

8. Administration Reports

8.1. Middleton Floods Update

Responsible Officer: Alan Harvey (General Manager Infrastructure) and Stacey Bateson (General Manager Community)

Report Author: Alan Harvey (General Manager Infrastructure)

Recommendation

That Council:

Recommendation 1

receives a report by September 2024 on the scope, resourcing and budget required to develop a high-level Alexandrina Community Recovery and Resilience Plan. Ensuring that Council draws on sector experience and best practice.

Recommendation 2

approves the General Manager Community to engage with and seek support from other organisations to offer emergency management, recovery and resilience training to Council staff and the Alexandrina community.

Recommendation 3

receives a report by September 2024 on the scope, resourcing and budget required to develop a Stormwater Management Plan that builds on the work that has been undertaken, includes the Middleton township and advises the opportunities for support from the State Government.

Recommendation 4

approves the General Manager Infrastructure to investigate the possibility of a new BOM weather station, providing sub daily weather data within the region's coastal area.

Recommendation 5

approves the General Manager Infrastructure to investigate the possibility of a level gauge within the Middleton Creek, to provide more localised data on water levels.

Recommendation 6

approves the General Manager Infrastructure to:

- a. write to the Hills and Fleurieu Landscape Board to progress the opportunity to collaborate with private landowners on inspection and clearing of the creek line and explore a more structured approach to the ongoing management of the creek.
- b. write to Crown Lands, with a view to working with them on the clearing of the creek within the vicinity of the railway line embankment crossing.

Recommendation 7

approves the General Manager Infrastructure to write to the Department of Infrastructure and Transport and request the enlargement or replacement of culverts that cross the Goolwa Road within the Middleton township.

Recommendation 8

approves the General Manager Infrastructure to write to SteamRanger and request the enlargement of or increased number of stormwater pipes and culverts under the SteamRanger railway embankment adjacent to the Middleton township.

Recommendation 9

receives a report by August 2024 on the budget required to engage specialist consultants to deliver a concept design and high-level costings for a new stormwater system along Mill Terrace from the Goolwa Road to the creek, working closely with local community Department of Infrastructure and Transport and SteamRanger.

Recommendation 10

receives a report by August 2024 on the budget required to engage specialist consultants to deliver a concept design and high-level costings on improvements in the stormwater system along Flagstaff Hill including stormwater coming from and crossing Airport Road, working closely with the Department of Infrastructure and Transport.

Recommendation 11

receives a report by October 2024 providing an update on recommendations 2, 4, 5, 6, 7 and 8.

Prior Resolutions

Meeting Date	Agenda Item Number	Report Title	Resolution Number
15 April 2024	7.3	Notice of Motion - Cr Michael Scott - Stormwater Management in Mill Terrace, Middleton	C24136
20 March 2023	7.8	Notice of Motion – Cr Michael Scott – Middleton Storm Event – Road Repairs	C23089
20 March 2023	7.9	Notice of Motion – Cr Lou Nicholson – Alexandrina Disaster Response	C23090, C23091, C23093, C23094
16 January 23	4.1	Petition – Middleton Flood Event – 12 November 2022	C23002

Community Strategic Plan Impact

LIVEABLE	Distinctive townships, places, spaces, and transport networks that support active lifestyles vibrant cultures and productive enterprise
GREEN	Climate-ready, a place where nature is valued, and resources are managed sustainably and creatively to support a new economy
CONNECTED	Created for, with and by the community. We are safe, healthy and all enjoy accessible infrastructure and services
ENABLED	Proactive pursuit of innovative practices, ethical resource management and transparent leadership to foster community engagement, trust, and accountability, thus ensuring an inclusive and empowered Council

Report Objective

The purpose of this report is to provide an update on the Middleton storm event in November 2022, including options and recommendations to mitigate future significant storm events within Middleton.

Executive Summary

On 12 November 2022 Middleton suffered a significant storm event that had a significant economic and personal impact on the township.

The event was likely to have been at least a 1% AER (1:100 yr.) occurrence and came on top of a very wet few months. The intensity of the rainfall is understood to have been a major contributor to the rapid inundation that occurred.

This report generally covers the event and what has occurred since from both a community, emergency service and Council perspective.

Whilst work and engagement has been undertaken by Council, it is acknowledged that there are significant lessons to be learnt.

Through further and more targeted engagement with the community, emergency services and specialists, recommendations have been put forward that seek to mitigate future impacts from significant storm events in Middleton, as well as working through ongoing localised stormwater issues. The recommendations also look to improve and mature Council's approach to external emergency management, recovery and resilience for the benefit of wider Alexandrina community.

