Centre of Full Employment and Equity

A Fire Safe Community

The adverse social and economic consequences of reducing TFS capacity to manage fire risk and respond safely to fire

TasFire Training Closure

Tasmania's Standard of fire cover

Report prepared for the United Firefighters Union, Tasmania Branch

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Executive Summary

1. This report was commissioned by the United Firefighters Union, Tasmania Branch to examine the impact of the 2011-12 Budget on the Tasmania Fire Service (TFS) and to examine the performance of the TFS. The report:

- Presents information on the Budget position of the Tasmanian Government and the Tasmania Fire Service;
- Analyses the impact of proposed expenditure cuts over the Forward Estimates period with particular emphasis on the possible closure of TasFire Training;
- Analyses the performance of the Tasmania Fire Service in comparison with other jurisdictions
- Considers the adequacy of the resources devoted to fire services in Tasmania.

2. The fiscal position of Tasmania has deteriorated significantly since the onset of the global financial crisis (GFC). Cyclically sensitive revenues such as the Goods and Services Tax (GST), stamp duties and payroll tax have declined and expenditure has increased in response to additional need and also as part of a deliberate bid by the State and Commonwealth Governments to support economic activity. The State has lost more than $1.5 billion of expected GST and state tax revenue. Compared to revenue projections for 2011-12 that were prepared prior to the onset of the GFC, the estimates in the 2011-12 Budget indicate that GST receipts will be 12.1 per cent lower, while taxation receipts will be down by 11.6 per cent and interest income will be almost 80 per cent lower.

3. The 2011-12 Budget signalled a contractionary stance by the government, marked by the introduction of a new fiscal strategy and the implementation of savings strategies for Government agencies totalling $176.7 million in 2011-12 and a total of $877.2 million by 2014-15. These savings measures resulted in a reduction of 510 full-time equivalent staff in the September quarter of 2011 and have resulted in widespread reductions in service provision, including basic social services such as education and health.

4. The impact of these funding cuts was transmitted to the Tasmania Fire Service through a $1 million reduction in the State Government funding per annum. In addition, the Government reduced the indexation of the Fire Service Contribution from 5 per cent to 3 per cent per annum. This funding is collected by local government as a levy on rates and has no impact on the fiscal outcomes of Tasmania. The reduction in the indexation of the Fire Service Contribution will result in a significant loss of revenue for the Tasmania Fire Service (around $9.3 million dollars over five years) while providing very small annual savings to landholders in the order of $4.66 per annum for those covered by urban brigades and $1.04 per annum for those covered by rural brigades.

5. In response to the large reductions in revenue, the TFS has implemented a number of savings measures. In May 2011, the TFS imposed a freeze on a firefighter recruitment exercise that was in progress. As a consequence of a staffing freeze, TFS staffing was reduced by 12 full-time equivalent employees in the first quarter of 2011-12. There have also been restrictions imposed on travel.

6. The TFS is also considering a range of other savings options, including:

- The Closure of TasFire Training to achieve savings of around $200,000 per annum;
- Collaborative purchasing;
- A review of vehicle fleet;

- Library services;
- Call receipt and dispatch (current and expanding);
- Communications;
- Infrastructure sharing;
- Interagency protocols with the Parks and Wildlife Service, Forestry Tasmania and the Police;
- A review of 6 officer positions within capability and planning;
- Removal of the training relief crew (reduction to minimum staffing agreement);
- The closure of Rokeby Station as a career fire station; and

7. TasFire Training operates as a commercial training organisation within the TFS that delivers training in all aspects of fire prevention, fire safety and emergency response in order to improve workplace safety throughout Tasmania. TasFire Training is the only training provider for Emergency Response Team (ERT) training in Tasmania and the sole provider of training to the Australian Antarctic Division (AAD). TasFire Training operates under competitive neutrality conditions and is subject to a range of internal charges from the TFS.

8. TasFire Training has operated at a loss since 2004-05 and the operating deficits have increased over time. Our analysis of reductions in revenue was restricted to the last four years due to lack of data for earlier years. However, it would appear that the revenue reductions are primarily driven by the reduction in the number of courses. The decision to cease provision of confined space and working at heights courses in 2010 has exacerbated the shortfall in 2010-11 and can be expected to have a larger impact in 2011-12, the first full year of operation. This situation is also likely to result in some loss of business in the remaining courses in cases where clients prefer to be able to obtain the full range of training from one provider. TasFire Training has also been prohibited from tendering to provide courses to companies outside Tasmania which has restricted growth opportunities.

9. The total impact of the closure of TasFire Training is unknown since the TFS has assumed that the void would be filled, in the longer-term by private providers entering the market. This outcome is by no means assured, due to:

1) The natural limits of the Tasmanian training market due to the small population and geographical isolation; and

2) The high capital costs involved in establishing a suitable training facility.

The lack of any alternative training provider in Tasmania for Emergency Response Team (ERT) training would mean that, in the short to medium term at a minimum, employers would need to source training from mainland providers, possibly by sending staff to Victoria for the training. Similarly, the lack of a provider for training for the Australian Antarctic Division could result in training occurring outside Tasmania. These developments would have an adverse impact on the Tasmanian economy through the loss of training revenues as well as expenditure on accommodation and hospitality, retail etc. Moreover, the loss of a local training provider for the AAD would impede the development of the Tasmanian Government's vision of the state acting as the gateway to the Antarctic by providing all necessary services.

10. The SFC and the TFS acknowledge that the activities of TasFire Training deliver considerable social benefits to the state but the full social benefits have not been quantified. The SFC *Corporate Plan* (2011: 14) states that TasFire Training provides 'valuable fire

safety services and education to the community. To date the indirect benefit to the Commission and the community has not been measured.' Participants in training courses develop greater awareness of the risks of fire and the ability to act appropriately to minimise risks to life and property. These benefits increase community skill levels and facilitate the achievement of the State Fire Commission's goal of assisting the Tasmanian community to manage fire risks and respond safely to fire. TasFire Training makes a direct community contribution through fee reductions to some funding constrained community groups. Commercial providers operate on the basis of maximising profits and would, therefore, have no incentive to provide benefits such as reduced rates for community organisations, nor would they be likely to provide training in isolated locations. In addition, the Emergency Response Teams (ERTs) currently use their skills to assist in minimising the impact of bushfires by participating in back-burning and firefighting.

11. The closure of TasFire Training would result in a reduction in the total resources that could be utilised for operational duties since some of the TasFire Training instructors are operational firefighters who currently maintain their skills and are called upon to participate in operational duties as required. This reserve capacity would no longer exist if TasFire Training was wound up. In addition, TasFire Training currently provides advice and information on behalf of the TFS regarding a broad understanding of General Fire Regulations and Workplace laws and their statutory obligations. This includes providing advice and assistance with regard to evacuation procedures, interpretation and application of legislation and standards. In the absence of TasFire Training this role would need to be performed by other TFS staff.

12. The closure of TasFire Training would unquestionably have adverse economic and social impacts. Therefore, we recommend that the TFS undertake a thorough investigation of TasFire Training with a view to identifying opportunities to increase revenues through expanding the number or range of courses, including restoring the confined space and working at heights training, and pursuing courses for national companies or entering joint ventures with other organisations as well as developing a marketing plan to increase its market share. The review should also include an examination of the cost structure, including, staffing levels and the level of internal charges as well as an estimate of the community benefits that accrue to Tasmania but have not previously been quantified. There may also be scope for an expansion of the community activities of TasFire Training such as participation in *Project Wake Up* which has the potential to reduce the risk of fire for high risk groups that are over represented in Tasmania.

13. The provision of fire services involves striking a balance between the fiscal constraints that governments operate under and the need to adequately protect the community from fire to prevent loss of life and property. The general consensus in the international literature is that more lives and property are lost the longer it takes fire services to arrive. International measures of the adequacy of response include the response time (from receipt of the call to arrival of the first appliance) and the number of firefighters and equipment deployed. Indicators of the effectiveness of the fire services include the proportion of fires confined to the room of origin, the number of deaths and injuries and the amount of property damage.

14. A comparative analysis of Australian states and territories revealed that Tasmania performs poorly on almost all measures. Tasmania has a higher risk profile than other states due to the demographic and socio-economic characteristics of the population (more aged and disabled residents and a greater concentration of those with low income and low educational achievement). Expenditure on fire services is slightly below the national average. However, the number of both career and volunteer firefighters is significantly lower than the national

average after standardising for population. In 2010, according to data published by the Productivity Commission (SCRGSP, 2011) Tasmania had 280 career firefighters. The *Tasmanian Fire Fighting Industry Employees' Industrial Agreement 2010* states:

> The total number of uniformed career personnel covered by the Award is to be no fewer than 285.

Tasmania would have needed to have 311 career firefighters in 2010 to bring the state up to the national average. An 11 per cent increase in the number of career firefighters would be required to bring Tasmania up to the national average ratio. Similarly, Tasmania had 4,861 volunteer firefighters but would need 5,250 to reach the national average (an increase of 8 per cent).

15. In order to achieve the national ratio of firefighters per 100,000 population, Tasmania would need to have 352 career firefighters and 5,933 volunteer firefighters by 2056.

16. The impact of climate change will require a further increase in firefighters. Additional resources will also be required in response to the impact of climate change. These include resources to more effectively manage predicted increased fuel levels through more frequent and strategically targeted prescribed burning. A diminishing safe annual window of opportunity for prescribed burning implies more skilled staff, trained in biodiversity protection and carbon awareness, undertaking planned burns across Tasmania on days when it is safe to do so. Evidence also points to an increasing need to mount more effective initial attacks to prevent critical biomass and biodiversity damage and carbon release by intense unplanned fires, given the declining returns to scale of prescribed burning alone (King, 2011).

17. There is a much higher rate of fire incidents in Tasmania than in other states. When fires occur the response times in Tasmania at the 90^{th} percentile are longer than in most other Australian jurisdictions. The outcomes of fires incidents provide cause for concern. In Tasmania, the proportion of structure fires contained to one room (which is linked to lower loss of life and property damage) is lower, the three year average weighted death rate is significantly higher, and property losses are much higher than elsewhere in Australia.

18. In summary, Tasmania has a population facing higher risk and experiencing more fires but having fewer firefighting resources and achieving poorer results in terms of speed of response to fires and minimisation of loss of life and property. From this comparison we can conclude that there is substantial room for improvement in the performance of the Tasmania Fire Service.

19. Given the absence of a publicly available detailed account of the TFS deployment strategy, this study cannot determine whether or not TFS is making the best use of the resources it has to work with. We recommend that the TFS undertake a thorough review of its risk management model and investigate its current performance of emergency response reflected in the Australian Incident Reporting System (AIRS) data. The object of such a review would be to determine how their service can achieve standards of cover comparable to those of the mainland states.

20. The public face higher risks in areas where fire risk is greater, with a higher prospect of multiple call-outs (during peak fire seasons). We recommend that a 'standard of cover' - incorporating the current risk-management and deployment strategy that specifies the planned weight and time of response, and performance of other fire service functions, for each locality in Tasmania - be published prior to affecting any cuts to the already under-performing service.

21. Any review that seeks to improve response times must consider the relative proportions of career and volunteer firefighters. The TFS is aware such insufficient responses occur frequently (both in terms of response time and weight of response). These occurrences need to be thoroughly investigated and strategies implemented to guarantee more adequate responses in the future. These could include:

- Reconsider the number of career brigades, particularly in expanding areas and areas with higher risk profiles.
- Reconsider the boundaries of career brigades so as to utilise these highly trained and response-ready firefighters when this is practical.
- Recruitment and training of additional volunteers. This option is somewhat restricted by labour force changes affecting the intensity of work and the resultant reduction in volunteering generally throughout Australia. It is further exacerbated in rural areas due to the drift of younger age cohorts to urban areas for higher education and employment. It would be unreasonable to increase the workload, or expect more from volunteers given their employment and family commitments. To do so would unfairly impinge on any family and work, life balance. Recruitment of additional volunteer firefighters may provide a false sense of security due to limited availability and only partially addresses the problem of the longer assembly time of volunteer crews.
- Review the use of retained volunteer fire-fighters due to the inconsistency of results in terms of response times and the numbers of crew in attendance.

Recommendations

Recommendation 1

The Tasmanian Government should restore the funding that was cut in the 2011-12 Budget and increase the indexation rate for the Fire Service Contribution as an interim measure until an accurate measure of funding needs is determined.

Recommendation 2

We recommend that prior to any decision on the future of TasFire Training, a comprehensive review of the operation should be undertaken to investigate the full contribution of the organisation to the Tasmanian Economy and community, as well as the impact of the closure in relation to: the level of fire awareness and the ability of industry and the wider community to respond appropriately; the cost of fire; and the operational capabilities of the TFS.

A review should include consideration of:

Factors affecting revenues:

a. The impact of competition from the private sector including an examination of all competitors, the courses offered and course fees;

b. How successful marketing campaigns have been and development of new strategies;

c. The financial impact of the cessation of Combined Space and Working at Heights training; and

d. Consideration of expanding the number of courses offered including reinstating confined space and working at heights training, examining the potential for joint ventures and tendering for national contracts.

Factors affecting costs:

a. The staffing profile and staff utilisation; and

b. Non-salary costs including internal charges by the TFS

Other factors:

a. The extent of community benefits;

b. Opportunities to expand the community contribution by involvement in TFS programs to reduce the risk of fires such as Project Wake Up;

c. The value of maintaining a reserve firefighting capacity in the form of TasFire Training staff who can be called upon as needed; and

d. The economic contribution to industry of employees who have completed training with TasFire Training- minimising fire risks, loss of life and property damage – by reducing disruption to industry and employment.

Recommendation 3

The TFS should undertake a thorough review of its risk management model and investigate its current performance of emergency response reflected in the AIRS data. The object of such a review would be to use an evidence based approach to determine how their service can achieve standards of cover comparable to those of the mainland states. The review would need to also consider the enhanced capability the TFS needs to develop in the light of emerging understandings of the role of fire suppression in fulfilling the Tasmanian government's biodiversity protection and carbon sequestration objectives.

Recommendation 4

The TFS should use the review of performance to implement staffing strategies to guarantee adequate responses in future, including consideration of:

a. Reconsidering the boundaries that career brigades respond to in order to utilise these highly trained and response-ready firefighters when this is practical. As we noted above career brigades could have responded with full crews to some of the incidents where responses of volunteers were inadequate (Table 8.1).

b. Increasing the number of fire stations with career crews, perhaps in line with the UFU suggestions to the KPMG review in 2009

c. Recruitment and training of additional volunteers. This option is somewhat restricted by labour force changes affecting the intensity of work and the resultant reduction in volunteering generally throughout Australia. It is further exacerbated in rural areas due to the drift of younger age cohorts to urban areas for higher education and employment. It would be unreasonable to increase the workload, or expect more from volunteers given their employment and family commitments. To do so would unfairly impinge on any family and work, life balance. Recruitment of additional volunteer firefighters may provide a false sense of security due to limited availability and only partially addresses the problem of the longer assembly time of volunteer crews.

d. Review the use of retained volunteer fire-fighters due to the inconsistency of results in terms of response times and the numbers of crew in attendance.

Recommendation 5

The current risk-management and deployment strategy (and target standards) of the TFS should be published prior to affecting any cuts to the already under-performing service.

1. Introduction and Terms of Reference

1.1 Background to the 2011-12 Budget

The fiscal position of Tasmania has deteriorated significantly since the onset of the global financial crisis (GFC). The State has lost more than $1.5 billion of expected GST and state tax revenue. Reduced consumption due to the economic slowdown has resulted in lower GST revenue growth. In addition, the growth of State revenues that are highly dependent on economic conditions, such as payroll tax and stamp duties, have also been affected. Compared to revenue estimates for 2011-12 contained in the 2008-09 Budget (Tasmanian Government, 2008) that was prepared prior to the onset of the GFC, the estimates in the 2011-12 Budget (Tasmanian Government, 2011) show that:

- GST receipts for 2011-12 are expected to be $239.0 million or 12.1 per cent lower;
- Taxation revenue for 2011-12 is projected to be $119.1 million or 11.6 per cent less;
- Interest income is expected to be $98.3 million or 79.2 per cent lower.

Compounding the fiscal problems resulting from reduced revenues, there are expected expenditure increases for all items except borrowing costs, compared to projections in the 2008-09 Budget. For 2011-12, total expenses for the General Government sector are expected to be $514.0 million or 12.0 per cent greater. The largest increases compared to projections in the 2008-09 Budget are:

- Grant expenses are expected to be $255.7 million or 35.7 per cent higher;
- Employee expenses will be $84.2 million or 4.3 per cent higher and superannuation $44.4 million or 23.3 per cent higher;

The 2011-12 Tasmanian Budget introduced a new fiscal strategy and implemented savings strategies for Government agencies totalling $176.7 million in 2011-12 and a total of $877.2 million by 2014-15 (Tasmanian Government, 2011). The largest savings will be achieved from the Department of Health and Human Services ($520.6 million over four years) and the Department of Education ($189.8 million over four years). These savings relate to cuts to programs and services and capital expenditure and include savings in employee expenses equivalent to 1700 full-time equivalent (FTE) staff.

1.2 Funding to the Tasmania Fire Service (TFS) was cut in the 2011-12 Budget.

Funding to the Tasmania Fire Service (TFS) was cut in the 2011-12 Budget. The major reductions included:

- A reduction of $1 million per annum of funding from the Tasmanian Government: and
- A reduction in the rate of indexation of the Fire Service Contribution which is a levy on landholders that is collected by local government as part of land rates. The rate of indexation was previously 5 per cent per annum but was reduced to 3 per cent per annum in the 2011-12 Budget.

The impact of the reduced revenue flows to the TFS will be substantial over the Forward Estimates period and the reduction in indexation of the Fire Service Contribution will be built into the base amount for the future.

In anticipation of the Budget the TFS froze recruitment of firefighters. In the period since the Budget, staffing of the TFS was reduced by 12 FTE in the September quarter of 2011 and the TFS has identified further savings along with a number of other strategies that are under consideration.

1.3 Terms of Reference

The Centre of Full Employment and Equity (CofFEE) was commissioned by the Tasmanian Branch of United Firefighters Union to analyse the situation of the Tasmania Fire Service. The report will:

- Present information on the Budget position of the Tasmanian Government and the Tasmania Fire Service;
- Analyse the impact of proposed expenditure cuts over the Forward Estimates period, with particular emphasis on the possible closure of TasFire Training;
- Analyse the performance of the Tasmanian Fire Service in comparison with other jurisdictions; and
- Consider the adequacy of the resources devoted to fire services in Tasmania.

1.4 Outline of the report

The report is structured as follows.

- Section 2 presents an overview of the Tasmania Fire Service;
- Details of the 2011-12 Tasmanian Budget are reported in Section 3;
- Section 4 provides details of the impact of the Budget on the Tasmania Fire Service and outlines the savings initiatives that have been announced or are under consideration by the TFS in response to the funding reductions;
- Section 5 examines the proposal to close TasFire Training which is a commercial arm of the TFS that provides training in all aspects of fire prevention, fire safety and emergency response to improve workplace safety throughout Tasmania (TFS, 2011);
- Section 6 presents a summary of the international literature on resourcing of fire services and the development of a standard of cover that describes deployment policies including 'weight of response' and targets for response times.
- Section 7 examines the risk profile in Tasmania in comparison to the national profile; compares data on financial and human resources devoted to the fire service; as well as the achievement of standard benchmarks such as response times and confinement of fires. This section also presents comparative outcome data in relation to fires, such as the fire death and injury rates and the extent of property damage.
- Section 8 of the report drills down to provide a greater understanding of the Tasmanian data including spatial variations, the type of incidents, time of occurrence and the adequacy or response. The findings confirm that the TFS appears to be severely under-resourced in comparison to fire services in other states and its performance is consistently inferior to the performance of most other states and the national average.
- Section 9 summarises the findings and presents the recommendations.

2. The Tasmania Fire Service

2.1 Introduction

The response to fires in Tasmania is a shared responsibility of three organisations (Brown, 2009):

- The Tasmania Fire Service (TFS) is responsible for all structural fires as well as fires on all private lands, unallocated Crown Land and in the Wellington Park;
- The Parks and Wildlife Service (PWS) is responsible for managing parks, reserves and historic sites in Tasmania and is responsible for managing bushfires at these sites;
- Forestry Tasmania (FT) is responsible for fighting fires within the public forest estates of Tasmania that cover approximately 1.6 million hectares.

TFS, Forestry Tasmania and Parks and Wildlife cooperate:

> The Inter-agency Fire Management Protocol (the Protocol) is a written agreement between these three key fire management authorities to coordinate management of inter-agency response for Level 3 fires (that is, bushfires that are large, complex, multi tenure incidents). Under the Protocol, these large, complex incidents are managed jointly by the Multi-Agency Coordinating group (the MAC group), which includes representatives from each agency (Brown, 2009: 5).

This section provides an overview of the TFS, its goals and objectives, structure and role and major revenue sources.

2.2 The objectives of the TFC and TFS

The State Fire Commission's purpose is 'to minimise the social, economic and environmental impact of fire on the Tasmanian community' (SFC, 2011). The TFS is the operational arm of the State Fire Commission and is tasked with providing an effective emergency response, assisting the community reduce the incidence and impact of fires and enable people to act safely in the case of fire incidents (SFC, 2009). The goals and outcomes of the TFS as outlined in the Corporate Plan are shown in Table 2.1.

Table 2.1 Major Goals and Expected Outcomes of the SFC

Major Goals	Expected Outcomes
To assist the Tasmanian community to manage fire risks and respond safely to fire.	Fewer fire fatalities and injuries and less fire-related damage in a community that is prepared to respond appropriately when threatened by fire.
To respond to and manage fire and other emergencies efficiently and effectively.	Minimal social, economic and environmental cost to the community arising from fire and other emergencies.
To ensure the organisation operates responsibly with regard to the community, our people and the environment.	A capable, resilient, responsible and legally compliant organisation.
To support our people in a safe, fair and productive work environment.	A safe, fair and productive work environment.
To manage our financial, information and physical resources efficiently and effectively.	The provision of adequate and sustainable resources to enable the Commission to discharge its statutory duties.

Source: SFC, 2011: 3

2.3 Structure and Functions of the TFS

The TFS was formed in 1979 through the amalgamation of the urban and rural fire services. The major functions of the TFS include responding to fires and emergencies throughout Tasmania, including road accident rescue in specified areas, incidents involving hazardous materials, and responding to terrorist incidents involving chemical, biological and radiological agents. The TFS is also responsible for fire prevention and fire safety education.

Areas of responsibility include:

- Technical and heavy, domestic and industrial rescue incidents;
- All elements of chemical, biological, radiological, and nuclear incidents;
- Marine pollution incidents; (hazmat, chemical and oil spills)
- Forensic recovery as part of Road Accident Rescue incidents;
- Terrorist and chemical, biological, radiological and incendiary incidents;
- Storm and flood damage;
- Urban search and rescue;

The TFS is organised into four divisions:

1. **Community Fire Safety** pursues the goal of assisting the community to reduce the incidence and severity of fires through publicity, the sale and maintenance of fire protection equipment through TasFire Equipment, the application of fire safety legislation and standards, and the delivery of fire safety programs to the community. Education and training programs are delivered on a commercial basis by TasFire Training. Community education programs such as Project Wake Up, the School Fire Education Program, the Juvenile Fire Lighter Intervention Program and social marketing campaigns are delivered by the Community Education Unit.

2. Corporate Services provides support services such as finance, administration, IT, engineering services and communication services.

3. **Human Services** develops human resources policy, including training and occupational health and safety and supports volunteers (SFC, 2011).

4. The **Operations division** delivers emergency response as well as training for career and volunteer firefighters. The state is divided into three regions (North, North West and South) and 9 districts. There are four career brigades, consisting of around 306 career firefighters, located in the major urban centres of Hobart, Launceston, Devonport and Burnie. Fire stations are located in Hobart, Clarence, Glenorchy, Bridgewater and Rokeby (South), Launceston and Rocherlea (North) and Burnie and Devonport (North West). All stations operate on a 24 hour basis with the exception of Rokeby which only operates from 0800 to 1600, Monday to Friday.

The remainder of the state is serviced by around 230 volunteer brigades consisting of approximately 4800 members. Emergency response is coordinated through the Statewide Control Centre, FireComm, which takes emergency calls and dispatches the brigade with responsibility for responding to the location. This may also involve dispatching the PWS or FT if the location of the fire is in their area of responsibility.

2.4 Firefighter Training

Training provided to career and volunteer firefighters occurs on-station, in local venues and at TFS's hot-fire training facilities at Cambridge, Launceston and Burnie. All TFS firefighters complete nationally recognised training from the Public Safety Training Package.

There are significant differences in the training courses completed and competence levels between career and volunteer firefighters. Training for career firefighters (see Table 2.2) includes:

- A 12 week recruit course consisting of: urban, industrial and rural fire suppression, hazardous materials, driving, first aid, workplace communication and the role of the firefighter in the TFS
- Firefighters can progress to become qualified Senior Firefighters through on and off the job training using a competency-based framework.
- Further learning, development and mentoring opportunities assist firefighters to progress within the TFS

In addition to firefighting skills, career firefighters are also required to undertake Community Fire Safety programs and undertake public information roles, including the roles of information officer, media management and community liaison.

Training for volunteer firefighters includes:

- Brigade induction; Volunteer Brigade Basics; structure/mobile property firefighting; bush firefighting; pump operation; urban firefighting; breathing apparatus; first aid; driving; and operating chainsaws.
- While career firefighters complete all aspects of a comprehensive training package, volunteer brigades are composed of members who have completed a variety of the training courses offered by the TFS. As a consequence, volunteers may be restricted in the functions they can perform at fire locations. A high proportion of volunteer firefighters complete core training, such as: induction, basics, pump operations, urban and bush firefighting. However, a significantly lower proportion of volunteers complete other training such as breathing apparatus, first aid, advanced urban and bush firefighting and other courses.

- A small proportion of volunteers are classified as retained volunteers who receive some remuneration for turning out but are trained at the level of volunteers and do not have any additional level of responsibility at incidents than non-retained volunteers.

Table 2.2 Training programs for career firefighters

Training Program	Competency
Recruit Firefighter Development Program	Prevent injury
	Follow defined occupational health and safety policies and procedures
	Operate breathing apparatus open circuit
	Prepare, maintain and test response equipment
	Provide emergency care
	Manage injuries at emergency incident
	Administer oxygen in an emergency situation
	Operate communications systems and equipment
	Work in a team
	Work effectively in a public safety organisation
	Work autonomously
Firefighter Development Program Stage One	Check installed fire safety systems
	Respond to urban fire
	Respond to wildfire fire
	Protect and preserve incident scene
	Participate in a rescue operation
	Communicate in the workplace
	Employ personal protection at a hazardous materials incident
Firefighter Development Program Stage Two	Drive vehicles under operational conditions
	Operate pumps
	Maintain safety at an incident scene
	Navigate in urban and rural environments
	Participate in community safety activities
	Undertake road accident rescue
	Trim and cross cut felled trees
	Work safely around aircraft
Firefighter Development Program Stage Three	Suppress wildfire
	Suppress urban fire
	Undertake confined space rescue
	Monitor hazardous atmospheres
	Operate aerial and/or specialist appliance

Source: TFS Operational Paypoint Schedule

Retained volunteer and volunteer firefighters are not trained to respond to the following types of incidents (UFU, 2009):

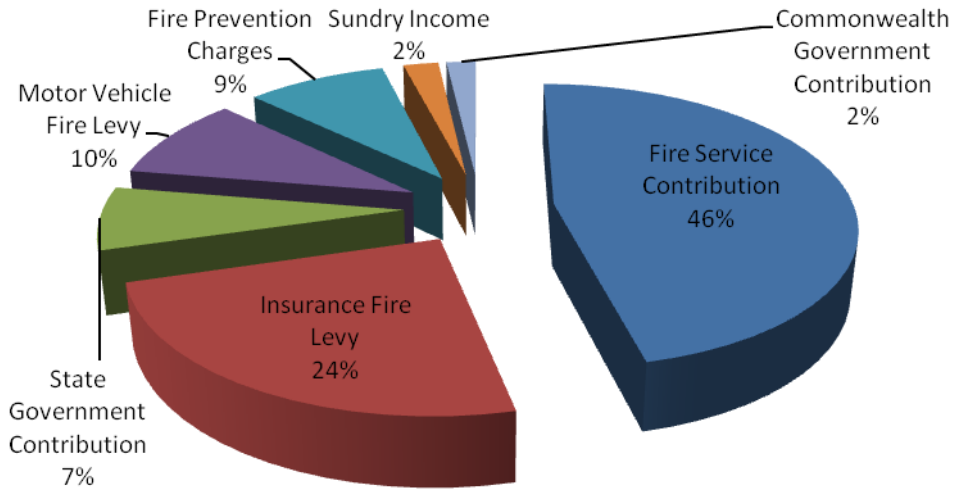
- HAZMAT incident
- Road accident rescue
- Urban search and rescue incident

- Trench rescue
- High angle rescue incident
- Confined space rescue
- Ship fire
- Aviation incidents, or
- Major gas storage facility and major bulk fuel stores.

2.5 Revenue sources

There are various revenue streams that fund the activities of the TFS that are shown in Figure 2.1.

Figure 2.1 Composition of TFS revenue, 2010-11



Source: TFS, 2011, Annual Report 2010-11

Revenue sources include:

- A **Fire Service Contribution** that is collected by local councils as part of rates levied on landowners. The rate varies according to whether the area is covered by career or volunteer brigades and is indexed annually. In 2010-11 this constituted 46 per cent of TFS revenue;
- An **insurance fire levy** that is collected by insurance companies for certain classes of insurance. In 2010-11 the insurance fire levy contributed 24 per cent of TFS revenue;
- A **motor vehicle levy** charged as part of the vehicle registration charge that amounted to 10 per cent of TFS revenue in 2010-11;
- **Fire Prevention charges** include revenue generated through community fire safety activities such as the sale and servicing of equipment, commercial training and inspection fees. These activities generated 9 per cent of total TFS revenues in 2010-11;
- The **State Government contribution** to TFS operations represented 7 per cent of total revenue in 2010-11. In addition to the normal level contributions, the State Government also reimburses bushfire fighting costs exceeding $35,000 per annum.

- The **Commonwealth Government contribution** for fire suppression on Commonwealth property and other grants comprised 2 per cent of revenue in 2010-11.
- **Other income** generated through profit on investments and donations amounted to a further 2 per cent of revenue in 2010-11.

Pensioners and health card holders receive discounts on the fire service contribution and motor vehicle fire levy.

3. The 2011-12 Tasmanian Budget

3.1 Fiscal Strategies prior to the 2011-12 Budget

The Tasmanian Government has implemented a number of fiscal strategies in recent years as part of a generally contractionary fiscal stance that has focussed on producing surpluses and eliminating debt. Following the GFC the Government introduced the Interim Fiscal Strategy that was to be in place from 2009-10 to around 2014-15. The strategy included targets for reducing government consumption expenditure and other savings initiatives such as efficiency dividends and wage restraint.

The 2010-11 Mid-Year Financial Report (hereafter MYFR) noted that the impact of the GFC in reducing revenues and increasing expenditures had been more severe than forecast in the 2010-11 Budget, resulting in an inability to achieve targets set in the Interim Fiscal Strategy.

In the 2010-11 MYFR the Government announced that immediate measures were required to meet the fiscal measures established in the 2010-11 Budget. Corrective measures included:

- Deferring or ceasing spending commitments attached to election pledges for the 2010 election until the impact of the GFC has dissipated;
- Ceasing non-critical infrastructure projects;
- Implementing a Public Sector Productivity Strategy to reduce expenditure to within the State's revenue capacity;
- Bringing annual capital expenditure back to levels attained prior to the GFC; and
- Increased oversight and efficiency of government-owned businesses to reduce risks to taxpayers and reduce the impact on essential services.

The Public Sector Productivity Strategy included a major review of agency programs to cut programs that did not meet government priorities or were ineffective or inefficient. A 3 per cent annual productivity savings target equivalent to 2300 FTEs over the four years to 2014-15 was to be achieved by attrition, transfers and targeted separations. Subsequently, the Government extended the Education Department's Workforce Renewal Incentive Program to all agencies.

3.2 New Fiscal Strategy

The Government introduced a new Fiscal Strategy in the 2011-12 Budget that simplified the fiscal targets and increased the medium to long-term focus of the strategy. Rather than focusing on targets to be achieved on a four-year rolling basis the new Fiscal Strategy introduced short-term, medium term and long-term targets as detailed in Table 3.1. The new targets were described as 'more difficult than those in place under the previous Interim Fiscal Strategy' (Tasmanian Government, 2011: 3.10).

The increase in the Net Operating Balance (NOB) targets in the medium and long-term indicates that the government intends to generate revenues that are substantially in excess of current expenditures. Responsible fiscal management requires that recurrent expenditure can be financed by recurrent revenues over the economic cycle. The targets set by the Tasmanian government fiscal policy will unnecessarily reduce government expenditures, causing reductions in the level and quality of services delivered to the community.

Table 3.1 New Fiscal Strategy

Principle	Financial Measure	Short-term target	Medium-term target	Long-term target
To achieve and maintain a sustainable Budget position	▪ Net Operating Balance	2011-12: > ($120 m)	2014-15: > $50 m	2022-23: > $200 m
The debt and liability burden on the Tasmanian community will continue to be reduced over the longer term and financial risks will be prudently managed	▪ General Government Net Debt	2011-12: < $0	2014-15: < ($300 m)	2022-23 < ($1500 million)
	▪ Ratio of Net Financial Liabilities to Revenue for the Non-Financial Public Sector	2011-12 : < 115%	2014-15: < 110%	2022-23: < 110%
A competitive business taxation environment will be maintained	▪ Tasmania's Tax Severity Index	2011-12: <100	2014-15: < 100	2022-23: <100
Investment in core General Government infrastructure will be maintained in real terms	▪ Level of Capital Expenditure in Excess of Depreciation	2011-12: > $0	2014-15: > $0	2022-23: > $0

Source: Tasmanian Government (2011)

3.3 Budget balances from the 2011-12 Budget

This section outlines revenues and expenses over the Forward Estimates period and reports the projected Net Operating Balance and Net Debt position.

Revenue

Table 3.2 details the estimated revenues over the Forward Estimates period and the average annual growth rate. Total revenues are expected to increase from $4,745.8 million in 2010-11 to $4,783.0 in 2014-15. The average annual reduction of 2.6 per cent in grants from the Commonwealth reflects the winding down of a number of programs. Grants for the Nation Building - Economic Stimulus Plan, Nation-Building - Roads and Rail Funding, the Royal Hobart Hospital Redevelopment and Water for the Future totalled $524.4 million in 2010-11 but are expected to fall to $155.6 million in 2011-12, then $116.9 million in 2012-13 and $64.7 million in 2013-14. The withdrawal of this expenditure from the Tasmanian economy will have a dampening effect on economic activity. Interest income is also expected to decline over the Forward Estimates period by 11.1 per cent per annum due to reduced cash balances in the Public Account.

