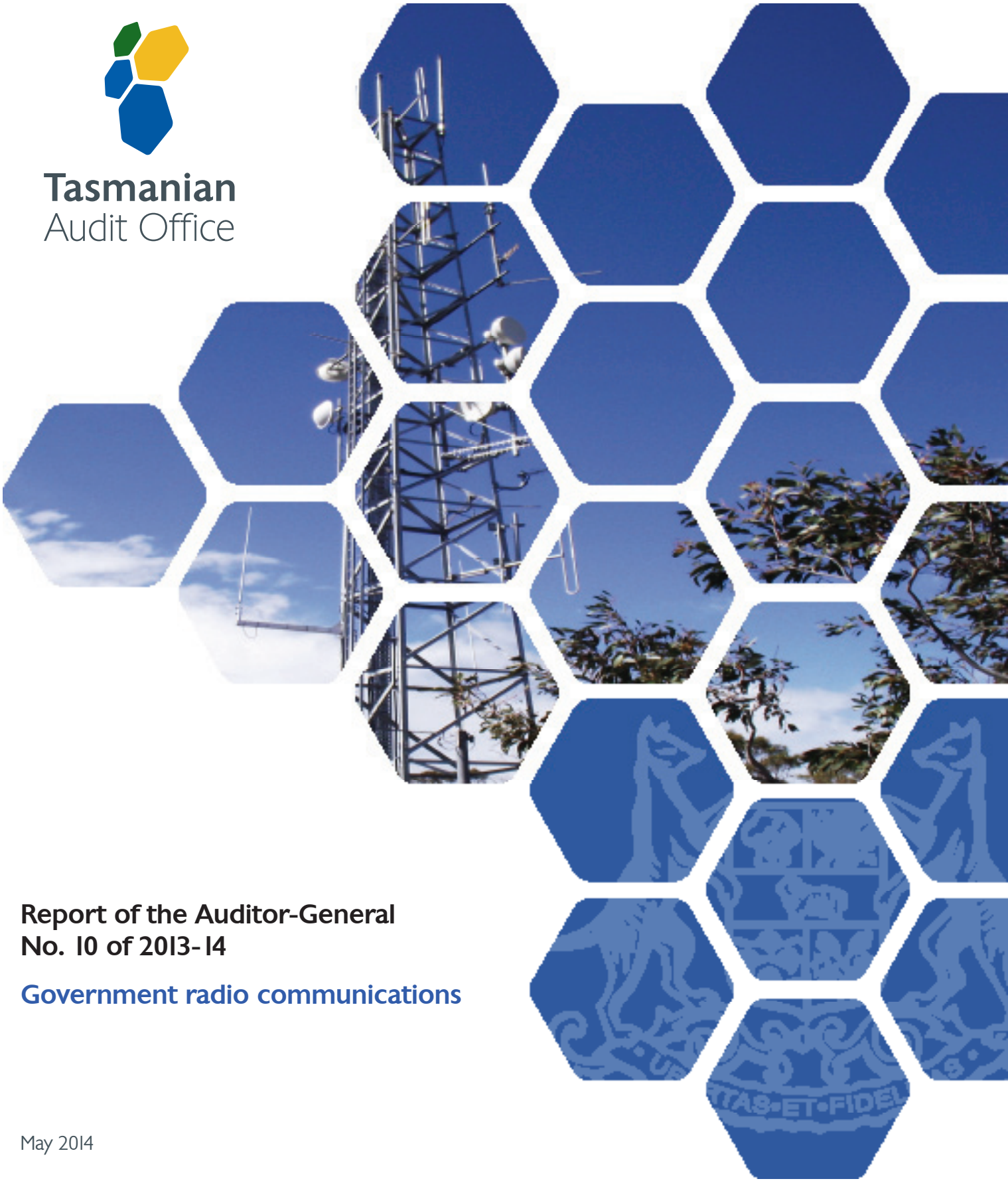
Tasmanian
Audit Office



Report of the Auditor-General No. 10 of 2013-14

Government radio communications

May 2014

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The Role of the Auditor-General

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Our primary responsibility is to conduct financial or 'attest' audits of the annual financial reports of State entities. State entities are defined in the Interpretation section of the Audit Act. We also audit those elements of the Treasurer's Annual Financial Report reporting on financial transactions in the Public Account, the General Government Sector and the Total State Sector.

Audits of financial reports are designed to add credibility to assertions made by accountable authorities in preparing their financial reports, enhancing their value to end users.

Following financial audits, we issue a variety of reports to State entities and we report periodically to the Parliament.

We also conduct performance audits and compliance audits. Performance audits examine whether a State entity is carrying out its activities effectively and doing so economically and efficiently. Audits may cover all or part of a State entity's operations, or consider particular issues across a number of State entities.

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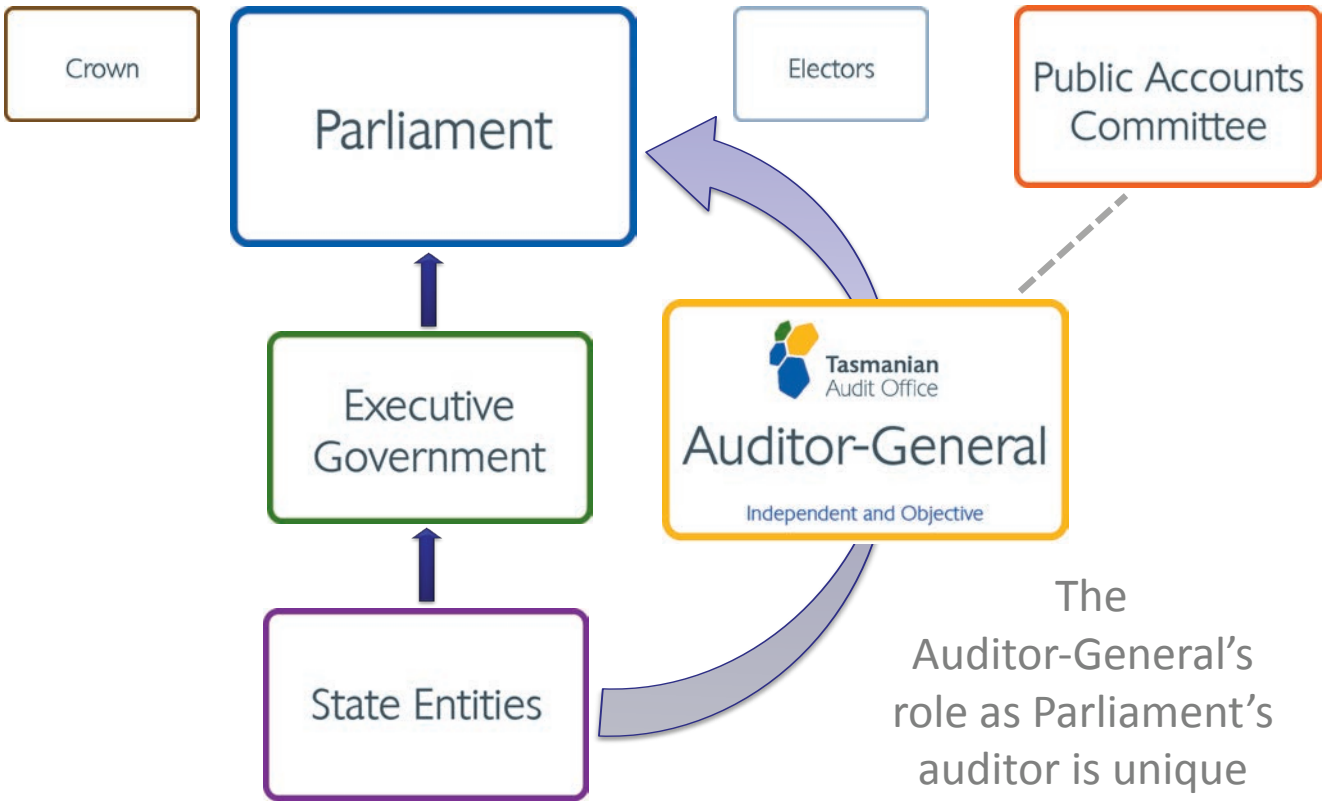
Where relevant, the Treasurer, a Minister or Ministers, other interested parties and accountable authorities are provided with opportunity to comment on any matters reported. Where they choose to do so, their responses, or summaries thereof, are detailed within the reports.

The Auditor-General's Relationship with the Parliament and State Entities



2014

PARLIAMENT OF TASMANIA

REPORT OF THE AUDITOR-GENERAL No. 10 of 2013–14

Government radio communications

May 2014

Presented to both Houses of Parliament in accordance with the provisions of the Audit Act 2008

Auditor-General's reports are available from the Tasmanian Audit Office, Hobart, although in limited supply. This report, and other Special Reports, can be accessed via our home page (http://www.audit.tas.gov.au).

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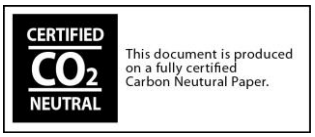

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8 May 2014

President
Legislative Council
HOBART

Speaker
House of Assembly
HOBART

Dear Mr President
Dear Madam Speaker

REPORT OF THE AUDITOR-GENERAL
No. 10 of 2013–14: Government radio communications

This report has been prepared consequent to examinations conducted under section 23 of the *Audit Act 2008.* The objectives of the audit were to assess the effectiveness of the current radio communications networks used by Tasmania Police, State Emergency Services, Tasmania Fire Service, Ambulance Tasmania, Forestry Tasmania and Parks and Wildlife Service and whether the Whole of Government radio network project is progressing towards delivering a more efficient and effective network.

Yours sincerely

H M Blake
AUDITOR-GENERAL

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Foreword

Assessing the effectiveness and efficiency of radio communication networks was always going to be a relatively technical and complex task particularly in Tasmania bearing in mind its diverse terrain, relatively dispersed population, the differing needs of users of these networks and costs associated with establishing them. This proved to be the case.

Emergencies in recent times have highlighted gaps in interoperability between our radio communications networks and instances of their lack of security and confidentiality. This performance audit confirmed existence of these difficulties and highlighted others such as the lack of reliability standards making monitoring difficult, lack of strategy, duplication of infrastructure and lack of clarity regarding operating costs.

The audit also identified that a whole of government project aimed at resolving some of these difficulties achieved little real progress despite being established in 2006. A major difficulty was finding a way to ensure that the requirements of all entities involved were met.

