

Northern Floodplain Risk Management Committee

Meeting Date: Wednesday, 06 March, 2024
Location: Jervis Bay Rooms, City Administrative Centre, Bridge Road, Nowra
Time: 4.00pm

Please note: Council's Code of Meeting Practice permits the electronic recording and broadcast of the proceedings of meetings of the Council which are open to the public. Your attendance at this meeting is taken as consent to the possibility that your image and/or voice may be recorded and broadcast to the public.

Agenda

1. **Meeting Conduct Statement**
2. **Acknowledgement of Country**
3. **Apologies**
4. **Confirmation of Minutes**
 - Northern Floodplain Risk Management Committee - 7 December 2022.....1
5. **Declaration of Interests**
6. **Introduction and Context to Presentations**

Council's Floodplain Management Team
7. **Presentations**
 - NFM24.1 Lower Shoalhaven River & St Georges Basin Flood Evacuation Capability Assessment - Water Technology
 - NFM24.2 Lower Shoalhaven River Floodplain Risk Management Study & Plan Presentation - Rhelm
8. **Reports**
 - NFM24.3 General Update on Flood Projects5
9. **General Business**

Membership

Clr Patricia White - Chairperson
All Councillors
CEO or nominee

Community representatives:-

John Gould
David Brawn
Mark Kielly
Plaxy Rowe
Leonard White
Phil Guy

Government Agency representatives:-

Local Aboriginal Land Council
NSW State Emergency Services
Department of Planning & Environment (DPE)
Other relevant Government Agency representatives

Quorum – Three (3) (provided that a minimum of one (1) Councillor as the Chair or Acting chair and two community representatives are present).

Note: Any non-voting Councillor in attendance at any Committee meeting may act as an alternate voting member in circumstances where achievement of a quorum is required, noting that this doesn't apply when quorum specifies the quorum to require community member attendance.

Purpose:

The principal objective of the North Floodplain Risk Management Committee is to assist Shoalhaven City Council in the development and implementation of one or more floodplain risk management plans for the north area of the Council. This will need to be in accordance with the NSW Floodplain Development Manual. The north area applies to the following catchments:

- Lower Shoalhaven River;
- Crookhaven River;
- Kangaroo River;
- Broughton Creek;
- Bomaderry Creek;
- Nowra and Browns Creek; and
- Lake Wollumboola.

Role:

1. To assist the Council in the development and implementation of a Flood Study, Floodplain Risk Management Study and Floodplain Risk Management Plan for the areas listed under 'Purpose' (see above);
2. To assist the Council monitoring and assessing the effectiveness of the management plans during and after their implementation;
3. To assist the Council by providing input into known flood behaviour as part of the Flood Study; and

4. Facilitate broader community consultation and participation in floodplain risk management through informing and liaising with member community groups.

MINUTES OF THE NORTHERN FLOODPLAIN RISK MANAGEMENT COMMITTEE

Meeting Date: Wednesday, 7 December 2022
Location: Jervis Bay Rooms, City Administrative Centre, Bridge Road, Nowra
Time: 4:03pm

The following members were present:

Clr Patricia White - Chairperson
Clr Mark Kitchener
Clr John Kotlash (Remotely)
Mr John Gould
Mr Phil Guy
Mr David Brawn (Remotely)

Others Present:

Mr Nathan Pomfret – Department of Planning and Environment (Remotely)
Ms Joanne Humphries – State Emergency Service (Remotely)
Mr Adam Carney – Local Commander – NSW SES Shoalhaven Cluster (Remotely) - joined meeting at 4:28pm – left meeting at 4:31pm
Mr Mark Stone – Lead Floodplain Management
Mr Alexander Aronsson – Floodplain & Stormwater Quality Engineer

Apologies / Leave of Absence

Apologies were received from Mark Kielly and Tracy Provest – State Emergency Service representatives, James Ruprai – Director City Development and Michael Roberts – Manager – Environmental Services.

Confirmation of the Minutes

RESOLVED (Phil Guy / John Gould)

That the Minutes of the Northern Floodplain Risk Management Committee held on Monday 21 March 2022 be confirmed.

CARRIED

Declarations of Interest

Nil.

