From:	NSW Government
To:	Flood Inquiry
Subject:	Floods Inquiry
Date:	Thursday, 19 May 2022 4:54:43 PM
Attachments:	Flood Inquiry 2022 .pdf Flood Inquiry 2022 _0.pdf

Your details

Title	Ms
First name	Laura
Last name	Black
Email	
Postcode	2460

Submission details

I am making this submission as	Other
Submission type	I am submitting on behalf of my organisation
Organisation making the submission (if applicable)	Clarence Valley Council
Your position in the organisation (if applicable)	Acting General Manager
Consent to make submission public	I give my consent for this submission to be made public

Share your experience or tell your story

Terms of Reference (optional)

The Inquiry welcomes submissions that address the particular matters identified in its Terms of Reference

1.2 Preparation and planning

Supporting documents or images

Attach files

- Flood Inquiry 2022 .pdf
- Flood Inquiry 2022 _0.pdf

19 May 2022

Laura Black
Acting General Manager
Clarence Valley Council
2 Prince Street
GRAFTON NSW 2460

Dear Professor **Mary** O'Kane AC and Michael Fuller APM

Submission to the NSW Independent Flood Inquiry

Clarence Valley Council is situated between what is generally known as the Mid North Coast and the Northern Rivers on the north coast of NSW. The LGA is 10,441km2. Clarence Valley LGA experiencing one of the highest frequency rates of natural disasters in the Australia, as demonstrated in recent years by the devastation to over 50% of the LGA during the unprecedented Bushfires of July – December 2019, the major flood in March 2021 and the unprecedented Flood of 2022.

The Clarence River catchment, which covers much of the Clarence Valley LGA, is one of the largest catchments on the east coast of Australia, with an area of approximately 20,000km2. The lower Clarence River floodplain spans 500km2, within which lie the towns of Grafton and Maclean.

These towns are home to over 20,000 residents collectively and serve as a rural centre for the surrounding agricultural lands. Both Grafton and Maclean and are protected by levee systems which have been developed over time as a response to previous floods in the region.

Smaller towns and villages along the Clarence River such as Ulmara and Iluka are also serviced by earthen levee structures that provide some protection in more frequent flood events.

To support our submission, I provide copies of:

- Attachment A - response from the former Minister for the Environment, Minister for Local Government and minister for Heritage, the Hon Gabrielle Upton dated May 2019.
- A report to Council's April Ordinary Meeting – Item 07.22.080 February/March 2022 Flood Recovery Update.

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2022 Flood and storm event experience

Three flood events occurred during February/March 2022, with the second flood being the largest. The second flood in Maclean was the highest flood recorded since levee construction was completed in 1976. Preliminary analysis using Council's adopted design flood heights suggests the second flood was around a 6.6% Annual Exceedance Probability (AEP) in Grafton, around a 5% AEP in Ulmarra and Brushgrove and around a 2% AEP event in Maclean. The second flood was similar in magnitude to the March 2001 flood in Grafton but was significantly larger in downstream towns. The table below lists the peak flood heights recorded by the BoM gauges at Grafton, Ulmarra and Maclean.

	Levee Height	Flood 1			Flood 2			Flood 3		
		Date	Peak	Class	Date	Peak	Class	Date	Peak	Class
Grafton	7.95m	22:15 – 25/02	4.37m	Moderate	01:00 – 01/03	7.66m	Major	08:10 – 31/03	5.62m	Moderate
Ulmarra	5.9m	01:45 – 26/02	3.37m	Minor	22:00 – 01/03	6.03m	Major	09:00 – 31/03	4.46m	Moderate
Maclean	3.3m	07:40 – 26/02	1.76m	Minor	23:30 – 01/03	3.36m	Major	12:00 – 31/03	2.27m	Moderate

Extreme rainfall was experienced concurrently with the second flood. Some examples of recorded rainfalls are

- 522mm at Yamba in 34 hours (between a 0.2 and 0.5% AEP event)
- 126mm of rain recorded at Gulmarrad in 3 hours (just below a 1% AEP event)
- 482mm in 144 hours in Grafton (just above a 1% AEP event).
- A rainfall record at Pilot Hill Yamba since records began in 1877
- Between 1 January to 11 April 2022 (1510.8mm) significantly exceeds any previously recorded rainfall in the first four months (previous highest was 1349.3mm in 1988).

The significant rainfall and resulting overland flow can be seen below. Very high ground water levels are still evident in many areas that is preventing water from filtrating through the underlying sandy soils. The extreme rainfall which occurred concurrently with a flood event resulted in the stormwater pumping capacity in both Grafton and Maclean being exceeded, with significant stormwater ponding occurring inside of the levee. With the exception of the pump at Greaves Street in Grafton and a pump located behind Mitre 10 in Maclean the permanent stormwater pumps in Grafton and Maclean worked as designed during the rainfall event.

Floodplain Asset Management

Council manages floodplain assets, with a current estimated value of $2M.

While there has been an annual State Government grant for assisting councils with Floodplain maintenance works for over 24 years, the dollar amount of the grant has not been indexed and so the grant has significantly decreased in real terms. At the same time, floodplain maintenance costs have increased in real terms due to changes in environmental requirements, which results in lower maintenance levels being achieved for a given cost than was historically achievable.

Maintaining the floodplain grant as a fixed dollar value has effectively "cost shifted" an increased proportion of floodplain maintenance costs to Local Government and using the RBA inflation calculator

the grant in 2021 would needed to have been $158,745 to match the “purchasing power” of the $91,200 grant from 23 years ago.

Legislation

Noting that the State Government is responsible for floodplain assets managed by the Hunter Valley Flood Mitigation and provides funding in the vicinity of $7M per annum to do so.

Clarence Valley Council has on a number of occasions lobbied the State government to increase the “Floodplain Management Program: Maintenance Grants” to provide a reasonable level of

Responses to such advocacy has resulted in somewhat dismissive responses, as demonstrated by the attached response provided as Attachment A, which claims that “maintenance requirements of modern infrastructure is less onerous than older infrastructure.” This does not recognise that the majority of Clarence Valley Council’s floodplain assets were constructed prior to 1984.

The State Emergency and Rescue Management (SERN) Act 1989 (as Amended) is the Act that provides legislative basis for co-ordination of emergency preparedness, response and recovery operations.

The key element of emergency management planning in NSW is the Emergency Management Plan (EMPLAN). The objective of EMPLAN is to ensure a co-ordinated response by all agencies having

Responsibilities and functions in emergencies.

EMPLAN

- Identifies the combat agency primarily responsible for responding to the emergency.
- Specifies the tasks to be performed by all agencies in the event of an emergency.
- Provides for the co-ordination of the activities of other agencies in support of the combat agencies; and
- Specifies the responsibilities of the Minister and the State, Region, or Local Emergency Operations Controller (LEOC).

Combat Agencies: A combat agency is the agency with the specific expertise and equipment to deal with the effects of designated hazards. The agency responsible for each major hazard is designated in the EMPLAN and in the case of a flood the designated combat agency is the NSW State Emergency Service (SES).

- Council’s Local Emergency Management Officer (LEMO)

- Clarence Valley Council’s (CVC) Coordinator Emergency Management & Resilience performed the LEMO role throughout this incident performing duties as the Executive Officer to the Local Emergency

- Operations Controller (LEOCON). This included the activation and establishment of an Emergency Operations Centre (EOC) in order to coordinate a centralised multi agency response to the flood threat.

- Council’s primary role is to support (not control) combat agencies (such as the SES) during and immediately following an emergency.

Direct council support:

- the Local Emergency Management Committee’s (LEMC) Emergency Response Operations

- affected residents with waste removal services, directly or through fee waivers provided at the Grafton Regional landfill.

Indirect council assistance:

- property protection (thousands of residents) construction and or repair to levees at Grafton, Ulmarra and Maclean.
- maintaining or restoring safe access across the local roads/bridges network
- provision of engineering advice regarding the integrity of damaged structures
- assisting the SES with damage assessments where required
- coordinating the restoration of critical public facilities including restoring water & sewage services following the flood event.
- providing timely communication updates to the community
- maintaining floodplain assets including drains and floodgates

Council's management of these activities ensures that damage to private property is significantly reduced.

Most Local Government authorities do not engage a fulltime LEMO to conduct, however to better support local government in its role during natural disaster, government funding allocated to the fulltime engagement of suitably qualified LEMOs across the State would significantly strengthen the network of support to the State.

Experience and Points of Concern

Clarence Valley Council's experience during the preparation, planning and response to the flood can be summed up in the following points:

- Different data collection platforms across agencies hinders flow of important information that informs councils response during response & recovery.
- Resilience NSW consistently wanted to introduce recovery discussions while the LGA and Emergency Operations Centre (EOC) was still in the response phase.
- Some important documents such as the NSW Recovery Plan released in December 2021 had not been appropriately circulated or communicated to relevant agencies during preparation or after endorsement. CVC only became aware of this document and their defined roles and responsibilities per the plan during initial recovery discussions.
- Some local SES and F&RNSW members were acting independently of their chain of command hindering some response activities coordinated by the EOC.
- Due to insufficient resources, no SES Liaison Officer was appointed to the South Grafton EOC from 28 February – 3 March 2022, impacting the EOCs ability to make strategic decisions during this critical period.
- The most significant issue was the centralised SES ICC at Goonellabah, which meant the focus of the response was the Lismore area. The lack of an SES Liaison Officer in the EOC during the most

critical part of the flood event, impacted on the ability to make timely and strategic decisions for the community.

- The command & control structure at SES Incident Command Centre (ICC) was unclear & difficult to access in the absence of an SES Liaison Officer in the Clarence Valley EOC. Key SES decision makers in the SES ICC lacked local knowledge or were not familiar with the river catchment impacting their situational awareness.

- Escalation points into the Regional Emergency and Recovery Operations Centres were poorly communicated and difficult to navigate as a result.

- There needs to be better clarity for those involved in the assessment and allocation of workloads resulting from the incidents/events. It is essential that the combat and recovery agencies have a thorough understanding of who has responsibility for tasks to avoid them being handed to multiple agencies/services before action can be taken.

- As the local road authority, Council was under pressure from TfNSW via the EOC to reopen flooded roads despite council determining there were still safety issues. This heightened expectations in community, resulted in mixed messaging from department and drew significant and unnecessary Council resources into play.

- Department of Education raised child safety issues when a public high school previously identified, authorised and used as an official evacuation centre during multiple events in the Clarence Valley, was stood up twice during the flood event, again causing mixed messaging and additional consternation and concern for flood displaced people and again drawing on significant and unnecessary Council resources to resolve.

- On four occasions during the flood events, SES disseminated in correct information in evacuation orders including advertising centres that had already closed, had not been authorised for use during the flood event by the Clarence Valley LEOCON or that were inaccessible as the evacuation route was already inundated and closed.

- Push notifications, app updates and social media posts are insufficient for those located in areas with poor or no reception or during events that significantly impact telecommunications. The same issue was experienced during the Bushfires of 2019 with devastating consequence.

- Clearer centralised communication strategy regarding the transition from response to recovery to aid understanding of not only the community but agencies and functional areas supporting recovery efforts is required.

- It is highly likely that the above mentioned issues could have been catastrophic for Grafton had the levee overtopped, or Maclean had the levee failed.

- Obtaining impact assessment information post flood has proven challenging with the centralised SES ICC model and regional recovery centre both located outside the LGA, and no clear communication regarding the appropriate contacts to obtain such information.

- Obtaining information about recovery needs from State government agencies compiling the information has proven very difficult post floods and so decisions about the focus of recovery at the Local Recovery Committee level, which is the responsibility of Council's to coordinate are uninformed and reliant on the anecdotal information available.

- Local Government is under resourced to manage the scale of recovery required. Receiving responses and action from State Recovery agencies and Resilience NSW as the coordinating unit are slow leaving community exasperated and fatigued when tangible solutions are not forthcoming.

- More than one the Federal government caretaker mode in the lead up to election has posed delays to receiving responses about available resources, the same would occur with greater detrimental significance were a disaster of this scale to occur during State Government caretaker mode.

- Payment of relief funds are slow, as at the end of April only a small proportion of claims made by Small Business and Primary Producers have been approved. Automation of the process, including approvals and payments is required and could be implemented much like Taxation returns with auditing occurring after the fact.

- Multiple State agencies coordinating multiple post flood briefings result in inconsistency of messaging.

- Money is being released to local government in the absence of grant criteria for expenditure leaving council's in a position of holding cash without knowing what it can be spent on.

- Local government does not have the resources to enter the significant competitive grant opportunities being thrust at it following disasters.

Previous Inquiry Recommendations

Disappointingly, there are recommendations from previous natural disasters that if implemented could have prevented much of the confusion, misinformation and preparedness.

Recommendation 11 of the final report into the NSW Bushfire Inquiry (31July2020) stated that, in order to strengthen the capability of local councils in future emergency events: Resilience NSW, in consultation with local government, develop specific training that focuses on the role, responsibilities and expected functions of the Local Emergency Management Officer (LEMO), including regular 'refresher' components – specific training has yet to be developed and the basic face-to-face Emergency Management Training courses have only just resumed (the resources provided to participants are old and still refer to the Office of Emergency Management).

Recommendation 69 states that, in order to ensure evacuation arrangements can be scaled up when needed, Resilience NSW: train council and NSW government regional staff in evacuation centre establishment and management, supported by a one-page 'start up sheet' for opening an evacuation centre – this training has not been made available. During a recent communication with Resilience NSW regarding their Evacuation Management course, they advised they were no longer running this as it is not cost effective but could not advise when an alternative would be made available.