In making the various recommendations included in this report, I was very conscious to ensure that none of them had the potential to result in the implementation of radio communications networks that put lives at risk during emergencies. I do not believe this will be an outcome and implementation of my recommendations should result in a more strategic approach and networks that are more effective and efficient.

H M Blake

Auditor-General

8 May 2014

List of acronyms and abbreviations

ACMA	Australian Communications and Media Authority
COAG	Council of Australian Governments
DPEM	Department of Police and Emergency Management
ICT	Information and Communications Technology
Police/TESI	The radio network operated by DPEM and TESI
SES	State Emergency Services
TESI	Tasmanian Electricity Supply Industry
TFS	Tasmanian Fire Service
TGRN	Tasmanian Government Radio Network
WoG	Whole of Government

Executive summary

Executive summary

Background

To successfully undertake their core activities, emergency service organisations such as police, ambulance and the fire service rely on having access to secure and comprehensive radio networks. An effective radio network could mean the difference between life and death.

Even though Tasmania is Australia's smallest state, in both terms of population and size, it has a number of emergency services radio networks.

Over the last twenty years or so, attempts to bring all of the above users onto the same network have been tried, but without success. Since 2005, a Tasmanian Whole of Government (WoG) radio network project has been attempting to bring all four networks together. The potential benefits include rationalising the network, improving service quality and making cost savings.

A project team, established within the Department of Police and Emergency Management (DPEM) has implemented two major projects valued at over $29m. The projects were essential upgrades to the existing Tasmania Police/Tasmanian Electricity Supply Industry (TESI) network but would also be compatible with any future WoG network[1]. However, little progress has been achieved in implementing a WoG network.

The Council of Australian Governments (COAG) has recommended that single WoG digital networks across Australia be established by 2018[2].

Detailed audit conclusions

These audit conclusions are based on criteria that we developed to support the audit's objective and are aligned to the chapter structure of this Report.

Are existing radio networks performing effectively?

Maps that we produced show that the 70 MHz networks give better coverage for Tasmania's hilly terrain. However, higher frequency networks give better building penetration for signals.

[1] TESI is made up of Hydro Tasmania, Transend Networks Pty Ltd and Aurora Energy Pty Ltd.

[2] *The way ahead: Timeframes and implementation plans for the 400 MHz band*, Australian Communications and Media Authority (ACMA), December 2010, p. 1.

Whilst outage information suggests the networks were reliable, we found that the existing networks are not fully effective and efficient because:

- The Police/TESI network only operated as a secure digital network in limited circumstances. The other networks were not secure or confidential.
- There were no reliability standards or accurate records for networks other than the Police/TESI network.
- The true cost of operating some networks was unclear.
- There were interoperability difficulties between the Police/TESI and the other networks.
- There was duplication in management and infrastructure.

Is there a strategic approach to providing radio network capacity?

There was a lack of strategic planning evident in the current networks. Whilst Tasmania Police prepared businesses cases for its network upgrades, this did not occur with the other networks.

The networks comply with Australian Communications and Media Authority (ACMA) requirements at the time of the audit. However, none of the present Tasmanian networks comply with foreshadowed COAG and ACMA requirements.

Is the WoG radio network project effective?

In our view, eight years on there has been little real progress in implementing a WoG network. There were fundamental problems with the defined objectives and structure of the WoG project. Unless they are resolved, the project has little prospect of success. A possible solution to alleviate concerns held by the smaller networks would be to set up an independent WoG project team and, if necessary, take this further by establishing a separate entity to take over the existing networks and establish a WoG network.

Recommendations made

The Report contains the following recommendations.

Rec	Section	We recommend that …
1	1.2	… Tasmania Police, Tasmania Fire Service (TFS), Ambulance Tasmania and State Emergency Services (SES) investigate ways of providing secure and confidential radio communications.
2	1.3.1	… TFS and Ambulance Tasmania work together to resolve problems around congestion, particularly during the fire season.
3	1.3.1	▪ TFS, Ambulance Tasmania, Forestry/Parks and SES set reliability standards and monitor against them ▪ TFS, Ambulance Tasmania, Forestry/Parks and SES establish a register to record service outages and complaints regarding their networks ▪ all service and complaint issues are resolved within pre-set targets.
4	1.5	… until the outcome of the WoG project is complete (and interoperability is achieved), emergency services should investigate and implement methods for further improving interoperability.
5	1.6	… duplication of infrastructure be costed and taken into account when considering whether to proceed with the WoG network.
6	2.2.2	… network managers develop and document strategic plans for the management of their radio networks.
7	2.3	… network managers produce business cases for all major upgrades.
8	3.2.3	… stakeholders involved with the WoG radio project re-engage positively to ensure a solution to the current impasse is achieved in the best interests of the stakeholders and the State as a whole.
9	3.3.1	… the WoG project's objectives should include meeting entity requirements and the consultant[3] be asked to re-evaluate the revised set of objectives.

[3] An external consultant was commissioned in 2006 by the WoG project team to provide technical advice and analysis. Subsequent updates were provided in 2010 and 2012.

10	3.3.3	… the project team become independent from any of the entities involved in the WoG network.
11	3.3.3	… government considers the establishment of a separate unit to implement and operate a WoG network if existing stakeholders fail to make significant progress toward an agreed WoG solution.

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Audit Act 2008 section 30 — Submissions and comments received

Audit Act 2008 section 30 — Submissions and comments received

Introduction

In accordance with section 30(2) of the *Audit Act 2008*, a copy of this Report was provided to the state entities indicated in the Introduction to this Report.

A summary of findings, with a request for submissions or comments, was also provided to the Minister for Police and Emergency Management, the Minister for Health, the Minister for Environment, Parks and Heritage and to the Treasurer.

Submissions and comments that we receive are not subject to the audit nor the evidentiary standards required in reaching an audit conclusion. Responsibility for the accuracy, fairness and balance of these comments rests solely with those who provided the response.

Department of Police and Emergency Management

Thank you for the opportunity to comment on the Audit Office's draft report into the audit of Government radio communications. I should indicate that this response does not incorporate any comments the Tasmania Fire Service may wish to make on the report.

I note that this audit has been challenging for your Office in a number of ways as it requires an understanding of both the existing radio communication technologies and technical concepts associated with radio propagation. I also note that an effective comparison of the efficiency of current mobile radio communication arrangements against the criteria established by the Terms of Reference has been hampered by a lack of available performance and financial data surrounding the operations of a number of the analogue networks.

As your audit reveals, the Trunk Mobile Radio Network (or TMRN) used by Tasmania Police, the Tasmanian Electricity Supply Industry (TESI) and to a lesser extent, the State Emergency Service is operated and maintained by an external service provider. It is a requirement of the current services agreement that monthly performance and network management information is supplied to DPEM and other users. The availability of performance reports, asset and network management information is a key difference between the TMRN and the existing analogue networks.

As detailed in our submissions, the TMRN has undergone two upgrades in recent years valued at $29 million in order to meet the requirements of a public safety network. These requirements (or Measures of Effectiveness) include speed of response (i.e. time to get voice connectivity), voice quality, data quality, coverage (in irregular terrain, in foliage, in street, in buildings and in restricted areas such as tunnels), time availability (network connection delays), capacity, reliability and ease of use. The TMRN has been upgraded to achieve these requirements as far as possible within budget parameters as the TMRN ultimately needs to provide for both public safety of the Tasmanian community and its radio users. I believe this is another key difference between the TMRN and the remaining analogue networks.

For reasons outlined to the Audit Office, I do not believe that the existing 70MHz analogue networks can be considered as a single ubiquitous network nor can they be directly compared to the coverage provided by the TMRN. The 70MHz networks are based on different coverage criteria to that used in the TMRN. The 70MHz coverage appears to use the transmit capability of radio sites and its capability of being received by an in-vehicle radio, whereas the TMRN coverage is designed to allow a handheld radio (not just in-vehicle radios) to talk back into the radio network from all areas in which it provides coverage. These two methods of calculating coverage are not directly comparable.

I note and accept the Audit report findings that the TMRN does not have direct interoperability with other networks. However, the TMRN is currently the only multi-agency network and therefore the benefits of the TMRN in terms of radio features, redundancy, network availability and reliability are shared amongst all users.

I am pleased to see that the Audit Report contains recommendations in relation to the need to reduce duplication in the management, costs and infrastructure associated with the current situation. This is one of the key objectives of the Interoperability (or Whole of Government) Radio Project.

Since 2005 DPEM has participated in, and more recently the Department was assigned by Budget Committee, the Chairing role of the Interoperability Project Steering Committee. The Whole of Government Project has faced a number of challenges and setbacks in recent years. The deferral of the Request for Tender in 2007 in order to acquire the former EDACS network (now known as the TMRN) and the subsequent deferral of the project in 2011 due to the budget situation and the global

financial crisis have enabled the Department to focus on implementing two upgrade projects that deliver significant improvements to the TMRN.

The TMRN was always intended to form the basis of the Whole of Government network. The upgrades of the TMRN have been strategic as they have been focused on being able to re-use as much equipment and infrastructure as possible and employ technologies that are a stepping stone to the APCO25 radio technology used in all other Australian jurisdictions. To this end, the infrastructure and radio sites used in the TMRN will be reused for the Whole of Government solution.

There is one section of the report in respect to which I make specific comment:

Section 3.3.3 of the audit report states that "Although TFS is a component of DPEM, there is no requirement for it to accept a 400 MHz digital network." It should be noted that ACMA's decision to set aside a portion of the 400MHz frequency band is a significant one as it marks the first time that all Australian jurisdictions have access to a sufficiently large set of common frequencies that will provide for national interoperability amongst all relevant government organisations. It provides jurisdictions with both the confidence and certainty to make long term strategic investment decisions about their radio communications infrastructure and solutions without needing to compete with the commercial sector for spectrum.

In conclusion DPEM is strongly committed to the Whole of Government concept and to working with other key stakeholders, to focus on delivering a whole of Government solution within the timeframes endorsed by the Project Steering Committee.

Thank you for the opportunity to comment on the report.

D L Hine
Commissioner of Police

Tasmania Fire Service

Tasmania Fire Service (TFS) welcomes your audit of this area.

South Eastern Australia, including Tasmania is recognised as one of the most bushfire prone regions in the world. Indeed Tasmania has experienced Severe to Catastrophic fire weather conditions on many occasions throughout history. Current evidence suggests that such adverse fire weather conditions are becoming more frequent.

