



# **Disaster and Emergency Committee Meeting**

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Date of meeting: 27 September 2022  
Location: Council Chambers and by Audio-Visual Link  
Time: 6:30 p.m.

**BUSINESS PAPER**



**DISASTER AND EMERGENCY COMMITTEE**

**Meeting Date: 27 September 2022**

**AGENDA**

- **WELCOME**
- **APOLOGIES**
- **DECLARATION OF INTERESTS**
- **SECTION 1 - Confirmation of Minutes**
- **SECTION 2 - Reports for Determination**

**DISASTER AND EMERGENCY COMMITTEE**

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**DISASTER AND EMERGENCY COMMITTEE**

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# Disaster and Emergency Committee

## Section 1

Confirmation of minutes

**DISASTER AND EMERGENCY COMMITTEE**

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## **DISASTER AND EMERGENCY COMMITTEE**

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### **SECTION 1 - Confirmation of Minutes**

#### **ROC - Disaster and Emergency Committee Minutes - 19 May 2022 - (151940)**

Minutes of the Meeting of the Disaster and Emergency Committee held in the Council Chambers and by Audio-Visual link, on 19 May 2022, commencing at 6:31pm.

**Present:** Councillor Barry Calvert, Deputy Mayor, Hawkesbury City Council - Chairperson  
Councillor Shane Djuric, Hawkesbury City Council  
Councillor Amanda Kotlash, Hawkesbury City Council  
Councillor Mary Lyons-Buckett, Hawkesbury City Council  
Councillor Jill Reardon, Hawkesbury City Council  
Councillor Sarah Richards, Hawkesbury City Council  
Councillor Les Sheather, Hawkesbury City Council  
Councillor Paul Veigel, Hawkesbury City Council  
Councillor Danielle Wheeler, Hawkesbury City Council  
Councillor Nathan Zamprogno, Hawkesbury City Council

**Apologies:** Councillor Patrick Conolly, Mayor, Hawkesbury City Council  
Councillor Eddie Dogramaci, Hawkesbury City Council

**In Attendance:** Ms Karen Clogher, New South Wales Police Force  
Mr Kevin Jones, NSW State Emergency Service  
Mr Matthew Waldon, NSW Fire and Rescue  
Mr Michael Morris, NSW Fire and Rescue  
Mr Dean Betts, Resilience NSW  
Mr Bruno Monteleone, Transport for NSW  
Ms Elizabeth Richardson, Hawkesbury City Council  
Mr Laurie Mifsud, Hawkesbury City Council  
Mr Will Barton, Hawkesbury City Council  
Ms Linda Perrine, Hawkesbury City Council  
Ms Suzanne Stuart, Hawkesbury City Council  
Ms Meagan Ang, Hawkesbury City Council  
Ms Tracey Easterbrook, Hawkesbury City Council

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Member	31/3/2022	19/05/2022
Councillor Barry Calvert	✓	✓
Councillor Patrick Conolly	✓	A
Councillor Shane Djuric	✓	✓
Councillor Eddie Dogramaci	A	X
Councillor Amanda Kotlash	A	✓
Councillor Lyons-Buckett	✓	✓
Councillor Jill Reardon	✓	✓
Councillor Sarah Richards	✓	✓
Councillor Les Sheather	✓	✓
Councillor Paul Veigel	✓	✓
Councillor Danielle Wheeler	✓	✓
Councillor Nathan Zamprogno	✓	✓

In the absence of the Chairperson, Councillor Conolly, the General Manager, Elizabeth Richardson, called for nominations for the Chairperson for this meeting of the Disaster and Emergency Committee:

Councillor Calvert accepted and was declared to chair the meeting.

Apologies for absence were received from Councillors Patrick Conolly and Eddie Dogramaci.

RESOLVED on the motion of Councillor Sarah Richards, seconded by Councillor Jill Reardon that the apologies be accepted.

Councillor Zamprogno entered the meeting at 6:34pm.

Councillor Richards declared interests on the Confirmation of Minutes and Item 001.

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### CONFIRMATION OF MINUTES

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Councillor Richards declared a significant non-pecuniary conflict of interest in this matter due to a conflict with the federal election. She left the Meeting and did not take part in voting or discussion on the matter.

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RESOLVED on the motion of Councillor Reardon, seconded by Councillor Veigel that the Minutes of the Disaster and Emergency Committee held on the 31 March 2022, be confirmed.