Table 3.2 Revenue items, 2010-11 to 2014-15

	2010-2011 Estimated Outcome	2011-2012 Budget	2012-2013 Estimate	2013-2014 Estimate	2014-2015 Estimate	Annual Change
	$m	$m	$m	$m	$m	%
Grants	3,132.0	2,855.1	2,936.4	2,870.2	2,814.6	-2.6
Taxation	866.4	906.7	949.7	991.4	1,032.8	4.5
Sales of goods and services	362.6	391.5	391.6	397.8	402.9	2.7
Fines and regulatory fees	79.8	89.6	94.5	96.6	98.0	5.3
Interest income	39.5	25.8	14.7	17.9	24.7	-11.1
Dividends, tax and rate equivalents	123.8	218.3	254.0	245.5	278.1	22.4
Other revenue	141.7	130.9	127.0	129.0	131.9	-1.8
Total Revenue	**4,745.8**	**4,617.8**	**4,767.7**	**4,748.4**	**4,783.0**	**0.2**

Source: Tasmanian Government (2011: 5.3, Table 5.1).

The Forward Estimates reveal that the Tasmanian Government anticipates a change in the relative importance of revenue streams. The major source of revenue is grants from the Australian Government. Grants accounted for almost 62 per cent of total revenue in 2011-12 but will decline by 3 per cent to around 59 per cent by 2014-15. This is primarily due to reductions in National Partnership Payments (NPPs), which will decline from $337 million in 2011-12 to $60 million by 2014-15. Over the Forward Estimates period payments under several NPP will either be reduced or cease. This will impact on health, community services, housing, infrastructure and the environment.

Taxation comprises the largest State-generated revenue. It accounted for almost 20 per cent of total revenue in 2011-12 but will increase to almost 22 per cent by 2014-15. Property taxes are the largest source of tax income (almost 36 per cent in 2011-12) and are expected to grow to over 37 per cent by 2014-15. Other taxes include payroll tax (around 32 per cent in 2011-12), taxes on the provision of goods and services (around 16 per cent) and on the use of goods and services (around 16 per cent). Taxation measures in the 2011-12 Budget include:

- Removal of conveyance duty relief for first home buyers;

- Removal of the land tax exemption for concession cardholders and for holiday homes with land values of $500,000 or less;
- Cessation of the Tasmanian Trainee and Apprentice Incentive Scheme (TTAIS) that provided payroll relief for apprentices and trainees whose training was state-funded; and
- A second Employee Incentive Scheme Payroll Tax Rebate (EISPR) will replace the original scheme to provide payroll tax exemptions relating to new positions created between 16 June 2011 and 30 June 2012 as long as employment continues until 30 June 2013.

The largest rate of increase in revenues is the 22.4 per cent average annual increase in dividends, tax and rate equivalent income from government business enterprises to around 6 per cent of total revenue. Dividends are projected to increase from $65 million in 2010-11 to $151 million by 2014-15. Similarly, tax equivalent payments are expected to grow from $78 million to $124 million over the same period.

The increase is driven by increases in the contribution of Aurora Energy Pty Ltd, Hydro Tasmania and Transend Networks compared to estimates from the 2010-11 Budget. Aurora Energy Pty Ltd dividend and tax equivalent payments for 2011-12 are expected to increase from the zero projection in the 2010-11 Budget to $29.4 million in the 2011-12 Budget due to improved performance and the requirement to pay a dividend of 60 per cent of underlying profit. Similarly, the contribution from Hydro Tasmania for 2011-12 will double (from $53.5 million in the 2010-11 Budget to $107.3 million). This is due to the new requirement to pay a dividend of 70 per cent of underlying profit.

Expenses

Expenses will increase marginally from $4,777.3 million in 2010-11 to $4,781.1 million in 2014-15 (Table 3.3). The only expenses that will increase over the period are depreciation (at an average annual rate of 4.4 per cent), grant expenses (1.1 per cent) and nominal superannuation interest expense (0.1 per cent). All other expenses will decline in nominal terms. The largest decrease will be in borrowing costs as Net Debt remains negative and improves over the period.

The largest expense item is employee expenses, which will decline by 0.3 per cent in nominal terms. After allowing for wage increases, the real reduction in allocations for employee expenses will require significant cuts to programs and jobs. The reduction in employee expenses is a consequence of cost reduction strategies such as vacancy control, targeted voluntary redundancy and the Workforce Renewal Incentive Program.

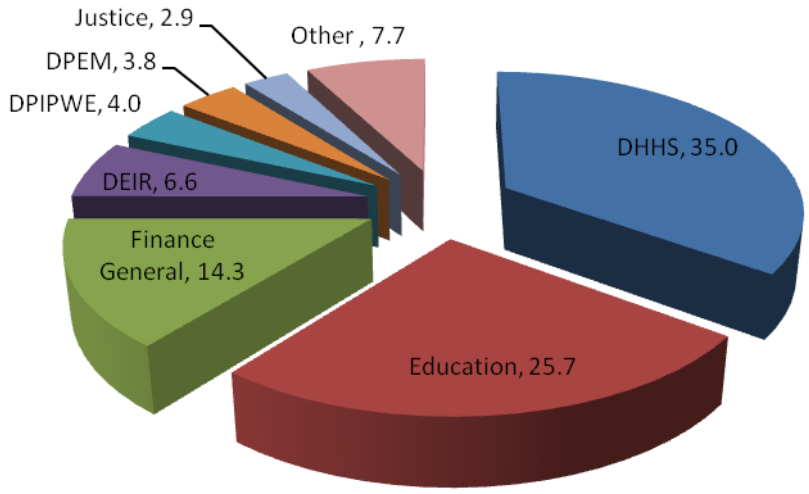
Table 3.3 Expenses, 2010-11 to 2014-15

	2010-2011 Estimated Outcome	2011-2012 Budget	2012-2013 Estimate	2013-2014 Estimate	2014-2015 Estimate	Annual increase
	$m	$m	$m	$m	$m	%
Employee expenses	2,071.1	1,991.5	1,995.9	2,028.6	2,046.2	-0.3
Superannuation	243.6	229.9	228.5	232.4	234.9	-0.9
Depreciation	231.5	264.7	272.8	278.0	274.5	4.4
Supplies and consumables	1,033.3	961.5	947.9	991.2	987.8	-1.1
Nominal superannuation interest	222.1	228.8	230.3	223.0	223.0	0.1
Borrowing costs	14.7	14.5	13.1	12.2	12.0	-4.9
Grant expenses	929.8	1,004.5	991.9	959.6	971.7	1.1
Other expenses	31.2	36.3	38.9	37.9	30.9	-0.2
Total Expenses	**4,777.3**	**4,731.6**	**4,719.3**	**4,763.0**	**4,781.1**	**0.0**

Source: Tasmanian Government (2011).

Figure 3.1 shows Budget expenses by Agency for 2011-12. Total expenses are expected to be $4.731.6 million which represents a cut of $45.7 million or 1.0 per cent from the estimated expenditure from 2010-11. More than half of the total expenditure relates to Health and Human Services (35.0 per cent) and Education (25.87 per cent). The Department of Education figures include $42.1 million expenditure for the Tasmanian Skills Institute.

Figure 3.1 Total Expenses by Agency, 2011-12



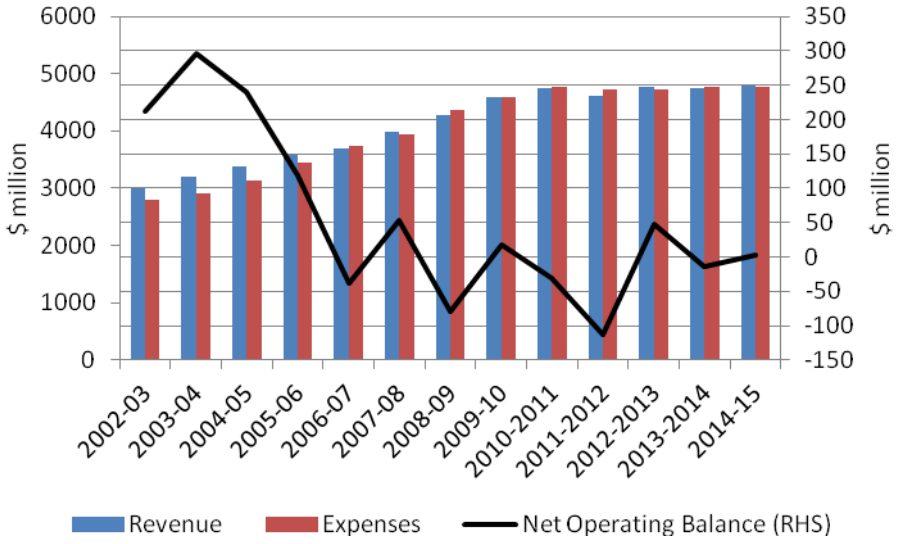
Notes:
1. This chart shows total operating expenses by agency; transactions between agencies have not been eliminated. Accordingly, the total of these expenses does not reconcile to total General Government expenses.
2. Total expenses for Education include the Department of Education and the Tasmanian Skills Institute.
3. For the purposes of this chart, expenditure for Finance-General excludes Transfers to the Consolidated Fund.
4. Other includes all General Government sector entities not included separately in the chart.

Source: Tasmanian Government (2011).

Net Operating Balance

Figure 3.2 shows actual revenues, expenses and the Net Operating Balance from 2002-03 to 2009-10, and estimated outcomes from 2010-11 to 2014-15. Over the period to 2009-10 the annual average growth of expenses (7.3 per cent) outstripped revenue growth (6.3 per cent). Over the Forward Estimates period minimal growth is expected although revenues are expected to grow more quickly than expenses (0.20 per cent compared to 0.02 per cent per annum).

Figure 3.2 Revenue, Expenses and Net Operating Balance



Source: Tasmanian Government (2011); TDTF (various years).

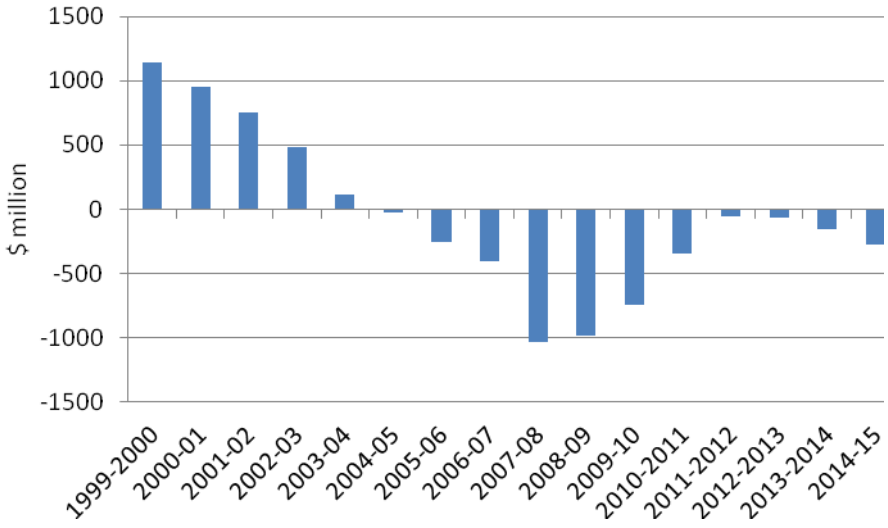
The Net Operating Balance has been positive for most of the period shown in Figure 3.2. Large NOB surpluses were recorded between 2002-03 and 2005-06. Deficits occurred in 2006-07 ($39 million) and 2008-09 ($18 million). Further deficits are expected for 2010-11 ($31.5 million) and 2011-12 ($113.8 million), before a return to surplus in 2012-13.

There is some doubt about the government's ability to achieve the projected revenue and expense targets, and therefore, the NOBs. The level of economic activity will influence both revenues and expenses. Past estimates have been inaccurate due to the complexities involved in forecasts. For example, the 2010-11 Budget predicted a deficit of $65 million in the NOB. This was revised to a surplus of $10.6 million in the MYFR and has been revised again to a deficit of $31.5 million in the 2011-12 Budget. Similarly, the projection for 2011-12 was a deficit of $82 million in the 2010-11 Budget and $83.2 million in the MYFR. In the few months between the MYFR and the 2011-12 Budget, the NOB for 2011-12 has now been revised to a deficit of $113.8 million, a significant deterioration.

Net Debt

Figure 3.3 tracks Net Debt since 1999-2000. Until 2003-04 Net Debt was positive and falling progressively. Between 2004-05 and 2007-08 Net Debt was negative and the Net Debt position was improving. Since the economic downturn, Net Debt has continued to be negative but has deteriorated. In the Forward Estimates period Net Debt is projected to improve (become more negative) each year.

Figure 3.3 Net Debt, 1999-2000 to 2014-15



Source: Tasmanian Government (2011): TDTF, Treasurer's Annual Financial Report (various years).

3.4 Expenditure reductions

In the 2010-11 Mid-Year Financial Report, the Tasmanian Government indicated that it would undertake an expenditure reduction strategy that would include reductions in employee expenses equivalent to up to 2300 FTE staff in the four years to 2014-15. The reduction in expenditure and public sector staffing was justified as a necessary response to: the budgetary position that was adversely affected by the GFC, and a situation where revenues have been rising more slowly than expenses.

Central Program Reviews will continue to be conducted by all agencies with a view to discontinuing programs that:

- Do not align with Government policy priorities; and/or
- Are inefficient or ineffective or duplicate programs provided by other agencies.

Any programs that cease will result in unspent funding comprised of reduced employee costs due to the reduction in FTE staffing and other costs associated with service provision.

The 2011-12 Tasmanian Budget introduced a new Fiscal Strategy and implemented expenditure cuts totalling $1.25 billion in central measures and specific agency measures. Table 3.4 shows that projected reductions in spending over the Forward Estimates period by agency are expected to reach $176.7 million in 2011-12 and a total of $877.2 million by 2014-15 (Tasmanian Government, 2011). The largest funding cuts will be to the Department of Health and Human Services ($520.6 million or 59.3 per cent) and the Department of Education ($189.8 million or 21.6 per cent).

Table 3.4 Expenditure reductions by agency, 2011-12 to 2014-15

	2011-12 Budget	2012-13 Forward Estimate	2013-14 Forward Estimate	2014-15 Forward Estimate	Total Savings	Share of total Savings
	$m	$m	$m	$m	$m	%
Economic Development, Tourism and the Arts	4.1	5.9	8.1	7.7	25.8	2.9
Education	45.9	56.0	49.0	38.9	189.8	21.6
Health and Human Services	100.2	127.3	143.1	150.0	520.6	59.3
House of Assembly	0.1	0.1	0.1	0.1	0.4	0.0
Infrastructure, Energy and Resources	4.1	5.9	6.6	6.6	23.2	2.6
Justice	2.9	4.1	4.1	4.1	15.2	1.7
Ministerial and Parliamentary Support	0.9	1.1	1.1	1.1	4.2	0.5
Office of the Governor	0.1	0.1	0.1	0.1	0.4	0.0
Office of the Ombudsman	0.1	0.1	0.1	0.1	0.4	0.0
Police and Emergency Management	8.1	12.1	16.7	16.7	53.6	6.1
Premier and Cabinet	1.6	2.2	1.9	1.9	7.6	0.9
Primary Industries, Parks, Water and Environment	7.2	6.4	5.9	5.9	25.4	2.9
Tasmanian Audit Office	0.1	0.1	0.2	0.2	0.6	0.1
Treasury and Finance	1.5	2.0	3.5	3.5	10.5	1.2
Total	**176.9**	**223.4**	**240.4**	**236.7**	**877.7**	**100.0**

Note: This table includes the total agency revenue, expense and capital savings strategies

Source: Tasmanian Government (2011: 4.6, Table 4.1).

Table 3.5 presents the breakdown of 'savings' (funding cuts) according to the type of expenditure for 2011-12. The 2011-12 Budget indicated that around half the cuts for 2011-12 would be through reductions in employee costs of $87.8 million and funding cuts will increase to $143.5 million in 2014-15. These cuts equate to approximately 1,700 FTEs over the Forward Estimates period.

Table 3.5 Savings by expenditure type, 2011-12

	Amount	Proportion
	$m	(%)
Employee Costs	87.8	49.7
Supplies and Consumables	41.5	23.5
Grant Expenses	18.1	10.3
Purchases of Non-Financial Assets	17.1	9.7
Revenue	7.1	4.0
Other Expenses	5.1	2.9
Total	**176.7**	**100.0**

Note: Employee Costs includes Employee Expenses and Superannuation

Source: Tasmanian Government (2011).

Almost one-quarter of the expenditure cuts are from supplies and consumables ($41.5 million), while grant expenses ($18.1 million) and purchases of non-financial assets ($17.1 million) each contribute around 10 per cent of total unspent funding.

The Review of the Government Motor Vehicle Fleet conducted after the MYFR identified $5 million of savings from changes to the type of vehicles, lease terms and reductions in private use of vehicles.

The State Service Structural Reforms and Productivity Strategies included:

- Expanding the Workforce Renewal Incentive Program;
- Managing performance; and
- Undertaking an independent review of the State Service.

The State Service Wage Policy provides for non-productivity based wage increases of 2 per cent per annum and productivity wage increases capped at 0.5 per cent. Implementation of this strategy is expected to cut $8.1 million in 2011-12 and $135.6 million in spending over the Budget and Forward Estimates period.

In the 2011-12 Budget, the Treasurer announced employee cost reductions of $87.8 million in 2011-12 and $143.0 million in 2014-15 or the equivalent of 1,700 FTEs over the Budget and Forward Estimates period. These cuts will be achieved by a range of strategies.

Targeted Voluntary Redundancies (TVR) will be offered to staff identified as surplus to requirements that have not been redeployed within three months. The Targeted Voluntary Redundancy package included four weeks salary plus 2 weeks pay for each year of service (a minimum of 16 weeks and maximum of 48 weeks).

The Government improved the offer after negotiations with unions. Employees accepting voluntary redundancy prior to a recommendation for redeployment are now eligible for an incentive payment of up to $20,000 and those accepting the offer after being accepted for redeployment qualify for a payment of $10,000 (Department of Premier and Cabinet, 2011). The Budget provided funding of $10 million for TVRs in 2011-12 and 2012-13. Funds can be accessed by Departments to fund the redundancies but will subsequently be repaid.

Involuntary Redundancy packages may be used in the case of employees identified as surplus who do not accept a TVR. The package will include:

- A notice period of 4 weeks (5 weeks for those over 45 years of age with at least two years' service); and
- 2 weeks' pay for each year of service (minimum of 16 weeks and maximum of 44 weeks).

3.5 The impact of fiscal austerity measures on Budget outcomes

The State Government's Fiscal Balance which is published in the Budget Papers each year is the difference between total state revenue and total state outlays. So if total revenue is greater than outlays, the budget is in surplus and vice versa. Many observers and politicians use the actual reported Fiscal Balance to indicate the fiscal stance of the government. So if the budget is in surplus they conclude that the fiscal impact of government is contractionary (withdrawing net public spending) and if the budget is in deficit they conclude that the fiscal impact is expansionary (adding net public spending).

However, the complication is that we cannot then conclude that changes in the fiscal impact reflect discretionary policy changes. The reason for this uncertainty is that there are automatic

stabilisers which are in-built into the budget outcome and vary with the level of economic activity independent of discretionary policy changes.

To see this, a simple model of the budget balance can be written as:

Budget Balance = Revenue – Spending.

Budget Balance = (Tax Revenue + Other Revenue) – (Welfare Payments + Other Spending)

We know that Tax Revenue and Welfare Payments move inversely with respect to each other, with the latter rising when growth in State Product falls and the former rises with growth in State Product. These components of the Budget Balance are the so-called automatic stabilisers. In other words, without any discretionary policy changes, the recorded Budget Balance will vary over the course of the business cycle.

When the economy is weak – tax revenue falls and welfare payments rise and so the Budget Balance moves towards deficit (or an increasing deficit). When the economy is stronger – tax revenue rises and welfare payments fall and the Budget Balance becomes increasingly positive. Automatic stabilisers attenuate the amplitude in the business cycle by expanding the budget in a recession and contracting it in a boom.

Since the GFC, the Tasmanian Budget, along with those of the other States and the Federal Government, has exhibited the effects described above for period when the economy is weak. State tax revenues such as payroll tax and stamp duties have deteriorated due to the reduction in economic activity. Similarly, as discussed previously, GST revenues from the Commonwealth have suffered major reductions. The introduction of budget cuts that include reductions in services and large reductions in public sector staffing are likely to further exacerbate the situation by reducing economic activity further.

An important point to understand is that the actual budget balance is to a major extent out of the control of the State government because the cyclical component reflects the variations in the spending decisions of private sector agents (household, business firms, external relations). As a result, it is often counter-productive for a government to attempt to cut back the budget outcome with discretionary spending cuts and/or taxation increases because it fears the budget balance is excessive. In these circumstances, the imposition of austerity may then cause State Product to contract and the automatic stabilisers (principally, tax revenue at the State level) to push the budget further into deficit. It also follows that a growth strategy underpinned by discretionary stimulus spending and/or tax cuts can drive reductions in the budget deficit outcome as the level of economic activity increases and tax revenues recover.

We thus urge caution when dealing with discussions surrounding the dynamics of the State budget and efforts have to be taken to decompose the structural and cyclical components of the actual reported budget outcome before any analysis of the discretionary fiscal stance is engaged. It is impossible to make any sense of the appropriateness of the fiscal stance of the State government without undertaking this decomposition.

3.6 Progress in achieving budget targets: September Quarter 2011

A Department and Treasury progress report on the savings strategies outlined in the 2011-12 Budget revealed that during the September quarter, full-time equivalent (FTE) employment in the General Government sector declined by 510 or 2 per cent (Table 3.6). During the September quarter the TFS has achieved a reduction in staffing of 12 FTEs. There is no indication of which positions have been affected.

Table 3.6 General Government Sector Employment (FTE)

Department	Jun-11	Sep-11	Difference	%
Economic Development, Tourism and the Arts	471	453	18	3.8
Education	8766	8458	308	3.5
Health and Human Services	9879	9766	113	1.1
Infrastructure, Energy and Resources	497	490	7	1.4
Justice	1050	1060	-10	-1.0
Ministerial and Parliamentary Support	151	147	4	2.6
Police and Emergency Management	1611	1594	17	1.1
Premier and Cabinet	297	297	0	0.0
Primary Industries, Parks, Water and Environment	1311	1282	29	2.2
Tasmania Fire Service	461	449	12	2.6
Tasmanian Skills Institute	344	344	0	0.0
Treasury and Finance	298	286	12	4.0
Parliamentary and Statutory Offices	316	316	0	0.0
Total	25452	24942	510	2.0

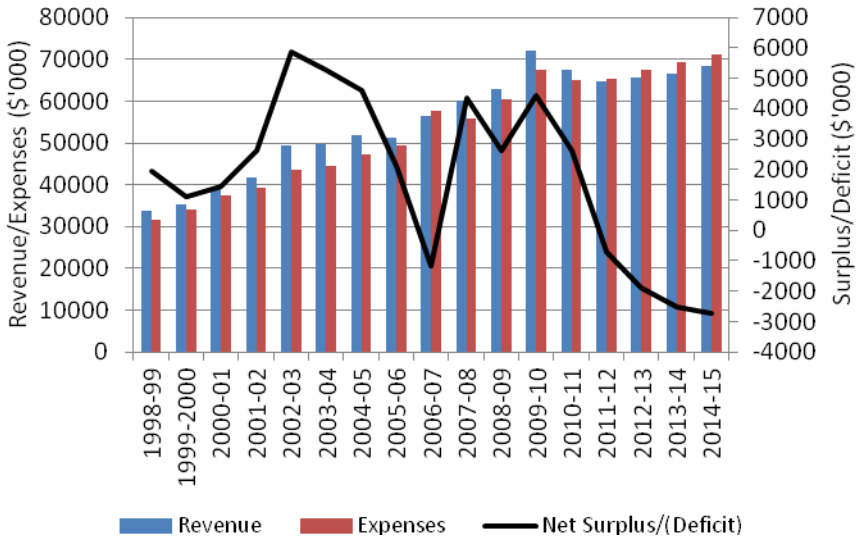
Source: Department of Treasury and Finance (2011).

The Gillard Government's 2011-12 Mid Year Economic and Fiscal Outcomes (MYEFO) report indicated that GST receipts for Tasmania would be down by another $30 million in the current financial year and a total of $83.6 million over the Budget and Forward Estimates period. The reduction in revenue will exacerbate the fiscal situation in Tasmania.

4. The Tasmania Fire Service Budget 2011-12

This section outlines the implications of the 2011-12 Tasmanian Government Budget for the Tasmania Fire Service over the Forward Estimates period. Figure 4.1 shows actual and projected revenues, expenses and the Net Operating Balance for the Tasmania Fire Service from 1998-99 to 2014-15. The TFS has operated with a net operating surplus in every year (to the latest complete financial year, 2010-11) with the exception of 2006-07. However, deficits are projected for the Budget and Forward Estimates period (2011-12 to 2014-15).

Figure 4.1 TFS revenue, expenses and operating balance



Source: State Fire Commission, Annual Reports, Various years; 2011-12 Tasmanian Budget

4.1 Revenue

The revenue sources of the TFS were described in Section 2. They include:

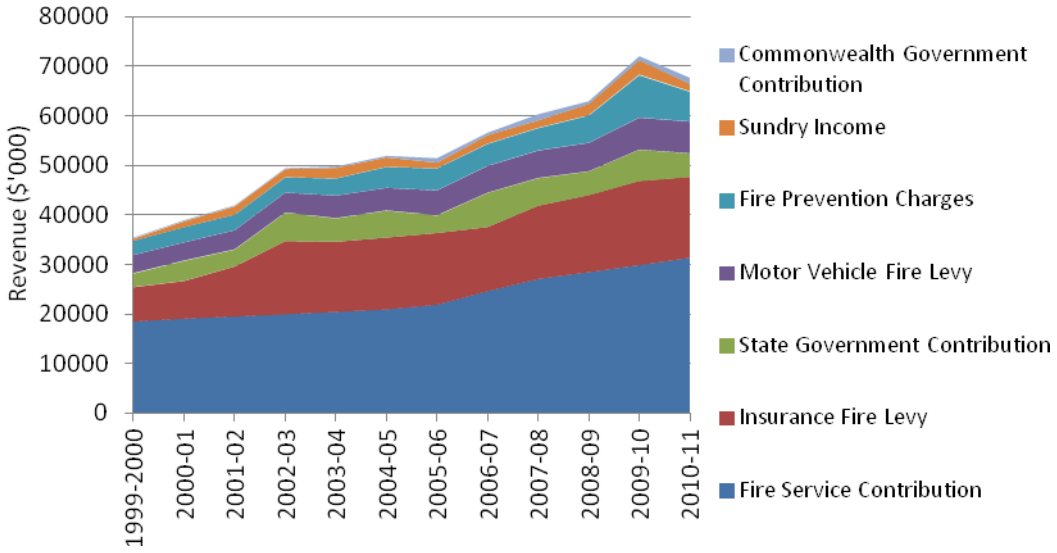
- A Fire Service Contribution that is collected by local councils as part of the rates they levy on landowners;
- An insurance fire levy that is collected by insurance companies;
- A motor vehicle levy charged when vehicles are registered;
- Fire Prevention charges for the sale and servicing of equipment, commercial training and inspection fees;
- The State Government contribution;
- The Commonwealth Government contribution;
- Other income generated through profit on investments and donations.

Figure 4.2 shows the growth of TFS revenue between 1999-2000 and 2010-11. Total revenue increased from $35,329 million in 1999-2000 to $67,621 million in 2010-11. In the future it is expected to decline by around $3 million in 2011-12 before increasing to $68,400 million in 2014-15.

In the period from 1999-2000 to 2010-11 total revenue increased at an average annual rate of just over 6 per cent. Over this period, the fastest growth rates were for the Commonwealth contribution (20 per cent), sundry income (almost 11 per cent), the fire insurance levy (8.1

per cent) and fire prevention charges (almost 7 per cent). The Fire Service Contribution grew more slowly, at an average annual rate of just under 5 per cent.

Figure 4.2 TFS sources of revenue, 1999-2000 to 2010-11



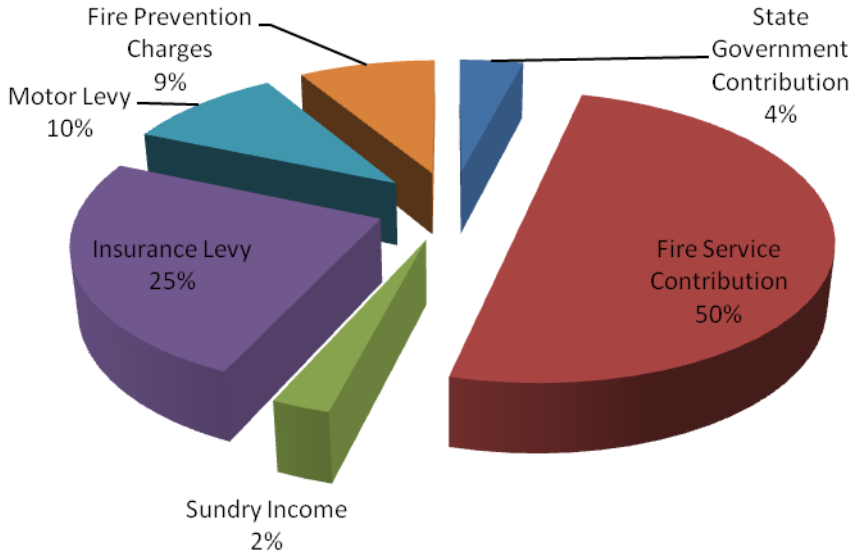
Source: State Fire Commission, Annual Reports, various years

The relative importance of various types of revenue streams has changed over time.

- The largest proportion of revenue is raised by the Fire Contribution Levy. It comprised 52 per cent of total revenue in 1999-2000 but fell to 46 per cent in 2010-11;
- The Insurance Fire Levy is second largest component of revenue and has increased 20 per cent since 1999-2000, to reach 24 per cent of total revenue in 2010-11;
- The Motor Vehicle Levy has fallen slightly, from 10 per cent in 1999-2000 to 9 per cent in 2010-11;
- The State Government contribution increased from just under 8 per cent in 1999-2000 to reach over 12 per cent in 2006-07 before declining to 7 per cent in 2010-11; and
- Fire Prevention Charges have increased slightly, from 8 per cent in 1999-2000 to almost 9 per cent in 2010-11.

The projections for 2011-12 (Figure 4.3) indicate that the Fire Service Contribution will account for 50 per cent of total revenue. The low rate of indexation (from 5 per cent to 3 per cent per annum) suggests that the Fire Service Contribution will decline as a proportion of total revenue over the next four years. The state government contribution has fallen to only 4 per cent for 2011-12 and will continue to comprise a declining proportion of total revenue over the next four years.

Figure 4.3 Revenue projections for 2011-12

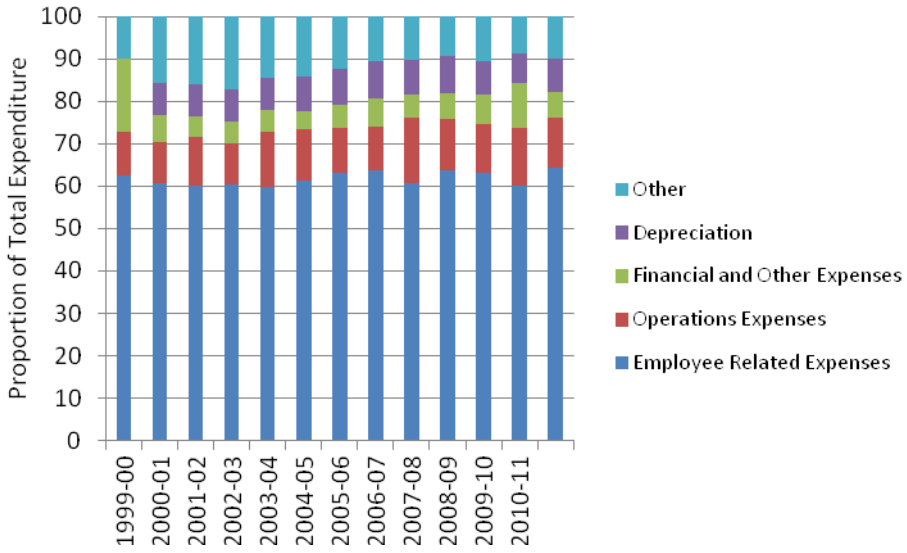


Source: Data provided by TFS

4.2 Expenditure

The composition of expenses between 1999-2000 and 2010-11 is shown in Figure 4.4. Employee expenses constituted the largest share of expenses throughout the period, increasing from 61 per cent to 64 per cent (from $20,738 million in 1999-2000 to $41,773 million in 2010-11). Similarly, operational expenses increased from 10 to 12 per cent. Other expenses fell from almost 16 per cent to 10 per cent. The fact that employee expenses account for 50 per cent of total expenses suggests that savings will also need to be concentrated in this area. As we saw previously, the TFS has already implemented a freeze on recruitment of firefighters and reduced staffing by 12 FTEs in the first quarter of 2011-12.