Major emergency events are frequently followed by inquiries, coronials or Royal Commissions and the subject of radio communications performance is usually a feature. Clearly it is vital that communications systems perform adequately and are reliable. In addition there is a need and a rightful expectation that emergency services are able to integrate operations to ensure interoperability in operational responses.

Effective interoperability can be achieved in many ways. In the Australasian Fire and Emergency Services sector, interoperability is greatly enhanced through the use of a common incident management system, the Australasian Inter-agency Incident Management System (AIIMS) of which one element is the development and implementation of an 'incident specific' communications plan.

While technology developments in communications are rapidly advancing, TFS presently considers that a VHF high band (160MHz) system currently best suits our requirements given VHF's superior performance in heavily forested and mountainous terrain.

Whilst band width is set aside for a national Government move towards the UHF (400MHz) band it would be necessary to ensure that any such move by TFS would continue to provide an optimum solution across TFS communications at an affordable price.

Regardless of the frequency at which the network operates, and whether that is a single frequency or dual frequencies, it is our understanding that modern communications network systems can still provide for common infrastructure and interoperability.

TFS also supports recommendations around reducing duplication (of both effort and infrastructure), the independent governance of the WOG network, and moves to improve progress in the program in general.

We must always be mindful that while there must be an overall objective of efficiency and effectiveness; EM communications systems must be robust and reliable, to maintain and ensure user and community confidence.

Mike Brown AFSM
Chief Officer

Department of Health and Human Services

The Department of Health and Human Services (DHHS) have reviewed the report and accept and endorses each of the recommendations.

Matthew Daly
Secretary

Forestry Tasmania

Forestry Tasmania (FT) thanks you for the opportunity to comment on your draft report on Government radio communications that has addressed the following questions:

- Are existing radio networks performing effectively?
- Is there a strategic approach to providing radio network capacity?
- Is the WoG radio network project effective?

The report indicates that FT's radio network provides adequate, cost-effective coverage over the difficult terrain managed by the organisation. Of the recommendations made in the report, FT notes in particular the need for a future strategy and that FT should be a part of a Whole of Government working group that considers network requirements of all agencies in the future.

FT is comfortable that the current network can be supported for the next 10 years and welcomes any opportunity to review a Whole of Government solution that will provide a service that is similar in cost and effectiveness to the existing system.

Steve Whiteley
Chief Executive Officer

Department of Primary Industries, Parks, Water and Environment

The report fairly represents the issues and current situation in relation to the VHF radio network managed and operated by the Parks and Wildlife Service (PWS) in partnership with Forestry Tasmania (FT).

John Whittington
Acting Secretary

Introduction

Introduction

Background

To successfully undertake their core activities, emergency service organisations such as police, ambulance and the fire service rely on having access to secure and comprehensive radio networks. An effective radio network could mean the difference between life and death.

Even though Tasmania is Australia's smallest state, in both terms of population and size, it has a number of emergency services radio networks. Those networks, that are the subject of this audit, are:

- Tasmania Police, with Tasmanian Electricity Supply Industry (TESI)[4]; we refer to this as the Police/TESI network[5]
- Tasmania Fire Service (TFS)
- Ambulance Tasmania (separate network but maintained by TFS)
- Forestry Tasmania and the Parks and Wildlife Service (Forestry/Parks)[6]
- State Emergency Services (SES).

The size and complexity of the networks varies, with the Police/TESI network being the largest and busiest and also the most expensive to operate (Table 1 gives an overview).

[4] TESI is made up of Hydro Tasmania, Transend Networks Pty Ltd and Aurora Energy Pty Ltd.
[5] This network is also known as the Trunk Mobile Radio Network (TMRN).
[6] We term this the Forestry/Parks network.

Table 1: Network size and cost comparison

Network	Radios	Type	Est. current operating cost p.a.
Police/TESI	1700	800 MHz Digital/ Analogue*	$7.4m
TFS	1200	70 MHz Analogue	$1.3m
Ambulance Tasmania	270	70 MHz Analogue	$0.4m
Forestry/Parks	910	70 MHz Analogue	$0.2m
SES	230	70 MHZ Analogue	$0.2m
Total			$9.5m

Source: Consultant's report and client information[7]

*One system that can transmit in either mode

Even though the Police/TESI network and the TFS/Ambulance Tasmania have a similar number of users, the Police/TESI network has greater call volume. In addition, it requires more complex technology, which comes at a cost.

The Police Association and others have claimed that the police radio communications system is problematic because it is outdated, unreliable, not secure and operating beyond its capacity[8]. Tasmania Police's view is that, while there is always scope for improvement, recent upgrades had provided greater reliability, capacity and redundancy.

We are not aware of similar claims with respect to the other networks.

Over the last twenty years or so, attempts to bring all of the above users onto the same network have been tried, but without success. However, the Council of Australian Governments (COAG) has recommended that single whole of government (WoG) digital networks across Australia be established by

[7] An external consultant was commissioned in 2006 by the WoG project team to provide technical advice and analysis. Subsequent updates were provided in 2010 and 2012.

[8] *The Mercury*, 9 May 2012, 20 April 2012, 29 April 2013, and 17 October 2013.

2018[9]. Since 2005, a Tasmanian WoG radio network project has been attempting to bring all four networks together. The potential benefits include rationalising the network, improving service quality and making cost savings. A project team, established within the Department of Police and Emergency Management (DPEM) has implemented two major projects valued at over $29m. The projects were essential upgrades to the existing Police/TESI network but would also be compatible with any future WoG network. However, little progress has been achieved in implementing a WoG network.

In January 2013, Southern Tasmania suffered devastating bushfires that required a coordinated response from all emergency services. During this period, personnel from different emergency services worked together, often in conditions that were dangerous and where other forms of communication (such as mobile phones) were ineffective. The independent inquiry into the bushfire found that there were problems with entities not being able to talk to each other.[10]

To better understand the analysis and discussion in the Report, we have included a brief guide to the relevant terminology that we have used (see below).

Radio communications — guide to terms

Coverage:

The effectiveness of radio transmission over distance is coverage. A coverage map will show the areas where radios will be useable considering the transmission strength (i.e. power of the radio transmitter), transmission mode and the positioning of transmission towers.

Frequency:

Emergency services radio communications in Tasmania use two frequency bands in the 800 MHz and 70 MHz ranges.

After the Port Arthur tragedy in 1996, Tasmania Police and TESI moved to the 800 MHz band that has the advantage of better penetration of buildings in urban areas (regardless of its transmission mode).

[9] *The way ahead: Timeframes and implementation plans for the 400 MHz band*, Australian Communications and Media Authority (ACMA), December 2010, p. 1.
[10] *2013 Tasmanian Bushfires Inquiry*, special investigator Mal Hyde, p. 74–77.

However, a disadvantage of higher frequency bands is that the coverage area is not as good for a given transmission strength. Therefore, radio performance in rural and hilly areas may be poor or non-existent.

All of the other emergency services — TFS, Ambulance Tasmania, Forestry/Parks and SES — use the lower frequency band (i.e. 70 MHz) and therefore have better coverage in hilly and rural areas.

In future, the proposed WoG network could operate in the 400 MHz range, improving coverage for 800 MHz users, but reducing coverage for those now on 70 MHz networks. The 400 MHz would have adequate penetration inside buildings. Another potential frequency that may be used in a WoG context is 160 MHz with coverage better than 400 MHz, but not as good within buildings.

Transmission mode:

Radio communications can be made using analogue waveforms that emulate directly the patterns of the human voice, or digital that encodes the voice into a series of pulses and decodes them at the receiving end. Digital transmission is a more recent technology and has the following advantages:

- It has superior quality with little background noise.
- Digital transmission can be used to transmit data, such as licensing information for a driver, weather reports, photographs and GPS data.
- Encryption can be applied to allow secure and confidential operation.

However, digital transmission does not give the degree of coverage of analogue systems, failing quickly at its limiting distance. Analogue transmission can generally be understood even if the quality might be reduced as distance increases.

Interoperability:

Networks on separate frequency bands do not have the means to directly communicate. The ability for different services to directly talk to each other is called interoperability. Full interoperability is especially desirable in emergencies, but needs to fit with appropriate command protocols.

Why the audit was selected

Radio communications used by emergency services was first listed in our *Annual Plan of Work 2011–12* and was based on concerns in the media at that time.

Audit objective

The objectives of the audit were to assess:

- the effectiveness and efficiency of the current radio communications networks used by Tasmania Police, SES, TFS, Ambulance Tasmania, Forestry Tasmania and Parks and Wildlife Service
- whether the WoG radio network project is progressing towards delivering a more efficient and effective network.

Audit criteria

We applied three audit criteria, namely:

- Are the existing radio networks performing effectively?
- Is there a strategic approach to providing radio network capacity?
- Is the WoG radio network project effective?

Audit scope

The audit examined emergency services radio networks. Entities directly involved include:

- Tasmania Police
- TFS
- Ambulance Tasmania
- Forestry Tasmania and Parks and Wildlife Service
- SES.

Other entities included in the audit because they are clients of the radio networks and are also involved in the WoG radio network project are:

- TESI (which uses the Tasmania Police network)
- Project team and steering committee of the WoG radio network project.

Audit approach

The audit involved gathering evidence from users of the radio networks, examining fault and outage logs and reviewing plans and project documents for the proposed WoG network.

Timing

Planning for this audit began in March 2013. Fieldwork was completed in January 2014 and the report was finalised in April 2014.

Resources

The audit plan recommended 1050 hours and a budget, excluding production costs, of $159 584. Total hours were 1359 and actual costs, excluding production, were $202 105 which was in excess of our budget.

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1 Are existing radio networks performing effectively?

1 Are existing radio networks performing effectively?

1.1 Background

In this Chapter, we investigate whether the emergency services radio communications networks were operating effectively.

We looked at whether the networks were:

- secure
- reliable
- provided adequate coverage
- interoperable
- cost-effective.

1.2 Are current networks secure?

Government radio communication networks should be secure for a number of reasons, including:

- confidentiality of sensitive information, such as people's names and details
- criminal misuse of information to mislead or evade the police
- discouraging the media and the public from attending emergency locations.

Police and paramedics have the strongest need for security and confidentiality, but we are of the view that all services would need some degree of security.

We found from our enquiries, that anyone can purchase scanning units to listen in on emergency services broadcasts and that analogue transmissions are considerably easier to scan than digital transmissions. Websites are also known to exist that list network frequencies and even provide live feeds on the internet.