**Item: 001**                      **DE - Emergency Planning Response May 2022 Flood - (151940, 95495)**

**Directorate:**                      Infrastructure Services

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Councillor Richards declared a significant non-pecuniary conflict of interest in this matter due to a conflict with the federal election. She left the Meeting and did not take part in voting or discussion on the matter.

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### OFFICER'S RECOMMENDATION:

That the Disaster and Emergency Committee notes the information in the report relating to Emergency Planning and Response

### COMMITTEE RECOMMENDATION

RESOLVED on the motion of Councillor Sheather, seconded by Councillor Reardon.

That the Disaster and Emergency Committee notes the information in the report relating to Emergency Planning and Response

**For the Motion:**                      Councillors Calvert, Djuric, Lyons-Buckett, Reardon, Richards, Sheather, Veigel, Wheeler and Zamprogno.

**Against the Motion:**                      Nil.

**Absent:**                                      Councillors Conolly, Dogramci and Richards.

**DISASTER AND EMERGENCY COMMITTEE**

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# Disaster and Emergency Committee

## Section 2

Reports for determination

**DISASTER AND EMERGENCY COMMITTEE**

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**Item: 001**                      **DE - Rural Fire Services - Grose Valley Wollemi Mitigation Scheme - (95495)**

**Previous Item:**              113, Ordinary (14 June 2022)

**Directorate:**                Infrastructure Services

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### PURPOSE OF THE REPORT:

The purpose of this report is to provide an briefing to the Disaster and Emergency Committee as directed by Council at its meeting held on 14 June 2022 on the Grose Valley Wollemi Mitigation Scheme.

### EXECUTIVE SUMMARY:

Council, at its meeting held on 14 June 2022, resolved, in part:

*"That Council:*

2.     *Request the Rural Fire Services provide a briefing at the next Disaster and Emergency Committee on the Grose Valley Wollemi Mitigation Scheme.*

### RECOMMENDATION:

That the Disaster and Emergency Committee:

1.     Receive the presentation from Rural Fire Services on the Grose Valley Wollemi Mitigation Scheme.
  2.     Identify matters for further action or resolution by Council.
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### ATTACHMENTS:

There are no supporting documents for this report.

oooO END OF REPORT Oooo

**DISASTER AND EMERGENCY COMMITTEE**

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**Item: 002**                      **DE - SES Australian Warning System - (95495)**

**Directorate:**                Infrastructure Services

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**PURPOSE OF THE REPORT:**

The purpose of this report is for the SES to provide a presentation on the SES Australian Warning System.

**RECOMMENDATION:**

That the Disaster and Emergency Committee:

1.     Receive the presentation from SES on the Australian Warning System.
  2.     Identify matters for further action or resolution by Council.
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**ATTACHMENTS:**

There are no supporting documents for this report.

**oooO END OF REPORT Oooo**



## DISASTER AND EMERGENCY COMMITTEE

Meeting Date: 27 September 2022

**Item: 003**                      **DE - Various Floodplain Management Matters - (95495)**

Previous Items:              113, Ordinary (14 June 2022)

**Directorate:**              Infrastructure Services

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### **PURPOSE OF THE REPORT:**

The purpose of this report is to respond to the referral of various floodplain management matters from Council to the Disaster and Emergency Committee.

### **EXECUTIVE SUMMARY:**

This report provides various updates to the Disaster and Emergency Committee on floodplain management matters as required by Council's resolution from the Ordinary Meeting on 14 June 2022.

### **RECOMMENDATION:**

That the Disaster and Emergency Committee consider the updates on various floodplain management matters, and provide advice to Council.

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### **BACKGROUND**

Council's Ordinary Meeting on 14 June 2022, considered the Minutes of the Disaster and Emergency Committee (19 May 2022), and included a number of matters to be referred to the Disaster and Emergency Committee, including:

- Cumulative Overland Flood Study
- Gauges at South Creek and Yarramundi
- Outstanding issues from the Floodplain Risk Management Committee
- Power Supply During Flooding
- Failure of the Three Towns Sewer
- Insurance Related Issues
- Waste Related Issues
- Evacuation Routes.

This report is responding to those various floodplain management related matters.