Recommendation 13. States that Australian, state and territory governments should continue to explore the feasibility of a national, all hazard emergency warning app. In the absence of any action, Clarence Valley Council has prepared a business case and sought, but been unsuccessful in securing, funding to implement such an app for all natural disaster hazards. Communication with our residents and visitors would be greatly enhanced by implementation of the Clarence Valley Information Network (CVIN), a network of integrated intelligent real-time multi-sensors constructed throughout the LGA maintaining 24-hour fire and flood detection and continuous micro-climate weather, air quality, soil moisture and rain fall information. The accompanying Clarence Valley App details live conditions, warnings, notifications, tourism and event information enabling 24hr situational awareness for emergency services, local

industry, residents and visitors. Access to this live localised information returns community confidence, enables resilience, mitigates against climate related risk and damage, provides health information, supports local agriculture, industry and future economic growth across the region.

Resilience

Clarence Valley Council recently adopted its Disaster Resilience Framework (Disaster Resilience Framework | Clarence Valley Council) prepared following the Bushfires of 2019, which details the significant amount of work required to be undertaken in community and with infrastructure to improve resilience of Council and community.

State recognition that it carries some weight in the allocation of funding would resolve some significant risks facing this council into the future.

Thank you for considering Clarence Valley Council's submission to the Independent Flood Inquiry. Should you require any further information please do not hesitate to contact me on 6443 0200.

Yours Sincerely

Laura Black

Acting General Manager

The Hon Gabrielle Upton MP
Minister for the Environment
Minister for Local Government
Minister for Heritage

MD19/230

Mr Chris Gulaptis MP
Parliamentary Secretary for Regional Planning
Member for Clarence
11 Prince Street
GRAFTON NSW 2460

By email: clarence@parliament.nsw.gov.au

Dear Mr Gulaptis

Thank you for your representations on behalf of Councillor Jim Simmons, Mayor of Clarence Valley Council, about the Floodplain Management Program Maintenance Grants. Cr Simmons also wrote to me directly, and I appreciate the time you have both taken to raise Council's concerns with me.

I note you have also written to the Deputy Premier, the Minister for Regional New South Wales, Minister for Skills, and Minister for Small Business, the Hon John Barilaro MP, and the Minister for Primary Industries, Minister for Regional Water, and Minister for Trade and Industry, the Hon Niall Blair MLC.

I am advised that the NSW Government has been funding flood mitigation works since the late 1950s. Early infrastructure works had relatively high ongoing maintenance costs, and so at that time the government offered some councils funding for the maintenance of the infrastructure. This offer was made as a transitional arrangement and there was no intent to index this amount as time passed. Clarence Valley Council's annual payment falls under this arrangement.

Local government is responsible for the maintenance of flood mitigation structures constructed since 1984 under the NSW Government's Floodplain Management Program. This is because the maintenance requirements of modern infrastructure is less onerous than older infrastructure.

The NSW Government, through the Office of Environment and Heritage, will continue to look to deliver the best opportunities for all councils across NSW to deal with floodplain management issues. However, at present there is no intention to increase the funding allocation for maintenance of infrastructure.

Local councils can apply for funding to assist their understanding of flood risk and to implement works identified in Floodplain Risk Management Studies and Plans. The next round of the Floodplain Management Program will soon open for applications. I would encourage Clarence Valley Council to apply to this program.

Cr Simmons is welcome to contact Geoff Hudson, A/Director Grants, Office of Environment and Heritage on 8837 6098, or geoff.hudson@environment.nsw.gov.au, with any further questions he may have about these matters.

Yours sincerely

Gabrielle Upton MP
Minister for the Environment
Minister for Local Government
Minister for Heritage

10/2/19

cc: The Hon John Barilaro MP, Deputy Premier, Minister for Regional New South Wales, Minister for Skills, and Minister for Small Business.

The Hon Niall Blair MLC, the Minister for Primary Industries, Minister for Regional Water, and Minister for Trade and Industry.

ITEM 07.22.080 FEBRUARY/MARCH 2022 FLOOD RECOVERY UPDATE

Meeting	Council	26 April 2022
Directorate	Works & Civil	
Prepared by	Director (Works & Civil), Jamie Fleeting	
Attachments	A. Letter to Minister Tuckerman - Floodplain Grant Management	

SUMMARY

This report provides a summary of the three February-March 2022 flood events experienced across the Clarence Valley and Council's operational response to the events.

This report also aims to provide some transparency around projects scheduled for the current year, but not yet commenced (or recently commenced) and therefore deferred to the following year. The 2021/22 Operational Plan – Quarterly Review as at 31 March includes the latest status update. Whilst some deferred projects have been highlighted in this report, an updated listing will be provided to Council in May once investigations into the impact of floods on capital and operational works is complete.

The list includes additional projects (or project value) identified for deferral to the combined effect of several external factors impacting on the delivery program including:

- Impacts on domestic and global supply chain issues attributed to Covid-19
- Limitations on the availability of suitable contractors.
- Declared natural disaster with five (5) storm/flood related disasters across the Clarence Valley since December 2020 with two major floods in March 2021 and February/March 2022
- State Government approval timeframes have been considerably longer arising from Covid-19.
- Additional pressures (supply and demand) on sourcing contractors with stimulus funding across the State.
- Native Title Determination - A few projects are currently sensitive to pending Native Title consideration.

OFFICER RECOMMENDATION

That Council:
1. Note the staff update on the February-March 2022 flood response as detailed in the report.
2. Prepare a submission (based on the contents of this report) for inclusion into the NSW Governments Inquiry that follows the 2022 Major flood event across NSW.

COUNCIL RESOLUTION - 07.22.080

Toms/Johnstone

That Council:
1. **Note the staff update on the February-March 2022 flood response as detailed in the report.**
2. **Include in the submission based on the contents of Cr Novak's list of community organisations that assisted with the major flood events across NSW into Council's report for the inquiry that follows the 2022 major flood event across NSW.**

Voting recorded as follows
For: Clancy, Day, Johnstone, Pickering, Smith, Tiley, Toms, Whaites
Against: Novak

CARRIED

LINKAGE TO OUR COMMUNITY PLAN

Theme	Infrastructure
Objective	We will have communities that are well serviced with appropriate infrastructure

KEY ISSUES

NSW Emergency Management Arrangements (Legislation)

The State Emergency and Rescue Management (SERM) Act 1989 (as Amended) is the Act that provides the legislative basis for co-ordination of emergency preparedness, response and recovery operations.

The State Emergency Management Plan

The key element of emergency management planning in NSW is the Emergency Management Plan (EMPLAN). The objective of EMPLAN is to ensure a co-ordinated response by all agencies having responsibilities and functions in emergencies.

EMPLAN

- identifies the combat agency primarily responsible for responding to the emergency.
- specifies the tasks to be performed by all agencies in the event of an emergency.
- provides for the co-ordination of the activities of other agencies in support of the combat agencies; and
- specifies the responsibilities of the Minister and the State, Region, or Local Emergency Operations Controller.

Combat Agencies: A combat agency is the agency with the specific expertise and equipment to deal with the effects of designated hazards. The agency responsible for each major hazard is designated in the EMPLAN and in the case of a flood the designated combat agency is the NSW State Emergency Service (SES).

Council's Local Emergency Management Officer (LEMO)

Clarence Valley Council's (CVC) Coordinator Emergency Management & Resilience performed the LEMO role throughout this incident performing duties as the Executive Officer to the Local Emergency Operations Controller (LEOCON). This included the activation and establishment of an Emergency Operations Centre (EOC) in order to coordinate a centralised multi agency response to the flood threat.

The following activities carried out by council's LEMO demonstrate the important role in assisting the various agencies throughout the flood response.

Date	CVC LEMO Actions/Responses
23/2 24/2	• SES advise the Bureau of Meteorology (BoM) east coast low predicted to impact Northeast NSW. SES Incident Management Team (IMT) stood up at Goonellabah, incident 261/2122. • Advised Pilot Hill Yamba reached 'Yellow level' alert after antecedent rainfall triggers alert, LEOCON notified of change in status. • Wooli Rd floods, isolating Wooli, LEOCON notified. • Daily SES IMT briefings commence, relay pertinent information to CVC senior leadership team. • SES place EOC on standby as flood warnings are issued for the Clarence & Orara Rivers.
25/2	• Moderate flood warning for Grafton & Ulmarra. • Relay pertinent information from daily SES briefing to CVC senior leadership team.
26/2	• LEMO liaises with council following requests for sand deliveries at Brushgrove, Iluka, Yamba, Maclean & Palmer Island by SES in preparation for flood. • Relay updated information from daily SES briefing to CVC senior leadership team.
27/2	• Liaised with SES following overnight evacuation warning for low lying areas of Maclean. • Orara River Peaks at Glenreagh (9.65m) with minor flooding and Coutts Crossing (9m) with moderate flooding. • LEMO liaise with Department of Communities and Justice (DCJ) to seek emergency accommodation approval from SES for a family inundated at Coutts Crossing. • Liaise with Transport for NSW (TfNSW) on behalf of CVC to ensure 8 Mile Lane will be approved for B-double utilisation when Big River Way gets inundated with flood water. • Relay updated information from daily SES briefing to CVC senior leadership team. • Liaise with CVC, Police and SES regarding sandbagging of Ulmarra ferry approach and potential levee erosion risk. • Communicated river camera outage at Lawrence Rd and Palmers Channel. • Liaise with SES and CVC staff regarding request for additional resources to sandbag Ulmarra Ferry approach.

Date	CVC LEMO Actions/Responses
28/2	• Advised multiple road closures including Iluka and Yamba Rds. Disseminate information to LEMC members. • EOC stood up at SES, South Grafton. Commence LEMO role in official capacity. • Relay updated information from daily SES & EOC briefings to CVC senior leadership team. • Pilot Hill Yamba reached 'Red level' alert after antecedent rainfall triggers change in status, LEOCON briefed of council's actions. Requested additional information from council regarding dwelling occupation in the at-risk area and reports of self-evacuation. • Evacuation of Rathgar Lodge, Ulmarra confirmed and commenced in consultation with NSW Ambulance & LEOCON. • Liaise with communications civil services team to alert Iluka residents to levee overtopping & request assistance to sandbag levee. • Evacuation warnings for Southgate, Ulmarra, Brushgrove & Cowper issued. • Liaise with LEOCON & DCJ regarding opening of evacuation centres at South Grafton and Maclean. • Evacuation orders for Southgate, Ulmarra, Brushgrove, Cowper, Maclean & Lawrence issued. • Liaise with Health regarding requests for relocation of patients and staff to ensure hospitals can remain open during flood. • Clarence River peaks at Prince St (7.66m) early in the morning, then at Ulmarra (6m).
1/3	• Relay updated information from daily SES & EOC briefings to CVC senior leadership team • Communicate council road closures to the EOC and LEMC members
2/3	• Liaise with Health & LEOCON regarding ongoing hospital resourcing. • Levee overtopped at Ulmarra, EOC notified. • Investigate suitable option for RFS base camp for strike team deployment. • Liaise & coordinate with RFS, SES and LEOCON regarding resources to relocate CVC pump at Rushforth to Maclean levee. • Relay updated information from daily SES & EOC briefings to CVC senior leadership team. • Isolated community requests for re-supply to commence. • Maclean levee anticipated to overtop, and sandbagging commences. Integrity issue identified & relayed to EOC. • Request priority recovery issues as ADF personnel arrive in area. • Clarence River peaks at Maclean at 3.36m.
3/3	• Further Maclean levee issues identified with cracking in levee wall. Communicate risk and geotechnical advice to LEOCON & SES, decision to reinforce Maclean evacuation. • Liaise with Essential Energy regarding potential grid shut down process in the event Maclean levee breached.
4/3	• Facilitate discussion between TfNSW, SES, Police and council regarding reopening of Yamba Rd • EOC stood down at 15:00
5/3	• Liaise with geotechnical & LEOCON regarding Maclean levee and safe removal of evacuation order for Maclean, relay information to SES via LEOCON
27/3 – 1/4	• BoM advises another costal low is developing on the Northeast coast of NSW and further flooding concerns due to an already saturated catchment. SES incident management team stood up at South Grafton, incident 345/2122. • Localised response to requests for assistance. EOC returns to standby status. • Liaise with LEOCON & Regional Emergency Management Officer regarding ongoing issues at Pilot Hill due to antecedent rainfall. • Local evacuation warnings and some evacuation orders for low lying areas issued. Maclean & South Grafton evacuation centres opened but not utilised. • EOC stood up 1/4/2022 at 08:00, but due to more favourable weather and river conditions overnight, it is stood down at 09:00am as a multi-agency response no longer required.

The Australian Defence Force (ADF), Rural Fire Service strike teams and Fire & Rescue NSW were deployed into the area to assist with initial recovery activities that included road and property clean up. ADF personnel were re-deployed north where the flood impacts to property were far more significant.

SES response to the flood event

During the February/March 2022 flood event, SES received 1019 requests for assistance across the Clarence Valley Council area. 9 SES units in the area responded and 1015 of these requests for assistance were completed, actioned or finalised by 18 March 2022. The type of requests received by SES included:

- Support - 24 requests (2%)
- Flood assistance including resupply - 652 requests (64%)
- Rescue - 62 request (6%)
- Storm related – 205 requests (20%)

Council's Flood Response Role & Recovery

Council's primary role is to support (not control) combat agencies (such as the SES) during and immediately following an emergency. In terms of direct council support:

- the Local Emergency Management Committee's (LEMC) Emergency Response Operations
- affected residents with waste removal services, directly or through fee waivers provided at the Grafton Regional landfill.