REPORTS

NFM22.6 Notification of Council Resolution - Northern Floodplain Risk Management Committee Re-establishment

**HPERM Ref:
D22/483079**

Recommendation (Item to be determined under delegated authority)

That the Northern Floodplain Risk Management Committee receive the Notification of Council Resolution – Northern Floodplain Risk Management Committee Re-establishment report for information.

RESOLVED (Clr Kitchener / Clr White)

That the Northern Floodplain Risk Management Committee receive the Notification of Council Resolution – Northern Floodplain Risk Management Committee Re-establishment report for information.

CARRIED

Note: Mr Adam Carney – Local Commander – NSW SES Shoalhaven Cluster joined meeting at 4:28pm (remotely) and left meeting at 4:31pm.

NFM22.7 Lower Shoalhaven River Final Flood Study

**HPERM Ref:
D22/466873**

Mark Stone addressed the Committee and provided a presentation. The presentation will be forwarded to members via email.

Below is a summary of comments made:

- The Public Exhibition period was from 6 June – 8 July 2022. A summary of community engagement methods was provided.
- A summary of Community Engagement Statistics was provided. This included 419 visits to the Get Involved webpage and 54 surveys were completed.
- A summary of community feedback on the draft Lower Shoalhaven River Flood Study was provided along with details of the specific changes incorporated into the final Lower Shoalhaven River Flood Study.
- The majority of community feedback was associated with potential flood mitigation measures which will be considered as part of the Lower Shoalhaven River Floodplain Risk Management Study & Plan (FRMS&P).
- As such only minor amendments were required to the final Lower Shoalhaven River Flood Study based on community feedback received. A summary of changes made to the Probable Maximum Flood magnitude and Flood Planning Area mapping was provided.
- A summary of proposed changes to the Flood Planning Level Policy for the Lower Shoalhaven River Floodplain was discussed.
- Council is now seeking endorsement of the final Lower Shoalhaven River Flood Study and revised Flood Planning Level Policy for the Lower Shoalhaven River Floodplain.
- Council has applied for further DPE grant funding to complete the Lower Shoalhaven River FRMS&P. This funding request from DPE (2/3) contribution was successful. Council needs to provide a 1/3 funding contribution.
- A summary of flood mitigation measures identified from community feedback was provided. In addition to this a number of potential flood modification, emergency management, property modification and planning measures identified by Cardno were provided. These

measures will all be investigated further in the FRMS&P phase.

The Committee requested that the hydraulic model be extended to include the Coomonderry swamp catchment as part of the Lower Shoalhaven River FRMS&P.

It was discussed that the community needs to be advised that further opportunities for comments and feedback on potential flood mitigation measures will be available as part of the Lower Shoalhaven River FRMS&P phase.

The committee discussed the Entrance Management Plan for the Lower Shoalhaven River entrance at Shoalhaven Heads. It was noted that Council will review the existing Shoalhaven River Entrance Management Plan for Flood Mitigation (EMP) as a strategic management action derived from the future finalisation of the Lower Shoalhaven River CMP. The inclusion of a management action in the CMP detailing the review of the existing EMP allows Council to obtain funding to complete the EMP review. This EMP review will utilise information from the Lower Shoalhaven River Flood Study and will include a review of the existing trigger levels, amongst other factors. It was noted that an updated EMP (and associated NSW Crown Lands licence and Threatened Species licence) requires approval from the relevant State Government Agencies before it can be implemented. In the new year, Council will investigate alternative grant funding opportunities that may allow the existing EMP review to be funded prior to the completion of the Lower Shoalhaven CMP.

Recommendation

That the Committee:

1. Receive the final Lower Shoalhaven River Flood Study (Cardno, 2022) report and revised Flood Planning Level for the Lower Shoalhaven River Floodplain Policy for information; and
2. Endorse the adoption of the Lower Shoalhaven River Flood Study (Cardno, 2022) and revised Flood Planning Level for the Lower Shoalhaven River Floodplain Policy.

Recommendation (David Brawn / Cllr Kotlash)

That the Committee:

1. Receive the final Lower Shoalhaven River Flood Study (Cardno, 2022) report and revised Flood Planning Level for the Lower Shoalhaven River Floodplain Policy for information; and
2. Endorse the adoption of the Lower Shoalhaven River Flood Study (Cardno, 2022) and revised Flood Planning Level for the Lower Shoalhaven River Floodplain Policy.
3. Request the extension of the hydraulic model to include the Coomonderry swamp catchment in the Lower Shoalhaven River FRMS&P.
4. Make the community aware that there will be further opportunities available for community members to comment on flood mitigation options as part of the Lower Shoalhaven River FRMS&P.