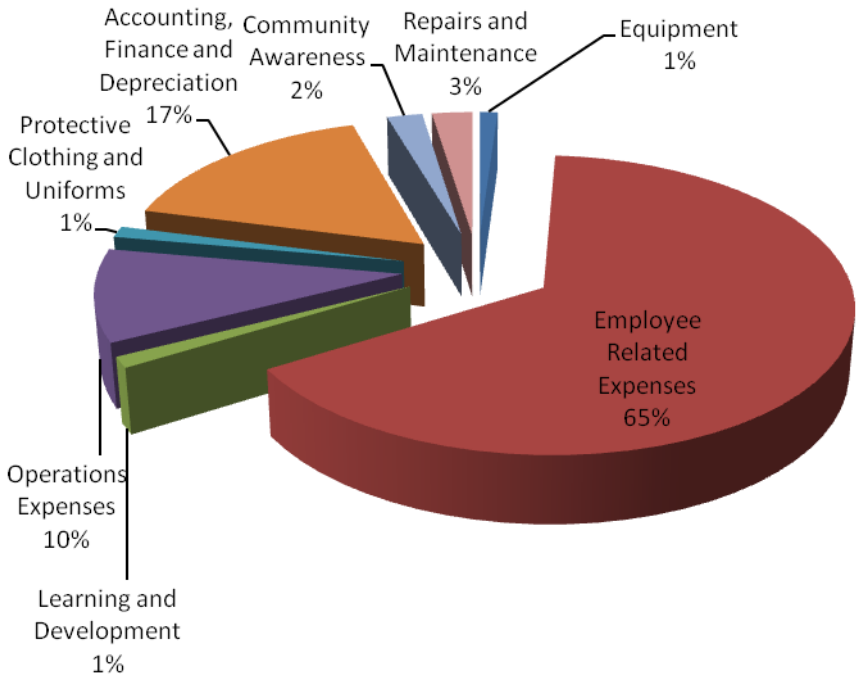
Figure 4.4 Composition of expenses, 1999-2000 to 2011-12



Source: State Fire Commission, Annual Reports, Various years; 2011-12 Tasmanian Budget

Figure 4.5 shows that projected expenses for 2011-12 are relatively stable compared to the 2010-11 outcome. Employee expenses have increased marginally to 65 per cent and operational expenses are expected to fall from 12 per cent to 10 per cent of total expenses.

Figure 4.5 TFS Expenses, 2011-12



Source: Data supplied by TFS

4.3 Budget cuts

As outlined in the previous chapter, the Tasmanian Government introduced significant expenditure reductions in the 2011-12 Budget in response to the deterioration in the budget as a consequence of slower economic growth and the accompanying reduction in revenues linked to the levels of economic activity. This section outlines the measures introduced in the 2011-12 Budget that impact in the TFS.

TFS revenues will be adversely affected over the four years from 2011-12 due to reductions in revenue resulting from Government decisions to:

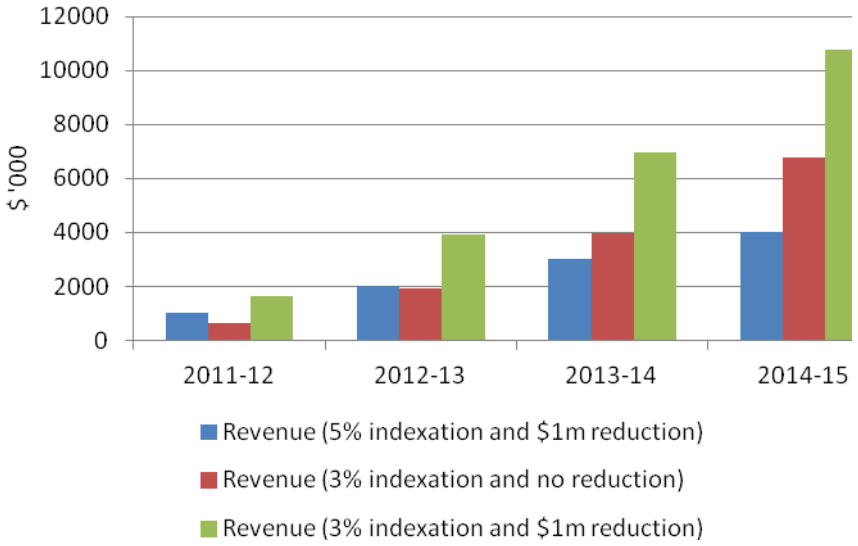
- Reduce the State government contribution by $1 million per annum.
- Reduce indexation of the Fire Service Contribution (from 5 per cent to 3 per cent).

Figure 4.6 shows the impact of the reduction in the indexation rate of the Fire Service Contribution and the reduction in State Government grants for the Forward Estimates period. Over the entire period these initiatives will result in the loss of $10.8 million (and a larger amount after that period). Any reduction in TFS service will have an adverse impact on the standard of protection to the Tasmanian community that already has higher risks and greater losses from fire than other states (see Section 7).

The Government has the option of restoring all funding or reversing cuts to State funding or the indexation rate of the Fire Service Contribution. A reversal of the funding cuts would restore $10.8 million to the TFS over the Forward Estimates period. If the Government decided to maintain the lower rate of indexation of the Fire Service Contribution (3 per cent)

and restore the $1 million in Government funding this would result in a loss of $6.8 million funding over the period and the lower revenue collection would be included in the base for future indexation. Alternatively, if the Government decided maintain the cut in Government funding but reversed the decision on indexation of the Fire Service Contribution (reverted to 5 per cent rather than 3 per cent) the revenue loss over the period would be $4 million.

Figure 4.6 Cumulative revenue loss from budget initiatives



Source: 2011-12 Budget; Annual Report 2010-11

The decision to reduce Government funding is part and parcel of the contractionary fiscal stance adopted by the Government. However, the reduction in the rate of indexation of the Fire Service Contribution is not related to Government outlays since it is collected by local councils and represents a trivial amount for individual ratepayers. Calculations by the TFS indicate minimal additional costs for ratepayers associated with the 5 per cent indexation rate:

- For areas covered by career brigades the average cost in 2010-11 was $224 per annum. The contribution will increase by an average of $6.72 per annum with 3 per cent indexation compared to an increase of $11.20 per annum if the 5 per cent levy was maintained.
- For areas covered by volunteer brigades the 2010-11 contribution averaged $52 per annum. With 3 per cent indexation the annual contribution will increase by $1.56. With 5 per cent indexation the annual contribution would increase by $2.60.
- Therefore, the additional cost for households ranges from $1.04 per annum for areas covered by volunteer brigades to $4.46 per annum for areas covered by career brigades.

The TFS has calculated that the total impact on revenues over the five years to 2015-16 will be $14.3 million as shown in Table 4.1

Table 4.1 Revenue reductions for the five years to 2015-16

	2011-12	2012-13	2013-14	2014-15	2015-16
	$m	$m	$m	$m	$m
Fire Service Contribution	0.6	1.3	2.0	2.5	2.9
State Government Contribution	1.0	1.0	1.0	1.0	1.0
Total	**1.6**	**2.3**	**3.0**	**3.5**	**3.9**

Source: Data supplied by TFS

At the end of 2010-11 the TFS had reserves of $15.2 million, and cash and cash equivalents of $12.5 million, of which $8.1 million was in cash. The TFS supplied the information in Table 4.2 to demonstrate the impact of the Budget cuts. According to the Budget projections, the TFS expects that its cash reserves will be exhausted by 2015-16. However, the TFS also had $4.4 million in cash equivalents available in June 2011 that could also be utilised.

Table 4.2 Impact of Budget cuts to cash at bank and deficit

	2011-12	2012-13	2013-14	2014-15	2015-16
	$m	$m	$m	$m	$m
Cash Position	8.1	6.6	4.9	2.5	0
Deficit	0.7	1.9	2.5	2.7	3.2

Source: TFS

Savings initiatives

In response to the significant reductions in revenue the TFS has implemented a number of savings strategies and is considering additional measures. Savings that have already been identified are shown in Table 4.3. If fully realised, these savings would total $5.7 million over five years. As mentioned in Section 3.6, the Tasmania Fire Service has reduced staffing by 12 FTE or 2.6 per cent in the September quarter of 2011.

Table 4.3 Savings initiatives

Savings	2011-12	2012-13	2013-14	2014-15	2015-16
	$m	$m	$m	$m	$m
Salaries	0.4	0.6	0.8	0.9	1.0
Learning and Development	0.1	0.1	0.1	0.1	0.1
Uniform and protective Clothing	0.2	0.2	0.2	0.2	0.2
Repairs and Maintenance	0.1	0.1	0.1	0.1	0.1
Total savings	**0.8**	**1.0**	**1.2**	**1.3**	**1.4**

Source: TFS

In addition to these measures the TFS indicated that the SFC decided on 24 July 2011:

> The State Fire Commission approves the winding up of TasFire Training based on no forced redundancies as a result of this decision. The Minister for Police and Emergency Management is to be advised of the decision. Prior to implementing the decision, staff shall be consulted. Should any matters arising from this consultation warrant a review of the decisions, the Commission shall be advised (Brown, 2011).

The closure of TasFire Training would be expected to result in savings of $200,000 per annum. This issue is explored in the following section.

Although full details are not available at this time, other cost reduction strategies that are under consideration include:

- Collaborative purchasing, review of vehicle fleet and library services;
- Call receipt and dispatch (current and expanding);
- Communications infrastructure sharing;
- Interagency protocols (PWS, FT) and Police;
- Restricting travel and freezing vacancies;
- A review of 6 officer positions within capability and planning;
- Removal of the Training relief crew (reduction to minimum staffing agreement); and
- The closure of Rokeby Station as a career fire station.

4.4 Capital Expenditure

The SFC Corporate Plan (SFC, 2011: 7) stresses the importance of the capital works program:

> The preservation of a capital works program is vital to the continued effectiveness of TFS. Without sufficient funding the Commission will not be able to continue its current fire appliance replacement program and it will be unable to replace, in an acceptable period of time, a significant number of fire appliances that either do not provide the necessary crew protection or are costly and difficult to maintain.

In 2010-11 capital expenditure was $5.6 million which was slightly less than the $5.8 million allocated in 2009-10. The 2010-11 program included:

- $2.9 million for fire trucks – 14 four wheel drive heavy crew cab vehicles and one crew cab urban heavy pumper;
- $0.8 million for replacement vehicles;
- $0.64 million for land and buildings, including fire stations to be constructed at Barton and Pyengana and fire stations that were reopened at Beaconsfield, Brady's Lake, Broadmarsh and Tunbridge; and
- $1.22 million for plant and equipment, including IT, communications equipment, workshop and office equipment.

Table 4.4 shows capital outlays by financial year for the Forward Estimates period. The table includes projections from the 2010-11 Budget and the 2011-12 Budget. There are small increases over the three years in proposed expenditure for the Communications Replacement Program ($44,000), the Fire Station Build Program ($17,000) and the Information Technology Replacement Program ($62,000).

Communications projects include replacing the paging system infrastructure and vehicle radios. The IT program includes replacing desktop computers every four years rather than the previous practice of three years, the installation and replacement of network infrastructure over five years.

The Fire Fighting Appliance Replacement Program has been promoted by the TFS as 'a rolling and sustainable fire appliance replacement program that … has identified the need to replace 92 appliances over the next five years' (SFC, 2008: 20). However, the current

Corporate Plan (SFC, 2011) states that no new funding has been allocated for 2011-12 and 2013-14 due to a backlog that will take two years to complete.

In the 2011-12 Budget there has been a major reduction in planned expenditure for the Fire Fighting Appliance Replacement program of $4.97 million over three years (Table 4.4). The largest reduction in the program will occur in 2011-12 when expenditure will be $2.3 million below the level indicated in the 2010-11 Budget, with a similar reduction in the following year ($2.15 million).

Table 4.4 Planned capital expenditure, 2011-12 to 2013-14

	2011-12 $'000	2012-13 $'000	2013-14 $'000	Total $'000
Communications Replacement Program				
2010-11 Budget	384	375	365	
2011-12 Budget	400	390	378	
Increase (-Decrease)	**16**	**15**	**13**	**44**
Fire Fighting Appliance Replacement Program				
2010-11 Budget	2915	2300	3115	
2011-12 Budget	615	150	2600	
Increase /(-Decrease)	**-2300**	**-2150**	**-515**	**-4965**
Fire Station Build Program				
2010-11 Budget	763	740	710	
2011-12 Budget	775	740	715	
Increase/(-Decrease)	**12**	**0**	**5**	**17**
Information Technology Replacement Program				
2010-11 Budget	464	619	564	
2011-12 Budget	357	758	594	
Increase/(-Decrease)	**-107**	**139**	**30**	**62**

Source: 2010-11 Budget Paper 2, 2011-12 Budget Paper 2

4.5 Conclusion and recommendation

The contractionary fiscal stance of the Tasmanian Government is reflected in the reduction of funding to the TFS of $1 million per annum over the Forward Estimates period. Revenue has been further curtailed by the change in the indexation rate for the Fire Service Contribution, from 5 per cent per annum to 3 per cent per annum. The decision to reduce indexation of the Fire Service Contribution involves trivial savings for households (between $1.04 and $4.46 per annum) but will have a significant impact on the operations of the TFS. Since the Fire Service Contribution has no impact on Tasmania's budgetary outcomes, this decision appears to impose hardship on the TFS that will impact adversely on the quality of fire services provided to the community, without providing any fiscal benefit.

Faced with severe funding reductions the TFS attempted to find savings in areas that would not have a direct adverse impact on the emergency response capacity. However, any cuts will impact on the ability of the TFS to effectively manage fire risks and respond to fire and other emergency incidents. Indeed, the impact on operational capacity was demonstrated by the decision to announce a freeze on the recruitment of firefighters in the run up to the Budget. In

announcing a freeze of Tasmania Fire Service recruitment in May 2011, the Chief Officer, Michael Brown acknowledged the force will be 'fatigued' from forced overtime should staffing shortages continue, even if there was no immediate risk to public safety (McKay, 2011).

In the period since the Budget, the TFS has reduced staffing by 12 FTE in the first quarter of 2011-12. The TFS has identified other savings and foreshadowed future cuts. The capital expenditure program has also been reduced by around $4.8 million for the three years to 2013-14 compared to projections from the 2010-11 Budget. The financial savings from possible cuts referred to in Section 4.3 will impact adversely on the response capability of the TFS. In particular, the removal of the Training relief crew and/or the closure of Rokeby Station as a career fire station and the closure of TasFire Training will reduce human resources that can be utilised to respond to incidents.

The consequences of any reduction in operational capacity could be serious. These could include an increase in property damage and additional loss of life. These potential outcomes are all the more serious when we take into account that Tasmania already has the highest rate of fire deaths and the highest rate of property damage from structure fires in Australia (see Section 7).

Moreover, the closure of TasFire Training would eliminate a unique training facility in Tasmania, with adverse impacts on the community and employers who would be left without alternative training providers for some courses, at least in the short to medium-term. This issue is examined in more detail in Section 5.

Recommendation 1

The Tasmanian Government should restore the funding that was cut in the 2011-12 Budget and increase the indexation rate for the Fire Service Contribution as an interim measure until an accurate measure of funding needs is determined.

5. TasFire Training

5.1 Introduction

This section examines the proposal to close TasFire Training in response to the decision by the Tasmanian Government to reduce revenue to the Tasmania Fire Service by:

- Reducing the government contribution by $1 million per annum; and
- Reducing indexation of the Fire Contribution Levy from 5 per cent per annum to 3 per cent per annum.

At a meeting of the SFC on 24 July 2011 it was decided that

> The State Fire Commission approves the winding up of TasFire Training based on no forced redundancies as a result of this decision. The Minister for Police and Emergency Management is to be advised of the decision. Prior to implementing the decision, staff shall be consulted. Should any matters arising from this consultation warrant a review of the decision, the Commission shall be advised (Brown, 2011)

In a letter dated 7 September 2011 Mike Brown, the Chief Officer of the TFS stated: 'It is our view that there is a very strong case for ceasing the operations of TasFire Training in order to assist with achieving TFS required budget savings'. The closure of TasFire training is expected to provide annual savings of approximately $200,000.

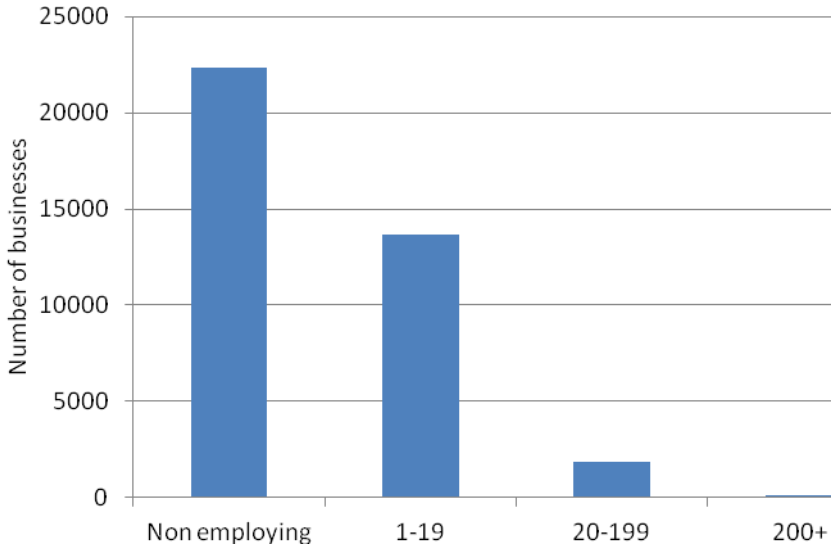
This stance is in stark contrast to the current *Corporate Plan 2010-11 to 2012-13* that states that TasFire Training and TasFire Equipment 'provide valuable fire safety services and education to the community' (SFC, 2011: 14) and establishes the objective to 'Continue to implement opportunities to maintain TasFire Training's market position' (SFC, 2011: 8).

The section is organised as follows. Section 5.2 provides a brief overview of the operating environment of TasFire Training. The following two sections describe the training provided by TasFire Training along with the economic and social benefits. Section 5.5 examines the financial situation of TasFire Training. The potential impact of the closure of TasFire Training is considered in Section 5.6, while the final section provides a summary and recommendations.

5.2 The operating environment

TasFire Training provides training throughout Tasmania which is an economy characterised by a large number of small firms. In June 2009, there were 37,951 businesses in Tasmania which was 500 less than the previous year. Of these, 22,328 or 59 per cent were non employing businesses. In addition, 36 per cent of firms employed between 1 and 19 employees. Only 5 per cent of Tasmanian businesses employed between 20 and 199 persons and less than 1 per cent had more than 200 employees. The distribution of employment by business size is shown in Figure 5.1.

Figure 5.1 Business size by employment levels



Source: ABS 2011a Cat No.8165.0, Counts of Australian Businesses, including Entries and Exits, Jun 2007 to Jun 2009.

The composition of industry has changed significantly in the past quarter century (Table 5.1). In general, growth has been concentrated in tertiary or service industries while primary and secondary industries have been in decline. Perhaps the most significant transformation is the decline in manufacturing which contracted from 13.8 per cent of total employment in 1985 to only 8.9 per cent by 2011. Other industries that recorded a decline in employment share over the period included: agriculture, forestry and fishing (2.5 per cent); electricity, gas, water and waste services (1.9 per cent); and wholesale trade (1.2 per cent).

The major growth industries have been: health care and social assistance (3.6 per cent); accommodation and food services (1.6 per cent); and administrative and support services (1.5 per cent). Construction finished the period with employment growth of 1.8 per cent but is highly sensitive to economic fluctuations.

The current economic circumstances are likely to have exacerbated the decline in employment in some of the industries that have used TasFire Training services in the past. In times of economic stress, such as the conditions that have prevailed over the past four years or so, firms are likely to curtail activities that are not essential to immediate production requirements. Therefore, we would expect that the poor economic conditions will have contributed to a diminution of business opportunities for TasFire Training and other training providers as firms have reduced or postponed staff training until their circumstances improve.

As economic growth accelerates and employment increases there will be a need for increased training that will provide opportunities for an increase in courses and participants in TasFire Training courses which would increase revenue flows.

Table 5.1 Industry share of employment, 1985 to 2011

	1985 %	1991 %	2001 %	2011 %	1985-2011 %
Agriculture, Forestry and Fishing	8.4	8.3	8.9	5.9	-2.5
Mining	1.7	1.6	1.2	1.5	-0.2
Manufacturing	13.8	13.4	11.1	8.9	-5.0
Electricity, Gas, Water and Waste Services	3.8	2.1	1.0	1.9	-1.9
Construction	7.5	5.4	5.5	9.2	1.8
Wholesale Trade	4.0	4.7	4.1	2.8	-1.2
Retail Trade	10.2	10.7	13.1	11.0	0.8
Accommodation and Food Services	5.7	6.3	7.1	7.3	1.6
Transport, Postal and Warehousing	5.1	4.9	5.1	4.1	-1.0
Information Media and Telecommunications	1.9	2.0	2.1	1.9	0.0
Financial and Insurance Services	3.5	4.2	2.4	3.4	-0.1
Rental, Hiring and Real Estate Services	1.0	0.9	0.7	1.2	0.2
Professional, Scientific and Technical Services	3.4	3.8	4.4	4.0	0.6
Administrative and Support Services	1.4	1.8	2.7	2.9	1.5
Public Administration and Safety	6.2	6.0	7.2	7.6	1.3
Education and Training	6.8	7.8	6.4	8.0	1.2
Health Care and Social Assistance	9.7	10.6	11.7	13.2	3.6
Arts and Recreation Services	1.2	1.2	1.2	1.7	0.5
Other Services	4.6	4.4	4.2	3.5	-1.1
Total	**100.0**	**100.0**	**100.0**	**100.0**	

Source: ABS (2011b) Labour Force, Australia, Detailed, Quarterly, 6291.0.55.003: Table 05 Employed persons by State and industry

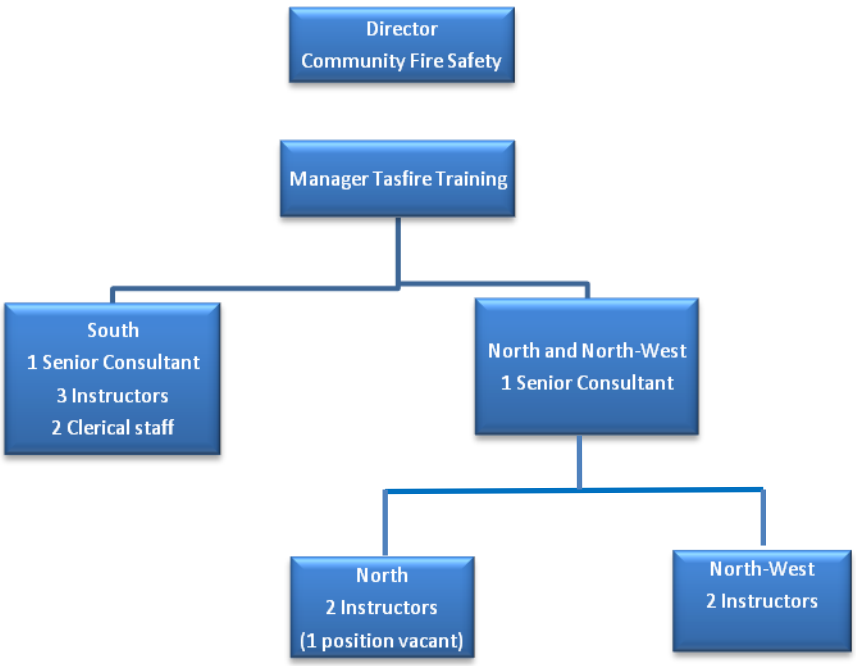
5.3 Functions of TasFire Training

Since its formation in 1992, TasFire Training has operated as a commercial venture of the TFS that is required to recover costs and is subject to competitive neutrality principles. The competitive activities of TasFire Training are constrained by the organisation being part of the TFS. The TFS charges TasFire Training for services and facilities provided including rent, financial and IT services etc so that TasFire Training is prevented from seeking less expensive commercial services or low cost accounting software that would deliver significant savings compared to TFS services. TasFire Training also faces additional charges that it would not be subject to if it was a small training organisation. For example, TasFire Training would not have been subject to Payroll Tax. Moreover, the TFS has constrained TasFire Training's commercial decision-making through policies such as the decision to discontinue confined space and working at heights courses and preventing TasFire Training from seeking work with firms outside Tasmania.

TasFire Training delivers training in all aspects of fire prevention, fire safety and emergency response to improve workplace safety throughout Tasmania (TFS, 2011). TasFire Training is part of the Community Fire Safety Division and operates from three TFS training centres: Cambridge in the South, Youngtown in the North and Burnie in the North-West.

Figure 5.2 shows the organisational structure of TasFire Training. There is a manager with overall responsibility for the three centres. In the South there is a Senior Consultant, 3 Instructors and 2 Administrative staff. Another Senior Consultant is responsible for both the North and North-West. There is one Instructor in the North and Two in the North-West.

Figure 5.2 Structure of TasFire Training



All TasFire Training instructors have strong backgrounds within the firefighting industry as career and volunteer firefighters who have had exposure to a wide variety of emergency incidents. Training is provided to a wide range of industries as listed in Table 5.2.

Table 5.2 Industries and employers using TasFire Training courses

Industry type	Employers
State and Federal government	▪ Forestry ▪ Tasmanian Police ▪ Hydro ▪ Transend ▪ GBEs
Health care	▪ Hospitals and multi-purpose health centres ▪ Super clinics ▪ Aged care ▪ Group homes ▪ Palliative care
Industry	▪ Mining – open cut and underground ▪ Manufacturing – e.g. Nyrstar, Temco, BellBay, Australian Cement ▪ Wharves ▪ Veolia and Civic Solutions waste management ▪ Waste Transfer stations ▪ Processing plants- fish processing and packaging, vegetable processing, dairy processing
SMEs	▪ Mechanical engineering ▪ Air conditioning ▪ Electrical engineering
Hospitality	▪ Federal Group and Grand Chancellor
Community Organisations	▪ Church groups including Anglicare and City Mission ▪ Child care centres ▪ Women's shelters ▪ Other not-for-profit organisations

Current training courses are detailed in Table 5.3 below. TasFire Training also provided confined space training and working at heights training but these courses were discontinued in December 2010 despite being among the more profitable courses (see Table 5.5 for details of revenue from confined space training). The decision to discontinue these courses was attributed to a review of TasFire Training by the TFS that 'decided that our focus for the future will be to deliver training with a primary focus of prevention and/or response to fire in the workplace' (Young, 2010). There is no indication that this decision was based on commercial considerations.

Table 5.3 TasFire Training Courses

Course	Components
Emergency Response Teams (for high risk industries)	Hazardous material incidents
	First response to fire incidents
	Fire control and emergency rescue
	Operating breathing apparatus and firefighting pumps
Fire extinguisher	Identification of portable firefighting equipment
	Safe use of portable firefighting equipment
	Practical experience in extinguishing live fires
Wardens	Roles and responsibilities of wardens
	Preparing for emergencies
	Evacuation procedures
	Communicating in emergencies
Chief Wardens	Roles and responsibilities of chief wardens
	Acts and regulations relating to the Emergency Control Organisation
	Managing evacuations
	Responding to emergencies
	Liaising with emergency services
	Strategies in emergency prevention management
	Communications systems
	Recovery planning
Breathing apparatus	Conduct pre-donning checks and tests on breathing apparatus
	Start up and control procedures
	Operate breathing apparatus
	Closing down and maintaining equipment
Fire safety and Extinguisher	Prevent fires in the workplace
	What to do if fire occurs in the workplace
	Safe use of portable firefighting equipment
	Practical experience in extinguishing love fires
Fire safety	Common causes of fires in the workplace
	How to prevent fires in the workplace
	What to do if a fire occurs in the workplace
	Identifying portable firefighting equipment

Source: TasFire Training: http://www.tasfiretraining.com.au/training.html#p7APMt1_4.

Although operating as a separate entity TasFire Training remains an integral part of the TFS and staff maintain operational competencies and are available to perform operational duties when required. On some occasions operational duties have taken precedence over training activities e.g. AAD/Aurora Australia training. Examples of operational preparedness and participation in response to incidents include:

- Two staff from the South have recently completed two weeks at Hobart Fire Brigade prepping for potential assistance;
- Last summer staff from the South completed some Air Ops support for a total of seven weeks, with the four staff members involved completing two days training prior to deployment;
- This deployment will occur again this year for a period of up to ten weeks;
- Staff have assisted in suppression of fires threatening Hobart.

In addition to availability for operational firefighting duties, TasFire Training staff make a significant contribution to industry in the form of information provided on behalf of the TFS regarding a broad understanding of General Fire Regulations and Workplace laws and their statutory obligations. This includes providing advice and assistance with regard to evacuation procedures, interpretation and application of legislation and standards. Examples provided by TasFire Training staff include:

- Providing employers with advice on how to interpret the confined space definitions and understand the requirements that must be met under AS2865 when an area is defined as a confined space. Further advice regarding tailoring work practices to focus on conducting risk assessments for work to be performed in situations where many of the factors associated with confined spaces are present, even if it is not technically classified as a confined space.
- Advising employers of the information and contact numbers that should be included in the Emergency Procedure Manual.
- Providing comments and suggestions on the content of evacuation plans including when to call the fire service, undertake fire suppression and the like as well as including plans to cover bomb threats, dealing with suspicious mail items and hazardous material spills.
- Advising on how to establish firm specific procedures for rescue in case of emergencies, including documenting the procedures and training staff

5.4 The economic and social contribution of TasFire Training

TasFire Training contributes economic and social benefits to the people of Tasmania by increasing the levels of fire safety awareness and emergency response skills in the workplace, with the additional benefits that these participants utilise this knowledge to improve the safety of their households and the wider community (TFS, 2011).

Figure 5.3 Market equilibrium in the presence of social benefits

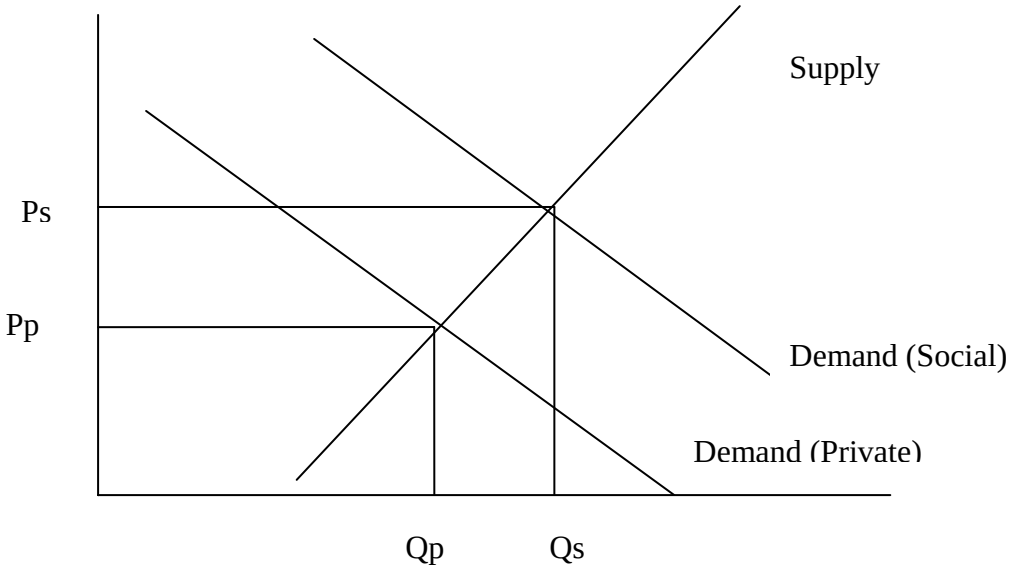


Figure 5.3 shows the market equilibrium position for two separate situations; when there are no social benefits and when social benefits are present. First we consider the situation where there are no positive externalities or social benefits accruing from an activity. In this case the demand curve is Demand (Private) which is equal to the marginal private benefit of the good or service. Market (or competitive) equilibrium occurs where the demand and supply curves intersect, establishing a price of Pp and quantity Qp. However, if there are positive externalities this equilibrium results in an undersupply of the good or service under consideration. When we take the social benefits into account the demand curve shifts to the right as represented by Demand (Social) which is the marginal social benefit. The new equilibrium is at price Ps and quantity Qs. This is the point of allocative efficiency. Therefore, if the social benefits are not taken into account, production will be lower than is socially desirable. This shortfall is the difference between the two equilibrium quantities (Qs-Qp).

The benefits of training provided by TasFire Training include:

- A general increase in fire awareness in the community, a reduction in the risk of fire and the ability to respond appropriately in the event that a fire occurs;
- Reduced economic and social cost of fire, including:
    - reduced financial cost of fire damage;
    - less disruption to business if people who have undertaken training are able to implement the strategies they have learned to minimise damage to business premises; and
    - reduced disruption and social welfare costs by reductions in loss of life, injury and damage to residences

TasFire Training provides subsidised training at workplaces where employers face funding constraints that mean they would not be able to fund a sufficient quantity of training at market rates. As an integral part of the TFS, TasFire Training also provides general advice and has worked with Community Education to train aged care service providers and the TFS expressed the view that ‘these community focused activities will continue’ (TFS, 2010: 12).

Training provided by TasFire Training provides general social benefits through increasing the awareness of trainees who are better prepared to assess fire risks and respond appropriately, as demonstrated by the newspaper article in Box 5.1.

Box 5.1 Social benefits of TasFire Training

Trained up to handle emergency

The foam was flying in Burnie yesterday as the Tasmania Fire Service held free fire safety courses as part of Safe Work Tasmania week.

Using extinguishers was just one of the valuable skills participants from all kinds of workplaces learnt in the session, TasFire Training senior consultant Peter Ockerby said.

"The courses look at the common causes of fires and prevention of these factors is a big part of the training," he said.

"But we don't live in a perfect world and obviously fires do happen so we cater for that."

Mr Ockerby said while the welfare of employees was always the first concern in a fire situation, those trained in fire safety could use those skills to save property and assets.

He said the know-how taught in regular training held by the TFS could also be applied to situations beyond the workplace.

"Everyone has a home and what they learn here flows on and could help them save their home or family," he said.

The Advocate, Thursday, October 29, 2009

Emergency Response Team (ERT) Training

Emergency Response Team training is aimed at high risk industries that need to maintain employee safety, protect plant and equipment and respond to incidents that occur on site. Industries such as the mining and manufacturing sectors use emergency response teams as an effective response to emergency incidents. Onsite teams are trained to respond to incidents that threaten both human and physical resources. This training enables initial preventative procedures/actions inclusive of evacuation, fire suppression at the early stages of a fire or other emergency by the employees. Crews are also trained to enable them to work alongside responding Tasmania Fire Service Brigades.

There are currently no other training providers in Tasmania providing ERT training. TasFire Training is uniquely placed to provide this since the instructors all have an operational firefighting background and are able to base training on their knowledge of TFS operating procedures so that ERTs are able to provide a response that is well coordinated with responding TFS firefighters. The value of ERTs is demonstrated by the information in Box 5.2 regarding past incidents.

Box 5.2 Demonstrated Benefits of TasFire Training Courses

An ERT trained by TasFire Training responded to a fire at **Australian Bulk Minerals** at Savage River in 2006. Although the ERT was not able to suppress the fire, they evacuated the site and accounted for all staff within three minutes of the alarm, isolated the power and laid out the hoses prior to the TFS arrival. This enabled the TFS and ERT to undertake an internal attack on the fire as soon as the TFS arrived at the scene. Throughout the incident the ERT provided specialist technical support and advice. The actions of the ERT assisted in limiting the damage to the facility that could have reached tens of millions of dollars or resulted in closure of the mine with an associated loss of employment and economic activity in the region.

