



TASMANIAN FLOOD

RECOVERY

From **FLOODS** into **RECOVERY**

Cover photo:

A mother and daughter walk along the Mersey River at Bells Parade, Latrobe, just three weeks after the floods. This area was completely under water.

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Message from the State Recovery Coordinator



Tasmanians will long remember the floods of winter 2016. The flood waters that swept through our communities had a devastating impact, with lives lost, homes inundated and significant disruption and damage to businesses, roads, bridges and property. The social, environmental and economic impacts were significant, affecting 20 local government areas with an estimated damages bill of \$180 million.

Many people have dedicated time and resources to help our communities get back on their feet. That support has come from all corners of our society: from individuals, community groups, the private sector, non-government organisations and all levels of government. Local government, in particular, has been the backbone of this recovery at the grass-roots level, providing affected communities with dedicated assistance and innovative support and solutions.

The results of this collaborative effort have been significant. Roads and bridges have reopened, major repairs to infrastructure have been completed and grants and loans have been provided. Businesses in affected areas have reopened, large volumes of debris have been removed and local community information sessions have been delivered. Of course, full recovery is a long-term process. While there have been challenges along the way, and there is still more work to do, the achievements of the locally-led recovery effort are nothing short of remarkable.

Over the course of the recovery process, I had the privilege to spend time in our disaster-stricken communities to hear firsthand from many people affected by the floods. Their tales of triumph and disappointment, struggle and success make up the

story of recovery. The extraordinary efforts of flood-affected communities and the dedication of those who helped them have been inspiring. This ongoing support has played a large role in keeping up morale during some of the toughest challenges faced by people in their personal recoveries.

The 2016 Flood Recovery Taskforce is proud to have played an important role in this event, including by supporting the regional recovery committees, directing their concerns back to the Tasmanian Government and helping to secure Tasmanian and Australian Government disaster funding. Many suggestions have been made about a range of factors that potentially caused or contributed to the floods. A separate independent inquiry has been commissioned by the Tasmanian Government to explore those issues and report in due course.

We can use the insights gained from the 2016 floods to inform future planning and mitigation efforts. That is the aim of this report: to reflect on what happened, consider what went well and ensure learnings are used in the future. In that way, I hope this report will play a part in building strength and capacity in future recovery arrangements.

Commander Peter Edwards BM APM
State Recovery Coordinator

Terms and Acronyms

ACRONYM	DESCRIPTION
BOM	Bureau of Meteorology
COAG	Council of Australian Governments
COP	Common Operating Platform
CVA	Conservation Volunteers Australia
DPAC	Department of Premier and Cabinet
DPIPWE	Department of Primary Industries, Parks, Water and Environment
GBE	Government Business Enterprise
GIS	Geographic Information System
IA	Interoperability Arrangements
ICA	Insurance Council of Australia
LGA	Local Government Area
LISTmap	Land Information System Tasmania map
NDRRA	Natural Disaster Relief and Recovery Arrangements
NGO	Non-Government Organisation
NRFC	Northern Regional Flood Recovery Committee
NRM	Natural Resource Management
NWRFRC	North-West Regional Flood Recovery Committee
PWS	Parks and Wildlife Service
RAW	Rural Alive and Well
RBT	Rural Business Tasmania
REMC	Regional Emergency Management Committee
RFCS	Rural Financial Counselling Service
RFRC	Regional Flood Recovery Committee
RRF	Rural Relief Fund
SEMC	State Emergency Management Committee
SES	State Emergency Service
SRC	State Recovery Coordinator
State Committee	Tasmanian Flood Recovery Committee
State Growth	Department of State Growth
Taskforce	2016 Flood Recovery Taskforce
TFS	Tasmanian Fire Service
TRRA	Tasmanian Relief and Recovery Arrangements
VT	Volunteering Tasmania

Glossary

The Tasmanian Emergency Management Plan (Version 8) defines recovery as follows:

Immediate recovery (short-term relief)

In the immediate aftermath of an emergency, recovery is mostly focused on supporting affected persons to deal with the immediate consequences of the event, and in particular to meet basic personal needs (eg food, water, shelter).

Longer-term recovery

Longer-term recovery focuses on assisting the community to manage its own recovery through a coordinated and planned process that draws together relevant recovery partners to address the needs created by the emergency.





View across the flooded Gunns Plains from George Woodhouse Lookout

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Latrobe dairy farmer Michael Perkins with a calf born during the floods

Introduction

In the winter of 2016, Tasmania experienced its worst floods in almost 90 years. The floods resulted in the tragic loss of human life, as well as damage and disruption across social, infrastructure, economic and environmental domains. The resilience, generosity and compassion shown by Tasmanians in the weeks and months after the floods put the State on the road to long-term recovery.

Local government has been at the forefront of this recovery every step of the way. Councils have provided their local communities with immeasurable support and guidance, from the initial emergency response through to the longer-term recovery. Councils have undertaken significant infrastructure repairs to reconnect communities and restore services. Although some councils were not affected directly by the floods, the local government response has been statewide, with those councils stepping up and assisting their neighbours where possible. With the ongoing support of government, the rebuilding and strengthening of flood-affected communities has been, and will continue to be, locally and community driven.

The Tasmanian Flood Recovery Taskforce (Taskforce) was established by the Tasmanian Government on 14 June 2016 under the direction of Tasmania Police Commander Peter Edwards, who was appointed to the role of the State Recovery Coordinator. Regional Flood Recovery Committees (RFRCs) were then established in the North and North-West regions, comprising representatives from the relevant Tasmanian Government agencies and councils. In the Southern region, a special arrangement was agreed with the Mayor of Derwent Valley Council. These arrangements were put in place to provide state-level coordination and support to assist all locally-driven relief and recovery efforts.

Experience shows that it is difficult for individuals and communities recovering from a disaster like the 2016 floods to return to the 'way things used to be'. A complex part of recovery can be facing

this reality and accepting a 'new normal'. The intention of all recovery activities to date has been to help and support affected communities recover and rebuild their lives.

Impact assessments and data shared by key stakeholders have provided an overview of the flood damage across the State. This data has been continually updated through ongoing communication and liaison with affected landowners and stakeholders throughout the recovery, to ensure that the Tasmanian Government is well placed to provide ongoing support for those affected. The data has also formed a comprehensive record of the damage sustained, which will inform future disaster mitigation and resilience-building activities.

This report draws on information from a wide range of emergency management and disaster resilience sources including but not limited to: the *Tasmanian State Natural Disaster Risk Assessment*, *Tasmanian Emergency Management Plan (Version 8)*, *State Special Emergency Management Plan: Recovery*, *National Strategy for Disaster Resilience* and resources provided by the Australian Institute for Disaster Resilience.

From Floods into Recovery is the final report of the Taskforce. It provides an overview of the recovery framework and identifies the efforts of key stakeholders in the recovery process. The report documents much of the significant work that has been accomplished by communities, non-government organisations (NGOs), industry and all levels of government throughout the recovery to date.

About this document

This report documents the 2016 floods: when they occurred, the weather patterns that pre-empted them and the devastating widespread impact they had across Tasmania. The geographical scope of this document extends to all 20 local government areas (LGAs) affected by the flood events of winter 2016.

The report summarises many of the recovery activities undertaken to date and the long-term recovery arrangements that have begun at a State level. Many individuals, community groups and organisations, along with the three tiers of government, have been actively involved in recovery efforts. While it is not possible in this account to individually mention everyone involved, it must be acknowledged that much of the recovery progress would not have been possible without the collective contributions of all those who have helped out in some way.

The document is structured in three main sections:

- **Framework for Recovery** lists the six national principles that inform the framework for recovery. It outlines the governance arrangements put in place for the flood recovery and refers to learnings from previous recoveries over the last decade that helped guide recovery planning. It also includes other important aspects of the recovery framework: communications and partners in recovery. The section ends with key findings across these areas.
- **Recovery in Action** is discussed across the four domains of recovery (social, infrastructure, economy and environment). Each of these areas covers the flood impacts, recovery efforts and assistance provided in response to these impacts, and ends with key findings.
- **Into the Future** identifies the ongoing governance arrangements for the long-term recovery and covers recovery activities and programs still underway, along with the financial assistance packages still available at the time of publication. It also touches on some key topics relevant to recovery, including resilience and preparedness, before finishing with key findings.

The floods

The floods impacted 20 of the State's 29 LGAs (see Appendix Two). As the extent of the damage quickly became apparent, the Insurance Council of Australia (ICA) included the Tasmanian floods in the 'storm catastrophe footprint'¹ already declared in Queensland and New South Wales due to severe storms. The total damages bill of the Tasmanian floods is estimated to be \$180 million.

While 2016 was Tasmania's warmest year on record², the State saw a period of sustained above-average daily rainfalls during the winter and spring months, and documented the second highest average annual rainfall on record. Much of the east coast of Australia experienced heavy rainfall from 4-7 June as a result of an extensive upper-level trough and the formation of an East Coast Low complex in the Tasman Sea. As shown in Figure 1, Tasmania's rainfall over 4-7 June was significant and led to major flooding to the North and North-East river basins, including the Mersey, Forth, Meander, North and South Esk, Macquarie, and Ouse rivers. Several catchments (Ouse, North Esk, Inglis and Leven) saw flooding estimated to be a 1:185 year occurrence³. Several locations in the north of the State reported their wettest day for any month on record during this period.

While major flash-flooding and major flooding are a fairly common feature of the Tasmanian landscape, the scale and impact of the 2016 floods were of comparable magnitude to the devastating 1929 floods that occurred following a similar overall rainfall pattern (see Figure 1).

As wet weather conditions continued through July, Huonville in the State's South saw its worst flooding event in two decades after a combination of heavy rain and snowmelt resulted in a significant rise in river catchment areas.

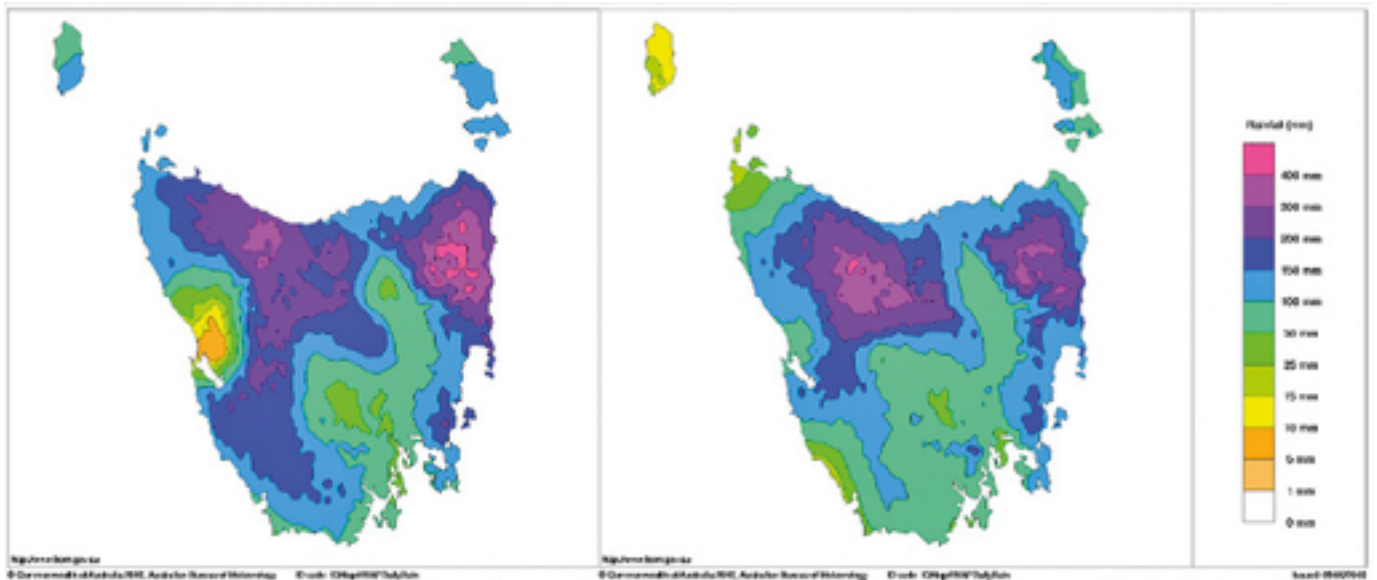
Figure 2 shows the State's river systems and surrounding areas affected by the June and July flood events.

¹ Insurance Council of Australia, 7 June 2016. Media release: 'Insurance catastrophe expands to include Victoria and Tasmania'.

² Bureau of Meteorology, Australian Government, 5 January 2017. 'Annual climate statement 2016'.

³ Alluvium, 2016. Options Assessment: Tasmanian Flood Recovery. Report prepared by Alluvium Consulting Australia for Tasmanian Department of Primary Industries, Parks, Water and Environment, December 2016.

Figure 1. Comparison of three-day rainfall totals for 4-6 April 1929 (left) and 4-7 June 2016 (right)⁴



It can be hard to see the good when something really difficult happens. So many people were impacted by these floods, and the way people have rallied around those affected has been nothing short of amazing. The sense of community that has always been strong in Tasmania has been deepened as people connect in new ways to support one another and rebuild their lives.

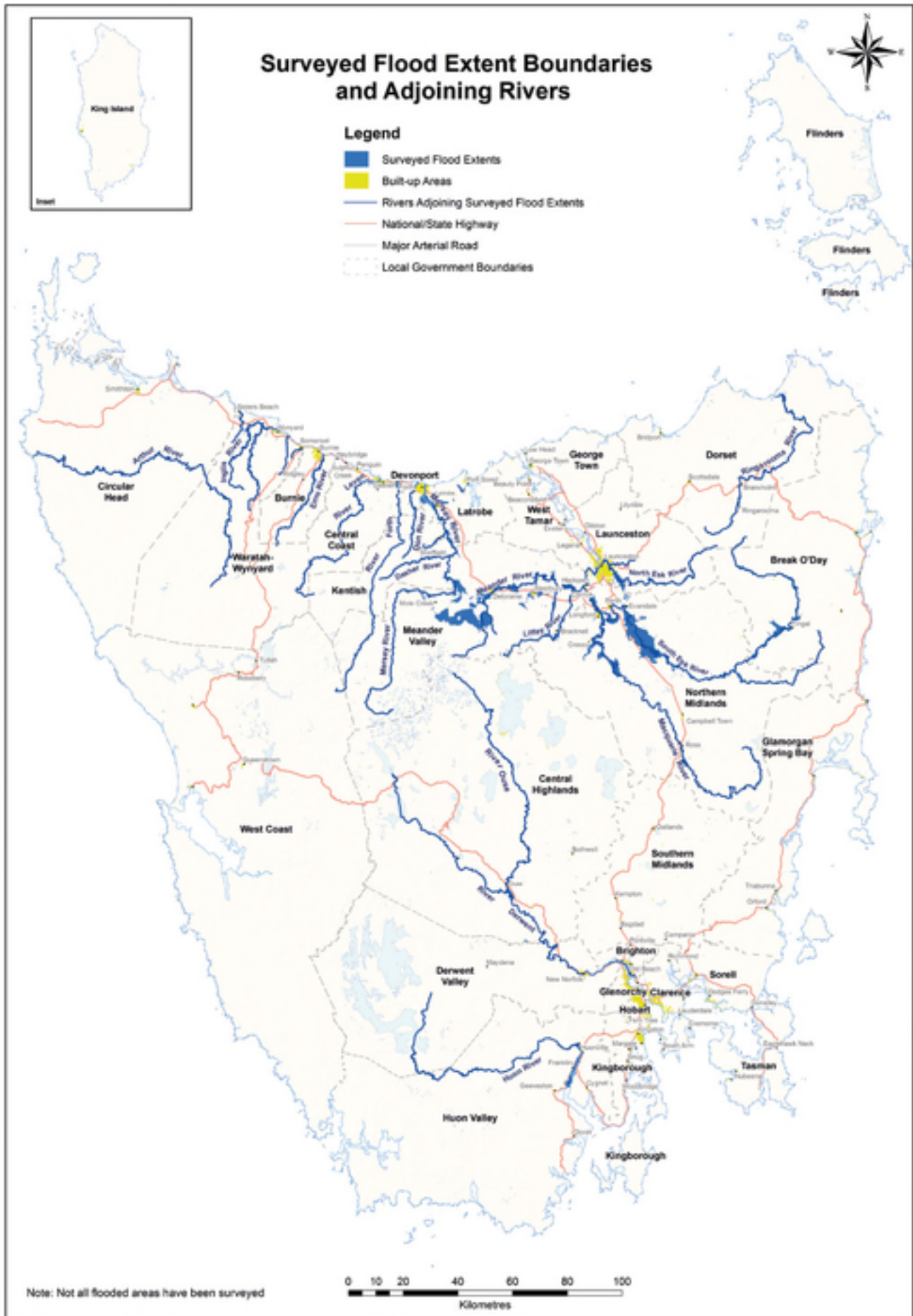
Martyn Evans, Lead Mayor for the Southern Region and Mayor, Derwent Valley Council

⁴ Bureau of Meteorology, Australian Government, 17 June 2016. 'Special Climate Statement 57 – extensive early June rainfall affecting the Australian east coast'.



Members of the Tasmanian women and mens cricket teams help clear flood debris along the Derwent River at New Norfolk

Figure 2. Surveyed flood areas and adjoining rivers



Initial response – the recovery begins

During the June floods, the State Emergency Service (SES), with support from other emergency services, government agencies and volunteers, worked around the clock to help individuals, families, communities and businesses at risk. The SES alone received over 600 requests for assistance, and more than 100 people were rescued.

Tragically, the speed and severity of the floods resulted in the death of two people and, despite a large-scale search conducted by Police, SES, family and volunteers, the body of a third person swept away in floodwaters has not been located.

Local councils rapidly established evacuation and recovery centres (with support in some cases from the Regional Social Recovery Coordinators) in the North, North-West and South of the State, to provide services and assistance for flood-affected communities. Emergency Services, councils, relevant non-government organisations, industry, the State Government and local media worked closely in communicating information to people in affected areas.

The Tasmania Fire Service (TFS) and SES undertook rapid impact assessments in the days following the floods, recording about 800 instances of property and asset damage. Lead State Government agencies, Government Business Enterprises (GBEs), councils and other stakeholders carried out more detailed assessments over the following weeks and months to catalogue impacts across the four domains of social, infrastructure, economy and environment. The Geodata Services Branch of Land Tasmania incorporated this data into a comprehensive geographic information system (GIS) and used it to inform coordinated recovery efforts in affected regions. The widespread reach of the floods and the sustained period of wet weather that followed created many challenges in determining the full extent of the impact, with floodwaters slow to recede and access to some areas across the three regions restricted or cut off completely as roads and bridges were damaged or destroyed.

Urgent issues identified early in the recovery included the loss of fodder and pasture for livestock, the removal of dead farm animals, the significant build-up of logjams and debris in rivers, the on-land debris, and damage to public infrastructure such as power, roads, bridges, rail and ports, causing interruption to normal services and activity.