NFM22.8 General Update on Flood Projects

**HPERM Ref:
D22/466874**

Mark Stone – Lead Floodplain Management addressed the Committee and provided a presentation. The presentation will be forwarded to members via email.

Below is a summary of comments made:

- With the review of the FRMC Terms of Reference, there has been an increase in the maximum number of local representatives from four to five, and an EOI to fill the positions will be undertaken in the New Year.

- Council was successful in receiving Federal Grant Funding through the Preparing Australian Communities – Local Stream Program. Technical briefs for these projects are being prepared. One of these projects is a Flood Evacuation Capability Assessment and Planning investigation which includes the Lower Shoalhaven River floodplain.
- A temporary full-time Floodplain Project Officer will be appointed to assist with the delivery of these grant funded flood investigations.
- Council has applied for grant funding through Resilience NSW for the Shoalhaven LGA Floor Level Survey for Flood Preparedness & Prevention Project which will include the Lower Shoalhaven River and Broughton Creek, and other catchments depending on available funds. The outcome of this grant funding request should be known in early 2023.
- The Lower Shoalhaven River Flood Forecasting Model is now complete and will be provided to the NSW SES.

Recommendation (Item to be determined under delegated authority)

The Committee receive the General Update on Flood Projects report for information.

RESOLVED (Clr Kotlash / John Gould)

The Committee receive the General Update on Flood Projects report for information.

CARRIED

GENERAL BUSINESS

NFM22.9 Additional Item - Member Induction Program

Recommendation (David Brawn / Phil Guy)

That Council investigate implementing an induction program for community members on the Floodplain Risk Management Committees.

There being no further business, the meeting concluded, the time being 5:56pm.

Clr Patricia White
CHAIRPERSON

NFM24.3 General Update on Flood Projects

HPERM Ref: D24/55502

Department: Environmental Services

Approver: James Ruprai, Director - City Development

Reason for Report

To provide the Northern Floodplain Risk Management Committee (FRMC) with an update on various flood related projects in the Northern FRMC region.

Recommendation (Item to be determined under delegated authority)

The Committee receive the General Update on Flood Projects report for information.

Options

1. The Committee receive the General Update on Flood Projects report for information.

Implications: Nil.

2. The Committee could choose to provide an alternative recommendation for consideration by Council.

Implications: Unknown.

Background

Lower Shoalhaven River and St Georges Basin Flood Evacuation Capability Assessment

Council has engaged a consultant, Water Technology, to complete this investigation.

The study will provide critical planning information for both Council and the NSW State Emergency Service (SES) to assist communities within the Lower Shoalhaven River and St Georges Basin floodplains to be safely evacuated during flood events. The study will also ensure future development is undertaken in areas in which roads have the capacity to safely evacuate residents at times of flood (in accordance with the Local Environmental Plan Flood Panning requirements). Furthermore, the outputs from this study will assist communities to prepare themselves ahead of a flood event to reduce their reliance on emergency services.

Water Technology will provide a presentation on this project. This will include a summary of the key objectives, project scope, deliverables, and key interfaces with the Lower Shoalhaven River Floodplain Risk Management Study & Plan (FRMS&P).

This project is fully funded by the Federal Government's Preparing Australian Communities – Local Stream Program and is expected to be completed in early 2025.

Lower Shoalhaven River Floodplain Risk Management Study and Plan

Following the completion of the *Lower Shoalhaven River Flood Study (2022)* and adoption in early 2023, Council has received grant funding from the NSW Department of Climate

Change, Energy, the Environment and Water (DCCEEW) (previously DPE) Floodplain Management Program to undertake the Lower Shoalhaven River FRMS&P.

During 2023, Council prepared the Technical Brief (in consultation with the NSW DCCEEW and NSW SES), tender documents, and procured a consultant to complete the Lower Shoalhaven River FRMS&P.

It is noted that a resolution was made during the Northern FRMC meeting on 7 December 2022 for Council staff to extend the hydraulic model to include the Coomonderry Swamp and provide further opportunities for community members to comment on flood mitigation options as part of the Lower Shoalhaven River FRMS&P (NFM22.7). The scope of the Lower Shoalhaven River FRMS&P includes the extension of the hydraulic model to include Coomonderry Swamp.