Indirectly council provide ongoing assistance with the following activities:

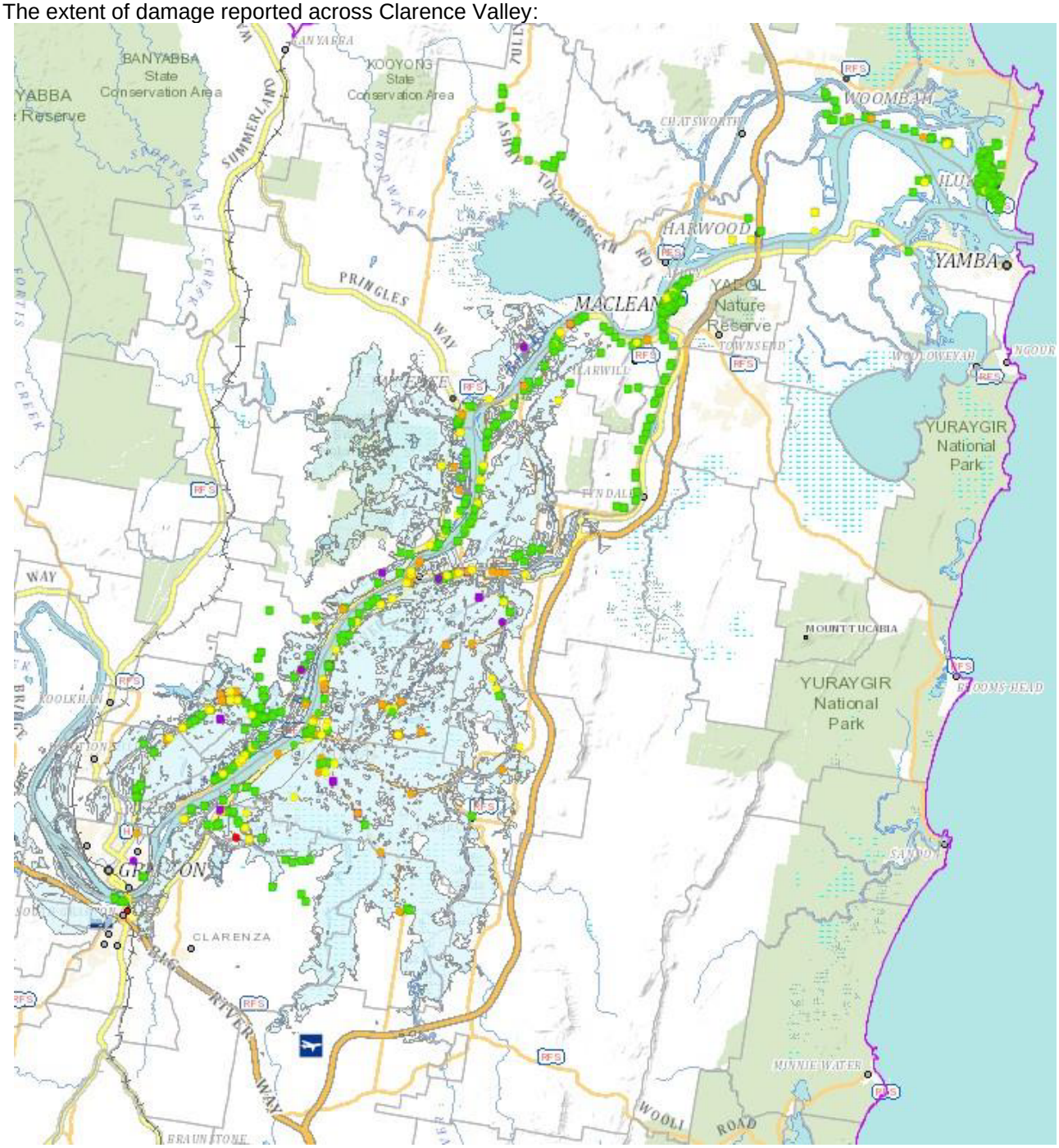
- property protection (thousands of residents) construction and or repair to levees at Grafton, Ulmarra and Maclean.
- maintaining or restoring safe access across the local roads/bridges network
- provision of engineering advice regarding the integrity of damaged structures
- assisting the SES with damage assessments where required
- coordinating the restoration of critical public facilities including restoring water & sewage services following the flood event.
- providing timely communication updates to the community
- maintaining floodplain assets including drains and floodgates

Council's management of these activities ensure that damage to private property is significantly reduced.

Damage Assessments

The Spatial Services' Emergency Information Coordination Unit (EICU) falls under the NSW Governments *Spatial Services Unit* and ensures the emergency management sector has the best spatial and related data available to deal with multi-agency emergencies, such as terrorism and natural disasters. The spatial data encompass all areas of emergency planning, response and recovery. The following figures provide a comparative spatial representation of the damage recorded across the Clarence Valley as compared to the more significant impacted areas to the North.

The extent of damage reported across Clarence Valley:

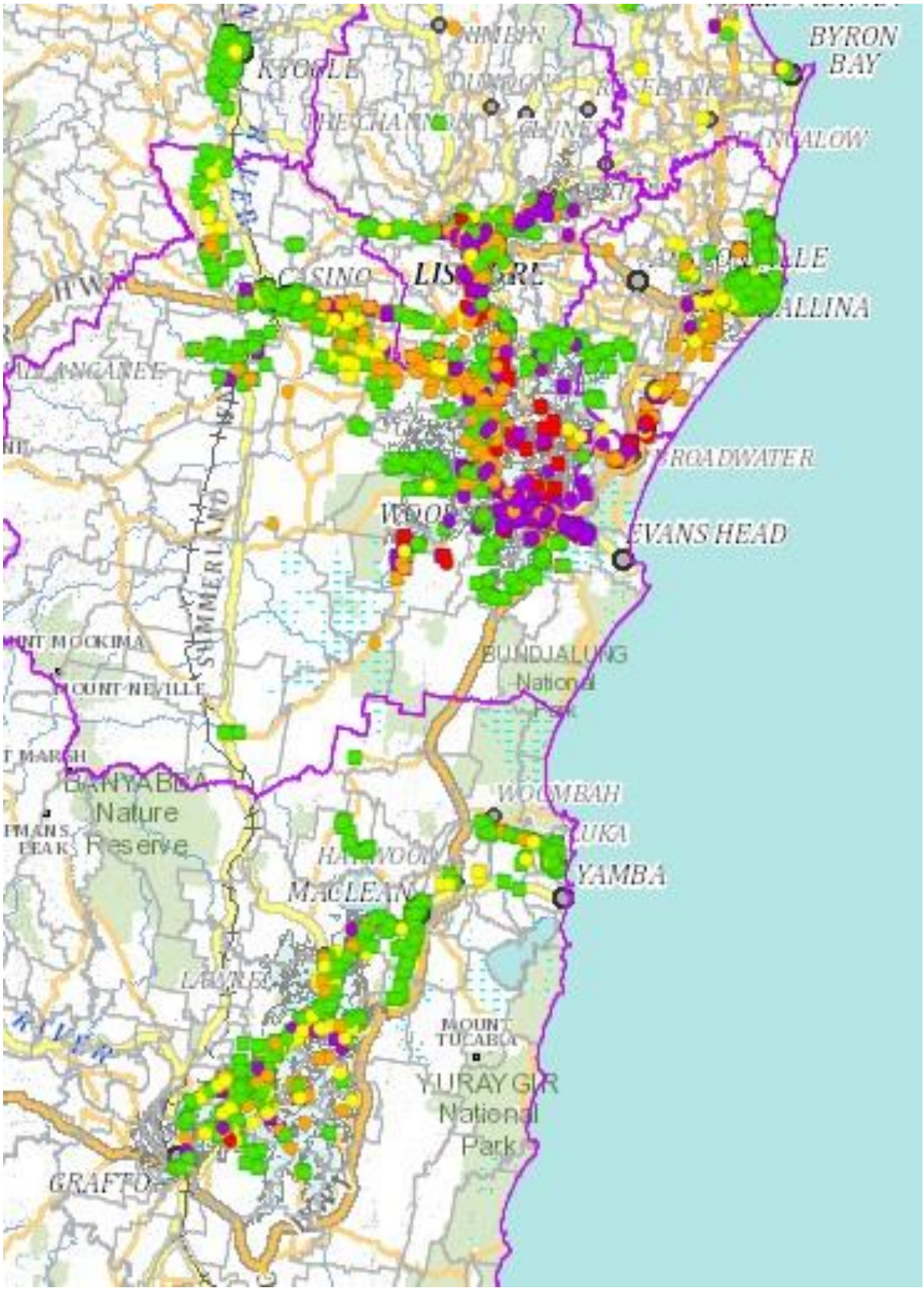


FloodExtent_2022

Property damage:

- Destroyed - 76-100%
- Severe Impact - 51-75%
- Major Impact - 26-50%
- Minor Impact - 1-25%
- No Damage - 0%
- Not Stated

The extent of damage reported across Clarence Valley comparatively much less than areas to the north:



Roads and Stormwater Infrastructure

The impact of the floods resulted in damage to over 100 roads across the LGA and many more are still being inspected. Emergency works following the second flood were well under way with immediate recovery works about to commence when further damage was sustained to the road and transport network following the third event from 28 March. Emergency works are estimated at $2 million with subsequent restoration works estimated at between 15-20 million. 85% of all damage data has been collected with 1489 defects to date.

The most significant damage observed following this event was at Wilcox Bridge on Four Mile Lane where the structure completely collapsed, with an estimated repair cost of approx. $3.5 million.

Wilcox Bridge, Four Mile Lane


Lionsville rd, Lionsville


Yamba Road, Palmers Channel

Other locations that will be submitted as part of the proposed Essential Public Asset Restoration Works (EPARW) for improved resilience include:

- Sandy Swamp Road
- Gorge Road causeways

Following the second flood event from March 2021 the below locations had been submitted for EPARW and have since been approved with an upper limit value of over $10 million for restoration:

- Six Mile Lane
- Patemans Road
- Talawudja Creek Bridge stream re-alignment
- Tallawudja Creek Road Culvert replacement
- Armidale Road, Hortons Creek
- McIntyres Lane

It is recognised that the above locations have historically been impacted by recurrent flooding and improvements are required to provide greater resilience to our assets and the community into the future. The full scope of works is not known at this stage however there is the potential for some co-contribution being required that is dependant on the level of enhancement being considered in each instance. Any works requiring co-contribution would be subject to future consideration by Council. For any additional restoration works the price may vary pending on fixed upper limit approval of EPARW with Resilience NSW.

Bridges

The following damage has been reported across the bridge asset network:

Bridge	Reported damage
Six Mile Lane Bridge	Approach road significantly damaged again
Tallawudjah Creek Bridge, Tallawudjah Creek Road	Approach road surface damaged again, significant scour adjacent to road formation
Browns Lane Bridge	Approach roads significantly damaged. Residents were isolated until emergency works could be done.
Cudlee Place Bridge	Approach roads significantly damaged. Residents were isolated until emergency works could be done.
Little Rocky Creek Bridge, Ewingar Road	Approach road surface significantly damaged
Frames Bridge, Punchbowl Rd	Approach road significantly damaged with major structural damage to piles
Clarence River Bridge, Lionsville road	Bridge span damaged with need to be removed and repaired for restoration
Cattle Ck, Ramornie Station road	Approach road formation scoured
Coutts Crossing Bridge #2, Armidale Road	Damage to concrete bridge decks

Maclean Levee

The second flood peaked about 60mm above the nominal height of the Maclean levee. Council's flood procedures manual suggests:

Sandbagging of the Maclean levee has not yet been attempted and it is considered to be an almost impossible task due to the fact that the levee is very flat.

However, with the assistance of numerous Maclean residents, emergency sandbagging was undertaken during the night of Tuesday 1st March which prevented the levee being overtopped. The initial row of sandbags placed on top of the levee was built up the following day with additional sandbags:

Following the second flood's peak, cracking was observed in several locations on the earthen section of the Maclean levee on Thursday 3rd March. Specialist Geotechnical advice was sought from JK Geotechnics (JKG), who recommended that strengthening works be undertaken on the inside of the levee in case there was a failure. Two sections of the levee were strengthened the same day as emergency work. A visual inspection of the Maclean levee was undertaken by JKG on Monday 7th March, which indicated the emergency works had provided appropriate support and that there were no immediate concerns with levee stability.

Sandbagging of levee

Crack observed on levee

JKG have recommended that a hydrographic survey be undertaken to determine whether there is any toe scour along the levee; the survey was scheduled to be undertaken in the last week of March but was postponed due to the third flood. Weekly visual inspection of the levee (with daily inspections during the third flood) have continued to be undertaken.

Marine Parade and Main Beach Yamba

The Yamba rainfall reached the "red alert" level for possible landslip at Marine Parade and Main Beach on Monday 28 February and with rainfall since the red alert will remain in place for the 90 day antecedent rainfall until at least Sunday 29 May. Ground movement occurred on the section of Marine Parade north of the Surf Club, and a significant scour occurred on Marine Parade. Specialist Geotechnical advice was sought from JKG and they advised that pedestrian access to Main Beach should be closed due to the high groundwater level recorded in monitoring bores. JKG staff inspected the site on Monday 7th March. Council staff are regularly liaising with JKG regarding Main Beach pedestrian access. Vehicular access to Main Beach is not available due to the scour on Marine Parade, and this is unlikely to be repaired for several months.

Movement on Marine Parade below Pacific Hotel

Scour on Marine Parade access to Main Beach

A scour above the beach to the north of the Surf Club exposed old asbestos material. This material cannot be removed until vehicular access to Main Beach is restored. Public access to this area has been restricted with plastic fencing and appropriate signage erected.

Sewer and Water Issues

The scour on Marine Parade caused the rising main from the Sewer Pump Station located next to the Surf Club to fail. A temporary rising main has been installed until permanent restoration works can be undertaken.

The significant rainfall has resulted in high turbidity in both Shannon Creek Dam and the Nymboida catchment. While turbidity was higher than the limit in Council's Drinking Water Management System, water was supplied by Coffs Harbour's Karangi dam. The community were successfully requested to limit water usage post the second flood until turbidity dropped to an acceptable level where extraction from the Nymboida could recommence. The supply of water from Coffs Harbour, coupled with reduced consumption avoided the need to extract high turbidity water, which would have required a boil water alert; however, if the turbidity had stayed high for a few more days it is likely a boil water alert would have been required.

During the third flood a mains break occurred at Iluka, which was isolated. Staff were able to be transported to Iluka by boat to undertake the repair.