In addition to their role within the company the ERT at Savage River provide substantial wider social benefits. The ERT is initially responsible for responding to emergency incidents in the township of Savage River as well as at the mine site. They have also been involved in assisting Parks and Wildlife with back burning operations and are available to assist with the suppression of bushfires.

In response to a fire at **Australian Weaving Mills**, all workers were evacuated and three workers extinguished the fire. The Manager commented:

'The company is thankful we had guys who were capable of putting out the flames in such a professional and responsible manner and it's good to see the fire safety training come into action and work well'.

Source: Braithwaite, 2006; The Advocate, 2003.

Training for the Australian Antarctic Division (AAD)

The Tasmanian Government has identified unique economic opportunities for the state as a gateway to the Antarctic. The recently released *Developing Tasmania's Antarctic Sector: A vibrant industry in a global market*, states:

> The Antarctic sector is an integral part of Tasmanian society and history which is making a significant contribution to the Tasmanian economy. Further developing that resource has the potential to convert it into a major Tasmanian industry with very substantial long term economic and social benefits for Tasmania (Department of Economic Development, Tourism and the Arts, 2011: 4).
>
> The sector's flow-on benefits for Tasmania are largely associated with the investment by entities involved in scientific research, cultural activities, education (including training) and governance matters (Department of Economic Development, Tourism and the Arts, 2011: 5).

The report has identified initiatives and associated actions required to fully capitalise on these opportunities. Initiatives include:

- build Tasmania's capacity and reputation as a centre for Antarctic skills development and education and promote Antarctic careers;
- comprehensively brand and promote Tasmanian polar capabilities;
- raise awareness of Hobart as an Antarctic gateway;
- maximise opportunities for Tasmanian businesses arising from the replacement of Antarctic vessels by international Antarctic organisations;
- leverage existing Tasmanian maritime and polar capability to win additional business with other polar nations; and

- attract additional East Antarctic nations to Hobart.

TasFire Training currently contributes to these objectives through provision of specialised training to the Australian Antarctic Division (AAD) that generates revenues averaging $100,000 per annum. In 2010 TasFire Training won the tender for the AAD training and is currently the only training provider in Tasmania capable of providing this training. TasFire Training provides training to AAD staff at four locations. Details of the courses and the number of participants for the three years to 2010-11 are in Table 5.4. In addition to the standard 7 day training package other courses such as portable fire extinguisher, extinguisher maintenance, breathing apparatus, rescue extraction and Voyager support have been provided.

Table 5.4 Courses provided to AAD staff

Course	Duration	Participants		
		2008-09	2009-10	2010-11
Basic Firefighting	1 day	40	70	51
Confined Space	1 day	55	68	33
Breathing Apparatus	1 day	47	66	45
Hazardous Materials	0.5 days	34	52	44
Pump Operation	0.5 days	27	50	44
Advanced Firefighting	2 days	49	60	44
ERT Management	1 day	9	10	18
Portable Fire Extinguisher		66	115	114
Totals		327	491	393

Source: TFT

The Tasmanian Government envisages opportunities for significant expansion of existing business opportunities relating to the Antarctic (Department of Economic Development, Tourism and the Arts, 2011: 5):

> Building on existing relationships, particularly those with the AAD and the French Antarctic program, will generate economic growth. There is also potential to expand links with other East Antarctic nations and to forge new links with countries involved in, or considering involvement in, the region. Hobart will seek to position itself as a centre of excellence and collaboration interacting with countries such as China, Romania, Russia, Japan, India, the United States of America, New Zealand, Italy and Korea. For many of these Antarctic partners Hobart will be the preferred supply base for all Antarctic-related goods and services.

In addition to the training provided to AAD there is currently an expansion in training provision to crew members of the P & O owned support vessel, *Aurora Australis*. This vessel is being increasingly utilised for scientific research requiring an increase in crew numbers, and therefore additional training.

In 2012 a new standard for International Maritime safety standards will commence providing an impetus to additional training to meet the higher requirements for preparedness and response to emergencies. As a consequence, training has increased from the previous average of 1 to 2 days to reach 6 days in 2011 and there is scope for further expansion. There will be a need for training for the crew of another P & O ship, the French Antarctic research vessel, the L'Astrolabe.

Successful implementation of the development of Tasmania as the gateway to the Antarctic may expand opportunities for TasFire Training to further expand training provision.

5.5 Financial information for TasFire Training

TasFire Training has been operating at a loss for an extended period of time. Figure 5.4 shows the actual operating balance from 1998-99 to 2010-11 and the expected operating balance for 2011-2012, including internal charges by the TFS (blue columns). Actual and projected operating balances from 2009-10 are shown with internal charges excluded (red columns). TasFire Training has been recording deficits in each year since 2004-05 and the deficits have increased substantially during this time. When internal charges are excluded, TasFire Training is still producing deficits each year but the deficits are substantially smaller. For 2011-12 it is expected that the deficit will be around $313,000 when internal charges are included and $221,000 when internal charges are excluded.

Figure 5.4 TasFire Training operating balance, 1998-99 to 2011-12

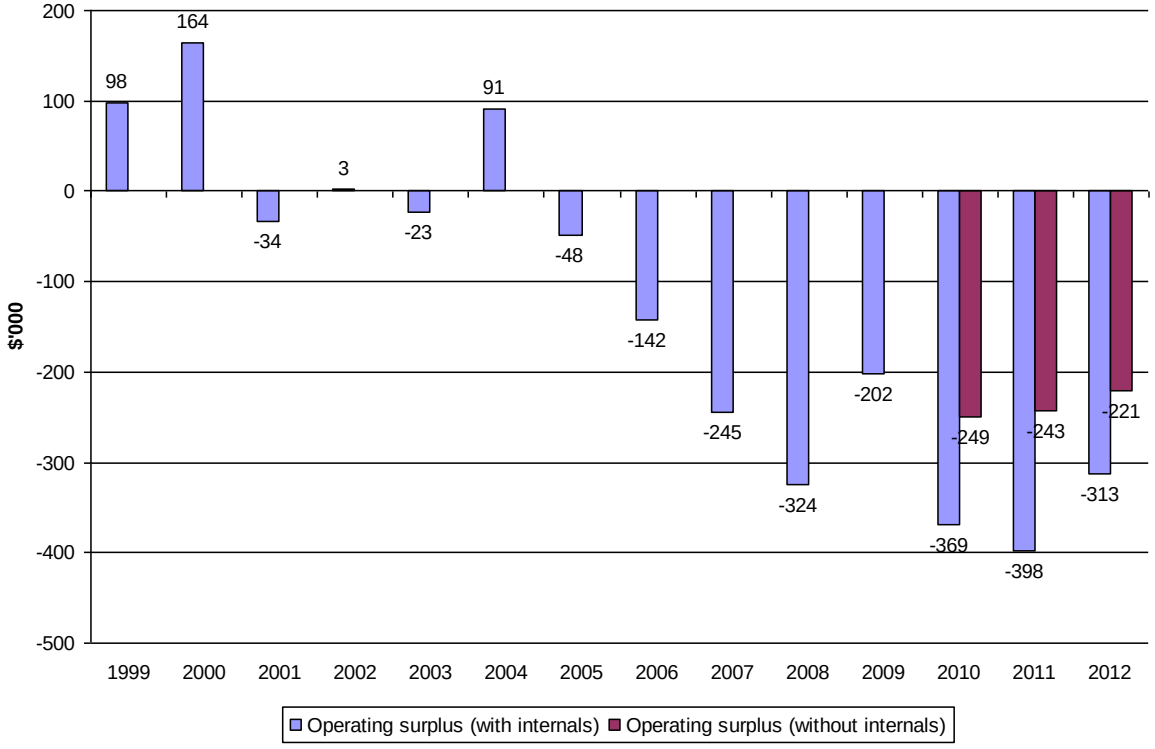
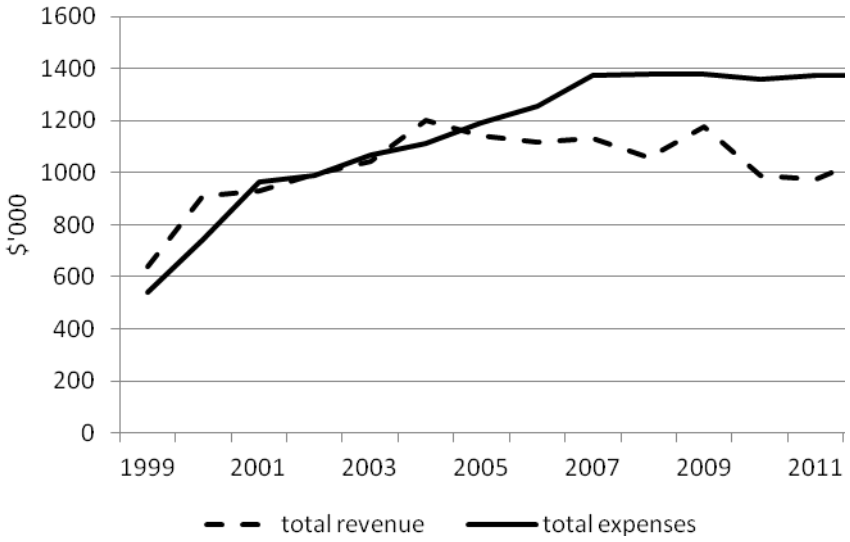


Figure 5.5 depicts the trajectory of total revenues and expenses over the period 1998-99 to 2011-12. Growth in total revenue and total expenses moved in tandem until around 2004-05. Annual average revenue growth between 1998-99 and 2011-12 was 4.0 per cent compared to expenditure growth of 7.4 per cent. Total revenue peaked at $1,203,000 in 2003-04 and declined to $976,000 by 2010-11. Total expenses grew to reach $1,376,000 in 2006-07 and have remained fairly constant since.

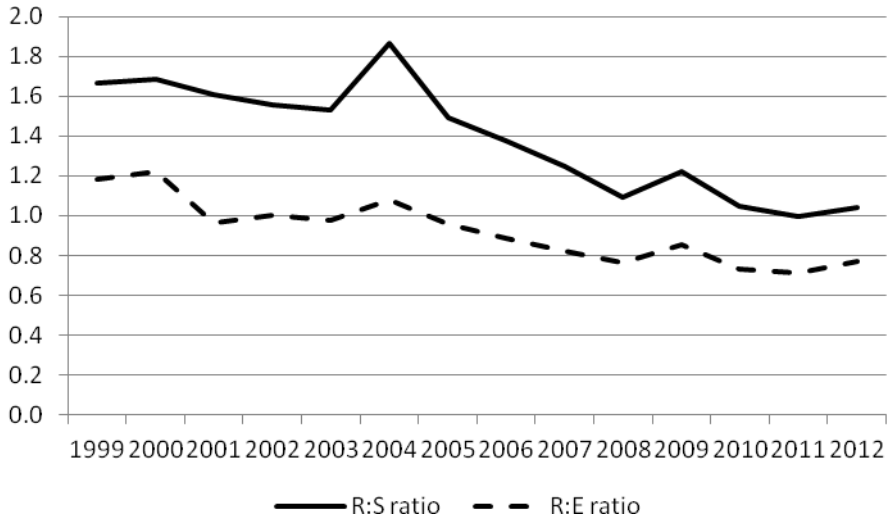
Figure 5.5 TasFire Training revenue and expenses, 1998-99 to 2011-12



Source: TFS

Figure 5.6 (below) shows the deterioration in the financial situation. The solid line shows that the ratio of revenue to salary expenditure declined from 1.67 in 1998-99 to 1.00 in 2010-11. In other words total revenue only covered the wage bill in 2010-11. The dashed line represents the ratio of revenue to expenses. In 1998-99 revenue more than covered total expenses (1.18) but since 2004-05 revenue has been insufficient to cover expenses. By 2010-11 the ratio had fallen to 0.71 which meant only 71 per cent of expenses were met by TasFire Training revenues.

Figure 5.6 Ratios of revenue to expenses, 1998-99 to 2011-12

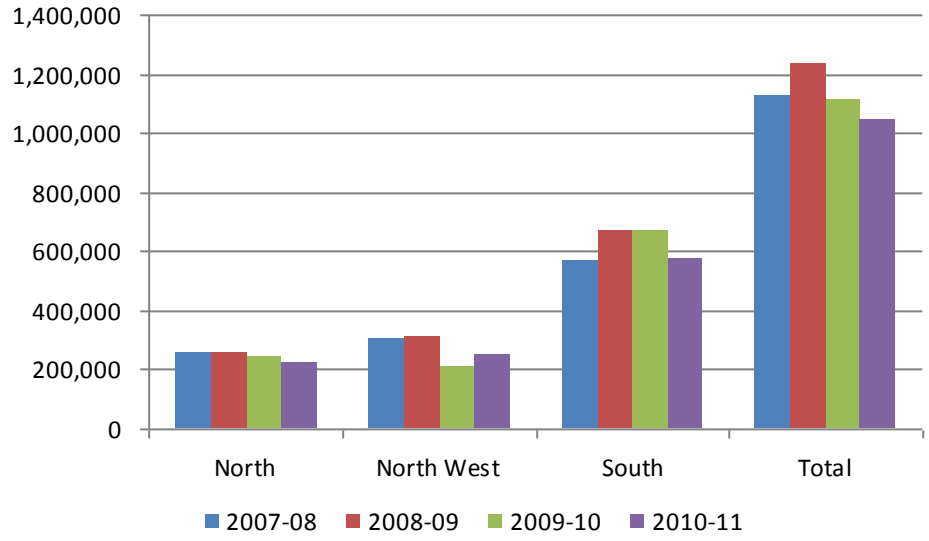


Source: TFS

What factors are driving the poor financial results?

The figures above show that TasFire Training is not currently generating sufficient revenues to cover costs. Revenue is derived from training activities at the three TasFire Training centres. An examination of data from each centre may provide insights into where the deterioration in the TasFire Training finances stems from. Figure 5.7 shows revenue per centre and total revenue for the period 2007-08 to 2010-11. Unfortunately data from earlier years was not available. Over the period, revenue declined in both the North and North West, while there was an increase in the South in the middle years followed by a decline in 2010-11.

Figure 5.7 Revenue per centre, 2007-08 to 2010-11



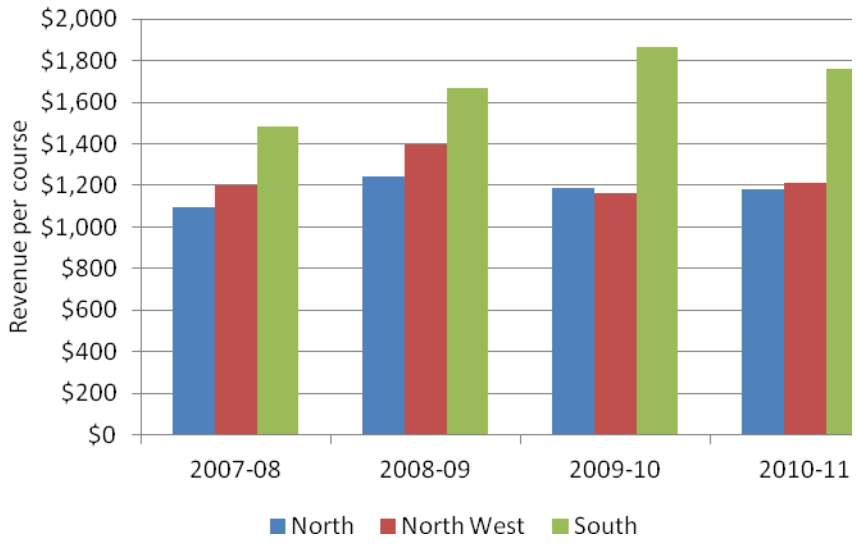
Source: TFS

The decline in revenue could be driven by a number of individual factors or a combination of factors such as:

- Changes in the relative shares of the various courses, such as a reduction in courses with higher course fees per day;
- A reduction in the number of courses conducted;
- A reduction in the number of participants per course; or
- An increase in provision of subsidised fees as a community service obligation.

Figure 5.8 shows that revenue per course has been relatively flat in the North and North West at around $1,200. In the South, revenue per course increased from below $1,500 to almost $1,800.

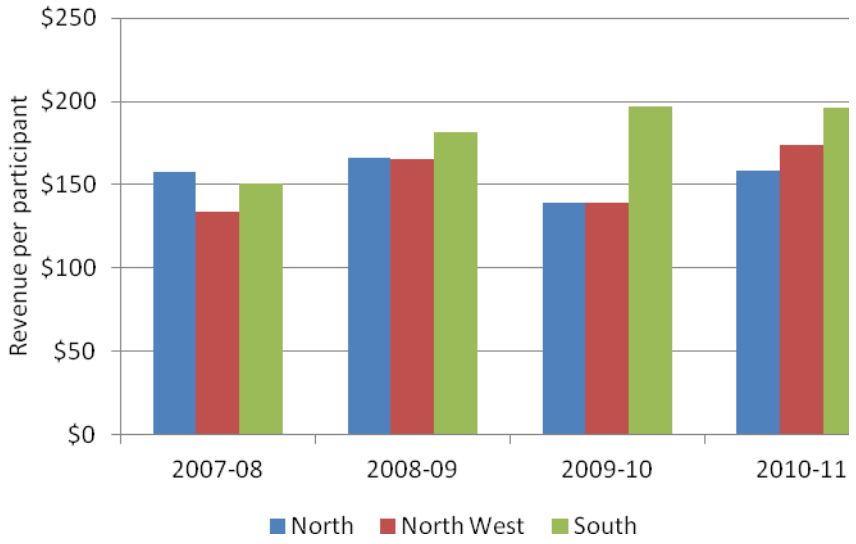
Figure 5.8 Revenue per course, 2007-08 to 2010-11



Source: TFS

Figure 5.9 shows that revenue per participant remained stable for the North at just under $160. For the North West, revenue varied but ended the period higher ($174 compared to $134 at the beginning of the period). In the South revenue per participant increased steadily from $150 in 2007-08 to $196 in 2010-11.

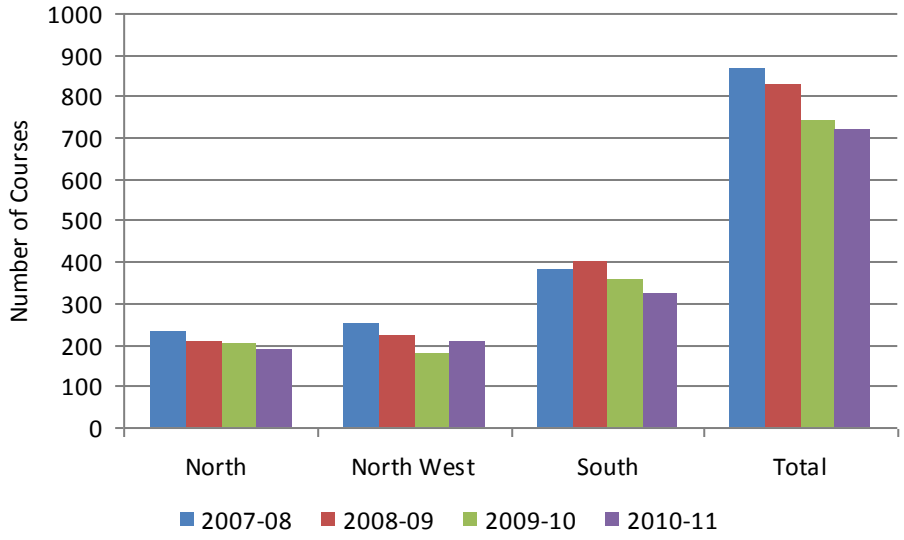
Figure 5.9 Revenue per participant, 2007-08 to 2010-11



Source: TFS

Figure 5.10 shows the number of courses conducted by each centre between 2007-08 and 2010-11. The number of courses conducted over the period has declined in all centres. In total, the number of courses declined by 17 per cent, but the North recorded an above average fall of 20 per cent. The greater reduction in the number of courses may be a consequence of fact that one instructor position has been vacant for an extended period.

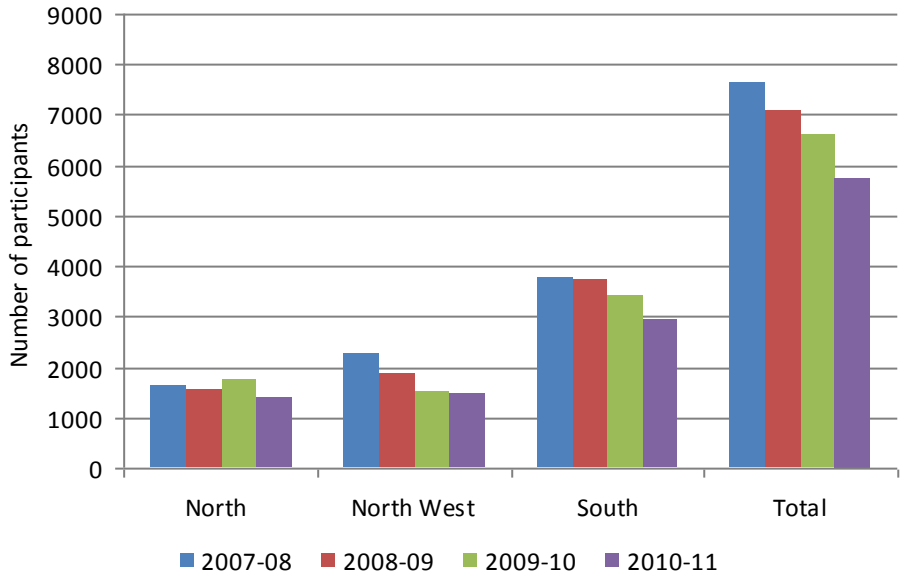
Figure 5.10 Number of courses, 2007-08 to 2010-11



Source: TFS

Similarly, the number of participants has declined by 25 per cent over the period (Figure 5.11). However the decline has been more marked in the North West (36 per cent) and the South (23 per cent) than in the North which has only declined by 14 per cent. The average number of participants per course has increased in the North (from 6.9 to 7.4). In contrast, the average number of participants per course has fallen in the South (from 9.9 to 9.0) and has declined significantly in the North West (from 9.0 to 7.0 per course).

Figure 5.11 Number of participants, 2007-08 to 2010-11



Source: TFS

The decision to cease provision of confined space and working at heights training has exacerbated the financial pressures faced by TasFire Training. Table 5.5 details the number of confined space courses conducted, the number of participants and total revenue from these courses from 2007-08 to 2010-11. Confined space training was discontinued from December 2010. The detrimental impact of this decision on revenue is clear. In 2007-08, confined space

training provided 22.8 per cent of TasFire Training revenue. The reason for the decline in revenue in subsequent years is not immediately apparent and requires further investigation. However, it may be related to the onset of the GFC, structural change in the economy or loss of market share to competitors.

Table 5.5 Confined space training, 2007-08 to 2010-11

Year	Courses	Participants	Revenue	% of Total revenue
2007-08	140	1104	256,950	22.8
2008-09	110	864	205,412	16.6
2009-10	96	681	166,172	14.9
2010-11	58	391	81,292	7.8

Source: TFS

TasFire Training revenue is also affected by the provision of discounts to staff of community organisations that are not capable of paying the full course fee due to funding constraints. Community service obligations totalled around $17,000 in 2010-11. Data on CSOs were not available for other years.

This brief consideration of the financial situation of TasFire Training indicates that the primary drivers of the revenue reductions over the period are the reduction in the number of courses and the average number of participants per course. These factors have more than counteracted the modest overall improvements in revenue per course and revenues per participant.

Internal charges

We noted earlier that increases in expenses have outstripped revenue increases. Expenses increased from $540,000 in 1998-99 to $1,374,000 in 2010-11. This includes internal charges levied by the TFS for use of premises and services. Table 5.6 below shows TasFire Training expenses for 2009-10 and 2010-11. Earlier data is not available for comparison.

In total, internal charges were $150,961 in 2009-10 and $154,682 in 2010-11. These charges include:

- Around $53,000 for rental of premises and the fireground for practical components.
- Accounting and finance services of $72,000 for 2009-10 and $99,000 in 2010-11.
- Other charges for repairs and maintenance and cost of sales

Table 5.6 TasFire Training expenses

	2009-10 Actual		2010-11 Actual	
	With Internals	No Internals	With Internals	No Internals
	$'000	$'000	$'000	$'000
Salaries and Wages	**946,345**	**946,345**	**979,518**	**979,518**
Other Expenses				
Public Awareness, subs & Prof Fees	10,984	10,984	7,641	7,641
Learning and Development	12,951	12,951	17,176	17,176
Operations	157,091	103,961	143,225	90,143
Uniform and Protective Clothing	3,716	3,716	11,546	11,546
Cost of Sales	87,074	70,440	69,657	69,115
Accounting and finance	112,539	40,631	129,307	30,453
Repairs and Maintenance	20,084	10,842	10,421	8,217
Equipment Purchases < $2,000	9,633	9,586	5,923	5,923
Total Other Expenses	**414,072**	**263,111**	**394,896**	**240,214**
Total Expenses	**1,360,417**	**1,209,456**	**1,374,414**	**1,219,732**

Source: TFS

Data supplied by the TFS indicate that internal charges for 2011-12 are expected to total $131,680. A major component of the internal charges is rental of premises owned by the TFS as shown in Table 5.7. There are two separate charges. First rental of fireground is calculated at a rate of $50 per day on the basis of the expected total number of hours that the fireground will be used in 2011-12. Rental of offices and training rooms is calculated on the basis of commercial rental rates per square metre in the three locations and the proportion of usage for TasFire Training activities in the case of shared facilities. The rates charged for office space are: $120 per square metre in the South; $110 in the North; and, $100 in the North-West. Rental of classrooms is: $95 per square metre in the South; $87 in the North; and, $79 in the North-West. Storage rates are $75 (South), $69 (North) and $62 (North-West). Rental of shared kitchens is $85 (South), $78 (North) and $70 (North-West) based on TasFire Training usage of 35 per cent.

Table 5.7 Rental charges 2011-12

	North	North-West	South	Total
Rental of fireground (@ $50 per hour)	2,650	4,100	12,750	19,500
Rental of office premises and training rooms				
Office	4,400	2,700	10,800	17,900
Classroom	1,414	277	810	2,500
Storage	207	806	2,475	3,488
Kitchen	382	343	1,369	2,094
Total for office and training rooms	6,403	4,126	15,453	25,982
Total	**9,053**	**8,226**	**28,203**	**45,482**

Source: TFS

Other internal costs are shown in Table 5.8. The largest internal costs relate to computer and administration costs that include charges for administrative support in the North and North-West and a range of charges for banking, processing payments and payroll and Technology

One Costs and a fuel surcharge. If TasFire Training was an independent organisation it may be possible to reduce these costs by assuming responsibility for processing accounts and using alternative IT solutions. Insurance costs include various types of general insurance, motor vehicle insurance and workers compensation. Insurance costs for TasFire Training are calculated as a proportion of total TFS costs based on staffing. Other costs include depreciation and interest on asset holdings. The total internal chares of over $154,000 for 2011-12 are a significant cost for a small organisation. A review of TasFire Training should include an examination of these charges and possible cost reduction strategies.

Table 5.8 Other internal charges 2011-12

	South	North	North-West	Total
General insurance	2,009	288	862	3,159
Motor Vehicle	928	464	928	2,320
Workers Comp	2,578	368	1,105	4,051
Total insurance	5,515	1,120	2,895	9,530
Computer - Admin costs	16,263	15,580	23,553	55,396
Depreciation	18,466	7,288	14,018	39,772
Interest on Asset Holdings	1,559	707	1,586	3,852
Total	41,803	24,695	42,052	108,550

Source: TFS

5.6 The potential impact of the closure of TasFire Training

The State Fire Commission Corporate Plan for 2011-12 to 2013-14 lists as one of the priorities for 2011-12:

- Continue to implement opportunities to maintain TasFire Training's market position

The sudden decision to propose the closure of TasFire Training resulted from the funding cuts imposed on the TFS by the Tasmanian Government in the 2011-12 Budget. There is no indication that any review of TasFire Training was conducted to examine other options that could be considered in an attempt to maintain the service and address the financial situation.

This section considers the implications of the proposed closure of TasFire Training for stakeholders, including the staff that would be affected by the closure, clients, and the Tasmanian community.

Impact on staff

The TasFire Training staff would appear to be covered by Ministerial Direction No. 25 that was issued on 5 August 2011 in relation to the State Service Vacancy Control Process (SSVCP) (Department of Premier and Cabinet, 2011). The purpose of Ministerial Direction No. 25 is to detail the process for 'management of surplus employees performing duties that are no longer required' (Department of Premier and Cabinet, 2011: 1), including those who have been identified as performing duties that are no longer required, or duties that may be targeted. Consultation with affected staff is designed to ensure that there is a 'genuine opportunity to influence the decisions or decision maker' so that alternative proposals can be considered.

Eleven staff would be directly affected if TasFire Training closed. The TFS has expressed the view that TasFire Training staff would be redeployed within the TFS through matching the

skill sets of individual staff with available positions. Accommodations such as work redesign and further training would be provided to facilitate the transition to other positions.

Impact on training availability for clients

The TasFire Training facilities are unique in Tasmania for the provision of fire related training. While there are a number of small training providers currently providing other training courses, TasFire Training is the only training provider in the state currently offering, or capable of offering, ERT training and training currently provided to the AAD.

To date there has been no serious appraisal of the impact of the closure of TasFire Training on the availability of training in Tasmania. Information from the TFS confirms that if TasFire Training closed 'Some clients may experience difficulty in the short to medium term sourcing alternative training providers' (Brown, 2011). The TFS expresses the view that private providers may fill the void left if TasFire Training ceased operating:

> ...the emergence of a significant provider offering the full suite of training services offered by TasFire Training has been frustrated by TasFire Training's existence in the market, and high establishment costs for training facilities of the type used by TasFire Training. Should TasFire Training be wound up, investment in such training facilities is likely to yield a better financial return for private providers in the future (Brown, 2011).

However, there is no guarantee that private training providers would enter the market. The TFS has not published any research that establishes that the training that is currently provided only by TasFire Training would, in fact, be available in Tasmanian in the event of the closure of TasFire Training. The potential impact of the withdrawal of TasFire Training services without an existing training provider in the state would cause disruption to industry and impose financial and other costs, as revealed through discussion with a current client as shown in Box 5.3.

The implications of the lack of alternative providers are clear. The additional financial and logistical costs of sourcing the training on the mainland would result in a diminution of the quantity of training and reduce the flexibility that employers currently enjoy by having the training available locally. Any reduction in the competency of ERTs to respond to emergencies could impose significant costs for business in the form of larger damage bills and also increase the risk of injury. In addition, employers would need to establish new relationships with other providers to replace the long-standing relationship they have enjoyed with TasFire Training.

Cessation of training to the AAD undermines the Tasmanian Government's vision of establishing Tasmania as the gateway to the Antarctic. This training is currently not available from any other provider in the state. Therefore, it is feasible that the AAD may be required to source the training on the mainland. This could have a negative impact on the Tasmanian economy, both in relation to the loss of training revenue and the loss to spending throughout the economy while crews are undertaking training, e.g. accommodation, entertainment and hospitality and retail expenditures.

TasFire Training currently provides training to community organisations at discount rates as mentioned previously. If TasFire Training ceased to exist these organisations would need to source training from the existing private sector providers at full commercial rates. Funding-constrained community organisations are likely to consume less training under these circumstances.

Box 5.3 An employer's perspective of the impact of the closure of TasFire Training

Involvement with TasFire Training

We've had a fairly long relationship with TasFire. They either come to site here to conduct training on a regular basis or we go at least once a year to Hobart to their Cambridge facility and have a three or four day intensive training session…. With a lot of the training which we get from them they are the only service provider in the state that does it.

Satisfaction with TasFire Training

They respond timely, and generally because we've had a good relationship over a number of years with the same trainers, they know our skill level so they can tailor the training to meet our individual needs.

Importance of ERT training

We need to maintain the entire team's skills because we can't necessarily call on the primary six guys in the team if they're away on holidays or sick or further away than the close ones. We need to maintain everyone's skill levels.

We've had numerous underground light vehicle fires and a couple of years ago we had to attend a fairly major truck fire at a sister mine. We're a stand-alone service when it comes to the underground operations.

Implications of the closure of TasFire Training

Basically we would have to source it via the likes of the CFA in Victoria which has its own, more cons than pros. We've got to get them in from interstate. It probably lessens the opportunity for us to go interstate to do the three or four day training at their facility which we currently do. We'd probably have to rationalise basically when the training was or how often the training occurred. Currently we're doing the four day fireground training every year, whereas that would probably be pushed back to every second year if not more than that.

There is the cost factor but there is also the distance. We wouldn't be able to send all at once. We'd have to send half a team for a week and half a team for another week. They would be away from the mine site so they would be unable to respond if something did occur… [whereas, if they were training in Hobart]… If need be they could get back within four hours.

Emergency Response Coordinator

MMG I MINERALS AND METALS GROUP

Another potential issue relates to the impact of the cessation of TasFire Training on prices charged by existing training providers. It is conceivable that in the absence of competition there may be an increase in prices, particularly in the short-term.

In total, the reduction in the total amount of training provided if TasFire Training was not operating would result in a situation that fell short of the allocatively efficient equilibrium discussed in Section 5.4.

Impact on the community

All persons who undertake training in fire awareness and response as part of their employment carry those skills into their private lives. These skills are an asset to the community in general because they increase the awareness of potential dangers and the ability to respond to emergency situations when they arise.

These skills should be highly valued in a community such as Tasmania that has a higher risk profile than other states and has a significantly higher incidence of structure fires. TasFire Training directly contributes to the SFC's goal of assisting the community manage fire risks and respond appropriately when threatened by fire, although the SFC notes that 'To date the indirect benefit to the Commission and the community has not been measured' (SFC, 2011: 3)

Another benefit provided to the community is the involvement of ERTs in assisting to minimise the risk from bushfires by participating in back-burning operations and in responding to bushfires when they occur. The impact of climate change is expected to increase the risk of bushfires throughout Australia and may result in more catastrophic fire incidents. Any reduction in ERT competencies would impact adversely on the ability to respond to emergency situations.

Impact on the Tasmania Fire Service

The TFS consideration of the closure of TasFire Training is motivated by the government-imposed reduction in funding and the need to reduce expenditure as a consequence of reduced revenue flows. It should be noted that the closure of TasFire Training would not result in savings equivalent to total TasFire Training expenditure. The internal charges for rental of premises would not be reduced since the premises would still be owned and operated by the TFS. There would be some reduction in operating costs resulting from reduced activity, which would also indicate that resources were being underutilised.