These issues were addressed as quickly as possible:

- TasNetworks restored power to over 20,000 customers.
- The Department of State Growth (State Growth) and councils worked together to complete emergency works to roads and bridges to provide safe access where possible, as quickly as possible.
- The Port of Devonport was reopened after four days.
- The Department of Primary Industries, Parks, Water and Environment (DPIPWE) coordinated a disposal service for landowners requiring help removing carcasses, and coordinated work to dismantle major logjams and debris build-up.
- The farming community rallied around those that had lost fodder and pasture for livestock by donating fodder where they could.
- Councils organised additional waste collections to help community clean-up efforts.

As the severity of the flood impacts became known, charitable organisations sprang into action, launching flood appeals and collection points for donations.

By the end of June, the Taskforce had developed a *Tasmanian Flood Recovery Interim Action Plan* to inform the medium to long-term recovery planning. This plan reflected the immediate priorities of the Tasmanian Government in response to identified key recovery issues, and established a number of Priority Actions to address those issues (see Appendix 5). At a local level, Regional Flood Recovery Committees (RFRCs) developed regional recovery work plans following a similar format.



Latrobe Council Mayor, Peter Freshney, and the Premier, Will Hodgman MP, on a tour of the flood affected region as floodwaters slowly subside in the Mersey River



Now, some months later when I reflect back, I believe one of the really significant factors that contributed to the devastating impact of the flood was that it occurred in darkness...that certainly added to our lack of awareness and comprehension of the seriousness of what, ultimately, proved to be the most serious flood our town has experienced in over 100 years.

Peter Freshney, Mayor, Latrobe Council and Chair of the North-West Regional Flood Recovery Committee



Launceston City Council workers clearing debris from the Pipers River

A Framework for Recovery

Key points

- On 8 June 2016, Commander Peter Edwards was appointed State Recovery Coordinator by the State Emergency Management Committee to lead the Taskforce.
 - On 16 June 2016, the North-West Regional Flood Recovery Committee was formed and a lead Mayor for the Southern region was identified. On 17 June 2016, the Northern Regional Flood Recovery Committee was formed.
 - The Taskforce was established to provide support to flood-affected communities and coordinate assistance across the three tiers of government.
 - Well-planned, people-focused and two-way communications played an important role in supporting individuals and communities during the recovery process.
 - Infield data collection combined with the web-based viewer LISTmap/Common Operating Platform (COP) provided crucial situational awareness to support decision-making for recovery activities. The data collected also formed the basis of successful Natural Disaster Relief and Recovery Arrangements (NDRRA) funding applications.
-

This section lists the national principles for disaster recovery. It identifies the governance arrangements put in place for the flood recovery and refers to learnings from previous recoveries over the last decade. It also highlights how working with partners and delivering successful communications are important components of a successful recovery process. The section ends with key findings.

National principles for disaster recovery

The national principles for disaster recovery were endorsed in 2009 by the Community and Disability Services Ministers' Advisory Council. They are:

- understanding the **context**
- recognising **complexity**
- using **community**-led approaches
- ensuring **coordination** of all activities
- employing effective **communication**
- acknowledging and building **capacity**

Governance arrangements

Following the 2016 June floods, the Tasmanian Government moved quickly to establish the 2016 Flood Recovery Committee (State Committee) under the direction of an appointed State Recovery Coordinator, Commander Peter Edwards. In accordance with the *Tasmanian Emergency Management Act 2006*, the State Committee was set up as a sub-committee of the State Emergency Management Committee (SEMC) to provide coordination and oversight of the recovery efforts. At the same time, work on establishing the Taskforce was initiated to operationalise recovery arrangements, also under the direction of Commander Edwards.

In order to support the locally-led recovery efforts, and consistent with the Tasmanian Emergency Management Plan (Version 8) and the State Special Emergency Management Plan: Recovery, Affected Area Recovery Committees were established for the severely impacted North and North-West regions to work with the Taskforce. These committees are referred to as the Regional Flood Recovery Committees (RFRCs). Due to the lesser geographical impact of the floods in the Southern region, a lead Mayor was nominated to act as the contact for that region.

2016 Flood Recovery Committee (State Committee)

With the floods affecting numerous LGAs, the State Committee oversaw the strategic direction for recovery at a state level. The Committee acted as a conduit between the RFRCs, the Taskforce and the Tasmanian Government. Representatives from State Government agencies (see Appendix Three) provided a direct link to the areas of government responsible for undertaking recovery activities. The Committee initially met on a weekly basis. As the recovery process evolved, the membership of the Committee became streamlined to include key agencies only. This Committee was co-chaired by Commander Edwards, the State Recovery Coordinator, and Ruth McArdle, Deputy Secretary of the Department of Premier and Cabinet (DPAC).

Regional Flood Recovery Committees

The Community Recovery Handbook⁵ identifies that each community has its own unique needs that drive recovery, and the importance of understanding community context in recovery planning.

The role of the RFRCs was to work with the Taskforce to coordinate recovery activities and support affected communities to manage their own recovery. With 19 LGAs impacted in the June floods (with the July flooding in the Huon bringing the total number of affected LGAs to 20 as referenced throughout the report), the State Recovery Coordinator consulted with Mayors from the affected LGAs to consider arrangements for setting up Affected Area Regional Committees. It was agreed the committees would be established by region in the North and North-West where the flood impacts were widespread and significant, while a lead Mayor would provide a direct communication link between the State Recovery Coordinator, the Taskforce and the Southern region, where there was less geographical spread.

The North-West Regional Flood Recovery Committee (NWRFC) was formed and the lead Mayor for the Southern region appointed on 16 June, and the Northern Regional Flood Recovery Committee (NRFRC) was formed on 17 June (see Appendix Three).

Building on the principle that recovery is most effective when led at a local level, the RFRCs were the channel through which communities could inform their recovery needs and priorities, as well as seek information. The RFRCs were chaired by Mayors of affected areas and brought together representatives from State and local government, as well as industry and non-government organisations as necessary. This multilayered membership enabled the forging of vital links between the three tiers of government and the community.

⁵ Australian Institute for Disaster Resilience, 2011. Australian Emergency Management Handbook Series: Community Recovery – Handbook 2.



Homes and community sporting facilities in the Launceston suburb of Newstead were inundated when the North Esk River flooded

The Tasmanian Flood Recovery Taskforce

The primary role of the Taskforce was to help affected communities to recover through the coordination of support across the three tiers of government and other recovery stakeholders. The Taskforce was largely staffed through the secondment of State Service employees from across Government. The Taskforce headquarters were in Hobart in close proximity to key State Government resources, with smaller regional offices established in Devonport and Launceston to provide a closer physical presence for flood-affected individuals to seek information, support and assistance.

The Taskforce worked closely with the RFRCs and other stakeholders to understand the recovery priorities and issues at a local level, and provide information and advice about those issues and priorities to the Tasmanian Government. The Taskforce also played an important role in securing Australian Government co-funding for the implementation of much-needed relief and recovery measures.

Interoperability arrangements

The State Government's *Interoperability Arrangement Policy (IA)* encourages State Service employees to express interest in being released from their substantive duties in an emergency to assist with the management of emergency-related activities on a short-term basis.

Through these arrangements, pre-registered staff were made available to the Taskforce from June until August. Over this time, 15 staff from several agencies worked with the Taskforce for periods of up to two weeks. In addition, the IA provided close to a further 100 staff to assist in the initial response/early recovery period through the Tasmanian Emergency Information Service (call centre) and Northern Regional Emergency Coordination Centre.

Learning from previous disaster recovery programs

While every disaster is unique in nature, the Taskforce was able to draw on lessons identified from previous recovery efforts across the nation, to guide the recovery framework for the 2016 flood recovery. Learnings documented throughout the recovery from Tasmania's devastating 2013 bushfires, as well as those from the catastrophic Queensland 2010-2011 floods, guided policy and planning in this recovery.

In the first week following the floods in June, the State Recovery Coordinator spoke with the 2013 Bundaberg flood recovery Chair, Deputy Commissioner Brett Pointing, and the Recovery Coordinator from the 2009 Victorian bushfires, Mr Ian Dicker. The State Recovery Coordinator was also advised by the 2013 Tasmanian Bushfire Recovery Coordinator, Michael Stevens, in the initial recovery phase. Key learnings that guided this recovery were the importance of:

- quickly establishing a high-level leadership structure to ensure a coordinated statewide approach to recovery;
- harnessing local knowledge, capacity and feedback to inform recovery decision-making and activities;
- providing early and ongoing assistance to affected communities to help people get back on their feet; and
- providing open, consistent, accurate and regular communication at all levels.

Recovery communications

Well-planned and well-executed communications have a profound effect on the resilience and recovery of individuals and communities after an emergency. Relevant, accurate, timely and people-focused communications are inseparable from effective community recovery.

Emergencies and disasters are very stressful and disruptive events that people respond to in many ways. Effective communications can provide crucial information and opportunities for sharing experiences. This can build social cohesion and promote recovery across all four pillars of recovery: social, infrastructure, economic and environmental.

Recovery communications are much more than simply providing information to affected individuals and communities. They are about enabling and encouraging a dialogue across the community and promoting a narrative focused on respect for individual experiences (including difficult experiences) combined with progress towards a 'new normal'.

To deliver on this goal the Taskforce communications team operated under nine principles:

- Be people-focused and respectful.
- Be two-way.
- Highlight that recovery is locally and community-driven.
- Work through local and trusted channels where possible.
- Be consistent, accurate, timely, relevant, clear and targeted.
- Be coordinated and centralised and deliver information via multiple channels.
- Celebrate progress.
- Convey strong, decisive and collaborative leadership.
- Support and encourage productive and collaborative partnerships in recovery.

Throughout the recovery effort, the communications team aimed to deliver communications in a strategic way, by providing accurate, timely information to affected communities and stakeholders. This included information on recovery progress and ensuring affected individuals and groups were aware of the available supports and how to access them.

Changing communication needs

Planning for recovery communications should begin as soon as an emergency occurs. In some cases, recovery-focused information will be needed within a matter of hours (eg personal support). In other cases, recovery communications may not begin for a few days or longer. Recovery communications will grow naturally out of the response phase of a disaster or emergency. Each disaster or emergency is unique, so flexibility is needed to determine what information is needed at what point.

The Taskforce found that the community's communication needs were fairly typical – starting with a need for emergency support and relief information, followed by a need for communication around rebuilding of infrastructure and businesses, followed by an increasing need for communication around personal support and community cohesion.

Communication approach

In line with the communication principles outlined above, the Taskforce communication team focused its attention on a number of areas of work to ensure that individuals, businesses, communities and other stakeholders were reached with information that was relevant, clear and timely. Below are some of the key areas of focus for communication activities in response to the 2016 floods.

Community relations

Effective community relations were at the heart of the communications response. Communicating directly with affected communities was critical. The State Recovery Coordinator took part in many speaking engagements with stakeholder groups and public forums and a wide range of products and channels were used including:

- supporting nine local community events;
- advertising across various publications to advise the public on the full range of support services that were available to assist with recovery and how to access them;
- advertising across various publications for public sessions with Clinical Psychologist Dr Rob Gordon on rebuilding and recovering after the floods;

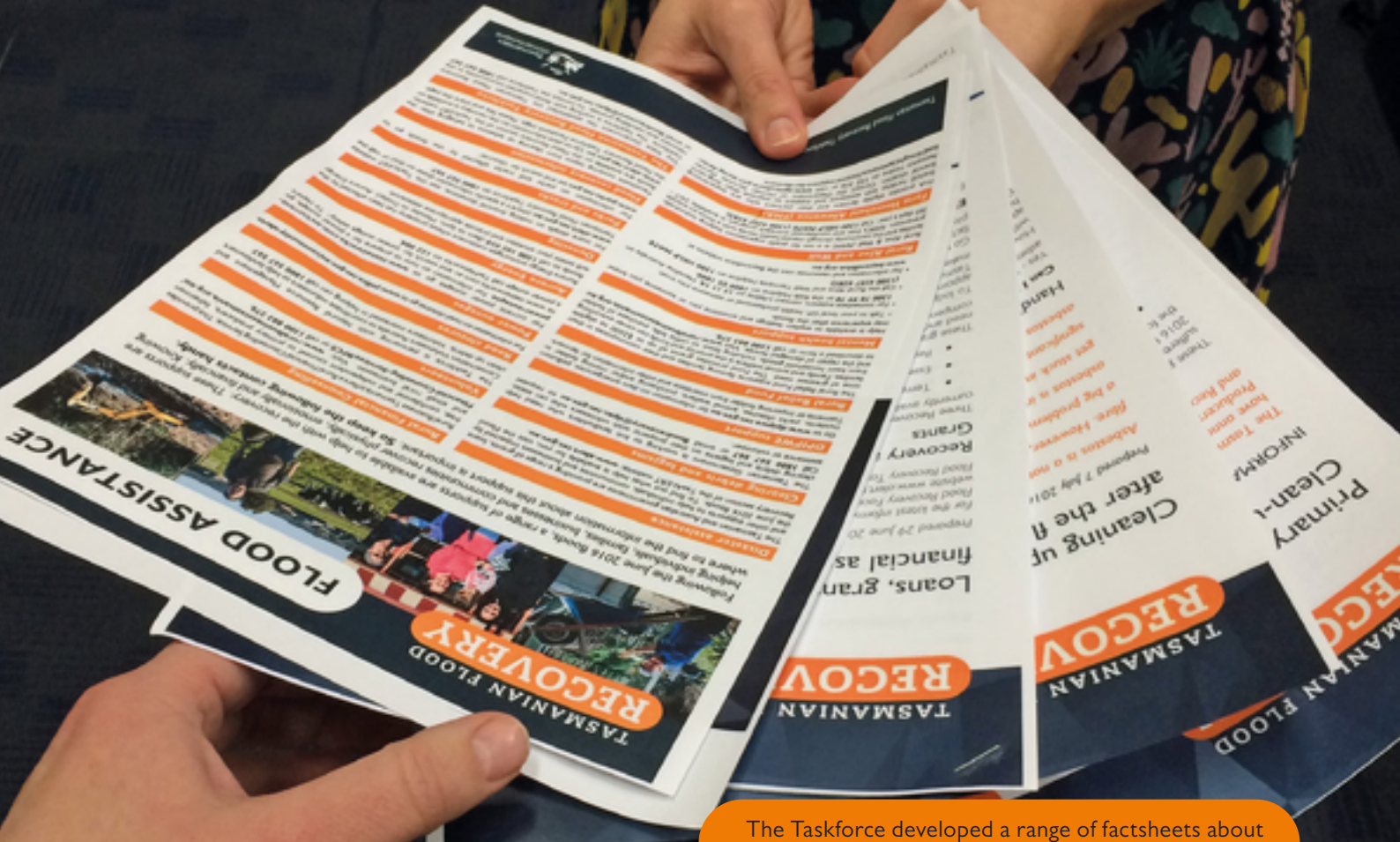
- supporting Service Tasmania staff with the latest information on recovery, so that callers to the 1800 hotline could be effectively and quickly supported; and
- assisting the Regional Flood Recovery Committees with events and communiqués so they could better complete their mission of working with affected local communities.

Media relations

Traditional media – broadcast, print and online – play a significant role in any recovery effort. Following the 2016 floods, Tasmanian media were supportive and constructive in distributing important information for affected communities. They shared positive stories of recovery and highlighted some areas of community concern, with more than 500 Tasmanian flood-related news reports across seven months. The State Recovery Coordinator conducted more than 20 media interviews, and numerous Taskforce and State Government media releases and media events were delivered.

Online

People are increasingly looking to online sources of information during and after an emergency. The Taskforce successfully delivered and managed a strong online presence to ensure that affected communities could easily access authoritative information to help with the recovery process. In addition to making information on grants, factsheets and other support and assistance available through the TasALERT website, the Taskforce communications team established the Tasmanian Flood Recovery Facebook page. This was a good way to acknowledge some of the local recovery efforts and to share good news stories with the broader community. The page also provided people with another way to ask questions and provide feedback on recovery initiatives. More than 100 Facebook posts were delivered on the page during the recovery, building more than 1600 followers and reaching more than 250,000 people.



The Taskforce developed a range of factsheets about critical recovery issues being faced by the community

Being open

The first two principles of effective recovery communications (listed above) are to be people-focused and respectful; and to be two-way. That means affected individuals must be able to contact government to seek information, provide feedback or request action. The communications team played a lead role in establishing four primary channels through which people could communicate with government about the floods and the recovery process:

- A 1800 phone number was set up and received 500 phone calls.
- A flood recovery email address was established and received more than 1800 emails.
- Direct messages were delivered and posts responded to on the Facebook page.
- Flood recovery information sessions were held.

The floods occurred across a large and often rural and remote geographic area with varying degrees of impact. This presented a challenge for delivering communications at an individual level. To help meet this challenge, the Taskforce and councils worked collaboratively to organise flood recovery

information sessions that brought together information and service providers in regions most affected. These sessions provided information across topics including financial assistance, tax, legal, personal support, waste management and environmental health, river erosion, livestock management, planning and building, and volunteer information.

Information sessions were held in Deloraine, Wynyard, Gunns Plains, Ouse, and Latrobe/Kentish. In addition, the Taskforce coordinated information and services at a number of other community-driven and organised meetings, which increased the reach to those people cut off from more mainstream communication channels.

Factsheets and advertising

The Taskforce created and regularly updated a number of factsheets about critical issues faced by the community during the months following the floods. These factsheets were widely distributed via the flood recovery Facebook page, TasAlert website, community flood information sessions and through the RFRCS, councils and NGOs involved with the recovery.

Flood recovery centres

It is important for any Taskforce to have a presence in affected areas. That was achieved during this recovery effort by establishing regional Taskforce centres co-located with existing government services in Devonport and Launceston. The centres provided community members with a place to drop in for a chat and to seek up-to-date information and support.

Consistent branding

Branding of materials consistent with the Tasmanian Flood Recovery or Tasmanian Flood Recovery Taskforce identity was an important way to recognise information as being trustworthy and demonstrating that government was present and able to help. This was achieved through the development of a Tasmanian Flood Recovery logo and branded templates for all communications.

Partners in recovery

As stories and photos of the devastation caused by the floods were shared through the media, there was a strong response in the form of offers to volunteer and assist in the recovery. Experience shows us that large-scale recoveries present a challenge for existing State and local government services, which often operate with limited resources. The National Strategy for Disaster Resilience⁶ notes that we have a collective responsibility for building resilience. A part of this is recognising that working together and utilising the expertise and capacity of various partners can result in greater recovery progress. It is not possible to include mention of all NGOs involved with the recovery. However, it must be noted that the many achievements and much of the progress made during the 2016 flood recovery would not have been possible without the enormous contribution of the many individuals, businesses and organisations who gave considerable time and resources to supporting recovery efforts.