Community Communication

The primary means of communication during the flood events was regular updates on Council's Facebook page, which enabled timely and accurate information to be conveyed to the community. During the second flood in the period 28Febriary to 31 March there were over 85,000 views and over 14,000 "likes". Comments on the Facebook page increased by nearly 800%, with people tagging others or leaving comments. More than 2,500 people have signed up to "follow" the Facebook page since the end of February.

Road closures were updated twice daily on the "Myroadinfo" website.

Flood Waste Clean-up – Residential and Business

The second March 2022 flood and storm event caused significant damaged to many properties in the Clarence Valley. The amount of waste generated from this event was on a scale unseen in recent years generating over 1500 tonnes of flood waste to date.

To assist impacted households and businesses Council commenced a kerbside flood waste collection on Monday 7th March 2022. During the initial clean-up there were up to five contractors working across the valley in flood affected areas. Many badly impacted areas have had multiple clean-ups with three or more passes. Residents were also able to take flood and storm damaged waste to Grafton Landfill and other Waste Transfer stations for free disposal.

Flood waste picked up by contractors from Ulmarra and upriver was taken directly to the Grafton Regional Landfill for disposal. Flood waste in the Maclean / Yamba region was taken to the Maclean waste transfer station to be bulked up and transported to the Grafton landfill. All CVC generated flood waste was disposed of at the Grafton Regional Landfill. Public works have also directed some flood impacted waste from the Lismore region to the Grafton Regional landfill including dead stock, asbestos, and general waste.

The third flood in late March 2022 has not generated as much waste but has still resulted in properties being affected and more flood waste cleanup. This flood also impacted the cleanup effort with heavy rain in the week leading up to the second event slowing cleanup works due to safety concerns and access issues.

As of the 4th April 2022 a total of 1515 tonnes of flood waste had been received at the Grafton Regional Landfill comprising the following:

Numbers of Self Haul Flood Waste Transactions	1700 (comprising approx. 800 at Maclean Transfer Station and 900 transactions at Grafton Landfill)
Estimated Residential Collections where contractors have removed flood waste	500-600 increasing as contractors continue to work
Total Tonnes Flood Waste Received at Grafton Landfill	1515 T (as at 4/4/22) increasing as cleanup continues

	Estimated Cost to Date	Comment
Grafton Landfill Flood Waste Disposal (EPA Waste Levy exempt)	$220,000	Actual to 4/4/22 and increasing as cleanup continues
Self Haul flood Waste brought to Maclean WTS for disposal	$45,000	Actual to date and increasing costs with 800 flood waste related transactions at Maclean Transfer Station
Bulk up and Transport flood waste from Maclean WTS to Grafton landfill	$20,000	Estimate
Contractors' pickup flood waste including Traffic Control	$300,000	Estimated – invoices still coming in and more properties requiring cleanup
Asbestos Contractors	$5000	estimated
Landfill Staff additional flood working costs	$10000	estimated
Total	Est **$600,000** to date and increasing	Increasing as cleanup continues

Learnings

Council's flood mitigation infrastructure worked as designed to ensure that tens of thousands of residents were not impacted by these floods; the rainfall which occurred concurrently with the second flood event far exceeded the design capacity of the system. Continued investment by Council, State and Federal Governments into the maintenance and enhancement of flood mitigation infrastructure is vital.

Operationally, every flood is unique and provides opportunities to identify areas for improvement including the flood manual. Several operational changes will be made the flood manual to incorporate lessons learned from managing the flood event.

BACKGROUND

February-March Flood events

Three flood events occurred during February/March 2022, with the second flood being the largest. The table below lists the peak flood heights recorded by the BoM gauges at Grafton, Ulmarra and Maclean.

	Levee	Flood 1			Flood 2			Flood 3		
	Height	Date	Peak	Class	Date	Peak	Class	Date	Peak	Class
Grafton	7.95m	22:15 – 25/02	4.37m	Moderate	01:00 – 01/03	7.66m	Major	08:10 – 31/03	5.62m	Moderate
Ulmarra	5.9m	01:45 – 26/02	3.37m	Minor	22:00 – 01/03	6.03m	Major	09:00 – 31/03	4.46m	Moderate
Maclean	3.3m	07:40 – 26/02	1.76m	Minor	23:30 – 01/03	3.36m	Major	12:00 – 31/03	2.27m	Moderate

The second flood in Maclean was the highest flood recorded since levee construction was completed in 1976. Preliminary analysis using Council's adopted design flood heights suggests the second flood was around a 6.6% Annual Exceedance Probability (AEP) in Grafton, around a 5% AEP in Ulmarra and Brushgrove and around a 2% AEP event in Maclean. The second flood was similar in magnitude to the March 2001 flood in Grafton but was significantly larger in downstream towns

Rainfall and Stormwater

Extreme rainfall was experienced concurrently with the second flood. Some examples of recorded rainfalls are

- 522mm at Yamba in 34 hours (between a 0.2 and 0.5% AEP event)
- 126mm of rain recorded at Gulmarrad in 3 hours (just below a 1% AEP event)
- 482mm in 144 hours in Grafton (just above a 1% AEP event).
- A rainfall record at Pilot Hill Yamba since records began in 1877
- Between 1 January to 11 April 2022 (1510.8mm) significantly exceeds any previously recorded rainfall in the first four months (previous highest was 1349.3mm in 1988).

The significant rainfall and resulting overland flow can be seen below. Very high ground water levels are still evident in many areas that is preventing water from filtrating through the underlying sandy soils. The figures below show the impact of rainfall in Iluka with ponded water observed in locations not seen before.

Elizabeth Street, Iluka

Iluka Road, Iluka

The extreme rainfall which occurred concurrently with a flood event resulted in the stormwater pumping capacity in both Grafton and Maclean being exceeded, with significant stormwater ponding occurring inside of the levee. With the exception of the pump at Greaves Street in Grafton and a pump located behind Mitre 10 in Maclean the permanent stormwater pumps in Grafton and Maclean worked as designed during the rainfall event.

An electrical failure occurred with the pump behind Mitre 10 and a portable pump was substituted at this location. The Greaves Street pumping issues are discussed further below. Staff are currently assessing additional permanent stormwater pumping capacity to reduce the reliance on portable pumps, and in particular, it is proposed that permanent stormwater pumps be considered for installation at:

- Ardent Street drain, South Grafton. This would address ponding in Skinner Street,
- Bacon Street Grafton – a pit is provided at this location but currently no pump
- River Street Maclean. Several drainage catchments in Maclean do not have permanent pumps, and portable pumps are currently required. A reconfiguration of some of the drainage systems and an additional permanent pump would reduce the reliance on portable pumps.
- Goddards Lane Maclean – a pump at this location (to supplement the Essex Drain pump) would allow earlier emptying of this catchment
- Ilarwill – pumps on Thompsons and Camp Creek drains would permit earlier reopening of Lawrence Road.

It is not feasible to provide pumping capacity for such extreme rainfall events; general Australian stormwater design practice is that stormwater systems be designed for between 5% and 10% events.

Greaves Street Pumping Station in Grafton

As part of the second Clarence River crossing TfNSW constructed a new stormwater pump station at Greaves Street, which includes a detention basin between the two bridges. The pump station pumps from the detention basin to the river. During the second flood event some movement of the new Clarence River bridge embankment occurred, which was attributed to pumping from the basin. TfNSW staff requested that pumping from the basin be minimised to reduce the risk of embankment failure, which resulted in significant ponding occurring in properties upstream of the basin. Council handed operation of the pump station to TfNSW for the event so that they could protect the bridge asset.

TfNSW and their construction contractor are currently investigating a permanent solution to this issue. Until the issue is resolved, the pump station operation levels have been set to minimise potential impact on the bridge.

Heber Street Pumping Station in South Grafton

As part of the second Clarence River crossing TfNSW made changes to the existing Heber Street pumping station in South Grafton. This station is considered to be undersized, and during the event ponding

prevented access to the Caltex and BP service stations and Bunnings. Council is liaising with TfNSW regarding possible upgrading of this pump station.

Pacific Motorway Impacts

During the second flood event the Pacific Motorway was closed at Maclean with ponding over both carriageways. Various claims have been made regarding the impact of the motorway on flood behaviour. Council has obtained a proposal from its flood modellers (WBM-BMT) to calibrate Council's flood model to the recent floods (as well as the March 2021 event).

Pacific Motorway at Ferry Park, afternoon Tues 01/03

Project Deferrals

Works are undertaken to maintain Council assets and undertake construction within budgets and timeframes established by Council. Departures from set programs and budgets are reported to Council as part of the works program reporting.

At the June 2021 ordinary meeting Council adopted the draft 2021/22 Operational Plan (Item 6a.21.028). The Operational Plan is a key document underpinning the Integrated Planning and Reporting Framework (IP&R). It is a one-year plan (reviewed annually) that outlines the detail of the Delivery Program and identifies the individual projects and activities that will be undertaken in a specific financial year.

The Capital Works Program at June 2021 was reported at $108.1M. There have been an increasing number of stimulus-based grants awarded to Council since June 2020 that have continued into 2021, many of which require the completion of further capital works. In consideration of this, the dollar value of the Capital Works Program has since grown to approximately $134.6M.

Importantly, in the preparation of draft 2022/23 Operational Plan staff have identified the need to defer (or defer in part) a number of projects to ensure the various grants and stimulus based funded projects are prioritised and comply with the individual funding agreements for completion. Further investigation is currently underway to reconcile the full impact of the floods on both our capital and maintenance works and an updated listing will be brought back to Council in May.

Whilst every endeavour is made to complete all works included in this program, ultimately the successful delivery of these works is dependant on a range of factors that can often extend beyond the direct control of staff or council. Staff have also had to reprioritise of works due to new grant funded commitments received throughout the year. In addition to the impact from natural disasters some other contributing factors include:

Covid-19 and Material Supply Issues
The effects of the coronavirus (COVID-19) continue to be felt on the world economy with global supply chains having wide-ranging impacts on many Australian companies. Long lead times are being experienced with some products and material supplies that would ordinally be available "off the shelf" now with waiting periods of 6 to 9 months. Due to the shortage of material supplies, the purchase costs have also increased. The delay in material supplies and increases in supply cost will in some instances adversely impact on project delivery timelines and project costs.

Light and Heavy Fleet Replacement 21/22

Long lead times for light and heavy plant has been an issue for plant replacement for some months. There are currently up to 12 months delays being experienced on some item of plant. A number of plant items due for replacement in 21/22 have been ordered though will not be receipted (or deferred) until 22/23 as a result of those delays

Deferred Projects (extract)

Table 1 (below) represents a list (extract only) of a number of key community projects where some level of project deferral value has already been identified. The extract demonstrates the challenges of managing a growing Capital Works Program within the current climate and sensitive external factors that will continue to impact on council's capacity to successfully deliver a program in full.

Further investigation is currently underway to finalise and reconcile the full impact of the floods on both our capital and maintenance works. Full details will be brought to Council in May.

Project	Revised Budget	Amount Spent to Date	Amount Deferred
School Zone Upgrade Program	2,568,893	57,150	2,492,902
Fixing Country Bridges Program	9,479,709	1,209,837	5,360,000
Clarence Way – Seal inc. Asbestos Gravel	2,800,000	189,321	2,000,000
Treelands Drive Community Hub	11,107,882	281,388	10,000,000
Maclean Community Precinct Upgrade	7,697,000	179,380	7,000,000
Grafton Netball Courts – Redevelopment	997,382	0	997,382
Ewingar RFS Brigade Facility	836,126	0	836,126
Ulmarra Riverside and Village Precinct	840,000	171,983	668,000
Corcoran Park Regeneration & Dog Park	982,000	75,530	850,000
Grafton Waterfront Structure Works	6,231,726	295,402	2,500,000
Brooms Head H/Park Septic System Upgrade	1,700,000	33,752	1,500,000
Calypso Holiday Park Redevelopment	6,400,000	0	6,400,000
Construct Cell 4C – Grafton Regional Landfill	3,200,000	56,118	3,000,000
Clarenza STP Sludge Lagoon Renewal	2,950,000	0	2,940,000
Scope/Design Rushforth Rd 32ML Repl. Reservoir	9,000,000	43,242	8,850,000
Total	**65,954,592**	**2,598,975**	**54,890,284**

COUNCIL IMPLICATIONS

Budget/Financial
At the November 2020 Ordinary meeting Council endorsed (Item 6a.20.047) to adopt the 'opt in methodology for the purposes of assessing Disaster Recovery Funding arrangements. This means that Council is required to contribute the first $259,000 of the claim with the rest being funded through the natural disaster claim.

As the final value of deferred projects is still being determined, the detailed list of deferred projects and associated budget variations will be brought back to Council via May Monthly Financial Report. This report will seek approval to update the 2021/22 Revised Budget and associated Financial Reserves as well as, the 2022/23 Draft Capital Works Program and Budget for approved deferred works.

Crown Land
It is important to acknowledge an increasing administrative burden being placed on council by the NSW Government (Crown Land) in responding to their requests for assistance on Crown Roads that have been impaired or extensively damaged as a result of the flood/storm impacts.

As a minimum, staff endeavour to provide emergency assistance to the community by way of restoring safe access to impacted residents, however, Crown Roads are not a Council asset and the additional resourcing burden placed on council in responding to requests from Crown Land on behalf of property owners create additional challenges in completing works within the allowable time limits when restoration works on Councils own road infrastructure assets should be prioritised.

Crown Roads are subject to meeting the same criteria within the NSW Essential Public Asset Restoration Guidelines as all other infrastructure assets, which in most cases the eligibility for claimable works cannot be met. As a result, there is significantly more administrative works required to ensure that Council is in a position to recover all costs for works undertaken.

Asset Management
To mitigate the risks associated with broad scale flooding it is critical that floodplain assets are maintained into perpetuity. Council continues to be challenged in maintaining floodplain assets and providing levels of service that are aligned with community expectations given the significant funding shortfall.