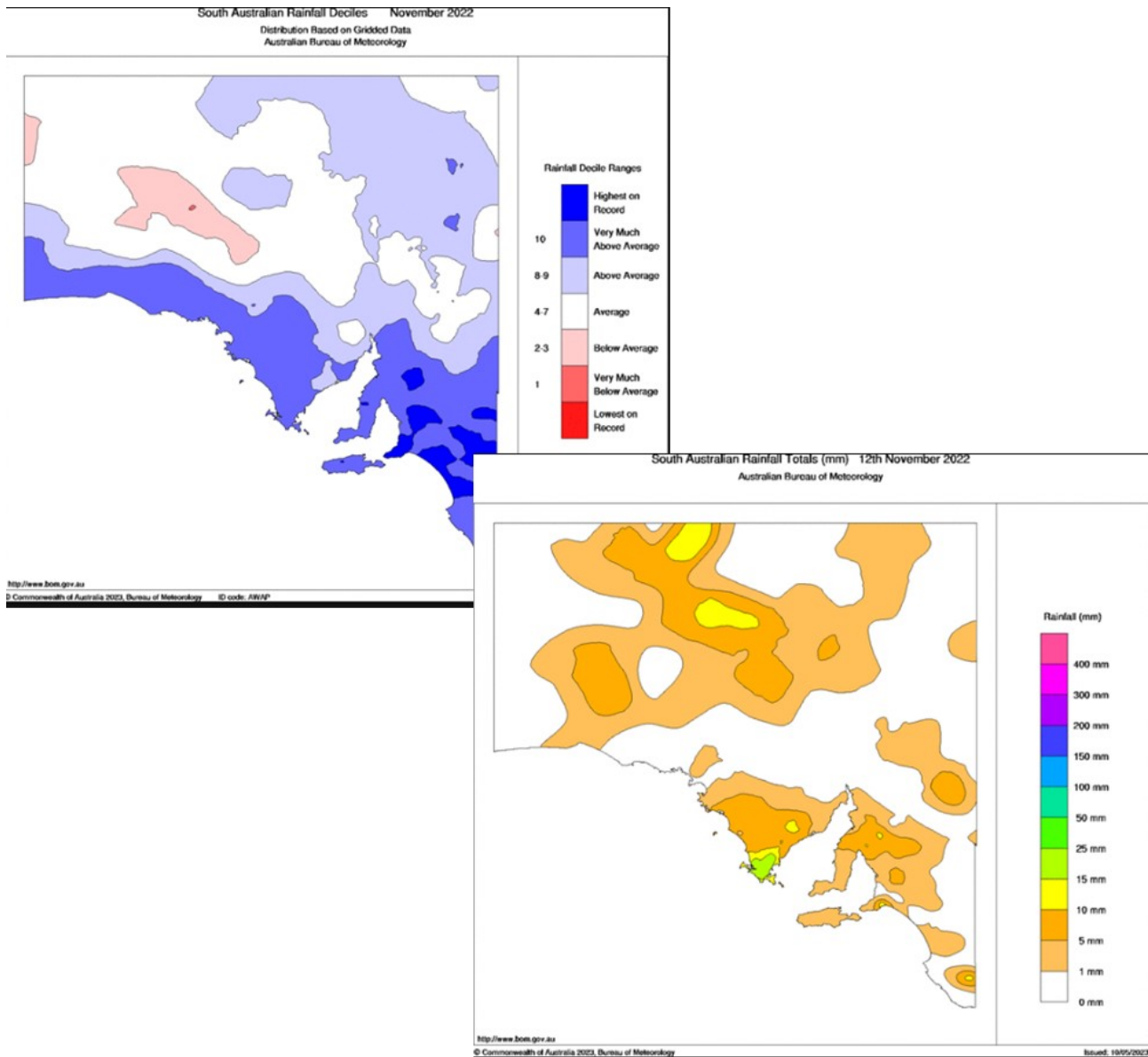
Context

On 12 November 2022, South Australia experienced a major storm event, which included widespread impacts, disruption and damage across the greater Adelaide and regional areas.

The Bureau of Meteorology observed the following from that day and night, noting that 2022 had been the wettest year on record for South Australia since 2016.

<http://www.bom.gov.au/climate/current/annual/sa/archive/2022.summary.shtml>

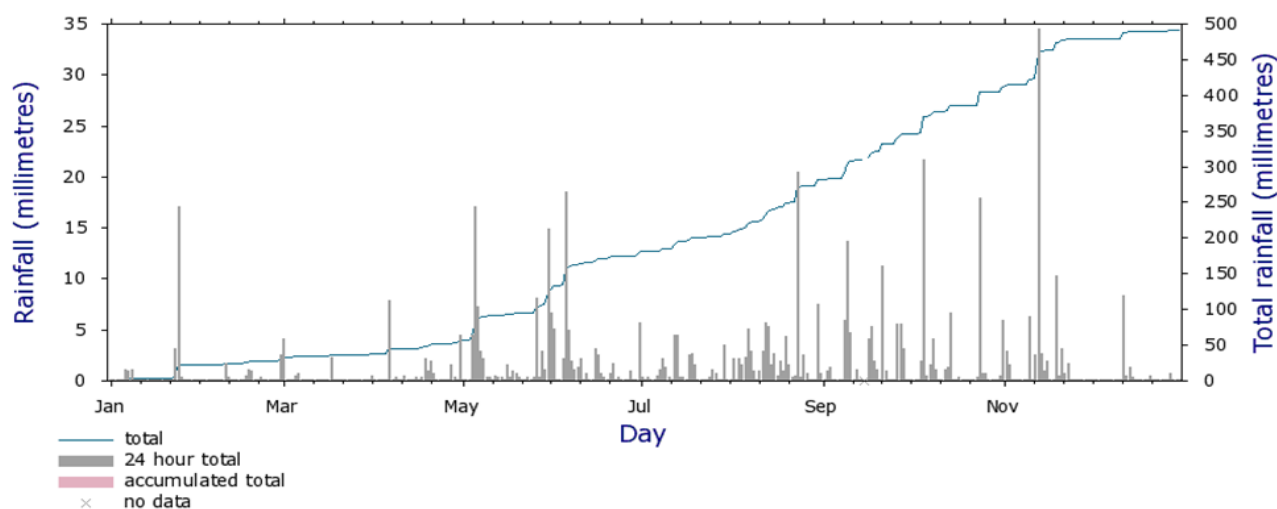
"On 12 November severe thunderstorms embedded in a cloud band struck southern South Australia with up to 423,000 lightning strikes and wind gusts up to 109 km/h. A number of sites in the Mount Lofty Ranges and on the Fleurieu Peninsula set daily rainfall records for November. The storms caused widespread significant power outages across metropolitan Adelaide. An interstate transmission line was also damaged."