To optimise coverage (See Section 1.4.2), the Police/TESI network operates in analogue transmission mode for all dispatch calls. Therefore, outside parties can easily scan the majority of Tasmania Police transmissions because they are not scrambled due to cost.

The network has digital transmission capability, which is used routinely as required, e.g. for covert and special operations. Police officers can access both analogue and digital bands on their radios to communicate with each other.

TFS uses a 70 MHz non-encrypted analogue network and generally has no requirement for security and confidentiality,

other than for limited occasions where confidentiality may be a consideration, such as a fire-related fatality.

Ambulance Tasmania also uses a 70 MHz analogue network, but it would prefer a private and secure network to better safeguard confidential information under privacy protection legislation[11].

Forestry Tasmania has previously used scramblers during forest protests because of concerns that conservationists were monitoring its transmissions.

SES has a small 70 MHz analogue network and, also would prefer to operate in a secure environment.

We concluded that Tasmania's emergency services radio networks were not secure or confidential.

Recommendation 1

We recommend that Tasmania Police, TFS, Ambulance Tasmania and SES investigate ways of providing secure and confidential radio communications.

1.3 Are the current networks reliable?

Reliability of the networks used by emergency services is critical in ensuring the safety of the public (and their own personnel). We expected that network managers would set reliability standards, keep appropriate performance and outage statistics and maintain complaint records.

The following subsections assess reliability of the networks.

1.3.1 Are performance standards set?

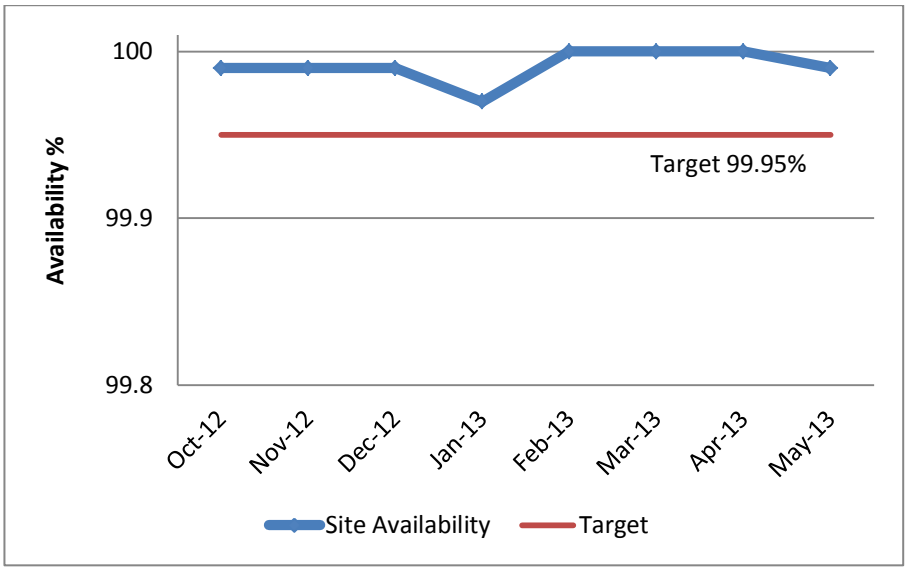
Tasmania Police

We found that Tasmania Police used a maintenance contract to target a particular standard of network performance. Under that contract, reliability measures including rates of network availability were provided.

[11] *Personal Information Protection Act 2004*

Figure 1 shows network availability between October 2012 and May 2013.

Figure 1: Tasmania Police/TESI network site availability



Source: TMRN monthly report May 2013

On the whole, the Police/TESI network was available either at 100 per cent, or very close to it. For example, in May 2013, the total outage time of five hours and 20 minutes for the month gave an availability of 99.991 per cent against a target of 99.95 per cent.

Measures used for maintenance and reliability need to be interpreted with some care. For example, faults due to snow, fire or other unforeseeable circumstances ('force majeure') were not included in availability statistics[12].

Nonetheless, we were satisfied that the Police/TESI network functioned with a high degree of availability.

TFS/Ambulance Tasmania

TFS maintains log books for individual transmitter sites. A sample of monthly reports showed that individual outages were recorded and that ongoing maintenance and repair budgets were allocated. We could find no evidence to suggest the TFS network was unreliable, however, no reliability statistics were available and standards had not been set (see Recommendation 3).

[12] Force majeure is defined as 'unforeseeable circumstances that prevent someone from fulfilling a contract'.

TFS maintains Ambulance Tasmania's network under contract. Ambulance Tasmania advised us that sharing channels with TFS in remote areas had been problematic, especially during the fire season when increased TFS traffic tended to congest the channels.

Forestry/Parks

All transmitter sites receive an annual inspection with any maintenance problems identified and rectified. Again, most outages were caused by equipment failure, usually due to extreme weather events. Forestry/Parks have no reliability standards or complaint records (see Recommendation 3).

SES

In recent times, SES has received 50 radios that use the Police/TESI network and now operate these radios as its primary radio system. However, SES also continued to operate a small 70 MHz analogue network and had set no reliability standards nor maintained complaint records for that network.

Recommendation 2

We recommend that TFS and Ambulance Tasmania work together to resolve problems around congestion, particularly during the fire season.

Recommendation 3

We recommend that:

- **TFS, Ambulance Tasmania, Forestry/Parks and SES set reliability standards and monitor against them**
- **TFS, Ambulance Tasmania, Forestry/Parks and SES establish a register to record service outages and complaints regarding their networks**
- **all service and complaint issues are resolved within pre-set targets.**

1.3.2 Maintenance practices

We examined maintenance practices and running costs for each network, noting that maintenance costs had increased over time. However, in the case of TFS, extra expenditure included a one-off equipment replacement, thus making it difficult to be confident about any long-term upward trend in maintenance spending.

We noted from a consultant's[13] report that the 70 MHz analogue network is an aging technology with manufacturers ceasing to support equipment using this band. SES, TFS and Forestry/Parks accept that they have, at most, ten years of remaining network life at 70 MHz and that reliability problems will eventually arise.

In our view, there is a need for all entities that rely on 70 MHz analogue networks to prepare strategies to exit that band. However, in the light of the current WoG project (as discussed in chapter 3), we do not make a recommendation.

1.3.3 Reliability summary

While the remaining emergency service networks appeared to be available and maintained, only the Police/TESI had extensive data regarding availability of its network.

1.4 Do the current networks provide adequate coverage?

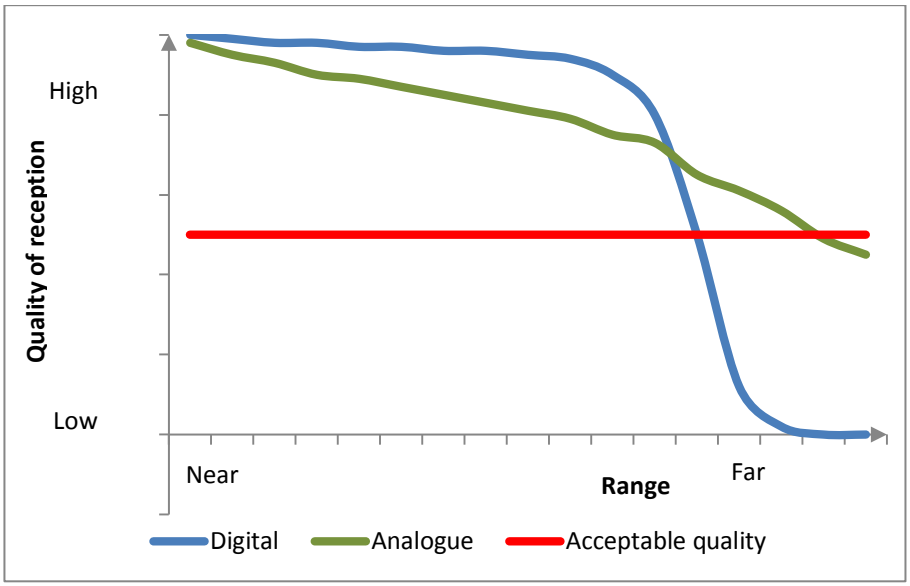
Coverage is a crucial element for radio communications — especially in a state such as Tasmania with mountainous terrain. In urban areas, it is vital that radio signals can penetrate buildings.

As mentioned in the Introduction, lower frequency bands give better coverage than higher frequency bands given the same transmission strength and mode.

Analogue and digital transmissions, even at the same frequency, behave differently. Analogue gives greater range as the signal progressively weakens and even when the signal is faint it may still be intelligible. On the other hand, digital transmission operates at a superior quality to its range limit but thereafter quickly loses intelligibility (as shown in Figure 2).

[13] An external consultant was commissioned in 2006 by the WoG project team to provide technical advice and analysis. Subsequent updates were provided in 2010 and 2012.

Figure 2: Comparison between digital and analogue transmission



Source: Tasmanian Audit Office derived from consultant's report

The transmission mode and frequency for the current networks are contained in Table 2.

Table 2: Network characteristics

Network	Sites*	Frequency (MHz)	Transmission mode
Police/TESI network	67	800	Analogue (with digital capability for special operations)
TFS network	48**	70	Analogue
Ambulance Tasmania network			
Forestry/Parks network			
SES network			

* Includes only transmission sites.

** TFS, Ambulance Tasmania, Forestry/Parks and SES networks all have access to each other's channels and a total of 48 sites.

