



On Reflection: Examining the Buloke Shire's largest ever flood

BACKGROUND

In January 2011 Buloke Shire was devastated by a 1-in-200 year flood event. It was the third flood to inundate the northwest Victorian shire in four months.

Heavy rainfall in already burgeoning catchments inundated homes, businesses and community infrastructure. Valuable agricultural land – the area's biggest industry – was deluged and considerable stock lost.

Hundreds of residents were displaced and many more were isolated by floodwaters. While the towns of Charlton, Donald and Culgoa were most severely impacted, the effects were felt much more widely.¹

As flood waters receded, Buloke Shire Council assessed damage to infrastructure at more than \$50 million.

However, this event should not be seen in isolation; 51 communities throughout Victoria were also impacted by flooding at this time², including those in the neighbouring municipalities of Gannawarra, Loddon, Yarriambiack and Swan Hill.

These simultaneous events "severely tested Victoria's emergency management arrangements"³.



THE FLOOD

After two floods in two months, when heavy rain began falling across the municipality in January 2011, Buloke Shire braced itself for another flood event and initiated preparations. Up to 220 millimetres of rain was to fall across the municipality throughout the month.

Prior to the flood, Council activated a municipal emergency coordination centre (MECC) at Charlton to coordinate the response. An evacuation centre was established at the Charlton Shire Hall but due to flooded access, was relocated to higher ground at the Charlton high school stadium and a rescue centre set up at the ambulance station.



¹ Author unknown, *Stories of the Flood*, Buloke Shire, September 2014, p. 3.

² Alison Caldwell, 'Nervous wait for flood-affected Horsham', ABC News, Australian Broadcasting Corporation, <http://www.abc.net.au/news/2011-01-18/charlton-may-never-recover-from-floods/1909358>, 18 January 2011, (accessed 16th July 2014).

³ Neil Comrie AO, APM, *Review of the 2010-11 Flood Warnings & Response: Final Report*, Victorian Government, Melbourne, November 2011, p. 4.

Sandbags were arranged for residents and the shire assessed its available resources. A series of levee banks were constructed on Charlton's south west and residents sandbagged the doorways of their homes.

The Victorian State Emergency Service (VICSES) had also established an incident control centre (ICC) at Bendigo, with support staff travelling to Charlton to be stationed in the MECC as the floodwaters hit the town.

Buloke Shire's Manager Reconstruction, Warren Hemopo, said the community and Council had been monitoring the Yawong Weir flood warning gauge, on the Avoca River outside Charlton, for an indication of the level of water they could expect in the town in two days' time.

"Recordings indicated the gauge south of Charlton (Yawong Weir) had peaked. (Later) we realised it hadn't peaked at all, it had just drowned and (the floodwater) was still going up," Mr Hemopo said.

As the level of the Avoca River continued to rise, protecting property quickly escalated to protecting life and VICSES ordered hundreds of people to leave their homes and evacuate to the high school.

Some community members elected to stay with their properties and as the Avoca River and Yeungroon Creek burst their banks and with floodwater rising quickly in Charlton, many were caught by surprise.

"What caught us all out was that after 13 years of drought, the last thing people expected was flood," says the Council's Community Development Officer, Mark Remnant. People were also basing their expectations of the flood's behaviour on the lesser event of September 2010, he said.



Residents are evacuated as floodwater inundates homes in Charlton's High Street



The streets of Donald go underwater

Buloke Shire staff were coordinating the shire's response and provided support to the community even as their own homes and property were being inundated.

The Shire's Reconstruction Manager, Warren Hemopo, said it was a stressful situation.

"There was a lot of frustration in the community about the lack of communication: 'How could you let this happen to us and not let us know?' The answer was, we didn't know," Mr Hemopo said.

As floodwaters neared the evacuation centre at the Charlton high school, adults, children and pets were again evacuated, this time to the Vale of Avoca guest house on the Calder highway from where they were then bussed 40 kilometres to the neighbouring town of Donald.

Water reached above headlights as buses transported more than 120 people in darkness 40 kilometres to the neighbouring town of Donald as rising water caused another evacuation. Of those who remained, residents on higher ground provided refuge to their neighbours on lower ground.