It is important to note that council have been actively lobbying the State Government and will continue to do so in seeking the required assistance with funding critical floodplain management assets. At the October 2021 ordinary meeting Council resolved (Resolution Item 6c.21.129) to:

Lobby the NSW government (again) to increase the "Floodplain Management program: Maintenance Grants" which have remained at the same dollar value for nearly 25 years and therefore have significantly reduced in value over time in real terms.

Prior to the recent flood events council again wrote (January 2022) to the Minister for Local Government (Hon Wendy Tuckerman) highlighting the need for the State Government to consider the 'real' value of the floodplain maintenance grants that are significantly less than actual (present day) maintenance costs, refer correspondence attached.

The Capital works are as detailed in the Delivery Plan and Operational Plan. In general terms the projects that have currently been flagged for deferral to 2022/23 represent less than 3% of our overall asset carrying value ($2.6b) and as such the deferral of these works is not considered to significantly increase the risk to asset renewal.

Policy and Regulation
N/A

Consultation
N/A

Legal and Risk Management
N/A

Climate Change
The recent Risk Frontiers Climate Change study estimated that average annual losses from flooding are expected to increase by 2 to 6% by 2050, and 2 to 12% by 2090.

19 May 2022

Laura Black
Acting General Manager
Clarence Valley Council
2 Prince Street
GRAFTON NSW 2460

Dear Professor **Mary** O'Kane AC and Michael Fuller APM

Submission to the NSW Independent Flood Inquiry

Clarence Valley Council is situated between what is generally known as the Mid North Coast and the Northern Rivers on the north coast of NSW. The LGA is 10,441km2. Clarence Valley LGA experiencing one of the highest frequency rates of natural disasters in the Australia, as demonstrated in recent years by the devastation to over 50% of the LGA during the unprecedented Bushfires of July – December 2019, the major flood in March 2021 and the unprecedented Flood of 2022.

The Clarence River catchment, which covers much of the Clarence Valley LGA, is one of the largest catchments on the east coast of Australia, with an area of approximately 20,000km2. The lower Clarence River floodplain spans 500km2, within which lie the towns of Grafton and Maclean.

These towns are home to over 20,000 residents collectively and serve as a rural centre for the surrounding agricultural lands. Both Grafton and Maclean and are protected by levee systems which have been developed over time as a response to previous floods in the region.

Smaller towns and villages along the Clarence River such as Ulmara and Iluka are also serviced by earthen levee structures that provide some protection in more frequent flood events.

To support our submission, I provide copies of:

- Attachment A - response from the former Minister for the Environment, Minister for Local Government and minister for Heritage, the Hon Gabrielle Upton dated May 2019.
- A report to Council's April Ordinary Meeting – Item 07.22.080 February/March 2022 Flood Recovery Update.

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2022 Flood and storm event experience

Three flood events occurred during February/March 2022, with the second flood being the largest. The second flood in Maclean was the highest flood recorded since levee construction was completed in 1976. Preliminary analysis using Council's adopted design flood heights suggests the second flood was around a 6.6% Annual Exceedance Probability (AEP) in Grafton, around a 5% AEP in Ulmarra and Brushgrove and around a 2% AEP event in Maclean. The second flood was similar in magnitude to the March 2001 flood in Grafton but was significantly larger in downstream towns. The table below lists the peak flood heights recorded by the BoM gauges at Grafton, Ulmarra and Maclean.

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The significant rainfall and resulting overland flow can be seen below. Very high ground water levels are still evident in many areas that is preventing water from filtrating through the underlying sandy soils. The extreme rainfall which occurred concurrently with a flood event resulted in the stormwater pumping capacity in both Grafton and Maclean being exceeded, with significant stormwater ponding occurring inside of the levee. With the exception of the pump at Greaves Street in Grafton and a pump located behind Mitre 10 in Maclean the permanent stormwater pumps in Grafton and Maclean worked as designed during the rainfall event.

Floodplain Asset Management

Council manages floodplain assets, with a current estimated value of $2M.

While there has been an annual State Government grant for assisting councils with Floodplain maintenance works for over 24 years, the dollar amount of the grant has not been indexed and so the grant has significantly decreased in real terms. At the same time, floodplain maintenance costs have increased in real terms due to changes in environmental requirements, which results in lower maintenance levels being achieved for a given cost than was historically achievable.

Maintaining the floodplain grant as a fixed dollar value has effectively "cost shifted" an increased proportion of floodplain maintenance costs to Local Government and using the RBA inflation calculator

the grant in 2021 would needed to have been $158,745 to match the “purchasing power” of the $91,200 grant from 23 years ago.

Legislation

Noting that the State Government is responsible for floodplain assets managed by the Hunter Valley Flood Mitigation and provides funding in the vicinity of $7M per annum to do so.

Clarence Valley Council has on a number of occasions lobbied the State government to increase the “Floodplain Management Program: Maintenance Grants” to provide a reasonable level of

Responses to such advocacy has resulted in somewhat dismissive responses, as demonstrated by the attached response provided as Attachment A, which claims that “maintenance requirements of modern infrastructure is less onerous than older infrastructure.” This does not recognise that the majority of Clarence Valley Council’s floodplain assets were constructed prior to 1984.

The State Emergency and Rescue Management (SERN) Act 1989 (as Amended) is the Act that provides legislative basis for co-ordination of emergency preparedness, response and recovery operations.

The key element of emergency management planning in NSW is the Emergency Management Plan (EMPLAN). The objective of EMPLAN is to ensure a co-ordinated response by all agencies having

Responsibilities and functions in emergencies.

EMPLAN

- Identifies the combat agency primarily responsible for responding to the emergency.
- Specifies the tasks to be performed by all agencies in the event of an emergency.
- Provides for the co-ordination of the activities of other agencies in support of the combat agencies; and
- Specifies the responsibilities of the Minister and the State, Region, or Local Emergency Operations Controller (LEOC).

Combat Agencies: A combat agency is the agency with the specific expertise and equipment to deal with the effects of designated hazards. The agency responsible for each major hazard is designated in the EMPLAN and in the case of a flood the designated combat agency is the NSW State Emergency Service (SES).

- Council’s Local Emergency Management Officer (LEMO)

- Clarence Valley Council’s (CVC) Coordinator Emergency Management & Resilience performed the LEMO role throughout this incident performing duties as the Executive Officer to the Local Emergency

- Operations Controller (LEOCON). This included the activation and establishment of an Emergency Operations Centre (EOC) in order to coordinate a centralised multi agency response to the flood threat.

- Council’s primary role is to support (not control) combat agencies (such as the SES) during and immediately following an emergency.

Direct council support:

- the Local Emergency Management Committee’s (LEMC) Emergency Response Operations

- affected residents with waste removal services, directly or through fee waivers provided at the Grafton Regional landfill.

Indirect council assistance:

- property protection (thousands of residents) construction and or repair to levees at Grafton, Ulmarra and Maclean.
- maintaining or restoring safe access across the local roads/bridges network
- provision of engineering advice regarding the integrity of damaged structures
- assisting the SES with damage assessments where required
- coordinating the restoration of critical public facilities including restoring water & sewage services following the flood event.
- providing timely communication updates to the community
- maintaining floodplain assets including drains and floodgates

Council's management of these activities ensures that damage to private property is significantly reduced.

Most Local Government authorities do not engage a fulltime LEMO to conduct, however to better support local government in its role during natural disaster, government funding allocated to the fulltime engagement of suitably qualified LEMOs across the State would significantly strengthen the network of support to the State.

Experience and Points of Concern

Clarence Valley Council's experience during the preparation, planning and response to the flood can be summed up in the following points:

- Different data collection platforms across agencies hinders flow of important information that informs councils response during response & recovery.
- Resilience NSW consistently wanted to introduce recovery discussions while the LGA and Emergency Operations Centre (EOC) was still in the response phase.
- Some important documents such as the NSW Recovery Plan released in December 2021 had not been appropriately circulated or communicated to relevant agencies during preparation or after endorsement. CVC only became aware of this document and their defined roles and responsibilities per the plan during initial recovery discussions.
- Some local SES and F&RNSW members were acting independently of their chain of command hindering some response activities coordinated by the EOC.
- Due to insufficient resources, no SES Liaison Officer was appointed to the South Grafton EOC from 28 February – 3 March 2022, impacting the EOCs ability to make strategic decisions during this critical period.
- The most significant issue was the centralised SES ICC at Goonellabah, which meant the focus of the response was the Lismore area. The lack of an SES Liaison Officer in the EOC during the most

critical part of the flood event, impacted on the ability to make timely and strategic decisions for the community.

- The command & control structure at SES Incident Command Centre (ICC) was unclear & difficult to access in the absence of an SES Liaison Officer in the Clarence Valley EOC. Key SES decision makers in the SES ICC lacked local knowledge or were not familiar with the river catchment impacting their situational awareness.

- Escalation points into the Regional Emergency and Recovery Operations Centres were poorly communicated and difficult to navigate as a result.

- There needs to be better clarity for those involved in the assessment and allocation of workloads resulting from the incidents/events. It is essential that the combat and recovery agencies have a thorough understanding of who has responsibility for tasks to avoid them being handed to multiple agencies/services before action can be taken.

- As the local road authority, Council was under pressure from TfNSW via the EOC to reopen flooded roads despite council determining there were still safety issues. This heightened expectations in community, resulted in mixed messaging from department and drew significant and unnecessary Council resources into play.

- Department of Education raised child safety issues when a public high school previously identified, authorised and used as an official evacuation centre during multiple events in the Clarence Valley, was stood up twice during the flood event, again causing mixed messaging and additional consternation and concern for flood displaced people and again drawing on significant and unnecessary Council resources to resolve.

- On four occasions during the flood events, SES disseminated in correct information in evacuation orders including advertising centres that had already closed, had not been authorised for use during the flood event by the Clarence Valley LEOCON or that were inaccessible as the evacuation route was already inundated and closed.

- Push notifications, app updates and social media posts are insufficient for those located in areas with poor or no reception or during events that significantly impact telecommunications. The same issue was experienced during the Bushfires of 2019 with devastating consequence.

- Clearer centralised communication strategy regarding the transition from response to recovery to aid understanding of not only the community but agencies and functional areas supporting recovery efforts is required.

- It is highly likely that the above mentioned issues could have been catastrophic for Grafton had the levee overtopped, or Maclean had the levee failed.

- Obtaining impact assessment information post flood has proven challenging with the centralised SES ICC model and regional recovery centre both located outside the LGA, and no clear communication regarding the appropriate contacts to obtain such information.

- Obtaining information about recovery needs from State government agencies compiling the information has proven very difficult post floods and so decisions about the focus of recovery at the Local Recovery Committee level, which is the responsibility of Council's to coordinate are uninformed and reliant on the anecdotal information available.

- Local Government is under resourced to manage the scale of recovery required. Receiving responses and action from State Recovery agencies and Resilience NSW as the coordinating unit are slow leaving community exasperated and fatigued when tangible solutions are not forthcoming.

- More than one the Federal government caretaker mode in the lead up to election has posed delays to receiving responses about available resources, the same would occur with greater detrimental significance were a disaster of this scale to occur during State Government caretaker mode.

- Payment of relief funds are slow, as at the end of April only a small proportion of claims made by Small Business and Primary Producers have been approved. Automation of the process, including approvals and payments is required and could be implemented much like Taxation returns with auditing occurring after the fact.

- Multiple State agencies coordinating multiple post flood briefings result in inconsistency of messaging.

- Money is being released to local government in the absence of grant criteria for expenditure leaving council's in a position of holding cash without knowing what it can be spent on.

- Local government does not have the resources to enter the significant competitive grant opportunities being thrust at it following disasters.

Previous Inquiry Recommendations

Disappointingly, there are recommendations from previous natural disasters that if implemented could have prevented much of the confusion, misinformation and preparedness.

Recommendation 11 of the final report into the NSW Bushfire Inquiry (31July2020) stated that, in order to strengthen the capability of local councils in future emergency events: Resilience NSW, in consultation with local government, develop specific training that focuses on the role, responsibilities and expected functions of the Local Emergency Management Officer (LEMO), including regular 'refresher' components – specific training has yet to be developed and the basic face-to-face Emergency Management Training courses have only just resumed (the resources provided to participants are old and still refer to the Office of Emergency Management).

Recommendation 69 states that, in order to ensure evacuation arrangements can be scaled up when needed, Resilience NSW: train council and NSW government regional staff in evacuation centre establishment and management, supported by a one-page 'start up sheet' for opening an evacuation centre – this training has not been made available. During a recent communication with Resilience NSW regarding their Evacuation Management course, they advised they were no longer running this as it is not cost effective but could not advise when an alternative would be made available.

Recommendation 13. States that Australian, state and territory governments should continue to explore the feasibility of a national, all hazard emergency warning app. In the absence of any action, Clarence Valley Council has prepared a business case and sought, but been unsuccessful in securing, funding to implement such an app for all natural disaster hazards. Communication with our residents and visitors would be greatly enhanced by implementation of the Clarence Valley Information Network (CVIN), a network of integrated intelligent real-time multi-sensors constructed throughout the LGA maintaining 24-hour fire and flood detection and continuous micro-climate weather, air quality, soil moisture and rain fall information. The accompanying Clarence Valley App details live conditions, warnings, notifications, tourism and event information enabling 24hr situational awareness for emergency services, local

industry, residents and visitors. Access to this live localised information returns community confidence, enables resilience, mitigates against climate related risk and damage, provides health information, supports local agriculture, industry and future economic growth across the region.

Resilience

Clarence Valley Council recently adopted its Disaster Resilience Framework (Disaster Resilience Framework | Clarence Valley Council) prepared following the Bushfires of 2019, which details the significant amount of work required to be undertaken in community and with infrastructure to improve resilience of Council and community.

State recognition that it carries some weight in the allocation of funding would resolve some significant risks facing this council into the future.

Thank you for considering Clarence Valley Council's submission to the Independent Flood Inquiry. Should you require any further information please do not hesitate to contact me on 6443 0200.