Record highest November daily rainfall

	New record (mm)		Old record		Years of record
	Δ▽	Δ▽	Δ▽	Δ▽	
Kapunda	60.0	on the 14th	48.8	on the 17th in 1961	139
Milang	71.2	on the 13th	66.3	on the 18th in 1964	139
Manoora	38.4	on the 1st	38.0	on the 4th in 1988	131
Sellicks Beach	42.6	on the 13th	30.2	on the 1st in 1997	31
Strathalbyn Racecourse	48.2	on the 13th	39.0	on the 1st in 1997	27
Roseworthy AWS	31.8	on the 1st	29.0	on the 11th in 1998	26
Sevenhill	53.0	on the 1st	40.6	on the 26th in 2002	22
Milang (Point Sturt)	42.2	on the 13th	28.2	on the 26th in 2002	21
Barossa Valley (Duckponds Creek)	44.2	on the 13th	35.2	on the 7th in 2005	22
Prospect Hill	52.6	on the 13th	46.4	on the 8th in 2005	55
Edithburgh	38.2	on the 13th	30.4	on the 3rd in 2007	29
Victor Harbor (Encounter Bay)	60.0	on the 13th	56.2	on the 3rd in 2007	22
Hindmarsh Island AWS	34.4	on the 13th	32.0	on the 3rd in 2007	20
Burra (Leighton)	61.0	on the 13th	34.4	on the 22nd in 2009	53
Georgetown	49.2	on the 1st	47.0	on the 5th in 2015	139
Booborowie	78.4	on the 14th	46.0	on the 5th in 2015	96
Burra Community School	53.0	on the 13th	46.2	on the 5th in 2015	62
Willalooka (Nioka)	28.4	on the 13th	26.4	on the 5th in 2015	20
Loxton Research Centre	52.2	on the 13th	49.2	on the 16th in 2017	39
Wudinna Aero	47.6	on the 19th	36.2	on the 23rd in 2017	24
Shea-Oak Log (Greenock Creek)	39.0	on the 13th	28.2	on the 12th in 2021	21
Halbury Road Salisbury (Halbury Road)	29.4	on the 13th	21.8	on the 24th in 2021	24

Hindmarsh Island AWS (023894) 2022 rainfall



Note: Data may not have completed quality control.

Climate Data Online, Bureau of Meteorology
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The lack of localised and sub daily BOM data for Middleton has been noted and has been a discussion point and gap in forecasting and response within the community, emergency services and Council. Whilst BOM weather stations are present in Victor Harbor and Hindmarsh Island they only record data on a daily basis. The nearest BOM weather station that collects sub daily data is in Strathalbyn.

The Australian Broadcasting Corporation reported on the event across many news cycles noting flooding, power and property damage impacts within Adelaide, Victor Harbor and Middleton to name but a few.

The ABC's coverage of the impacts in Middleton as per the article below stated the following – <https://www.abc.net.au/news/2022-11-13/middleton-residents-clean-up-after-flash-flood/101647554>

"The residents of Middleton on South Australia's south coast are cleaning up after a flash flood inundated businesses and homes in the town.

Water, mud and debris swamped the town's caravan park, supermarket, pharmacy, medical centre, surf shop and several homes when the Middleton Creek burst its banks during a deluge of rain about 5pm on Saturday.

The speed at which the creek waters rose caught residents off guard. Cars were abandoned in the caravan park, some with their windscreen wipers stuck in position as drivers and passengers fled to safety.

Three local men are being hailed as heroes after wading into chest-deep water to rescue two women stuck in a cabin in the caravan park."

"The footbridge across the mouth of the creek at Middleton Beach was badly damaged by the torrent and is closed.

Cages of rocks that lined the creek to prevent erosion were hurled on to the beach by the water, along with several trees and household debris.

A group of Middleton residents worked into the evening to try to remove as much detritus as possible before the tide came in.