There would be savings in relation to salary costs if the TasFire Training staff were relocated to existing positions within the TFS. However, this would result in a reduction in the total resources that could be utilised for operational duties since some of the TasFire Training instructors are operational firefighters who currently maintain their skills and are called upon to participate in operational duties as required. This reserve capacity would no longer exist if TasFire Training was wound up.

To the extent that employers were not able to secure alternative training or reduced the amount of training provided to staff due to increased costs or reduced flexibility, there would be a reduction in fire preparedness and the competencies to react appropriately to suppress fires and reduce loss of life and property. In addition to the obvious wider economic and social costs, there would be increased costs for the TFS in responding to more, and potentially more serious, incidents.

In addition, the advisory role provided to employers and the community by TasFire Training would need to be taken over by another section of the TFS. This additional workload does not seem to have been considered and there is no indication how these functions would be accommodated. This would reduce potential savings from the closure of TasFire Training. Furthermore, there is a possibility that the lack if an identifiable entity to provide this information from within the TFS could result in employers and community organisations failing to seek advice and abide by fire safety standards and meet legislative requirements. As a result there could be substantial flow on costs that reduce or even outweigh the financial savings from the closure of TasFire Training.

5.7 Summary and recommendations

The consideration of closing TasFire Training is a direct response to the Tasmanian Government's decision to reduce revenues to the TFS, due to budgetary pressures flowing from adverse shocks to revenues in the period following the GFC. In making this decision the TFS assumes that the training currently provided by TasFire Training will subsequently be

picked up by the private sector. There is no guarantee that this will be the case due to the substantial capital investment required to establish appropriate training facilities and the fact that providers would be operating in a market that is constrained by the composition of industry that predominantly either consists of non-employing firms or small employers.

There has been no comprehensive assessment of the consequences of the possible closure of TasFire Training. Issues that would need to be considered include: whether training would be provided by the private sector; the quality and cost of the training that would be provided; possible access and equity concerns; the cost of an undersupply of training in terms of direct losses from fire or additional costs of fire suppression.

The costs to existing and potential clients if TasFire Training closed would be substantial if specialist courses were not provided locally. This could involve sending staff to the mainland for training which would involve costs for training and accommodation and would reduce operational flexibility for firms. Where there are existing courses provided by private providers, these may be subject to price increases, particularly in the short-term and may not be feasible for community organisations with limited funding. As a consequence of these factors the amount of training provided to Tasmanians may contract, thereby counteracting the SFC goal of increasing the ability of the community to minimise fire risks and respond appropriately to fire incidents.

The proposal to close TasFire Training on the basis of the financial situation suggests that the TFS has overlooked the fact that TasFire Training operates as an integral part of the TFS and makes other contributions to achieving the goals and objectives of the TFS in addition to training activities. Some TasFire Training staff maintain their firefighting competencies and are involved in operational duties as required. In this way they form a reserve capacity that is continually at the disposal of the TFS. TasFire Training also acts as the public face of the TFS by providing advice and assistance to industry that facilitates a broad understanding of General Fire Regulations and Workplace laws and their statutory obligations. In considering the proposal to close TasFire Training the TFS needs to weigh up the non-financial benefits provided by TasFire Training in terms of community service obligations and the potential savings to life and property of the reserve firefighting capacity provided by TasFire Training staff. These benefits are likely to surpass the financial savings that would be achieved by closure of TasFire Training.

Similarly the training activities of TasFire Training make substantial contributions to the Tasmanian economy and community. As mentioned previously, the ERTs that have responded to incidents, particularly in remote locations have produced substantial benefits to the economy by minimising financial losses and disruption to businesses and employment. The contributions of Fire Wardens and ERTs also reduce the workload of TFS staff responding the incidents.

The fact that private costs and benefits are likely to produce an undersupply of training compared to the socially optimal quantity provides justification for some form of government subsidy. In Tasmania the positive externalities produced by TasFire Training are of particular importance due to the higher rate of fires and fatalities as a consequence of the lower socioeconomic status of the Tasmanian population and the fact that many areas are sparsely populated and have longer fire service response times. All these factors require careful consideration prior to any decision being made regarding the future operation of TasFire Training.

The continual financial problems of TasFire Training suggest that a thorough review of operations should be undertaken to ensure that the organisation is managed efficiently and that any possible business opportunities are pursued.

Recommendation 2

We recommend that prior to any decision on the future of TasFire Training, a comprehensive review of the operation should be undertaken to investigate the full contribution of the organisation to the Tasmanian Economy and community, as well as the impact of the closure in relation to: the level of fire awareness and the ability of industry and the wider community to respond appropriately; the cost of fire; and the operational capabilities of the TFS.

A review should include consideration of:

Factors affecting revenues: 1) The impact of competition from the private sector including an examination of all competitors, the courses offered and course fees; 2) How successful marketing campaigns have been and development of new strategies; 3) The financial impact of the cessation of Combined Space and Working at Heights training; and 4) consideration of expanding the number of courses offered including reinstating confined space and working at heights training, examining the potential for joint ventures and tendering for national contracts.

Factors affecting costs: 1) The staffing profile and staff utilisation; 2) non-salary costs including internal charges by the TFS

Other factors: 1) The extent of community benefits; 2) Opportunities to expand the community contribution by involvement in TFS programs to reduce the risk of fires such as Project Wake Up; 3) The value of maintaining a reserve firefighting capacity in the form of TasFire Training staff who can be called upon as needed; 4) The economic contribution to industry of employees who have completed training with TasFire Training- minimising fire risks, loss of life and property damage – by reducing disruption to industry and employment.

6. Determining the resource requirements of fire services

6.1 Introduction

This section considers international evidence of factors impacting on the effectiveness of fire suppression in the community, to inform an analysis of the situation in Tasmania.

6.2 The need for a standard of cover.

United States National Standard NFPA 1710 notes:

> Suppression capability is an expression of how much fire-fighting power can be put into action when there is a fire. It includes the amount of apparatus, equipment, and personnel available; the time needed to respond and place equipment in action; the water supply; the application of strategy and tactics; the level of training; and all of the components that add up to effective fireground operations (NFPA, 2010: Sect A52.2).

The fundamental problem facing fire service managers throughout the world is that the maintenance of an effective fire emergency response capacity requires commitment of community resources, not just to staff and equip the front line fire service itself, but for all the activities known to build community capacity to better manage the suppression of fire as a destructive force. Those charged with the responsibility of determining the appropriate level of resources for a fire service at any given time, need to balance the fiscal constraints under which all State public sector institutions operate in Australia, with the need to maintain community protection from fire-related life and property loss, and without compromising the health and safety of frontline career and volunteer firefighters. In times of economic constraint, where 'belt-tightening' is widely accepted as necessary, and where public knowledge of the situation on the ground is limited, there is a real danger that community and fire fighter safety will be compromised by injudicious cuts in fire service capability. Firefighters, as with any workers, seek better pay and conditions of work, but they are particularly mindful of the impact of inadequate staffing levels on their capacity to safely protect lives and property in emergencies. It is a question that goes beyond standard industrial relations considerations (Lawrence, 2001: 202; Peace, 2001).

Given the importance of effective fire suppression, in terms of preserving life and property, firefighters around the world have for decades sought an objective model for determining an appropriate number of firefighters for a given area or population, so that public safety was not so contingent on their industrial relations strength at any given time, or their capacity to persuade politicians and the public as to what was required to protect the community.

Because the response capability of the fire service is as valid a concern for the public as it is for the fire service authorities responsible for managing fire risk, the publication of a set of defined standards of service provision and performance measures, and regular reporting of performance against those measures would seem a basic public accountability requirement.

> The term *Standard of Cover* (SOC) was adopted from Western Europe and other countries where there are national and or regional standards for the deployment of fire services going back over 50 years ago. A Standard of Cover policy describes the deployment *coverage* for a given community's area. Such deployment policies are based on risk, and community expectations on outcomes should an emergency occur. Having a broadly understood and accepted system for determining deployment helps

> policy makers at all levels understand deployment resource needs and reduces differences that can occur from community to community, should no common policies exist (ESCI, 2008:3).

The despatch of fire fighting resources to an emergency necessarily entails a judgement as to an appropriate initial 'weight of response', with the capacity to scale up that response should it be necessary. This generally entails a prior estimation of the 'worst case scenario' risk of fire in a given locality and type of fire incident, and a task analysis of what personnel and equipment are required to effectively manage such events. Over the past decade, the availability of Geographic Information Systems (GIS) and other information technology has meant that more precise estimations of area-defined risk (down to census collector-district level) can be integrated into automated despatch and decision making systems. A revision of UK standards of cover proposed in 1998 and subsequently implemented, entailed the detailed estimation of fire risk down to the equivalent of census collector district level, classified as either 'intolerable' (requiring action to reduce it to tolerable); 'tolerable' (requiring action to reduce risk where the cost of doing so is justified) and 'negligible'. Incident types occurring within these areas are further classified, e.g., high rise building fire, fire in a rubbish skip, etc. Task analyses then define weight of response capacity according to risk (Peace, 2001; FEPB, 1998). While this renders blanket state and national response time / weight of response 'standards of cover' less relevant at an operational level, it does not prevent the publication of the local 'standards of cover' individual local communities have, nor does it render national or state-wide average standards meaningless as a marker to the overall effectiveness of the service.

6.3 Defining a Standard of Fire Cover (SOFC) for Tasmania.

Stakeholders such as the politicians and service managers responsible for balancing the cost of fire services provision with other claims on the public purse may prefer not to have their options constrained by defined standards that are subject to public scrutiny (Turner, 2004:12). Standards may imply a need to deploy more staff and equipment, to which elected and non-elected officials may feel obliged to comply, even if not legislatively compelled to do so.[2] Even a recommended standard has the potential of exposing decision makers to accusations of neglect should it be seen that services are underperforming. And yet, fire services around the world, where the same electoral and financial pressures exist as those in Tasmania, moved toward the adoption of very specific published standards some time ago.

The most significant example is the widespread adoption since 2001 of the United States National Fire Protection Association (NFPA) *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, last revised in 2010 (NFPA, 2010). Known as NFPA 1710, and complemented by NFPA 1720 which applies to the operation of volunteer fire services, the standard specifies minimum numbers of personnel to be assigned to each fire-fighting appliance, numbers of appliances that should attend different types of fire emergencies, and maximum times that fire services should take to respond to alarms. This last point has significance for the distribution of fire brigades in a given community.

Numerous studies have consequently been published by fire services in cities across the United States, detailing how their services were to be developed in compliance with NFPA 1710, including benchmarking exercises to establish a base for monitoring subsequent performance (e.g. Werner, 2002; Gleason 2002). These address the question of minimum crew sizes and local deployment strategy.

The development and refinement of these standards has drawn on research derived from various sources. Around the world, various fire service authorities maintain fire incident databases recording the size and nature of fires, estimates of the cost of property damage and injury, the time elapsed at various points in the continuum from pre-ignition to the fire being finally extinguished, numbers of attending personnel, and more. Examples are the National Fire Incident Reporting System (NFIRS) in the USA and the Australian Fire and Emergency Service Authorities Council (AFAC) National Database compiled from the Australian Incident Reporting System (AIRS). Large scale experimental exercises have also been conducted, where multiple fire teams are timed performing defined fire-fighting tasks in different fireground scenarios. A large scale study undertaken by a consortium of emergency services agencies and published by the U.S. National Institute of Standards and Technology (NIST) during 2008-2010 informed the 2010 revision of the NFPA 1710 standard (Averill, et.al., 2010).

6.4 The time it takes the fire service to arrive

The general consensus in the literature is clearly that more lives and property are lost to fire the longer it takes for the fire service to arrive.

> Regardless of the speed of growth or length of burn time, all fires go through the same stages of growth. One particular stage emerges as very significant because it marks a critical change in conditions. It is called *flashover*. Measuring the time to flashover is a function of time and temperature. Fire growth occurs exponentially; that is, fire doubles itself every second of free burn that is allowed (ESRI, 2007:5).
>
> At approximately 10 minutes into the fire sequence, the hypothetical room of origin flashes over. Extension outside the room begins at this point. Consequently, given that the progression of a structure fire to the point of flashover (i.e., the very rapid spreading of the fire due to superheating of room contents and other combustibles) generally occurs in less than 10 minutes, two of the most important elements in limiting fire spread are the quick arrival of sufficient numbers of personnel and equipment to attack and extinguish the fire as close to the point of its origin as possible (from NFPA 1710: Sect. A.5.2.2.2.1)

Similarly, Lawrence (2001: 201) states:

> From any given point of thermal dynamic measurement, fire output and volume quadruple for each doubling of the time interval measurements.

US Fire Administration / National Fire Data Centre found that nationally, the mean response time was lowest for fires confined to the room of origin (less than 7 minutes) while fires that spread beyond the building of origin had the highest mean response time (less than 9 minutes) (USFA, 2006:4).

> In most of the analyses done here, response times were less than 5 minutes nearly 50% of the time and less than 8 minutes about 75% of the time. Nationally, average response times were generally less than 8 minutes. The overall 90th percentile, a level often cited in the industry, was less than 11 minutes (USFA, 2006:5).

The importance of rapid response and fire containment is emphasised by NFPA 1710 which estimated the impact of fires depending on whether they were confined to the room of origin or the floor of origin (1). For each 1000 fires, the death rate increased from 2.32 if the fire was contained to the room of origin, to 19.68 if the fire was contained to the floor of origin, and increased to 26.54 if the fire spread beyond the floor of origin (Table 6.1). Similarly, the injury rate increased from 35.19 for fires contained to the room of origin to 63.48 for fires

that spread beyond the floor of origin. The cost of fires increased dramatically; from less than $4,000 per fire when contained to the room of origin to almost $32,000 per fire that spread beyond the floor of origin.

Table 6.1 Civilian deaths and injuries and cost of fires (per 1,000 fires)

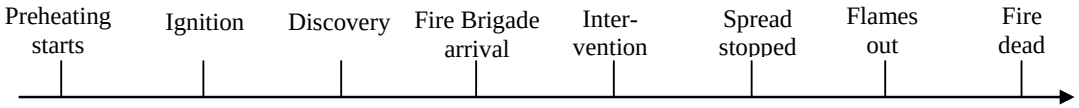
	Civilian deaths	Civilian injuries	Loss per Fire $
Confined to the room of origin	2.32	35.19	3,185
Beyond the room but confined to the floor of origin	19.68	96.86	22,720
Beyond the floor of origin	26.54	63.48	31,912

Source: NFPA 1710 (2001).

Challands (2010), analysing New Zealand incident reporting data, concluded that the cost of structural damage increases at the rate of approximately NZ$4 thousand per fire per minute of response time (Challands, 2010: 675). Victoria's MFEB commissioned a study by Ernst and Whinney in 1987 as part of its Strategic Location Plan that estimated that a one minute slower response time would result in a $1590 increase in fire damage per fire (Haywood & Groenhart, 2010). Similarly, a 1978 Rand Institute study found that fire severity increases with response distance, such that one minute of response distance was worth between $100 to $10,000 in extra fire damage (in 1978 dollars), depending on the structure (Ignall et al., 1978). While the situation is undoubtedly changed from when Hogg (1973) found – using U.K. data – that every two minutes of additional response time resulted in at least three additional fatalities, it is not implausible that life is still placed at greater risk by fire service delay (Brown, 2003).

Some studies cast doubt on the relationship between response time and the consequent extent of property damage, although the applicability of these studies to the situation in Tasmania is questionable. For example, Sardqvist & Holstedt (2000) used the Real Fire Database of the London Fire Brigade from January 1994 to June 1997 to look for a correlation between various time segments (in the continuum from pre-heating to total extinguishment) and the extent of fire area spread in non-residential structures. The time intervals were given as:

Figure 6.1 The spread and suppression of fires



Source: Sardqvist & Holstedt, 2000:113

They report that larger final fire area:

- correlated weakly with a longer pre-heating – ignition segment
- had no significant correlation with a longer ignition – discovery segment
- did not correlate with a longer discovery-arrival segment
- did not correlate with a longer arrival –intervention segment
- correlated with start of intervention to fire spread stopped
- correlated with spread stopped to flames out

They did confirm however that where a fire was still spreading at the time the brigade arrived, response time was clearly correlated to the fire area. The study's focus on fires in non-residential structures (offices, factories, shops, schools, hospitals – but not aged care facilities or boarding houses) has to be taken into account. Not only do over 80 per cent of fatalities occur in residential fires but non-residential buildings are more likely to have direct alarms to the fire brigade that specify where the fire is located, water sprinkler systems, and have pre-emergency planning in place, so much of the work that occurs on arrival at a residential fire is already started before arrival at the non-residential fire. Brown (2003) reports that improved response times in the mid 1990s (subsequent to the building of three new fire stations in the greater Sydney area) did not translate into reduced estimated property damage. He makes the point though that response time is only one factor in the equation, noting that damage estimates are entered into the Australian Incident Reporting System (AIRS) by fire officers before they have the advice of insurance loss adjusters resulting in unreliable data, and the impossibility of any brigade arriving fast enough to suppress fires where accelerants have been used.

Evidence of *average* response times (receipt of call to arrival of first appliance) in England rising from 5.5 minutes to 6.5 minutes between 1996 and 2006 prompted an official study of reasons (largely traffic congestion) and possible solutions for saving one minute of response time. While it was estimated that the extra minute of average delay would annually cause an additional 13 dwelling fire fatalities, 65 road traffic accident deaths and £85 million increased property damage, other trends in prevention were thought to have led to a net fall in deaths and average fire areas over the period. The reduction of one minute in response time was still considered a high priority (Greenstreet Berman, 2009).

If we accept that it is better for a fire service to arrive sooner rather than later at a fire, and with adequate means to suppress it, a defined standard of cover for the Tasmania Fire Service that sought to reduce fatalities and property damage from fire, based on international experience would need to specify an improvement on the 15 minute response times currently being delivered 90 per cent of the time (TFS, 2011:16). While call processing and brigade turnout times are significant factors, particularly in determining the optimal career / retained / volunteer service mix, the reduction of distances brigades are expected to cover needs also to be seriously reviewed. At the same time, this cannot be done simply by spreading existing fire services more thinly over a wider geographic area, since the literature is clear as to the necessity of minimum staffing levels of fire crews, another factor that needs to be incorporated in any defined Standard of Cover.

6.5 The number of staff deployed to a fire

On arrival at a fire scene, firefighters undertake a range of tasks including appraising the situation, unpacking apparatus, applying sufficient water to the fire, searching for and rescuing occupants, applying emergency medical care, etc. The number of firefighters who arrive determines how many of these tasks are undertaken in parallel or sequentially. Since this work is performed rapidly and often under oppressive heat and smoke conditions, the efficiency of the work may also be expected to decline the more tasks a given fire fighter is expected to perform. Thus with more firefighters in attendance, more tasks can be expected to be performed in a smaller time period with greater efficiency, and less risk of fatigue-related injury (Backoff, 1980; Gerard & Jacobson, 1981).

These expectations are borne out in numerous studies. McManis and O'Hagan (1984), in a study for the Dallas Fire Department, ran three different simulations ninety-one times with three, four and five person truck crews that demonstrated five person crews showed a very

coordinated and effective attack, four person crews performed satisfactorily, while three person crews did not complete all tasks within the prescribed time frame. Morrison (1990) reported to the Westerfield (USA) fire dept that four firefighters could rescue potential victims 80 per cent faster than a three person crew. The Office of the Fire Marshall of Ontario considered 'Fire ground staffing and delivery systems within a comprehensive fire safety effectiveness model' and identified five key fire ground functions that could not be undertaken by a three person crew, and that exhaustion was a real danger in a three person operation (OFMO, 1993). Roberts (1993) and Varone (1994) and others have reported that firefighter effectiveness significantly improves when a company is increased from three to four personnel, with most reported gains for five personnel. Lawrence (2001) while confirming significant improvements in effectiveness by increasing crew sizes to four, argues that the rate of improvement diminishes significantly after four staff.

In the most comprehensive study undertaken anywhere, Averill et al. (2010) conducted 60 fireground experiments that considered how different crew sizes conducted 22 fireground tasks, and found four person crews were 25 per cent faster than three person crews with low-hazard structure fires. There was a 6 per cent difference in 'water on fire' time, 25 per cent improvement in laddering and ventilation (for life and safety rescue), 6 per cent faster primary search and rescue. The NFPA standard of 15 firefighters assembled on the fire scene (within a defined period timed from the arrival of the first crew) was achieved three minutes faster by five person crews than four person crews. Three person crews were never assembled within the standard's time frame. Measures were also taken of the exposure of occupants to simulated toxic fumes, so that those rescued by slow arriving crews were deemed to have exposure to toxicity levels fatal to vulnerable populations (Averill, et al, 2010:10-11).

The health and stamina of firefighters is another important factor when considering crew sizes (Cushman, 1982; McManis and O'Hagan, 1984; Monday, 2000). US efforts to stem the annual death toll for firefighters, largely from heart failure, led to serious research efforts to address the problem. While fitness training is considered a key requirement, crew sizes of four for a pump truck and five for a ladder truck were considered a bare minimum standard (NFPA 1710). In situations where crews are required to attend multiple fires, the difference in exhaustion levels between four and five person crews becomes significant, while for three person crews it amounts to dangerous conduct. According to Clark (1994) an 1980 Ohio State University study reports firefighter injuries more frequent with less than 15 firefighters at residential fires and less than 23 at large-risk fires. A study by the International Association of Firefighters (IAFF, 1991) found injury rates of 10 or more per 100 firefighters in 69 per cent of jurisdictions with crew sizes of fewer than four, where these levels occurred in only 38.3 per cent of jurisdictions with crew sizes of four or more firefighters.

6.6 Demography and climate issues

The extent of fire risk to life and property is also strongly dependent on socioeconomic and public behavioural factors that need to be incorporated in the modern fire service's strategy (Jennings, 1999a).

While net deaths from fire have been trending down significantly throughout much of the world over the past 30 years (Japan being the notable exception), a countervailing trend is emerging in countries such as Australia relating to an increasing portion of the population being over the age of 65. USA studies report that older adults disproportionately comprise over 25 per cent of fire deaths, and 30 per cent of fire deaths occurring in the home, and while deaths of people over 75 are trending down (as with the rest of the population) those

65-74 are trending up. Children are another vulnerable population (USFA, 1999, 2008, 2011; Jennings, 1999b).

Poor quality housing and overcrowding, symptomatic of poverty, are also highly correlated to fire incidents, as are colder climates, due to the number of incidents associated with heating. The prospect of prolonged economic downturn in Tasmania (consequent on significant pro-cyclical cuts to public expenditure) thus raises the possibility of increased poverty and lower expenditure on building maintenance or investment in fire protection. The possibility of economic downturn producing a marked increase in arson, is contested in the literature, and would warrant a study of local historical experience. The emerging view is that prolonged episodes of poverty cause rising fire risk, and while unemployment appears not to directly lead to increased arson, falling property values do (Hall, 1998; Corrigan and Siegfried, 2011).

6.7 A 'system of cover'

The maintenance of effective community fire suppression requires the fire service to undertake action on many fronts. Clear evidence exists of gains in minimising the human and financial cost of fire through pre-planning of emergency operations, building code and fire safety regulation enforcement, public education programs, expanding use of smoke / fire alarms and water sprinkler systems, fire and emergency service training for industry, and fire service staff technical and fitness training, and more. Consequently, in addition to a 'standard of cover' that prescribes minimum response times and crew sizes, a comprehensive set of standards need to be established and published. Given what is known of other factors that impact on community fire suppression capability, a standard of cover that confined itself to only defining target response times and crew sizes, or did not consider other crucial risk factors of the service area, would not be sufficient.

> While working with multiple components to a deployment analysis is admittedly more work, it yields a much better result. If we look just at travel time, for instance, and not at the frequency of multiple calls, the analysis could miss overworked companies. If we don't use risk assessment and deploy based on getting enough resources to a given risk for an effective outcome, we could underdeploy to some incidents (Gary, 2001:66).

In the absence of a published locality-specific statement of fire cover, particularly in these days of sophisticated media and issues management, a government keen to cut expenditure may seek to convey a falsely reassuring impression to the public, while the actual standard of cover in some areas fell below standards an informed public would consider acceptable.

6.8 Striking a balance

Modern risk-based deployment analyses using sophisticated data analysis and GIS, coupled with advances in equipment and community preparedness strategies, can potentially make better fire suppression more cost effective. A 1998 review of England's fire services by the British Audit Commission reported improved cost effectiveness through more sophisticated risk-based deployment arrangements between 2003/4 and 2005/6. Cost savings were made through shift re-organisation, improved utilisation of equipment (some stations and vehicles were previously more utilised than others), and an increased proportion of retained fire fighters relative to full-time, career fire fighters since 1997. However, details of key metrics that reflect the capacity of fire stations to directly save life and property are not presented. Emphasis is instead placed on reporting performance in areas where a fire service has only an indirect impact: the number of deliberate vehicle fires, the number of accidental house fires, number of fire injuries to the public or fire fighters. For example, there is no mention how

fast fire stations are responding to fires and with what weight of response (AC, 2008). As we have seen, between 1996 and 2006 average response times in England increased by one minute (Greenstreet Berman, 2009).

Clearly, public institutions need to demonstrate they are making effective use of resources drawn from the community. At the same time, the consequences of budget cuts on service effectiveness need to be openly and publicly acknowledged, closely monitored, and reported in a regular, open, systematic, and detailed way. The capacity of firefighters to mount industrial campaigns to defend staffing levels should not determine the adequacy of community protection, just as it should not be determined by the degree of attention the media choose to give the issue. New standards of performance need to be established and published to ensure they reflect public expectations, and ensure firefighters are fully supported in the important and dangerous work they undertake on the community's behalf.

7. How does Tasmania compare?

7.1 Introduction

The closest we have to a national examination of fire services in Australia appears to be the annual *Report on Government Services* that compares fire service performance in different States (SCRGSP, various years). While this does not specify a desired level of performance, as such, and suffers from some discrepancies in data collection and interpretation between jurisdictions, it does enable interstate comparisons on such measures as:

- Sources and amounts of fire service revenue;
- Reported fires and other primary incidents attended to by fire service organisations, total landscape fires (bush and grass) incidents (number and rates per 100,000);
- Accidental residential structure fires reported to fire service organisations (number and rates per 100,000);
- Fire service organisations' human resources;
- Fire deaths (number and rates per 100,000);
- Fire injuries(number and rates per 100,000);
- Median dollar loss per structure fire (number and rates per 100,000);
- Property loss from structure fire (dollars per person);
- Fire incidents attended by fire service organisations (number and rates per 100,000);
- Household preparedness for emergencies (% with smoke alarms, extinguishers, etc.);
- Response times to structure fires, state-wide (minutes);
- Structure fires and response times to structure fires, by remoteness area;
- Structure fires contained to the object or room of origin (per cent);
- Fire service organisations' costs ($'000);
- Fire service organisations' expenditure per person; and
- Fire service organisations' funding per person.

This section provides an analysis of risk factors related to fire, fire service resources and outcomes for Tasmania in comparison to the rest of Australia and some international comparisons. First, we provide a comparison between Tasmania and Australia as a whole for the factors identified in the international literature as increasing the risk of death or injury for the population. Second, we compare the resources devoted to the prevention and suppression of fire and other critical incidents. Finally, we compare and contrast the performance of Tasmania with other states and territories using data from the *Report on Government Services* (SCRGSP, 2011).

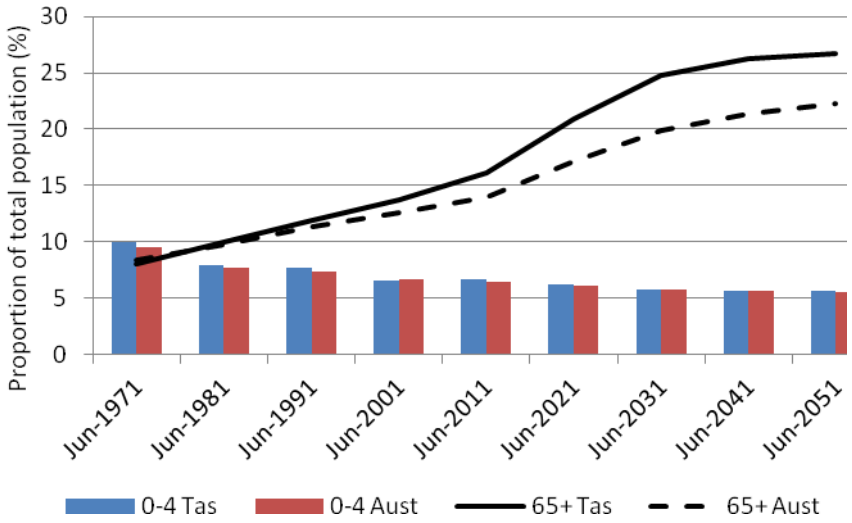
7.2 Demographic and socioeconomic information

There are a range of demographic and socio-economic characteristics of the Tasmanian population that increase the risk of fire. As stated in the *Project Wake Up Situational Analysis* (TFS, 2010: 35):

Tasmania leads the nation as the State with the oldest population, highest proportion of people with disabilities, highest proportion of people aged 18 – 24 who drink alcohol at risky levels, second highest proportion of daily smokers, and the lowest equivalised mean disposable household incomes. All these factors contribute to greater vulnerability for injury or death by house fires. It is recommended that consultation occurs with agencies that support people in these risk groups to identify strategies to address home fire risk factors.

Tasmania also has a dispersed rural population and a higher proportion of rural residential fatalities than urban fatalities.

Figure 7.1 Population groups at increased risk



Sources: ABS 3101.0, Australian Demographic Statistics, 2000; ABS 3222.0 Population Projections, Australia, 2008.

Figure 7.1 shows the proportion of the population in the under 5 years age group and the over 65 years age group for Tasmania and Australia. Actual population data is available for the period from 1971 to 2006. The data from 2006 to 2051 are ABS population projections using Series B data that represents medium assumptions regarding fertility, mortality, net overseas migration and net interstate migration.

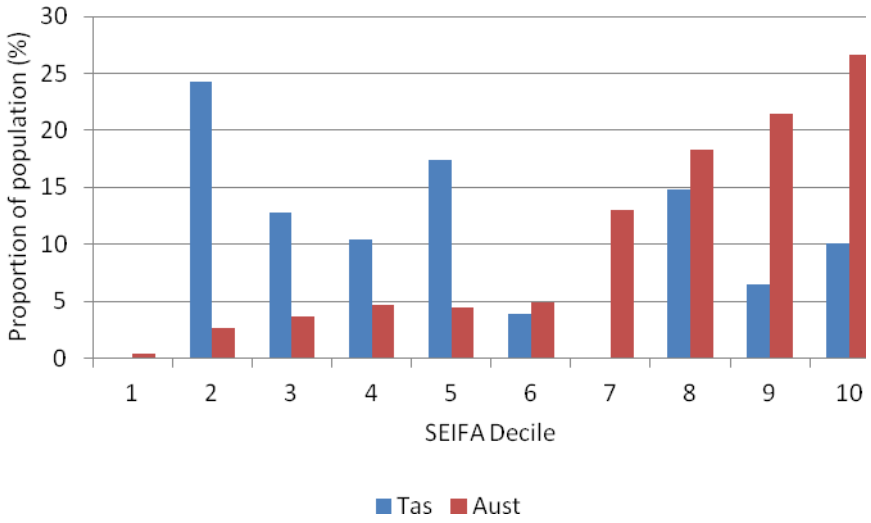
The proportion of the Tasmanian population aged less than 5 years was slightly above the national average at the beginning of the period but is expected to decline to the national average by 2022 (6.1 per cent) and both series will decline in tandem to 2051 (5.6 per cent).

The Tasmanian population is ageing at a more rapid rate than the total Australian population. While the proportion of Tasmanians aged 65 and over was slightly below the Australian average in 1971 (8.1 per cent compared to 8.3 per cent) it will be significantly above average by 2051 (26.7 per cent compared to 22.3 per cent).

One factor that is consistently identified in the literature as a risk factor is low income and low socio-economic groups. Figure 7.2 shows the stark contrast between the socio-economic structure in Tasmania in comparison with the national socio-economic structure. The figure shows the proportion of the population living in local government areas by the decile of advantage and disadvantage, where decile 10 corresponds to the most advantaged areas and areas and decile 1 are the most disadvantaged. In Tasmania, 63.8 per cent of the population reside in areas that are in the lowest 5 deciles. In contrast, only 15.8 per cent of the Australian

population are in the lowest 5 deciles. Only 16.5 per cent of Tasmanians are in the highest two deciles, compared to almost half of the Australian population (48.0 per cent).

Figure 7.2 SEIFA of advantage and disadvantage



Source: ABS (2006a) 2033.0.55.001 Socio-economic Indexes for Areas

Other characteristics are presented in Table 7.1. Median individual and family income fell significantly below the national average in 2006. Tasmanians are more likely to have low educational achievements. In Tasmania 17.8 per cent of those over 15 years have not completed Year 10 compared to only 15.0 at the national level. Similarly, only 35.6 per cent of Tasmanians over 15 years had a post school qualification in 2006 compared to 39.4 per cent of all Australians over 15 years.

The median age of the Tasmanian population was slightly above the national median age in 2006. The proportion of people with a disability that meant that they required assistance for core activities is higher in Tasmania at 5.0 per cent than for Australia generally (4.1 per cent).

Table 7.1 Socio-economic characteristic of the Tasmanian population, 2006

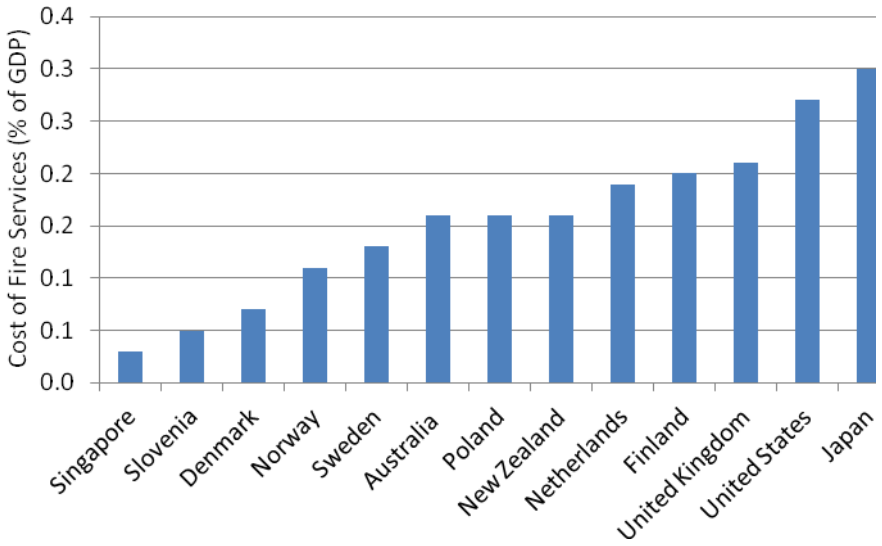
	Tasmania	Australia
Median age	39	37
Median individual income ($ per week)	398	466
Median family income ($ per week)	1032	1171
Paying rent (% of households)	25.1	28.1
Core activity need for assistance	5.0	4.1
Less than Year 10 education (aged 15+)	17.8	15.0
Post school qualification (aged 15+)	35.6	39.4

Source: ABS (2006b) Census of Population and Housing.