Council has engaged a consultant, Rhelm, to complete this investigation.

It is noted that Rhelm has extensive knowledge of the Lower Shoalhaven River floodplain via a number of previous flood investigations and the Lower Shoalhaven River Coastal Management Program (CMP) which will assist to integrate considerations between the Floodplain Management and Coastal Management Programs such as Shoalhaven River Entrance Management for example.

Rhelm will provide a presentation on this project. This will include a summary of the key objectives, project scope, deliverables, and key interfaces with the Lower Shoalhaven River and St Georges Basin Flood Evacuation Capability Assessment, Lower Shoalhaven River CMP, and Shoalhaven LGA Floor Level Survey for Flood Planning projects.

At the time of writing this report, Council was preparing a Get Involved webpage for the Lower Shoalhaven River FRMS&P, media release, and emails to notify all Community Consultative Bodies (CCBs) of the commencement of this study. This communication will notify the community that suggestions for additional mitigation options they would like to be considered as part of this investigation can be provided for consideration in this study. Council also welcomes further ideas from the Northern FRMC on additional mitigations options to be included for consideration.

As part of the *Lower Shoalhaven River Flood Study (2022)* community consultation phase, Council requested input regarding specific flood mitigation options to be considered as part of the upcoming FRMS&P. As a result, initial community consultation will not be undertaken as part of this study. As noted above, Council however welcomes feedback on any additional mitigation measures that the FRMC and community would like to be considered in this investigation.

A number of preliminary mitigation options were identified from community consultation and the *Lower Shoalhaven River Flood Study (2022)*. These measures are summarised below and will be investigated in this project.

- Flood Modification:
 - Review levees – upgrade, maintain, designated overflow from Lower Shoalhaven River through Terara.
 - Investigate potential upgrade / realignment of Abernathy’s Creek flood mitigation drain from railway line to Lower Shoalhaven River confluence.
 - Broughton Creek connectivity improvements to Lower Shoalhaven River.
 - Greenwell point levees/fill strategy/house raising.
 - Shoalhaven Heads fill strategy/house raising.
 - Hay Avenue/Jerry Bailey Road levees.

- Review triggers in Shoalhaven River Entrance Management Policy. The Entrance Management Policy is being updated as part of Lower Shoalhaven River Coastal Management Program.
- Cumulative impact assessment for designated development areas, considering fill up to the 2100 1% Annual Exceedance Probability (AEP) flood level.
- Options to improve flooding at Shoalhaven Heads from Coomonderry Swamp outflow to Lower Shoalhaven River.
- Investigate potential upgrade or capacity improvements to flood mitigation drain from Coomonderry Swamp to Lower Shoalhaven River.
- Comerong Island levees along south.
- Emergency Management:
 - Greenwell Point Road raising (possibly also Pyree Ln and Culburra Rd raising).
 - Raising of Terara Road to ensure that vehicles leaving Terara during a flood can reach high ground at Nowra.
 - Potential mitigation options identified from Lower Shoalhaven River and St Georges Basin Flood Evacuation Capability Assessment (FECA) investigation in which flood evacuation capacity deficiency is identified from the FECA. This could include road raising, local bridge/culverts upgrades, additional road network capacity, evacuation route raising, construction of flood free evacuation routes etc.
 - Safe refuge mounds. It is noted that viable stock refuge mounds are being investigated via a project managed by Local Land Services in collaboration with Council and Dairy NSW.
 - Flood Education to Improve Flood Awareness and Preparedness.
 - Potential benefits from Tallowa Dam operational strategies such as lowering the dam level during La Niña periods to introduce flood attenuation capacity.
- Planning and Property:
 - Voluntary house raising, house purchase or land swap.
 - Hay Avenue/Jerry Bailey Road house raising.
 - Shoalhaven Heads fill strategy/house raising.
 - Greenwell Point fill strategy/house raising.
 - Orient Point, Culburra Beach house raising.
 - Review flood planning levels for future development.
 - Strategic designated cumulative fill policy for future development.