While the assistance of NGOs was invaluable during the flood recovery, future recoveries may benefit from more clearly defined recovery roles and responsibilities between government and NGOs. A positive result was that several NGOs reported that the close collaboration between them during the flood recovery has built a strong foundation for working together in future emergencies.

At the grassroots level, communities worked hard to help each other out, even when going through their own individual recoveries. Many local businesses across the three regions – too many to list – donated goods for recovery purposes, or offered them at a discounted price. It is stories like these that highlight the generosity, community spirit and resilience essential in recovery.



Very strong links established between organisations such as Red Cross, Salvation Army, Dairy Tasmania and Rural Business Tasmania have been excellent. It is now to the point where we, with that group of organisations, are looking at what we can do better next time. How do we get everyone to ramp up at the same time in the future, and how do we work together effectively to get help to those that need it?

Susan Nolan, Business Coach,
Rural Business Tasmania

⁶ Council of Australian Governments, 2011. National Strategy for Disaster Resilience.

Volunteering Tasmania

Volunteering Tasmania (VT) is the not-for-profit peak body for volunteering in our State. In 2016, Volunteering Tasmania coordinated the development of the Emergency Volunteering – Community Response to Extreme Weather service (EV CREW), a concept brought to Tasmania after operating successfully in other states.

Following the social and community impact of the 2013 Dunalley fires, Volunteering Tasmania was working towards establishing the EV CREW in time for the 2016-17 bushfire season when the floods unexpectedly happened. Despite EV CREW not being fully operationalised when the floods occurred, the service did provide valuable assistance in pockets across the State. For example, BlazeAid was able to use the register to find experienced volunteers for flood recovery work, many of whom dedicated extended periods of time to help out on projects in the months following the floods. Conservation Volunteers Australia (CVA) was also able to use EV CREW to help run recovery projects.

Volunteering Tasmania report that they expect EV CREW to perform a greater role in future disaster recovery efforts as the number of volunteers in the database grows and the awareness of EV CREW among local government and community organisations increases.

Conservation Volunteers Australia

CVA works in partnership with all levels of government, the corporate sector and community groups on environmental and wildlife conservation. In partnership with TasNetworks, CVA ran a six-week flood recovery program. With 110 volunteers working during the flood recovery to date – some from as far away as Japan, Hong Kong and China – work was undertaken on a number of projects on properties along the Liffey, Dasher and Patrick rivers. CVA also worked with the three regional natural resource management organisations (NRMs) during the flood recovery. In particular, they worked closely with Cradle Coast NRM and an existing Rivercare Group on riverbank rehabilitation along the significantly impacted Dasher River.

Natural resource management organisations

Natural resource management organisations work to protect, manage and improve natural resources across Australia. The three Tasmanian organisations – NRM South, NRM North and Cradle Coast NRM – worked with the Tasmanian Government to provide some of the affected landowners across the State with advice on rehabilitation work required along riverbanks on or adjacent to their properties. Cradle Coast NRM in particular provided invaluable support, stepping outside their normal scope of business to undertake impact assessments on many rural and remote properties in the North-West. The Taskforce was able to use this spatial data to help form an accurate picture of flood damage, and where support was needed. Cradle Coast NRM also worked closely with CVA to identify suitable small reparation projects that could be undertaken or supported by volunteers. In addition, the NRMs were able to use their established local networks to share information from the Taskforce on available assistance and support.

Rural Alive and Well

Rural Alive and Well (RAW) is a not-for-profit organisation that helps rurally-based individuals, families and communities to cope with challenging life experiences. RAW's outreach workers were able to provide immediate response after the floods. Their radio-tracked vehicle fleet was already equipped to travel over rough off-road terrain, enabling RAW staff to visit affected residents in the days following the floods. This was particularly useful for those otherwise isolated because of road or bridge damage.

In line with their focus on community wellbeing, RAW reported working closely with other organisations to share recovery information in the months following the floods, and to link individuals and families with other services and resources they may have needed. Through flood donations totalling around \$70,000, RAW was also able to offer a small grants program and appoint a part-time Specialist Case Worker in the North-West region.



A community information session was held in Ouse to assist those Central Highlands and Derwent Valley residents affected by the floods

The small grants program assisted families by providing up to \$500 per family and could be used for anything that might aid their individual flood recovery. The Specialist Case Worker began work in December 2016, and is spending six months working with high-needs families during their ongoing recovery.

BlazeAid

Volunteer-based organisation BlazeAid works with families and individuals in rural Australia after natural disasters. Following the Tasmanian floods, BlazeAid provided invaluable assistance to affected properties in Ulverstone, Ouse, Latrobe, Mole Creek and Western Creek. BlazeAid volunteers undertook activities such as cleaning up debris, filling in holes, removing damaged fencing, and repairing and replacing fencing.

BlazeAid coordinated about 150 volunteers who donated their time to the recovery effort. With over 100 properties worked on, some 95 km of damaged fencing was cleared, and around 73 km of new fencing built.

BlazeAid's Tasmanian flood recovery operation was headed by Barry Thompson. During his time on the Tasmanian operation, Mr Thompson coordinated donations of around \$45,000 from local service clubs, fundraisers, and private donations. These funds were used to commission six combat-ready BlazeAid trailers for the State.

These trailers are now in storage, ready to be used to respond to the next emergency. Several local businesses also contributed to these trailers by providing at-cost materials and significant discounts on parts and labour.

BlazeAid was able to use Volunteering Tasmania's EV CREW register to source some of their volunteers. Many of the BlazeAid volunteers who worked on the flood recovery operation were locals, highlighting the generous willingness of the Tasmanian community to step up and assist each other in times of need.



The support BlazeAid received in Tasmania, through the amount of materials, information and maps provided, and the degree of knowledge of those involved was absolutely brilliant, second-to-none.

Barry Thompson, BlazeAid

Rural Business Tasmania

Rural Business Tasmania (RBT) is a not-for-profit association offering financial counselling and business support expertise to rural and regional communities. It provides the statewide Rural Financial Counselling Service (RFCS) for primary producers and small rural and regional businesses suffering from financial hardship.

After 30 years of service in Tasmania, RBT provided a known and trusted resource for those affected by the floods, giving vital support and guidance in industries already in crisis following drought and other significant stresses in the dairy and poppy industries.

RBT Chief Executive Officer (CEO), Elizabeth Skirving, reports that the RFCS was able to provide practical financial advice and emotional support during the flood recovery. With intimate knowledge of the realities of rural business in Tasmania, staff were able to use existing close working relationships with other organisations to ensure those impacted had access to a range of services where they were needed most. Through

Landcare volunteer, Philip Hedditch, begins the long process of rehabilitating Pig Island following the flooding of the Mersey River at Latrobe



these relationships, RBT fostered connections through AgriGrowth Tasmania (DPIPWE), RAW, Tasmanian Farmers and Graziers Association (TFGA), Dairy Tasmania, Anglicare, Salvation Army and St Vincent de Paul Society. This 360-degree support provided individuals, families and small businesses with much more than financial assistance.

RBT also administers the Rural Relief Fund (RRF), providing grants of up to \$2,500 for crisis relief to eligible families for everything from basic household goods including food, to the payment of utility bills, to the repair of damaged fences. Following the floods, RBT ran a flood appeal and deposited the funds in the RRF; the Tasmanian Government and TFGA donated \$75,000 and \$45,000 respectively.

RBT received over \$500,000 in grant applications and, by the end of January 2017, paid out over \$300,000 to flood-affected individuals and families by way of cheques, vouchers and payment of bills. This grant program remains ongoing through the long-term recovery.



We all step up and do what we can. Our staff dropped everything after the floods, put their lives on hold and put in all hours to help affected people. The majority of our staff come from farming and it has been very emotional dealing with the applications for relief funding.

Elizabeth Skirving, CEO, Rural Business Tasmania

Gathering information and data

The Taskforce oversaw the collection and integration of impact and recovery data into the Land Information System Tasmania (LISTmap), Common Operating Platform (COP). The LISTmap/COP is a web-based capability that was developed to provide Tasmania's emergency service organisations with a single mapped view of shared, authoritative information for use in emergency incident planning, preparedness, response and recovery activities.

The collation of more detailed damage and impact assessments across the State, including from GBEs, local government, and other impacted tenure, was critical to supporting the ongoing recovery process. The data represented in LISTmap/COP provided visual situational awareness of flood damage and impact across the State, which the Taskforce used to determine impacts in the four key areas identified for flood recovery (social, infrastructure, economic, environmental). This data was vital in supporting decision-making for recovery activities and application for Australian Government funding assistance.

Apps and web services

Following the floods, the Taskforce worked with the Emergency Services GIS Unit of DPIPWE to develop location-based mobile applications specific to the needs of the recovery process. Six key in-field collection applications were used to help with flood-related data collection. One was existing and five were developed during the recovery phase:

- Agribusiness Impacts (existing)
- Carcass Removal (new)
- Local Government Impact Assessment (new)
- Major River Debris (Logjam) and Other Debris (new)
- Small Business Impacts (new)
- DPIPWE Referrals (new)

To help collate accurate and comprehensive data from such a large (and in many cases remote) geographical area, the Taskforce facilitated the development of councils having the capacity to upload data to the LISTmap/COP via the Local Government Impact Assessment application. As well as in-field data collection, Web Feature

Service editing enabled office-based data entry and updates to occur during the recovery process. DPIPWE Referrals, Major River Debris as well as the Transport freight subsidies and Primary Producer grant datasets were developed this way. This greatly improved the Taskforce's ability to maintain awareness of what was happening as the recovery progressed and to report on uptake of services and grants.

During the flood recovery, over 25 flood-specific datasets were developed to map infrastructure, agricultural, environmental and business impacts. Collection and analysis of data, combined with existing spatial data, provided the basis of applications for the Australian Government's Natural Disaster Relief and Recovery Arrangements (NDRRA), progressed by the Taskforce.

High water mark survey and flood polygon

Coordinating the capture of flood height levels and the subsequent build of a flood-extent boundary was a key role of the Taskforce. This was done using a combination of both rapid impact assessment (RIA) information and high-water mark (HWM) surveys. The RIA provided a general indication of the areas of impact and an approximate extent. This orientated the HWM survey work that provided more accurate information to create a flood boundary of high priority flood areas. The flood polygons were used to obtain further knowledge of the areas affected during the 2016 floods and to help identify a more accurate account of flood damage. The surveyed HWM points and derived flood boundary will also be used to inform future planning and mitigation work.

Maps

Over 50 individually themed maps were produced during the recovery phase. These maps provided situational awareness for briefings and meetings across the three Taskforce locations, community flood information sessions and RFRC meetings. Maps were also provided to support organisations, such as BlazeAid and the Anglican Church.



Meander Valley Council Mayor, and Chair of the Northern Regional Flood recovery Committee Craig Perkins, inspects damage at Overflow Creek, west of Mole Creek

Response readiness in Meander Valley

2016 was an eventful year for the communities of Meander Valley, nestled in their scenic corridor between Launceston and Cradle Mountain country. In January of that year, bushfires raged across the Great Western Tiers, threatening western townships, and serious floods then followed in June. Both of these events placed considerable strain on Meander Valley Council resources.

Following the June floods, an evacuation centre was established in Deloraine. The loss of six bridges and flood damage to a third of the municipal road network meant coordinated planning was needed. Council officers and works-crews worked incredibly hard to re-establish infrastructure as quickly as possible.

One of the key lessons for Council during these extreme periods has been a better understanding of its capacity to respond to community expectations. Anxious and vulnerable residents want regular contact, good information and, in some circumstances, prompt, practical action. Council staff, meanwhile, are confronted by the need to deal with impact assessments, infrastructure priorities and information management.

This realisation has prompted Meander Valley Council to develop a Memorandum of Understanding (MoU) with its six local service clubs to enlist their help in public emergencies.

“Service club members are insured and have networks and knowledge that can be invaluable in times of crisis,” said Craig Perkins, Mayor, Meander Valley Council.

“We all get stretched and stressed in emergencies. This partnership with local service clubs will help us to be much more response-ready and able to deliver the best support to our communities.

“That knowledge alone gives us all a greater feeling of confidence about whatever lies ahead.”

The MoU sets out the parameters of the role service clubs will undertake in the future. This involves low-risk tasks such as doorknocking, rubbish disposal, delivery of supplies and simple repairs. The most important thing is that the clubs are able to promptly connect with affected residents and provide a reassuring and familiar face. They can also report relevant information and issues of significant need back to Council. Through the MoU, Council commits to assist clubs with related costs and to provide an annual training opportunity for participating members. The MoU arrangement will be reviewed every two years.

MoUs are now in place with the Apex Club of Deloraine, the Lions Club of Deloraine, the Lions Club of Hadspen, the Lions Club of Westbury, the Rotary Club of Deloraine and the Rotary Club of Westbury.

By Patrick Gambles, Community Development Manager, Meander Valley Council



TasNetworks and CVA flood recovery program

As part of an ongoing commitment to care for the environment and their customers, TasNetworks partnered with Conservation Volunteers Australia (CVA) to fund a six-week Flood Recovery Program.

Under the program, CVA volunteers provided practical, on-the-ground assistance in environmental repair. The CVA team operated as mobile work units, removing and repairing fences, removing debris, repairing and controlling erosion, repairing walking tracks, doing revegetation projects and providing early intervention to prevent the spread of weed seeds.

This program was a great example of the benefits of volunteers helping rebuild communities and their infrastructure following emergency events. The benefits are both physical and emotional. Those receiving assistance can get a huge boost to their morale – both in witnessing people volunteering their time to help, and in having their recovery helped at that practical level. Those that are volunteering can see the difference their time and effort can make to someone rebuilding their life.

Key findings

- The establishment of a high-level governance structure that included State, regional and local involvement ensured the recovery progressed in a coordinated and holistic way.
- The Taskforce provided consistent coordination and support to those involved in the recovery.
- Well-planned and well-executed communications have a profound effect on the resilience and recovery of individuals and communities after an emergency. Tasmania can build on work to deliver a shared approach to recovery communications between all relevant partners and also further integrate response and recovery communications work.
- The involvement of non-government organisations and groups in recovery efforts was invaluable and resulted in greater capacity to support and assist the recovery. Future recoveries may benefit from more clearly defined recovery roles and responsibilities between government and NGOs.
- The use of infield data collection capabilities combined with the web-based viewer, LISTmap/COP, provided crucial situational awareness enabling the delivery of targeted assistance. Further education in the use of this technology for local government and other organisations working on the ground would strengthen future recovery efforts.



Governor of Tasmania, Her Excellency Professor the Honourable Kate Warner AC, on a tour of northern flood affected communities

Recovery in Action

This section of the report is separated into the four domains of recovery:

1. Social: Supporting individuals, families and communities
2. Infrastructure: Restoring major infrastructure and assets
3. Economy: Helping the local economy to rebound
4. Environment: Environmental and cultural heritage recovery.

Each sub-section begins by identifying key points, covering the impact of the floods and the subsequent recovery efforts and assistance provided in response to these impacts. Each sub-section ends with key findings.

Recovering from emergencies requires a holistic approach. Ensuring recovery efforts were planned across the four key areas of social, economic, infrastructure and environment provided a structured approach to the work of the Taskforce and its partners.

Disaster events, by their nature, cause confusion and can result in widespread misinformation. Through a range of communication channels, the Taskforce was able to provide regular, factual updates on recovery priorities and progress. These channels provided those involved – all levels of government, NGOs, businesses and communities – with relevant, accurate and timely information they needed to assist in the recovery process.

The Tasmanian Relief and Recovery Arrangements (TRRA) provide assistance for the recovery of Tasmanian communities affected by natural disasters. The TRRA are aligned with the Australian Government's Natural Disaster Relief and Recovery Arrangements (NDRRA), which provide a financial safety net for states and territories for the costs incurred following natural disasters. Both the TRRA and NDRRA policies require that a threshold is met before funding will be provided. A Taskforce priority from the very beginning was to coordinate funding under both the TRRA and NDRRA. The Taskforce also oversaw the rollout of financial assistance to affected landowners, families and businesses throughout the recovery.

Key points

- The floods caused damage to at least 130 residential properties, over 140 small businesses and 89 Department of Education sites.
- Evacuation and recovery centres operated during the week following the June floods, offering shelter, food, financial assistance and other basics to people. These centres also connected people with the resources and services they needed.
- There was a strong focus throughout the recovery on providing personal support to help people cope with and recover from their experiences.
- The Taskforce progressed a range of financial assistance on behalf of the Tasmanian Government through the Tasmanian Relief and Recovery Arrangements and the jointly funded Natural Disaster Relief and Recovery Arrangements. This assistance supported affected individuals, families and businesses.
- Public health services were largely unaffected. The immediate rollout of State Government protocols quickly alleviated potential public health concerns.

Following traumatic events, a wide range of ongoing support is required to help those affected to recover physically, emotionally and financially. A key recovery priority following the floods was to support individuals, families and communities to recover from the impact and to rebuild their lives. An important component of recovery is in understanding that 'recovery' can mean different things to different people, and then providing support that takes this into account.

Emergency response and immediate needs

Emergency and recovery personnel have shared stories of being woken in the middle of the night as flood warnings were issued, noting the added confusion and complication of having to instigate emergency protocols under the cover of darkness. In the early hours of 6 June, many individuals and families were forced to temporarily find emergency alternative accommodation as waters invaded or threatened to invade their homes. Rapid impact assessments recorded a total of 130 residential properties damaged (to varying degrees) by the June floods, with 72 in the North-West, 52 in the North, and six in the South. The July flood in Huonville affected a further

seven properties in the Huon Valley LGA. Following protocol under the *State Emergency Management Act 2006*, Regional Emergency Management Committee (REMC) municipal representatives set up evacuation centres. These centres are shown in Figure 3.

To help those who had to leave their homes, almost \$27,000 in Emergency Accommodation Grants was sourced by the Department of Health and Human Services (DHHS) in the immediate response phase, assisting almost 200 people.

As evacuation centres closed down, recovery centres were set up in the North-West and Northern regions, as shown in Figure 4. Across the evacuation and recovery centres, communities had access to a range of financial assistance, personal support, and various government and non-government services such as the North-West Community Legal Centre, Centrelink, Salvation Army, Service Tasmania, Tasmanian Council of Churches, State Growth, Housing Tasmania (DHHS), Children and Youth Services (DHHS), Social Workers (Tasmanian Health Service), RACT, council staff, Environmental Health Officers (DHHS), Red Cross, Service Tasmania, TasNetworks and the St Vincent de Paul Society.