Patients in the town's hospital were also evacuated, as water lapped halfway up the sides of the trucks they were transported in. Later authorities would learn that the damage to the hospital was so extensive that it would need to be demolished and rebuilt.

Floodwaters had inundated the Charlton electricity substation, cutting power supplies to 85 per cent of Buloke Shire, and in turn all telephone and internet communications. This interruption made communication between the ICC and MECC as well as other emergency points difficult and led Council to set up a series of two-way radios across the area to maintain some contact.

Highways and main roads in every direction had also been cut and the town found itself trapped by water for several days.

When the Avoca River peaked at 8.7 metres at James Patterson Bridge on 15 January 2011 it

became Charlton's largest flood ever known, affecting over 80 per cent of the town. It eclipsed the previous highest flood event of 1909 by 0.35m.

The flood had wreaked extensive damage, including:

- 369 properties affected, including 270 residences
- 15 businesses inundated
- Charlton hospital extensively damaged, requiring demolition
- 43 Council/public buildings with above-floor flooding
- 2100km of road damaged.

The recently published *Stories of the Flood* documents the damage caused to other towns in the shire: at Donald 13 homes and two motels inundated; the town's retirement village evacuated and a section later rebuilt; the swimming pool, cricket club rooms, hockey club and archery club flooded; at Culgoa, half of the town's 24 homes inundated, and three homes surrounded by water at Wycheproof.⁴

Large amounts of agricultural land were also damaged as farmers previously devastated by drought switched one environmental disaster for another.

The damage to roads submerged by floodwater was also severe. Sections of some roads were picked up and washed into nearby paddocks or wiped out altogether.

CHALLENGES

The flood of January 2011 was estimated to be a 1-in-200 year event that had caused widespread damage and devastated the communities of Buloke Shire. The event had stretched the resources of the Council to both respond during the disaster and manage the recovery that would follow.



With most parts of the Shire affected, managing the restoration of this infrastructure for such a large scale disaster presented an unprecedented challenge for the small rural Council which had limited staff available to undertake recovery activities.

Council was managing the recovery on a range of fronts: community and volunteers; road infrastructure restoration; and public buildings and community infrastructure restoration. Each posed their own challenges which were amplified by a further issue: interruption to communications.

ROAD INFRASTRUCTURE RECOVERY

In the aftermath of the floods, Council estimated the road infrastructure damage to be more than 10 times its annual road projects budget. This assessment process itself was a difficult task. Council resources were applied to assess the damage, with some support from sister Council, Hobsons Bay City Council.

A further requirement for Council was preparing commercial arrangements that would effectively manage the rectification of the road and infrastructure damage, with some infrastructure not able to be properly assessed as it remained submerged for up to 12 months.

Arrangements needed to ensure competitive delivery costs, quality standards and disaster grant timelines could be met.

COMMUNITY INFRASTRUCTURE RECOVERY

In addition to managing the damage sustained to roads and asset infrastructure, Council also had sustained significant damage to buildings and community infrastructure. Assessments for this damage totalled \$1.5-\$2 million.

Project management for such a large-scale project placed further strain on Council's resources.

⁴ Author unknown, *Stories of the Flood*, Buloke Shire, September 2014, pp 22, 42 & 46.



Crews begin work on a flood damaged road

COMMUNITY RECOVERY

The goodwill and generosity of people was on show after the floods as volunteers came from near and far to assist businesses and residents with their recovery.

This volunteer effort necessarily required coordination at a time when Council's resources were already stretched with other elements of recovery. However, these volunteers were greatly appreciated by Council and the community.

RECOVERY & RESTORATION

As the magnitude of the damage became apparent, Council created various teams to manage different aspects of the recovery:

- a community recovery team that focussed on providing material and emotional support to the community along with supporting the restoring of homes, property and businesses
- a road infrastructure recovery team that worked on restoring roads and related infrastructure, and
- a community infrastructure team that worked on restoring community buildings and facilities.

ROADS

Buloke Shire was grateful to receive grant funding from the Australian Government's Natural Disaster Relief and Recovery Arrangements (NDRRA) and the Victorian Government's Natural Disaster Funding Assistance (NDFA), which allowed the Shire to fund its large-scale restoration.

In the weeks after the flood, a contract development panel was formed to draw up terms for the restoration of road and asset infrastructure recovery. This panel was led by Council and included input from VicRoads, the agency responsible for approving grant-related works.

At the recommendation of the panel, Buloke Shire awarded a contract for road and asset restoration to a single contractor.

Expressions of interest were also sought from local companies for ability to supply materials, services and labour to the successful contractor.

The road recovery and restoration work was difficult, as the flood had washed away much of the existing infrastructure. This meant that much of the works was a complete reconstruction of the roadway and required immediate attention for the community to regain access.

Throughout the reconstruction process, it was essential that Council adhere to the requirements of the Road Management Authority which was charged with the sign off of Federal and State road and infrastructure grant funding, the 'bankers' for the payment of the works.

As part of this process and in late 2012, the Road Management Authority required Council to review and make changes to the existing standards applied for the road construction. One of the outcomes of this process was that Council's delivery rate for the completion of the road works was slowed. However, the parties involved reached an agreed solution which meant that the works could be successfully completed in an accelerated timeframe to achieve the delivery date of 30 June 2014.

COMMUNITY AND PUBLIC BUILDINGS

As one team worked on the road infrastructure restoration, another, headed by Council's then Manager Assets and Infrastructure, Anthony Judd, concentrated on community infrastructure recovery.

This was the biggest such project to ever be completed by Buloke Shire and the small team focused on prioritising damage assessment and restoration projects to create a manageable workload.

The team assessed and project managed restoration of an extensive list of damaged buildings and infrastructure, which included swimming pools, recreation reserves, public halls, a kindergarten and the shire's municipal offices.

Mr Judd said four to five projects were managed at any one time and contracts were let separately for each.

"We tried to assess and project manage facilities within the resources that we had and that really stretched us. I think we managed priorities quite well," he said.

"We were able to get most of the projects up and going within 12 months. The Donald swimming pool was operational within a couple of weeks of the flood – it was the height of summer."

VOLUNTEER EFFORT

While Council focussed on infrastructure recovery, a concerted band of Charlton residents worked to restore the town's businesses, homes and rural properties, and to assist their neighbours.

They were later supported by volunteers from outside the municipality, football clubs, Rotary groups and others. Volunteer organisation



Culgoa bridge was extensively damaged during the flood

BlazeAid was also integral in restoring hundreds of kilometres of agricultural fencing.

"After the floods, people came from everywhere to volunteer and some key local personalities took control to manage the volunteer effort," according to Mark Remnant, Council's Community Development Officer.

"Charlton moved ahead really quickly. People just got stuck in and did it, so a lot of businesses were put back together from community help. Almost all the businesses went underwater; most got back up and running."

Council had quickly realised that its limited resources were best used for other projects. Regulatory, inventory management and liaison support was provided to the volunteers who carried out the frontline work.

COUNCIL RESOURCING

Buloke Shire Council's small team of staff was stretched in all aspects of the flood – from emergency response to damage assessment, recovery to restoration.

Manager Reconstruction, Warren Hemopo said: "It takes a lot of resources to respond to a flood event, even just to run a MECC centre. When you've exhausted them you need to have appropriate back-up and that takes a lot more effort than we expected," he said.

"The staff put in tremendously and the hours that some people put in was amazing."

Council staff were redeployed from other areas to assist with the flood recovery. In many cases this meant staff assuming roles outside their usual field, such as the records officer becoming a flood recovery manager.

Some of these people are, in mid-2014, only now



The bridge has been rebuilt using disaster grant funding

returning to their regular duties some three-and-a-half years after the flood event.

Buloke Shire Council Mayor, Reid Mather, was a Councillor at the time of the flood and observed the efforts of staff.

“Hardworking staff need to be commended for their efforts during the flood response. They worked long hours and put the community before themselves even as their own homes and families were in danger,” Cr Mather said.

“We also recognise that as a small shire, many staff members were required to perform roles outside their normal responsibilities during the recovery phase.”

COMMUNITY

Council’s community recovery team worked with flood case workers from East Wimmera Health and the Victorian Council of Churches to conduct doorknocks of homes throughout the Shire to evaluate residents’ welfare needs.

Initially based in the Wycheproof Supper Room, the team later moved to the Buloke Shire’s portable offices in Watson Street, Charlton.

Support organisations such as the Department of Human Services, Centrelink, Rural Finance and the Red Cross, as well as banks and community banks set up agencies in town to support residents in the aftermath of the flood.

‘Fireshed events’ were invaluable in providing information, services and support to residents in smaller, outlying communities. Introduced by Buloke Shire during the drought then continued throughout the flood, these events are still being held throughout the Shire.

OUTCOME

More than three years after the flood, the Shire’s infrastructure has been restored and businesses reopened, thanks to a concerted and prolonged effort and support from Council staff, contractors, volunteers, the community, relief agencies and government.

VicRoads representative for the project, Alastair Robinson, said the roads restoration arrangements ensured the roads were restored to a modern standard and delivered in time to acquit the disaster grant.

A change and renegotiation in the scope of road restoration works allowed Buloke Shire to address

YEAR	Flood Height	YEAR	Flood Height	YEAR	Flood Height
September 1870	8.2 m	April 1939	8.25m	June 1995	7.58m
June 1889	7.8m	May 1956	8.1m	September 2010	7.91m
October 1894	7.9m	October 1964	7.65m	January 2011	8.7m
August 1909	8.35m	February 1973	7.76m		
September 1915	7.9m	October 1975	7.6m		
June 1923	7.9m	August 1981	7.6m		
December 1933	8.0m	September 1983	7.6m		

damaged roads infrastructure that was not initially identified due to still being submerged.

More than 2100 kilometres of roads have now been repaired – almost 40 per cent of all roads in the Buloke Shire.

“With a lot of effort, almost the entire \$50 million was spent by June 2014,” Mr Robinson said.

Following the floods, the Victorian and Australian governments have allocated further grant funding that has allowed the Shire to invest in forward planning, flood planning documentation, communication and response.

This includes a study for development of a levee system at Charlton, construction of a floodway on the Charlton-St Arnaud Road and stage 1 construction of a levee at Donald.

Buloke Shire’s Manager Reconstruction, Warren Hemopo, said detailed assessment of roads after the flood had also delivered the Council improved asset data on roads and public infrastructure that would assist with future asset management.

REFLECTION

With the flood recovery process now complete, Buloke Shire is reviewing all aspects of the event and identifying the lessons that can be learned to improve future flood response and recovery.

Buloke Shire Council Mayor, Reid Mather, reflected on the flood.

“The flood event of January 2011 was beyond anything we have ever experienced and as a small rural shire it has challenged us in response and recovery,” he said.

“We are indebted to the Australian and Victorian governments, the Office of Local Government and VicRoads for their support and guidance.

“We are also grateful to the many recovery agencies, volunteers and locals who helped our communities in the days, weeks and months after the flood,” Cr Mather said.

“Following the reviews of this event and the consultation with the community, we have learned many valuable lessons which will help us to improve our flood preparedness, responsiveness and in the recovery phase.”

In closing, Buloke Shire Council has determined seven key points amongst a range of other actions, that will help manage future flood events:

- Flood warning systems are vital in preparing the community for the severity of the event to come. These warnings must be reliable and accurate
- A greater number of existing staff should be extensively trained in managing emergency response
- Enhance the process to coordinate and manage volunteer support in the recovery process
- Communication cannot be overestimated. In situations where landline and mobile telephone services have been interrupted, access to satellite phones would be beneficial, particularly in improving communications between coordination centres
- Improved communication with the community would improve the community’s understanding of the shire’s flood response
- Employment of external project managers could speed up damage assessment of public infrastructure and allow for a more streamlined recovery
- Ensure clarity of funding guidelines and conditions, including asset restoration standards.



REFERENCES

1. Author unknown, *Stories of the Flood*, Buloke Shire, September 2014
2. Alison Caldwell, ‘Nervous wait for flood-affected Horsham’, ABC News, Australian Broadcasting Corporation, <http://www.abc.net.au/news/2011-01-18/charlton-may-never-recover-from-floods/1909358>, 18 January 2011, (accessed 16th July 2014).
3. Neil Comrie AO, APM, *Review of the 2010-11 Flood Warnings & Response: Final Report*, Victorian Government, Melbourne, November 2011.



**Cr Reid Mather,
Mayor**