Others were back at first light on Sunday to help with the clean-up.

The rain and lightning caused havoc elsewhere on the Fleurieu with the organisers of the Port Elliot Show closing stalls and rides early as the lightning and pouring rain rolled in.

Damage was also caused to several roads, including Crows Nest Road at Port Elliot and Hindmarsh Tiers Road at Hindmarsh Valley."

The EPA 2023 State of the Environment website cited the following observations for 2022 – <https://soe.epa.sa.gov.au/environmental-themes/climate/climate-change-impact/extreme-weather>

"In January, parts of South Australia received more than four times the average January rainfall. The South Australian Government declared a major emergency to manage flooding and storm damage. The storm also resulted in impacts to transport corridors, which disrupted freight,

More wild winds and flooding were experienced in Adelaide in June.

Another severe storm hit Adelaide on 12 November, which brought wind gusts of up to 109 km/hr and 423,000 lightning strikes. Power outages were experienced by some residents for up to a week."

Whilst this was state-wide, this report focuses on Middleton, which on the 12 November 2022, like a number of other communities, suffered significant inundation within the township causing a large number of private properties to be impacted, damage to a variety of public and privately owned infrastructure within the town and the closure of major roads. The event led to the displacement of residents from their homes, it affected businesses and livelihoods, and left a lasting impact on the community's well-being.

This report covers and looks to bring together various aspects of the event including data, information and observations from the community, emergency services (predominantly the SASES) and Council.

The recommendations provided in this report are drawn from that data, information and observations, and seek to provide both a holistic and targeted way forward.

Ultimately the recommendations seek to improve emergency response and recovery planning, enhance community resilience and mitigate the impacts of such events in the future, noting that the event is now widely understood to have been at least a 1 in 100 year or 1% AEP event.

General Analysis

During the event

As summarised above, the 12 November 2022 storm and inundation was likely at least a 1 in 100 year or 1% AEP event and had a major impact on the Middleton township.

From community observations, the flooding affected a large proportion of the town. The Middleton Storm Committee has advised that they believe at least 28 properties and businesses were significantly affected, with the total number of impacted properties likely to be nearer 80.

Many of the properties and businesses affected by the storm experienced a rapid on set of swift running water, with a number of those properties and businesses suffering inundation to various degrees.

At its peak the inundation caused residents to rapidly evacuate their properties and businesses, as well as blocking roads and overwhelming and damaging community assets and infrastructure.

From conversations with the community, it appears that the water was coming from many angles during the storm, and converged on areas that provided a pathway for water to flow towards the ocean.

The peak of the event appears to have been a very rapid inundation potentially caused by a “wall of water”, as observed by many residents, which came from the hills, along the creek line and adjacent land. This rapid inundation appeared to catch the community, emergency services and Council by surprise and caused a majority of the significant impacts for residents and businesses. Noting that it has been reported that it receded quickly over the following hours.

The strength of the water flow was evidenced by residents and Council staff observing, property being carried within the water and debris present within the creek and on the beach.

During the event the community, emergency services and Council were engaged in a multitude of activities with the same purpose of keeping people and property safe. The speed of the inundation made coordination of those on ground very challenging, noting that in other flooding events the time to plan, communicate and respond is usually greater.

It has become clear however that with the best intentions of all involved, the coordination of those activities, especially between the emergency services and Council was not as good as it could have been. It is also recognised, through continual improvement assessment, that Council could have engaged quicker with the region’s Zone Emergency Support Team and the Local Government Functional Support Group (both functions under the SA Emergency Management Act and State Emergency Management Plan) for assistance. We have been advised that the lead emergency service for storms, the SASES, did have their State Control Centre operational, due to the extent of the impacts across the state.

What is clear is that during and immediately after the storm and the flooding event the community rallied to support their neighbours, showing a strong community cohesion and spirit. This included providing safe haven, overnight accommodation, directing traffic, performing rescues and checking on one another.

The SES have provided some data and commentary from the event which is provided below and illustrates the pressure they and the other emergency services were under during this period.

On Saturday 12 November 2022, the SES responded to numerous requests for assistance (RFAs) across the state, as a result of the widespread damaging winds and heavy to intense rainfall with thunderstorms, which caused significant impacts. Concurrent with this event was the ongoing high flows / flooding of the River Murray.

On this day, the SES received 994 RFAs across the state of which 179 were localised to the Southern Adelaide foothills region. The suburbs impacted included Blackwood, Flagstaff Hill, Hawthorndene, Upper Sturt, Coromandel Valley, Stirling and Morphett Vale.

Between 1523hrs and 2321hrs, there were 10 RFAs received that were specific to the Middleton township.

Coverage	SASES # of RFAs - 12 November 2022
<i>State-wide</i>	994
<i>Surrounding areas (3 SES units)</i>	92
<i>Middleton</i>	10

It is also noted that Council during the event had teams of staff working until midnight undertaking immediate “make safe” and clearing activities. This continued into the following weeks as field service and community work within Middleton was prioritised over Council’s business-as-usual activities. This included engineering assessments, insurance claims and process, design and rebuilding of public infrastructure.