### **DISCUSSION**

#### **Cumulative Overland Flood Study**

As part of the work associated with implementing the Hawkesbury Nepean Floodplain Risk Management Strategy (Resilient Valley, Resilient Communities), Infrastructure NSW completed and released the Hawkesbury Nepean Regional Flood Study in 2019. That Study represents the most up to date information and data that is publicly available with respect to flooding on a regional basis within the Hawkesbury Nepean Valley. The Study can be viewed at the following link:

<https://flooddata.ses.nsw.gov.au/dataset/hnv-rfs-report>

Additionally, Infrastructure NSW had also commenced preparation of a 2D Flood Study of the Hawkesbury Nepean Valley. The release of this new 2D Model of the Hawkesbury Nepean Valley is

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now scheduled to occur in early 2023 so that the flood events post March 2021 are able to be included in the modelling.

### **Gauges at South Creek and Yarramundi:**

Council has previously resolved to make representations to relevant authorities with respect to river height gauges in South Creek, Yarramundi (existing gauge out of operation), and the Macdonald River.

Following these previous resolutions of Council, these representations were made of relevant authorities responsible for river height gauges in April 2020, with further follow up in November 2020. Whilst no formal response to those representations has been received to date, through Council's membership of the emergency management committee, it has been indicated that gauges are to be installed or upgraded in the following locations:

- The river height gauge at Yarramundi is to be upgraded as part of the BOMs program of works to meet required specifications allowing flood warnings and evacuation predictions to be calculated and information communicated to the public.
- The river height gauge at St Albans which covers the MacDonald River area will also be upgraded to meet required specifications allowing flood warnings and evacuation predictions to be calculated and information communicated to the public.
- There will be a new river height gauge installed at the Colo Bridge on the Putty Road. This gauge will be configured to the new specifications which will, with the above gauges, allow flood heights to form part of the evac information being sent out to the community.

Council has allocated funding to assist with the program of works through the OLG Grants from the recent flood events to ensure the works are undertaken sooner than later, including a 10-year servicing cost in the allocation to ensure the gauges long term operability.

### **Outstanding issues from the Floodplain Risk Management Committee:**

The principal outstanding issues from the Floodplain Risk Management Advisory Committee include:

- Richmond Bridge Duplication Project
- Power Supply West of the River, and Closure of Bridges
- Grant Applications Made Under the Office of Environment & Heritage Floodplain Management Program
- Inquiry into the Proposal to Raise the Warragamba Dam Wall
- Insights from Floodplain Management Australia National Conferences
- Flood Evacuation Requirements
- Implementation of Item 4 - Town Planning of the Hawkesbury Floodplain Risk Management Plan 2012
- Warragamba Dam Raising
- Western City District Plan - Flooding in the Hawkesbury-Nepean Valley
- Discussion on the feasibility of a 1:100 elevated flood evacuation road from Chapel Street Richmond to Hanna Match North Richmond
- Updated Hawkesbury-Nepean Flood Emergency Sub Plan
- Transport for NSW Regional Flood Evacuation
- Issues with Utilities West of the River in Flood Events
- Consideration of Morphological Conditions and Sediment Loading
- Manual Gauge Posts at Windsor Bridge Site.

A number of these matters are covered in this report.

**Power Supply During Flooding:**

*Power Supply West of the River*

Based on advice from the former Floodplain Risk Management Advisory Committee, Council had previously written to Endeavour Energy seeking clarification of the impacts to power supply during flood events, and in particular west of the Hawkesbury River.

Additionally, based on recommendations of the former Floodplain Risk Management Advisory Committee, Council had sought clarification regarding whether any areas of the Hawkesbury Local Government Area had access to power supply from the west of the Hawkesbury River (e.g. Mount Piper) and if so, which areas.

A presentation was provided by Endeavour Energy to the former Infrastructure Committee on 18 April 2018. A copy of that presentation - Electricity Infrastructure for the Hawkesbury, provided information of probable power supply impacts to certain suburbs in the Hawkesbury Local Government Area at various flood levels, as well as other information. A copy of that presentation is included as Attachment 1.

Council has adopted the Hawkesbury Net Zero Emissions and Water Efficiency Strategy which includes as one of the six key strategies:

1. A more resilient and renewable powered grid.

Amongst other actions in this regard, the Strategy includes collaboration and forming a partnership with Endeavour Energy to look at network opportunities including grid scale storage for solar PV.

A series of initial meetings were held with Endeavour Energy to start the process of exploring such partnership opportunities.

It should also be noted that based on advice from the former Floodplain Risk Management Advisory Committee that Council had applied for funding through the NSW State Governments Floodplain Management Grants Program for a series of grants, including:

- Secondary flooding impacts and resilience planning in Hawkesbury LGA.