7.3 Fire service resources

This section compares data on resources devoted to the fire service in Tasmania with the situation in other states and the national average as well as providing some comparative international data.

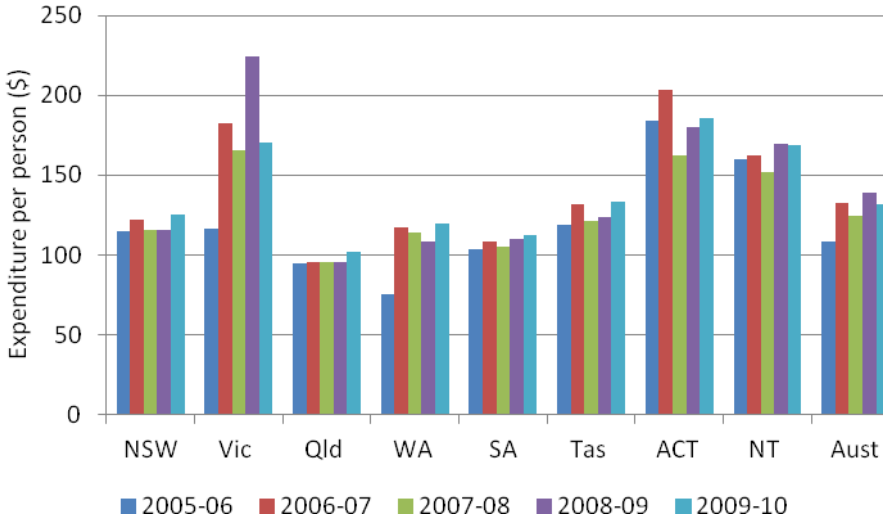
Figure 7.3 International comparison of the cost of fire services 2006-2008 (per cent of GDP)



Source: World Fire Statistics Centre, 2011

Figure 7.3 shows the cost of fire services for a number of countries detailed in the World Fire Statistics. The cost of fire services for these countries ranges from 0.03 per cent of GDP in Singapore to 0.30 per cent in Japan. Expenditure on fire services in Australia is around the average for these countries at 0.16 per cent of GDP.

Figure 7.4 Expenditure on Fire Services, per person (2009-10 dollars)

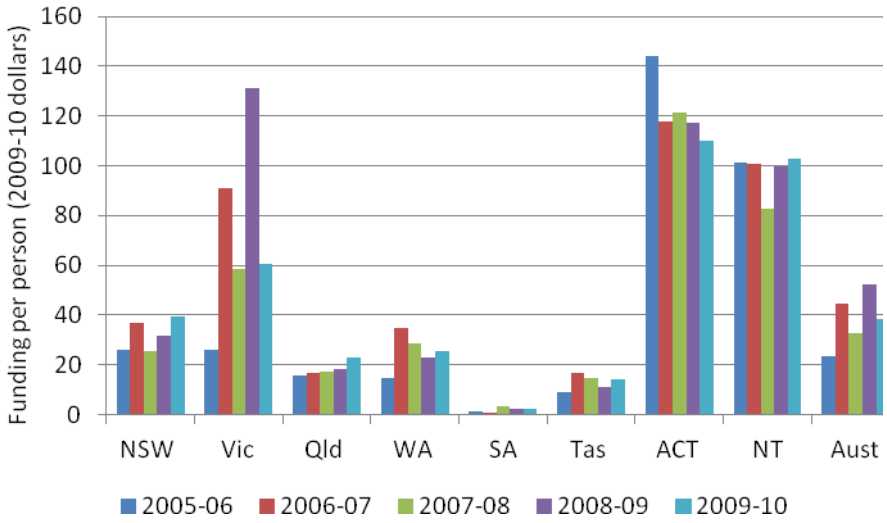


Source: SCRGSP, 2011

Between 2005-06 and 2009-10 the average expenditure per person for fire services in Australia increased from $108 to $132 (Figure 7.4). The jurisdictions with the highest per capita expenditure were the ACT, Victoria and the Northern Territory. Expenditure in the

ACT ranged from $162 in 2007-08 to $203 in 2006-07. Per capita expenditure in Tasmania was close to the national average over the period, increasing from $119 to $134 per person.

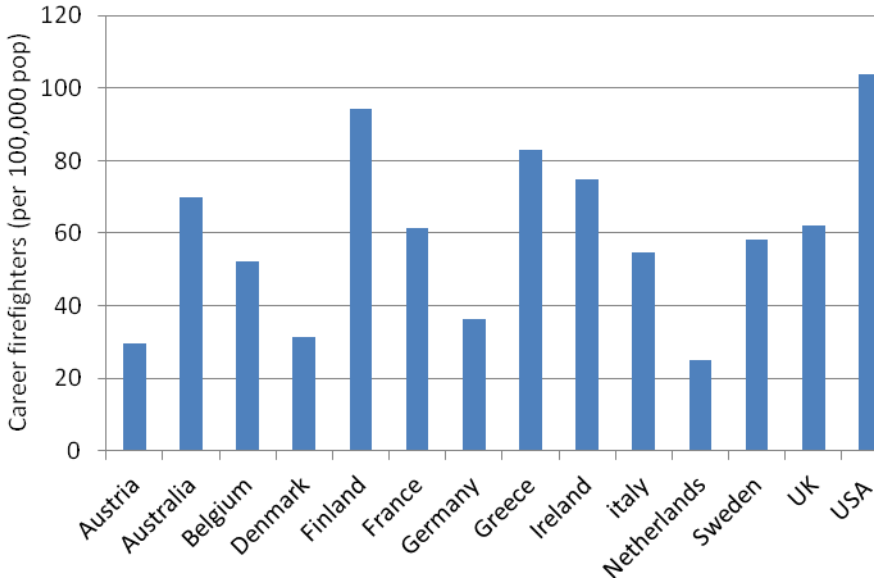
Figure 7.5 Government funding per person, 2009-10 dollars



Source: SCRGSP, 2011

Figure 7.5 shows that Tasmania receives well below the national average in government funding. The national average in 2009-10 was $38 per capita but Tasmania received only $14. South Australia had even lower expenditure of $2 per capita but all the other jurisdictions were higher than Tasmania, particularly Victoria ($60 per capita), the ACT ($110) and the Northern Territory ($103).

Figure 7.6 International comparison of career firefighters, 2008 (per 100,000 population)

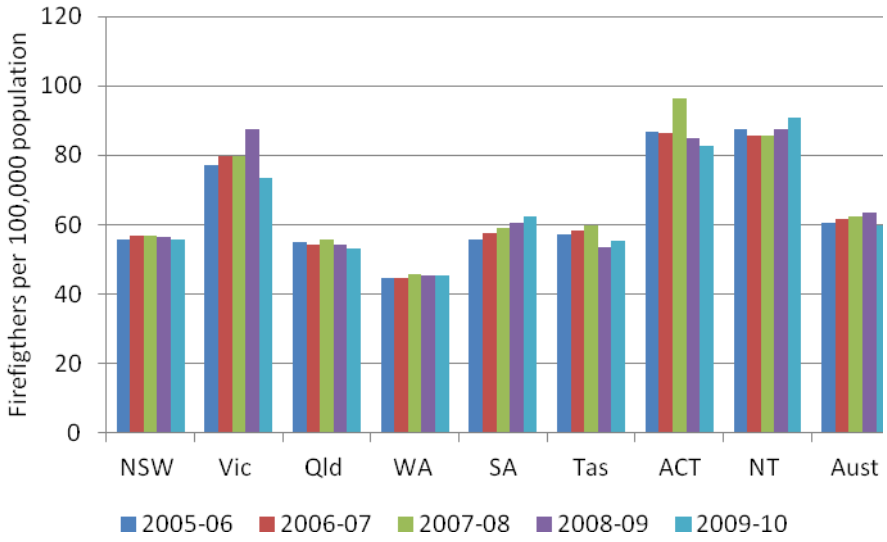


Note: Data for USA is for 2003-04; data for Australia is 2009-10. Ireland includes career and volunteer firefighters

Source: CTIF http://www.ctif.org/; SCRGSP, 2011

An international comparison of career firefighter numbers per 100,000 population reveals that there are substantial differences between countries. Australia appears to do relatively well; while it has less firefighters than the US, Finland, Greece and Ireland it has more than the other countries shown in Figure 7.6.

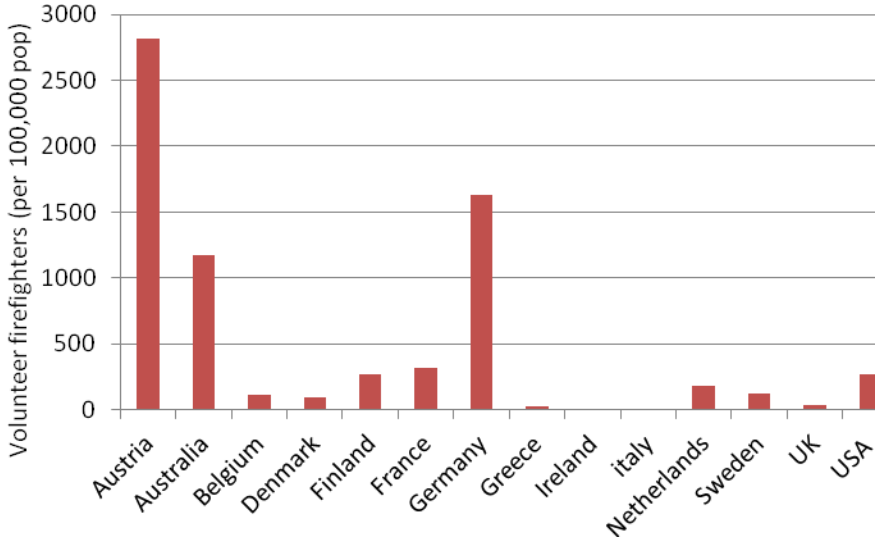
Figure 7.7 Career firefighters in Australia, per 100,000 population (permanent, part-time and other)



Source: SCRGSP, 2011

In 2009-10 the number of career firefighters in Tasmania (55.4 per 100,000 population) was below the national average of 59.9 per 100,000 population (Figure 7.7). It was substantially below the level in Victoria (73.6), The ACT (82.8) and the Northern Territory (90.9). The only state with less firefighters was Western Australia with 45.3 career firefighters per 100,000 population.

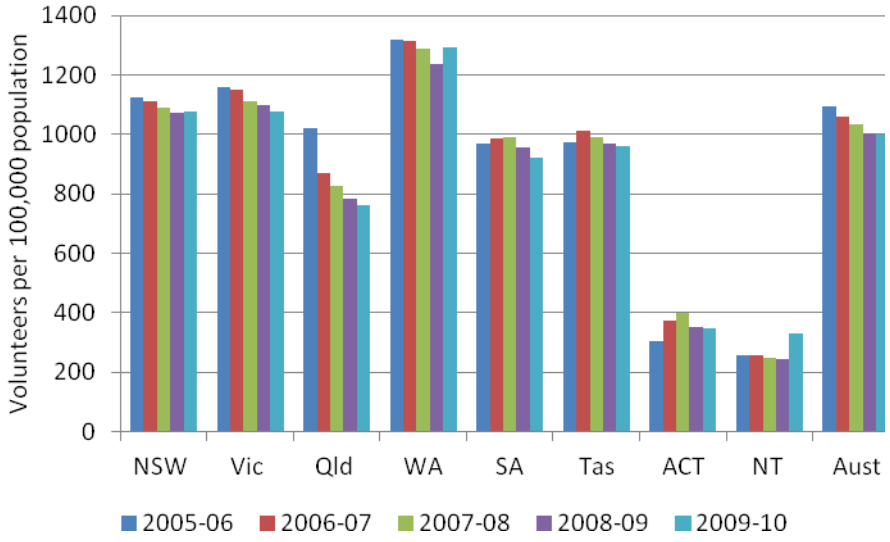
Figure 7.8 International comparison of volunteer firefighters 2008 (per 100,000 population)



Source: CTIF http://www.ctif.org/; SCRGSP, 2011. Note: USA data - 2003-04; Australian data - 2009-10.

Volunteer firefighters appear to be relatively unimportant in the US and most European countries with the exception of Austria and Germany (Figure 7.8). Australia has a relatively high number of volunteers compared to the rest of Europe and the US.

Figure 7.9 Volunteer firefighters in Australia, per 100,000 population



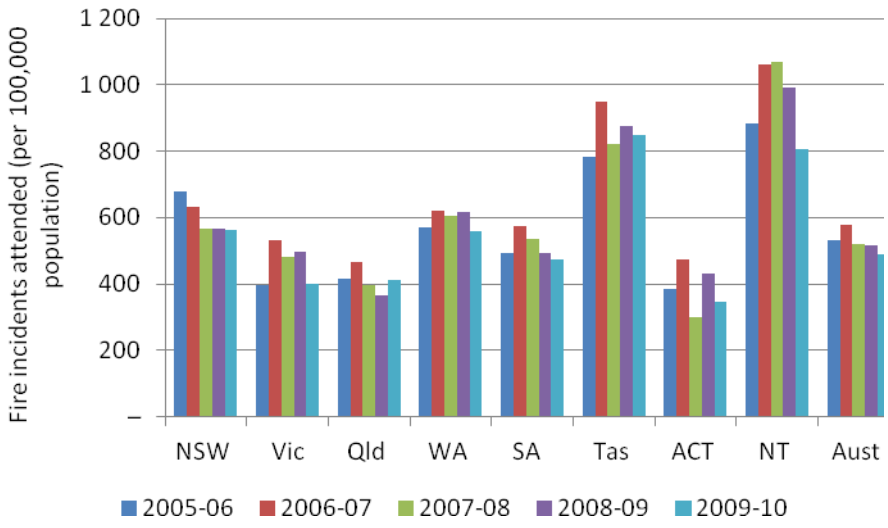
Source: SCRGSP, 2011

Figure 7.9 shows the number of volunteer firefighters per 100,000 population for Australia. Again, Tasmania has less resources than the national average with 961.9 compared to 1001. The low numbers of volunteers in the two territories counterbalances the high number of career firefighters in those jurisdictions (Figure 7.7 above) indicating a greater reliance on career firefighters. The number of volunteer firefighters has declined rapidly in Queensland. The number of volunteers declined from 41,324 (1021.9 per 100,000 population) to 34,000 (760.1 per 100,000) in 2009-10. Resources in Tasmania are similar to South Australia (922.0) but far less than in NSW (1076.6), Victoria (1076.7) and Western Australia (1292.5). Western Australia places greater reliance on volunteer firefighters, as shown by the fact that it has the highest number of volunteers and the lowest number of career firefighters.

While fire services provide data on the number of volunteer firefighters on an annual basis, there is are questions about the accuracy of the data since many members are not active. There were 4,765 volunteer firefighters in Tasmania in 2005-06 (SCRGSP, 2011). However, a report prepared by the Bushfire CRC for the TFS indicated that there were only 2,969 operational firefighters (2,570 male and 399 female) (McLennan and Birch, 2005).

7.4 Fire incidents

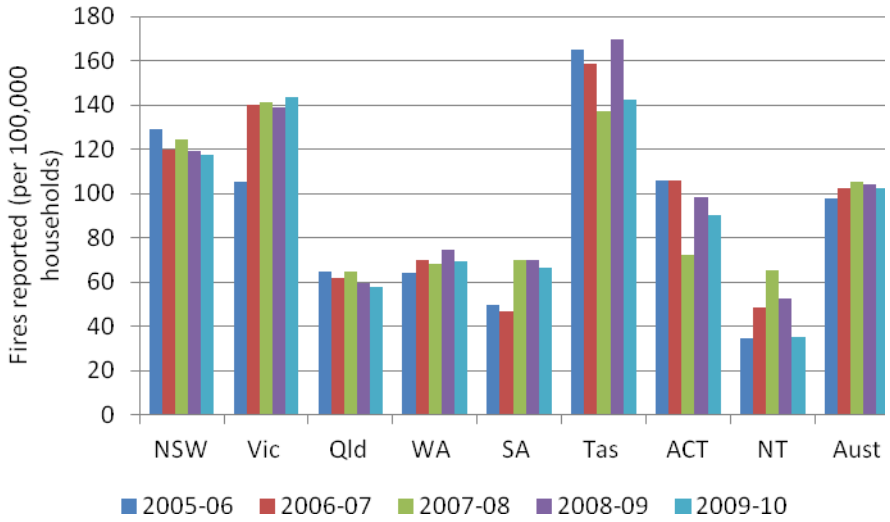
Figure 7.10 Total fire incidents attended (per 100,000 population)



Source: SCRGSP, 2011

The number of fires attended per 100,000 population is shown in Figure 7.10 for the period 2005-06 to 2009-10. This includes all fires that are attended by fire service organisations. The Northern Territory has the highest rate of attendance at fires due to deliberately lit fires and the large number of grass fires. Tasmania has the second highest rate of fires attended by firefighters.

Figure 7.11 House fires per 100,000 households



Source: SCRGSP, 2011

Data presented in the SCRGSP (2011) report shows that Tasmania has the highest rate of reports of house fires per 100,000 households of all states and is significantly above the national average (Figure 7.11). Some data is incomplete for some years and there are variations in the compilation of these data in different states, so the data are not entirely compatible. For example, the Tasmanian data includes all brigades (career and volunteer) while data from the Northern Territory includes permanent fire stations only.

Notwithstanding these qualifications, the rate in Tasmania appears relatively high. In 2005-06 Tasmania had 165 reports per 100,000 households compared to less than 98 reports nationally. Victoria has the second highest rate of residential structural fires and the rate has increased over time. To the extent that Tasmania has a higher rate of residential fires, it would appear that it is necessary to ensure that there are adequate numbers of firefighters to respond to emergencies.

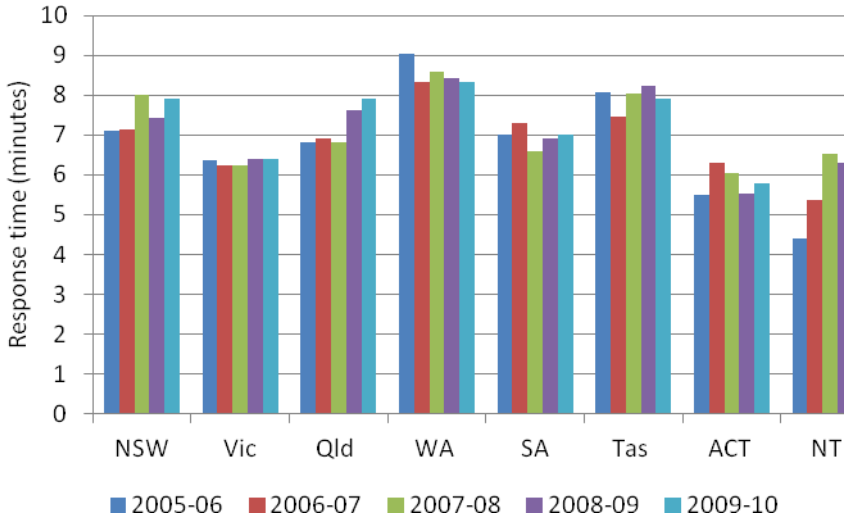
7.5 Response to fire incidents

Response times to fires are critical to minimising loss of life and damage to property. The National Fire Protection Association (NFPA) standard 1710 states:

> An early aggressive and offensive primary interior attack in a working fire, where feasible, is usually the most effective strategy to reduce loss of lives and property damage…At approximately 10 minutes into the fire sequence, the hypothetical room of origin flashes over. Extension outside the room begins at this point…..two of the most important elements in limiting fire spread are the quick arrival of sufficient numbers of personnel and equipment to attack and extinguish the fire as close to the point of its origin as possible (NFPA 1710: A.5.2.1.2.1).

The SCRGSP has two measures of response times; 1) 50th percentile, and 2) 90th percentile.

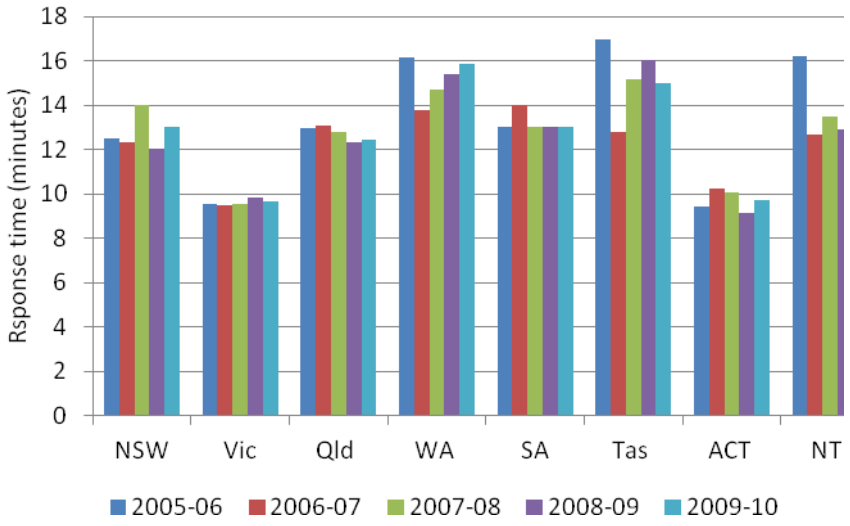
Figure 7.12: Response times to structural fires, 50th percentile



Source: SCRGSP, 2011

In 2009-10 the 50th percentile response rate in Tasmania was 7.9 minutes which was equal to the response time in NSW and better than Western Australia where the average response time was 8.3 minutes (Figure 7.12). The quickest response times were in the ACT (5.8 minutes), and Victoria and the Northern Territory with average response times of 6.4 minutes.

Figure 7.13: Response times to structural fires, 90th percentile

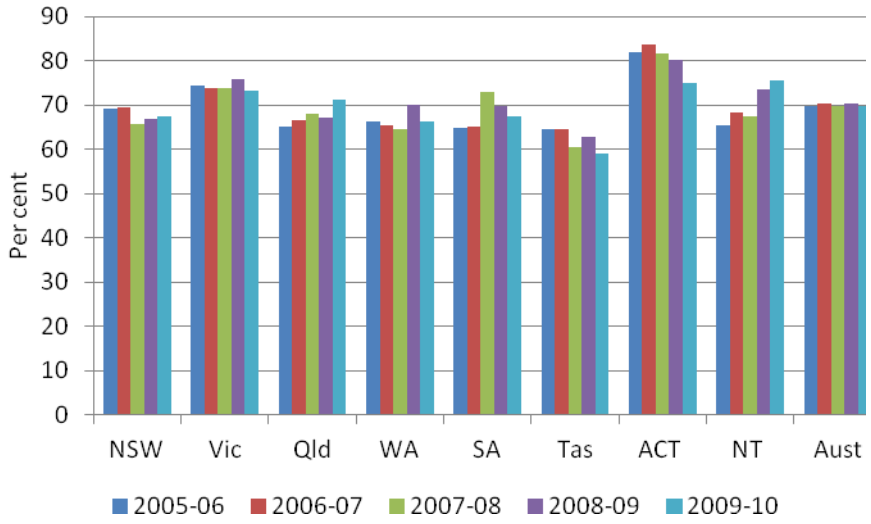


Source: SCRGSP, 2011

Figure 7.13 shows that Tasmania and Western Australia have the longest 90th percentile response times (15 minutes and 15.9 minutes in 2009-10, respectively). In Tasmania, response times have decreased from almost 17 minutes in 2005-06 to 15 minutes in 2009-10. However, response times are significantly longer than in Victoria (9.6 minutes), the ACT (9.7 minutes) and Queensland (12.4 minutes).

7.6 Outcomes

Figure 7.14 Structure fires confined to one room (per cent)

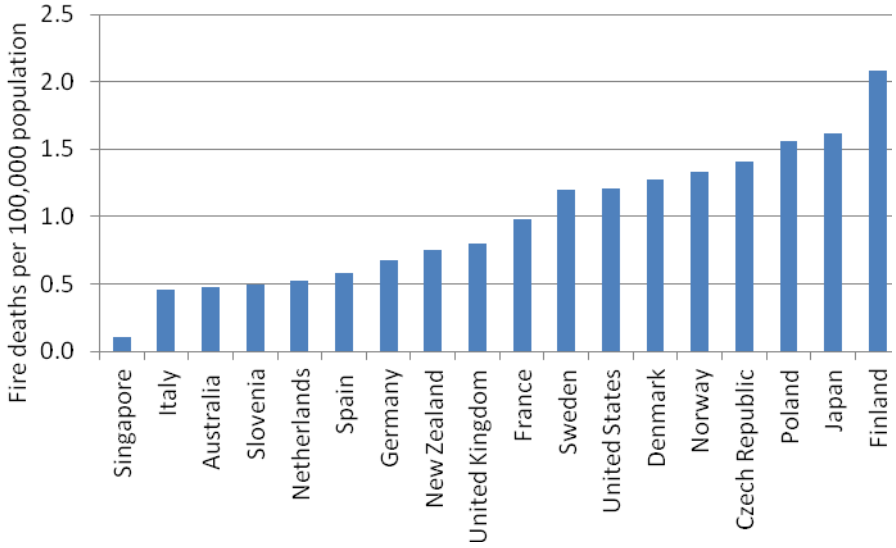


Source: SCRGSP, 2011

One of the Key Performance Indicators of the Tasmania Fire Service is to maximise the number of structure fires that are contained to the room of origin. The ability to achieve this objective is dependent upon response times and the adequacy of resources. Figure 7.14 shows the proportion of structure fires contained to one room for Australian states between 2005-06 and 2009-10. The ACT has the highest success rate although performance has declined over time, from above 80 per cent to 75 per cent in 2009-10. For Tasmania, the proportion of fires

that were contained to the room of origin fell from around 65 per cent to 59 per cent in 2009-10.

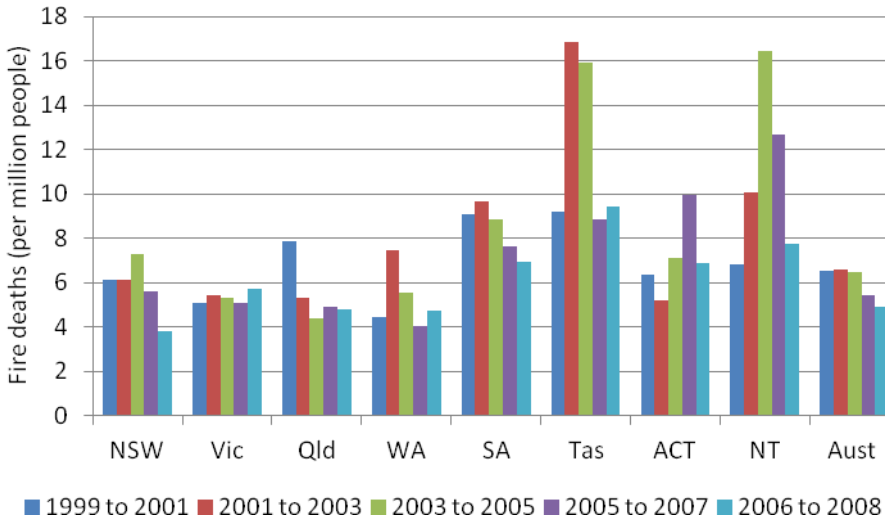
Figure 7.15 International comparison of the fire death rate (per 100,000 population)



Source: World Fire Statistics Centre, 2011.

International comparisons of the number of fire deaths reveal that Australia has a lower fatality rate than most other countries (under 0.5 per 100,000 population). The death rates for the countries shown in Figure 7.15, range from 0.11 per 100,000 population in Singapore to 2.08 in Finland. Australia has the third lowest rate of fire deaths at 0.48 per 100,000 population.

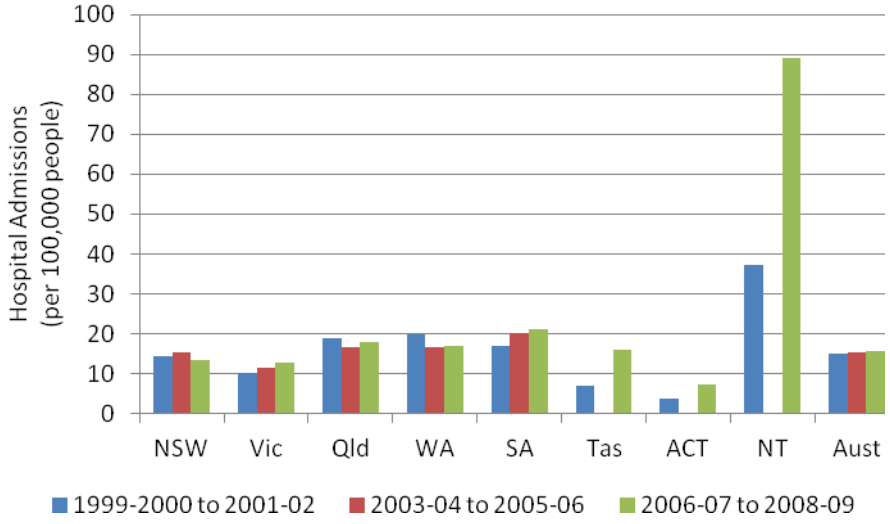
Figure 7.16 Three year weighted average fire death rate (per million people)



Source: SCRGSP, 2011

Comparisons of deaths from fires for a single year can be influenced by catastrophic events. Figure 7.16 shows the three year average number of fire deaths throughout Australia. The rate of deaths is significantly higher for Tasmania and the Northern Territory than for other states. The Tasmanian average for 2006 to 2008 of 9.5 per million people was the highest in Australia and almost twice the national rate of 4.9 deaths per million people.

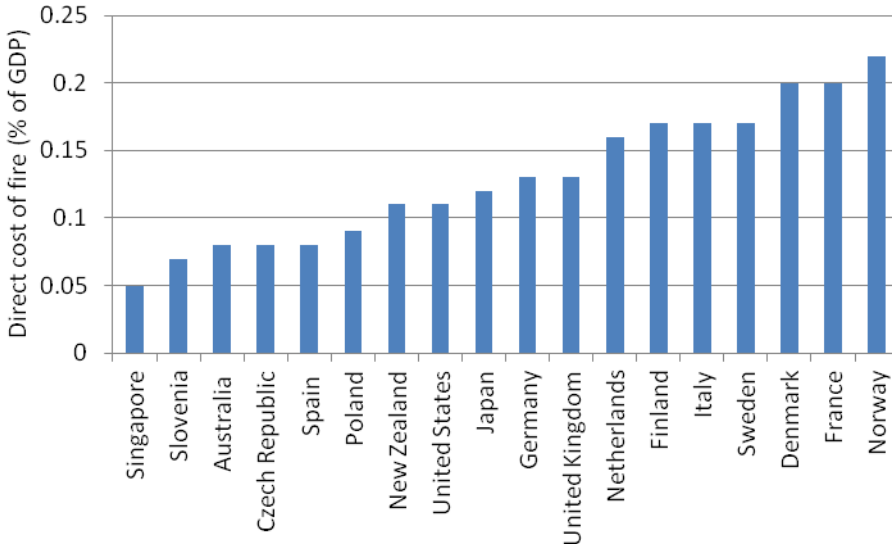
Figure 7.17 Hospital admissions due to fire injuries (per 100,000 population)



Source: SCRGSP, 2011

The rate of hospitalisation due to fire injuries showed less variation between states than other statistics, with the exception of the Northern Territory where hospitalisation rates reached 88.4 per 100,000 population in 2008-09. The rate in Tasmania in 2009-10 was 16.2, which was slightly above the national average of 15.7.

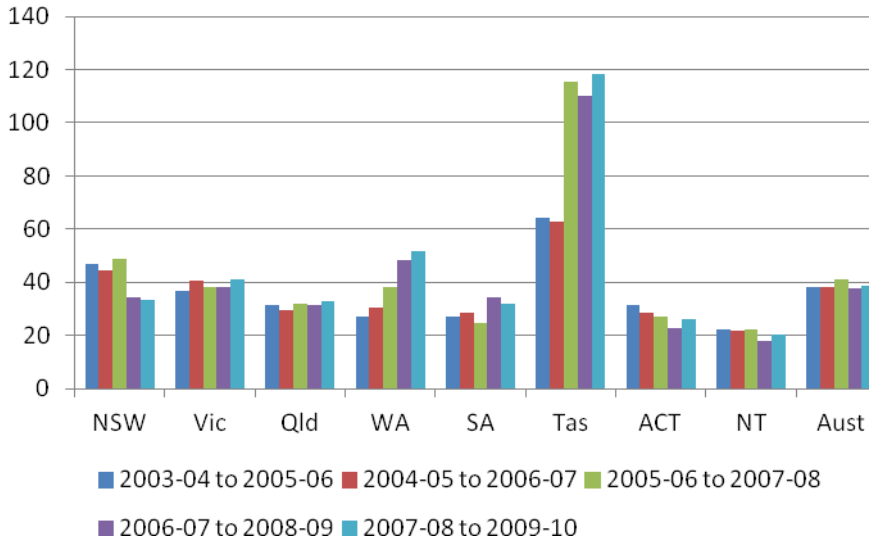
Figure 7.18 Direct cost of fire in 2006-2008 (per cent of GDP)



Source: World Fire Statistics Centre (2011)

The direct cost of fire in Australia is low relative to other countries. In 2006-2008 the direct cost of fire in Australia was 0.08 per cent of GDP which was lower than New Zealand and the United States (0.11 per cent), the UK and Germany (0.13 per cent) and significantly lower than Denmark, France and Norway (0.2 per cent or higher).

Figure 7.19 Property loss from structure fire (2009-10 dollars per person)



Tas: Data are for all fire brigades, both full time and volunteer. For 2007-08, data include two significant fires where the property loss was $60 million and $20 million respectively. Property loss does not include losses as a result of vegetation fires. Due to industrial action 90 incident reports are incomplete in 2008-09.

Source: SCRGSP, 2011

Turning to comparisons of the cost of fire within Australia, Figure 7.19 shows the amount of property loss from structure fires on a per capita basis (in 2009-10 dollars). The data are presented on a three year average basis to minimise the impact of major fire events in one year. Tasmania records the highest average amount of property loss over the entire period. However, the very large increase in average property loss in the final three periods is influenced by two major fires in 2007-08 that involved property losses of $60 million and $20 million.