After the event

Following the 12 November, feedback from conversations with residents has demonstrated that the community continued to support itself as groups of residents undertook clear out and clean up work.

The full extent of the damage became evident with residents and business owners engaging with insurers to start the process of remediating and rebuilding.

From resident conversations it appears that the costs associated with those repairs may have reached millions of dollars. Part of which was not able to be covered by insurers and therefore borne by the resident or business owner. It was also clear that many personal possessions were lost and unable to be replaced.

Some residents have advised of being out of their homes or living with repair work for months and business owners having to close for extended periods of time.

The first community meeting held in February 2023, following a deputation from the Middleton Storm Committee and community petition, was attended by 95 community members. Along with the SES, CFS, Red Cross and Department for Infrastructure, Mayor and Council Members, Council staff, including the CEO discussed the event and what might be the next steps. At that point repair and remediation work was still occurring for both residents and Council.

In March 2023, the Council agreed to undertake a number of actions through motions raised by Councillors. The outcomes of these motions included -

- Hydrologist reporting
- Disaster Response Plan
- Free Waste Dumping Vouchers
- Encourage and support residents across Alexandrina to establish personal household disaster plans
- Repair work to damaged roads

During the same period the CEO and other Council staff met with some residents to discuss particular issues. In parallel meetings were held with the emergency services and state government.

Over the following months parts of the motions were enacted including free waste dumping vouchers, initiating the hydrologist reporting and repairing of community assets. However, it is acknowledged that some other actions took a longer period of time to progress and implement and others were not actioned at all.

Council is aware that not all of the community was aware of the free waste disposal and this is explained below:

On the 13 November 2022 (the day after the event) with many of the community members rallying around to assist residents and businesses with the clean up the CEO agreed that the disposal of waste could be made at the Goolwa Waste Depot for free to those that were assisting (for example, this negated those turning up with trailers to assist other community members then having to empty the trailers). This decision was made in an urgency situation without an official budget variation from Council and to ensure that costs were kept in control was originally capped at \$10,000 in agreement with the Executive Officer of Fleurieu Regional Waste Authority (FRWA). The amount of \$10,000 was selected by the CEO as he felt uncomfortable spending more than this amount without first receiving confirmation from the full Council. The ability for the free waste disposal was only for the initial clean-up and was communicated with those on the ground coordinating the clean up including, the President of Middleton Town and Foreshore Association, Mayor and Council Members (past and present), Local State Member David Basham and Council Team Members. All ratepayers requesting the ability in this initial stage were granted. The capped amount was later extended, and the amount used under the CEO approval was \$11,940.

On 20 March 2023, post the initial clean up, Alexandrina Council officially carried the motion that eligible residents within the township of Middleton whose properties were affected by the Middleton storm event on 12 November 2022 would receive 'Free Waste Disposal Vouchers' for the disposal of flood damaged materials. Council provided, upon successful application, a waste disposal voucher to dispose of storm event materials at the Fleurieu Regional Waste authority – Goolwa Depot to the value of \$266 (equivalent to two (2) 8m x 5m trailer loads). This was communicated to all residents signed up to the Council database to be kept informed.

It is however acknowledged that the communication on the free waste could have been done better and additional communication other than the Council database could have been used.

Council understands the Community wanting us to allocate resources to clean out the creek but with the majority of the creek not being under the care and control of Council this could not be achieved. In addition the Hydrologist report indicated that this would not provide significant improvements. A map of the ownership of the creek is provided in Attachment 2.

Council understands the community's perception of delays and frustration around the completion of some actions, including the replacement of the Mill Terrace Footbridge and the delivery of the hydrologist reporting. Concerning the infrastructure replacements this was achieved as quickly as it could, bearing in mind the insurance process required to fund those works. We have been advised that during that period the River Murray flooding caused a peak in insurance assessments and claims and slowed the processing of new claims down considerably.

Concerning the hydrologist's report Council acknowledges this did take longer than expected to be completed. A copy of the report can be found in attachment 1.

Updates on the progression of actions and other matters were communicated with the community using Council's MySay website and social media - <https://mysay.alexandrina.sa.gov.au/middleton-flood-event-updates>. This included providing access to the hydrologist's reporting.

On 21 August 2023 Middleton Storm Committee provided a deputation to Council which in summary covered Council's inaction, lack of response, delay in getting works undertaken and lack of funding for future improvements.

With major infrastructure repairs to the two pedestrian bridges completed in mid to late September 2023, the anticipated hydrologists report was provided to Council for consideration in late 2023. After working with the consultants, Council discussed the draft hydrologists report at a public Information Session in February 2024.

As per their scope the consultants had focused on the riverine aspects of the 12 November 2022 event and produced mapping based on several scenarios, assumptions and inputs. One of those inputs was weather data from BOM weather stations. As hourly rainfall data is needed in modelling the closest such BOM weather station was in Strathalbyn. The two weather stations in Victor Harbor and Hindmarsh Island provide daily data only. Not having local data is a disadvantage for the community, emergency services and Council.