Figure 3. 2016 flood evacuation centres

Evacuation centre	Municipalities serviced
North-West	
Wynyard: Railway Institute Hall	Waratah-Wynyard
East Devonport: East Devonport Recreation Centre	Devonport, Central Coast, Latrobe, Kentish
North	
Launceston: Albert Hall	Launceston
Launceston: Silverdome	Launceston
Launceston: UTAS Newnham Campus	Launceston
Deloraine: Deloraine Community Complex	Meander Valley
South	
New Norfolk: Carinya Centre	Derwent Valley, Central Highlands

Figure 4. 2016 flood recovery centres

Recovery centre	Municipalities serviced
North-West	
Latrobe: Latrobe Memorial Hall	All affected North-West regional municipalities
North	
Launceston: Service Tasmania	Launceston

While a small number of houses remain uninhabited in mid 2017, the majority of flood-affected houses have been repaired and restored in the months following the floods, with individuals and families able to return to their homes. The collective efforts of individuals, community groups, NGOs and government assistance programs must all be recognised in enabling this achievement.

Fortunately, the impact of flooding on the delivery of statewide health and human services was

minor. Some service delays were experienced at a number of Community Health Centres due to the risk of flooding. However, with the model of care for some community-based clients adjusted, any potential increase in vulnerability due to the likelihood of flooding was avoided.

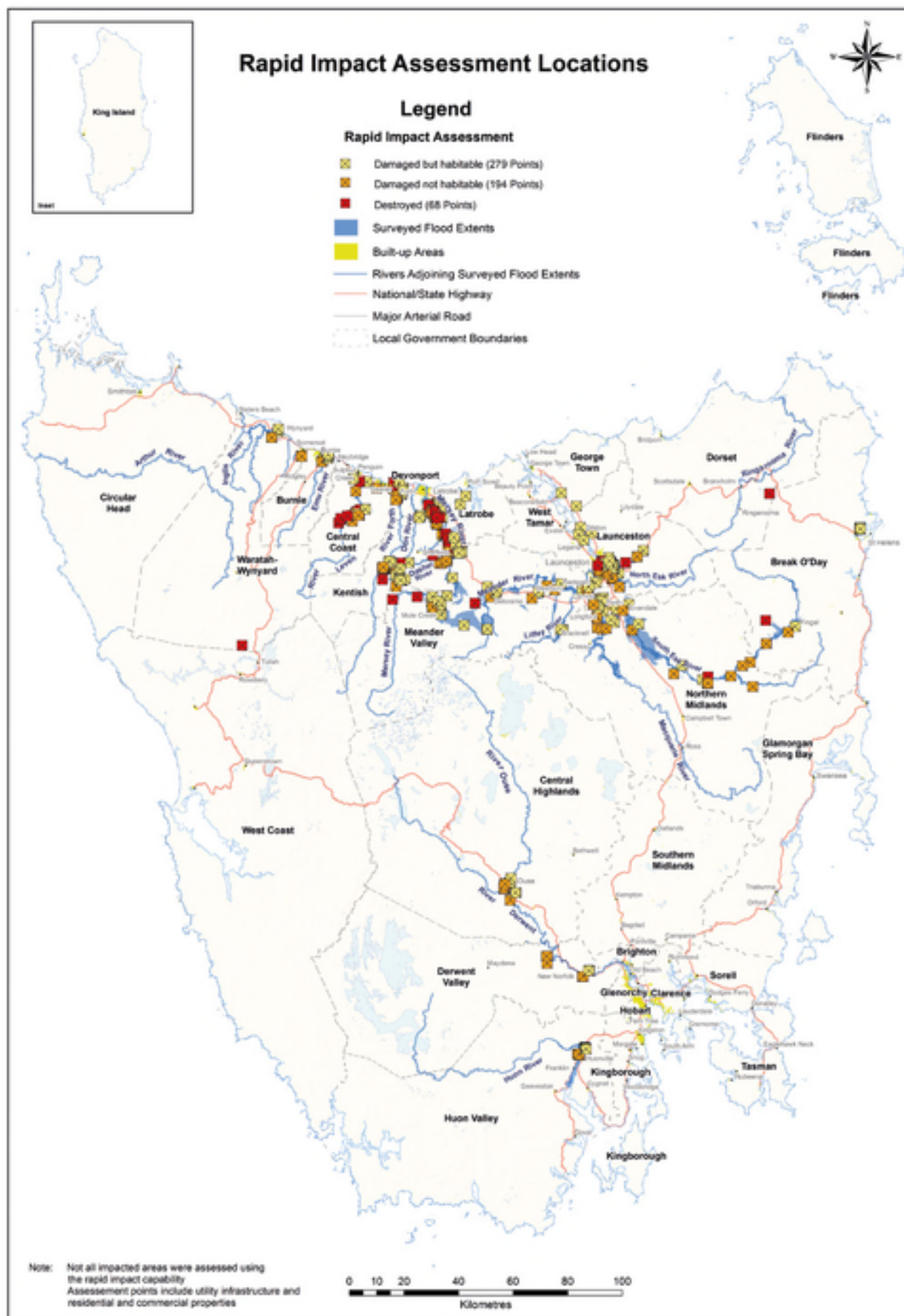
While 89 Department of Education sites were affected, including schools, TasTafe campuses and LINC Tasmania centres, only three sites were closed temporarily.



Some days we had over 200 people from across the region visit the Latrobe Recovery Centre. Some terrific people worked there and it was more than just ‘services’ being offered, for example, warm food, a place for comfort during very tough times and a sympathetic ear. When you stand for Mayor, you don’t expect you will face something like this devastating event, but at the end of the day all you want to do is fix things for people and give them back some sense of normality.

Peter Freshney, Mayor, Latrobe Council and Chair of the North-West Regional Flood Recovery Committee

Figure 5. Impact to residential and commercial properties





Flood damage to the Calder River below the Pages Road bridge, west of Wynyard

On the night the floods hit in Wynyard

Emergencies have a life of their own and this flood episode was no exception. A phone call was received only minutes after I went to bed around 10:45pm. Without any prior warning, an instruction was received to establish an evacuation centre in Wynyard for residents and visitors unable to remain in their homes due to flooding. Many people were caught unprepared to evacuate, as they were already asleep before the water rose into their homes.

One lady had her parents visiting for a few nights and had given up her double bed for an airbed on the floor. She awoke to a floating sensation before realising that she was indeed moving on a tide of water around her lounge room.

I also heard stories of people being rescued by their neighbours in Stanwyn Court when flood waters rose too high for them to leave their home unassisted. People were looking out for each other and knocking on doors to alert others to the danger posed by the rising water.

We had eight people arrive at our designated evacuation centre, the Railway Institute Hall, the last at 2am. Due to persistent rain, many arrived wet and cold, including an elderly gentleman who was about 90 years old.

Accommodation was found for three people by contacting their friends and relatives. Two had arrived in a self-contained motor home, while I was able to provide beds for another three people at my home, which was nearby. My clothes dryer was also put to good use while they slept.

Around 40 homes were evacuated on the night. Some are still unoccupied due to land slippage or irreparable damage. Due to strong family connections, many people were able to find their own accommodation after evacuating their homes. In the longer term, 10 families were accommodated at Leisureville while repairs were undertaken on their home. The last left in early October, four months after the flood.

It has been a tough time for some in our community following the floods, but the generous support and assistance from community members and local businesses has gone a long way to raising morale and recovering from the damage caused.

**By Richard Muir-Wilson, Community Development Officer and Social Recovery Coordinator,
Waratah-Wynyard Council**

Health and wellbeing

Support for the public

While most people can recover after emergencies by drawing on their own resources and the support and strength of those around them to rebuild their lives, some people require more help to do so. Personal support has been coordinated at a local, regional and state level during the recovery through several channels. Support from Tasmanian Government social and recovery workers, the coordination of community groups and personal and support services at the evacuation and recovery centres, and community flood information sessions have contributed to ensuring affected communities have been well supported. The Taskforce also produced a factsheet on 'Looking after yourself following a traumatic event' which was widely distributed, and included contact information for various support services.

Presentations by Dr Rob Gordon, a renowned clinical psychologist with expertise in working with response and recovery organisations and people affected by emergencies, were held statewide from August to November 2016. These public events focused on helping people understand their reactions to trauma and grief throughout the recovery process.

The floods followed a number of other challenges to the primary industry sector in Tasmania including a record-dry spring/summer, in some cases lost fencing and stock from fires earlier in the year, reduced poppy contracts and major retrospective reductions in milk prices. The significant flood damage to stock, property, infrastructure and landscape had profound impacts on many farmers, their families and their communities.

The flood recovery drew on the support of a range of organisations, such as RAW and the Anglican Church in Latrobe. These organisations played a critical role in monitoring the wellbeing of people in affected communities, with both appointing fixed-term, part-time recovery workers to provide ongoing support in the longer-term

recovery. RAW CEO Liz Little estimates the organisation's workload will have increased by more than 90% in the current financial year, partly in response to these challenges.

Many service clubs have played, and continue to play, a very active role in supporting individuals and families with their recoveries. While this support has often been of a practical nature (cleaning up flood debris, rebuilding gardens), many anecdotal stories include how much people have appreciated the opportunity to simply sit down and talk to the friendly face of a local service club member about their story of recovery.

Support for the staff

Lessons learnt from the 2013 Tasmanian bushfires tell us that involvement with recovery processes places a significant burden on individuals who are also working through their own personal circumstances. During the 2016 flood recovery, reports from individuals and organisations that deal directly with those impacted identified this same learning. Further, this flood recovery has demonstrated that those working closely with affected people carry a significant burden, whether or not they themselves are going through a personal recovery journey.

In response to this, Northern regional social recovery staff provided a joint training session on 'Self Care and Management' for council staff and social workers who played a key role in social recovery efforts (particularly in relation to evacuation or recovery centres). The session explored how personal stresses, anxieties and reactions can impact on someone's capacity to engage with other support staff and with clients. Further joint training sessions will be offered in 2017 for additional councils and NGOs as part of ongoing support through the long-term recovery.

The Launceston City Council delivered a trauma and grief workshop for council and state government staff in August. The Taskforce delivered two additional workshops with Dr Gordon, in Campbell Town in October and Hobart in November, for state and local government staff and targeted community organisations.



A house on Main Street Hadspen is surrounded by floodwaters from the overflowing South Esk River

Vinnies Tasmania – rebuilding lives

St Vincent de Paul Society in Tasmania was itself directly affected statewide by the 2016 Tasmanian floods, but that didn't stop the Society from providing assistance and support to community members in need.

The Society's State Office was evacuated, and the Latrobe shop suffered water damage. The Huonville and New Norfolk shops were also under threat of being inundated by flood waters. Four occupied units of Cape Country Housing (independent living for people with disabilities) in Wynyard were evacuated by boat in the early hours of Monday 6 June due to rising floodwaters within the complex grounds.

The Society responded to requests from the evacuation centres in Latrobe and East Devonport, providing clothing for several backpackers who were staying at the Latrobe Caravan Park. They also provided clothing, bedding and personal care packs for up to 40 people evacuated from their homes in Launceston to the Silverdome and UTAS evacuation centres. Staff and volunteers were present in each of these evacuation centres until they were closed on the Wednesday night.

In partnership with MyState, the St Vincent de Paul Society also launched the 'Vinnies Tasmania Flood Appeal' on Friday 10 June to assist people throughout Tasmania who suffered losses following the floods. Raising over \$205,000, the Society has helped people with things such as buying fencing materials, furniture and window coverings, electrical items, water pumps, and for repairs to private bridges, paths and driveways, and accommodation and food.

The Society will continue to offer ongoing long-term support to members of the public affected by the floods, and in particular will assist with property repairs that haven't been covered by government grant funding and insurance claims. Volunteers remain on the ground working with families and will continue to offer support as long as they are needed.

Providing assistance to help recovery

Financial assistance

The Taskforce progressed a range of financial assistance on behalf of the Tasmanian Government through the TRRA and the jointly-funded Commonwealth-State NDRRA. The Taskforce worked closely with relevant agencies to coordinate and monitor the distribution of this, and other support to affected families and individuals in the weeks and months following the floods.

Emergency Assistance Grants (NDRRA Category A)

The most immediate concern of people who have been displaced after an emergency is often access to basic living needs. Emergency Assistance Grants benefited over 2000 people with more than \$375,000 paid out to individuals and families in the immediate response period. These grants were distributed through DHHS to provide financial assistance to find safe alternative accommodation and purchase food, water and clothing.

Recovery and Restoration Grants (NDRRA Category A)

More than \$363,000 in Recovery and Restoration Grants was provided to 149 applicants (individuals

and families), with 76 coming from the North-West region, 68 from the North and five from the South. These grants were allocated in three streams: temporary living expenses, replacement of household items, and repair and restoration.

Natural disaster assistance for sport and recreation clubs (NDRRA Category B)

These quick response grants of up to \$2,000 were administered through DPAC for sport and recreation clubs and not-for-profit organisations that incurred flood-associated costs not recoverable through other means (such as insurance). These grants could be used towards the removal of debris, the replacement of supplies and equipment, small renovations and various costs incurred while hiring other premises. Over \$73,500 was paid out to 38 organisations in response to these grants.

Other assistance

The outpouring of support from the wider community following the floods was captured through funding and donation appeals run by not-for-profit and service organisations, such as the St Vincent de Paul Society in partnership with MyState, the TFGA, Rotary Recovery Funds, the ABC Giving Tree, Rural Business Tasmania and several Lions Clubs across the North-West. Many of these organisations are still offering small grants and assistance in the long-term recovery period.

Support when it is needed most

It's easy to forget that in times of crisis the small gestures can actually make the biggest difference in people's lives.



I am writing to thank DHHS so much for the financial emergency assistance given to my husband and I after the devastating effects of the June floods. It has now been ten and a half weeks, and we are starting to get back on our feet. That grant meant the world to us. Our world had caved in and we were thrown a lifeline when things looked so bleak.

An excerpt from a thank you note received from a grateful resident of the Kentish municipality



Kentish Lions Club

In response to the extensive flood impacts through their community, the Kentish Lions Club came together to set up an appeal to assist Kentish residents affected by the floods. During the weeks and months following the floods, the club raised \$15,000 through fundraising events like a Club auction and sausage sizzle, and the annual Music Hall Variety Show. A local church group donated some funds to the appeal, as well as funds collected from a jumble sale held in Railton.

The Club made these funds available to both urban and rural residents in the municipality, as well as donating funds to the Mount Roland Rivercare Group to assist in riverbank rehabilitation projects.

Club members became bus drivers for Lorinna residents who were cut off by the floods, and held many working bees to help out flood-impacted residents, including removing furniture from flooded houses, cleaning up debris and rubbish from properties, rebuilding gardens and driveways and organising supplies of wood for winter.

Club members also spent time visiting affected residents to offer support and lend an ear, reporting this level of support was welcomed by many residents just wanting to talk.

Public and environmental health

The floods initially caused a number of public health concerns, which were quickly and effectively resolved by following existing DHHS protocols. Information and advice was shared through already established statewide networks such as the Regional Emergency Management Committees, General Practice Network and Local Government (Environmental Health Officers) Network, as well as via social media, the TasALERT website and a factsheet produced by the Taskforce. Immediate monitoring and surveillance of flood-related public health areas occurred, including contact with contaminated flood waters and flood-related debris, boiled water alerts, food safety, treating infections, public health advice for recovery centres and general safety.

Temporary boil-water alerts were issued for Rocky Creek, National Park (including Westerway and Fentonbury) and Colebrook following the June floods. This was due to increased water flows resulting in high turbidity of some water systems.

Due to the large number of deceased stock in and around rivers in the aftermath of the floods, there was concern regarding potential health risks. DPIPWE undertook a carcass removal program in the days following the floods, to remove carcasses from Crown land as well as assist landowners with removal when required.

In some cases, damage sustained to dwellings and buildings during the flood events exposed asbestos. In response, asbestos-specific advice was immediately issued through the existing Worksafe Tasmania/public health protocols and networks, and the Taskforce developed a 'Cleaning up asbestos after the floods' factsheet that was widely disseminated to help people understand how to manage asbestos and where to seek assistance if required. Similarly, mould management advice was also provided.



Derwent Valley Council Mayor, Martyn Evans, and local resident John Jones inspect a damaged bridge near Ouse

Key findings

- Bringing various organisations, services and resources into some of the evacuation and recovery centres was beneficial for people affected by the floods. Aligning these resources with all evacuation and recovery centres in future recoveries would be beneficial for people affected by an emergency.
- Professionals working with affected people during the recovery grew in confidence and capacity through the workshops with clinical psychologist Dr Rob Gordon. Offering regular information and training sessions on personal support to State and local government staff and targeted NGOs would increase capacity and build resilience.
- Financial support through the Tasmanian Relief and Recovery Arrangements in the immediate response and early recovery period provided affected people with much-needed assistance.
- Information and advice on public and environmental health were effectively communicated through established protocols following the floods. The capacity to rapidly distribute additional resources such as the 'Cleaning up asbestos' factsheet worked well in addressing additional potential concerns as they arose.

2. Infrastructure: Restoring major infrastructure and assets

Key points

- Estimated infrastructure damage costs from the floods are about \$70 million.
- More than 350 roads and close to 90 bridges were reported as damaged. The Port of Devonport was closed for four days and the State's rail infrastructure was damaged at more than 60 locations.
- Floodwaters were slow to recede in some areas, and the sustained wet weather in the months following the June floods created challenges in determining the full extent of the flood effects. Repair and restoration programs were developed taking this into account.
- The Taskforce progressed Natural Disaster Relief and Recovery Arrangements (NDRRA) funding applications to support the repair of major infrastructure, including the historic Beaconsfield Mine and Mersey Forest Road.
- A coordinated approach between local and State Governments to the rebuild and repair of major infrastructure ensured safe access and essential services were restored as quickly as possible.
- The Taskforce used the LISTmap/COP to visually represent the extent of infrastructure damage and impacts, target assistance where it was needed and track recovery progress.

With estimated damage costs of \$70 million, the infrastructure recovery has worked on the premise of four key stages:

1. identifying impacts
2. providing safe access and essential services
3. restoring normal levels of service and preserving assets
4. planning and maintenance in the long term.

Rapid impact assessments (RIA) were undertaken in the days following the flood event. Just over half of the assessments showed some level of damage, identifying 165 suburbs across the affected LGAs with varying degrees of impact. A total of 352 roads and 87 bridges were reported as directly affected (these numbers do not include roads or bridges – local government, GBE or privately owned – that may have been damaged but not reported). Data collation of the damage continued for several months following the flood events. This was due to ongoing bad weather and the length of time it took floodwaters to recede in several areas, making it very difficult or impossible to accurately determine the extent of the damage. To add further strain to recovery efforts, the heavy rains in the months following the June floods caused some areas to flood again.

The Taskforce worked closely with State Government agencies, GBEs, councils, industry groups and the insurance industry to understand the nature and scale of the flood impact on major infrastructure and assets. Long-term coordinated planning has been essential to redress the widespread damage. A prioritised plan was developed to guide the restoration of infrastructure across the State as quickly and efficiently as possible. This plan was implemented taking into consideration things such as alternative options, maintaining other assets and services, and achieving value for money. The Taskforce successfully facilitated NDRRA funding for Mersey Forest Road and Beaconsfield Mine to enable vital repairs to get underway as quickly as possible.