7.7 Summary of Tasmania's performance

This section examined the comparative situation in Tasmania in relation to risk factors, resourcing of the fire service and performance. The Tasmanian population is more disadvantaged than the Australian population, on average. Major risk groups identified in the international literature that comprise a higher proportion of the population in Tasmania are: persons aged over 65 years; people with disabilities; and persons who are more disadvantaged as shown by the concentration of the population in lower SEIFA groups, lower incomes and lower levels of educational achievement. Other groups identified in the literature such as children under the age of five years and those in rental accommodation are not above the national average.

Expenditure on fire services in Tasmania is around the national average. The level of government funding is lower than other states with the exception of South Australia and is significantly below the national average. Both career and volunteer firefighter numbers (per 100,000 population) are below the national average.

Fire incidents per 100,000 population in Tasmania are significantly above the national average and second only to the Northern Territory. House fires per 100,000 households are higher in Tasmania than anywhere else in Australia.

Response times at the 90th percentile are longer than in most other Australian jurisdictions and the proportion of structure fires contained to one room is lower in Tasmania than

elsewhere in Australia. In addition, the three year average weighted death rate (per million people) is significantly higher in Tasmania than the Australian average and property losses (per person) are much higher in Tasmania than elsewhere in Australia.

We can summarise the experience in Tasmania as: a population facing higher risk and experiencing more fires but having fewer fire fighting resources and funding and achieving poorer results in terms of speed of response to fires and minimisation of loss of life and property. From this comparison we can conclude that there is substantial room for improvement in the performance of the Tasmania Fire Service.

8 A closer examination of the performance of the Tasmania Fire Service

8.1 Introduction

The previous section demonstrated that Tasmania has a higher risk profile than other states due to the higher proportion of aged and disabled residents and lower socio-economic status of the population. The impact of this risk profile is borne out in the higher incidence of fires in Tasmania compared to the other states. The adequacy of the resources devoted to fire services comes into question, given that Tasmania has less resources than elsewhere, combined with a higher risk profile and a higher incidence of fires. Moreover, the performance of Tasmania remains below the national average for critical indicators such as response times, containment to the room of origin, the rate of fire deaths and the cost of fire damage.

The SFC strategic direction objectives include (SFC, 2011: 2):

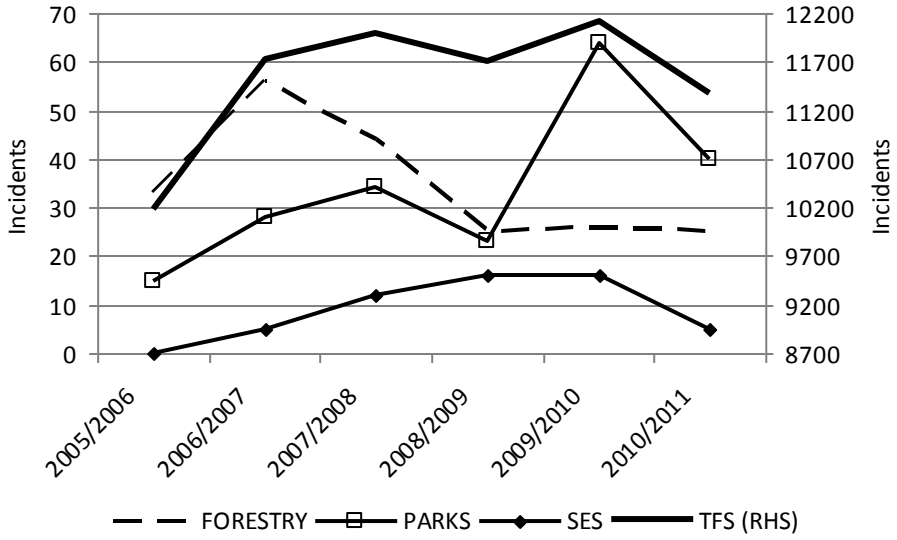
- Delivery of a safe, timely and effective response to fires, hazardous materials incidents and other emergencies.
- Ensuring that the Commission and TFS both operate responsibly with regard to the community, our people and the environment.
- Supporting our people in a safe, fair and productive working environment.

This section examines the Tasmania Fire Service in more detail. Section 8.2 presents data on the number and type of incidents the TFS responds to. Section 8.3 examines response times in relation to the spatial distribution of incidents. Further detail on fire fatalities is presented in Section 8.4, including the timing and spatial distribution of fatal fires. Section 8.5 considers the adequacy of fire services in Tasmania in relation to the adequacy of response in relation to what the community may expect and in order to fulfil the TFS's objectives. Section 8.6 considers the number of fire fighters that would be required in Tasmania in the period to 2056 if Tasmania had the same firefighter ratios as various states or the national average. Recommendations and conclusions are presented in Section 8.6.

8.2 TFS incidents

As mentioned previously, there are three organisations responsible for responding to fire incidents in Tasmania (Forestry Tasmania, the Parks and Wildlife Service and the Tasmania Fire Service) while the SES and TFS respond to other emergencies. Figure 8.1 shows the total number of incidents each of these organisations responded to between 2005-06 and 2010-11.

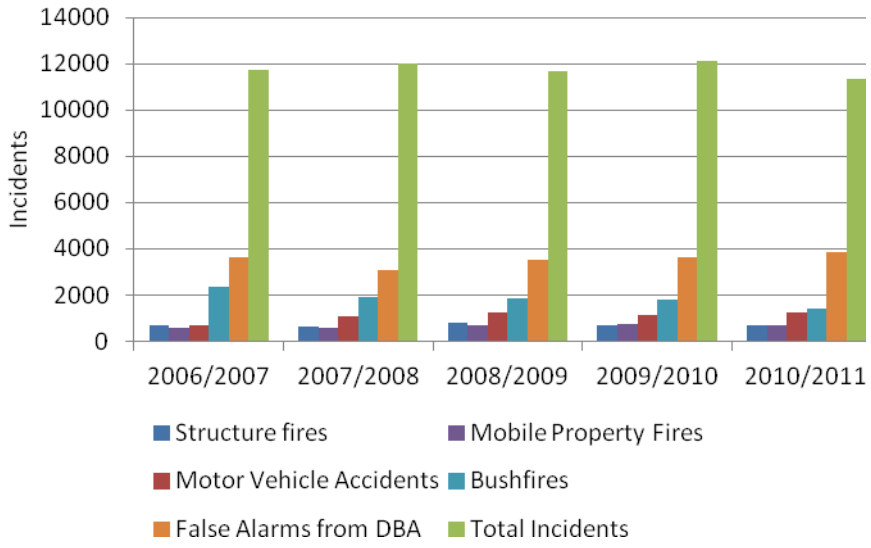
Figure 8.1 Total incidents, 2005-06 to 2010-11



Source: Data supplied by the TFS

The TFS is responsible for responding to the vast majority incidents, with an annual average of 11,515 incidents per annum between 2005-06 and 2010-11. Forestry Tasmania and the Parks and Wildlife Service were responsible for an average of 35 and 34 incidents, respectively over the same period. The SES was responsible for an average of 9 incidents.

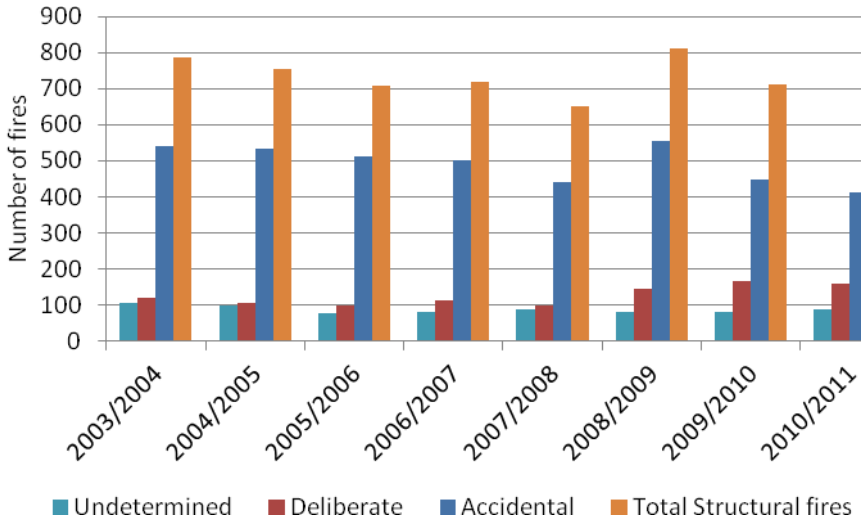
Figure 8.2 Types of incidents TFS, 2006-07 to 2010-11



Source: Data supplied by the TFS

Figure 8.2 details total incidents and the major types of incidents the TFS responded to between 2006-07 and 2010-11. Total incidents are shown in green and are larger than the sum of the incident types shown because there are other lower-frequency incidents that are not included in the figure. In 2010-11, the highest proportion of incidents were false alarms from direct brigade alarms (DBAs) that accounted for around 34 per cent of all incidents. Bushfires were the next most common incident at over 12 per cent. Motor vehicle accidents comprised 11 per cent of all incidents while structure fires and mobile property fires each represented around 6 per cent of incidents.

Figure 8.3 Cause of structure fires, 2003-04 to 2010-11



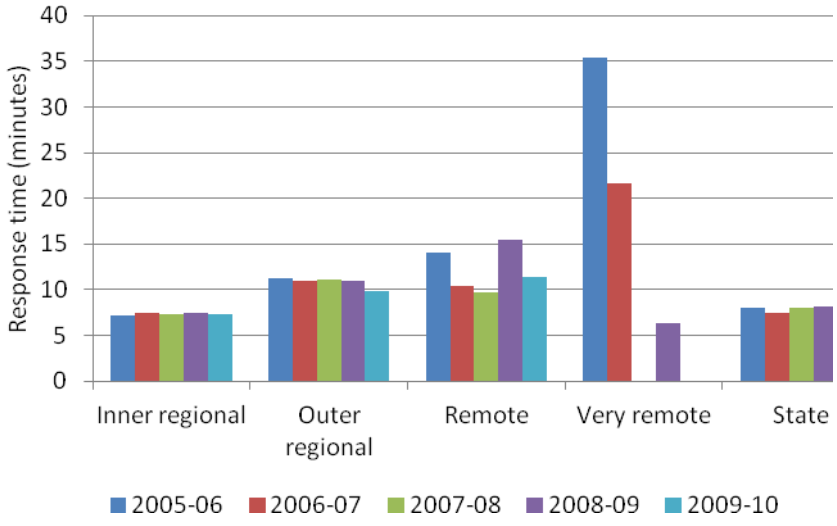
Source: Data supplied by the TFS

The most common causes of structure fires are shown in Figure 8.3. The highest number of structure fires occurred in 2008-09 when there were a total of 553 structure fires in Tasmania. The majority of structure fires were accidental, although this has fallen from around 70 per to 61 per cent by 2010-11. Deliberately lit fires increased from 15 per cent in 2003-04 to 24 per cent in 2010-11. The proportion of fires for which a cause could not be determined has been fairly constant throughout the period at around 13 per cent.

8.3 A more detailed analysis of response time data

Figures 8.4 and 8.5 show response times at the 50th and 90th percentile respectively, according to regions within Tasmania. There is a definite spatial pattern, with faster response times in inner regional areas covered by career brigades and the slowest response times in remote and very remote areas that are more difficult to reach and are covered by volunteer brigades.

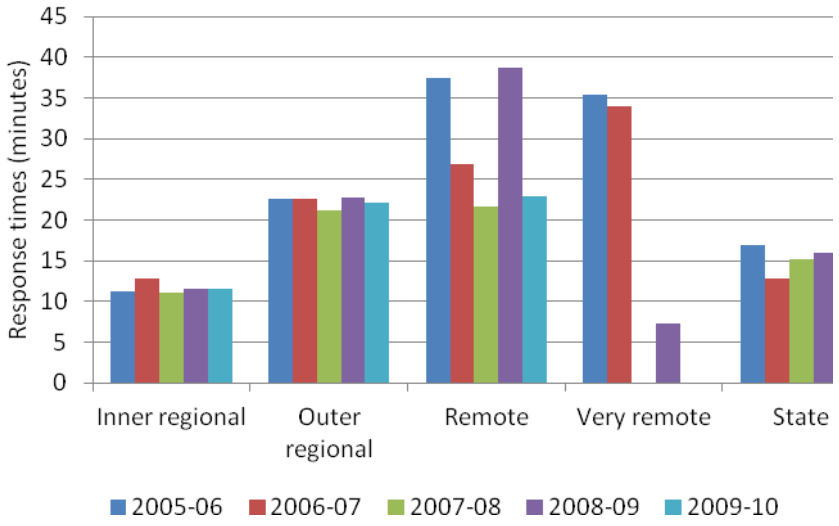
Figure 8.4 Response time to structure fires by region type, 50th percentile



Source: SCRGSP, 2011

There is a clear gradient evident; with response times increasing with distance from major population centres (Figure 8.4). Response times at the 50th percentile are between 7 and 7.5 minutes in inner regional areas. For outer regional areas the response times were stable at around 11 minutes but fell to 10 minutes in 2009-10. There is more variation in remote and very remote areas which may be attributable to the actual location of fires in relation to the fire stations or the terrain. Response times for remote areas ranged from about 10 to 15 minutes. In very remote areas response times were in the range of 6 to 35 minutes. The large variation in very remote areas is influenced by the small number of events. For example, in 2005-06 the longest response time was due to a single fire where the response time was 35 minutes.

Figure 8.5 Response times to structure fires by region type, Tasmania (90th percentile)



Source: SCRGSP, 2011

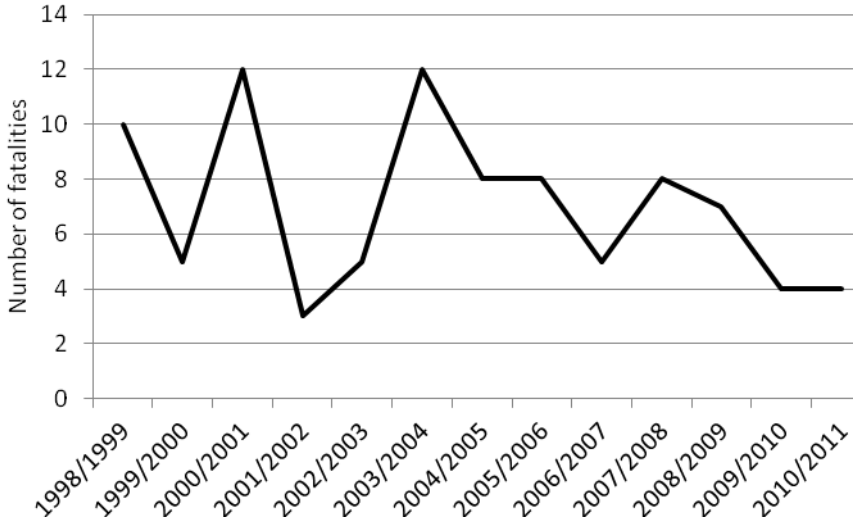
The same pattern is evident at the 90th percentile but the response times are longer for all region types. For inner regional areas the response time has increased from around 7 minutes to between 11 to 13 minutes. Outer regional area response times are between 21 and 23 minutes. Again there is greater variation for more distant areas. The response time for remote areas ranges from 21 minutes to 39 minutes, while very remote areas range from just over 7 minutes to more than 35 minutes.

8.4 Outcomes: fire fatalities

In the previous section we saw that Tasmania has a higher fire death rate than other states. In the five years to June 1996 there were 22 structural fires in Tasmania that resulted in 23 deaths and 39 per cent of fires occurred in winter (Department of Emergency Services, 1998). Over this period 61 per cent of victims were aged over 65 years and the major causes of fire deaths were having combustibles too close to heaters and faulty electric blankets (Department of Emergency Services, 1998).

Figure 8.6 shows the number of fatalities in Tasmania between 1998-99 and 2010-11. There is substantial variation between individual years, with the highest number of deaths (12) recorded in 2000-01 and 2003-04 and the lowest number of 3 deaths in 2001-02. This variation may be attributed to a small number of fires where there were multiple deaths. There was an average of 7 deaths per year over the period.

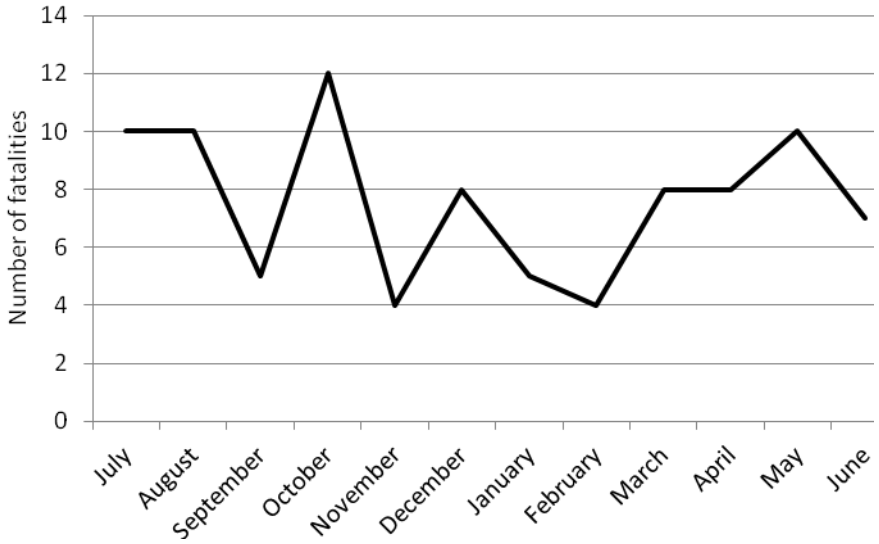
Figure 8.6 Fire deaths by year, 1998-99 to 2010-11



Source: Data supplied by the TFS

Figure 8.7 shows the number of fatalities by month between 1998-99 and 2010-11. The highest number of fatalities occurred in October (12) and the other months when fatalities were high were July, August and May, when 10 fire deaths occurred.

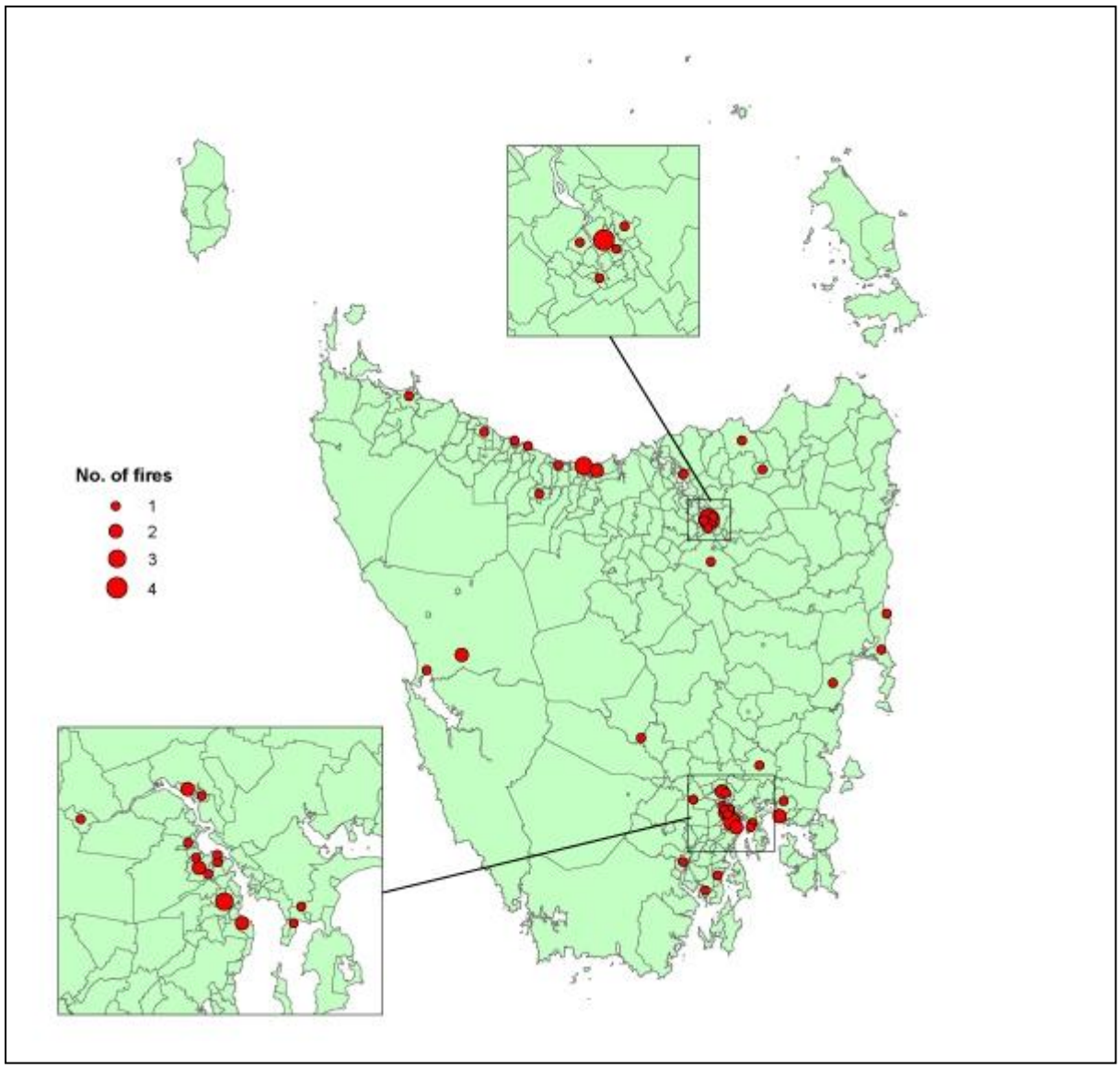
Figure 8.7 Fire deaths by month, 1998-99 to 2010-11



Source: Data supplied by the TFS

Figure 8.8 shows the spatial distribution of fatal fires in Tasmania between 1994 and 2009. Fatal fires have occurred in most areas of the state, including large urban areas and sparsely populated rural areas. Detail of the distribution of fires in Hobart and Launceston is visible in the additional maps.

Figure 8.8 Fatal structure fires in Tasmania, 1994 to 2009



Source: TFS, 2010: Appendix 4 and Appendix 5.

During this period there were 28 fatal fires and 31 deaths in urban areas compared to 36 fatal fires and 42 deaths in rural areas. The most common primary factors involved in both regions were related to drug and alcohol use, and age. In 13 of the 36 instances in rural areas, and 8 of the 28 fires in urban areas, the primary factor was alcohol or drugs. Age was stated as the primary factor in 7 of the urban fires and 5 rural fires. In 4 urban fires and 3 rural fires the primary factor was smoking, while heaters contributed to 6 rural and 2 urban fires. Other factors included faulty electrical appliances, disability and fire play.

8.5 The adequacy of emergency services provided by the TFS

This section examines the adequacy of the fire services including the ability to achieve the objective of delivering 'a safe, timely and effective response to fires, hazardous materials incidents and other emergencies' (SFC, 2011: 2).

Standard of Cover

The Tasmania Fire Service already applies a risk-based model that includes factors such as population, property values, and resources available to provide primary and support

responses. The TFS also collects sufficient data to monitor performance against a set of expected standards. When they do present this data (such as response times) to the public, it is not in the context of what they consider an acceptable or optimal standard. The State Fire Commission *Annual Report 2010-11* indicates response times at the 90th percentile ranging from 15.6 minutes (2006-7) to 14.9 minutes (2010-11) without reference to any desired standard (TFS, 2011:16). The published State Fire Commission State Fire Protection Plan of December 2009 provides no specification of standard response times or weight of response, either for the state or specific localities, in relation to specific types of risk (SFC, 2009).

By way of comparison, the New South Wales Fire Brigade based a Standard of Fire Cover (1991) on a study of Sydney residential fires between 1987 and 1991 that showed 90 per cent of fires were contained to the room of origin if pumper trucks arrived on-scene within 7.1 minutes from time of call. That became the standard. This standard was then used to inform a reappraisal of deployment strategy across the greater Sydney area (Brown, 2003:9).

Similarly, Victoria's Metropolitan Fire and Emergency Services Board, include in its Standard of Fire Cover (SOFC) a target response time from call received to first appliance in attendance as 7.7 minutes at the 90th percentile, and to contain 90 per cent of fires to the room of origin (MFESB, 2009:12-13). It additionally aims for a second truck to be on the scene in 10 minutes (Haywood & Groenhart, 2010). In 2009-10, the MFB attended 84.1 per cent of calls within their benchmarks. Of all structure fires in 2009, 86.9 per cent were attended within 7.7 minutes. The Victorian Country Fire Authority, which is responsible for non-metropolitan fire management, including to rural and remote areas, requires a first truck with four firefighters to attend a (non-remote) fire in 8 minutes and a second truck within 10 minutes, and reported in 2010-11 that in 22,879 incidents that were classified as 'emergency incidents' for measurement purposes, 88.1 per cent met the required response time for the hazard attended (CFA, 2011:24).

In addition to the issue of response time and the number of crew and appliances in attendance, the prerequisites of an effective response include:

- Skills;
- Knowledge;
- Experience;
- Teamwork; and
- Management structure.

The extensive training and management structure of career firefighters ensures that appropriately trained, full crews attend incidents (1 officer and 3 crew per appliance). In areas where volunteers are used to back-up career firefighters or where volunteers are solely responsible for fire suppression an examination of the skills and experience of crews is an important consideration of whether an effective response has been achieved. The CFA in Victoria developed the JCK system of analysis of what they term "real life" service delivery. JCK involves interrogating the CFA fire reporting system and the training database. In this way it is possible to consider the competency level of crews and the response numbers at brigade level.

Tasmanian performance in key areas such as travel times to fires, deaths, injuries and costs of property damage are all worse than the national average, with the citizens of that state suffering per capita the most severe consequences of accidental fire, particularly residential fire, of any citizens in the nation (see Section 7). The non-specification of a 'standard of fire

cover' for the Tasmania Fire Service raises doubts as to the attitude to its performance – are fifteen minute response times acceptable?

A published standard of fire cover for Tasmania, defining performance objectives in terms of response times, minimum resource commitments and staff competencies, would place the safety needs of the community and firefighters at the forefront of consideration in times of fiscal constraint. It would establish what cannot be cut without compromising life and property, consistent with international evidence that fire service performance is sensitive to staffing levels: fire fighter numbers must be sufficient to ensure adequate numbers arrive at fire scenes within an appropriate timeframe.

The 2009 KPMG review of emergency response in Tasmania

Section 2 outlined the operation of the TFS which is composed of career brigades in the Hobart, Launceston, Devonport and Burnie regions while the remainder of the State is serviced by volunteer brigades. Career and volunteer brigades operate together on the urban fringes and the coordination of responses has caused considerable controversy over an extended period of time. The UFU (2009) submission to the KPMG *Review if Emergency Response Arrangements* in 2009 claimed that many issues needed to be resolved to improve the service to the Tasmanian community and to ensure the Occupational Health and Safety of firefighters. The issues that they claimed needed to be addressed included:

- Ensuring that Standard Operating Procedures (SOPs) were complied with relating to the number of firefighters and equipment required to respond to various types of incidents. The inability of volunteer brigades to abide by SOPs was claimed to prevent career brigades from providing 'the required fire protection to their communities and the infrastructure present including hospitals, schools, aged care facilities, large industry, two shipping ports, two regional airports, one major gas storage facility and two major bulk fuel storages' (UFU, 2009: 3);
- Consideration of extending the area that career brigades respond to since they would frequently be able to respond more quickly than volunteers thereby reducing the cost of fire and potentially reducing fire fatalities;
- Bringing resourcing in the North-West up to the standard of Launceston which had 3 career crews and an effective retained volunteer brigade, while Burnie and Devonport were restricted to two career crews and 'a less than optimal retained brigade system' (UFU, 2009: 3)
- Improving the level of risk assessment so that brigades are fully aware of hazards and 'equipped with prior knowledge to handle any incident that arises' (UFU, 2009: 10); and
- Introduction of a state-wide approach to brigade resourcing 'based on a scientific evidence based approach' (UFU, 2009: 10).

The KPMG review (KPMG, 2009) did not accept the UFU arguments for additional fire stations at Ulverstone in the North West and Kingston in the South. KPMG's recommendations included:

- That the TFS develop a more transparent approach to risk assessment and resource allocation;
- Review assignment areas and develop acceptance of a flexible definition of primary response that maximises the availability of appropriate resources;

- That the TFS develop a more comprehensive and consistent approach to incident planning;
- Reform to avoid the situation where volunteer crews had 'not been providing timely and appropriately resourced back-up at incidents' (KPMG, 2009: 10);
- That the TFS ensure the availability of backup to career crews in Devonport and Burnie; and
- KPMG also noted that the North West region 'has a relatively lean TFS management structure that provides too little support on managing operational issues'.

The adequacy of response

The adequacy of responses to incidents is determined by factors such as the number and distribution of fire stations, staffing levels, training standards and appropriate equipment. The determination of the location of fire stations is a complex undertaking that involves consideration of factors such as: the size of area, population density, accessibility, fatalities, the composition of development (residential, commercial, industrial) and presence of high risk industries (Valinsky 1955). Aggregate data on response times in Section 7 showed that the response times in Tasmania at the 90th percentile were inferior to all other states, except Western Australia. When we examined response times within Tasmania (Section 8.3) we discovered that there is a spatial gradient in response times, with response times increasing significantly with distance from major urban areas.

In order to provide a comprehensive assessment of the adequacy of the TFS response to incidents it would be necessary to interrogate the AIRS data that includes information regarding every incident, including the time the incident is reported, despatch time and brigade, the time of response and the strength of response in terms of crew numbers and appliances. AIRS data was not available to researchers and a full analysis is outside the scope of this research.

A Case Study of the Adequacy of services in North-West Tasmania

This section provides an examination of recent incident data in the North-West of Tasmania to illustrate the adequacy of the current level of fire cover. As mentioned previously, the UFU submission to the KPMG review in 2009 presented a case for the expansion of the number of career fire stations to include an additional station on the North West coast, perhaps at Ulverstone. The station at Ulverstone would have the capacity to back-up the career crews at Burnie and Devonport.

The submission pointed to the fact that the TFS accepted that volunteer firefighters provided back-up in only 75 per cent of cases in Burnie and 66 per cent of cases in Devonport. While the KPMG review 'found that there is scope to improve, but not materially change the current emergency response arrangements' they suggested that the 'North-West region should be subject to a more detailed risk-to-response analysis using the proposed AS4360 framework' (KPMG, 2009, letter to TFS). It is unclear as to whether the TFS has proceeded with this recommendation.

Researchers were provided with information on a number of specific incidents (Table 8.1) extracted from AIRS, that demonstrate that the TFS is not able to provide an adequate response to incidents in the North-West of Tasmania on all occasions. The Standard Operating Procedures require a two truck response for Aged Care alarms and structure fires. The responses to Aged Care alarms, in the incidents recorded in Table 8.1, indicate that the standard has not been met. This is particularly concerning in view of the recent fire in an aged care facility in Western Sydney where several lives were lost. In the case of Ulverstone only

one truck attended the three incidents. Of the three incidents in Devonport the response to back-up the career crew was: 3 volunteers; 3 volunteers and no volunteers.

There was no full first responding crew to a structure fire in Railton on 22 August 2011. Three local firefighters took 7 minutes to start responding while another crew member took 12 minutes to start responding. Prior to the local crew responding Latrobe was paged (6 minutes after the original page for Railton) and they started to respond four minutes later – 10 minutes after the initial page to Railton.

Sheffield was called upon to back-up Railton for structure fires on 22 August and 7 October. On the first occasion, only two crew responded; one in a heavy tanker and the second in a private car. On the second occasion, 4 crew members responded, however, 2 crew took 15 minutes to start responding in a heavy tanker, one responded in a light tanker and one in a car. A crew of 2 from Wesley Vale started to respond after 7 minutes to an alarm at the school during a school day.

Table 8.1 Response information for incidents in 2011

Fire Station	Date	Incident No.	Details	Response
Devonport	10-Aug-11	#185458	Aged Care alarm	Only 2 volunteers attended the station
	13-Aug-11		Structure fire	Only 3 volunteers attended
	28-Sep-11	#186801	Aged Care alarm	No volunteers attended
	7-Oct-11	#187042	Aged Care alarm	Only three volunteers attended the station
Forth	13-Aug-11	#185564	Vegetation fire close to power lines at Leith	Response time of 19 minutes for crew of 1 in truck and crew of 1 in car
Melrose	18-Oct-11	#187340	Excavator fire	Melrose took 12 minutes to respond with a crew of 2
Port Sorrell		#186818	Alarm at school on school day	Crew of 2 took 7 minutes to start responding
Railton	22-Aug-11	#185796	Structure fire (House fully involved)	Railton – a medium tanker with a crew of 3 took 7 mins to start responding Railton –a light tanker with a crew of 1 took 12 mins to start responding Latrobe paged 6 minutes after Railton and started responding 4 minutes later
Sheffield	7-Oct-11	#187020	Structure fire at Railton (House fully involved)	Sheffield – a heavy tanker with a crew of 2 took 15 mins to start responding Sheffield crew of 1 in a light tanker and 1 in car
	22-Aug-11	#185796	Structure fire at Railton (House fully involved)	Sheffield – a heavy tanker with crew of 1 plus 1 crew in car
Tarleton	19-Oct-11	#187378	Vegetation fire near power lines at Leith	No crew responded
Ulverstone	20-Jun-11	#18414	Aged Care alarm	1 truck only
	7-Aug-11	#185385	Aged Care alarm	1 truck only
	15-Aug-11	#185609	Aged Care alarm	1 truck only
Wesley Vale	29-Sep-11	#186818	Alarm at school on school day	Crew of 2 took 7 mins to start responding

Source: Data supplied by the UFU, Tasmania Branch

We note that in some of the examples provided above a more timely response could have been achieved if the Devonport career brigade was called out at the same time as the volunteers. In the case of the excavator fire in Melrose, a Devonport crew could have responded in less than 10 minutes. Similarly, Devonport could have responded with a crew of four to the vegetation fire at Leith in around 10 minutes which is around half the time that it took two crew members to respond from Forth.

This small sample of incidents indicates that there appears to be a genuine basis for concerns regarding the adequacy of response, both in relation to the time taken and the weight of response in parts of Tasmania. These issues require a serious examination in order to systematically identify the issues and consider appropriate responses that may include:

- An increase in the number of career crews able to respond more quickly than volunteers;
- In situations where career crews continue to experience difficulty with back-up from volunteers an option may be to increase the size of career crews to 5 so that an incident controller would be available at all times.