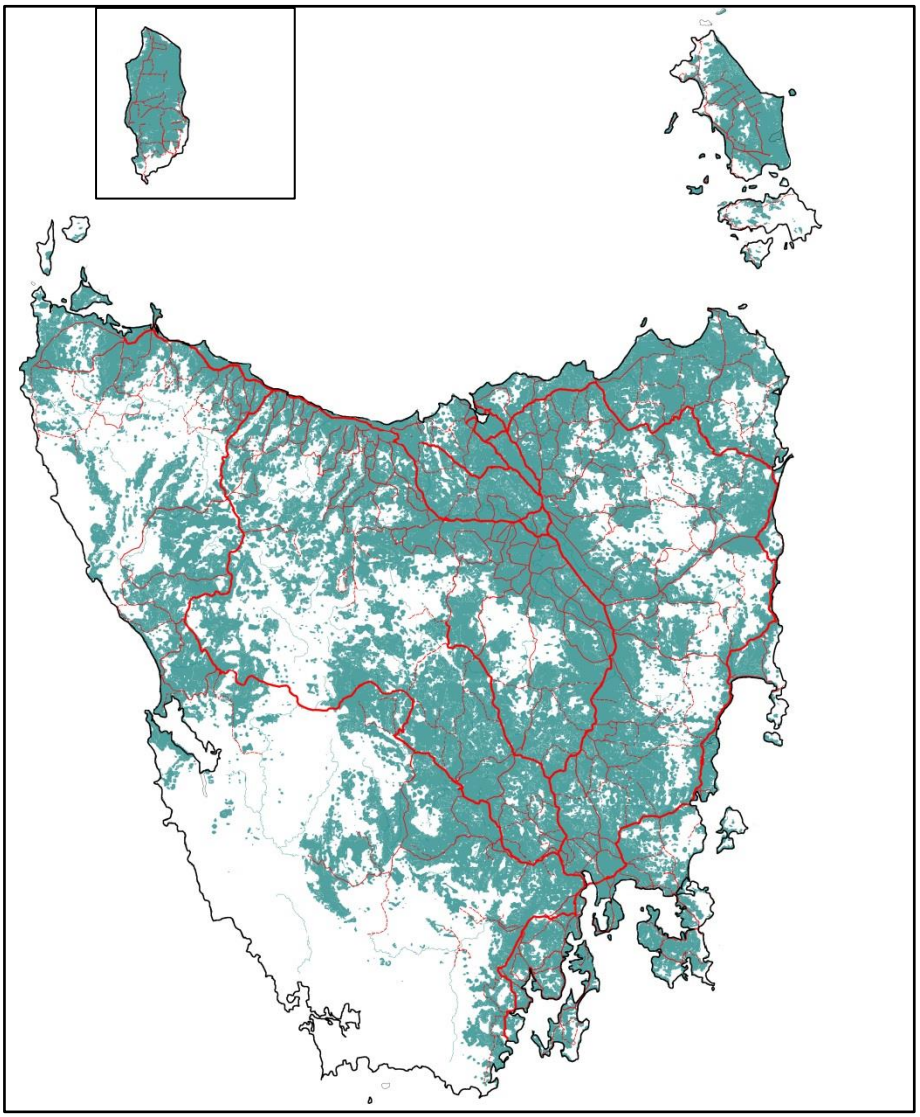
In the following subsections, we discuss coverage of the separate networks. It should be noted that coverage can be increased, where necessary, using portable repeaters, but that this requires additional setup time.

1.4.1 Police/TESI network in analogue mode

The Police/TESI network was upgraded to operate as a digital network but can be used in either analogue or digital mode (the latter is normally reserved for special operations).

The current Police/TESI analogue network operates at 800 MHz and is used in analogue mode in order to maximise the effective coverage for Police dispatch calls. Figure 3 shows the degree of coverage[14].

Figure 3: Coverage — 800 MHz Analogue, 67 sites



Source: Police/TESI Coverage maps provided by DPEM

[14] Coverage charts shown are as supplied and combined the areas provided by vehicle mounted mobile radios and hand held portables. In order to compare effectiveness, coverage over the sea was removed to assess the percentage of the Tasmanian land area. We acknowledge that coverage can vary significantly with the effects of weather, foliage and all coverage maps contain black spots and other areas where coverage might exist under exceptional conditions.

We estimated coverage of the current Police/TESI analogue network to be 54 per cent of the Tasmanian land mass. Coverage requirements for Tasmania Police are generally in urban, more-populated areas. Nonetheless, we were advised that there were rural areas and even some urban areas where the network does not provide coverage. Some examples that we noted at the time of the audit included:

- Cygnet area during a motor vehicle accident in March 2013
- Molesworth during bushfires in February 2013
- coverage difficulties within some police stations
- the Zeehan area[15].

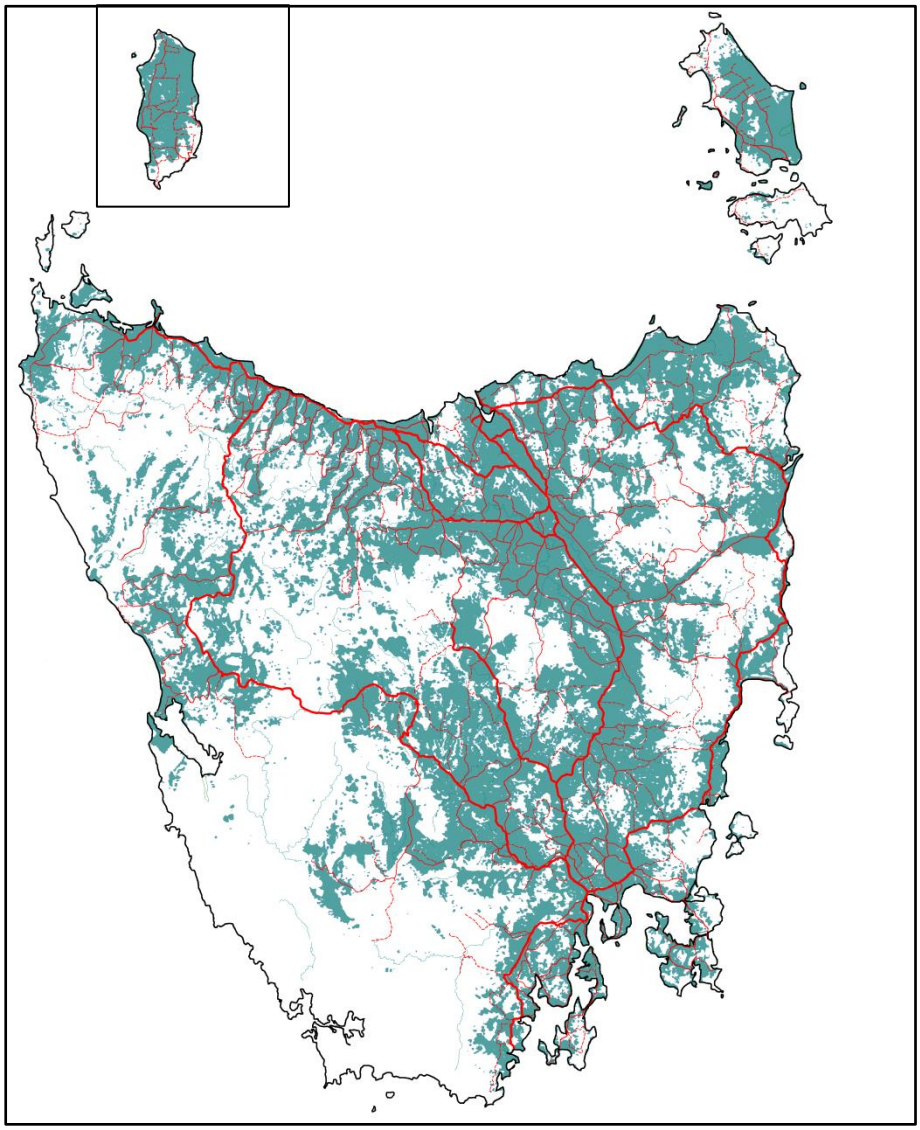
However, and as indicated in Section 1.4.2 below, coverage with digital operation is more restricted.

[15] Some of these problems have since been resolved.

1.4.2 Police network in digital mode

Figure 4 shows the level of coverage for the Police/TESI network when it operates digitally.

Figure 4: Coverage — 800 MHz Digital, 67 sites



Source: Police/TESI Coverage map provided by DPEM

The Police/TESI network has relatively low coverage in digital mode, which we estimate to be 43 per cent of the Tasmanian land mass — compared to 54 per cent when used in analogue mode.

We were informed that police officers generally know where coverage is problematic and protocols exist, and are followed, when radios are not able to be used.

In our view, it is unsatisfactory for a network that had been upgraded to a digital system with the advantages of security and confidentiality, to operate in analogue mode because of the need to obtain adequate coverage. Rather than recommending

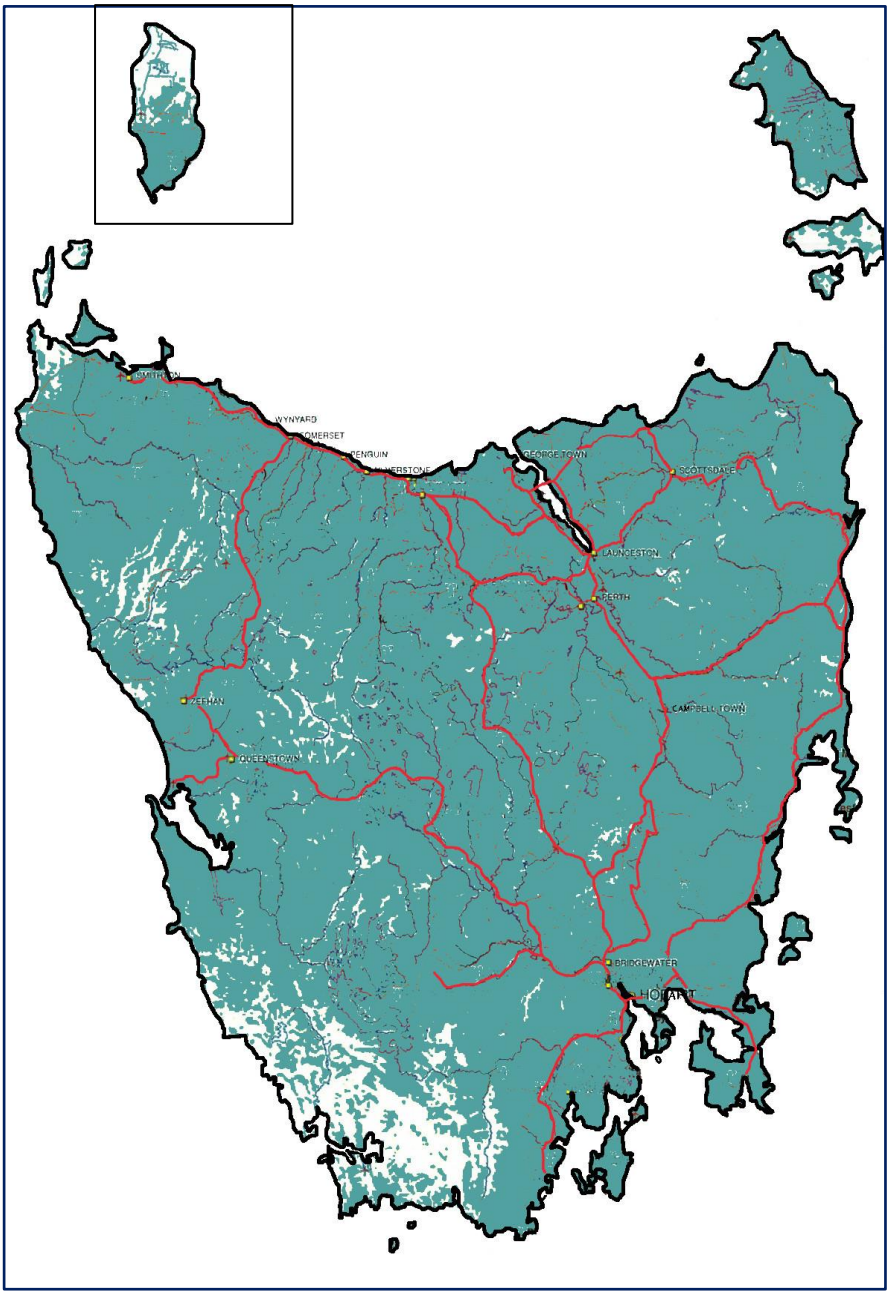
Tasmania Police — as a separate entity — improve its coverage, we believe that a better solution is the adoption of a WoG approach. A related recommendation (see Recommendation 8) is included in Chapter 3.