Tasmania, as a small state, has limited resources and expertise required to repair and rebuild such a large volume of major infrastructure at the same time. This challenge was one of the reasons careful coordination and a statewide approach were essential to scheduling some works. Infrastructure owners, in particular bridge owners, worked together to prioritise works, in some cases deferring scheduled non-critical works to allow higher priority flood recovery works to occur.

During the months following the floods, infrastructure owners, including private individuals and companies, worked with affected communities to allow access to properties. The generosity and willingness of people to help out where needed was another great example of how Tasmanians pull together during tough times to lend a hand, and help out friends and neighbours.

The Taskforce was able to identify the LGAs with the greatest reported infrastructure damage via LISTmap/COP. This information provided significant intelligence to support infrastructure recovery planning and provide evidence for NDRRA funding applications. The LGAs with the highest count of recorded affected locations were: Break O'Day, Burnie, Central Coast, Central Highlands, Devonport, George Town, Glamorgan Spring Bay, Latrobe, Kentish, Meander Valley and Waratah-Wynyard.



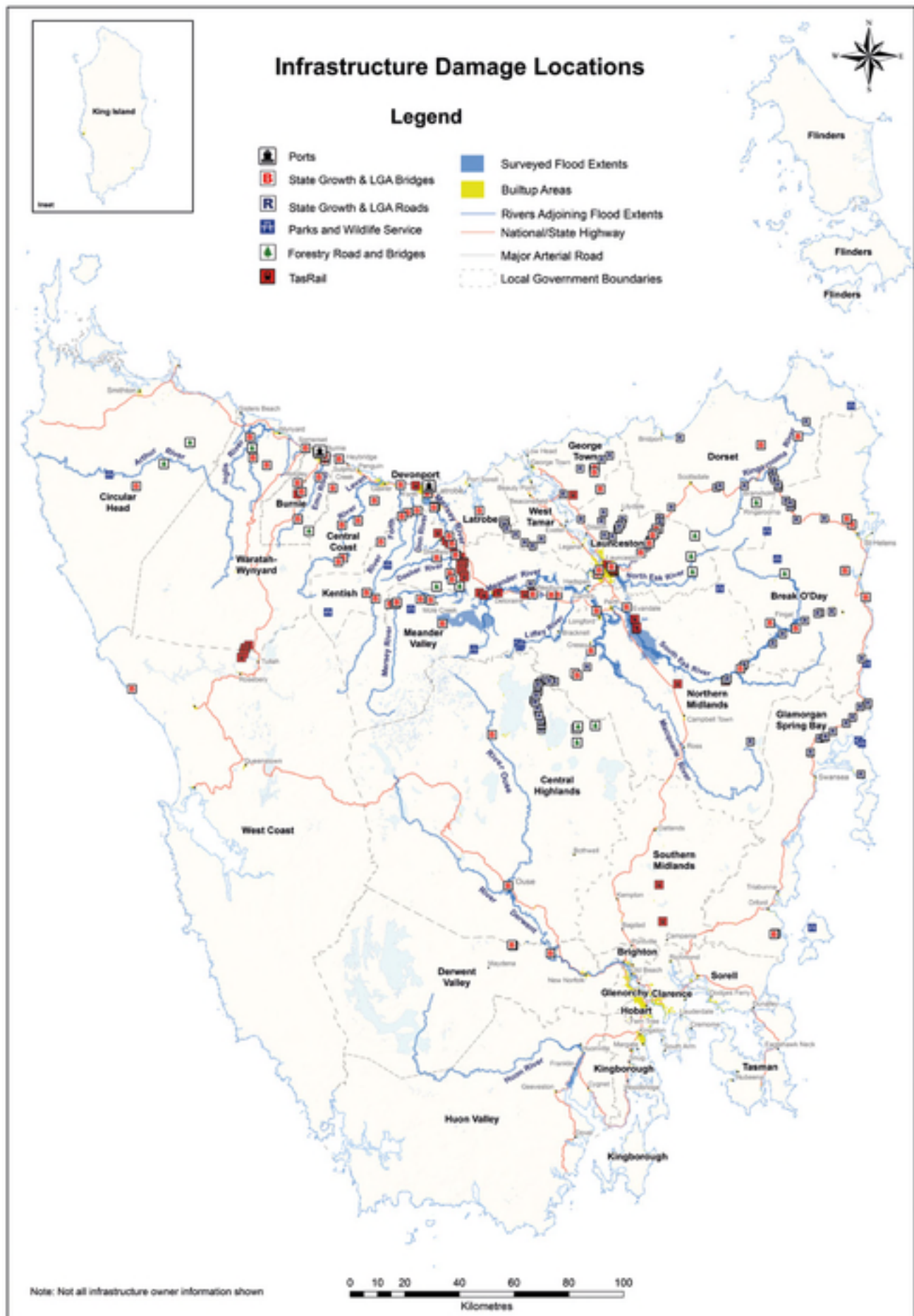
As the State Recovery Coordinator, I spent a lot of time travelling around the impacted areas in the days and weeks after the floods. Witnessing the widespread damage to our major infrastructure was staggering.

To see sections of road kilometres from its origin, wedged among debris on a riverbank or lying on agricultural land, and entire bridges washed away was almost unbelievable.

Talking to and spending time with the people most affected by the damage was important, so I could really understand the impact of the floods on the everyday lives of Tasmanians.

Commander Peter Edwards,
State Recovery Coordinator

Figure 6. Infrastructure damage locations



Roads

Damage was sustained on 48 State roads, and reported on 240 local government roads, 54 Forestry Tasmania roads and ten Parks and Wildlife Service (PWS) roads as a result of the June floods. Multiple roads were closed immediately, with some communities cut off completely.

The initial response to urgent repair and restoration of roads focused on completing emergency works that would provide safe access for communities where possible. This included works such as applying gravel to bitumen roads, regularly grading roads to keep them open and safe, and placing traffic restrictions to allow works to be safely undertaken while roads remained open. These works saw most communities regain access within a few days of the floods. However, some communities unfortunately remained cut off from usual access routes for longer, where significant repair works were required.

The Tasmanian Government worked with Kentish Council to ensure access to the isolated town of Lorinna as quickly as possible. Repair works to Lemonthyme Road were completed by State Growth in 2016, at a cost of \$300,000, while the Council repaired adjoining roads.

Mersey Forest Road was badly damaged in several locations, requiring complete reconstruction in three separate places. The road provides access to the Walls of Jerusalem National Park in the Tasmanian Wilderness World Heritage Area, which is used for bushwalking, canoeing, camping and fishing.

The Tasmanian Government committed to the repair of this road as a priority and, after complex engineering assessments and designs were prepared, State Growth started works in November 2016. These works are due to be completed by the end of May 2017, costing several million dollars, with the Australian Government contributing half of these costs through NDRRA Category D disaster assistance.

Testament to the coordination of the State road emergency works, only two State roads remained closed a fortnight after the June floods. By the end of November 2016, all roads managed by State Growth were open again (some with traffic restrictions as works were completed).

Road ownership, funding and management will need to be considered further in the future in the context of providing essential access to communities.

Bridges

Along with 39 State bridges, at least 25 local government bridges, 16 Forestry Tasmania bridges and seven PWS bridges were reported as damaged as a result of the June floods.

The large number of bridges requiring replacement or complex works and the small number of bridge contractors in the State posed a potential issue in having all bridges return to an operational standard within reasonable timeframes. Consideration was given to temporary bridging at several sites. In some cases, these short-term access options were not suitable for all road users, or not cost-effective, and were not progressed.

Infrastructure owners worked together to coordinate repair to the damaged bridges on a priority basis. A number of bridges that required some degree of repair or replacement were over the significantly flood-impacted Mersey River, with State and local governments working together to ensure this occurred in a coordinated manner. To improve the resilience of bridge infrastructure against future damage, consideration was also given to the design of the repair or rebuild.

The eastern abutment and last span of Hogs Bridge were reconstructed at a cost of about \$750,000.

Repairs to State-owned bridges completed by the end of 2016 cost over \$1.4 million.



Kimberley Rail Bridge – old and new

The heritage-listed Kimberley Rail Bridge was built in 1895. The bridge heralded an important era in Kimberley's history, enabling the town to expand. The station and rail service to the town closed several decades later, in the 1970s.

Today, the rail bridge continues as a critical transport link, connecting the ports of Devonport and Burnie with the rest of the rail network, further demonstrating its significance to the State's transport and transportation history. Some 97 per cent of all container movements in and out of Tasmania are through these ports.

The June 2016 floods resulted in a 15-metre span of the bridge and the western embankment being washed away. In addition, an excessive amount of logs and debris amassed at the bridge, restricting the flow of water. Urgent repairs were undertaken as a matter of priority, aimed at restoring the vital rail link. The design of these repairs incorporated a number of improvements to reduce the risk profile of future failure and ensured restoration in the shortest possible timeframe. Several options were considered, but the optimal solution included a 5-metre

increase in the length of the replacement span to improve water flow capacity. It also included a new piled abutment capable of being used as a support for any additional adjacent bridge spans that can be built to replace the earthwork embankment in the future. The reconstructed embankment was also reinforced and compacted to current earthworks standards, with rock armour in place on the restored embankment. TasRail carried out these urgent works under a Certificate of Exemption following consultation with the Heritage Council Tasmania, and the bridge returned to operation on 21 July.

History shows this region is vulnerable to floods, and an adjoining structure of the bridge collapsed in the 1970 floods. However, inspection of the infrastructure confirms that this span did not fail in the 2016 floods.

TasRail is committed to develop a longer-term solution for the bridge, but maintains the feasibility work to scope, design and cost the options must be informed by hydrology assessments that model a range of flood scenarios and water levels. That work is scheduled for completion in the first half of 2017.

Ports

The flood event in June 2016 impacted the northern ports network. A large impact was felt at the Port of Devonport, which was temporarily closed following the floods. All freight and passenger services were suspended while the effects could be assessed, including concerns relating to navigational safety in the port. Impacts to the port included damage to berth infrastructure, navigational aids, pontoons, and rail damage at the Spirit of Tasmania berth. A pontoon owned by the Devonport Yacht Club also broke away with several recreational vessels attached, which either sank or were washed into the Bass Strait. To minimise disruption as much as possible during the port closure, TasPorts worked with shipping operators and freight companies to transfer some critical services to an alternative port at Bell Bay.

In the days following the floods, with debris and silt deposits in the port a safety concern, TasPorts engaged a survey vessel and conducted tests to ensure there was a safe operational depth. The Port of Devonport was reopened on 10 June for critical shipping movements, with TT-Line restarting services for passengers and freight. TT-Line provided extra services to make up for the temporary closure of the port. SeaRoad recommenced freight services from 11 June in the Port of Devonport.

To ensure the ongoing safety and reliability of port operations, seabed levelling was conducted around existing port operations in July.

TasPorts had conducted an extensive dredging program in the Mersey River in 2015. It reports that greater and longer lasting impacts from the flood would have occurred without this mitigation planning.

TasPorts is undertaking a long-term, statewide dredging plan to proactively manage the safety and navigation access of all ports.



Providing assistance to Tasmanian beekeepers

Tasmanian bees took flight in an unconventional way during the flood recovery. Around 250 hives were helicoptered out of the Mersey Forest and the Tarkine after regular access routes were restricted as a result of the floods. The hives were lifted out in custom built cages, with the owners of the hives accessing the NDRRA-funded transport subsidy and primary producer clean-up grants.

With more than 90 per cent of Tasmania's unique leatherwood honey coming from trees in the remote Tarkine area, access is an ongoing challenge for beekeepers. Pykes Bridge, which was rendered impassable for regular vehicles during the floods, provides the only access over the Arthur River to those leatherwood trees.

Parks and Wildlife Service began works in early 2017 – once floodwaters had receded and river levels dropped – including the removal of a significant logjam and the repair/replacement of three spans of the bridge at a cost of \$300,000.

Rail

The Tasmanian Freight Rail Network was temporarily closed due to water inundation across major rail freight corridors immediately following the floods. Infrastructure was damaged at 65 locations, including landslips on the Melba, Western, South and Fingal lines. Five rail bridges were also impacted at Kimberley, Coiler Creek, Emu River, Symmons Plains and Launceston.

The most severe damage was to the Kimberley Rail Bridge, which severed the critically important rail link between the major North-West ports and the rest of the network (see more on Kimberley Bridge on page 45). A temporary intermodal terminal was quickly established at Conara, where freight was transferred to trucks to minimise disruption to customers and to maintain freight flows between the North-West and South of the State.

Rail restoration works were prioritised, with each of the main rail corridors progressively reopened. The full complement of freight rail services resumed on 21 July, with the reopening of the Kimberley Rail Bridge. TasRail estimates that the flood event negatively impacted its 2015-16 financial performance by \$4 million, but the cost of much of the repair work as well as providing alternative freight solutions will not be brought to account until the 2016-17 financial year.

Public transport

Six buses were inundated during the floods, requiring minor rearrangement of the fleet. Some services were interrupted for a short period due to road or bridge closures, but re-routing enabled services to resume quickly in most cases. While the re-routing of some services resulted in higher costs (due to longer journeys) and some passengers being unable to access usual services, the floods had a minimal impact on public transport. Most services were able to resume within 24 hours.

Public space

The damage to parks and public spaces was extensive, and took a number of weeks to fully determine due to accessibility issues caused by floodwaters. Many State and local government-owned assets were affected, including huts, public toilets, boat ramps, walking tracks, BBQs, weirs, fences and trees in parks and reserves. Landslips also occurred in a number of locations.

Clean-up and remediation works have taken place at many of the affected sites, with councils and PWS now working on longer-term recovery plans. These plans have taken into consideration the need for long-term maintenance when repairing and replacing infrastructure as part of mitigation planning. See further information on page 60.

Fuel

The BP Burnie terminal was unable to operate for a number of weeks after the floods as a result of water inundation. BP temporarily managed supply from alternative terminals, including Devonport, Bell Bay and Hobart, and provided ongoing updates to the Tasmanian Government. Fuel supply operations within the State were resumed after initial repairs, with further works to restore function for ships to discharge fuel restored on 4 September. Fuel stocks were sufficient to supply needs within the State during the repair period.

Water and sewerage

TasWater reported considerable damage to their infrastructure over a wide geographical area. Sites suffering major damage were the Forth Water Treatment Plant, Pet Dam, North Esk River intake, and Hoblers Bridge and Norwood Sewerage Treatment Plants. Several other sites were impacted to a lesser degree. TasWater completed immediate works to make assets safe and subsequently undertook repairs to restore essential services across the State as quickly as possible. Infrastructure recovery is fully underway for the longer-term works, with expected total costs of \$7-8 million.

Dams

At least 110 dams were affected by the floods, with more than two-thirds of these in the North-West. The dams are mostly privately owned and critical for farm business operations. Where possible, DPIPWE has provided some of the owners with support and advice on the repair of their dams. Total dam repairs are estimated at \$160,000.

Irrigation

Tasmanian Irrigation infrastructure damage was estimated at \$250,500. Works were undertaken at pump stations associated with the Greater Meander, Sassafras Wesley-Vale and Dial Blythe irrigation schemes in the weeks following the floods, to repair and replace damaged assets.

River-gauge infrastructure

Many river-gauging stations across flood-affected river systems suffered significant damage. These stations were owned by the Bureau of Meteorology (BOM), DPIPWE and Hydro Tasmania, and damage ranged from temporary data outages lasting a few hours, to complete destruction of the sites.

The BOM, DPIPWE, Hydro Tasmania and the Tasmanian Flood Warning Consultative Committee worked closely to restore monitoring stations as quickly as possible. As was the case in many areas of impact, assessment of the damage was difficult and time-consuming due to regular access routes being affected (roads and bridges damaged or destroyed). Much of the repair work also required machinery to remove debris from weir ponds and from around station infrastructure, which required coordinated prioritising for the available machinery contractors in the State.

The profile of some rivers changed significantly as a result of the floods, with surveys necessary to determine the extent of the change, and the impact that would have on the repair or replacement of the streamflow infrastructure (including its location). Some temporary short-term monitoring was established in river systems as a matter of priority, to ensure future flood warnings could be captured and issued for the safety of the community.

All organisations involved with the river-gauging infrastructure and monitoring of data captured agree there will likely be long-term impacts of the floods on overall data quality, particularly where the shape of a river has changed. It will take time, likely years, to effectively re-establish reliable results from data for modelling purposes and recalibration of hydrologic models for the affected catchments.

During the recovery, the BOM worked closely with the SES on revising formal flood class levels, to capture the new realities of the catchments post-floods. This work will assist towns and communities living on river systems to develop appropriate future flood-planning preparedness.

DPIPWE has spent \$200,000 on repair and replacement works on 13 stream-gauging stations since the floods.

Hydro

Following the floods, Hydro Tasmania assessed damage to its infrastructure, including all dams in the flood-affected areas and prioritised necessary repairs. No known dam safety issues were identified. Some lower priority works, such as repairing access roads to dams and associated infrastructure (mainly in the Mersey-Forth area), required further investigation.



Latrobe Mayor, Peter Freshney (left), and State Recovery Coordinator, Commander Peter Edwards, at a washed out Mersey River bridge

Beaconsfield Mine

The Beaconsfield Mine, non-operational since 2012, forms part of important tourist infrastructure in the West Tamar region and has historic and cultural significance. In 2015, the mine yard and headframe were opened to the public as part of the Beaconsfield Mine and Heritage Centre, generating almost \$1 million in income for the West Tamar Council through entry fees and merchandise in 2015-16. More than 40,000 people visited and a further \$8 million in income was estimated from flow-on tourism to the region.

During August-October 2016, significant ground movement occurred in the mine, creating a sinkhole and threatening infrastructure including the iconic headframe and skyshaft. This resulted in the closure of the vital tourist attraction and a threat to a historically significant landmark.

An engineering report commissioned by the West Tamar Council identified extraordinary rainfall that fell during May-July 2016 as the 'almost certain' cause for the structural failure, with the limestone and clay material surrounding the shaft susceptible to saturation in sustained wet conditions.

NDRRA co-funding was secured for urgent repair and stabilisation works, which commenced in November 2016.

Key findings

- With a significant amount of infrastructure damage across the State, close coordination between all infrastructure owners (State and local government, GBEs, private owners and companies) was essential for successful long-term infrastructure repair planning.
- The use of infield data collection capabilities combined with the web-based viewer LISTmap/COP were vital for identifying and visualising the type of infrastructure damaged across the State. This effectively informed recovery decision-making.
- Infield data collection and GIS capabilities provided evidence to support successful NDRRA funding applications. The development of a protocol for data capture for State Government, local government, GBEs and NGOs would ensure information collection is consistent and able to be readily served into a centralised viewing capability.