Yours Sincerely

Laura Black

Acting General Manager

The Hon Gabrielle Upton MP
Minister for the Environment
Minister for Local Government
Minister for Heritage

MD19/230

Mr Chris Gulaptis MP
Parliamentary Secretary for Regional Planning
Member for Clarence
11 Prince Street
GRAFTON NSW 2460

By email: clarence@parliament.nsw.gov.au

Dear Mr Gulaptis

Thank you for your representations on behalf of Councillor Jim Simmons, Mayor of Clarence Valley Council, about the Floodplain Management Program Maintenance Grants. Cr Simmons also wrote to me directly, and I appreciate the time you have both taken to raise Council's concerns with me.

I note you have also written to the Deputy Premier, the Minister for Regional New South Wales, Minister for Skills, and Minister for Small Business, the Hon John Barilaro MP, and the Minister for Primary Industries, Minister for Regional Water, and Minister for Trade and Industry, the Hon Niall Blair MLC.

I am advised that the NSW Government has been funding flood mitigation works since the late 1950s. Early infrastructure works had relatively high ongoing maintenance costs, and so at that time the government offered some councils funding for the maintenance of the infrastructure. This offer was made as a transitional arrangement and there was no intent to index this amount as time passed. Clarence Valley Council's annual payment falls under this arrangement.

Local government is responsible for the maintenance of flood mitigation structures constructed since 1984 under the NSW Government's Floodplain Management Program. This is because the maintenance requirements of modern infrastructure is less onerous than older infrastructure.

The NSW Government, through the Office of Environment and Heritage, will continue to look to deliver the best opportunities for all councils across NSW to deal with floodplain management issues. However, at present there is no intention to increase the funding allocation for maintenance of infrastructure.

Local councils can apply for funding to assist their understanding of flood risk and to implement works identified in Floodplain Risk Management Studies and Plans. The next round of the Floodplain Management Program will soon open for applications. I would encourage Clarence Valley Council to apply to this program.

Cr Simmons is welcome to contact Geoff Hudson, A/Director Grants, Office of Environment and Heritage on 8837 6098, or geoff.hudson@environment.nsw.gov.au, with any further questions he may have about these matters.

Yours sincerely

Gabrielle Upton MP
Minister for the Environment
Minister for Local Government
Minister for Heritage

10/2/19

cc: The Hon John Barilaro MP, Deputy Premier, Minister for Regional New South Wales, Minister for Skills, and Minister for Small Business.

The Hon Niall Blair MLC, the Minister for Primary Industries, Minister for Regional Water, and Minister for Trade and Industry.

ITEM 07.22.080 FEBRUARY/MARCH 2022 FLOOD RECOVERY UPDATE

Meeting	Council	26 April 2022
Directorate	Works & Civil	
Prepared by	Director (Works & Civil), Jamie Fleeting	
Attachments	A. Letter to Minister Tuckerman - Floodplain Grant Management	

SUMMARY

This report provides a summary of the three February-March 2022 flood events experienced across the Clarence Valley and Council's operational response to the events.

This report also aims to provide some transparency around projects scheduled for the current year, but not yet commenced (or recently commenced) and therefore deferred to the following year. The 2021/22 Operational Plan – Quarterly Review as at 31 March includes the latest status update. Whilst some deferred projects have been highlighted in this report, an updated listing will be provided to Council in May once investigations into the impact of floods on capital and operational works is complete.

The list includes additional projects (or project value) identified for deferral to the combined effect of several external factors impacting on the delivery program including:

- Impacts on domestic and global supply chain issues attributed to Covid-19
- Limitations on the availability of suitable contractors.
- Declared natural disaster with five (5) storm/flood related disasters across the Clarence Valley since December 2020 with two major floods in March 2021 and February/March 2022
- State Government approval timeframes have been considerably longer arising from Covid-19.
- Additional pressures (supply and demand) on sourcing contractors with stimulus funding across the State.
- Native Title Determination - A few projects are currently sensitive to pending Native Title consideration.

OFFICER RECOMMENDATION

That Council:
1. Note the staff update on the February-March 2022 flood response as detailed in the report.
2. Prepare a submission (based on the contents of this report) for inclusion into the NSW Governments Inquiry that follows the 2022 Major flood event across NSW.

COUNCIL RESOLUTION - 07.22.080

Toms/Johnstone

That Council:
1. **Note the staff update on the February-March 2022 flood response as detailed in the report.**
2. **Include in the submission based on the contents of Cr Novak's list of community organisations that assisted with the major flood events across NSW into Council's report for the inquiry that follows the 2022 major flood event across NSW.**

Voting recorded as follows
For: Clancy, Day, Johnstone, Pickering, Smith, Tiley, Toms, Whaites
Against: Novak

CARRIED

LINKAGE TO OUR COMMUNITY PLAN

Theme	Infrastructure
Objective	We will have communities that are well serviced with appropriate infrastructure

KEY ISSUES

NSW Emergency Management Arrangements (Legislation)

The State Emergency and Rescue Management (SERM) Act 1989 (as Amended) is the Act that provides the legislative basis for co-ordination of emergency preparedness, response and recovery operations.

The State Emergency Management Plan

The key element of emergency management planning in NSW is the Emergency Management Plan (EMPLAN). The objective of EMPLAN is to ensure a co-ordinated response by all agencies having responsibilities and functions in emergencies.

EMPLAN

- identifies the combat agency primarily responsible for responding to the emergency.
- specifies the tasks to be performed by all agencies in the event of an emergency.
- provides for the co-ordination of the activities of other agencies in support of the combat agencies; and
- specifies the responsibilities of the Minister and the State, Region, or Local Emergency Operations Controller.

Combat Agencies: A combat agency is the agency with the specific expertise and equipment to deal with the effects of designated hazards. The agency responsible for each major hazard is designated in the EMPLAN and in the case of a flood the designated combat agency is the NSW State Emergency Service (SES).

Council's Local Emergency Management Officer (LEMO)

Clarence Valley Council's (CVC) Coordinator Emergency Management & Resilience performed the LEMO role throughout this incident performing duties as the Executive Officer to the Local Emergency Operations Controller (LEOCON). This included the activation and establishment of an Emergency Operations Centre (EOC) in order to coordinate a centralised multi agency response to the flood threat.

The following activities carried out by council's LEMO demonstrate the important role in assisting the various agencies throughout the flood response.

Date	CVC LEMO Actions/Responses
23/2 24/2	• SES advise the Bureau of Meteorology (BoM) east coast low predicted to impact Northeast NSW. SES Incident Management Team (IMT) stood up at Goonellabah, incident 261/2122. • Advised Pilot Hill Yamba reached 'Yellow level' alert after antecedent rainfall triggers alert, LEOCON notified of change in status. • Wooli Rd floods, isolating Wooli, LEOCON notified. • Daily SES IMT briefings commence, relay pertinent information to CVC senior leadership team. • SES place EOC on standby as flood warnings are issued for the Clarence & Orara Rivers.
25/2	• Moderate flood warning for Grafton & Ulmarra. • Relay pertinent information from daily SES briefing to CVC senior leadership team.
26/2	• LEMO liaises with council following requests for sand deliveries at Brushgrove, Iluka, Yamba, Maclean & Palmer Island by SES in preparation for flood. • Relay updated information from daily SES briefing to CVC senior leadership team.
27/2	• Liaised with SES following overnight evacuation warning for low lying areas of Maclean. • Orara River Peaks at Glenreagh (9.65m) with minor flooding and Coutts Crossing (9m) with moderate flooding. • LEMO liaise with Department of Communities and Justice (DCJ) to seek emergency accommodation approval from SES for a family inundated at Coutts Crossing. • Liaise with Transport for NSW (TfNSW) on behalf of CVC to ensure 8 Mile Lane will be approved for B-double utilisation when Big River Way gets inundated with flood water. • Relay updated information from daily SES briefing to CVC senior leadership team. • Liaise with CVC, Police and SES regarding sandbagging of Ulmarra ferry approach and potential levee erosion risk. • Communicated river camera outage at Lawrence Rd and Palmers Channel. • Liaise with SES and CVC staff regarding request for additional resources to sandbag Ulmarra Ferry approach.

Date	CVC LEMO Actions/Responses
28/2	• Advised multiple road closures including Iluka and Yamba Rds. Disseminate information to LEMC members. • EOC stood up at SES, South Grafton. Commence LEMO role in official capacity. • Relay updated information from daily SES & EOC briefings to CVC senior leadership team. • Pilot Hill Yamba reached 'Red level' alert after antecedent rainfall triggers change in status, LEOCON briefed of council's actions. Requested additional information from council regarding dwelling occupation in the at-risk area and reports of self-evacuation. • Evacuation of Rathgar Lodge, Ulmarra confirmed and commenced in consultation with NSW Ambulance & LEOCON. • Liaise with communications civil services team to alert Iluka residents to levee overtopping & request assistance to sandbag levee. • Evacuation warnings for Southgate, Ulmarra, Brushgrove & Cowper issued. • Liaise with LEOCON & DCJ regarding opening of evacuation centres at South Grafton and Maclean. • Evacuation orders for Southgate, Ulmarra, Brushgrove, Cowper, Maclean & Lawrence issued. • Liaise with Health regarding requests for relocation of patients and staff to ensure hospitals can remain open during flood. • Clarence River peaks at Prince St (7.66m) early in the morning, then at Ulmarra (6m).
1/3	• Relay updated information from daily SES & EOC briefings to CVC senior leadership team • Communicate council road closures to the EOC and LEMC members
2/3	• Liaise with Health & LEOCON regarding ongoing hospital resourcing. • Levee overtopped at Ulmarra, EOC notified. • Investigate suitable option for RFS base camp for strike team deployment. • Liaise & coordinate with RFS, SES and LEOCON regarding resources to relocate CVC pump at Rushforth to Maclean levee. • Relay updated information from daily SES & EOC briefings to CVC senior leadership team. • Isolated community requests for re-supply to commence. • Maclean levee anticipated to overtop, and sandbagging commences. Integrity issue identified & relayed to EOC. • Request priority recovery issues as ADF personnel arrive in area. • Clarence River peaks at Maclean at 3.36m.
3/3	• Further Maclean levee issues identified with cracking in levee wall. Communicate risk and geotechnical advice to LEOCON & SES, decision to reinforce Maclean evacuation. • Liaise with Essential Energy regarding potential grid shut down process in the event Maclean levee breached.
4/3	• Facilitate discussion between TfNSW, SES, Police and council regarding reopening of Yamba Rd • EOC stood down at 15:00
5/3	• Liaise with geotechnical & LEOCON regarding Maclean levee and safe removal of evacuation order for Maclean, relay information to SES via LEOCON
27/3 – 1/4	• BoM advises another costal low is developing on the Northeast coast of NSW and further flooding concerns due to an already saturated catchment. SES incident management team stood up at South Grafton, incident 345/2122. • Localised response to requests for assistance. EOC returns to standby status. • Liaise with LEOCON & Regional Emergency Management Officer regarding ongoing issues at Pilot Hill due to antecedent rainfall. • Local evacuation warnings and some evacuation orders for low lying areas issued. Maclean & South Grafton evacuation centres opened but not utilised. • EOC stood up 1/4/2022 at 08:00, but due to more favourable weather and river conditions overnight, it is stood down at 09:00am as a multi-agency response no longer required.

The Australian Defence Force (ADF), Rural Fire Service strike teams and Fire & Rescue NSW were deployed into the area to assist with initial recovery activities that included road and property clean up. ADF personnel were re-deployed north where the flood impacts to property were far more significant.

SES response to the flood event

During the February/March 2022 flood event, SES received 1019 requests for assistance across the Clarence Valley Council area. 9 SES units in the area responded and 1015 of these requests for assistance were completed, actioned or finalised by 18 March 2022. The type of requests received by SES included:

- Support - 24 requests (2%)
- Flood assistance including resupply - 652 requests (64%)
- Rescue - 62 request (6%)
- Storm related – 205 requests (20%)

Council's Flood Response Role & Recovery

Council's primary role is to support (not control) combat agencies (such as the SES) during and immediately following an emergency. In terms of direct council support:

- the Local Emergency Management Committee's (LEMC) Emergency Response Operations
- affected residents with waste removal services, directly or through fee waivers provided at the Grafton Regional landfill.