1.4.3 TFS/Ambulance Tasmania, Forestry/Parks and SES networks

From a fire fighting perspective, TFS is the response entity for urban and privately managed rural land, Parks has responsibility for national parks and other reserved land, whilst Forestry has responsibility for declared forest and State forest. A high level of coverage is particularly important for TFS/Ambulance Tasmania and Forestry/Parks because incidents involving these organisations often occur in less populated areas.

Whilst these entities have built their own individual networks they can and do share infrastructure and channels. Therefore, we consider that their networks achieve a combined coverage as shown in Figure 5. Note, however, that the coverage shown in Figure 5 can only be achieved when using vehicle-mounted receivers (i.e. hand held units may be able to pick up a signal, but cannot transmit).

Figure 5: Coverage — 70 MHZ analogue, 48 sites



Source: Coverage maps provided by TFS

The three networks produce a high level of coverage that we estimated at 94 per cent.

1.4.4 Coverage summary

In summary, the Police/TESI network covers a relatively low proportion of the state, particularly when used in digital mode, but is generally satisfactory for Tasmanian Police's largely urban activities.

For the remaining entities that we audited, coverage was suitable for their individual networks.

1.5 Are the current networks interoperable?

In 2009, COAG recommended the various emergency services across Australia develop interoperability[16]. While it is especially important when emergency services operate across state borders (as in the case of bushfires interstate), within Tasmania the emphasis of interoperability is that emergency services can communicate with each other.

The networks operating at 70 MHz (namely TFS/Ambulance Tasmania, Forestry Tasmania/PWS and SES) have effective interoperability and share channels. However, the Police network, operating at 800 MHz, has no direct interoperability with other networks. A key objective of the WoG project was to provide interoperability for Tasmanian emergency services.

The ongoing lack of interoperability between Tasmania Police and other emergency services radio systems was highlighted in the 2013 *Bushfire Inquiry Report*[17]. Subsequently, that Report made a number of recommendations aimed at boosting interoperability. We were advised that Tasmania Police have already purchased radios that are interoperable with the other networks for use in the field.

Based on our own analysis and the *Bushfire Inquiry Report*, we conclude that currently the networks are not fully interoperable. We echo a recommendation from that Report that a more permanent solution is desirable.

Recommendation 4

We recommend that, until the outcome of the WoG project is complete (and interoperability is achieved), emergency services should investigate and implement methods for further improving interoperability.

[16] *National framework to improve government radio communications interoperability 2010 – 2020,* COAG, 2009.

[17] *2013 Tasmanian Bushfires Inquiry*, special investigator Mal Hyde, p. 74–77.

1.6 Were the networks cost effective?

At present, Tasmania has more than one emergency service radio network, which appears to involve unnecessary duplication. We found the following evidence:

- Many transmission sites had multiple networks represented, for example:
  - We observed separate installations for the Police/TESI, TFS, Ambulance Tasmania and SES networks at a site near Hobart.
  - At 19 other Police/TESI sites there was duplication with other networks.
- Police/TESI managed the maintenance for its network through a contractor. TFS managed the Ambulance Tasmania network on its behalf, whilst Forestry and Parks shared and co-managed their networks. Tasmania Police communication services managed the SES network.
- The current cost of maintaining four networks was estimated at $9.5m per annum.
- The Department of Treasury and Finance (Treasury) indicated that reported network operating costs were understated because inter-agency agreements and informal arrangements obscured true costs.

Duplication can provide potentially valuable backup in case of a network failure. However, we consider such redundancy can be built into a WoG system. We also note that the proposal for a WoG radio network listed one of the major advantages of the project as the removal of duplication in site leasing or ownership, infrastructure, equipment and Australian Communications and Media Authority (ACMA) licensing.

Recommendation 5

We recommend that duplication of infrastructure be costed and taken into account when considering how best to proceed with the WoG network.

1.7 Conclusion

Whilst outage information suggests the networks were reliable, we found that the existing networks are not fully effective and efficient because:

- The Police/TESI network only operated as a secure digital network in limited circumstances. The other networks were not secure or confidential.
- There were no reliability standards or accurate records for networks other than the Police/TESI network.
- The true cost of operating some networks was unclear.
- There were interoperability difficulties between the Police/TESI and the other networks.
- There was duplication in management and infrastructure.

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2 Is there a strategic approach to providing radio network capacity?

2 Is there a strategic approach to providing radio network capacity?

2.1 Background

In the current environment, where there are separate radio networks, we expected a strategic approach to their management. To determine whether that was the case, we applied the following sub-criteria:

- Were there strategic plans for the networks?
- Were business cases prepared supporting upgrades?
- Did networks comply with current ACMA requirements?
- Will networks comply with foreshadowed COAG and ACMA requirements?

2.2 Was there a documented strategic approach to the current networks?

We sought evidence of strategic planning (e.g. short and long-term objectives, performance measures, risk management and strategies) of radio communications at each of the entities.

2.2.1 Tasmania Police

Other than planning documentation for the WoG Project (see Introduction and Chapter 3), we found no strategic plans that covered the existing network or future radio communication requirements.

We noted that:

- A consultant's report provided analysis of future options.
- Two significant upgrades to the Police/TESI network had been implemented since 2007 (see Section 2.3).
- The WoG network was Tasmania Police's preferred long-term solution.

Nevertheless, we believe there was a need for Tasmania Police to document a strategic approach to current network requirements. That documentation should include expectations of how, and to what extent, the WoG project will meet its future requirements as well as contingencies to deal with delays (refer to Recommendation 6).

2.2.2 Other networks

We found that the TFS network was managed with a five-year rolling budget plan, but that there was no strategic plan specifically for the radio network, describing objectives, risks and strategies.

Ambulance Tasmania had a strategic plan, linking with its business plan objectives, but containing no risk management.

We found no evidence of strategic planning for the Forestry/Parks and SES networks.

Recommendation 6

We recommend that network managers develop and document strategic plans for the management of their radio networks.

2.3 Were business cases prepared supporting upgrades?

We were looking for robust and persuasive business cases that aligned with the strategic planning for major network upgrades and acquisitions.

Tasmania Police had implemented two major improvements to its network, namely:

- network infrastructure project in 2008 ($13m)
- upgrade to digital in 2010 ($16m).

We found business cases for each upgrade.

No business cases for upgrades to any of the other existing networks were provided despite each of these networks having had upgrade projects in recent years. An example that we noted was a $0.6m upgrade at TFS in 2012.

Recommendation 7

We recommend that network managers produce business cases for all major upgrades.

2.4 Did networks comply with current ACMA requirements?

ACMA allocates and licenses radio frequencies in Australia. Emergency service networks must be licensed and operate according to their licence conditions (such as approved frequencies and signal strengths).

We examined ACMA documentation and noted that:

- Presently, compliance with ACMA standards is self-regulated.

- ACMA conducts site inspections and audits on a random basis to provide some assurance that all Government radio transmissions are in accordance with licensed frequencies and strength.

We concluded that the networks comply with ACMA requirements.

2.5 Will networks comply with foreshadowed COAG and ACMA requirements and recommendations?

In its report, COAG (see also Section 1.5) recommended nation-wide interoperability between emergency services. That is, between entities (such as police and fire services) and across jurisdictions, e.g. when TFS assists fire services in other jurisdictions[18]. However, COAG has not been prescriptive on technical specifications.

ACMA, being responsible for allocating and licensing of radio frequencies, has assigned bands in the 400 MHz range for exclusive use by government[19]. The new arrangements were proposed to be in place by December 2015 for high and medium-density areas and by December 2018 for all other areas. However, use of that allocation is proposed and not mandatory.

None of the present Tasmanian networks were on the proposed 400 MHz band and thus will not comply with foreshadowed COAG and ACMA requirements and recommendations.

Chapter 3 covers the Tasmanian WoG interoperability project planning and outcomes. It specifically looks at whether the new WoG network would comply with COAG requirements (with relevant recommendations).

2.6 Conclusion

There was a lack of strategic planning evident in the current networks. Whilst Tasmania Police prepared businesses cases for its network upgrades, this did not occur with the other networks.

The networks comply with ACMA requirements at the time of the audit. However, none of the present Tasmanian networks comply with foreshadowed COAG and ACMA requirements.

[18] *National framework to improve government radio communications interoperability 2010 – 2020*, COAG, 2009.
[19] Refer to the Introduction.

3 Is the WoG radio network project effective?

3 Is the WoG radio network project effective?

3.1 Background

In this Chapter, we examine planning for the new WoG network. The development of a single government radio network has been mooted for many years, with a serious attempt made to commence the project in 2006. The sub-criteria that we applied were:

- Was the WoG radio network project on track?
- Was the current approach to the WoG project likely to succeed?

3.2 Was the WoG radio network project on track?

In 2006, a project team commenced project planning under guidance from a steering committee with representatives from:

- Department of Premier and Cabinet
- SES
- TFS
- Tasmania Police
- Ambulance Tasmania (previously Tasmanian Ambulance Service)
- Department of Tourism, Parks, Heritage and the Arts (Parks is now part of the Department of Primary Industries Parks, Water and Environment)
- Hydro Tasmania
- Aurora Energy
- Forestry
- Treasury.

The project team was based in DPEM as the leading entity for the project.

