of all physical faculties and may include walking over irregular ground, standing for long periods of time, lifting 11 to 20 kg., climbing, bending, twisting and reaching. Occasional demands may be required for moderately strenuous activities in emergencies over long periods of time. Individuals set their own pace.

Light: Duties mainly involve office type work with occasional field activity characterised by light physical exertion requiring basic good health. Activities may include climbing stairs, standing, operating a vehicle and long hours of work, as well as some bending or light lifting. Individuals almost always can govern the extent and pace of their physical activity.

None: Duties are normally performed in a controlled environment and individuals are not required to do any field activities. (pp. 3-4)

THE TESTS

Fitness Requirement	Test	Description
Arduous	Pack Test	4.8 km hike with 20.4 kg pack in 45 minutes
Moderate	Field test	3.2 km hike with 11.3 kg pack in 30 minutes
Light	Walk test	1.6 km walk in 16 minutes
None	None	--

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FITNESS CRITERIA FOR EACH FUNCTION

Function Classification	ICS Incident Type	Fitness Level: A = Arduous; M = Moderate, L = Light
Remote Area Bushfire Fighting Team Member	1	A
	2	A
	3	A
Land Search ACT ES Team Member	1	A
	2	A
	3	A
General Bushfire Fighting	1	M
	2	M
	3	M
General ACT ES Member	1	M
	2	M
	3	M
Incident Controller	1	M
	2	M
	3	L
Operations Officer	1	N/A
	2	M
	3	L
Sector Commander	1	N/A
	2	M
	3	M

(pp. 7-9; an illustrative selection)