Indirectly council provide ongoing assistance with the following activities:

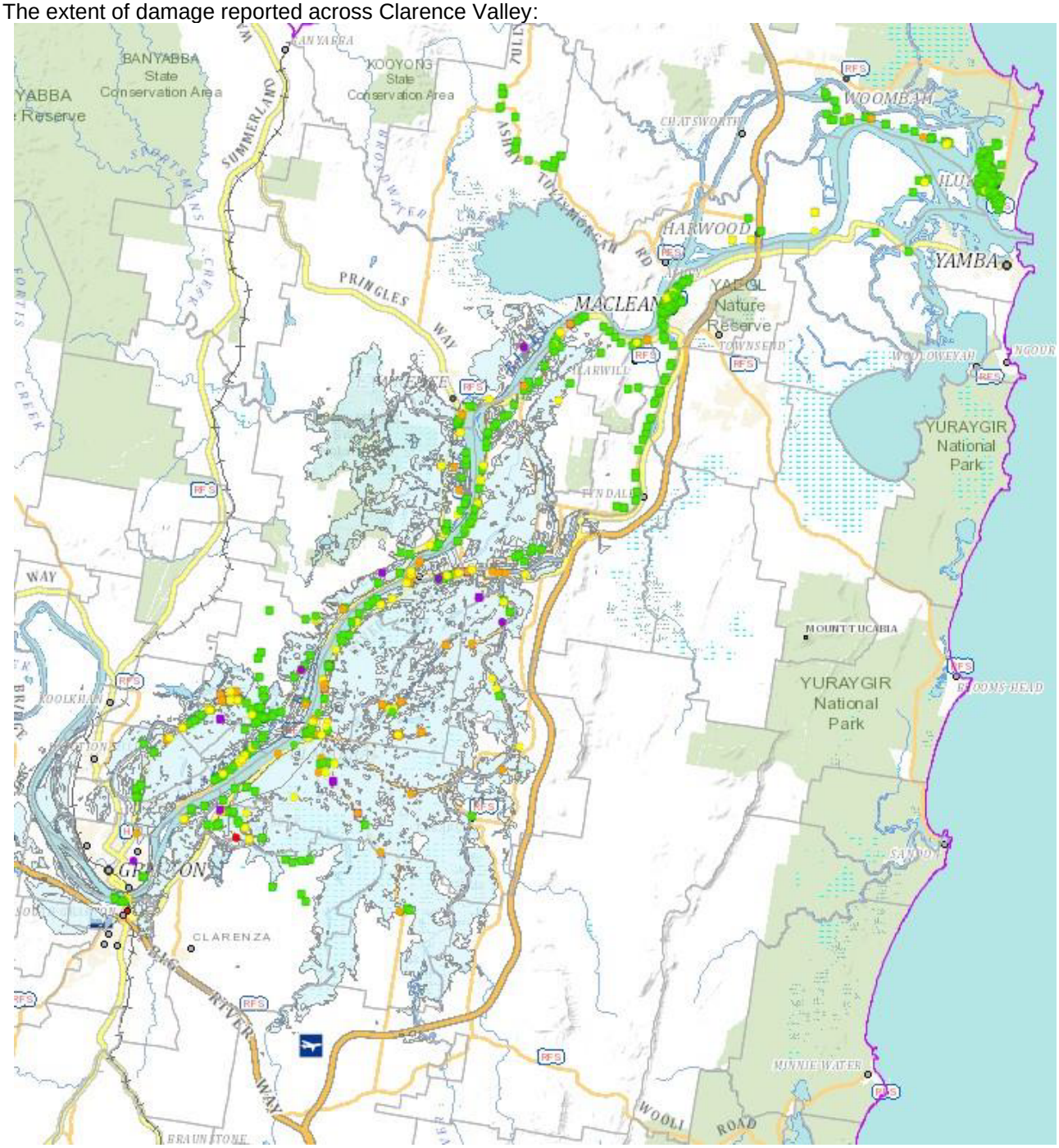
- property protection (thousands of residents) construction and or repair to levees at Grafton, Ulmarra and Maclean.
- maintaining or restoring safe access across the local roads/bridges network
- provision of engineering advice regarding the integrity of damaged structures
- assisting the SES with damage assessments where required
- coordinating the restoration of critical public facilities including restoring water & sewage services following the flood event.
- providing timely communication updates to the community
- maintaining floodplain assets including drains and floodgates

Council's management of these activities ensure that damage to private property is significantly reduced.

Damage Assessments

The Spatial Services' Emergency Information Coordination Unit (EICU) falls under the NSW Governments *Spatial Services Unit* and ensures the emergency management sector has the best spatial and related data available to deal with multi-agency emergencies, such as terrorism and natural disasters. The spatial data encompass all areas of emergency planning, response and recovery. The following figures provide a comparative spatial representation of the damage recorded across the Clarence Valley as compared to the more significant impacted areas to the North.

The extent of damage reported across Clarence Valley:

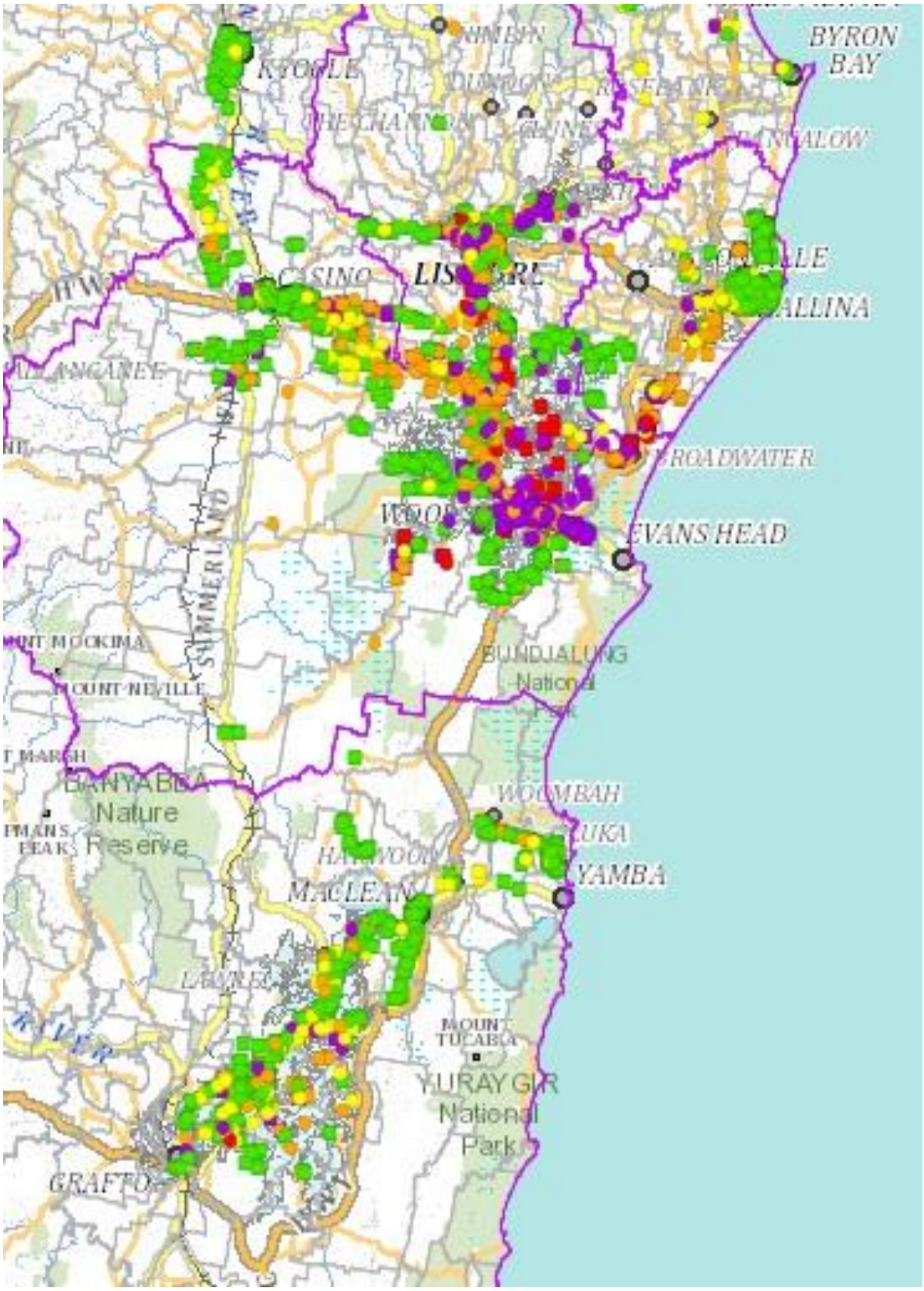


FloodExtent_2022

Property damage:

- Destroyed - 76-100%
- Severe Impact - 51-75%
- Major Impact - 26-50%
- Minor Impact - 1-25%
- No Damage - 0%
- Not Stated

The extent of damage reported across Clarence Valley comparatively much less than areas to the north:



Roads and Stormwater Infrastructure

The impact of the floods resulted in damage to over 100 roads across the LGA and many more are still being inspected. Emergency works following the second flood were well under way with immediate recovery works about to commence when further damage was sustained to the road and transport network following the third event from 28 March. Emergency works are estimated at $2 million with subsequent restoration works estimated at between 15-20 million. 85% of all damage data has been collected with 1489 defects to date.

The most significant damage observed following this event was at Wilcox Bridge on Four Mile Lane where the structure completely collapsed, with an estimated repair cost of approx. $3.5 million.

Wilcox Bridge, Four Mile Lane


Lionsville rd, Lionsville


Yamba Road, Palmers Channel

Other locations that will be submitted as part of the proposed Essential Public Asset Restoration Works (EPARW) for improved resilience include:

- Sandy Swamp Road
- Gorge Road causeways

Following the second flood event from March 2021 the below locations had been submitted for EPARW and have since been approved with an upper limit value of over $10 million for restoration:

- Six Mile Lane
- Patemans Road
- Talawudja Creek Bridge stream re-alignment
- Tallawudja Creek Road Culvert replacement
- Armidale Road, Hortons Creek
- McIntyres Lane

It is recognised that the above locations have historically been impacted by recurrent flooding and improvements are required to provide greater resilience to our assets and the community into the future. The full scope of works is not known at this stage however there is the potential for some co-contribution being required that is dependant on the level of enhancement being considered in each instance. Any works requiring co-contribution would be subject to future consideration by Council. For any additional restoration works the price may vary pending on fixed upper limit approval of EPARW with Resilience NSW.

Bridges

The following damage has been reported across the bridge asset network:

Bridge	Reported damage
Six Mile Lane Bridge	Approach road significantly damaged again
Tallawudjah Creek Bridge, Tallawudjah Creek Road	Approach road surface damaged again, significant scour adjacent to road formation
Browns Lane Bridge	Approach roads significantly damaged. Residents were isolated until emergency works could be done.
Cudlee Place Bridge	Approach roads significantly damaged. Residents were isolated until emergency works could be done.
Little Rocky Creek Bridge, Ewingar Road	Approach road surface significantly damaged
Frames Bridge, Punchbowl Rd	Approach road significantly damaged with major structural damage to piles
Clarence River Bridge, Lionsville road	Bridge span damaged with need to be removed and repaired for restoration
Cattle Ck, Ramornie Station road	Approach road formation scoured
Coutts Crossing Bridge #2, Armidale Road	Damage to concrete bridge decks

Maclean Levee

The second flood peaked about 60mm above the nominal height of the Maclean levee. Council's flood procedures manual suggests:

Sandbagging of the Maclean levee has not yet been attempted and it is considered to be an almost impossible task due to the fact that the levee is very flat.

However, with the assistance of numerous Maclean residents, emergency sandbagging was undertaken during the night of Tuesday 1st March which prevented the levee being overtopped. The initial row of sandbags placed on top of the levee was built up the following day with additional sandbags:

Following the second flood's peak, cracking was observed in several locations on the earthen section of the Maclean levee on Thursday 3rd March. Specialist Geotechnical advice was sought from JK Geotechnics (JKG), who recommended that strengthening works be undertaken on the inside of the levee in case there was a failure. Two sections of the levee were strengthened the same day as emergency work. A visual inspection of the Maclean levee was undertaken by JKG on Monday 7th March, which indicated the emergency works had provided appropriate support and that there were no immediate concerns with levee stability.

Sandbagging of levee

Crack observed on levee

JKG have recommended that a hydrographic survey be undertaken to determine whether there is any toe scour along the levee; the survey was scheduled to be undertaken in the last week of March but was postponed due to the third flood. Weekly visual inspection of the levee (with daily inspections during the third flood) have continued to be undertaken.

Marine Parade and Main Beach Yamba

The Yamba rainfall reached the "red alert" level for possible landslip at Marine Parade and Main Beach on Monday 28 February and with rainfall since the red alert will remain in place for the 90 day antecedent rainfall until at least Sunday 29 May. Ground movement occurred on the section of Marine Parade north of the Surf Club, and a significant scour occurred on Marine Parade. Specialist Geotechnical advice was sought from JKG and they advised that pedestrian access to Main Beach should be closed due to the high groundwater level recorded in monitoring bores. JKG staff inspected the site on Monday 7th March. Council staff are regularly liaising with JKG regarding Main Beach pedestrian access. Vehicular access to Main Beach is not available due to the scour on Marine Parade, and this is unlikely to be repaired for several months.

Movement on Marine Parade below Pacific Hotel

Scour on Marine Parade access to Main Beach

A scour above the beach to the north of the Surf Club exposed old asbestos material. This material cannot be removed until vehicular access to Main Beach is restored. Public access to this area has been restricted with plastic fencing and appropriate signage erected.

Sewer and Water Issues

The scour on Marine Parade caused the rising main from the Sewer Pump Station located next to the Surf Club to fail. A temporary rising main has been installed until permanent restoration works can be undertaken.

The significant rainfall has resulted in high turbidity in both Shannon Creek Dam and the Nymboida catchment. While turbidity was higher than the limit in Council's Drinking Water Management System, water was supplied by Coffs Harbour's Karangi dam. The community were successfully requested to limit water usage post the second flood until turbidity dropped to an acceptable level where extraction from the Nymboida could recommence. The supply of water from Coffs Harbour, coupled with reduced consumption avoided the need to extract high turbidity water, which would have required a boil water alert; however, if the turbidity had stayed high for a few more days it is likely a boil water alert would have been required.

During the third flood a mains break occurred at Iluka, which was isolated. Staff were able to be transported to Iluka by boat to undertake the repair.

Community Communication

The primary means of communication during the flood events was regular updates on Council's Facebook page, which enabled timely and accurate information to be conveyed to the community. During the second flood in the period 28Febriary to 31 March there were over 85,000 views and over 14,000 "likes". Comments on the Facebook page increased by nearly 800%, with people tagging others or leaving comments. More than 2,500 people have signed up to "follow" the Facebook page since the end of February.

Road closures were updated twice daily on the "Myroadinfo" website.

Flood Waste Clean-up – Residential and Business

The second March 2022 flood and storm event caused significant damaged to many properties in the Clarence Valley. The amount of waste generated from this event was on a scale unseen in recent years generating over 1500 tonnes of flood waste to date.

To assist impacted households and businesses Council commenced a kerbside flood waste collection on Monday 7th March 2022. During the initial clean-up there were up to five contractors working across the valley in flood affected areas. Many badly impacted areas have had multiple clean-ups with three or more passes. Residents were also able to take flood and storm damaged waste to Grafton Landfill and other Waste Transfer stations for free disposal.