3.2.1 Initial work

A report prepared by a communication consultant presented three options[20]:

[20] An external consultant was commissioned in 2006 by the WoG project team to provide technical advice and analysis. Subsequent updates were provided in 2010 and 2012.

1. a single 400 MHz digital network
2. a 400 MHz/160 MHz dual band network[21]
3. a 400 MHz network with retention of the existing 70 MHz analogue network with links to provide interoperability.

The consultant's report recommended Option 1, the 400 MHz network that would be consistent with the national interoperability framework. It would provide in-building penetration, satisfying police and ambulance requirements. However, it would require many more sites to achieve the coverage in remote areas that TFS and Forestry/Parks need.

Option 2 was not recommended by the consultant because this configuration was untested and therefore a risk. The consultant's view was that some users would require expensive and heavy multi-band terminals that would be optimised for 400 MHz and therefore give reduced coverage at 160 MHz.

Similarly, Option 3 was not recommended because 70 MHz technology was aging and will not be supported in the longer term. This configuration would not meet Interoperability Framework guidelines if networks operate independently.

The project failed to proceed at this point. We were advised that there were a number of reasons for the project stalling, including:

- a lack of an agreement on a strategy to proceed with the consultant's recommended 400 MHz option (Option 1), because TFS, and Forestry/Parks were concerned about loss of existing coverage and increased cost with Forestry Tasmania formally withdrawing from the project in 2008
- contractual difficulties on gaining access to a number of Police/TESI network sites.

3.2.2 Revival of project in 2012

In 2012, the WoG project was revived as the *TasGRN Interoperability Project* and the project team obtained an updated consultant's report. The options, outlined in Section 3.2.1, remained unchanged and were re-considered with the

[21] The 160 MHz frequency has particular advantages in hilly terrain compared to a 400 MHz signal. However the higher frequency signal is better at penetrating buildings.

same recommendation standing, namely establishment of a 400 MHz digital network.

A new project implementation plan adopted the consultant's recommendation that included milestones and a completion date of 2020. Based on a submission from Treasury, Cabinet's Budget Committee allocated funding for the project to proceed in 2012. Acting on a recommendation from Budget Committee, in June 2012 the Premier wrote to all relevant heads of agencies and chairs of state-owned companies and government business enterprises stating that:

> This is a very important project for the Government. I therefore seek your full support and that of officers responsible for mobile radio communication matters within your organisation, in ensuring the successful implementation of this Project.

3.2.3 Impasse

However, as at November 2013, little progress had been made and the implementation plan had not been approved by the new steering committee. In June 2013, we were advised that the project team intended to survey all stakeholders to obtain information regarding their business needs. To date — March 2014 — that has not yet occurred.

During the audit, we were consistently advised by TFS and Forestry/Parks of their opposition to the consultant's recommended 400 MHz option. Their preference, instead, was to continue with the 70 MHz analogue network for as long as possible then move to a 160 MHz digital network — notwithstanding its limitations with respect to building penetration.

We were advised that the steering committee anticipated a commitment from entities for the 400 MHz option despite the misgivings expressed to us. Minutes from the November 2013 steering committee meeting indicated that a technical solution was yet to be finalised. Linking between networks with different frequency ranges may assist in providing a viable technical solution.

We concluded that the project was not on track. The 2012 restart had yet to obtain stakeholder support and consensus appeared unlikely or difficult in the foreseeable future.

Recommendation 8

We recommend that stakeholders involved with the WoG radio project re-engage positively to ensure a solution to the current impasse is achieved in the best interests of the stakeholders and the State as a whole.

3.3 Was the current approach to the WoG project likely to succeed?

We examined a number of project management elements that we considered essential to the success of the WoG project and found that:

- Expert advice had been obtained (in 2006, updated in 2012).
- A draft business case had been prepared in line with a consultant's recommendation.
- The original steering committee included appropriate representation from stakeholders. However, Forestry Tasmania withdrew its representation in 2008.
- The format of status reports was comprehensive, but only a limited number of reports had been prepared.

Nevertheless, we identified a number of problems which made it unlikely the project would succeed, namely:

- inadequate objectives
- coverage for proposed network
- indeterminate and significant cost
- perceptions about the organisational placement of the project team.

These items are examined in the following subsections.

3.3.1 Inadequate objectives

We noted that the objectives of the Plan were to achieve:

- alignment with the National Framework to Improve Interoperability, as endorsed by COAG in 2009
- transition to the 400 MHz harmonised government band, which was to be set aside by ACMA for government use

- interoperability at a state level
- greater access to newer radio technology and functionality by transitioning to a single government radio network
- reduced cost by consolidating current radio infrastructure, equipment, spectrum and procurement arrangements into a single network.

These objectives were reflected in the radio communications consultant's report, which recommended a single 400 MHz digital network.

Our concern was that the objectives listed were peripheral compared to what we see as the most important objective: ensuring that the contemplated WoG network will provide all entities with required functionality and coverage.

The consultant's report discussed coverage, but its evaluation criteria only consider the above objectives and exclude the objective of meeting individual entity requirements. The evaluation section addresses this concern with the statement that the government should build a WoG radio network that meets all entity requirements. In our view, a WoG network was achievable, but was yet to occur.

We noted that the project team was planning to obtain from stakeholder entities a specification of requirements. This had not occurred. While this was a necessary step, in our view there was a need to re-evaluate the options with a list of objectives which included meeting the business needs of individual stakeholders.

Interestingly, the consultant's report noted that WoG approaches in Australia generally utilised 400 MHz, supported by separate entity networks for rural and remote areas in the 70 MHz and 160 MHz bands.

We are not advocating any particular solution. We merely point out that a process which largely ignores entities' key concerns has little chance of attracting support.

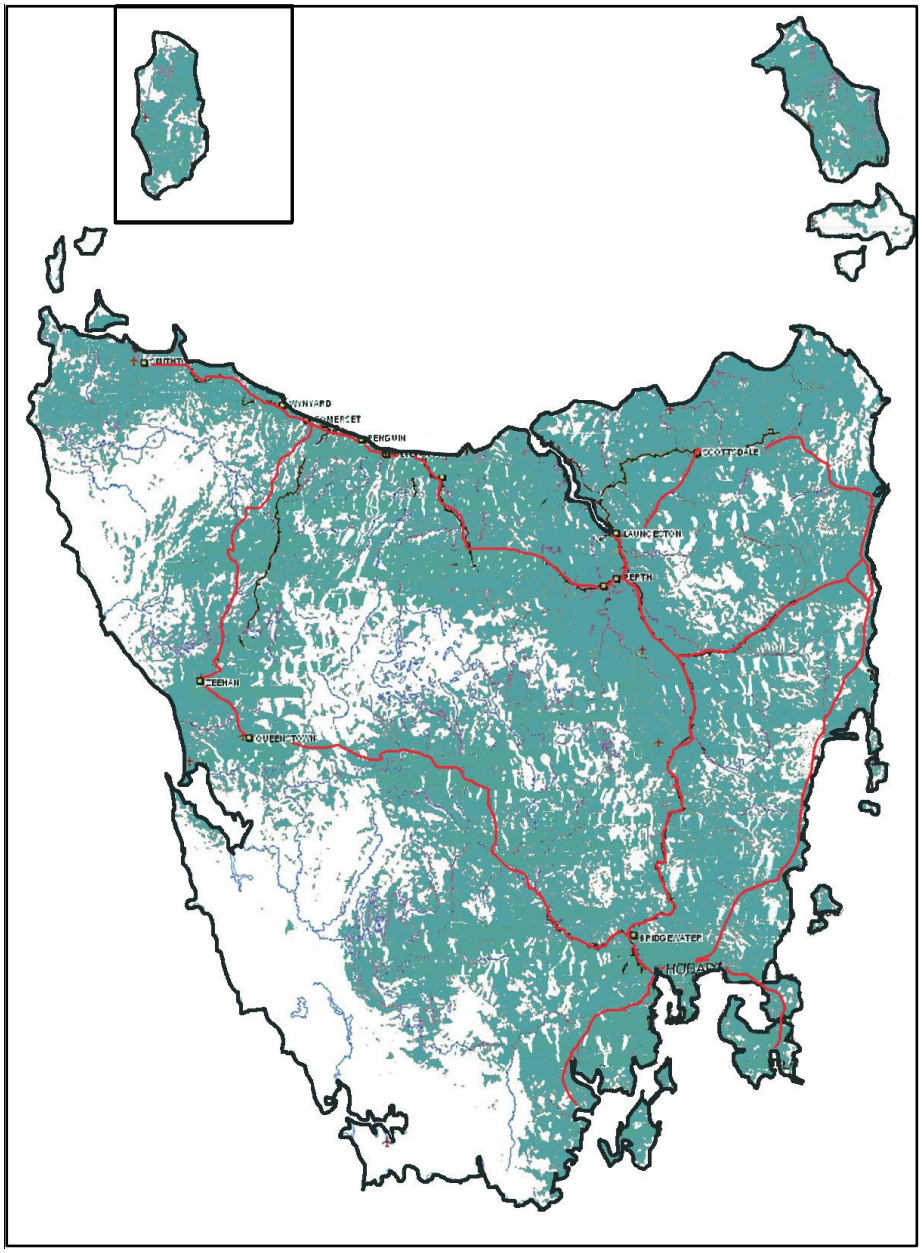
Recommendation 9

We recommend that the WoG project's objectives should include meeting entity requirements and the consultant be asked to re-evaluate the revised set of objectives.

3.3.2 Coverage for proposed network

In Section 1.4, we reviewed the coverage of existing networks. In this Section we compare the coverage of the existing networks with projected coverage by a 400 MHz digital network, as shown in Figure 6.

Figure 6: Coverage — 400 MHz Digital, 102 sites



Source: TGRN Coverage maps provided by TFS

Projected coverage achieved by a 400 MHz digital network with 102 sites (the number suggested in the consultant's report) equates to 68 per cent of the Tasmanian land mass.

From the perspective of Tasmania Police, this is a significant improvement over the current 800 MHz analogue configuration

(namely 54 per cent). However, the 400 MHz configuration would still fall short of the 94 per cent coverage achieved by the existing 70 MHz analogue networks used by other emergency services.