3. Economy: helping the local economy to rebound

Key points

- Over 140 businesses reported being directly affected by the floods.
- Primary producers were impacted across at least 16 local government areas, at an estimated cost of \$37 million.
- The Tasmanian Government provided ongoing support and assistance throughout the recovery process to small business through Business Tasmania and Enterprise Centres.
- Affected tourism services and organisations generally returned to service and operation quickly.
- The Taskforce coordinated and widely and consistently promoted a range of financial assistance, including Natural Disaster Relief and Recovery Arrangements (NDRRA) funding, Australian Government hardship allowances and Tasmanian Government schemes.
- Many service clubs, community organisations and private sector institutions collected donations and subsequently offered small grants programs for people affected by the floods.
- The Taskforce facilitated the Insurance Council of Australia (ICA) visiting flood-affected regions to respond to private insurance concerns raised in the short-term recovery.

Bushfire, flood and severe storm are recognised as the hazards with the greatest economic impact to Tasmania.⁷ As demonstrated by events like the 2016 floods, the economic impact can be widespread and complex – from physical damage to houses, businesses and infrastructure, to people’s livelihoods suffering disruption, temporarily or in the long term.

Many small Tasmanian businesses and primary producers were affected by the 2016 floods, with wide-ranging impacts such as inundation, water damage to infrastructure and assets, power outages, property access issues, stock loss and loss of trade. These impacts were felt across many areas including accommodation, commercial and service industries, retail, hospitality, industrial, tourism, food processing, transport, fisheries and agribusiness.

Tasmania’s primary industries sector was significantly impacted, particularly in the North-West of the State. The tourism industry, which relies heavily on Tasmania’s natural environmental assets, also suffered as a consequence of flood damage, as well as from road damage and impaired access.

Financial assistance has been provided through the TRRA, the NDRRA and other assistance schemes to help the economy recover, along with other existing assistance packages such as loan schemes and hardship allowances. The Taskforce progressed an NDRRA Category C funding application in the weeks following the floods, securing primary producer assistance for six LGAs: Break O’Day, Northern Midlands, Waratah-Wynyard, Kentish, Latrobe and Meander Valley. Through ongoing data collection and further assessment of data during August, the Taskforce was able to successfully progress two further extensions of the Category C funding to include a further three LGAs: Central Coast, Central Highlands and Launceston City.

⁷ White CJ, Remenyi T, McEvoy D, Trundle A and Corney SP 2016, 2016 Tasmanian State Natural Disaster Risk Assessment, University of Tasmania, Hobart.



Many businesses along Latrobe's main street were flooded when the Mersey River broke its banks

Supporting small business

A total of 144 small businesses were recorded as impacted during the 2016 floods: 80 in the North-West, 45 in the North and 19 in the South. While three businesses were subsequently closed for a period of time following the floods, all were reopened by the end of 2016.

State Growth Client Services maintained contact with affected businesses throughout the recovery, to gain a better understanding of the impacts and likely associated costs over time as insurance assessments were completed. Information provided from affected small businesses was entered into a web service and viewed via LISTmap/COP. This information will inform future advice and support to small businesses.

Reports to the Taskforce indicated that almost 90% of affected small businesses received insurance compensation payouts. In some cases the insurance payout was not sufficient to cover damages, largely due to under-insurance. Business Tasmania and Enterprise Centres have been able to provide ongoing support and assistance to small businesses through existing programs.

Eligible small businesses had access to transport subsidies, the flood recovery loan scheme, primary producer clean-up grants and the AgriGrowth loan scheme, as well as other small grants funds through community service organisations.

Supporting agribusiness

Primary producers and rural landholders across at least 16 LGAs were affected by the floods, suffering estimated damages of about \$37 million. Damage sustained included extensive bank erosion, the loss of crops, livestock and feed, damage to machinery, fencing, irrigation, infrastructure, farm dams and outbuildings, large-scale scouring and large deposits of cobble on productive farmland. Clean-up efforts were made more difficult by damage to roads and bridges limiting access.

By partnering with industry stakeholders to collate impacts on primary producers and landholders in flood-affected areas, it was possible to reach a greater number of those affected in rural and remote areas. In particular, DPIPW's AgriGrowth Tasmania and Water Operations Branch worked closely with the NRMs to visit and assess properties and businesses, gathering data on

damage and impacts. Information collected was uploaded to LISTmap/COP, enabling visualisation of damage, monitoring of assessment and clean-up progress, and informing eligibility for NDRRA funding.

Eligible primary producers also had access to the transport subsidy and primary producer clean-up grants.

Carcass removal program

Sadly, thousands of livestock died as a result of the floods, at an estimated value in excess of \$1.5 million. DPIPWE coordinated a \$200,000 disposal service program to remove carcasses from Crown land, and to provide assistance for landholders with removing carcasses left on their property following the floods.

Fodder

Feeding livestock was a big concern for flood-affected farmers facing significant loss of fodder and pasture in the floods. This loss came on top of an existing shortage of fodder around the State (in the 12-18 months leading up to the floods, Tasmania had experienced a period of extreme dry conditions). DPIPWE, through Biosecurity Tasmania, provided advice to farmers on purchasing fodder from interstate, and prioritised requests for fodder imports. The wharfage concession offered by the Port of Melbourne Corporation on shipments that were directly related to flood-relief aid was also welcome assistance for farmers having to go to the expense of importing fodder.

Roberts step up to help farmers – fodder and livestock

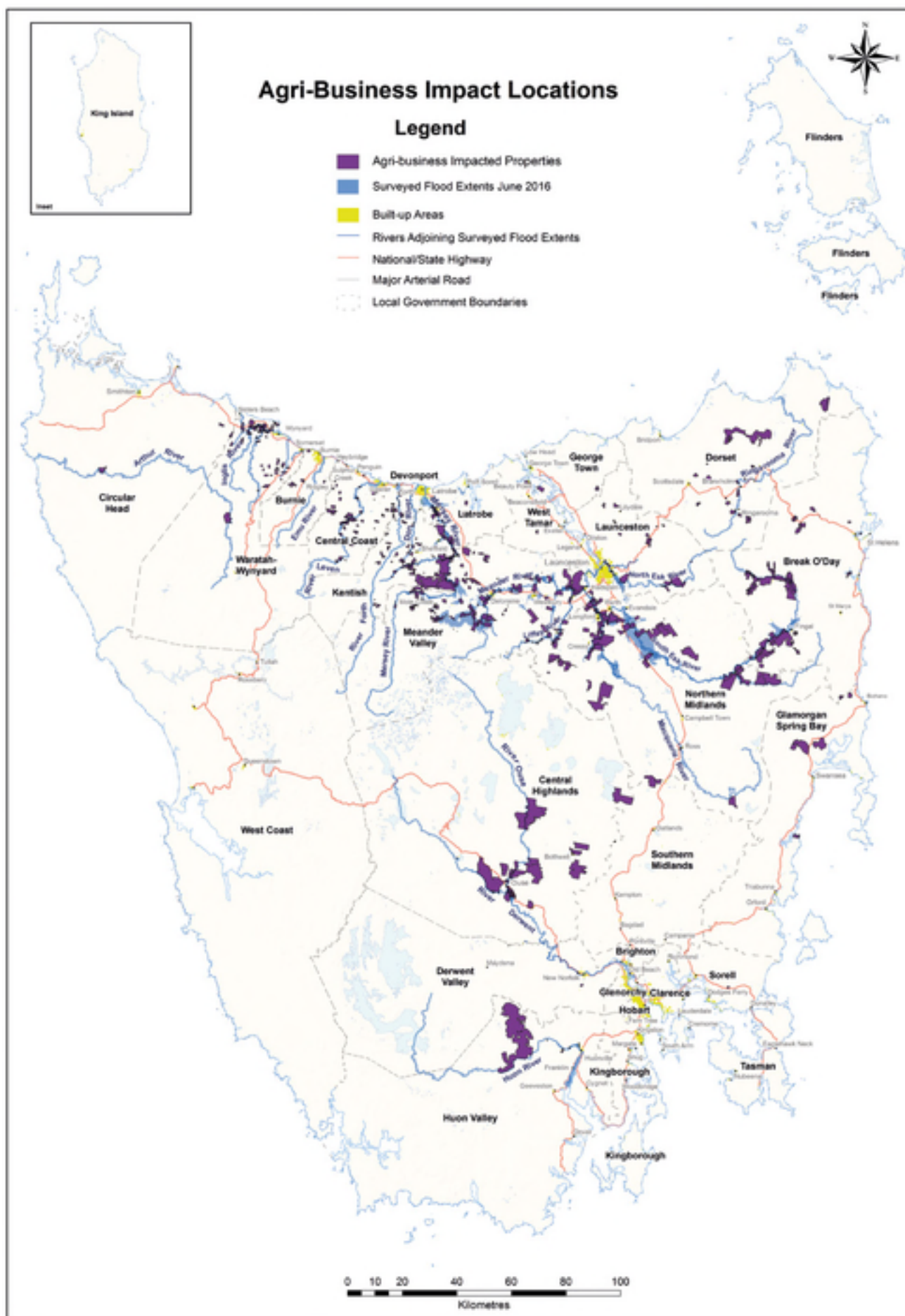
The day after the floods, Mole Creek born-and-bred local Ebony Bannister decided to help Tasmanian farmers locate their missing livestock. With the support of her employer, Roberts, she created the Found Livestock After Tasmanian Floods Facebook page, which was quickly followed by thousands of people. The page provided community members with a place to share photos and information about lost and found livestock, both alive and deceased.

Roberts set up a station at their Quioba Yard as a central point where livestock could be checked for ownership information, and organised transport where necessary to collect or deliver animals as needed. This work continued for a month following the floods, and had the dedicated resources of three full-time Roberts employees – Ebony, Andrew Porter and Mark Lamprey.

The Facebook page was also used to help secure much-needed fodder for farmers who lost fodder and pastures in the floods. Despite a shortage of fodder in the State due to the record-dry conditions in early 2016, the Tasmanian farming community rallied and donated fodder where they could, with farmers from the less-affected Southern region providing the bulk. Roberts coordinated the transport of donated fodder where necessary, including covering fuel costs for volunteer community members donating their time and vehicles for the job. This amazing collective effort demonstrated a vital resilience in the community, a key foundation for a successful recovery following a disaster.

At the end of 2016, Ebony, Andrew and Mark received the Roberts National Award for Community Service for their efforts in the 2016 Tasmanian flood recovery.

Figure 7. Agribusiness impact locations





Latrobe community fundraising effort

Tourism

Reports from the industry during and immediately following the June floods indicate the main impact to tourism was the disruption to visitors' on-ground travel plans as a result of road closures and the cancellation of the Spirit of Tasmania sailings during the Port of Devonport closure.

The largest impacts on TT-Line were the loss of freight revenue and the cost of transporting displaced passengers during the floods while the Port was closed. The reported impact exceeds \$1.0 million. The TT-Line were able to restart normal operations quickly, with the Port of Devonport reopening on 10 June.

Some tourism businesses and natural attractions were directly affected by flooding due to access issues or the businesses themselves being impacted. Regional Tourism Organisations have kept in close contact with tourism businesses since the floods, working with local and State Government and other bodies to ensure the needs of tourists and tourism businesses were considered. A number of natural attractions in the Mole Creek and Liffey areas were impacted, including the Walls of Jerusalem National Park,

Marakoopa Cave, Liffey Falls and Westmorland Falls. With some normal access routes closed due to damage, the Tasmanian Government provided updated signage in the area to direct tourists to destinations still open.

The Hart Shaft at the historic Beaconsfield Mine sustained significant damage that was very likely caused by the significant rainfall in May-July 2016 (see more on this on page 49). While the Heritage Centre is open, part of the mine yard remains closed to visitors while stabilisation works are undertaken. While this is expected to have an impact on tourism in the West Tamar region during the 2016-17 season, the prompt procurement of NDDRA funding and the partnership between the Tasmanian Government and the West Tamar Council to fund the required stabilisation have ensured works are progressing as quickly as possible.

The tourism industry reports ongoing impacts as a result of the damage caused by the floods. However, while the full extent of long-term impacts will take time to determine, much repair was done and access reinstated more quickly than first anticipated, given the extent of some of the damage.

Providing financial assistance to help recovery

Transport subsidies (NDRRA Category B)

Eligible primary producers affected by the floods were able to access this subsidy for the purpose of reducing the costs of transporting fodder, stock and other materials. A total of \$271,585 was paid out in 73 grants as at 31 January 2017.

Primary Producer Clean-up Grants (NDRRA Category C)

Eligible primary producers who suffered direct damage as a result of the flooding could access grants of up to \$10,000 to assist with clean-up and restoration, including removal of debris, disposal of dead livestock, salvaging crops, grain and feed, and repairing plant and equipment. At 30 April 2017, \$2,986,712.77 had been allocated to 333 applications. Ten applications still require more information, and will be finalised by 30 June 2017.

Extension of the clean-up grant

In some cases, farmers and landowners reported they did not meet NDRRA eligibility for primary producer clean-up grants due to boundary anomalies, for example where their property was located on the 'wrong' side of a natural river watercourse impacted by the floods.

The Tasmanian Government launched a fully state-funded extension to the Clean-Up Grant program in December 2016, to include more flexibility with boundaries for eligibility and address the inequities. This extension included a 2 km buffer extension from the middle of the natural water courses that define the LGA boundaries (that determine eligibility), and a 100 m buffer for LGA boundaries where the 2 km extension doesn't apply. This extension of the grant closed 31 March 2017.

Flood Recovery Concessional Loan Scheme (NDRRA Category B)

Primary producers and small businesses directly affected by the floods could access loans ranging from a minimum of \$25,000 to a maximum of \$200,000 for essential working capital and/or replacement and repair of damage caused

to the property, associated improvements and equipment not covered by insurance. At 6 March 2017, loans totalling \$823,600 under this program had been approved.

Managing logjams and debris

The Tasmanian Government provided \$200,000 to clear the most critical logjams caused by the floods. The Taskforce, Forestry Tasmania and the NRMs managed this process together.

Rural Relief Fund

The Rural Relief Fund has been established by the not-for-profit organisation Rural Business Tasmania Inc to provide crisis relief funding of up to \$2,500 to eligible farming families. For those affected by floods, funds could be used for anything from household goods, fence repairs and fodder. Over \$300,000 (comprising Government and private donations) had been expended at the time this report was written, with assessment of applications continuing.

Farm household allowance (Centrelink)

Eligible farming families experiencing hardship were able to access this fortnightly allowance to give them time to get back on their feet and improve their long-term situation.

Australian Government disaster recovery allowance (Centrelink)

This allowance provides short-term financial assistance for people that are adversely impacted by a declared major or widespread disaster and was payable for a maximum of 13 weeks from the date at which individuals had a loss of income as a direct result of the June 2016 floods.

Waiver of inbound wharfage (Melbourne to Tasmania ports)

The Port of Melbourne Corporation offered a wharfage concession on shipments that were directly related to relief aid for the Tasmanian floods.

Other assistance

Agriculture and animal welfare assistance

A Farmer Assist Hotline was established within DPIPW's AgriGrowth Division to assist and refer farmers on agriculture and animal welfare related matters. During the period 9 June to 18 September 2016 it handled over 260 calls.

Insurance

Insurance, following events like the 2016 floods, has become a recurrent headlining topic over the last couple of decades. This has included debate around adequate self-insurance versus expectations of government assistance in recovery. These floods are no exception, with some flood-affected people and businesses reporting inadequate insurance cover for reasons such as affordability, a misunderstanding of policy inclusions, or no insurance cover at all.

The Taskforce was able to facilitate Insurance Council of Australia (ICA) representatives visiting Tasmania to help address insurance concerns of flood-affected people. The ICA attended RFRC meetings and held community forums that included representation from the Financial Ombudsman Services. In addition, the Taskforce coordinated the attendance of the Legal Aid Commission of Tasmania and the North-West Community Legal Centre at other community forums to provide further support to those affected. This led to assistance from the Financial Rights Legal Service (based in New South Wales), an organisation with significant expertise in dealing with insurance concerns born out of natural disasters.

The idea that insurance is a significant instrument for building disaster resilience has been discussed at the top levels of government for some time. Following COAG's *Natural Disaster Insurance Review* in 2011, legislative changes were introduced aimed at mitigating the risk of disaster events like floods. Insurance policies must now include a standard definition of 'flood' and provide 'Key Fact Sheets'. The discussions about insurance since these floods have centred on the question of who should be responsible for recovery costs following natural disaster events, and how we can better build our economic resilience against events like the 2016 floods.

Multi-peril crop insurance has been available for farmers to access in Australia since 2015⁸ and, although it only had a small take-up in its first year, it is seen as an alternative to farmers having to rely on government disaster assistance. The Australian Government has established a Managing Farm Risk Program⁹ for farmers, to help them with their insurance decision-making. The program provides one-off rebates for half the costs incurred by eligible farm businesses up to a maximum of \$2,500, to be used towards advice and assessments to help farmers prepare and apply for new insurance policies that assist with management of production and other market risks. Farmers impacted by floods in Tasmania are able to access this program.

Key findings

- The ongoing support offered to businesses, primary industry operators and landowners through existing Tasmanian Government services demonstrated the effectiveness of using existing relationships and contacts.
- Providing a variety of assistance and support programs with some flexibility went a long way towards meeting individual recovery needs. The capacity to develop programs as recovery progresses and the understanding of the impacts becomes clearer, is particularly useful.
- By harnessing the generosity and commitment of volunteers through non-government organisations, the State Government was better able to deliver practical on-the-ground support for affected landowners.
- The opportunity for people to raise their insurance concerns directly with representatives of the Insurance Council of Australia was invaluable and would be useful in future recoveries.
- Discussion should occur between relevant stakeholders about how best to promote the importance of insurance with at-risk communities. This may improve understanding of personal insurance responsibilities (risk management) and clarify the government's role in responding to emergencies.

⁸ ABC Rural, 14 January 2015. 'Farmers receive major payout from Australia's first multi-peril crop insurance after crops failed' and Primacy, 17 February 2016. 'Multi-Peril Crop Insurance for Australian Conditions'.

⁹ Australian Government, 2017. Managing Farm Risk Program Guidelines <http://www.agriculture.gov.au/ag-farm-food/drought/assistance/mfrp/guidelines>

4. Environment: Environmental and cultural heritage recovery

Key points

- Aerial imagery and ground studies formed the basis for understanding how the rivers were impacted by the floods as well as informing recovery planning.
- Planning on the most appropriate way to undertake remediation at several river segments in the Mersey-Dasher system is being progressed by the Tasmanian Government.
- The Tasmanian Government is delivering the Agricultural Landscape Rehabilitation Scheme to restore the capacity of the primary production sector and reduce impacts of future floods on productive land.
- The Parks and Wildlife Service has progressed reparation works as quickly as possible, prioritising important access points and natural values.
- The Tasmanian Government delivered a clean-up program to clear major logjams and debris that represented an ongoing risk to infrastructure or further flooding.
- Heritage Tasmania and Aboriginal Heritage Tasmania have provided support to recovery efforts as needed.