Flood waste picked up by contractors from Ulmarra and upriver was taken directly to the Grafton Regional Landfill for disposal. Flood waste in the Maclean / Yamba region was taken to the Maclean waste transfer station to be bulked up and transported to the Grafton landfill. All CVC generated flood waste was disposed of at the Grafton Regional Landfill. Public works have also directed some flood impacted waste from the Lismore region to the Grafton Regional landfill including dead stock, asbestos, and general waste.

The third flood in late March 2022 has not generated as much waste but has still resulted in properties being affected and more flood waste cleanup. This flood also impacted the cleanup effort with heavy rain in the week leading up to the second event slowing cleanup works due to safety concerns and access issues.

As of the 4th April 2022 a total of 1515 tonnes of flood waste had been received at the Grafton Regional Landfill comprising the following:

Numbers of Self Haul Flood Waste Transactions	1700 (comprising approx. 800 at Maclean Transfer Station and 900 transactions at Grafton Landfill)
Estimated Residential Collections where contractors have removed flood waste	500-600 increasing as contractors continue to work
Total Tonnes Flood Waste Received at Grafton Landfill	1515 T (as at 4/4/22) increasing as cleanup continues

	Estimated Cost to Date	Comment
Grafton Landfill Flood Waste Disposal (EPA Waste Levy exempt)	$220,000	Actual to 4/4/22 and increasing as cleanup continues
Self Haul flood Waste brought to Maclean WTS for disposal	$45,000	Actual to date and increasing costs with 800 flood waste related transactions at Maclean Transfer Station
Bulk up and Transport flood waste from Maclean WTS to Grafton landfill	$20,000	Estimate
Contractors' pickup flood waste including Traffic Control	$300,000	Estimated – invoices still coming in and more properties requiring cleanup
Asbestos Contractors	$5000	estimated
Landfill Staff additional flood working costs	$10000	estimated
Total	Est **$600,000** to date and increasing	Increasing as cleanup continues

Learnings

Council's flood mitigation infrastructure worked as designed to ensure that tens of thousands of residents were not impacted by these floods; the rainfall which occurred concurrently with the second flood event far exceeded the design capacity of the system. Continued investment by Council, State and Federal Governments into the maintenance and enhancement of flood mitigation infrastructure is vital.

Operationally, every flood is unique and provides opportunities to identify areas for improvement including the flood manual. Several operational changes will be made the flood manual to incorporate lessons learned from managing the flood event.

BACKGROUND

February-March Flood events

Three flood events occurred during February/March 2022, with the second flood being the largest. The table below lists the peak flood heights recorded by the BoM gauges at Grafton, Ulmarra and Maclean.

	Levee	Flood 1			Flood 2			Flood 3		
	Height	Date	Peak	Class	Date	Peak	Class	Date	Peak	Class
Grafton	7.95m	22:15 – 25/02	4.37m	Moderate	01:00 – 01/03	7.66m	Major	08:10 – 31/03	5.62m	Moderate
Ulmarra	5.9m	01:45 – 26/02	3.37m	Minor	22:00 – 01/03	6.03m	Major	09:00 – 31/03	4.46m	Moderate
Maclean	3.3m	07:40 – 26/02	1.76m	Minor	23:30 – 01/03	3.36m	Major	12:00 – 31/03	2.27m	Moderate

The second flood in Maclean was the highest flood recorded since levee construction was completed in 1976. Preliminary analysis using Council's adopted design flood heights suggests the second flood was around a 6.6% Annual Exceedance Probability (AEP) in Grafton, around a 5% AEP in Ulmarra and Brushgrove and around a 2% AEP event in Maclean. The second flood was similar in magnitude to the March 2001 flood in Grafton but was significantly larger in downstream towns

Rainfall and Stormwater

Extreme rainfall was experienced concurrently with the second flood. Some examples of recorded rainfalls are

- 522mm at Yamba in 34 hours (between a 0.2 and 0.5% AEP event)
- 126mm of rain recorded at Gulmarrad in 3 hours (just below a 1% AEP event)
- 482mm in 144 hours in Grafton (just above a 1% AEP event).
- A rainfall record at Pilot Hill Yamba since records began in 1877
- Between 1 January to 11 April 2022 (1510.8mm) significantly exceeds any previously recorded rainfall in the first four months (previous highest was 1349.3mm in 1988).

The significant rainfall and resulting overland flow can be seen below. Very high ground water levels are still evident in many areas that is preventing water from filtrating through the underlying sandy soils. The figures below show the impact of rainfall in Iluka with ponded water observed in locations not seen before.

Elizabeth Street, Iluka

Iluka Road, Iluka

The extreme rainfall which occurred concurrently with a flood event resulted in the stormwater pumping capacity in both Grafton and Maclean being exceeded, with significant stormwater ponding occurring inside of the levee. With the exception of the pump at Greaves Street in Grafton and a pump located behind Mitre 10 in Maclean the permanent stormwater pumps in Grafton and Maclean worked as designed during the rainfall event.

An electrical failure occurred with the pump behind Mitre 10 and a portable pump was substituted at this location. The Greaves Street pumping issues are discussed further below. Staff are currently assessing additional permanent stormwater pumping capacity to reduce the reliance on portable pumps, and in particular, it is proposed that permanent stormwater pumps be considered for installation at:

- Ardent Street drain, South Grafton. This would address ponding in Skinner Street,
- Bacon Street Grafton – a pit is provided at this location but currently no pump
- River Street Maclean. Several drainage catchments in Maclean do not have permanent pumps, and portable pumps are currently required. A reconfiguration of some of the drainage systems and an additional permanent pump would reduce the reliance on portable pumps.
- Goddards Lane Maclean – a pump at this location (to supplement the Essex Drain pump) would allow earlier emptying of this catchment
- Ilarwill – pumps on Thompsons and Camp Creek drains would permit earlier reopening of Lawrence Road.

It is not feasible to provide pumping capacity for such extreme rainfall events; general Australian stormwater design practice is that stormwater systems be designed for between 5% and 10% events.

Greaves Street Pumping Station in Grafton

As part of the second Clarence River crossing TfNSW constructed a new stormwater pump station at Greaves Street, which includes a detention basin between the two bridges. The pump station pumps from the detention basin to the river. During the second flood event some movement of the new Clarence River bridge embankment occurred, which was attributed to pumping from the basin. TfNSW staff requested that pumping from the basin be minimised to reduce the risk of embankment failure, which resulted in significant ponding occurring in properties upstream of the basin. Council handed operation of the pump station to TfNSW for the event so that they could protect the bridge asset.

TfNSW and their construction contractor are currently investigating a permanent solution to this issue. Until the issue is resolved, the pump station operation levels have been set to minimise potential impact on the bridge.

Heber Street Pumping Station in South Grafton

As part of the second Clarence River crossing TfNSW made changes to the existing Heber Street pumping station in South Grafton. This station is considered to be undersized, and during the event ponding

prevented access to the Caltex and BP service stations and Bunnings. Council is liaising with TfNSW regarding possible upgrading of this pump station.

Pacific Motorway Impacts

During the second flood event the Pacific Motorway was closed at Maclean with ponding over both carriageways. Various claims have been made regarding the impact of the motorway on flood behaviour. Council has obtained a proposal from its flood modellers (WBM-BMT) to calibrate Council's flood model to the recent floods (as well as the March 2021 event).

Pacific Motorway at Ferry Park, afternoon Tues 01/03

Project Deferrals

Works are undertaken to maintain Council assets and undertake construction within budgets and timeframes established by Council. Departures from set programs and budgets are reported to Council as part of the works program reporting.

At the June 2021 ordinary meeting Council adopted the draft 2021/22 Operational Plan (Item 6a.21.028). The Operational Plan is a key document underpinning the Integrated Planning and Reporting Framework (IP&R). It is a one-year plan (reviewed annually) that outlines the detail of the Delivery Program and identifies the individual projects and activities that will be undertaken in a specific financial year.

The Capital Works Program at June 2021 was reported at $108.1M. There have been an increasing number of stimulus-based grants awarded to Council since June 2020 that have continued into 2021, many of which require the completion of further capital works. In consideration of this, the dollar value of the Capital Works Program has since grown to approximately $134.6M.

Importantly, in the preparation of draft 2022/23 Operational Plan staff have identified the need to defer (or defer in part) a number of projects to ensure the various grants and stimulus based funded projects are prioritised and comply with the individual funding agreements for completion. Further investigation is currently underway to reconcile the full impact of the floods on both our capital and maintenance works and an updated listing will be brought back to Council in May.

Whilst every endeavour is made to complete all works included in this program, ultimately the successful delivery of these works is dependant on a range of factors that can often extend beyond the direct control of staff or council. Staff have also had to reprioritise of works due to new grant funded commitments received throughout the year. In addition to the impact from natural disasters some other contributing factors include:

Covid-19 and Material Supply Issues
The effects of the coronavirus (COVID-19) continue to be felt on the world economy with global supply chains having wide-ranging impacts on many Australian companies. Long lead times are being experienced with some products and material supplies that would ordinally be available "off the shelf" now with waiting periods of 6 to 9 months. Due to the shortage of material supplies, the purchase costs have also increased. The delay in material supplies and increases in supply cost will in some instances adversely impact on project delivery timelines and project costs.

Light and Heavy Fleet Replacement 21/22

Long lead times for light and heavy plant has been an issue for plant replacement for some months. There are currently up to 12 months delays being experienced on some item of plant. A number of plant items due for replacement in 21/22 have been ordered though will not be receipted (or deferred) until 22/23 as a result of those delays

Deferred Projects (extract)

Table 1 (below) represents a list (extract only) of a number of key community projects where some level of project deferral value has already been identified. The extract demonstrates the challenges of managing a growing Capital Works Program within the current climate and sensitive external factors that will continue to impact on council's capacity to successfully deliver a program in full.

Further investigation is currently underway to finalise and reconcile the full impact of the floods on both our capital and maintenance works. Full details will be brought to Council in May.

Project	Revised Budget	Amount Spent to Date	Amount Deferred
School Zone Upgrade Program	2,568,893	57,150	2,492,902
Fixing Country Bridges Program	9,479,709	1,209,837	5,360,000
Clarence Way – Seal inc. Asbestos Gravel	2,800,000	189,321	2,000,000
Treelands Drive Community Hub	11,107,882	281,388	10,000,000
Maclean Community Precinct Upgrade	7,697,000	179,380	7,000,000
Grafton Netball Courts – Redevelopment	997,382	0	997,382
Ewingar RFS Brigade Facility	836,126	0	836,126
Ulmarra Riverside and Village Precinct	840,000	171,983	668,000
Corcoran Park Regeneration & Dog Park	982,000	75,530	850,000
Grafton Waterfront Structure Works	6,231,726	295,402	2,500,000
Brooms Head H/Park Septic System Upgrade	1,700,000	33,752	1,500,000
Calypso Holiday Park Redevelopment	6,400,000	0	6,400,000
Construct Cell 4C – Grafton Regional Landfill	3,200,000	56,118	3,000,000
Clarenza STP Sludge Lagoon Renewal	2,950,000	0	2,940,000
Scope/Design Rushforth Rd 32ML Repl. Reservoir	9,000,000	43,242	8,850,000
Total	**65,954,592**	**2,598,975**	**54,890,284**

COUNCIL IMPLICATIONS

Budget/Financial
At the November 2020 Ordinary meeting Council endorsed (Item 6a.20.047) to adopt the 'opt in methodology for the purposes of assessing Disaster Recovery Funding arrangements. This means that Council is required to contribute the first $259,000 of the claim with the rest being funded through the natural disaster claim.

As the final value of deferred projects is still being determined, the detailed list of deferred projects and associated budget variations will be brought back to Council via May Monthly Financial Report. This report will seek approval to update the 2021/22 Revised Budget and associated Financial Reserves as well as, the 2022/23 Draft Capital Works Program and Budget for approved deferred works.

Crown Land
It is important to acknowledge an increasing administrative burden being placed on council by the NSW Government (Crown Land) in responding to their requests for assistance on Crown Roads that have been impaired or extensively damaged as a result of the flood/storm impacts.

As a minimum, staff endeavour to provide emergency assistance to the community by way of restoring safe access to impacted residents, however, Crown Roads are not a Council asset and the additional resourcing burden placed on council in responding to requests from Crown Land on behalf of property owners create additional challenges in completing works within the allowable time limits when restoration works on Councils own road infrastructure assets should be prioritised.

Crown Roads are subject to meeting the same criteria within the NSW Essential Public Asset Restoration Guidelines as all other infrastructure assets, which in most cases the eligibility for claimable works cannot be met. As a result, there is significantly more administrative works required to ensure that Council is in a position to recover all costs for works undertaken.

Asset Management
To mitigate the risks associated with broad scale flooding it is critical that floodplain assets are maintained into perpetuity. Council continues to be challenged in maintaining floodplain assets and providing levels of service that are aligned with community expectations given the significant funding shortfall.

It is important to note that council have been actively lobbying the State Government and will continue to do so in seeking the required assistance with funding critical floodplain management assets. At the October 2021 ordinary meeting Council resolved (Resolution Item 6c.21.129) to:

Lobby the NSW government (again) to increase the "Floodplain Management program: Maintenance Grants" which have remained at the same dollar value for nearly 25 years and therefore have significantly reduced in value over time in real terms.

Prior to the recent flood events council again wrote (January 2022) to the Minister for Local Government (Hon Wendy Tuckerman) highlighting the need for the State Government to consider the 'real' value of the floodplain maintenance grants that are significantly less than actual (present day) maintenance costs, refer correspondence attached.

The Capital works are as detailed in the Delivery Plan and Operational Plan. In general terms the projects that have currently been flagged for deferral to 2022/23 represent less than 3% of our overall asset carrying value ($2.6b) and as such the deferral of these works is not considered to significantly increase the risk to asset renewal.

Policy and Regulation
N/A

Consultation
N/A

Legal and Risk Management
N/A

Climate Change
The recent Risk Frontiers Climate Change study estimated that average annual losses from flooding are expected to increase by 2 to 6% by 2050, and 2 to 12% by 2090.