The TFS has an obligation under the Workplace Health and Safety Act 1995 to ensure the safety of firefighters. Section 9, Part 3 of the Act states:

> (1) An employer must, in respect of each employee employed by the employer, ensure so far as is reasonably practicable that the employee is, while at work, safe from injury and risks to health and, in particular, must –
>
> (a) Provide and maintain so far as is reasonably practicable –
>
> (i) A safe working environment: and
>
> (ii) Safe systems of work; and
>
> (iii) Plant and substances in a safe condition; and
>
> (b) Provide facilities of a prescribed kind for the welfare of employees at any workplace that is under the control or management of the employer; and
>
> (c) Provide any information, instruction, training and supervision reasonably necessary to ensure that each employee is safe from injury and risks to health.

The international literature illustrates the impact of insufficient numbers of firefighters on fatigue and the risk of injury. The incidents in North-West Tasmania in the latter half of 2011 (Table 8.1) demonstrate that, despite the KPMG review in 2009, serious inadequacies persist in the weight of response in this region. While we have not examined data from other areas of Tasmania, there is an urgent need to analyse state-wide data to determine the current adequacy of response. This analysis could also be extended to include competencies of individual firefighters as recommended in the Victorian JCK methodology, to provide a more comprehensive measure of adequacy.

Issues related to reliance on volunteer firefighters

Volunteer firefighters make an economic contribution to the Australian economy that has been estimated at $3 billion per annum (Birch, 2011). While all states provide data on the number of volunteer firefighters, it is difficult to judge the extent to which these volunteers are active members. As Birch (2011: 16) notes:

> At times, brigades and fire agencies appear to have developed an accumulation of members who were registered but no longer active.

Notwithstanding uncertainty around volunteer firefighter numbers, extensive research conducted by the Bushfire CRC established that there are common issues identified by fire services in Australia in regard to the number of volunteers.

- The number of volunteers has declined over the past few decades;
- It is difficult to recruit volunteers in newly developed urban fringe communities;
- It is difficult to get adequate numbers of volunteers to respond during business hours; and
- Small rural communities are characterised by declining and ageing population.

The decline in the number of volunteers over recent decades is attributable to a number of factors, particularly economic restructuring from the late 1970s that included significant changes in industry structure and employment conditions – the rise in part-time and casual employment, increased precariousness of job tenure and the like (Birch, 2011). In addition there has been a continuing decline in rural areas accompanied by population ageing due to farm consolidation, a decline in birth rates and in-migration, while younger cohorts have increasingly migrated to urban areas to take advantage of higher education and employment opportunities. Moreover, younger adults are less likely to volunteer due to the pressure of work and family commitments. Those who do voluntary work are more likely to be involved with activities related to their children (sport or school activities) rather than firefighting.

The level of participation by volunteer firefighters is highly variable and has been identified by fire services as an ongoing issue. Many volunteers have restricted availability to respond to incidents due to work commitments or working away from the area. Workers may also be restricted due to employer's attitudes, particularly those working in casual or insecure employment. Similarly, work and family commitments may inhibit availability for training (Birch, 2011). The variability of training participation for volunteers in Tasmania was noted in Section 2. In addition, McLennan and Birch (2005) estimated that the TFS would lose over one-third of the 2,969 operational volunteers if mandatory fitness standards were introduced.

These issues ultimately impact adversely on the operational capabilities of volunteer brigades. It would be unreasonable to increase the workload, or expect more from volunteers given their employment and family commitments. To do so would unfairly impinge on any family and work, life balance.

Response times for volunteers are necessarily longer than for career brigades that are on duty at the fire station when incidents are reported. The fact that many volunteers are not available to attend a particular incident means that, in addition to longer response times, there is also a high probability that the weight of response will be inadequate on occasions. Reliance on increasing the number of volunteer firefighters to improve coverage may result in a false sense of security. Regardless of how many volunteers there are, deployment depends on availability at the time incidents occur. The incidents referred to in the previous section demonstrate that there is cause for concern regarding both response times and the weight of response in parts of Tasmania.

8.6 How many firefighters would Tasmania need to reach the national average?

In Section 7 we noted that Tasmania has a significantly lower number of firefighters per 100,000 population than the national average or some other states despite having a higher incidence of fire. A detailed consideration of resourcing is beyond the scope of this research. This section considers how many firefighters Tasmania would need over the next decades if resources were increased to conform with the national average or resources currently deployed in NSW and Victoria.

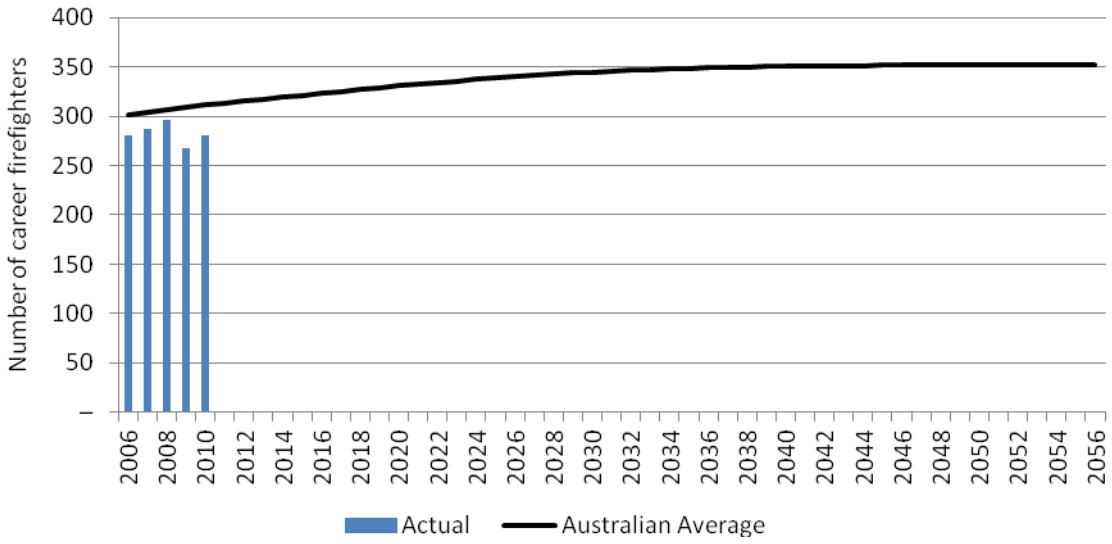
The columns in Figure 8.9 show the actual number of career firefighters in Tasmania from 2005-06 to 2009-10. In 2010 Tasmania had 280 career firefighters. However, the *Tasmanian Fire Fighting Industry Employees' Industrial Agreement 2010* states:

> The total number of uniformed career personnel covered by the Award is to be no fewer than 285.

The solid line shows how many firefighters Tasmania would need to bring resourcing up to the national average (the average from 2005-06 to 2009-10) over the period to 2056 based on projected population growth (ABS, 2008). The gap between the columns and the line represents the shortfall of resources in Tasmania relative to the national average. In 2009-10, Tasmania had 280 career firefighters. If resources were increased to match the national average per 100,000 population Tasmania would have required 311 firefighters. An 11 per cent increase in the number of career firefighters would be required to bring Tasmania up to the national average ratio. Therefore, there is a prima facie case to suggest that Tasmania is significantly under-resourced in terms of the number of career firefighters.

Projected population data suggests that Tasmania would need to increase the number of career firefighters to 352 by 2056 in order to achieve the national ratio of career firefighters per 100,000 population.

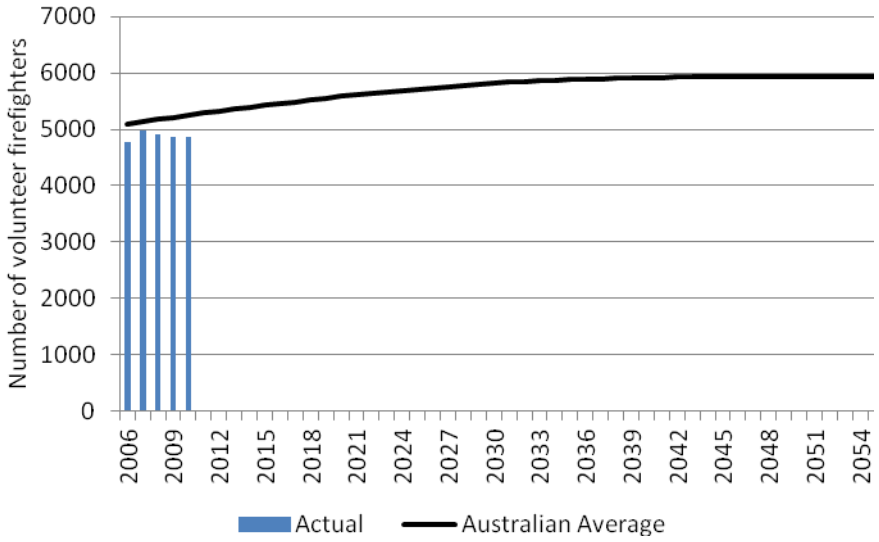
Figure 8.9 Projections of career firefighters for Tasmania to 2056



Source: SCRGSP, 2011; ABS, 2008

A similar exercise using the ratios for volunteer firefighters reveals that Tasmania has significantly less volunteers than the national average. The projections are shown in Figure 8.10. The columns represents the number of volunteers in Tasmania and the line represents the number of volunteers Tasmania would need to meet the national ratio (the average between 2005-06 and 2009-10). The gap indicates that Tasmania operates with fewer volunteers. In 2009-10 Tasmania had 4,861 volunteers compared to the 5,250 that would be required to match the national average ratio per 100,000 population. Therefore, Tasmania would need to increase the number of volunteer firefighters by 8 per cent. By 2056, Tasmania would need to have 5933 volunteer firefighters to match resourcing levels at the national average.

Figure 8.10 Projections of volunteer firefighters for Tasmania to 2056



Source: SCRGSP, 2011; ABS, 2008

8.7 The impact of Climate Change

The evidence of rising global CO_2 levels causing a rise in surface temperatures around the world is reflected in observed phenomena such as melting glaciers, rising sea levels and changes in plant and animal distributions consistent with climate change modelling and accepted by governments in all developed nations as necessitating governmental action on many fronts (Williams et al, 2009:14). These include efforts to constrain growth in the release of carbon and greenhouse gasses, to eventually reverse the process that is largely accepted as causing global warming, and actions aimed at dealing with the consequences of still rising temperatures. The Tasmanian government has acknowledged its responsibility (along with Commonwealth and Local governments) to meet the challenges of climate change, including:

> Providing an adequate and appropriate emergency response to more frequent and intense events, such as bushfires, floods and storms, and assisting communities recover from such events. (TCCO, 2008:15)

The Commonwealth Department of Climate Change and Energy reports that climate change affects fire regimes by changing precipitation patterns, causing higher temperatures and increased CO_2 giving rise to greater vegetation growth (hence fuel). Higher temperatures also dry the fuel load making it more combustible, which is exacerbated by drought conditions. Climate change also increases the probability of extreme fire weather days (high temperature, low humidity and high winds) (DCCEE, 2011:40-42).

Forecasts published over the past decade report that the Forest Fire Danger Index (FFDI), derived from a measured 'drought factor' (based on daily rainfall and period elapsed since the last rain), air temperature, wind speed and relative humidity, is trending toward substantially increased fire risk across South Eastern Australia as the present century unfolds, with inland Northern New South Wales and Victoria anticipated to be worst affected. Earlier studies suggested climate change will have a minimal fire-risk impact on Tasmania, predicting that it would become warmer and wetter (Lucas, et al, 2007:7; Hennessy et al, 2005:5,11), with increased rainfall more likely to offset the effects of rising temperature to marginally reduce annual burn area (Nicholls and Lucas, 2007).

More recent studies highlight the complexity of forecasting the interaction effects of changing weather patterns on Tasmanian biosystems, given the specific characteristics of its flora and fauna and geography. While the coolest and wettest of Australian States, it lies in the path of the Roaring Forties from the West, bringing cold Antarctic air across its sparsely populated western plateau (causing high precipitation), which in turn leaves a rain shadow across its Eastern, more settled half (Bryant, 2008:5).

Williams et al (2009) identify four key drivers of fire regimes as:

> (i) the rate of vegetation (and hence fuel) growth; (ii) the rate at which fuels dry; (iii) the occurrence of suitable fire weather for the spread of fire across the landscape; and (iv) ignition (Williams et al, 2009:5).

Increased humidity coupled with periodic drought could pose a more serious cocktail than initially reckoned given the complex effects of climate change on fuels: the interplay between heightened CO2 (increasing plant growth) and heightened drought (decreasing growth while also decreasing plant moisture) are not adequately modelled as yet (Williams et.al, 2009:3). While Tasmania does not experience the dryness of many parts of the Australian mainland, it does experience prolonged periods of below average precipitation. Citing Bureau of Meteorology data, White et al (2010) note:

> The 1914-15 drought greatly affected Tasmanian crops and livestock, the 1965-68 drought set the scene for disastrous bushfires around Hobart in 1967, and the 'short but sharp' droughts of 1982 and 1983 were caused by record low precipitation in parts of the state. For the 13-year period April 1997-March 2010 and the eight-year period April 2002–March 2010, much of Tasmania has been affected by serious to severe precipitation deficiencies, especially in the north of the state (White et al, 2010:49)

Noting the earlier forecasts downplaying the impact of climate change on Tasmania, the Department of Primary Industries Parks Water and Environment (DPIPWE) reported:

> However, many climatic factors that could have significant ecological impacts have not yet been modelled. For example drier summers in western Tasmania (even with an increase in total annual rainfall) could lead to an increased number of severe fire weather days. There are some apparent changes in the past 20 years in both weather and fire activity that may be indicative of longer term trends. For example, Hobart weather data indicates that the number of days in spring with Forest Fire Danger Index values of >40 has increased 400% in the decade 1997-2006 compared to 1987-1996. It is extreme fire weather days such as these when the majority of the total annual area gets burnt (DPIPWE, 2010:12).

Noting that as recently as 1986, lightning strike was thought not to be strongly associated with fire incidence in Tasmania, the DPI report:

> In the decade of fire seasons 1991- 2000, unpublished Tasmanian Parks & Wildlife Service records show 14 lightning fires were recorded on reserved land with a total area burnt of 11,245 ha. In the seven fire seasons from 2000-2001 onwards there were 55 lightning fires and 160,698 ha of reserved land burnt. Lightning is now the major cause of wildfire in the TWWHA (DPIPWE, 2010:12).

Climate change also has consequences for the determination of fire risk beyond the traditional protection of lives and property. While its forests constitute a potential carbon sequestration asset to Tasmania 'some species may be unsuited to future conditions as the climate becomes drier and warmer, and the threat of disease and wildfire increases' (TCCO, 2008:12;).

> Tasmania has vast stores of carbon in the soils and vegetation in our world class reserve system and public and private forests. While almost 50 per cent of our native forests are protected from commercial activity, they are not safe from climate change. These carbon stores are particularly vulnerable to wild fire in an environment in which temperatures are higher, rainfall patterns are changing, and there are a growing number of days featuring strong winds and lightning (TCCO, 2008:20)

The Tasmanian government considers protecting these carbon stores from 'catastrophic natural events and uncontrolled release of the carbon they contain' one of the most significant contributions it can make to the global effort to control greenhouse emissions (TCCO 2008:20). Important as this is for the world environment, the challenge of fulfilling this responsibility will be great. For example, King et al (2006) explore the trade-offs between the necessity for prescribed burning to reduce fuel loads, to minimise the greater potential carbon release in higher intensity unplanned fires, and biodiversity preservation objectives. Concentrating on button grass areas in South Western Tasmania, they recommended annual burning of between

> 5 and 10% and a deterministic spatial pattern, are optimal for meeting multiple management objectives in south-west Tasmania. These include the identified general objectives of reducing fire size, incidence, and areas burnt, and the specific ecological objectives of reducing the fire risk to fire-intolerant vegetation and orange-bellied parrot habitat, and maintaining biodiversity. Although deviations to higher or lower treatment levels may be advantageous for some of these objectives, they are invariably less favourable for others (King et al, 2006: 538).

Williams et al.(2009:8) also found in regional case studies in four mainland regions of Australia that management of fire in areas of biodiversity conservation will become more complex, given the difficulty of predicting interactions between climate change, fire and biodiversity. Fire has profound impacts on other biological systems, apart from the species it directly threatens. The DPI report on the consequences of successive catastrophic fires in 2001 and 2007 that destroyed important peat moss to two metres over a large area:

> This is likely to change local hydrology and lead to long term impacts to the associated wetlands. These fires were the result of dry lightning strikes, which evidence suggests are occurring more frequently in Tasmania, along with unseasonal dry periods that had allowed the marshes to dry out. (DPIPWE, 2010:28)

It points to the special sensitivity of some important alpine flora species to climate change, such that 'extreme events such as wildfire and drought could have a very significant impact' (DPIPWE, 2010: 32). Climate change is also likely to promote shifts in the distribution of species, leading to the introduction of exotic species that can compromise the fire-resilience of an ecosystem.

> Sphagnum peatlands of Tasmania provide an important carbon store. Research on Sphagnum communities at Mt Field and on the Central Plateau over the past 25 years has revealed that these communities are being invaded by species such as pineapple grass (Astelia alpina) and woody shrub species, as illustrated. This may lead to increased fire risk with increased fuel loads and changed hydrology (DPIPWE, 2010: 36)

Tasmania hosts fire sensitive rainforest, with large areas of conifers and deciduous beech lost to fire. 'One third of King Billy pine populations have been eliminated by fire in the past 100 years. Warmer and drier conditions are likely to lead to an increase in both fire frequency and fire intensity' (DPIPWE, 2010: 39).

Climate change constitutes a critical challenge for the managers of fire risk in Tasmania, and will require an appropriate allocation of human and material resources to address, as the Tasmanian government has acknowledged (TCCO, 2008:25). Though increased prescribed burning has a clear role to play, rising predicted fuel loads, biodiversity and carbon sequestration objectives will require its careful strategic application, taking into account Tasmania's variable ecosystem sensitivity (Williams et al, 2009). Increasing the level of prescribed burning may potentially be an effective management tool, but could result in more burnt landscape overall, greater carbon emissions and a reduction in carbon stores (King et al, 2011:573). While needing to be systematically planned and applied, and generally undertaken with greater than present frequency, safe windows of opportunity for prescribed burning may also be reduced by climate change (DPIPWE, 2010:58). This implies more crews conducting small, carefully researched (in relation to biological impacts) and managed prescribed burns more often.

The evidence points to the necessity for more people on the ground, doing more to protect people, property and the environment as a consequence of the challenges Tasmania faces with climate change. King et al (2011) state explicitly, given both the necessity and the potential adverse effects of increased prescribed burning, itself a resource-intensive activity:

> An alternative management option for reducing fire activity is to increase suppression, and this was simulated in our study as an enhanced level of initial attack success. Our results indicated that enhanced levels of initial attack beyond historical levels can reduce climate change effects on fire dynamics. The inclusion of enhanced initial attack treatments resulted in smaller mean annual areas burned by unplanned fires (14% reduction for the historical climate, 12% reduction for the B1 climate and 8% reduction for the A1FI climate), and reductions in the mean annual fire incidence (approximately 17% reduction for both 2070 climates) (King et al, 2011:573).

All studies tend to emphasize the complex character of the issue and the need for more research and modelling. Nevertheless, the emerging picture for Tasmania, acknowledged by government agencies including Premier and Cabinet, is that while it is and will possibly remain the wettest state for the foreseeable future, Tasmania's vulnerability to fire (on various fronts) is aggravated by the way emerging trends of climate change interact with its particular weather patterns, the characteristics of its biomass and its carbon sequestration responsibilities. While fire abatement undertaken for traditional reasons (protecting life and property) will face new challenges because of climate change, an enhanced commitment to managing fire regimes will also become a more critical component in strategies to protect biodiversity and contain carbon emissions (Williams et al, 2009:14) .

8.8 Conclusion

This section has provided a more detailed examination of the performance of the TFS. The types of incidents and causes of fires were shown for recent years. Data on response times by region revealed a spatial gradient with response times increasing with remoteness. While fatalities from structure fires have been declining in recent years there have been more fatalities in rural areas than in the more populous urban areas that are covered by career brigades.

A consideration of the adequacy of services is necessary due to the greater risks faced by the Tasmanian population that is composed of a higher proportion of vulnerable communities and a higher proportion of fire incidents (by 100,000 population), combined with longer response times and higher death rates. In contrast to some other states Tasmania does not specify a "standard of cover".

A review by KPMG into the adequacy of fire services in 2009 recommended that the TFS develop a more transparent approach top risk assessment and resource allocation, a more flexible approach to assignment areas and ensure that volunteer crews provided adequate back-up to career crews, and noted problems relating to the lean management structure in the North-West region.

A comprehensive analysis of response times and weight of response is beyond the scope of this study. However, a limited case study of the North-West, consisting of an examination of a number of incidents in the past 6 months demonstrates that action taken by the TFS in response to the findings of the KPMG review has failed to deliver adequate responses. This data vindicates the concerns expressed by the UFU in a submission to KPMG in 2009 that included: failure to comply with Standard Operating Procedures relating to the number of firefighters and equipment used in responding to incidents; the need for extending the response area for career brigades to improve the standard of cover; and increasing resources in the North-West to mirror the arrangement in Launceston. There is, therefore, evidence that the TFS is not currently providing an adequate response in the North-West. This may also be the case in other parts of the state and requires further investigation by the TFS.

The comparison of career and volunteer resources available in Australia in Section 7 demonstrated that Tasmania has lower levels of resources than the Australian average despite higher risk factors associated with the higher proportion of lower socioeconomic groups and climate and a higher rate of structure fires. Tasmania would require additional firefighters to achieve the national average; an increase of around 11 per cent for career firefighters and around 8 per cent for volunteers.

Additional resources will also be required in response to the impact of climate change. These include resources to more effectively manage predicted increased fuel levels through more frequent and strategically targeted prescribed burning. A diminishing safe annual window of opportunity for prescribed burning implies more skilled staff, trained in biodiversity protection and carbon awareness, undertaking planned burns across Tasmania on days when it is safe to do so. Evidence also points to an increasing need to mount more effective initial attacks to prevent critical biomass and biodiversity damage and carbon release by intense unplanned fires, given the declining returns to scale of prescribed burning alone (King, 2011).

Actual resource requirements can only be determined through a thorough evidence based analysis.

Recommendation 3

The TFS should undertake a thorough review of its risk management model and investigate its current performance of emergency response reflected in the AIRS data. The object of such a review would be to use an evidence based approach to determine how their service can achieve standards of cover comparable to those of the mainland states. The review would need to also consider the enhanced capability the TFS needs to develop in the light of emerging understandings of the role of fire suppression in fulfilling the Tasmanian government's biodiversity protection and carbon sequestration objectives.

Recommendation 4

The TFS should use the review of performance to implement staffing strategies to guarantee adequate responses in future, including consideration of:

a. Reconsidering the boundaries that career brigades respond to in order to utilise these highly trained and response-ready firefighters when this is practical. As we noted above career brigades could have responded with full crews to some of the incidents where responses of volunteers were inadequate (Table 8.1).

b. Increasing the number of fire stations with career crews, perhaps in line with the UFU suggestions to the KPMG review in 2009

c. Recruitment and training of additional volunteers. This option is somewhat restricted by labour force changes affecting the intensity of work and the resultant reduction in volunteering generally throughout Australia. It is further exacerbated in rural areas due to the drift of younger age cohorts to urban areas for higher education and employment. It would be unreasonable to increase the workload, or expect more from volunteers given their employment and family commitments. To do so would unfairly impinge on any family and work, life balance. Recruitment of additional volunteer firefighters may provide a false sense of security due to limited availability and only partially addresses the problem of the longer assembly time of volunteer crews.

d. Review the use of retained volunteer fire-fighters due to the inconsistency of results in terms of response times and the numbers of crew in attendance.

Recommendation 5

The current risk-management and deployment strategy (and target standards) of the TFS should be published prior to affecting any cuts to the already under-performing service.

9 Conclusion and recommendations

The Tasmanian Fire Commission and its operational arm, the TFS provides a vital service to the people of Tasmania. The TFS responsible for providing an effective emergency response, assisting the community reduce the incidence and impact of fires and enable people to act safely in the case of fire incidents. The Tasmanian Government has a responsibility to ensure that the TFS has sufficient funding to achieve these objectives and minimise the social, economic and environmental impact of fire in Tasmania. This report has examined the implications for the TFS of the reduction in funding announced in the 2011-12 Tasmanian Budget and the performance of the TFS more generally.

9.1 Proposed Budget cuts

Funding reductions in the Budget included a reduction of $1 million per annum from the Tasmanian Government and a reduction in the indexation rate of the Fire Service Contribution from 5 per cent per annum to 3 per cent. The Fire Service Contribution has no impact on fiscal outcomes since it is a levy on landowners that is collected by local governments. The savings to landowners are trivial (between $1.04 and $4.66) but the impact on service provision by the TFS is significant.

The TFS has already undertaken a range of savings strategies including freezing recruitment of career firefighters part way through the recruitment process, in anticipation of the Budget cuts. A range of other cost cutting measures have been implemented (vacancy control and travel restrictions), or are under consideration.

Tasmanians receive arguably the poorest standard of fire cover in Australia, evidenced by below average numbers of career and volunteer firefighters, slower response times, higher fire death rates, lower rates of fire containment to the room of origin and higher costs from fire damage. At the same time the need for fire services is higher in Tasmania which has a high rate of fire incidents, particularly house fires which are the most life threatening, compared to other states.

In this environment any reduction in the capacity of the TFS through the proposed cost cutting measures is ill advised.

Recommendation 1

The Tasmanian Government should restore the funding that was cut in the 2011-12 Budget and increase the indexation rate for the Fire Service Contribution as an interim measure until an accurate measure of funding needs is determined.

While TasFire Training acts as a commercial arm of the TFS by providing a unique suite of fire training courses, the organisation is an integral part of the TFS and makes a significant contribution to achieving the goals of the TFS. The proposal to close TasFire Training would remove a reserve capacity that is currently available to bolster the number of operational firefighters when required. Unlike a commercial training provider TasFire Training makes significant social contributions:

- Advice to industry on a range of issues including employers statutory obligations; and
- Reductions in course fees for community organisations with limited funding.

Completion of fire awareness training also makes a direct contribution to the TFS objective of enabling people to act safely in the case of fire incidents, since trainees are able to utilise this knowledge on the jobs and also within their communities.

Specialised training of ERTs provides an effective first response capacity for heavy industry that is frequently located in remote areas. This capability provides a direct economic benefit by reducing fire damage to buildings, plant and equipment and minimises the potential job destruction that would occur if a total loss situation occurred.

Recommendation 2

Prior to any decision on the future of TasFire Training, a comprehensive review of the operation should be undertaken to investigate the full contribution of the organisation to the Tasmanian Economy and community, as well as the impact of the closure in relation to: the level of fire awareness and the ability of industry and the wider community to respond appropriately; the cost of fire; and the operational capabilities of the TFS.

A review should include consideration of:

Factors affecting revenues: 1) The impact of competition from the private sector including an examination of all competitors, the courses offered and course fees; 2) How successful marketing campaigns have been and development of new strategies; 3) The financial impact of the cessation of Combined Space and Working at Heights training; and 4) consideration of expanding the number of courses offered including reinstating confined space and working at heights training, examining the potential for joint ventures and tendering for national contracts.

Factors affecting costs: 1) The staffing profile and staff utilisation; 2) non-salary costs including internal charges by the TFS

Other factors: 1) The extent of community benefits; 2) Opportunities to expand the community contribution by involvement in TFS programs to reduce the risk of fires such as Project Wake Up; 3) The value of maintaining a reserve firefighting capacity in the form of TasFire Training staff who can be called upon as needed; 4) The economic contribution to industry of employees who have completed training with TasFire Training- minimising fire risks, loss of life and property damage – by reducing disruption to industry and employment

9.2 Standard of cover

The Tasmania Fire Service needs to significantly improve its performance or justify why Tasmanian lives and property are less worthy of protection than those of mainland Australians.

While better building codes, including use of fire resistant materials, smoke and fire alarms, water sprinkler systems, public education, industry training and other factors of community resilience are slowly bringing down the rates of fire-related deaths and property damage around the developed world, an effective and responsive fire service is still crucial to maintaining a civilised level of community protection from fire.

International literature clearly indicates that to save residential and other structures from total destruction, firefighters must arrive in time to keep the fire confined to its room of origin. This generally requires them to be on the fire scene within around 8 mins from the time the alarm is raised. The literature is also clear that an initial response force must be of adequate strength to apply sufficient water and to rescue and resuscitate occupants, and to do so

without jeopardising the health and safety of the attending fire service personnel. The Tasmania Fire Service is arriving too late on average, and its volunteer crews too often have less than the internationally recognised minimum of four staff in attendance. As a consequence, lives and property are being lost, and firefighters (career and volunteer) are being exposed to more danger than the community has any right to expect of them.

Tasmanian career firefighters have long called for an objective 'science based' deployment strategy that ensures safe working standards and provides uniform standards of community fire protection comparable to those enjoyed by mainland Australians. This is because their concerns about deployment levels, based on their frontline experiences, have been too often dismissed as special pleading by a group with a material interest in the matter. However, their perception of an understaffed service, failing to provide their community with the level of service it should have, are borne out by the comparative performance data reported for more than a decade by the Productivity Commission.

In previous reviews the Firefighters Union have, for example, called for specific deployment standards to be adopted, including:

- A minimum of 2 appliances responding to cinemas, most hotels and nursing homes, as well as two storey buildings, and buildings more than 300 sq metres with an identified level of human occupancy.
- A minimum 8 firefighters for structure fires – 1 incident Controller/Safety Officer, 1 Operations Manager, 2x in and 2x out, 1 pump operator (and breathing apparatus monitor) and 1 firefighter to get water in.
- That these standards should apply in all communities across the state.

While they consider these standards necessary for preserving firefighter health and safety, they also reflect a professional understanding of what the effective management of firefighting and rescue operations in these sorts of structures require. They are similar to those recommended for comparable developed countries (e.g. the USA).

Review current deployment strategy.

Given the absence of a publicly available detailed account of the TFS deployment strategy, this study cannot determine whether or not TFS is making the best use of the resources it has to work with. We assume that it is run by competent and dedicated people applying state of the art risk-management techniques to the deployment of fire fighting resources, and so we conclude from the standard of its performance that the resources it has to work with are insufficient.

Recommendation 3

The TFS should undertake a thorough review of its risk management model and investigate its current performance of emergency response reflected in the AIRS data. The object of such a review would be to use an evidence based approach to determine how their service can achieve standards of cover comparable to those of the mainland states. The review would need to also consider the enhanced capability the TFS needs to develop in the light of emerging understandings of the role of fire suppression in fulfilling the Tasmanian government's biodiversity protection and carbon sequestration objectives.

Staffing composition

Any review that seeks to improve response times must consider the relative proportions of career and volunteer firefighters. Volunteer crews face a number of constraints in responding to incidents. First, they are not on station when an emergency call is received so that, unlike career crews, additional time elapses while they travel to and assemble at the fire station. Second, they may be working in jobs that are some distance from the station which may involve additional travel time or prevent them from responding. Volunteer crews thus often face the dilemma of delaying departure, or leaving with insufficient personnel, or both. The TFS is aware such insufficient responses occur frequently (both in terms of response time and weight of response). Rather than ignoring them, these occurrences need to be thoroughly investigated and strategies implemented to guarantee more adequate responses in the future.

Recommendation 4

The TFS should use the review of performance to implement staffing strategies to guarantee adequate responses in future, including consideration of:

a. Reconsidering the boundaries that career brigades respond to in order to utilise these highly trained and response-ready firefighters when this is practical. As we noted above career brigades could have responded with full crews to some of the incidents where responses of volunteers were inadequate (Table 8.1).

b. Increasing the number of fire stations with career crews, perhaps in line with the UFU suggestions to the KPMG review in 2009

c. Recruitment and training of additional volunteers. This option is somewhat restricted by labour force changes affecting the intensity of work and the resultant reduction in volunteering generally throughout Australia. It is further exacerbated in rural areas due to the drift of younger age cohorts to urban areas for higher education and employment. It would be unreasonable to increase the workload, or expect more from volunteers given their employment and family commitments. To do so would unfairly impinge on any family and work, life balance. Recruitment of additional volunteer firefighters may provide a false sense of security due to limited availability and only partially addresses the problem of the longer assembly time of volunteer crews.

d. Review the use of retained volunteer fire-fighters due to the inconsistency of results in terms of response times and the numbers of crew in attendance.

The right of the public to know their standard of cover

The lack of resources and lack of public information on local standards of cover may well be connected issues. Were Tasmanian citizens in various localities mindful of how deficient their standard of fire cover actually is, relative to that of mainland Australians in comparable circumstances, public disquiet would likely put pressure on the authorities to invest in better fire protection. Public ignorance of current TFS response standards, in terms of times of arrival from receipt of call and weight of response (personnel and equipment) by locality and incident-type, also means Tasmanians will not know where and to what extent any proposed cuts to the service will further diminish their fire protection.

In areas where fire risk is greater, with a higher prospect of multiple call-outs (during peak fire seasons), the public will face higher risks. A published ‘system of cover’, specifying the planned weight and time of response, and performance of other fire service functions, for

each locality in Tasmania, would foster a more realistic understanding of what fire protection currently exists and provide a basis for better community understanding of the resource needs of the TFS.

Tasmania need not embrace as complex or prescriptive a standard as the NFPA 1710 of the United States, which has to accommodate the different situations confronting the hundreds of individual local fire services scattered across the USA. But since the Tasmania Fire Service must already collect the required data to produce its current deployment strategy, its publication in a 'system of cover' statement that defines key standards, including staffing levels, response times, and other measures of performance, by locality, should be a straight forward exercise.

Recommendation 5

The current risk-management and deployment strategy (and target standards) of the TFS should be published prior to affecting any cuts to the already under-performing service.

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[2] Another group that requires acknowledgement here is the insurance industry, since many fire services, including that in Tasmania, derive a large portion of their revenues from levies attaching to insurance policies. These raise the price of insurance, and hence possibly lower its demand, without financial benefit to the insurance companies themselves. We note that the insurance industry funds research into the costing of fire prevention and fire service responsiveness (eg. Ashe, et.al. 2011) questioning the extent to which the community currently invests in fire prevention. Without questioning the integrity of such research, it would be natural to expect the industry to encourage lines of inquiry more likely to justify constraining growth in such levies, which a generous deployment standard would likely inflate.