Aerial view of the washed out Mersey Lea Road Bridge over the flooded Mersey River

The 2016 flood impacts were greater than the State had experienced for many decades, with areas impacted by landslip, logjams, river erosion, rock shingle, silt, timber and other debris. The natural environment is complex, so consideration must be given to any recovery actions to avoid inadvertently causing further damage.

Changes to the riparian landscape as a result of the floods have negatively affected the productivity of land used for primary production in some areas. This has resulted in major impacts to primary producers through the North and North-West regions whose livelihoods depend to a large extent on the river systems that pass through their properties.

Remediation of significant damage to PWS infrastructure across the three regions is estimated at almost \$10 million. Inland Fisheries Service infrastructure also sustained damage, some cultural and heritage value sites were impacted, and debris build-up and logjams are still being cleared.

The extended period and high volume of rain during the months following the June floods resulted in further damage to some flood-affected areas, initial remediation works being set back, and delays in the initiation of rehabilitation works due to saturated ground and high water levels in rivers and streams.

Aerial imagery

In December 2016, the Taskforce coordinated the process of capturing aerial imagery over flooded areas, covering just over 3,800 km² in the North. This included areas adjacent to the River Leven, River Forth, Don River, Redwater Creek, Dasher River, Mersey River, Whitmore Creek and the Liffey River. This was done to capture impact areas, determine river alignment after the floods and to detect changes, including areas of debris flow, washout and bank erosion. This imagery has and will continue to accurately inform rehabilitation works and help determine the drivers of damage and change.

River rehabilitation

DPIPWE engaged Alluvium Consultancy Australia Pty Ltd to assess how rivers had been impacted by the June 2016 floods. Alluvium reported on waterway condition and damage based on detailed analysis of impacts and priority areas. The Alluvium findings complement preliminary assessment work done by DPIPWE to determine the level of restoration and stabilisation work required.

DPIPWE is progressing planning on the most appropriate way to undertake remediation at several river segments in the Mersey-Dasher system. These sites are at Latrobe, Kimberley and Union Bridge Road near Mole Creek. This repair and remediation will aid community recovery by rehabilitating vulnerable and degraded riparian resources, as well as protecting public infrastructure and mitigating future flood damage.

These works will be co-funded through NDRRA Category D assistance.



It was like a tsunami had come through, stripping everything in its path...

Grant Pearce, Operations Manager,
Natural Resource Management Cradle Coast

Agricultural Landscape Rehabilitation Scheme

In December 2016, the Tasmanian Government introduced a new scheme to fund projects for the rehabilitation of land and stream systems damaged in the June 2016 floods. The Agricultural Landscape Rehabilitation Scheme is a \$2.0 million program funded by the Tasmanian Government, and is being delivered by the regional natural resource management bodies.

The focus of the scheme is to restore the capacity of the primary production sector and reduce impacts of future floods on productive land. Works that were considered under the scheme include debris clean-up on productive land, such as the removal of timber and river cobble, land rehabilitation across floodplains, erosion management, and future flood mitigation measures.

The natural resource management organisations (NRM North, NRM South and Cradle Coast NRM) are the primary points of contact for information. The scheme was open to landowners and communities in the 20 local government areas affected by the floods, and participants were required to submit a nomination of works by 31 March 2017.

Threatened and vulnerable species

Several threatened and vulnerable species of flora and fauna were impacted by the floods. Work is ongoing to determine the full extent of the impact. DPIPWE has provided support and advice to agencies and organisations undertaking reparation works in affected areas to ensure no further adverse effects occur as a result of this work. Through the long-term recovery phase, DPIPWE will continue this work with key stakeholders. The aim is to provide support for surveying and monitoring threatened species sites, when conditions allow and it is practical to do so (such as spring and summer for flowering fauna).

Restoring 'Colynn' at Quamby Bend

'Colynn', a rural property at Quamby Bend on the Meander River, has been in the Mitchelson family since they bought it from Sir Richard Dry's Estate in 1887. In the years preceding the June floods, Ian and Janette Mitchelson had removed willows from over 5 km of river frontage and planted sections of native vegetation in an effort to assist native wildlife and the river ecosystem. The June floods hit the property hard, with stock losses totalling around \$60,000. Topsoil was washed away from low-lying paddocks, and fences were knocked down. Through the TasNetworks and Conservation Volunteers Australia partnership, a team of volunteers removed debris from fences to prevent the wire from rusting, repaired fences and straightened a patch of three-year-old native plants. Ian, Janette and Murphy the dog were part of the team, and they really enjoyed the energy that the volunteers brought to the property during a tough time.

"We were feeling overwhelmed, depressed and down after seeing all the damage the flooding had caused, but the help from the volunteers with their friendly happy nature was very much appreciated and most welcome," said Quamby Bend farmers Ian and Janette Mitchelson.

"It certainly helped us move on and made the big job of cleaning up easier to deal with.

"We thank the volunteers who gave us their time and efforts – Doug, Fred, John, Anh, Miles and the 2 groups of students volunteering from Bendigo Tafe."

In October 2016, the Meander River had another flood, but thankfully the remediation work undertaken by the volunteer team and the Mitchelson family remained unscathed, a testament to simple but well-planned mitigation works.





Restoration of farmland, one pasture at a time

When one Ouse farmer, who lost about a hundred sheep in the floods, saw the extent of damage to his productive farmland once the flood waters abated, he knew he would need some help. With a significant amount of rock debris left across pasture where the season's feed crop would be planted, Conservation Volunteers Australia (as part of their partnership with TasNetworks) fielded a team to help clear the land. In the absence of machinery to assist them, the volunteers worked alongside each other to pick up and move the rock by hand over two days, to get the paddock ready for ploughing ahead of crop planting.

Impacts to natural values, parks and reserves

Parks and reserves across North and North-West Tasmania suffered significant damage due to the severe weather and floods, with less widespread damage experienced in the Southern region.

There was extensive damage to access roads and walking tracks, while individual bridges, car parks, viewing platforms, toilet facilities, and camp sites were damaged at numerous sites. Access to beaches and boat ramps was also affected, and in some cases erosion to the base of boat ramps resulted in steep drop-offs with some ramps no longer serviceable.

Some of the reserves most severely impacted by flooding include the Mole Creek Karst National Park in the World Heritage Area, specifically impacts on both Marakoopa Cave and King Solomons Cave; Liffey Conservation Area, Warawee Reserve and Freycinet National Park. Emergency repairs were undertaken where possible by PWS staff or contractors; however, more complex and high risk works required more detailed planning and engineering investigations before works could begin.

With a large number of parks and reserves to clear and repair, PWS has developed a works program prioritising important access points and natural values by focusing on those sites that have a significant impact on tourism. PWS assessed visitor needs and demand to produce the priority list, which includes the Ben Lomond National Park access road due to the impending snow season; Marakoopa and King Solomon Caves; and bridge, road and track repairs in the Liffey Falls Conservation area.

Reparation works are being progressed as quickly as possible, recognising the importance of these natural assets to Tasmania's tourism industry and reputation as a wilderness destination.

Monitoring is ongoing in areas that may naturally stabilise. In cases where revegetation is appropriate to rehabilitate areas affected by erosion, it is being managed at the local level, through partnerships between PWS, local government, and non-government organisations such as the NRMs and CVA.



Credit: Gidde Coast NRM

The flooded Dasher River receded to leave significant debris and river cobble deposited in the adjacent paddocks

Logjam and debris management

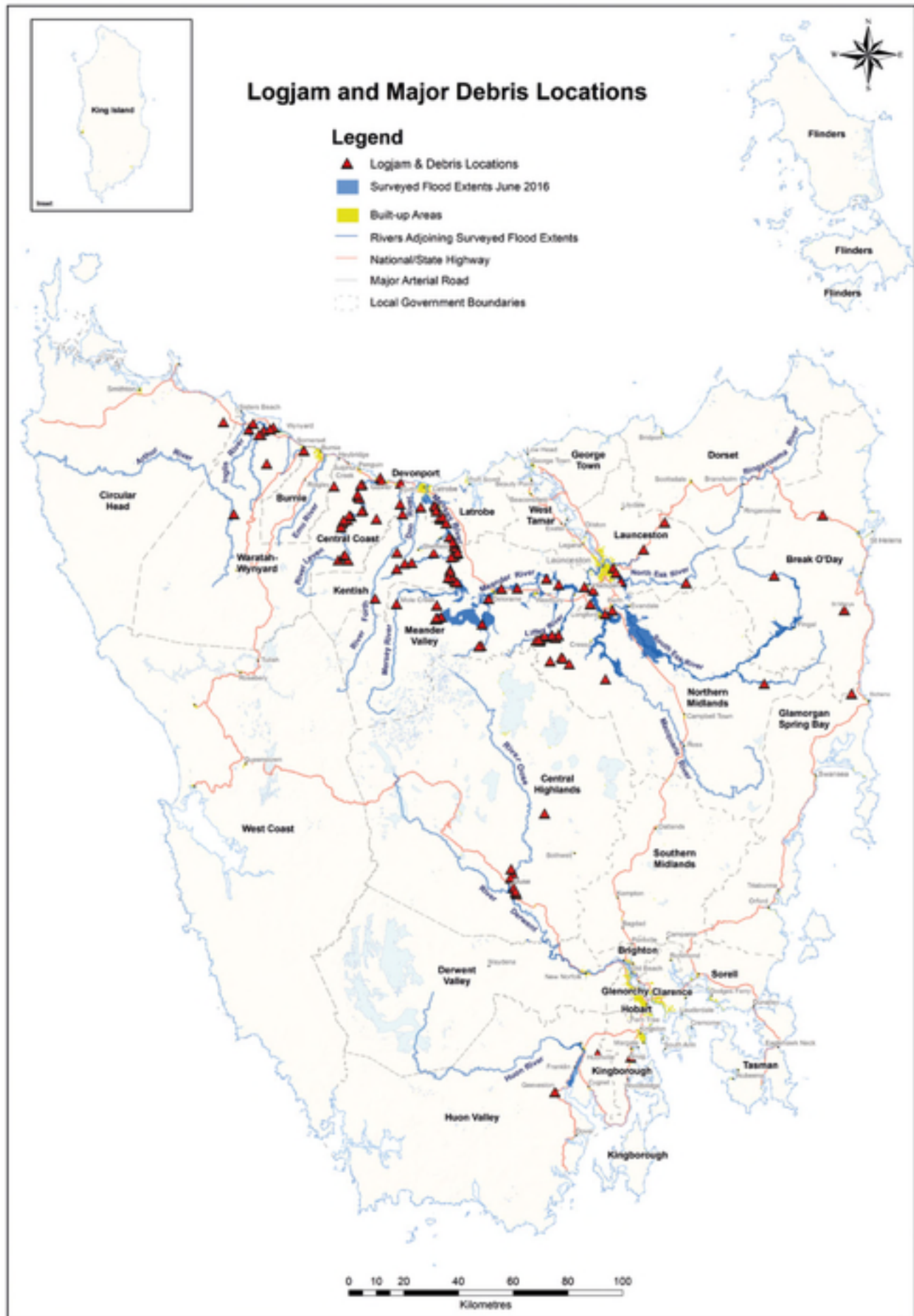
Over 130 locations with significant logjams and debris build-up were identified in the North and North-West during the early recovery period. The majority of debris left as a result of the floods will naturally break up over time if left. However, some areas of debris needed to be cleared quickly, including those impacting on the productive use of land and posing an ongoing risk for future flooding events or downstream infrastructure.

Following the floods, the Taskforce coordinated the development of an in-field data collection application to record the location, composition and status of logjams and debris piles. This information was viewable in the LISTmap/COP. This application provided assistance in the management of the issue, as well as informed the development of a recovery plan in consultation with stakeholders. A State-funded clean-up program of \$200,000 was delivered to redress

the major logjams and in-stream debris build-ups that represented an ongoing risk to infrastructure or further flooding. This program started in June immediately after the floods and was completed by the end of 2016.

The Taskforce also worked with DPIPWE, the NRMs, the CVA and, in some cases, Mineral Resources Tasmania to produce a program to support landowners to deal with debris on land impeding their recovery efforts. Under this program, affected landowners registered their problem, which was assessed against DPIPWE's debris-management guidelines and then distributed to the relevant body to address (Forestry or NRMs). The NRMs worked directly with CVA to coordinate volunteer efforts in circumstances where the landholder required physical assistance with clean-up. Work on this project continues into the long-term recovery phase.

Figure 8. Logjam and major debris locations



Managing affected heritage sites

Historic cultural heritage

Six cultural heritage sites were impacted by the floods, three in the North and three in the North-West, including the National Trust property, Clarendon House at Nile. Heritage Tasmania (DPIPWE) provided on-the-ground support and advice during the initial recovery phase, and initial remediation works were undertaken and further mitigation strategies are under consideration.

The Kimberley Rail Bridge, a vital part of the North-West rail line, sustained significant damage and works began at this site as a matter of priority, under a Certificate of Exemption from the Heritage Council. The rail bridge reopened on 21 July, with long-term works scheduled for completion in the first half of 2017. (Please refer to page 45 for more information on Kimberley Rail Bridge.)

Aboriginal cultural heritage

The impact of flooding to vulnerable Aboriginal heritage sites can be very difficult to detect. No flood damage to Aboriginal heritage was reported to Aboriginal Heritage Tasmania (AHT, in DPIPWE) during or after the 2016 floods. During the initial flood response, AHT staff were rostered on as a contact point outside normal working hours, to provide advice to the Environmental Protection Authority (EPA) and flood recovery staff. Additionally AHT, in consultation with the EPA Division, developed an *'Aboriginal Heritage Assessment Procedure – Carcass Removal on Public Land'* to support the carcass removal project.

Providing assistance to help recovery

Financial assistance

- Primary Producer Clean-up Grants (NDRRA Category C) (refer page 76).
- National parks and reserves funding (NDRRA Category D) (refer page 77).
- Managing logjams and debris (DPIPWE program) (refer page 77).
- Agricultural Landscape Rehabilitation Scheme (DPIPWE program) (refer page 77).

Key findings

- Environmental recovery can be a long process. It can be difficult to accurately identify flood impacts when floodwaters take time to recede and water levels in rivers remain high. When these factors cause delays in capturing data or beginning repair works (as was the case in 2016), clear communication with affected communities about timeframes is important in openly managing expectations.
- Close coordination between the Tasmanian Government, GBEs, local government and non-government organisations enabled comprehensive data capture of flood damage and impacts following the floods. Developing a protocol for data capture for State Government, local government, GBEs and non-government organisations would ensure information collection is consistent and able to be readily saved into a centralised viewing capability.
- Capture of aerial imagery immediately following the event would have provided earlier and more comprehensive intelligence on impact and damage.
- The support of non-government organisations like the NRMs, Rural Business Tasmania and CVA is invaluable for environmental recovery.



Deep scouring and rock deposits on farmland along the Ouse River

Into the Future: long-term recovery

Key points

- While the long-term recovery is largely being managed at a local level, the Tasmanian Government will continue to provide support and guidance as and when required.
 - The Tasmanian Government will continue to progress long-term environmental rehabilitation programs.
 - Data sets developed during the recovery will continue to be updated through the long-term recovery. Review and analysis of the information collected to date will inform future methodology to record data and ongoing planning and mitigation strategies.
 - Long-term recovery communication is the responsibility of relevant Tasmanian Government agencies and local government.
-

Governance

The Taskforce transitioned out of the flood recovery in the first quarter of 2017, with full operational responsibility of ongoing recovery activities being managed at the local government level and within responsible Tasmanian Government agencies.

Projects and assistance

The Tasmanian Government continues to manage long-term recovery projects through key agencies like DPIPW. Service clubs and other NGOs continue to allocate funds for small flood-recovery projects and assistance. Volunteers, through organisations like CVA and the service clubs, remain committed to continuing to support recovery activities as the full impacts of the floods and subsequent wet period become apparent and long-term recovery plans are progressed.

Agricultural Landscape Rehabilitation Scheme (State-funded)

Applications for this State Government-NRM partnership scheme closed on 31 March 2017, and an announcement of successful nominations will be made in due course.

Flood Recovery Concessional Loan Scheme (NDRRA Category B)

Loans totalling \$548,600 under this program were provided by 31 January 2017. The program closed on 31 March 2017, and State Growth expect final applications to be progressed shortly after.

Primary Producer Clean-up Grants (NDRRA Category C)

Applications closed on 31 March 2017, with a total of \$2,986,712.77 granted to eligible primary producers at 30 April 2017.

Stabilisation of the Beaconsfield Hart Shaft (NDRRA Category D)

This \$1.25 million restoration program being managed by the West Tamar Council involves stabilising the shaft by installing a concrete plug below the existing blockage, and then remediating the surface to restore full site access. These works commenced in November 2016. Once complete, they will ensure the future of a valuable tourism asset with the Beaconsfield Mine and Heritage Centre (Museum) remaining open, and protect a significant piece of Tasmanian heritage.

National parks and reserves restoration program (NDRRA Category D)

This DPIWE-managed program aims to restore the many flood-damaged national parks and reserves to full operational capacity. Work has already begun and includes restoring roads, bridges, walking tracks, campgrounds and other visitor facilities.

Walls of Jerusalem National Park access restoration program (NDRRA Category D)

This \$3.25 million program managed by State Growth will repair significant damage to Mersey Forest Road and side roads to restore access to the World Heritage listed Walls of Jerusalem National Park, Lakes Rowallan and Parangana, Lees Paddocks and the Arm River Camp. These works began in November 2016 and are scheduled for completion in April 2017.

Rural Relief Fund grants

Rural Business Tasmania continues to run this crisis-relief grants program through the long-term recovery.

Rural Alive and Well small grants program

This program continues to provide support to individuals and families through the longer-term recovery.

Flood appeal grants

A number of small grants programs continue to be available in the longer-term recovery.

Social support

The Economic Cost of the Social Impact of Natural Disasters report¹⁰ found that more than one in every 10 people exposed to natural disasters are reported to develop psychological stress, with some persisting for the rest of their lives. The Tasmanian Government has maintained a focus on ensuring it has been able, and can continue, to provide personal support for individuals, families and communities following the 2016 floods.

Through workshops with Dr Rob Gordon in 2016, Tasmanian Health Service social workers received training and advice on providing support to people recovering from disaster events. This training helped on-the-ground staff offer effective personal support to affected individuals throughout the recovery process. It will also increase their capacity to perform this role in future recovery efforts. Ongoing psychological support will also continue to be available through other community-based service providers, such as RAW, RBT and St Vincent de Paul Society.



We need to continue to communicate with our affected communities to help deal with new and continuing anxieties...