TFS and Forestry/Parks advised that they would prefer the WoG network be a 160 MHz network since coverage would be better than a 400 MHz network and closer to the coverage provided by their existing 70 MHz system. As well, such a network would present the easiest path to migrate from their existing 70 MHz systems. Whilst there were no coverage maps available for a 160 MHz network, it would give significantly better coverage, for the same number of sites, than a 400 MHz network[22]. Increasing the number of sites to give equivalent coverage for a 400 MHz network would impose a significant extra cost.

A 400 MHz signal gives better building penetration, considered essential by Tasmania Police and Ambulance Tasmania. On the other hand, a 400 MHz signal is affected more than a 160 MHz transmission by obstructions, such as hills, foliage and smoke.

We restate Recommendation 9:

> We recommend that the WoG project's objectives should include meeting entity requirements and the consultant be asked to re-evaluate the revised set of objectives.

3.3.3 Placement of the project team

It is essential that stakeholders have buy-in to a project, both through participation in the steering committee and membership of the project team.

We noted that:

- Forestry Tasmania formally withdrew from the process in 2008 saying that the proposed solution would not meet its business requirements.
- TFS had expressed its view that the proposed WoG network would provide firefighters with a greatly reduced coverage at a greater cost (and with inherent increased risk).
- Although TFS is a component of DPEM, there is no requirement for it to accept a 400 MHz digital network.

[22] According to the coverage analysis in the consultant's report 160 MHz gives better than twice the coverage area of 400 MHz in digital transmission mode.

The above difficulties were exacerbated by the existence of strong difference in preferences by Tasmania Police and Ambulance Tasmania from the other entities.

While it is understandable that the project team was embedded in DPEM, we believe it may be more appropriate for the WoG project to be managed by an independent body.

Furthermore, if the parties cannot agree on a resolution to the impasse on moving to a WoG network then further action may be necessary. One possible solution would be to set up a separate unit (similar to TMD) to provide radio communication services as needed to the current stakeholder entities involved in the WoG project[23].

Recommendation 10

We recommend that the project team become independent from any of the entities involved in the WoG network.

Recommendation 11

We recommend that government considers the establishment of a separate unit to implement and operate a WoG network if existing stakeholders fail to make significant progress toward an agreed WoG solution.

3.3.4 Was the current approach to the WoG project likely to succeed — conclusion

The stated objectives of the WoG project were peripheral compared to what we see as the most important objective, which was ensuring that the contemplated WoG network will provide all entities with required functionality and coverage.

The planned 400 MHz network would be a gain for Tasmania Police, but a reduction in existing coverage for the other emergency services.

A process that largely ignores entities' key concerns has little chance of attracting support.

[23] TMD, which is a part of the Department of Premier and Cabinet, develops and provides whole-of-government communications and business services.

3.4 Conclusion

In our view, eight years on there has been little real progress in implementing a WoG network. There were fundamental problems with the defined objectives and structure of the WoG project. Unless they are resolved, the project has little prospect of success. A possible solution to alleviate concerns held by the smaller networks would be to set up an independent WoG project team and, if necessary, take this further by establishing a separate entity to take over the existing networks and establish a WoG network.

Independent auditor's conclusion

Independent auditor's conclusion

This independent conclusion is addressed to the President of the Legislative Council and to the Speaker of the House of Assembly. It relates to my performance audit regarding aspects of publicly managed current radio communications networks.

Audit objectives

The objectives of the audit were to assess:

- the effectiveness and efficiency of the current radio communications networks used by Tasmania Police, State Emergency Service, Tasmanian Fire Service, Forestry Tasmania and Parks and Wildlife Service
- whether the Whole of Government (WoG) radio network project is progressing towards delivering a more efficient and effective network.

Audit Scope

The audit examined emergency services radio networks. In addition to the entities referred to in the objective, Ambulance Tasmania was also involved in this audit.

Entities included in the audit because they are clients of the radio networks, and are also involved in the WoG radio network project, were:

- Tasmanian Electricity Supply Industry (which uses the Tasmania Police network)
- Project team and steering committee of the WoG radio network project.

Responsibility of those charged with governance in the entities selected for audit

Those persons charged with governance of the radio communications networks are responsible for ensuring their networks operate effectively and efficiently.

Those persons charged with governance of the WoG radio network project are responsible for ensuring the project achieves the outcomes for which it was established.

Auditor-General's responsibility

In the context of this performance audit, my responsibility was to carry out audit procedures to enable me to express an opinion on whether those entities selected for audit are managing their radio communications networks effectively and efficiently, and whether the WoG radio network project is progressing towards delivering a more efficient and effective network .

I conducted my audit in accordance with Australian Auditing Standard ASAE 3500 *Performance engagements*, which required me to comply with relevant ethical requirements relating to audit engagements. I planned and performed the audit to obtain reasonable assurance whether those entities selected for audit are managing their radio communications networks effectively and efficiently, and whether the WoG radio network project is progressing towards delivering a more efficient and effective network.

The audit criteria that I applied targeted the following effectiveness and efficiency aspects of the above stated audit objective:

- Are existing radio networks performing effectively?
- Is there a strategic approach to providing radio network capacity?
- Is the WoG radio network project effective?

The audit involved gathering evidence from users of the radio networks, examining fault and outage logs and reviewing plans and project documents for the proposed WoG network.

I believe that the evidence I have obtained was sufficient and appropriate to provide a basis for my conclusion.

Auditor-General's conclusion

Based on the audit objective, scope and criteria and for the reasons outlined in this Report, it is my overall conclusion that:

- For the five reasons outlined at the end of Chapter 1 in this report, whilst outage information suggests the networks were reliable, I found that the existing networks are not fully effective and efficient.
- There was a lack of strategic planning evident in the current networks. Whilst Tasmania Police prepared businesses cases for its network upgrades, this did not occur with the other networks.

- There has been little real progress in implementing a WoG network.

My report contains eleven recommendations which were aimed at:

- improving, within strategic frameworks, the provision of secure, confidential, reliable, interoperable radio communications with minimum congestion
- those responsible for the WoG project taking steps to get this project back on track while at the same time ensuring the requirements of all entities involved are met.

H M Blake

Auditor-General

8 May 2014

Recent reports

Recent reports

Tabled	No.	Title
Nov	No. 4 of 2012–13	Volume 4 Parts 1 & 2 — Local Government Authorities 2011–12
Nov	No. 5 of 2012–13	Volume 1 — Analysis of the Treasurer's Annual Financial Report 2011–12
Nov	No. 6 of 2012–13	Volume 2 — Executive and Legislature, Government Departments, other General Government Sector State entities, other State entities and Superannuation Funds 2011–12
Dec	No. 7 of 2012–13	Compliance with the *Tasmanian Adult Literacy Plan 2010–15*
Mar	No. 8 of 2012–13	National Partnership Agreement on Homelessness
Mar	No. 9 of 2012–13	Royal Derwent Hospital: site sale
May	No. 10 of 2012–13	Hospital bed management and primary preventive health
May	No. 11 of 2012–13	Volume 5 — Other State entities 30 June 2012 and 31 December 2012
Aug	No. 1 of 2013–14	Fraud control in local government
Nov	No.2 of 2013–14	Volume 1 — Executive and Legislature, Government Departments, Tasmanian Health Organisations, other General Government Sector State entities, Other State entities and Superannuation Funds
Nov	No.3 of 2013–14	Volume 2 — Government Businesses, Other Public Non-Financial Corporations and Water Corporations
Dec	No.4 of 2013–14	Volume 3 — Local Government Authorities
Dec	No.5 of 2013–14	Infrastructure Financial Accounting in Local Government
Jan	No. 6 of 2013–14	Redevelopment of the Royal Hobart Hospital: governance and project management
Feb	No. 7 of 2013–14	Police responses to serious crime
Feb	No. 8 of 2013–14	Analysis of the Treasurer's Annual Financial Report 2012-13
May	No.9 of 2013–14	Volume 5 — State entities 30 June and 31 December 2013, matters relating to 2012–13 audits and key performance indicators

Current projects

Current projects

Performance and compliance audits that the Auditor-General is currently conducting:

Title	Audit objective is to …	Annual Plan of Work 2013–14
Alcohol, Tobacco and Other Drug Plan 2008–13	… examine whether the Department of Health and Human Services has implemented the strategies listed in the *Alcohol, Tobacco and Other Drug Services, Tasmania: Future Service Directions — a five year plan, 2008/09 – 2012/13*.	Page 10, Topic No. 4
Security of Information and Communications Technology (ICT) infrastructure	… assess the effectiveness of security measures for ICT infrastructure and its functionality.	Page 11, Topic No. 3
Processes to ensure teacher and teaching quality in public high schools	… assess the quality of teaching in public high schools.	Page 11 Topic No.2
Motor vehicle fleet usage and management	… determine whether use by selected government departments of vehicles is effective, efficient and economic. The audit will also consider allocation and use of motor vehicles complies with government guidelines and whether fleets are properly managed.	Page 13, Topic No. 2
Follow up audit	... ascertain the extent to which recommendations from reports tabled from October 2009 to September 2011.	Page 12 Topic No. 4
Quality of Metro services	… look at the quality of public transport services provided by Metro Tasmania.	Page 12 Topic No. 8
Budgeting of capital works	… look at the effectiveness of Treasury's capital works budgeting processes.	Page 11 Topic No. 1

Audit Mandate and Standards Applied

Mandate

Section 17(1) of the *Audit Act 2008* states that:

> 'An accountable authority other than the Auditor-General, as soon as possible and within 45 days after the end of each financial year, is to prepare and forward to the Auditor-General a copy of the financial statements for that financial year which are complete in all material respects.'

Under the provisions of section 18, the Auditor-General:

'(1) is to audit the financial statements and any other information submitted by a State entity or an audited subsidiary of a State entity under section 17(1).'

Under the provisions of section 19, the Auditor-General:

'(1) is to prepare and sign an opinion on an audit carried out under section 18(1) in accordance with requirements determined by the Australian Auditing and Assurance Standards

(2) is to provide the opinion prepared and signed under subsection (1), and any formal communication of audit findings that is required to be prepared in accordance with the Australian Auditing and Assurance Standards, to the State entity's appropriate Minister and provide a copy to the relevant accountable authority.'

Standards Applied

Section 31 specifies that:

'The Auditor-General is to perform the audits required by this or any other Act in such a manner as the Auditor-General thinks fit having regard to –

(a) the character and effectiveness of the internal control and internal audit of the relevant State entity or audited subsidiary of a State entity;

(b) the Australian Auditing and Assurance Standards.'

The auditing standards referred to are Australian Auditing Standards as issued by the Australian Auditing and Assurance Standards Board.

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