The suitability of measures previously identified in the *Lower Shoalhaven River Floodplain Risk Management Study & Plan – Climate Change Assessment (WMAwater, 2011)*, *Riverview Road Floodplain Risk Management Plan (WMAwater, 2002)*, and *Terara Floodplain Risk Management Plan (WMAwater, 2002)* will be considered for further contemplation where they have not yet been implemented. These previous studies will be superseded by the Lower Shoalhaven River FRMS&P when completed.

Management actions being investigated as part of the Lower Shoalhaven River CMP will be reviewed and included in the Lower Shoalhaven River FRMS&P if there is a potential flood risk management benefit requiring further investigation.

The feasibility of potential mitigation measures, along with preliminary environmental and Aboriginal heritage due diligence will be completed for all potential options prior to further assessment in the FRMS&P.

This project is 2/3 funded by the DCCEEW Floodplain Management Program and is expected to be completed in late 2025.

Broughton Creek Flood Study

Arcadis has been engaged by Council to prepare an updated Broughton Creek Flood Study.

The objectives of this study are to improve understanding of flood behaviour and impacts, and better inform management of flood risk in the study area in consideration of the available information, and relevant standards and guidelines. It aims to provide a contemporary understanding of flood behaviour and consequences by considering local flood history, available flood data, and through the development of hydrologic and hydraulic models to replicate the catchment's response to rainfall.

A Flood Study (2008) and Floodplain Risk Management Study and Plan (2012) for Broughton Creek was previously completed by Council. However, recent significant infrastructure upgrades such as the as the Transport for NSW Berry Bypass project, including a diversion of Town Creek to Bundewallah Creek upstream of Berry, and land developments in the area has triggered the need to update the existing flood study to better reflect current catchment conditions and associated flood risk. The Broughton Creek floodplain between the railway line and confluence with the Shoalhaven River was investigated as part of the *Lower Shoalhaven River Flood Study (2022)* and will not be included in this study.

This project is being undertaken in accordance with the NSW Flood Prone Land Policy, the NSW Flood Risk Management Manual (2023) and in close collaboration with the NSW SES, the NSW DCCEEW, and other agencies and stakeholders as required.

Council has established a Get Involved Page for this project and initial community consultation (including an online survey) was undertaken from Monday 23 October to Sunday 19 November 2023. The objectives of this initial community consultation were to inform the community of the commencement of this study and to seek information from the community on historic flood events to assist in the development and calibration of flood models.

<https://getinvolved.shoalhaven.nsw.gov.au/broughton-creek-flood-study>

The following means were used to inform the community about the study: a letter was sent to some flood impacted property owners in the Broughton Creek catchment, nearby CCBs were notified, posts were disseminated via the Community Information Hubs and corflute signs were installed at key locations in the catchment.

A drop-in session was held on Thursday 9 November 2023 at the Berry School of Arts from 3:00pm to 6.30pm. This drop-in session was attended by Council staff, local NSW SES representatives, DCCEEW flood specialist and the consultants from Arcadis.

This project is now in the model development and calibration stage of the Flood Study.

Public exhibition and community consultation will be undertaken for the draft Broughton Creek Flood Study when this has been completed. The outcome from the draft Flood Study will be presented by Arcadis to the Northern FRMC for endorsement before the commencement of public exhibition and community consultation.

Shoalhaven LGA Floor Level Survey for Flood Planning

Council has received grant funding from the NSW Reconstruction Authority through the Disaster Risk Reduction Fund (DRRF) to undertake this project. The DRRF is jointly funded by the Federal and New South Wales governments.

The purpose of this project is to undertake a floor level survey of existing dwellings located on flood prone land within the Shoalhaven LGA to assist in reducing existing and future flood risk to the Shoalhaven community. Properties to be surveyed were identified using flood mapping from Council's previously adopted flood investigations.

This project will include floor level survey in the Lower Shoalhaven River, Kangaroo River, Broughton Creek and Currarong Creek catchments within the Northern FRMC area. The floor level survey for these catchments were all captured in 2023.

The outputs of the study, the surveyed floor levels, will be shared with the NSW SES to incorporate this information into their flood event emergency response procedures.

Council will utilise the floor level data to undertake flood damages assessments and assess the suitability of potential flood mitigation measures investigated in the Lower Shoalhaven River FRMS&P, including a review of existing trigger levels in the *Shoalhaven River Entrance Management Plan for Flood Mitigation (2006)* and update as required.