Craig Perkins, Mayor, Meander Valley Council
and Chair of the Northern Regional Flood
Recovery Committee

¹⁰ Clement, N, Harmer, P, Callaghan, J, Eder, H, Re, M, O'Sullivan, P, Hartzler, B, 2016. Report: *The Economic Cost of the Social Impact of Natural Disasters*, Australian Business Roundtable for Disaster Resilience and Safer Communities, Deloitte Access Economic.

Infrastructure and assets

A great deal of recovery work has taken place in the months following the floods through coordinated State and local government efforts, with the majority of roads and bridges, the rail network and the Port of Devonport all restored to full pre-flood capabilities and function. While there remains some reparation still required to infrastructure and assets, these works are being progressed as quickly as possible.

Economy

Ongoing projects and assistance (please see page 77) identifies the grants and programs still available. The Tasmanian Government will continue to provide support where possible to small business and agribusiness.

Councils will continue efforts to boost local economies through events (like the Latrobe Chocolate Winterfest), bringing visitors and much-needed tourism dollars to the area, as well as continuing to build and foster a renewed sense of community following the 2016 floods.

Environmental and cultural heritage

Much of the environmental recovery has required expert advice on the works required and their priority; this advice complements preliminary assessments carried out by DPIPWE. Works schedules have been put in place based on this advice and the funding capacity for long-term recovery. The Tasmanian Government will continue to work with local government and non-government organisations to oversee these programs of work.

Continued data collection

Data sets developed during the flood recovery to date will continue to be updated through the long-term recovery. This data collection capability will inform long-term recovery planning and future mitigation strategies.



A new pedestrian bridge has been built over the Ouse River at Ouse after the original structure was washed away in flood waters

Review and analysis of the information collected on the flood events will help identify any potential gaps in the information collection process, and will be managed by DPIPWE in the future. This can be used as a base to inform future education and training between the State Government, GBEs, local government and non-government organisations.

Communication

In line with the National Principles for Disaster Recovery, successful recovery is built on effective communication with affected communities and other stakeholders. Effective communication helps individuals and communities recover sooner and with greater resilience. The need for effective communications exists throughout the recovery process, including the long-term.

As the Taskforce transitioned out of the recovery process in early 2017, local government and relevant State Government agencies took on the task of delivering recovery communications in their areas of responsibility.



Outbuilding at Clarendon House under floodwaters

Reflections

Following the 2013 bushfires and the 2016 flood events, it is clear that as a State (and more broadly, as a nation) we now, more than ever, must be prepared for future emergency events. We can use key findings from these recent events, combined with work taking place in other states and territories, to inform and improve Tasmania's future state planning and mitigation strategies, and to build on our existing Emergency Management and Recovery arrangements.

As we continue to choose to live in natural hazard-risk areas, a greater focus on the prevention, preparedness, response and recovery model is essential to ensuring our State's capacity to respond to and recover from emergency events. Despite the recognition of floods as one of Tasmania's highest risk hazards, the number of people living on flood plains increases. Lifestyle trends like these mean it becomes even more important to consider emergency risk management.

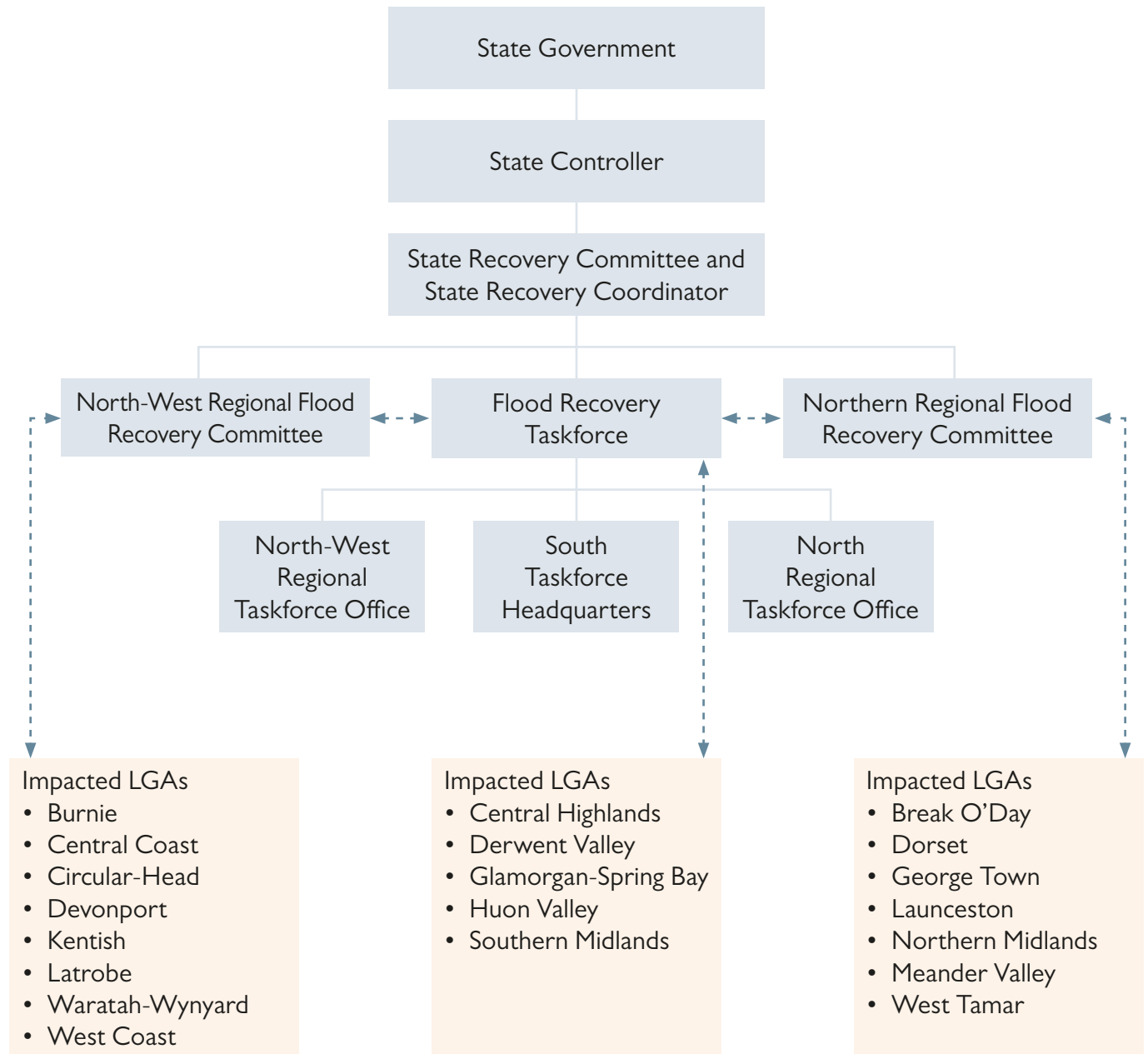
Communities that are well informed and engaged in emergency preparation are far more resilient. If we look to Northern Australia, building codes were significantly upgraded following the effects of Cyclone Tracey on Darwin in 1974. In 2016, New Zealand progressed legislative amendments to the *Building Act 2004* to introduce a new framework for managing earthquake-prone buildings. If we look closer to home, within our own State, the flood levees in Launceston – managed by the Launceston Flood Authority – have proven to be a successful mitigation story in these recent floods, by keeping hundreds of houses safe that would otherwise have been inundated.

An important part of any recovery process is to recognise the resilience of those affected as they make decisions and take actions to move through the event, and come out the other side. During the flood recovery, individuals, families and communities have demonstrated incredible resourcefulness and capacity in the face of adversity.

New relationships and partnerships were forged during the 2016 flood recovery, which will strengthen cooperative arrangements into the future. Responding to emergencies of this type is a shared responsibility for us all: individuals, households, businesses, communities, government and non-government. By continuing to work together, we can achieve a higher level of emergency resilience for the future, a concept that is strongly supported by the National Strategy for Disaster Resilience.¹¹

¹¹ Council of Australian Governments, 2011. National Strategy for Disaster Resilience

Appendix One: Governance structure



Appendix Two:

Local government areas impacted

Break O'Day

Burnie

Central Coast

Central Highlands

Circular Head

Derwent Valley

Devonport

Dorset

George Town

Glamorgan-Spring Bay

Huon Valley

Kentish

Latrobe

Launceston

Meander Valley

Northern Midlands

Southern Midlands

Waratah-Wynyard

West Coast

West Tamar

Appendix Three:

Membership of the committees

2016 Flood Recovery Committee Membership

Peter Edwards	State Recovery Coordinator (Co-Chair)
Ruth McArdle	Deputy Secretary, Department of Premier and Cabinet (Co-Chair)
Gary Swain	Deputy Secretary, Department of State Growth
Wes Ford	Deputy Secretary, Department of Primary Industries, Parks, Water and Environment
Louise Wilson	General Manager, Natural and Cultural Heritage, Department of Primary Industries, Parks, Water and Environment
Simon Roberts	Director, Office of Security and Emergency Management, Department of Premier and Cabinet
Mathew Healey	Department of Health and Human Services, Taskforce
Eleanor Patterson	Department of Health and Human Services, Taskforce
David Bailey	Director, Budget and Management Branch, Department of Treasury and Finance

Northern Regional Flood Recovery Committee Membership

Craig Perkins	Mayor, Meander Valley Council (Chair)
Greg Howard	Mayor, Dorset Council (Deputy Chair)
Peter Edwards	State Recovery Coordinator
Cindy Ong	Department of Primary Industries, Parks, Water and Environment
Pat Wrigley	Tasmanian Health Service
Toni Brown	Tasmanian Health Service
Marni Billings	Taskforce
Lara Hendriks	Department of State Growth
Shane Eberhardt	Manager of Technical Services, Launceston City Council

North-West Regional Flood Recovery Committee Membership

Peter Freshney	Mayor, Latrobe Council (Chair)
Anita Dow	Mayor, Burnie City Council (Deputy Chair)
Peter Edwards	State Recovery Coordinator
Sandra Ayton	General Manager, Central Coast Council
Rae Burrows	Department of Primary Industries, Parks, Water and Environment
Brendon Clark	Department of Primary Industries, Parks, Water and Environment
Toni Brown	Tasmanian Health Service
Marni Billings	Taskforce
Lara Hendriks	Department of State Growth
Wayne Richards	State Emergency Service

Appendix Four:

Committee objectives

The State Flood Recovery Committee

1. Overseeing a State-level impact assessment.
2. Identifying the needs of impacted individuals, businesses and communities and environmental and cultural heritage.
3. Coordinating recovery activities between State agencies, local government and other organisations.
4. Providing advice to the State Recovery Coordinator regarding long-term recovery options, including but not limited to governance and public communications arrangements.
5. Establishing and liaising with affected area committees for the purpose of assisting them in the exercise of their functions.
6. Overseeing the delivery of recovery programs.

Regional Flood Recovery Committees

1. Assist their community to manage their own recovery following the June 2016 flooding.
2. Undertake a coordinated and planned process that draws together relevant recovery partners to address recovery needs.
3. Oversee the delivery of projects that support the social, infrastructure, economic and environmental recovery to ensure that they are community owned and support the recovery of their regions.
4. Respond to recovery-related issues in the community and ensure that appropriate action is taken.
5. Provide advice to the Government to ensure that recovery programs and services meet the needs of their region.
6. Provide a central coordinating point for the range of recovery activities that may be occurring outside of the direct control of the Committee.

Appendix Five:

Taskforce Interim Action Plan

priority actions

Priority Action	Action description
Priority Action #1	The Taskforce will establish a regional presence in the North and North-West flood-affected areas.
Priority Action #2	The Taskforce will collaborate with the Regional Flood Recovery Committees and non-government partners to support localised recovery efforts.
Priority Action #3	The Taskforce will develop mechanisms to receive feedback from the community on the four domains of recovery: social, infrastructure, economy and environment.
Priority Action #4	The Taskforce will develop a range of communication channels to provide regular updates on recovery priorities and progress.
Priority Action #5	The Taskforce will ensure that arrangements are in place for flood-affected communities to access available assistance and services.
Priority Action #6	The Taskforce will work with Regional Flood Recovery Committees and relevant Government agencies to provide the public with flood recovery updates and advice on post-flood hazards and safety.
Priority Action #7	The Taskforce will work with relevant agencies to coordinate and monitor the distribution of financial support.
Priority Action #8	The Taskforce will create and distribute information via the Regional Flood Recovery Committees, outlining the financial assistance programs available to all affected by the floods.
Priority Action #9	The Taskforce will work with relevant organisations to ensure that post-flood psychological support is available to flood-affected individuals and families.
Priority Action #10	The Taskforce will support Regional Flood Recovery Committees and relevant agencies to develop a coordinated community engagement plan.
Priority Action #11	The Taskforce will promote the value of statewide recovery information flows via the Common Operating Platform (COP) and provide training to flood-affected councils for direct in-field or desktop uploads of data.
Priority Action #12	The Taskforce will work with relevant organisations, including the Regional Flood Recovery Committees, to identify and prioritise the repair and/or reconstruction of major infrastructure and assets.
Priority Action #13	The Taskforce will work with the Department of Primary Industries, Parks, Water and Environment and other water management bodies to monitor the impact and restoration of flow stations to ensure resumption of services.

Priority Action	Action description
Priority Action #14	The Taskforce will work with relevant organisations to understand the full impact of the floods on agribusiness, to inform the development and delivery of appropriate recovery assistance.
Priority Action #15	The Taskforce will work with relevant organisations, and through the Regional Flood Recovery Committees, to identify and promote available services and financial assistance packages for impacted businesses and rural producers.
Priority Action #16	The Taskforce will establish processes to monitor economic impacts and recovery of affected communities.
Priority Action #17	The Taskforce will work with relevant organisations to monitor impacts to natural values.
Priority Action #18	The Taskforce will, where appropriate, support the Department of Primary Industries, Parks, Water and Environment in its recovery within Parks and Reserves.
Priority Action #19	The Taskforce will support the Department of Primary Industries, Parks, Water and Environment to develop its strategy for the removal and appropriate disposal of log jams, major debris and carcasses.
Priority Action #20	The Taskforce will work alongside the Regional Flood Recovery Committees and relevant agencies to identify and, if required, respond to issues related to the environment, Aboriginal Heritage and other cultural heritage sites.

Appendix Six:

Grants and assistance for affected communities

Natural Disaster Relief and Recovery Arrangements

The Tasmanian and Australian governments provided a number of disaster assistance measures for affected communities and individuals through the jointly-funded Commonwealth-State NDRRA.

Emergency Assistance Grants (Category A)

Emergency aid of up to \$750 per family was made available for people directly impacted by the floods to assist with immediate needs such as buying clothing, food and water, transport, shelter and personal items.

Recovery and Restoration Grants (Category A)

Three Recovery and Restoration Grants were made available to individuals and families on low incomes:

- Temporary Living Expense Grant
- Essential Household Items Grant
- Repair and Restoration Grant

Grants of up to \$8,875 per category, net of any insurance, were provided on the basis of need.

Assistance for sport and recreation clubs and not-for-profits (Category B)

A maximum grant of \$2,000 was made available for sport and recreation clubs and not-for-profit organisations affected by the floods. Funds could be used for:

- removal of debris, and/or restoring essential facilities;
- replacing damaged equipment or other assets; and
- hire of other facilities for use by members.

Flood Recovery Concessional Loan Scheme (Category B)

To assist primary producers and small businesses directly affected by the June 2016 floods.

The loan scheme provided loans ranging from a minimum of \$25,000 to a maximum of \$200,000 for eligible businesses located in areas affected by the floods.

Transport subsidies (Category B)

A transport subsidy was available for flood-affected primary producers until 30 November 2016.

The subsidy was intended to reduce the costs of transporting fodder, stock and other materials following the floods. Under the scheme, a subsidy of up to 50 per cent of the total freight cost, to a maximum of \$15,000 per farm enterprise, was available to eligible primary producers.

Primary Producer Clean-up Grants (Category C)

Grants of up to \$10,000 were available to help primary producers affected by the floods. These grants were available to eligible primary producers in nine LGAs:

- Break O'Day
- Central Coast
- Central Highlands
- Kentish
- Latrobe
- Launceston City
- Meander Valley
- Northern Midlands
- Waratah-Wynyard

The grants could be used to assist primary producers with clean-up and restoration activities including removal of debris, disposing of dead livestock, salvaging crops, grain and feed, and repairing plant and equipment.

Ongoing projects

Stabilisation of the Beaconsfield Hart Shaft (Category D)

This \$1.25 million restoration program being managed by the West Tamar Council involves stabilising the shaft by installing a concrete plug below the existing blockage, and then remediating the surface to restore full site access. These works commenced in November 2016. Once complete, they will ensure the future of a valuable tourism asset with the Beaconsfield Mine and Heritage Centre (Museum) remaining open, and protect a significant piece of Tasmanian heritage.

National parks and reserves restoration program (Category D)

This DPIPW-managed program aims to restore the many flood-damaged national parks and reserves to full operational capacity. Work has already begun and includes restoring roads, bridges, walking tracks, campgrounds and other visitor facilities.

Walls of Jerusalem National Park access restoration program (Category D)

This \$3.25 million program managed by State Growth will repair significant damage to Mersey Forest Road and side roads to restore access to the World Heritage listed Walls of Jerusalem National Park, Lakes Rowallan and Parangana, Lees Paddocks and the Arm River Camp. These works began in November 2016 and are scheduled for completion in April 2017.

Other assistance

Agricultural Landscape Rehabilitation Scheme

The State Government has provided \$2 million for this scheme to assist flood-affected landowners and communities rehabilitate land and stream systems following the floods. The Tasmanian NRM organisations (NRM South, NRM North and Cradle Coast NRM) have partnered with the State

in delivering the scheme, which aims to restore the productive capacity of the agricultural sector and reduce the risk of future flooding on agricultural land. Applications closed 31 March 2017.

Rural Relief Fund

Crisis relief funding up to \$2,500 is still available to eligible farmers through the Rural Relief Fund (RRF), which is a program of Rural Business Tasmania.

This funding can be used for anything from household goods, fence repairs to fodder.

Managing logjams and debris

The State Government provided funding of \$200,000 to clear critical logjams caused by the floods. Advice and support was available to assist landowners to clear debris from their land. Forestry Tasmania coordinated local contract crews in close consultation with impacted landowners. DPIPW partnered with the natural resource management (NRM) regional organisations throughout Tasmania to assist landowners to clean up debris.

St Vincent de Paul Society and MyState flood appeal

The St Vincent de Paul Society coordinated the main flood appeal in cooperation with MyState, raising over \$205,000.

AgriGrowth Loan Scheme

The AgriGrowth Loan Scheme provided low interest loans to Tasmanian farm businesses and agri-food businesses, ranging from \$30,000 to \$1 million. Applications closed 31 March 2017.

Rural Alive and Well small grants program

This program provides support to individuals and families through the longer-term recovery.



Tasmanian Flood Recovery Taskforce