The draft report clearly showed a capacity issue within the current creek when coping with an 1% AEP (1 in 100 yr.) event. What was also clear were the points and places where infrastructure inhibited water flow, such as road culverts, the rail embankment and its associated pipes and culverts. The rail embankment particularly caused a “damming” effect as water backed up behind it while water slowly released through several pipes and culverts.

The report also discussed possible mitigation measures for potential future events, which included suggestions like building capacity within the creek, holding water back further up the catchment and creek water level and flow monitoring. What was clear from the report was that most of the suggested mitigation measures required other organisations i.e., Department of Infrastructure and Transport, SteamRanger and private landowners to be involved in and or support any particular outcome. An example of this complexity is shown in attachment 2 which highlights the ownership of the Middleton creek.

The draft hydrologists report was taken to a community meeting on the 13 March 2024, where it was discussed with a group of around 27 community members. At that meeting the community were clear that they did not believe the reporting was a true reflection of the extent of the inundation experienced on the 12 November and that some of the assumptions and inputs were not correct.

Whilst the Council had focused on the creek as a major factor in the inundation, it has become clearer through further discussions with community members, that due to the level of ground saturation and rain fall leading up to the storm event the creek was one of a few contributing factors involved in the event. It is now understood by Council that the wider stormwater catchments around Middleton were likely in play on 12 November. This was also in part represented by the report which could not replicate the extent of flooding, even when using a 1% AER (1:100 yr. event). This suggested that the event was possibly much larger and more complex in nature.

At the community meeting a member of the community raised the following suggestion, which was supported by a majority of those in attendance:

“My proposition is that a complete mapping process of all the inundated properties, and all road/railway culverts preferably by interviewing affected residents and then include those new measurements of those same culverts be made before we have confidence in this process, and we ask that our Local Councillors present agree to this request”.

In response to the suggestion made at the community meeting, the CEO offered for senior Council staff to meet with any member of the community.

Over the last few months, the General Manager Infrastructure (past and current) and General Manager Community have met with around a dozen Middleton residents and business owners, including members of the Middleton Storm Committee. Those conversations generated a much wider appreciation of the event and have contributed significantly to this report and its recommendations. It is further acknowledged by Council that this level of interaction and connection should have occurred much sooner after the event to help drive a more holistic response and recovery with the community.

Themes that came from those conversations included –

- The impact of the flooding on the community has been significant and for some it will remain with them for a long time.
- The extent of the flooding was much more than just what was coming from the creek.
- The inundation during the event was rapid and its reach and impact unexpected.
- Changes to the Middleton topography, through development and infrastructure, have changed the way water flows through the town.
- Inundation is not uncommon for some residents and businesses and these locations appear to need complete reviews of stormwater systems.
- The support during and after the event was poor, with more that could have been done around community information, safety and wellbeing.
- The need for mitigation into the future, so that this level of inundation “does not happen again”.

- The prioritisation of immediate needs following the event such as, public health, debris clearing, waste management and critical service activation (medical / wellbeing).
- Using technology to monitor weather and water levels and possibly provide "early warning".
- Increasing capacity of residents to self help such as finding emergency and disaster information, essential services and support.

The same General Managers are also now working closely with the SES on the development and planning of better incident management for Middleton and other Alexandrina communities.

The future

From the above comes a number of options for improvements, resilience and collaboration which are discussed in detail below. Some of these feature as recommendations with others forming part of the Council's ongoing business.

- Incident response and recovery

Council like all other South Australian Local Government entities is closest level of government to the community it serves. Whilst it is not an emergency service or first responder (unlike in other Australian states), it is critical in responding to events that occur in its communities and supporting the emergency services such as the SES, CFS, SAAS and SAPOL.

Planning for response and recovery for these types of events has been ongoing for many years both locally and regionally. At a state level this is undertaken as part of the requirements of the Emergency Management Act, through the State Emergency Management Plan. Regionally, the Zone Emergency Management Committee, within which the Council is an active member, focuses on regional hazard and emergency planning, as a requirement under the State Emergency Management Plan. From a response perspective the Council is part of a Zone Emergency Support Team and a member of the Local Government Functional Support Group. A more comprehensive explanation of these arrangements is within Council's Emergency Management Policy (https://www.alexandrina.sa.gov.au/data/assets/pdf_file/0017/191105/Emergency-Management-Policy-2024.pdf)

Concerning recovery after an incident, this responsibility generally sits with Local Government, unless the event has been designated to a higher level, such as State Government declaring a major incident, major emergency or disaster. The most recent examples being the Covid-19 pandemic and the River Murray flooding. If a State Government declaration is made, then potential opportunities, funding and support mechanisms fall into place. In this context the storm event that hit the region and specifically Middleton was not declared by the State Government. This left the Council and other Council's across the state with the significant responsibility of managing the recovery of its communities.