Council has created a project webpage and issued a media release prior to the project commencing.

<https://www.shoalhaven.nsw.gov.au/Projects-Engagement/Major-Projects-Works/Shoalhaven-LGA-Floor-Level-Survey-for-Flood-Planning>

Letters were sent to all landowners for which property access was required to undertake this dwelling floor level survey.

All remaining areas will be completed prior to the project completion in May 2024.

EOI for Vacant Community Representatives on Committee

It is noted that there is currently one (1) vacancy on the Northern FRMC, one (1) youth representative. As a result, Council has issued an expression of interest (EOI) to fill this vacancy.

As per the Terms of Reference, memberships for *Local Representatives* on the committee consists of:

"...five (5) local community representatives, one (1) youth representative between ages 16 and 30, and one (1) indigenous representative, which meet the following criteria:

- *A broad interest, knowledge and understanding of floodplain management and the areas within the committee's jurisdiction.*
- *A commitment to floodplain management in the nominated Council area; and*
- *Local resident or business person living or working in or near a flood prone area."*

More information can be found in the Committee's Terms of Reference, available on Council's website.

[Terms of Reference Northern / Central / Southern Floodplain Risk Management Committees](#)

This EOI will remain open until the remaining FRMC vacancy has been filled.

Induction Program for Local Representatives

During the Northern FRMC meeting held on 7 December 2022, it was requested that Council staff investigate the implementation of an induction program for local representatives on the committee. A resolution was later made during the Council meeting on 23 January 2023 for Council staff to pursue this request (MIN23.15).

Floodplain Risk Management (FRM) is a highly technical field consisting of a range of professional disciplines such as Floodplain Engineering, Hydraulics, Land Use Planning, Civil Engineering and Emergency Management. It can be, understandably so, challenging for community representatives to review comprehensive technical reports, such as a flood study, to provide feedback to the committee on these reports and to convey the content of the reports to the community.

To improve the effectiveness of the FRMCs and to assist community representatives with their work on the committee, Council's Floodplain Management Unit has worked on an Induction Program. However, considering the ongoing EOI to fill current FRMC vacancies, the Induction Program was delayed until after these vacancies have been filled. This Induction Program will be held in the next six (6) months and is expected to include an email to all FRMC members with links to helpful background videos, followed by a Q&A session held in person and MS Teams for ease of attendance by members.

Lower Shoalhaven River Flood Levee Repairs

Flood events in 2022 resulted in approximately \$4.1M in damage to flood levees in the Lower Shoalhaven River floodplain. Council has been successful in obtaining funding via NSW Government Natural Disaster Relief and Recovery Arrangements and planning has commenced to undertake repairs to these flood levees. The repair of these flood levees will be managed by Council's City Services directorate (flood mitigation structures asset custodian) with technical assistance from the Floodplain Management Unit. Refer project website below for further information.

<https://www.shoalhaven.nsw.gov.au/Projects-Engagement/Major-Projects-Works/Lower-Shoalhaven-River-Flood-Levee-Repairs>

The NSW Government has established the Emergency Response Fund (ERF) Flood Levee Maintenance & Repair Project following recent flooding. This project will provide funding to disaster declared LGA's for flood levee repair and betterment works. Council has requested funding through this program. Whilst there is no guarantee of receiving funding, Council is hopeful of obtaining funding towards repair and maintenance of the Riverview Road and Terara flood levees. To date, detailed surveys and engineering assessments have been completed for Council's urban levees eligible for funding through this program, with funding to be announced later this year.

Flood Mitigation Drains

In 2022, Council engaged Public Works to complete a visual inspection and audit of all flood mitigation drains in the Lower Shoalhaven River floodplain and this was completed in March 2023. Council's City Services directorate (flood mitigation structures asset custodian) will use this information to prioritise the ongoing maintenance of flood mitigation drains. It is noted that this flood mitigation drain audit did not include floodgates as these are inspected by Council's City Services directorate.

Flood Alert Network Audit, Maintenance and Upgrade

Annual audits have been completed for all rainfall gauges, water level gauges and repeater stations included in the Shoalhaven Flood Alert Network. Some maintenance actions are currently underway as a result of these audits.

Council is also undertaking a staged upgrade of all flood alert network gauges from ALERT1 to ALERT2 equipment. This is required to ensure the ongoing functionality and resilience of these critical assets.