The objectives of the proposed Project were to:

- Evaluate potential risks for interruption of services during flooding events
- Assess flooding exposure and risk at townships not directly affected by floodwater and develop heat maps
- Provide an integrated assessment of services continuity under flooding events and evaluate risk profiles due to service interruptions
- Undertake stakeholder consultation and engagement planning which includes service providers, the SES, Resilience NSW, DPIE and others
- Integrate with Council's Net Zero Emission Strategy in implementing service continuity through local resilience during flooding events
- Streamline the assessment of risk profiles and the performance of essential services, and optimising the resources and investments
- Identify opportunities for the maintenance of service continuity during flooding events under baseline conditions and projected scenarios
- Prioritise works for resilience planning based on risks and vulnerabilities, and communicating these to relevant service providers.

Note – It was considered that Council is in a better position to evaluate risks and communicate the issues to service providers to improve service resilience. This would allow Council to undertake an integrated assessment of secondary risks and work with other service providers.

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Council was advised that the application for grant funding was unsuccessful for the following reasons:

- Didn't align with the NSW Floodplain Management Program
- Core asset management responsibilities are for Council
- Core asset management responsibilities are for service providers (such as water, power etc.)
- Resilience NSW may be able to assist Council in addressing these issues.

Based on further discussion with the NSW Floodplain Management Grants team, it was decided not to pursue additional applications for grant funding in this respect as part of further rounds of funding given it was considered unlikely to be successful.

Recently, Endeavour Energy have made a number of investments in the grid to provide for additional resilience during flood events. Notably, the transmission line from Windsor across the river and feeding approximately 3,500 premises from Cattai to Wisemans Ferry and the MacDonald Valley, was raised in August to a level that would see the line remain live if there were to be a flood event of the same magnitude as the July flood, being 13.9m at the Windsor Gauge.

### **Failure of the Three Towns Sewer:**

During flood events in low lying areas where the Three Towns Sewer Scheme operates, the pressurized sewer system fails to operate either from power outages or storm water inundation. Council is not the relevant authority for this system, and Sydney Water is the responsible party who handle any issues associated with such outages.

The system is also affected by power blackouts as the storage capacity of the "pod" (storage tank) is only 900 litres and shuts down as the "pod" fills to capacity unless the owners of the properties have a generator in line for when power is cut to maintain a power supply.

Correspondence was forwarded to Sydney Water raising Council's concerns about future system failures.

As noted above, Council had applied for grant funding to consider the Secondary flooding impacts and resilience planning in Hawkesbury LGA which would have included assessment of issues such as this, but was unsuccessful.

In the most recent July flood event, at the request of Council, the LEOCON requested a liaison officer from Sydney Water to attend the Emergency Operations Centre which Sydney Water provided for the twice daily briefings. With this officer present, Council had greater success in its requests to support the Three Towns Sewer through the staging of a Sydney Water pump-out truck on the western side of the river.

### **Insurance Related Issues:**

Following increasing concerns with respect to rising insurance premiums across the Hawkesbury Nepean Valley, on 1 November 2018, the Insurance Council of Australia presented to the Floodplain Risk Management Advisory Committee, and the Heritage Advisory Committee. The presentation was on the subject of "Insurance of Properties Subject to Flooding – Heritage and Non Heritage" and was provided in the context of concerns from both committees that flood insurance was becoming unaffordable for Hawkesbury residents.

The key outcomes and topics discussed as part of that presentation included:

- Flood insurance has been in existence since 2007.
- Since 2007, flood insurance had been built into home and contents policies. Prior to 2007, 0% of policies included flood insurance. Currently, 94.5% of policies purchased in Australia have flood insurance included.

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- Flood insurance now a standard inclusion, with those who opt out being located well outside of floodplains, are located behind flood mitigation or who don't like the price.
- A large portion of the Hawkesbury market has chosen to opt out of flood insurance. This means the consumer opts out of all water peril risks (unless water goes through the roof the consumer is not covered). Any water that has been on the ground in that policy would be excluded if the consumer opts out of flood coverage.
- 68% of businesses in Lismore / Murwillumbah suffered flood damage from cyclone Debbie. A very small percentage were insured.
- The price of flood insurance is risk based. Whilst the Insurance Council has had a version of the Regional Flood Study since 2015, it is not used to 'price risk' in the Hawkesbury, which can be to the detriment of residents in this LGA.
- The Insurance Council has a flood information database on every property in Australia (1:20, 1:50, 1:100 and PMF). In many areas the extent of flooding is known, but not the depth which is a problem as insurers are very conservative.
- Insurance industry can use published flood study and GIS data behind it as evidence.
- Pre 2012 data for the Hawkesbury is patched together. Insurers have to balance the books and adjust by raising the price of insurance premiums.
- Encourage customers to shop around for better deals.
- If flooding occurs and causes floors only to be wet, allow for \$100,000, then up to 1 metre up the wall allow \$150,000 for home and contents.
- Prudential regulations require insurers to have capital set aside to cover costs.
- Insurance industry not using technical approach and has capped prices which is a big gamble as there is no guarantee that mitigation will be built.
- Jeopardy to re-insure and lack of data to reliably use.
- Climate change was not taken into account. Once climate change is taken into account, premiums will change as a result. Only insured for 12 months – assessed against the likelihood of what might happen in the next 12 months.
- It was asked what impact raising the Warragamba Dam wall would have on risk assessments. 16% reduction in technical flood price if use data from Regional Flood Study. Launceston and Roma 34-75% reduction on day of mitigation opening. Environmental concerns upstream.
- Need for better point of reference where location of risk (house) is located. A couple of insurers would use a certified floor level.
- If consumers are able to provide flood levels to insurers (proof from Council for example), it will be taken into account in pricing the risk.
- Insurance companies view heritage homes as posing a higher risk than new homes as they are not built to modern specifications. The only point insurance companies can go on is the year of construction. A number of insurers will not consider insuring heritage properties as they cannot accurately assess what the repair costs would be due to having to engage specialist trades people etc. Queensland has a system where old homes are retrofitted; they are stamped with a new date of construction. Rules regarding heritage vary significantly across Australia. Members of the Committee disagreed and stated that historic homes were made from more robust

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materials (than modern day homes) and many older buildings had survived several floods over the years.

- It was suggested that owners of heritage properties obtain the services of a broker (e.g. Lloyd's syndicate) who would take the property details to an underwriting agency who will then build a specific policy. It may be beneficial to both the heritage property owner and the insurer if a few owners got together to obtain quotes.
- Opportunities for government to lower stamp duty and ESL rates on insurance premiums.

It should also be noted that based on advice from the former Floodplain Risk Management Advisory Committee that Council had applied for funding through the NSW State Governments Floodplain Management Grants Program for a series of grants, including - Vulnerability Assessment of Properties in the Floodplain of Hawkesbury LGA for Resilience Planning.

The scope of that project would have included the evaluation of impacts of floodwater at properties within the floodplain of the Hawkesbury LGA for vulnerability assessment and risk management purposes. The proposed project included the assessment of between 20-50 properties (to be grouped in categories along with its reasonable spatial distribution) in the floodplain to determine their stability and structural integrity under flooding conditions from a range of recurrence intervals up to the Probable Maximum Flood event. The assessment was to be based on a number of factors (such as hydraulics, flooding hazards, GIS, structural, geotechnical, age, building materials, construction types and orientations etc.) to determine the potential exposure of failure risks at nominated buildings and anticipated damages (including annual average damage). The study outputs were proposed to be used in resilience planning and to develop an understanding of anticipated insurance premium of buildings (depending on the risk and vulnerability) in the floodplain.

Council was advised that the application for grant funding was, and based on further discussion with the NSW Floodplain Management Grants team, it was decided not to pursue additional applications for grant funding in this respect as part of further rounds of funding given it was considered unlikely to be successful.

### **Waste Related Issues:**

Council considered a report to its Ordinary Meeting on 13 September 2022 with respect to the Draft Waste and Resource Recovery Strategy. That report also highlighted the work/plans that had occurred with respect to waste management in times of natural disasters with a particular focus on service continuity during floods.

The report highlighted that Council is currently investigating an option to obtain EPA approval for a temporary transfer station to become operational during flood events, to be located at the former landfill site, 743 Putty Road, East Kurrajong.

During the 2020 flood event, a small amount of red bin waste was unloaded at the site, but the EPA will only approve this again if adequate controls are implemented for odour, litter, leachate, etc.

The report also outlined that Council has also reached agreements with other council and commercial disposal sites for the red bin waste in the event that Council's landfill is not available. These include Lithgow City Council, Central Coast Council, Cleanaway, and Remondis.

### **Evacuation Routes**

Council as far back as December 2018 had made representations to the NSW Government raising concerns regarding the physical road infrastructure suitability of evacuation routes to adequately perform in an evacuation capacity due to pavement strength and drainage issues. Further representations were made in 2019.

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The Resilient Valley, Resilient Communities Hawkesbury-Nepean Valley Flood Risk Management Strategy was published by the NSW Government in 2017.

The Strategy provided 9 key outcomes, one of which was to ensure that our road network, across State, Regional and Local roads, is adequate for evacuating our people, removing them from harm's way.

In support of this key outcome, local evacuation roads will be upgraded to support flood evacuation. Around 40 high priority local evacuation road upgrades were identified for investment to maintain access to major regional evacuation roads.

There are currently nine major regional evacuation routes identified for the evacuation of Hawkesbury residents during flood events, including:

- Pitt Town Route
- Windsor Road Route
- Hawkesbury Valley Way
- Richmond Road route
- The Northern Road Route
- Llandilo Road Route
- Londonderry Road Route
- Castlereagh Road Route
- Old Northern Road Route.

These major regional evacuation routes are a combination of local roads (including local roads within Hawkesbury, Blacktown, Hornsby and Penrith Local Government Areas), access roads through National Park, and state controlled roads.

Of primary concern for Council and the community is the Pitt Town Route and the issues experienced with this evacuation route during the March and July 2022 flood events.

The Pitt Town Route utilises a combination of the local road network and access roads through the Scheyville National Park. When not in use as an evacuation route, this local road network and access roads meets the service needs, function and capacity requirements. However, when used as an evacuation route, the function and capacity is increased significantly, at a time when the roads are at their weakest, and has proved to be substandard to say the least.

The increased use of this evacuation route has been a consequence of the increase in urban residential development within Pitt Town that was approved by the NSW State Government as a Part 3A approval for the Pitt Town development. To date there has been no significant State Government funding to improve the function and capacity of this evacuation route commensurate with the increased use of the route from the NSW Government approved Pitt Town development. Additionally, from the Community's perspective there is uncertainty about who is responsible for the operation and maintenance of this evacuation route, and put quite simply the Pitt Town community deserves a safe and reliable evacuation route to use when this community is most vulnerable and in need.

In terms of the other major regional evacuation routes, it should be noted that as devastating as the March 2022 (13.8 metres at Windsor) and July 2022 (13.93 metres at Windsor) flood events have been, they have still only represented either a 1:20 year flood or slightly over a 1:20 year flood event. The 1:100 year flood event at Windsor is 17.3 metres (over 3 metres higher) and the 1867 flood of record at 19.7 metres (almost 6 metres higher). As such the other major evacuation routes have not had the same pressures and been tested to the same degree as the Pitt Town Route.

Council and the community were recently provided an update from Transport for NSW on the Hawkesbury-Nepean Valley Flood Evacuation Road Resilience Program. The communications showed that the majority of the evacuation route improvements were to be undertaken within the

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Penrith Local Government Area with very few upgrades to local road infrastructure in the Hawkesbury. The update also indicated that commencement of any construction would not occur until late 2025.

Having now experienced five flood events since 2020 (including the two most significant events in March and July 2022), it is clear that a number of our evacuation routes, including that to the Pitt Town community, need urgent upgrades.

Repair works on the Pitt Town Evacuation Route are scheduled to commence in the last week of September, however these will only restore the most severely damaged sections of road to the condition that it was in prior to the flood events. These works will not deliver an improved evacuation route.

Early assessment by Council staff has indicated that a major safety upgrade to the Pitt Town evacuation route from Bootles Lane to Boundary Road could be delivered for approximately \$9 million. This would provide for widening to 8 metres, improved road alignments and two intersection upgrades to improve safety.

It is also noted that the Resilient Valley Resilient Communities Strategy was released in 2017, prior to the most recent five flood events, indeed the most recent lived experience of flooding prior to this was in February 1992. It is recommended that Council seek that the NSW Government review the recommendations of the Resilient Valley Resilient Communities Strategy in relation to flood evacuation routes now that the impacts and experiences of these events have been felt and observed.

It is further recommended that immediate funding be allocated towards providing safe and reliable evacuation routes from the Hawkesbury Local Government Area, particularly the Pitt Town Route.

Council resolved to make further representations to the NSW Government, including:

- Seeking funding for the immediate safety upgrades of the Pitt Town Evacuation Route;
- Advocating for an expedited delivery timetable for the current proposed improvements to existing flood evacuation routes in the Hawkesbury-Nepean Valley; and
- Requesting that, with the knowledge acquired from the five most recent flood events, a thorough review be undertaken of what additional upgrades to flood evacuation routes may be necessary.

These representations have been made, but to date no details of additional funding for evacuation route upgrades have been provided.

### **ATTACHMENTS:**

**AT - 1** Endeavour Energy Infrastructure Presentation.



**AT - 1 Endeavour Energy Electricity Infrastructure Presentation**

# Electricity Infrastructure for the Hawkesbury

.....  
Melissa Beer, Liaison Officer, Hawkesbury LEMC

Endeavour Energy  
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# 01

## Overview of Endeavour Energy

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## Endeavour Energy's Locations

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- Endeavour Energy's network franchise area spans 24,500 square kilometres and forms the organisation's platform into the National Electricity Market for energy and energy related products and services.
- The franchise includes some of Australia's fastest-growing residential and commercial areas, spread across Sydney's greater west, the Illawarra and Southern Highlands.
- KEY FACTS
  - Square Kms = 24,500
  - Employees = 2,760
  - Sales of electricity (GWh) = 17,440
  - Total Customer Connections = 853,358

# 02

Electrical  
Infrastructure for the  
Hawkesbury

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## **Electricity Supply Arrangements to the Hawkesbury LGA**

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- Hawkesbury Transmission Substation (Located on the corner of Ham St and Fairey Rd, South Windsor) Supplies Hawkesbury LGA and parts of the Hills, Penrith and Blacktown LGAs.
- Hawkesbury TS is supplied by 2 x 132kV lines from Vineyard Transgrid Substation located on Bandon Rd, Vineyard which cross South Creek.

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## Electricity Supply Arrangements to the Hawkesbury LGA

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- Hawkesbury TS then supplies the following Zone Substations:

1. North Richmond
2. East Richmond
3. Kurrajong
4. Glossodia
5. Riverstone
6. Cattai
7. Wisemans
8. Glenorie
9. Windsor
10. South Windsor

## Hawkesbury LGA – Customer Numbers

Zone Substation	Customer Numbers
North Richmond	3,500
East Richmond	5,300
Kurrajong	3,800
Glossodia	4,000
Riverstone	3,500
Cattai	2,900
Wisemans	1,200
Glenorie	1,300
Windsor	4,300
South Windsor	8,000

# 03

## Flood Response For the Hawkesbury

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## Flood Response Plan

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- In flood prone areas, High Voltage and Low Voltage isolations will vary according to accessibility to parts of the network and to river heights (including Colo and MacDonald Rivers)
- Upon confirmation of an imminent flood, work parties will be set up on both sides of the river, observing water levels and on standby ready to commence isolations as water levels dictate.
- Restoration will largely be dependent on the extent of damage to the network. Assessments will need to be carried out.
- In the meantime generators may be supplied to Evacuation Centres and other areas as determined in accordance with other Government agencies – e.g. Health



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## Flood Response Facts

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- In a major flood exceeding 14.5 metres AHD or Dam Failure, supply then could be lost for significant periods of time.
  - Flexibility, with regards to Portable Substations (up to zone substation category) and availability of generators will minimise recovery times.
  - A large proportion of the area to the west of the river will not be affected by flood but will be interrupted due to transmission network damaged.
  - > 14.5m AHD - days to weeks in some areas (mainly dependent on transmission damage)
  - >15.5 m AHD - major loss of transmission networks ( weeks to months)
  - The network infrastructure is designed for a 1 in 100 year flood level. The extent of damage, largely caused by trees in water ways are a major contributor to infrastructure damage. Soil erosion around poles is another.
  - The 3 most recent major floods were in 1978, 1988 and 1990 (Hawkesbury area). These were around the 14 metre mark.
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## DISASTER AND EMERGENCY COMMITTEE

Meeting Date: 27 September 2022

### HAWKESBURY RIVER – WATER LEVELS AT WINDSOR BRIDGE

Water Level (AHD)	Location	Impact	Zone Substation
3 – 4 Metres	Wilberforce, North Richmond, Windsor: Areas around Gorricks Lane, Freemans Reach Road, Wilberforce Road, Pitt Town Bottoms Road, Charles and Livingston Streets	Isolations commence on low lying river areas. Initially to irrigation pumps only	Windsor
4 – 6 Metres	Wilberforce, North Richmond, Windsor: Failey Road, Mulgrave Road, Cuppitts Lane;	Irrigation pumps, some street lighting.	Windsor, South Windsor and Cattai
6 – 8 Metres	McGraths Hill, Maroota, Wisemans, Windsor, Agnes Banks, North Richmond, Wilberforce, Vineyard, Maraylya, Oakville, Sackville, Leets Vale, St Albans, South Windsor	Checking access to assets – road closures	Riverstone, Cattai, Wisemans, Windsor, North Richmond, South Windsor

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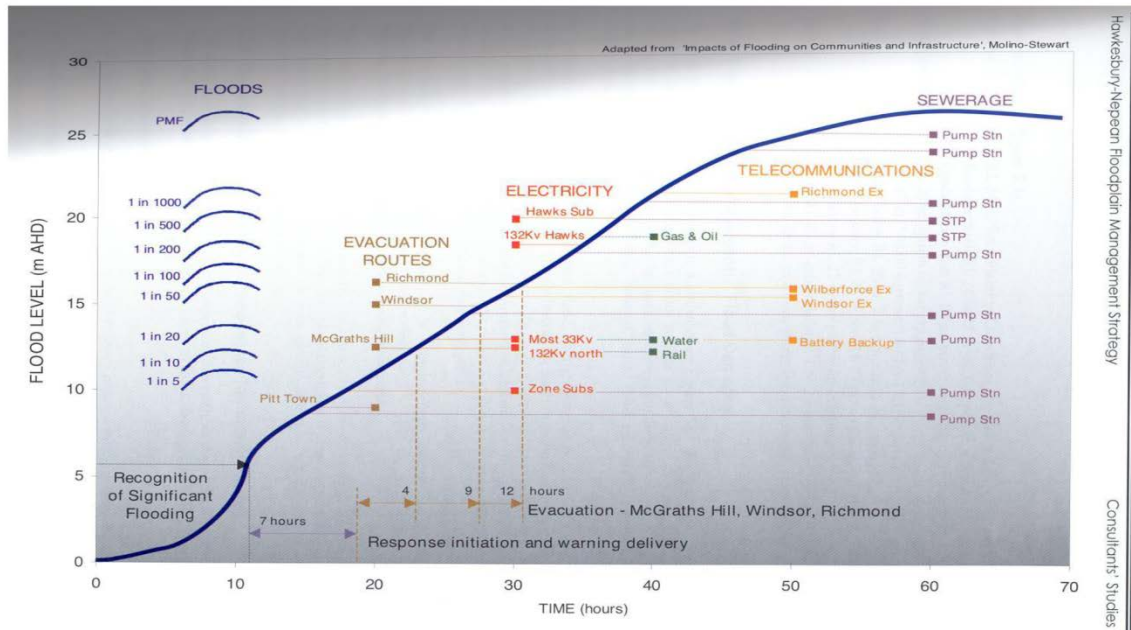
**DISASTER AND EMERGENCY COMMITTEE****Meeting Date: 27 September 2022****HAWKESBURY RIVER – WATER LEVELS AT WINDSOR BRIDGE**

Water Level (AHD)	Location	Impact	Zone Substation
8 – 10 Metres	Windsor, Londonderry, Cornwallis, McGraths Hill, Maraylya, Pitt Town, South Windsor, Mulgrave, Sackville, Ebenezer, Wilberforce, Freemans Reach	<ul style="list-style-type: none"><li>• High and Low Voltage Distribution Isolations commence.</li><li>• Continue checking road access to assets and monitoring water levels</li></ul>	Windsor, South Windsor, East Richmond, Cattai, Glossodia
10 – 13 Metres	Various Locations around the Hawkesbury	<ul style="list-style-type: none"><li>• Preparations begin for transmission mains isolations</li></ul>	Potentially All out of Hawkesbury Transmission Substation
13 – 16 Metres	McGraths Hill, Maroota, Wisemans, Windsor, Agnes Banks, Clarendon, Londonderry, Berkshire Park, Richmond, Shanes Park, North Richmond, Wilberforce, Vineyard, Pitt Town, Maraylya, Oakville, Cattai, Sackville, Leets Vale, Wisemans Ferry, St Albans, South Windsor	<ul style="list-style-type: none"><li>• Load transferrals commence where possible</li><li>• Transmission feeders are isolated</li><li>• Continue checking road access to assets and monitoring water levels</li></ul>	Kurrajong, North and East Richmond, Cattai and Wisemans. South Creek Rise terminates supply to all of Hawkesbury, Parts of Hills, Blacktown and Penrith LGAs

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## Flood Level Impact on Services in the Hawkesbury





## End of Presentation Impacts – Ebenezer, 1990



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## Impacts – Windsor 1990



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# Disaster and Emergency Committee Meeting

## End of Business Paper

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