Through listening to the community, talking to the SASES and internally reviewing what has happened, Council sees the following improvements could be progressed for any future event –

- Updating of Council's Emergency Management response plans.
- Maturing Council's understanding and approach to Emergency Management response through training and exercises.
- Continuing to work more closely with the SASES as the Storm and Flooding Hazard Leader to facilitate an improved local response plan for any future flooding event.
- Developing a high level community recovery and resilience plan, to help guide both the Council and the community. This may include elements such as communication, welfare and wellbeing, waste management and infrastructure remediation priorities.
- Engaging with and seeking support from other organisations to offer emergency management and resilience training to Council staff and the Alexandrina community.
- After remediation works have progressed, with the assistance of the SASES, collaborate with the dedicated Middleton Storm Committee to transition them to a recovery based community group, which may have opportunities for independent funding in the support of community cohesion and resilience.

- Working with the SASES on gaining a better understanding and access to tools for improved situational awareness for incident preparedness and response.

The majority of the above improvements are in progress and form part of the Council's continuous improvement in Emergency Management. The following are proposed as recommendations for Council to consider as part of this report –

1. Develop a high-level community recovery and resilience plan – this will require collaboration with other Council's who are mature in this space and consultation with the community and emergency services.
2. Engage with and seek support from other organisations to offer emergency management and resilience training to Council staff and the Alexandrina community.

Mitigation

A very strong community driver is to ensure that any future events are mitigated as far as is reasonably foreseeable and practical. This is the same for other parts of the district where residents are also requesting support. Looking holistically the need for Council wide planning to prioritise programs and projects will be essential with limited funding and resources.

One way of achieving this is the development of Stormwater Management Plans. Whilst these plans look at specific areas, Council understands that many parts of its district are impacted and affected by natural weather events. The need to assess and prioritise opportunities across Alexandrina, and potentially in partnership with other Councils, is keenly understood.

In South Australia, stormwater management is a responsibility that is shared between the state government, local government and private landowners. Reflecting this shared responsibility, the South Australian Government and the Local Government Association (LGA) of South Australia partnered in the formation of the Stormwater Management Authority (SMA).

The SMA was established on 1 July 2007 and operates under the Local Government (Stormwater Management Agreement) Amendment Act 2016. The SMA comprises a nine member board appointed by the Minister for Environment and Water.

The SMA acts as a stormwater planning and prioritisation body for South Australia. The SMA promotes the development of integrated Stormwater Management Plans (SMPs) by local government, and administers the Stormwater Management Fund to assist local government with the costs of stormwater management planning and stormwater infrastructure.

Stormwater Management Plans (SMPs) are plans prepared by local Councils, which provide objectives for how urban stormwater quantity and quality should be managed in an integrated way within catchments. These plans identify and guide investments that reduce flood risk and maximise the beneficial use of stormwater for reuse, environmental protection and enhancement of public amenity. They can also be used as part of development planning and growth.

An approved Stormwater Management Plan is a Stormwater Management Plan that has been assessed as complying with the Guidelines on Stormwater Management Planning and which has been approved by the SMA by notice published in the South Australian Government Gazette.

Stormwater Management Plans are generally across wider catchments than just a single town and they are expensive to develop due to the high level of specialised support and data that is required. However, having a plan in place opens up the opportunity to apply for further funding to investigate and implement large scale programs and works, that may otherwise be beyond Council's and the community's ability to fund.

Examples of local Stormwater Management Plans are Victor Harbor, which is in development, and the Yankalilla, Normanville and Carrickalinga Stormwater Management Plan, which was implemented in 2020.

Given the impact of the 12 November event and the possibility of this type of incident occurring again in the future it is reasonable to explore the opportunity of a Stormwater Management Plan that includes the Middleton township. This should be done in collaboration with the State Government, given the current consultation on housing and population growth within the district.

In addition, as detailed above, there appears to be a gap in the BOM weather station network with the closest BOM weather station capable of providing adequate live data being in Strathalbyn. A new weather station in the region's coastal area may assist in gaining current and historical weather data. This data could be used by the community, emergency services and Council in the delivery of services and emergency preparedness and response.

The following are therefore proposed as recommendations for Council to consider as part of this report –

1. Investigate the possibility of developing a Stormwater Management Plan that includes the Middleton township.
2. Investigate the possibility of a new BOM weather station between the established Hindmarsh Island and Victor Harbor stations.
3. Investigate the possibility of installing a water level gauge within the upper catchment of the Middleton Creek to provide better data on water levels heading towards the township.

Middleton stormwater infrastructure

Whilst work has been undertaken on repair and remediation of impacted infrastructure, the broader concerns around stormwater movement through the township have yet to be resolved.

Through discussions with the community and from the learnings of the flood behaviour on the 12 November, it is clear that several independent elements of work could be investigated and potentially implemented to assist with flood mitigation and ongoing stormwater management. Some of these require the assistance and support of private landowners, other organisations and State Government agencies.

These possible elements of work include -

- Clearing of the creek to remove vegetation that may slightly inhibit water flow and creek capacity – The Middleton Creek is mainly in private ownership as it enters the town from the north, with portions of the creek closer to the outlet being owned by the Crown. Only the last sections of the creek as it outfalls to the ocean are under Council ownership, meaning the Council's ability to action this outcome becomes one of partnership with the local Landscape Board and land owners. See attachment 2 for further information on the creek and ownership.
- Enlargement of the Goolwa Road culverts or replacement of the culverts to reduce the possibility of obstruction, in order to increase capacity and reduce the possibility of debris blocking the culvert during high flow events – The culverts crossing Goolwa Road are owned and controlled by the Department of Infrastructure and Transport. Their leadership in this would be critical.
- Enlargement of or increase in the number of stormwater pipes and culverts under the SteamRanger railway embankment, in order to increase capacity during high flow events. Noting that downstream flow will also need investigation to mitigate possible impacts on properties to the south of the rail embankment. The embankment and associated culverts and pipes are under the ownership and control of SteamRanger (and State Government). Their participation and collaboration with Council is essential.
- Improvement in the stormwater system along Mill Terrace from the Goolwa Road to the creek to deal with general stormwater flows – This would include stormwater moving along the road and through the railway line, as well as considering channelling water from the railway corridor, in the vicinity of Mill Terrace. Other potential outcomes may include reducing impacts on properties adjacent to the Goolwa Road that back on to the railway line. It is noted that the majority of this potential improvement is within the ownership and control of the Council, however the railway and adjacent land is managed by SteamRanger. Their participation in this would be important to ensure a continuous and functional stormwater system.

- Improvement in the stormwater behaviour along Flagstaff Hill including stormwater coming from and crossing Airport Road to deal with general stormwater flows – This would potentially look at strengthening the stormwater channels along the side of the road and reduce flow velocity.

Works are currently underway at Breaker Court and Encounter Crescent, Middleton to upgrade the local stormwater system, which was in this year's capital stormwater upgrade program. Also one piece of significant work is still being actioned within the Council owned section of the creek adjacent to Padman Crescent. This work is currently having preliminary design and costing completed and will form part of a separate report to Council in the next couple of months.

Other opportunities provided within the hydrologists' report not mentioned above are likely to be reconsidered as part of broader Stormwater Management Plan.

The following are proposed as recommendations for Council to consider as part of this report –

1. Work with the Hills and Fleurieu Landscape Board for the inspection of the creek with a view to the clearing of the creek in collaboration with landowners.
2. Write to Crown Lands, with a view to working with them on the clearing of the creek within the vicinity of the railway line embankment crossing and through to the outlet.
3. Write to the Department of Infrastructure and Transport for the enlargement or replacement of the Goolwa Road culverts.
4. Write to SteamRanger, with a view to working with them on the enlargement of or increased number of stormwater pipes and culverts under the SteamRanger railway embankment within the township.
5. Investigate the scope and cost of a new stormwater system along Mill Terrace from the Goolwa Road to the creek, working closely with local community, SteamRanger and Department of Infrastructure and Transport.
6. Investigating the scope and cost of improvements in the stormwater system along Flagstaff Hill including stormwater coming from and crossing Airport Road, working closely with Department of Infrastructure and Transport.

Next Steps

All recommendations provided within this report have reporting deadlines to ensure that progress is made and monitored for the benefit of the community.

Whilst some aspects of the recommendations will require a decision on funding, a number of the recommendations can be achieved using current resourcing and budgets.

Comparative Analysis

The LGA and a number of Local Government entities have or are on the way to implementing Community Recovery and Resilience Management Plans. Council would leverage these, with the approval of the specific Council, to progress the development of its own plan.

Financial and Economic Implications

In accordance with the Alexandrina Council's Adopted Budget / Long Term Financial Plan, the financial implications of adopting these recommendations is considered **low** given that all the recommendations require a report to be presented to Council, which will consider elements such as budget and resourcing.

Risk Management

In accordance with Alexandrina Council's Risk Assessment Matrix, the risk of adopting these recommendations is considered **low**, given that further Council reports are required to be presented to Council to identify any further impacts or risks.

However the risk of not adopting these recommendations is considered **high** from the perspective of reputational damage as the likelihood of this occurring is "very likely" and the consequence is "Moderate".

Conclusion

Since the 12 November 2022 flooding event the Middleton community have been waiting for Council to propose and move forward on a set of recommendations to help mitigate the impacts future significant stormwater events. The recommendations in this report are both holistic and targeted and have been derived from the community, Administration, emergency services and consultants input. Endorsement of the recommendations will enable Council to progress positive outcomes in emergency and recovery management for the wider Alexandrina community, whilst also specifically actioning outcomes for and with the Middleton community.

Attachments

Attachment 1 - Hydrologist Report ([As published on MySay - Middleton Flood Event Updates](#))

Attachment 2 - Middleton Creek location and ownership

MIDDLETON CREEK

Location and ownership mapping – taken from Council GIS system

The Middleton Creek Ownership for highlighted area below:



Ownership is defined by letter in the following pages:



A - ACT3745/142 – Owned by Council



B - Road Reserve – Owned by Council



C - CR5747/58 – Unalienated Crown land – Rail corridor



D - CT5425/549 – Owned by private person



E - CT6148/779 – Owned by private person



F - CT5260/155 – Owned by private person



G - CT5260/156 – Owned by private person



H - CT6104/715 – Owned by private person



I - CT6104/714 – Owned by private person



MIDDLETON BROADER CATCHMENT:

